



Unique Entity Identifiers and the Global Legal Entity Identifier (LEI): A Potential Cornerstone for Transparency of Federal Spending Data and the DATA Act

Collaboration & Transformation (C&T) Shared Interest Group (SIG)
Financial Management Committee

DATA Act – Transparency in Federal Financials Project

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SYNOPSIS

The global Legal Entity Identifier (LEI) is gaining momentum in its adoption across a number of industries both domestically and globally. This new unique entity identifier is a non-proprietary data element that has the capability to provide financial industry stakeholders with a further transparent view into legal entities and financial transactions by revealing the interconnectedness of entities at the granular transactional level. The practical applications of a new unique entity identifier such as the global LEI extend beyond just the financial industry and could further the transparency of Digital Accountability and Transparency Act of 2014 (DATA Act, P.L. 113-101) related data. This document explores the currently available unique identifiers used with DATA Act related data, the key attributes needed for a unique entity identifier and system, an overview of the global LEI, the oversight and governance structures in place for unique entity identifiers to reduce improper payments, fraud, waste, and abuse, as well as the benefits of using a new unique entity identifier for DATA Act related data. This document also explores the key challenges, costs, and other implementation considerations associated with entities migrating to the global LEI that would need to be considered for federal agency systems and business processes.

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Collaboration & Transformation SIG Financial Management Committee

DATA Act – Transparency in Federal Financials Project

The C&T SIG sought input from the Department of the Treasury and the Office of Management & Budget (OMB) to follow the progress of the Digital Accountability and Transparency Act of 2014 (DATA Act, [P.L. 113-101](#)) from the pilot phase through practical/production implementation, providing useful information for industry and government managers to consider as they assess their readiness and develop their strategies to meet the new requirements.

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Executive Summary

The global Legal Entity Identifier (LEI) is gaining momentum in its adoption across a number of industries both domestically and globally. This new unique entity identifier can support more effective risk management for the financial industry and markets at both a macro and micro level, but continues to encounter challenges in its implementation. The global LEI is a new non-proprietary data element that has the capability to provide financial industry regulators and participants with a further transparent view into legal entities and financial transactions by revealing the interconnectedness of these entities at the granular transactional level. The practical applications of a new unique entity identifier such as the global LEI extend beyond just the financial industry and could further the transparency of Digital Accountability and Transparency Act of 2014 (DATA Act, [P.L. 113-101](#)) related data. [1]

The subsequent sections in this document explore currently available unique identifiers used with DATA Act related data, discuss the key attributes needed for a unique entity identifier and system used to support the transparency of DATA Act related data, and provide an overview of the global LEI. In addition, this document discusses the oversight and governance structures in place for unique entity identifiers to reduce improper payments, fraud, waste, and abuse, as well as discusses the benefits of using a new unique entity identifier such as the global LEI. This document also explores the key challenges, costs, and other implementation considerations associated with entities migrating to the global LEI that would need to be considered for federal agency systems and business processes. Such benefits and challenges include the need for it to be used without restrictions, support the derivation of robust data relationships, for it to uniquely, distinctly, and universally identify entities on an international level, and for it to be flexible, scalable, and portable. These topics are explored through the following questions:

- What primary unique identifiers are currently used with DATA Act related data and how are these unique identifiers used?
- What key attributes does a unique entity identifier need in order to support transparency of DATA Act related data?
- What is a global LEI, what are key benefits and attributes, and where is it used?
- What oversight and governance structures are needed to prevent and/or mitigate the use of frivolous, non-compliant, and/or fraudulent unique entity identifiers with DATA Act related data?
- How could data transparency stakeholders benefit from a new unique entity identifier such as the global LEI for DATA Act related data?
- What key challenges and implementation considerations could exist for federal agencies and other stakeholders looking to transition to a new unique entity identifier such as the global LEI for DATA Act related data?

What Primary Unique Identifiers Are Currently Used with DATA Act Related Data and How Are These Unique Identifiers Used?

DATA Act data is any federal financial data as defined by the DATA Act as well as Office of Management & Budget (OMB) and Department of the Treasury (Treasury) guidance that is associated with the federal spending lifecycle and includes federal award transactions such as contracts, grants, and subawards. [1] The DATA Act provides the opportunity for a transparent view into programmatic activity and the purpose of federal spending, as well as the opportunity for data consumers to identify the associated unique entity in an accurate and consistent manner. The value of this identification not only allows a data consumer to see where the federal dollars are being spent and which entity is receiving the dollars, but more importantly, serves as the cornerstone to abstract actionable information through new data relationships.

There are currently a number of unique identifiers that are being used with DATA Act related data. The following table provides a brief description of example identifiers:

Unique Identifier	Description
Tax Identification Number (TIN)	A Taxpayer Identification Number (TIN) is a unique identifier used by the Internal Revenue Service (IRS) as part of tax law administration processes. A TIN can be issued by the Social Security Administration (SSA) or by the IRS. The SSA issues a TIN in the form of a Social Security number (SSN); all other forms of TINs are issued by the IRS. [2] The IRS-issued TINs include unique identifiers such as the Employer Identification Number (EIN), Individual Taxpayer Identification Number (ITIN), and Social Security Number (SSN). This identifier is associated with a number of federal financial data processes including System for Award Management (SAM) registration and Treasury payment disbursement, as well as taxes, obligations, refunds, federal obligations, and payments. Each entity has to complete an appropriate IRS form with associated identification information to be assigned a TIN, except for a SSN, which is obtained from SSA. Foreign entities are also assigned a temporary identifier. Under the Foreign Account Transaction Act (FATCA) , a foreign financial institution may register with the IRS to obtain a Global Intermediary Identification Number (GIIN). [3]
Dun and Bradstreet (D&B) Data Universal Numbering System (D-U-N-S® Number)	The D&B Data Universal Numbering System (D-U-N-S® Number) uniquely identifies, validates, and links to more than 225 million businesses globally. The D&B D-U-N-S® Number is a nine-digit unique identifier value that utilizes a non-indicative numbering sequence. D-U-N-S® Numbers are

Unique Identifier	Description
	<p>assigned at the lowest organizational level. [4] Presently the D-U-N-S® Number serves as the primary unique entity identifier used with federal spending data under the Federal Funding Accountability and Transparency Act of 2006 (FFATA, P.L. 109-282) and is reported on USASpending.gov. [5], [6] Both D-U-N-S®, D-U-N-S® Plus 4, and Parent D-U-N-S® Number values permit identification of the primary awardee, parent organization of the awardee (if present), and subawardee (if present). D-U-N-S® Numbers are also used by entities when registering with the General Services Administration (GSA) SAM. A D-U-N-S® Number is proprietary and has usage restrictions from D&B. [7]</p>
<p>Commercial And Government Entity (CAGE)</p>	<p>For entities operating on U.S. soil, a CAGE Code is required for registration in SAM for contract awards. The code is used throughout the federal government in many financial, procurement, and transparency systems. The code enables the identification of an entity at a specific location through standardized approaches. It can also be used for a facility clearance and pre-award survey. The Department of Defense’s Defense Logistics Agency (DLA) assigns CAGE Codes based on the U.S. CAGE System. [8] Companies doing or wishing to do business with the federal government may obtain a CAGE Code. The CAGE Code is a five-position code that uses non-significant positions. The format of the CAGE Code is as follows: the first and fifth positions are numeric, and the second, third, and fourth characters are alpha/numeric excluding alpha letters “I” and “O.” [9]</p>
<p>NATO Commercial and Government Entity (NCAGE)</p>	<p>The NCAGE is similar to the CAGE Code, although it applies to entities that are not located on U.S. soil. These entities register and are assigned an NCAGE Code from the National Codification Bureau associated with the entity’s location. National Codification Bureaus are part of the North Atlantic Treaty Organization (NATO). NCAGE Codes are administered within the framework of the NATO Codification System (NCS). [9]</p>
<p>Business Identifier Code (BIC) and International Bank Account Number (IBAN)</p>	<p>The BIC is a universal identifier code used for the international identification of financial and non-financial institutions in order to support the automated processing of information associated with financial services. The BIC represents the</p>

