

# Envisioning Comprehensive Entity Identification for the U.S. Federal Government

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## Executive Summary

Joseph Tracy, who served as Vice President of the Federal Reserve Bank New York when the world's then fourth-largest investment bank collapsed, vividly recalls "the Lehman weekend".<sup>1</sup> Supervisors were asking financial institutions "a very simple question: What is your aggregate exposure to Lehman Brothers?"

Mr. Tracy explains that "what was disturbing at the time was that the answer that consistently came back across all the major financial institutions was: 'We don't know and it will probably take weeks if not months to get an answer.'" The problem was not that there was no data on their exposures in their risk management systems. "The problem was that Lehman Brothers consisted of several thousand legal entities, and there was no design in their data systems that made it easy for them to aggregate all those entities." It meant that there was no central piece of information in real time for decision-makers.<sup>2</sup>

The lack of a consistent, unique identifier for entities prevented participants in the global financial system from assessing their exposure to the bank and has had dire consequences. According to a 2014 estimate by the U.S. Treasury Department, the subsequent 2008 credit crisis resulted in losses of about U.S. \$19.2 trillion in USD household wealth.<sup>3</sup> It was out of this crisis that the Legal Entity Identifier (LEI) was born, with Joseph Tracy today serving as Vice Chairman of the LEI Regulatory Oversight Committee.<sup>4</sup>

<sup>1</sup> Joseph Tracy, *Legal Entity Identification in the Finance World (LEI): A Standard of a Distributed Identification System (Keynote Address)*, Joint Spring Conference 2016 of E-Finance Lab and IBM, available at [www.efinancelab.de/uploads/sc2016/EFL-Springconference2016-3.mp4](http://www.efinancelab.de/uploads/sc2016/EFL-Springconference2016-3.mp4).

<sup>2</sup> Id.

<sup>3</sup> McKinsey & Company and GLEIF, *The Legal Entity Identifier: The Value of the Unique Counterparty ID*, October 2017, available at [www.gleif.org/en/lei-solutions/mckinsey-company-and-gleif-creating-business-value-with-the-lei](http://www.gleif.org/en/lei-solutions/mckinsey-company-and-gleif-creating-business-value-with-the-lei).

<sup>4</sup> The LEI Regulatory Oversight Committee represents public authorities from around the globe established to coordinate and oversee the Global LEI System. Joseph Tracy, now Executive Vice President and Special Advisor to the President of the Federal Reserve Bank of Dallas, served as Chairman of the LEI Regulatory Oversight Committee in 2017 and continues to serve as its Vice Chairman since the start of 2018. See LEI Regulatory Oversight Committee, Members and Observers, [www.lei.org/about/membersandobservers/index.htm](http://www.lei.org/about/membersandobservers/index.htm) (accessed July 24, 2018).

The LEI is a 20-digit code based on a standard developed by the International Organization for Standardization (ISO). It enables clear and unique identification of legal entities participating in financial transactions by connecting to key reference data. Each LEI contains information about an entity's ownership structure and thus answers the questions of 'who is who' and 'who owns whom'. The Global LEI Foundation (GLEIF) is a supra-national not-for-profit organization, backed and overseen by the LEI Regulatory Oversight Committee. GLEIF makes available the Global LEI Index. This is the only global online source that provides open, standardized and high quality legal entity reference data. As of mid 2018, more than 1.2 million LEIs have been issued to legal entities globally.

The LEI responds to the critical need for a universal system of identifying entities across markets, products, and regions.

The LEI responds to the critical need for a universal system of identifying entities across markets, products, and regions. Over the past years, regulators in many jurisdictions, including the U.S., have mandated the use of LEIs to increase transparency across financial markets. Public authorities rely on the LEI to evaluate risk, minimize market abuse and improve the accuracy of financial data. However, despite the advantages of deploying a global entity identifier, many governments continue to rely on proprietary identification regimes when it comes to the oversight of non-financial sectors.

Despite the advantages of deploying a global entity identifier, many governments continue to rely on proprietary identification regimes when it comes to the oversight of non-financial sectors.

Despite this, regulators participating in the LEI Regulatory Oversight Committee, including many U.S. federal agencies, recommend that individual jurisdictions consider adopting an LEI strategy that meets their needs. As this could “help overcome the existence of several domestic identifiers covering different types of entities” and “allow countries to leverage the infrastructure developed by the [Global LEI System],” according to the LEI Regulatory Oversight Committee.<sup>5</sup>

In light of this premise, GLEIF and the Data Foundation have joined forces to explore how LEI adoption by U.S. federal agencies could streamline entity identification and produce benefits within and beyond financial markets.

<sup>5</sup> LEI Regulatory Oversight Committee, *Progress report by the Legal Entity Identifier Regulatory Oversight Committee (LEI ROC): The Global LEI System and regulatory uses of the LEI*, April 30, 2018, available at [www.leiroc.org/publications/gls/roc\\_20180502-1.pdf](http://www.leiroc.org/publications/gls/roc_20180502-1.pdf)

To this end, we have carried out comprehensive research on the entity identification systems currently deployed across the U.S. government. Based on the research findings, this paper:

- Explores the current landscape of federal agencies' entity identification needs and describes the entity identification system that each uses.
- Compares the Global LEI System to the other systems currently in use.
- Identifies how federal agencies would benefit from replacing proprietary or internal identifiers with the LEI.
- Proposes factors that describe a particular entity identification system's feasibility of conversion to a comprehensive entity identification system built on the LEI or, alternatively, the value of mapping existing identifiers against the LEI.