Unique Identifier	Description
	<p>International Organization for Standardization (ISO) standard 9362:2014 and is typically used for routing business transactions and identifying business entities. Used with the BIC, the IBAN is based on the ISO 13616 standard and identifies the specific account associated with the payment transaction. The Society for Worldwide Interbank Financial Telecommunication (SWIFT) serves as the registration authority and administers both BICs and IBANs. [10], [11], [12] BICs in combination with the IBAN are used for international payments, could be associated with the entity receiving a payment from the federal government, and as such, could be associated with DATA Act related outlays.</p>

The table below captures example key attributes of unique identifiers currently used with DATA Act related data:

Key Attributes of Unique Identifiers Currently Used with DATA Act Related Data					
Key Attribute	TIN [2]	D-U-N-S® Number [4], [13]	CAGE [8], [9]	NCAGE [9]	BIC and IBAN [11], [12]
Uniquely and distinctly identifies an entity	Yes	Yes	Yes	Yes	Yes
Non-proprietary Restrictions on use of the unique identifier and/or associated data Uses open standards and supports open access	No	No	No	No	Yes
	Yes [15]	Yes [7]	Yes [9], [14]	Yes [9], [14]	No [11], [16]
	No	No [7]	No [9]	No [9]	Yes [11], [16]
Registration and/or maintenance charge	No	No	No	No	No [17]

Key Attributes of Unique Identifiers Currently Used with DATA Act Related Data					
Key Attribute	TIN [2]	D-U-N-S® Number [4], [13]	CAGE [8], [9]	NCAGE [9]	BIC and IBAN [11], [12]
Utilized in existing federal government financial, grants, and procurement systems containing DATA Act data	Yes	Yes	Yes	Yes	Yes
Administered by an independent, international body	No	No	No	Yes	Yes
Available for use domestically within the U.S.	Yes	Yes	Yes	No	Yes
Available for use internationally	Yes (For GIIN only) [3]	Yes	No	Yes	Yes
Portable among regions on a global level	Yes (For GIIN only) [3]	Yes	Yes	Yes	Yes
Identifiable by location	Yes (Only for SSNs issued before June 25, 2011) [18]	Yes	Yes	Yes	Yes
Can serve as a consistent universal international standard for legal entity identification	No	Yes	No	Yes [8]	Yes [Through U.S. Commodity Futures]

Key Attributes of Unique Identifiers Currently Used with DATA Act Related Data					
Key Attribute	TIN [2]	D-U-N-S® Number [4], [13]	CAGE [8], [9]	NCAGE [9]	BIC and IBAN [11], [12]
					Trading Commission (CFTC) Interim Compliant Identifier links] [19]
Persistent in its association with the identifying entity	Yes	Yes	Yes	Yes	Yes
Flexible schema permitting scalable growth	Yes	Yes	Yes	Yes	Yes
Entity information embedded within the unique identifier value	No	No	No	No	No
Traceable and secure with system controls to support the integrity and quality of the identifier data	Yes	Yes	Yes	Yes	Yes
System supports an ultimate parent unique identifier and legal business name	No	Yes	Yes	Yes	No
Supports the derivation of entity and data relationships on a global level	Yes (For GIIN only) [3]	Yes	No	Yes	Yes

Key Attributes of Unique Identifiers Currently Used with DATA Act Related Data					
Key Attribute	TIN [2]	D-U-N-S® Number [4], [13]	CAGE [8], [9]	NCAGE [9]	BIC and IBAN [11], [12]
Available for use with natural persons (e.g., sole proprietors who are natural persons)	Yes	Yes	Yes [20]	Yes [20]	Yes (For IBAN)

What Key Attributes Does a Unique Entity Identifier Need in Order to Support Transparency of DATA Act Related Data?

The federal government’s award management processes are one of the most significant purchasing, spending, infrastructural, and operational set of activities and requirements on the planet. In order to facilitate even the most basic elements of spending, knowing whom you are buying from requires a robust and sophisticated global process. There are many unique entity identifier options available to serve as a cornerstone to make federal government spending more transparent, including internal government systems, commercial solutions, and open source solutions.

Identifying the key attributes of a unique entity identifier will be paramount in the federal government’s effort of considering and determining which unique entity identifiers could support making DATA Act related data fully transparent. Such key attributes are captured in the [Key Attributes of Unique Identifiers Currently Used with DATA Act Related Data](#) table described above. A number of these attributes were based on desired LEI characteristics captured within the *Department of Treasury Office of Financial Research’s (OFR) Statement on Legal Entity Identification for Financial Contracts, Statement of policy with request for comment*. This policy statement includes characteristics of a LEI that would deem the LEI acceptable for use with data submitted to OFR, and can serve as a point of reference for a discussion regarding LEIs for DATA Act related data. [21]

All of the attributes denoted with a value of “Yes” in the [Key Attributes of Unique Identifiers Currently Used with DATA Act Related Data](#) table above are key attributes that a unique entity identifier ideally needs in order to support and foster transparency of DATA Act related data, except for the following:

- **Restrictions on use of the unique identifier and/or associated data** – the ideal unique entity identifier for data transparency should not have restrictions on the use of its value/code and associated registered data. For DATA Act related data to be truly open and transparent, restrictions and limitations should not be present even if they apply to only a subset of data consumers (e.g., only restricted for commercial reuse and redistribution). A truly open unique entity identifier and system that

supports transparent DATA Act related data means that the identifier and all associated data is free from restrictions, is license free, and is open for use by all users, indefinitely.

- **Registration and/or maintenance charge** – ideally there should not be a charge for an entity to obtain and/or maintain their LEI. However, a funding model such as a registration and/or maintenance charge would be needed in order to sustain a unique identifier system where the registrant pays the fees associated with the long-term maintenance of their identifier.
- **Entity information embedded within the unique identifier value** – the power of a unique entity identifier resides in its ability to support the creation of dynamic data relationships on a global level. Embedding information and relying upon this embedded information to communicate intrinsic meaning and be relied upon for the purposes of identifying data relationships, minimizes the efficacy of the unique entity identifier. Open and transparent procedures used for the generation of a unique entity identifier can mitigate the presence of embedded entity information within identifier values.

The Importance of Supporting the Derivation of Data Relationships

There are a number of unique identifiers available today that can be associated with a single entity and contain many of the attributes needed for DATA Act related data, although most of these identifiers are either more jurisdictionally oriented such as the TIN, or proprietary such as the D-U-N-S® Number or CAGE Code. The greatest value is an attribute through which entity relationships can be derived easily on a global scale in our ever-more globally-connected world. Knowing only entity relationships in the U.S. equates to only knowing part of the story.

For example, what relationships do entities and people operating those entities have with entities in other countries? How much federal government spending is being transferred to “sister companies” in other countries through shell companies in the U.S.? What relationships do those non-U.S. companies have with countries that may be contrary to the interests of the U.S.? These are all questions that could be answered with an effective open access means of explicitly and consistently identifying entities and deriving entity relationships that cannot be fully answered with unique identifiers currently used with DATA Act related data. A new unique identifier such as the global LEI, which has reliable and enforced quality controls and is non-proprietary, could potentially permit more robust data relationships to be derived through open data abstractions as compared to the unique identifiers available today.

Relationships between and among legal entities is a broad and often constantly changing arena, much like the relationships among individuals. Rather than attempting to “embed” relationships within a unique entity identifier value, delineating relationships as an incremental and separate standardized abstraction(s) provides a more scalable and agile approach to articulating and managing the broad range of entity relationships.

Similar to individuals, relationships among legal entities may be more effectively articulated in a separate venue of standardized relationships rather than within the unique entity identifier description. Using relationships among individuals as an example, abstractions for relationships may include family orientations (e.g., parent, child, stepparent, aunt, uncle, etc.), location orientations (e.g., physical and virtual addresses), social orientations (e.g., friends, teachers, mentors, etc.), and others. Just as an individual understands that their SSN identifies them in a unique manner, they also understand that their SSN does not describe them or their relationships with others in any meaningful manner. Any unique entity identifier is similarly positioned as a method of uniquely identifying the entity, while leaving the identification of unique relationships to other methods of standardized abstractions.

An important facet in the derivation of relationships is data quality. An identifier operated in a system with minimal controls on data quality, or that are mostly self-managed, would not meet the level of quality needed to provide accurate and meaningful entity identification. Any organization with the intent to circumvent detection could easily do so with the lack of data quality controls. An organization could simply go online and request as many identifiers as they wish to maximize the obfuscation of the real entity identity. A lot of effort is expended today in fraud detection algorithms to circumvent the obfuscation inherent in today's poor unique entity identification system. To mitigate these control risks, a key attribute of a unique entity identifier is that it should easily derive relationships between entities with a quality control process that continually verifies the quality of the data through different mechanisms including annual self-reporting, the force of law in compliance, external auditing, open verification, and reporting by citizen and watchdog groups.

Understanding an entity in its environment and its relationships to other entities to ensure that the integrity of the financial process is preserved and the quality of the DATA Act is maintained is also critical. Entity and relationship abstractions are two separate and distinct concepts that can be independently articulated and managed to ensure the integrity of their respective attributes. In much the same way that an individual (e.g., SSN) may occupy both parent and child roles in a family tree hierarchy and those relationships may be deprecated and/or supplemented in a divorce and remarriage scenario, similar scenarios occur with respect to legal entities and standardized relationships provide abstractions that enable explicit and agile derivation of relationships among and between entities.

The Importance of Persistence

It is also critical that a unique identifier associated with a unique entity persists throughout the lifecycle of the entity to ensure the integrity of the process and the financial transactions associated with them. The ability to preserve an entity's DATA Act related transactional history (e.g., payments received or awards and grants obtained from federal government agencies) throughout an entity's life ensures that their eligibility status can be correctly determined, which in turn, reduces the risk of improper payments, fraud, waste, and abuse.

The persistence of a unique identifier is perhaps its most important attribute, and even more so when considering a unique identifier system for "entities," as opposed to, say, natural persons. In the case of a person, a person is born, they receive their SSN, they remain that

person for the entirety of their life through marriages, births, divorces, financial growth, asset purchases, asset losses, and finally, death. However, with a business, elements of its business could be spun off into new entities, some divisions of the business could be eliminated, some could be merged through acquisition, others could declare bankruptcy, and ultimately the original business could be acquired by another entity. In this case, numerous new legal entities have been created, some have become the assets of other entities, others have disappeared entirely, and ultimately the remaining entity and its assets are consumed by another entity. It would be nearly impossible to account for this kind of entropy without the persistence of the unique identifier at the lowest level of granularity available, where it is maintained rigorously over time to account for each change.

The persistence to the underlying legal entity and the assets that it represents (i.e., of the unique identifier or identifiers that are subsequently created) is paramount in tracking the movement of the legal structures. The unique entity identifier can be used to capture and preserve all historical financial status, debts, obligations, non-compliance, prior benefits received, improper payments, derogatory actions taken, fraud committed, or exhaustion of benefits awarded to an entity over its life. An analysis and playback capability should exist with all financial transactions matched to the entity to conduct business intelligence, historical, trend, pattern, and other analysis to ensure integrity and transparency of the financial management process. This attribute of persistence, along with a data architecture structured to capture data at appropriate times, is needed in order to support the transparency of DATA Act related data throughout time and foster robust analytics for this data.

In addition, the ability to associate a unique identifier with an entity irrespective of how they change associated entity attributes is paramount to preserving the integrity of the financial management processes and payments made. While an entity may change its name, address, small business status, reconstitute its partners or shareholders or owners, change its type of business, or other critical attributes, it is important to be able to identify it as the same entity for all of its financial transactions throughout time. This consistent identification ensures the financial integrity of all payments being made because it is understood that these payments are going to the same entity. This also preserves the entity's financial eligibility by enabling the identification of prior payments and outstanding obligations associated with the entity.

It is also important to understand the hierarchy of the entity for complex enterprises in terms of ownership, shareholding, or partnership, so that the entity persists and these relationships cannot be obfuscated and used to abuse the financial payment process and/or their eligibility. This way, an entity cannot morph or adapt into a different structure and create a complex entity structure where the relationships are not transparent and thus their financial eligibility could be abused and their history wiped-out. A unique entity identifier for DATA Act data also needs to be created from a system where the parent and subsidiary entities and their ownership type is transparent and traceable and there are system controls in place to ensure the integrity and quality of the identifier data. This quality of traceability will help mitigate fraud by ensuring offsetting transactions are not used to reduce an entity's financial obligations, the entity does not manipulate the system to become eligible for additional benefits, and the entity does not obfuscate its payment history.

The Benefits of Non-proprietary Unique Entity Identifiers

Non-proprietary global unique entity identifiers provide a range of benefits that are not available in the current proprietary and jurisdictionally oriented entity identifiers. A non-proprietary global unique entity identifier removes the barriers of entry for data consumers, regardless of their type (e.g., government, commercial, non-profit, citizen, etc.) to access, analyze, collaborate, reuse, or redistribute data as needed. Example benefits of non-proprietary unique entity identifiers include the following:

- **Quality of a unique entity identifier** – jurisdictional and agency specific entity identifiers are useful when describing entities within the jurisdiction or supervised by a single agency and may be less effective for entities operating outside of these domains. A non-proprietary unique entity identifier such as the global LEI provides a single and timely issued definition across all sectors, geographies, agencies, and entities of all sizes. [22], [23] Quality enhancements can be realized by improved validation and analytical capabilities that under an open model are more distributed and thereby redundant to those available from commercial vendors with proprietary quality and analytical assessments. The collaboration enabled by open standards improves quality in the same manner that a wiki page is more timely and accurate than a commercial encyclopedia. Quality is also enhanced by the expanded “reuse” among a broader range of participants uninhibited by the license restrictions of commercially available identifiers, which thereby enables more individuals and organizations to assess quality and identify potential errors in a timelier manner.
- **Ability to reuse and redistribute identifier and associated data** – proprietary entity identifiers commonly restrict the use of entity identifiers outside of their licensed user base (e.g., D&B does not permit the commercial reuse and redistribution of D&B data, which includes their D-U-N-S® Number) or have overall restrictions of data without the license option. This inhibits certain reuse by other parties, supply chain partners, agencies, and other data consumers who are not subject to the proprietary license agreement and minimizes the ability to have transparent data that is openly accessible. A truly open unique entity identifier and system that supports transparent DATA Act related data means that the identifier and all associated data is free from restrictions, is license free, and is open for use by all users, indefinitely. An internationally standardized unique entity identifier that is non-proprietary and provides such an open standard is freely available and is thereby reusable by all parties. In addition, an open standard, non-proprietary identifier promotes open collaboration on relevant system and process enhancements and requirements.
- **Enabling collaborative processes** – An open global unique entity identifier such as the global LEI is reusable and thereby enables sharing and collaboration of entity

descriptions across agencies, organizations, taxpayer consumers, and other data consumers. Such collaborative processes may be beneficial to enhance processes related to:

- Inter/intra-agency transaction analysis and inter/intra-agency account reconciliations,
 - Sector and industry entity descriptions,
 - Risk-oriented relationship analysis for contracts, grants, loans, and other federal financial assistance,
 - Independence and related party assessments,
 - Monitoring of compliance requirements across entities, and
 - Analytical assessments via social analytical processes across market, agency, taxpayer, and other segments.
- **Speed, accuracy, and free of intellectual property constraints** - an open global unique entity identifier improves the speed and accuracy of analysis activities and the aggregation of data for risk assessments, easing reconciliation activities across agencies. When a unique entity identifier and/or its system have proprietary components that prevent direct access to associated data without a license, the analysis process is stifled. Non-proprietary identifiers are by their very definition “non-proprietary,” and as such, are free and open for use, analysis, reuse, and redistribution, regardless of the user. Having an identifier free of intellectual property constraints enables more users to have rapid, direct access to aggregated data sets, which in turn indirectly yields more abundant analysis, speedier results, and better support for the decision-making process.

The current federal government audit report includes a material weakness directly related to the inability to timely and accurately reconcile and account for intragovernmental activities. [24] The application of a common entity identifier used across all relevant parties that is free from license restrictions, and the standardization of ledger-level data as envisioned by the DATA Act, provides highly structured transactional level information useful in driving significant enhancements to further automate account reconciliation processes and controls, both between and within agencies. Despite the fact that intellectual property could be present within non-proprietary unique entity identifier related records (e.g., the global LEI’s BusinessRegisterEntityID field could contain intellectual property, which could include restrictions on the redistribution of the value in this particular field), a non-proprietary identifier such as the global LEI could improve the speed of gaining access to DATA Act related data. In turn, this would support the rapid derivation of dynamic and robust data relationships across data sets. [25]

What is a Global LEI, What Are Key Attributes and Benefits, and Where Is It Used?

The global LEI was established in order to have a unique entity identifier that can be utilized across various regions and markets. The global LEI is a non-proprietary, 20-digit reference code that permits the unique identification of legally distinct entities. [22] The need for the global LEI originated out of the 2008 financial crises where the financial industry and regulators could not accurately, transparently, and rapidly identify organizations and their entity components in order to assess and mitigate market risk. [26] Identifying the need for a new global unique entity identifier, the Financial Stability Board (FSB) established the Regulatory Oversight Committee (ROC) in November 2012 to establish and oversee the Global LEI System (GLEIS) and Global LEI Foundation (GLEIF). [27]

The ROC is comprised of over 60 public sector authorities and is responsible for governance and oversight activities. [28] Once fully operational, the GLEIF, which is the ROC’s operations organization, will operate the Central Operating Unit (COU) and is responsible for applying ROC standards and protocols in a uniform manner for the GLEIS and its federated Local Operation Units (LOU). [27], [28] On May 30, 2012, the ISO published the financial services LEI data standard ([ISO 17442:2012](#)) which serves as the basis for the global LEI. [22], [29]

The global LEI and the GLEIS meet public and private sector requirements and are administered and operated through a federated model of LOUs. This unique entity identifier is built off of the premise of “uniqueness” and “exclusivity” where the LEI can only be assigned once to an entity, persists with the entity, and is portable amongst regions. [22] LOUs utilize these key principles of uniqueness and exclusivity in tandem with the framework provided by the ROC and GLEIF to validate and issue global LEIs to legal entities under interim standards. As part of this framework, LOUs issue LEIs based on the published ISO 17442:2012 standard and utilize the [GLEIS High Level Principles](#), including the [LEI Common Data Format](#), to publish registered entities information. Data published with these interim standardized data formats includes the 20-digit LEI, legal name and entity information, registration information, and other reference data. Given that these data standards and forms are supervised by resolutions until the GLIEF takes control, LOUs are technically considered pre-LOUs that are issuing pre-LEIs. Pre-LOUs are charged with aligning any proprietary formats they have created to the common data standards. [25], [28], [30], [31]

LOUs utilize the following numbering scheme for creating and issuing global LEIs, which is based on the ISO 17442:2012 published standard: [22]

Characters	Scheme Segment Description
1-4	The issuing LOU’s unique prefix
5-6	Zeros (reserved)
7-18	Portion of code with entity-specific information

19-20	Error preventative check digits that follow ISO/IEC 7064 (MOD 97-10) standards
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Key Attributes of Unique Identifiers Cross-referenced with Global LEI Attributes

The global LEI is supported by robust standards and systems to ensure the accurate creation and assignment of unique identifiers that increase traceability of events by entity at the detailed financial transaction level. The table below captures key attributes of the global LEI in the context of the attributes discussed previously for unique identifiers currently used with DATA Act related data:

Key Attributes of Unique Identifiers Cross-referenced with Global LEI Attributes	
Key Attribute	Global LEI
Uniquely and distinctly identifies an entity	Yes [22]
Non-proprietary	Yes [23], [30]
Restrictions on use of the unique identifier and/or associated data	No (Except for “BusinessRegisterEntityID” if restricted from redistribution) [25]
Uses open standards and supports open access	Yes [23]
Registration and/or maintenance charge	Yes (Registration and maintenance fees) [32]
Utilized in existing federal government financial, grants, and procurement systems containing DATA Act data	No [5]
Administered by an independent, international body	Yes [23]
Available for use domestically within the U.S.	Yes [23]
Available for use internationally	Yes [23]
Portable among regions on a global level	Yes [23]

Key Attributes of Unique Identifiers Cross-referenced with Global LEI Attributes	
Key Attribute	Global LEI
Identifiable by location	Yes [33]
Can serve as a consistent universal international standard for legal entity identification	Yes [22]
Persistent in its association with the identifying entity	Yes [25]
Flexible schema permitting scalable growth	Yes [34]
Entity information embedded within the unique identifier value	Yes [22]
Traceable and secure with system controls to support the integrity and quality of the identifier data	Yes [25]
System supports an ultimate parent unique identifier and legal business name	No [27] (A recommendation from the FSB to establish an ultimate parent data element)
Supports the derivation of entity and data relationships on a global level	Yes [23]
Available for use with natural persons (e.g., sole proprietors who are natural persons)	No [22]

Key Benefits of the Global LEI for DATA Act Related Data

The key attributes of the global LEI captured above correspond to a number of key benefits associated with the global LEI. These attributes and benefits correlate with many of the attributes that are currently associated with unique identifiers (e.g., the D-U-N-S® Number) used with DATA Act data, as well as characteristics desirable of a LEI as defined by within the *Department of Treasury OFR’s Statement on Legal Entity Identification for Financial Contracts, Statement of policy with request for comment*. [21] The following list of key benefits associated with the global LEI, coupled with the associated attributes described above, positions the global LEI as a unique entity identifier that could serve as a potential future cornerstone for transparency of federal government spending data and the DATA Act:

- The open, non-proprietary nature of the global LEI permits published data to be used by data consumers (e.g., public-sector, private-sector, non-profits, academia, news media, and citizens). [25] This openness supports data transparency by minimizing the limitations associated with reusing current unique identifiers associated with federal spending data present on USASpending.gov.
- The international nature and quality of the global LEI and system permits its assignment as a single definition to legal entities across all sectors and geographies on a global scale. [22] The global LEI's attributes of persistence and portability also enable the assigned unique entity identifier to exist consistently throughout time, even if the entity changes locations. [23], [25] These attributes serve as controls to support the data quality of the global LEI and system, which in turn maximizes the ability for data consumers to generate trustworthy data relationships with this identifier.
- The global LEI and GLEIS is administered by an independent, international body, which promotes the collaboration of standards on a global scale and minimizes proprietary and corporate influences and restrictions.
- The global LEI can support effective risk management and federal agency procurement actions and program delivery by enabling the accurate identification of entities providing goods or services. [23]
- The global LEI can support federal agency compliance with the Improper Payments Elimination and Recovery Act (IPERA) of 2010 (P.L. 111-204) and "[Do Not Pay](#)" [implementations](#), by enabling agencies and disbursing officials to accurately identify and determine the unique legal entity types of federal payments. [35], [36] The use of the global LEI would also support ongoing IPERA monitoring requirements by enabling new data relationships to be abstracted and identified from DATA Act data.
- Federal agency compliance with [Subtitle D - Federal Information Technology Acquisition Reform \(P.L. 113-291\)](#) and capital budget planning can be made more efficient and accurate by enabling chief information officers to rapidly and accurately identify entities providing IT products and services. [37]
- The global LEI could map to the working "Awardee/Recipient Unique Identifier" federal spending data element. [25]
- The global LEI's "LegalName" could map to the working "Awardee/Recipient Legal Business Name" federal spending data element. [25]

Current Uses of the Global LEIs

Currently, the global LEI is used for identifying over 330,000 unique legal entities from 189 countries. [38] Within the European Union, the global LEI has been adopted by the European Securities and Market Authority (ESMA) and the European Insurance and Occupational

Pensions Authority (EIOPA) to support securities and insurance regulation activities respectively. [39], [40] Within the United States, the CFTC and the National Association of Insurance Commissioners (NAIC) have adopted the LEI to support the regulation of swap transactions and insurance investments respectively. [32], [41] In addition, the U.S. Securities and Exchange Commission (SEC) adopted new rules for security-based swaps where security-based swap counterparties have to identify themselves in their transactional data reporting with the use of unique entity identifiers obtained through the GLEIS. [42] The SEC also added the LEI to their Document and Entity Information (DEI) Taxonomy as an optional description in their Taxonomies 2014-Draft release notes. [43] The U.S. Federal Reserve Board (FRB) has also proposed the use of the LEI on regulatory forms, and as described earlier, the OFR's *Statement on Legal Entity Identification for Financial Contracts, Statement of policy with request for comment*, proposed that a LEI should be established for identifying legal parties to financial contracts. [21], [44] The benefits and attributes of the global LEI and its current usage in the financial sector provide tangible constructs that can be applied to DATA Act related data, supporting the identification of legal entities associated with federal government spending, and providing the capability of abstracting new data relationships. [22]

What Oversight and Governance Structures Are Needed to Prevent and/or Mitigate the Use of Frivolous, Non-Compliant, and/or Fraudulent Unique Entity Identifiers with DATA Act Related Data?

Oversight and governance is foundational to the efficacy of any unique identifier system. However, it does not just mean that the system has rules, or that the rules are followed correctly each and every time. In order for an oversight and governance model to exist, the administering entity must ensure that data is:

- Treated appropriately based on its origin (i.e., self-requested data is treated differently than independently sourced or reported data),
- Validated and thoroughly treated to prevent incorrect data from entering the database,
- Standardized using information policies that are globally consistent and universal,
- Rigorously tested by independent third-parties to determine accuracy,
- Manually reviewed to ensure accuracy and intended downstream impacts for entities utilizing the identifier and associated data,
- Continuously monitored for changes to the foundational data as well as standards under which it was collected, and
- Improved by a long-term vision that takes into account the developing global infrastructure and use case information.

Oversight and governance structures are also needed in order to support the key attribute of persistence for unique identifiers. Unique identifiers for all entities that receive payments from federal government spending, and in turn generate DATA Act related data, will need to

provide the important capability of preserving an entity's financial and compliance history, eligibility, financial status, and historical payments throughout time. The unique identifier and supporting system will also need to be able to preserve its relationship with any prior cases of improper payments or fraud that could tie to any future financial transactions. Without key attributes such as persistence, unique entity identifiers are susceptible to fraud, waste, and abuse.

The ability to trace and form data relationships to associate any entity with its parent or child entities is also a key attribute needed by a unique identifier to prevent fraud. Such attributes as traceability and ability to form data relationships provides the data consumer with the capability to understand a complex conglomerate of entities, their interrelationships, and how they may collude or form various structures to minimize their payment obligations, as well as maximize their benefits, financial payments, or rewards. An entity using a unique entity identifier that is universal on a global level and persists to preserve the entire financial history, despite an evolving entity where components are changing continuously to "game" the system, will find it difficult to hide transactions. Such a system will reduce opportunities for improper payments, fraud, waste, and abuse.

The following examples below illustrate how improper payments and/or fraud, waste, and abuse can be mitigated with institutionalizing a unique entity identifier that preserves and persists within the financial transactional history associated with that entity on a global level:

- 1. Medicare and Medicaid claims:** the Centers for Medicare & Medicaid Services (CMS) can track, validate, analyze, or approve Medicare or Medicaid claims for all its participants to significantly reduce the billions of dollars in improper payments. [45] Being able to uniquely track each participant and provider entity throughout their financial history would enable CMS to more effectively validate the claim payments to providers, identify fraudulent claims, and perform other pattern analysis. [46]
- 2. Unemployment Insurance:** The Department of Labor and states can track all claims for unemployment compensation by state and across states for each unique claimant, evaluating claims and reducing improper payments, fraud, waste, and abuse. [47]
- 3. Supplemental Nutrition Assistance Program (SNAP):** the Food and Nutrition Service program within the U.S. Department of Agriculture (USDA) would be able to better track benefits awarded to unique recipients and the vendors who accept the claimed benefits. [48] A unique entity identifier can be used to track the benefits claims history and transactions to significantly reduce fraud, waste, and abuse. [49]
- 4. Loans or grants:** the Department of Education can track and determine a potential recipient's financial and federal grants eligibility based on prior financial history, education loans, payments made, and outstanding debt for the entity throughout time. [50]

5. **Crop insurance premium determination and loss payment:** the USDA can track a producer's (e.g., farmer) historical crop yield to determine insurability, level of coverage, premiums, and payout of losses. [51]
6. **National Flood Insurance Program eligibility and claims:** the Federal Emergency Management Agency can determine an entity's historical flood insurance eligibility and payments in order to determine insurability, level of coverage, premiums, and payout losses. [52]
7. **Acquisition-related improper payments, fraud, waste, and abuse:** federal government agencies can assess an entity's complex structure and data relationships between parents and sub-entities in order to determine whether the specific entity is eligible for payments. Having a global unique entity identifier would support the Department of Energy (DOE) in their tracking of spending data through to the entity performing the construction and/or service of items such as plants, solar arrays, and other infrastructure related projects. Presently, vendors seeking to execute such construction projects or services have to provide cash or a security bond for large contracts. Coupled with this initial large expenditure, the vendor must also obtain a credit assessment from their financial institution, which currently is largely a manual process. The DOE is collaborating with industry associations, financial services vendors and others to facilitate the development of a Construction Energy Taxonomy (CET) based on eXtensible Business Reporting Language (XBRL) that demonstrates the value of highly structured data and entity descriptions throughout the entire federal spending supply chain. The tracking of this structured spending data would enhance spending transparency and payment eligibility, while reducing the compliance burden on vendors, particularly those smaller organizations who may not have the resources to address the current duplicative compliance information requests. [53]

Oversight and Governance Structures for the Global LEI

For the global LEI, the GLEIF is responsible for providing the underlying technical infrastructure to store and provide public access to the global LEI information published by the LOUs. The GLEIF is also responsible for providing accrediting and monitoring services for LOUs. [26] These services are present to ensure the integrity and authenticity of registered entities and their corresponding global LEIs. The technical infrastructure provided by GLEIF for the LOUs facilitates and supports the LEI validation process between LOUs by enabling LOUs to exchange data and determine if an entity has already been registered and if there is an existing corresponding LEI. [25]

The ROC's primary mission is to govern the GLEIF and GLEIS in the public's interest. This governance and oversight is achieved through a foundation of standards and principles including the GLEIS High Level Principles, additional ROC adopted principles, and the ROC Charter. The oversight process becomes actionable through policy standards promulgated by the ROC and its decision-making body the ROC Plenary, which often include detailed level

requirements such as what data and metadata should be used for regulatory and monitoring actions. [28] The standards and governance structure supported by ROC for the GLEIS mitigates fraud by ensuring that there is proper oversight and compliance through activities such as independent audits. [23] The global LEI's innate attributes of persistence and portability position this unique entity identifier to be used on a global level to ensure the integrity of the financial transactions and the data it is identifying. In addition, the universal definition of an entity through the global LEI, supported by the ROC and GLEIF oversight and governance structures, is designed to prevent fraud and the frivolous assignment of non-compliant unique identifiers. [54]

In addition, the ROC's more than 60 members and observers embody a global, balanced approach to governing the GLEIS. This geographically diverse set of participants ensures that broad, global public interest is recognized and considered for the global LEI and system, which truly represents a "global" legal entity identifier. Besides the ROC's Plenary, the ROC's Executive Committee and the Committee on Evaluation and Standards (CES) support the ROC's governance and oversight responsibilities. [28] The ROC's Executive Committee's members are balanced both jurisdictionally and regionally, have term limits, and are charged with making oversight decisions regarding GLEIS operations based on the authorities vested by the ROC Plenary. The CES's role is to ensure that standards and protocols developed for the GLEIS align with ROC policies and serve the public interest. Suggested changes to these standards and protocols are provided to the ROC's Executive Committee for review and decision-making actions. [27]

The current chair of the LEI ROC Plenary and Executive Committees is Matthew Reed, Chief Counsel, OFR at Treasury. In addition to this OFR representation, the LEI ROC also includes U.S. representation from the Board of Governors of the Federal Reserve System, CFTC, the Office of the Controller of the Currency, Federal Deposit Insurance Corporation, SEC, and Consumer Financial Protection Bureau. These LEI ROC members work with other global LEI ROC members to provide oversight and governance for the GLEIS. [55]

LOUs operating within the GLEIS are able to exchange LEI data files with the COU and other LOUs. The file exchange process is critical to the overall global LEI registration process and facilitates the validation of registering entities. When obtaining a LEI, an entity submits their registration through a LOU, which in turn validates the entity's registration information before a LEI can be assigned, issued, and published. When validating, LOUs seek public authoritative sources to corroborate the authenticity of the entity. [56] Validation of entities can range from relying upon the entity's submitted registration information to partially or fully corroborating the entity's registered information to public authoritative sources. As part of the validation process, LOUs can exchange data through files to share pending and fully registered/published entities and their LEIs. These files contain registration statuses and serve as a form of cross-validation to prevent duplicate registrations within multiple LOUs on a global level. The internal sharing of entity registration data that is pending validation serves as an internal control to mitigate the risk of two separate LOUs accidentally issuing two different LEIs to the same entity. [25]

Given the federated network of LOUs that exchange data files, it is paramount that strong internal controls are in place during the global LEI validation and publication processes. The proper timing of these file exchanges is needed in order to detect and prevent duplicates. For example, an entity could register with a LOU in one part of the world and another LOU in another part of the world. If the proper timing of these exchanges is not present, the same entity could register and obtain two different LEIs, assuming one LOU had not shared the data in time with the COU and/or the other LOUs by the time the second LOU performed the duplicate check. The ROC and GLEIF registration and validation services, as well as standards and requirements, are designed to mitigate the chance of such duplicate LEIs from being issued.

How Could Data Transparency Stakeholders Benefit from a New Unique Entity Identifier Such as the Global LEI for DATA Act Related Data?

Entity descriptions explicitly expressed using open standards enable the application of other open standards (e.g., data, relationships, presentations, etc.), and provide consumers with intellectual property that can be “reused,” “shared,” and “collaborated” upon license and restriction-free across federal agencies, state and local governments, commercial entities, non-profits, citizens, analysts, and other data consumers. Presently, there are restrictions associated with primary unique entity identifiers currently used with DATA Act related data. For example, for the D-U-N-S® Number, the current agreement between the federal government and D&B allows for data sourced from D&B to be downloaded and used for a user’s internal purposes. Commercial use of that data, however, or redistribution in a manner sufficient to be a replacement for the original source, is not allowed. With a new unique entity identifier such as the global LEI, data, relationships, and presentations may operate more openly, permitting the analysis of transparent DATA Act related data in a collaborative manner, similar to collaborative platforms available today (e.g., [Wikipedia](#)).

Many of the key benefits of a new unique entity such as the global LEI are described within the [Key Benefits of the Global LEI for DATA Act Related Data](#) section of this brief. To elaborate further, there are a number of key areas such as the following where data transparency stakeholders could benefit from a new unique identifier such as the global LEI:

- **Increased openness, reusability, and continued availability:** the global LEI is non-proprietary and the data associated with it is usable without licenses or restrictions, regardless of the data consumer type (e.g., government, commercial, non-profit, citizen, etc.). This license-to-use is vital in enabling transparency analysis and reporting, as well as fostering economic development around DATA Act related data. Having an identifier and associated data (e.g., registered data) available for reuse and redistribution that is free from restrictions, is license-free, and is open for use by all users, indefinitely, is paramount to promoting transparency. Proprietary unique entity identifiers with licenses and restrictions can often prevent the data consumer from seeing both the identifier and the associated data. Being able to see the identifier

without context or having access to the data without the identifier inhibits the transparent nature of the data.

In tandem with openness and reusability, a new unique identifier such as the global LEI could support continued availability and access to DATA Act data. With proprietary ownership (public or private), DATA Act data that was transparent for a period of time may cease to be available and transparent in the future if there are changes in the ownership and access type. Open, non-proprietary unique entity identifiers and data sets (e.g., the global LEI and associated data) eliminate the risk of open federal spending data vanishing once proprietary licenses are not renewed by agencies. This is particularly important in terms of context. With the elimination of the unique entity identifier or vice versa (i.e., the rest of the spending data set), context is removed, nearly eliminating the value and transparency of the data.

For example, currently on Recovery.gov, users are able to see how much federal spending associated with [American Recovery and Reinvestment Act \(ARRA\) of 2009](#) (P.L. 111-5) [57] funds is occurring by location and paid out by agency, although relevant recipient information is now missing, with searches yielding the “Award ID” instead of the recipient name. Recovery.gov is the website responsible for displaying how all of the funds provided by federal agencies under ARRA are being spent by recipients. Prior to October 1, 2014, federal spending information was presented to the user with greater context, showing not only the “Award ID”, but also most importantly, the recipient’s name. [58] Without the recipient’s name, context is lost, and the speed in which the data can be analyzed is minimized because the aggregated data is not present. Currently, in order to potentially determine the recipient’s name for the associated “Award ID”, users may have to perform searches across multiple sets of data including FedBizOpps.gov, [Federal Procurement Data System – Next Generation \(FPDS-NG\)](#), and USASpending.gov. The Recovery.gov platform was a more powerful and intuitive method to interact with the aggregated set of data.

- **Enhanced collaborative processes within the federal government and between the federal, state, and local levels related to the following:**
 - **Inter/intra-agency transaction analysis and inter/intra-agency account reconciliations** - The current federal government audit report includes a material weakness directly related to the inability to timely and accurately reconcile and account for intragovernmental activities. [24] The application of a common entity identifier used across all relevant parties that is free from license restrictions, and the standardization of ledger level data as envisioned by the DATA Act, provides highly structured transactional level information useful in driving significant enhancements to further automate account reconciliation processes and controls both between agencies and within agencies.

- **Sector and industry entity descriptions** - current proprietary entity descriptions are provided by vendors who also often provide groupings along geographic, sector, and industry categories. Such groupings may or may not align with the needs of individual analysts and consumers who may want to modify or adjust a sector or industry description based upon their own unique criteria. The application of open standardized relationships among entities provides for consumer collaboration on grouping definitions and different definitions based upon the unique needs and perspectives of the analyst. The risk or credit assessments of one agency on specific vendors and grantees may be more granular or simply different from those used by another agency for vendor and grantee risk assessments.
- **Risk-oriented relationship analysis for contracts, grants, loans, and other federal financial assistance** - open standardized relationships applied to open standardized entities provides for collaboration across agencies on other risk related groupings for vendor and grantee assessments, each of which may be consistent and/or different across agencies.
- **Independence and related party assessments** - relationship assessments may include entities that may be related due to common or partial ownership, overlapping board members, critical suppliers, common consulting and service vendors, etc. Being able to assess these relationships in a more open and collaborative manner through access to structured abstractions enhances these risk assessment capabilities.
- **Monitoring of compliance requirements across entities** - restrictions on the reuse of current proprietary unique entity identifiers inhibits information processing across agencies related to duplicate vendor invoices, under-performing vendors, and other compliance requirements. Open entity structures enable collaboration of entity descriptions and related rules applications across entities for compliance and risk assessment purposes.
- **Analytical assessments via social analytical processes across market, agency, taxpayer, and other analysts** - the combination of the above enhancements in the structure of data, relationships, and presentation of intellectual property enables analysts to collaborate on analytical intellectual property, while also enabling a feedback loop from consumers to producers to assist in their assessment of information relevance.
- **New process capabilities including the following:**
 - Entity modeling via standardized entity relationship abstractions and modeling,
 - Collaboration on entity structural and relationship abstractions for modeling and analytical purposes,

- Enhanced risk assessments enabled via modeling of entity relationships and structures, and
- Potential transition of the commercial activities from establishing and administering unique identifiers and providing data, to building abstractions for broad market use and relationships such as supply chain partners, best practices, and relationships that are contextual to the user group.
- **Enhanced data transparency across agency data stores:** technology exists and is being upgraded to identify relationships in large volumes of data with no preparation or linkage effort. Algorithms exist which take as input any source of data, including documents, databases, files, and data streams and output the relationships found in the associated data inputs. The algorithms work by deriving relationships. Having a common, unique identifier that is used across all types of data – not just governmental systems but all global financial systems – improves transparency and the ability of stakeholders to improve efficiency and identify risky activities.

What Key Challenges and Implementation Considerations Could Exist for Federal Agencies and Other Stakeholders Looking to Transition to a New Unique Entity Identifier Such as the Global LEI for DATA Act Related Data?

A fundamental challenge that the federal government faces when considering the implementation of alternative unique entity identifiers is that unique identifiers such as the D-U-N-S® Number are highly embedded into the fabric of federal government financial, grant, and procurement systems and processes. Since October 1994, federal entities have adopted the D-U-N-S® Number as the standard business identifier for contractors, and in April 1998 the D-U-N-S® Number was incorporated in the Federal Acquisition Regulation (FAR) to serve as the contractor identification code for all federal government procurement activities. [59]

The SAM is the central collecting point of entity data for the federal government as it relates to federal awards. Data enters the SAM system and is distributed to all agency award management systems and processes that utilize that information. Currently, the primary unique entity identifier within SAM and associated with SAM registrations is D&B's D-U-N-S® Number. This number is woven tightly into the current federal government sourcing, reporting, and awarding processes. The SAM uses the D-U-N-S® Number for identifying business entities that receive government awards. SAM provides a free registration process directly through www.sam.gov for entities who may receive an award from the federal government. Entities doing business with the federal government are also able to obtain a D-U-N-S® Number free of charge from D&B if they do not already have one. [4], [60] Given this tight integration of federal government systems and processes, implementation challenges would need to be considered when migrating away from the D-U-N-S® Number to a new unique identifier such as the global LEI.

With only 330,000 entities worldwide having a global LEI, and companies in the U.S. receiving this new identifier primarily for transactions regulated by the financial regulatory community, many entities currently conducting business with the federal government will not have an LEI. [61] Entities doing business with the federal government would need to be required to obtain a global LEI and use this new unique entity identifier when completing and/or updating their SAM registration. During the potential implementation of the global LEI for use with DATA Act related data, the SAM system and related business processes would need to maintain the D-U-N-S® Number as its primary identifier until the transition is completed. Requiring entities to obtain a global LEI also comes with an initial cost to the registrant, with a registration fee of approximately \$200 and an annual maintenance fee of approximately \$100. [61] In addition to registration and maintenance fees, there could also be downstream costs for these entities such as costs associated with updating internal financial and contract writing systems to support the use of the global LEI.

Besides implementation considerations associated with entities migrating to the global LEI, there are also potential costs and challenges that would need to be considered for federal agency systems and business processes. Examples include the following:

- The upgrade of agency financial, grant, and procurement systems to support the global LEI. Upgrades may need to occur in system areas such as vendor and supplier records, reports, forms, and procurement and payment transactional processes.
- Changes in award, procurements, and payment business processes to include the use of the global LEI.
- The upgrade of the [USASpending.gov](https://www.usaspending.gov) file submission layout and processes (or future DATA Act publishing/exchange processes) to support the submission the global LEI.
- The upgrade of the SAM to support the global LEI.
- Potential updates to the FAR requiring the use of the global LEI, similar to the current requirement for SAM registration and D-U-N-S® Numbers for award actions.
- Determination if global LEI data quality and service levels will be sufficient for operational utilization in the federal government award management process.
- Changes to usage limitations associated with DATA Act related data due to the presence of proprietary data such as the D-U-N-S® Number.
- Determination as to whether all open prior historical transactions would need to be converted to the global LEI. This could have a significant impact and cascading effect for related repositories, databases, and applications that would have to be retroactively updated with the global LEI.
- The global LEI is not presently available for use with natural persons. [22] This could present challenges for the universal application of the global LEI to federal government award recipients, where sole proprietors considered natural persons would not be eligible for a global LEI.

- The global LEI and GLEIS does not currently support an ultimate parent unique identifier and legal business name (a recommendation from the FSB to establish an ultimate parent data element exists). Being able to identify ultimate entity parent relationships may present challenges if other data elements are not present to facilitate abstractions of such data relationships.
- Implementation of monitoring capabilities for changes to global LEI and parent data.

Solutions to New Unique Entity Identifier Implementation Challenges

Based on the information communicated in the recent April 2015 publishing of “Awardee/Recipient Unique Identifier and Legal Business Name” data elements on the [Federal Spending Transparency DATA Act and FFATA Collaboration Space](#), currently, OMB and Treasury are planning to continue to use the existing unique entity identifier (i.e., D-U-N-S® Number) associated with FFATA and DATA Act data. [5] As part of the federal government’s effort of analyzing and determining if other unique entity identifiers such as the global LEI should be used with DATA Act data, solutions would need to be identified to minimize the challenges of implementing such a new unique entity identifier. Below is a list of potential solutions for dealing with some of the abovementioned implementation challenges. This list does not represent an all-encompassing list of solutions, but provides points for future discussion and consideration:

Solution #1 - execute a comprehensive and collaborative cost-benefit analysis to identify both the short-term and long-term costs of migrating to a new unique entity identifier such as the global LEI.

Migrating to a new unique entity identifier such as the global LEI for DATA Act data has short and long-term costs for consideration that could impact a number of stakeholders including registering entities, data consumers, and federal agencies. For entities and data consumers, there are different costs between existing unique entity identifiers and new unique entity identifiers such as the global LEI for the registration and reuse of data respectively. Existing proprietary unique entity identifiers and the global LEI have different funding models, which yields different costs at different points in time. For example, the registration for a D-U-N-S® Number is free for entities although there are restrictions with the reuse and redistribution of the D-U-N-S® Number and registration data. [13] For global LEIs, there is a registration and maintenance cost for entities, although because this unique entity identifier is non-proprietary, published data is currently open and free to be used by data consumers. [56] Executing a comprehensive and collaborative cost-benefit analysis would enable all stakeholders to fully understand the impacts and costs both within and outside the federal government associated with migrating to a new unique identifier.

Developing a comprehensive cost model to perform cost-benefit analyses by stakeholder group and at aggregate levels would be challenging, but could yield insightful information that could assist OMB and Treasury’s review and analysis of potential alternative unique entity identifiers for DATA Act related data. Costs for both the federal government and registrants could be assessed to determine the aggregate impact. For example, from a federal agency

standpoint, there could be financial costs to upgrade agency level and federal government-wide financial, grants, and procurement systems to support the new global LEI value. For registrants, there could be costs associated with updating internal systems and processes. As part of assessing all of these types of costs to create a model, the effort could also include identifying potential ways to offset global LEI registration and maintenance costs for smaller corporate entities through alternative arrangements with the LOUs.

Solution #2 – execute an assessment program to test the feasibility of the federal government migrating to a new unique identifier, such as the global LEI.

To support the accurate assessment of costs and identify potential additional implementation challenges, OMB and Treasury could create an assessment program to test the feasibility of migrating from the D-U-N-S® Number to a new unique entity identifier, such as the global LEI, for DATA Act related data and federal award processes. Tests through the assessment program could involve both the systems and business processes that OMB and Treasury are planning to use for DATA Act related data, as well as agency systems generating, processing, and submitting such data. This testing effort could be part of the overall cost-benefit analysis effort described above. As part of the program, OMB and Treasury could also establish a task force that creates and analyzes an inventory of federal agency financial, procurement, and grant systems and business processes in order to identify potential risk areas. In unison with this analysis, the task force could perform direct analysis of associated systems and business processes to assess the feasibility of migrating to a new unique entity identifier.

Solution #3 – crosswalk and map the existing unique entity identifier to the global LEI with the BusinessRegisterEntityID field.

The LEI file format contains a “BusinessRegisterEntityID” field, which could be used to provide an alternate unique entity identifier the legal entity obtained through another registration authority. [31] In instances where there are limitations and restrictions associated with existing alternate unique entity identifiers, a dialogue could begin to look at potentially relaxing the republishing controls. Further analysis would be needed to determine the feasibility of including and publishing existing unique entity identifiers within global LEI files, because proprietary identifiers such as the D-U-N-S® Number have limitations on reuse and redistribution. However, these reuse and redistribution policy changes could permit the cross-walking of these alternate unique entity identifier values to the global LEI and permit the passing of the alternate unique entity identifier in files exchanged internally between the COU and LOUs.

In order to preserve the revised reuse and redistribution restrictions of the alternate unique entity identifier, when the global LEI data is published, the existing unique entity identifier values could be dropped. Assuming the necessary updates have been made to agency financial, grant, and procurement systems to support the global LEI, and entity records within these systems can support a global LEI and alternate unique entity identifier such as the D-U-N-S® Number for publishing to [USASpending.gov](https://www.USASpending.gov) or the future DATA Act site, the resulting cross-walked DATA Act related data could contain the data relationship between the

alternate unique entity identifier and the global LEI. With the presence of the global LEI, data transparency would be supported, and with the absence of the alternate unique entity identifier in the published data set, the proprietary information would be protected. Over time, once entity records are mapped and cross-walked with a corresponding global LEI, other unique entity identifiers could be phased-out.

Alternatively, as part of the GSA contract with D&B, D&B could be required to incorporate the global LEI as a field within their system and ensure that there are not usage restrictions on the data contained within the record. The FAR requires all entities wishing to do business with the federal government to register with D&B and obtain a D-U-N-S® Number. [62]. It would be reasonable to expect that the government should have some latitude in its negotiation of the terms of this agreement in order to incorporate the use of the global LEI. The government currently uses D&B data, linked with the D-U-N-S® Number, for purposes other than entity identification, such as for credit reporting services. Any entity can request a report on a federal contractor because the government requires a D-U-N-S® Number during SAM registration. [63] The use of the global LEI would not be mutually exclusive with the continued use of the D-U-N-S® Number, although the incorporation of the global LEI into the D-U-N-S® system would greatly aid in resolving both data quality, reuse, and redistribution concerns of using a privately controlled and administered proprietary identifier.

Solution #4 – lengthen the transition period to migrating to a new unique entity identifier such as the global LEI.

If the analysis of unique entity identifier data mapping and exchange capabilities as well as the cost-benefit analyses yield positive results for use of the global LEI with DATA Act data, having a longer transition time to migrate to the global LEI could spread potential implementation costs and minimize risks that could occur with implementation efforts and the federal award processes. For example, having a longer transition period for using the global LEI with DATA Act data would provide more time to align varying federal systems and processes, enabling OMB, Treasury, and other federal agencies more time to thoroughly review changes and implement remediation efforts where necessary. A lengthened transition time would also permit other stakeholders such as registrants more time to align their internal systems and processes.

Solution #5 – continue to have an open dialogue and seek public input.

Continuing to have an open dialogue and seeking public input from private industry, trade organizations, non-profits, and citizens regarding the migration to a new unique entity identifier such as the global LEI, will support future analysis efforts and considerations. This open and collaborative decision-making approach is essential for fostering data transparency and assisting OMB and Treasury's review and analysis of potential alternative unique entity identifiers for DATA Act data.

Conclusions

A key data element and potential future cornerstone for furthering the transparency of federal spending data afforded by the DATA Act will be a unique entity identifier that inherently

contains key attributes such as persistence and traceability, and that it can universally, uniquely, and distinctly identify entities on a global level. This identifier and its associated data would also need to be free and open for use by all data consumers and users, without licenses or restrictions, and must also possess the necessary constructs to permit the derivation of robust data relationships. Having the necessary oversight and governance structures in place for the unique identifier will also be needed in order to support the integrity and quality of the identifier data, as well as to reduce improper payments, fraud, waste, and abuse.

As the federal government evaluates and considers the attributes and requirements needed for a potential alternative unique entity identifier, the available options, and the challenges for implementing a new identifier, solutions could be considered to determine and remediate the impact on stakeholders. Ultimately, continuing the current course of an open and collaborative dialogue with all stakeholders regarding these considerations will yield the identification of the best unique identifier for DATA Act related data. Whether this unique entity identifier is the D-U-N-S® Number, global LEI, CAGE code, or another identifier, the final unique entity identifier used to meet the DATA Act requirements will have a profound impact on the level of transparency afforded by the Act.

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