This research demonstrates that the U.S. federal government uses 50 distinct entity identification systems—all of which are separate and incompatible with one another. Entity identification, therefore, continues to represent a significant challenge for many federal agencies' missions. Any agency tracking non-federal entities in order to perform a regulatory, statistical, procurement, or assistance function must either create its own entity identification system or adopt one originally created by another agency. Both approaches present difficulties in matching entities and properly assigning legal responsibility.

A comprehensive entity identification system could be useful anywhere a government-to-business relationship exists. The LEI could serve this purpose.

If implemented properly, a comprehensive entity identification system based on the LEI could help identify and mitigate risk in markets, track and debar low-performing contractors, improve supply chain efficiency, and generally be useful anywhere a government-to-business relationship exists. A comprehensive entity identification system could also allow regulators, statisticians, contract and grant officers, corporate actors, and researchers to understand how an entity acts and interacts with the government across sectors and industries, painting a more complete picture of economic and organizational activity in the United States.

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The Global Legal Entity Identifier Foundation (GLEIF) is the global non-profit tasked to support the implementation and use of the LEI. The Data Foundation is a D.C.-based think-tank. Through research, education, and programming, the Data Foundation illuminates an open and connected future for government data, including common data fields like the LEI.

## Introduction

The U.S. federal government uses 50 distinct entity identification systems—all separate and incompatible with one another. To give just one example of the difficulties created based on the use of multiple identification systems, the Employer Data Matching Workgroup, after surveying the landscape of entity identification systems used to track U.S. employers, concluded:

“The greatest barrier to matching data on employers across data sets is the lack of a common, or universal, business identifier. Eliminating this obstacle by developing a Federal system to create and manage a universal identifier could result in cost savings in matching but would require a major investment of time and Federal resources to create and maintain such an infrastructure. Assuming that the identifier could be created, it would be a challenge to enforce consistent use of such an identifier by all employers on the domestic and international fronts. This identifier would need to capture various corporate/industry levels and change over time (in other words, it should change with firm births, deaths, mergers, acquisitions, etc.), and no Federal entity has the authority, staff, or resources to collect and manage such information ... Given that the creation and use of a universal identifier is in the interest of businesses and taxpayers, it would be worth exploring whether a voluntary means of adoption of a universal identifier is viable.”<sup>6</sup>

The Data Foundation has previously recommended that the federal government adopt the Legal Entity Identifier (LEI) to create a comprehensive entity identification system.<sup>7</sup> As the Data Foundation argued in *Who is Who and What is What? The Need for Universal Entity Identification in the United States*, the LEI can serve this purpose because it is managed by a global system; administered in a federated manner; nonproprietary and freely reusable; and reliably verified.<sup>8</sup>

<sup>6</sup> *Employer Data Matching Workgroup White Paper*, January 2017, available at [www.cep.gov/content/dam/cep/report/cep-appendices-e-h.pdf](http://www.cep.gov/content/dam/cep/report/cep-appendices-e-h.pdf), at 804 (included as an appendix to report of Commission on Evidence-Based Policymaking).

<sup>7</sup> Scott M. Strub and Matt Rumsey, *Who is Who and What is What? The Need for Universal Entity Identification in the United States*, Data Foundation, 2017, [www.datafoundation.org/lei-report-2017](http://www.datafoundation.org/lei-report-2017). More accurately put, we recommended that the federal government should adopt the LEI in order to join the already-in-place Global LEI System (GLEIS), thereby accomplishing comprehensive entity identification across all federal regimes.

<sup>8</sup> *Id.*

Building on *Who is Who and What is What*, this paper: (1) explores the current landscape of federal agencies' entity identification needs, and describes the entity identification system that each uses; (2) compares the Global LEI System to the other systems currently in use; and (3) proposes factors that describe a particular entity identification system's feasibility of conversion to a comprehensive entity identification system built on the LEI.

To do this, we began by surveying 36 federal agencies' regulatory, statistical, and procurement needs and the entity identification systems they currently use. We identified 50 entity identification systems. A few of these are used by multiple agencies. However, most are used by only one agency, were developed specifically for that agency, and are not matched to any more-widely-used system.<sup>9</sup> With entity identification systems siloed in this way, agencies cannot easily verify reported information using third-party sources, enforce laws or rules based on external information, or communicate with other agencies about particular entities.

We then compared the Global LEI System and the LEI itself with the 49 other systems in use. In doing so, we found that the Global LEI System and the LEI itself maintains its four advantages over other systems and their IDs: global reach, federated administration, nonproprietary reusability, and reliable verification.

Finally, informed by interviews with federal identification leaders, we developed five factors that together describe a particular entity identification system's feasibility to be converted to a comprehensive one based on the LEI. Since most agencies do not publish an open data set of the entities they regulate, track, or purchase from, we could not apply these factors ourselves, nor could we recommend which systems are ripest to be converted to the LEI. However, we believe that agencies should consider factors similar to ours when deciding whether to retain an existing entity identification system or convert. In addition, we identified a few systems that, based on publicly-available information, seem particularly attractive for LEI conversion.

<sup>9</sup> For example, the Federal Energy Regulatory Commission (FERC)'s reporting regime tracks regulated energy companies using the Company Identifier, known as the CID, created by the agency for that purpose. There is no official match between the CID and other entity reporting regimes, and the CID is not used anywhere else. See also Appendix, *infra*.

## Current Federal Entity Identification Systems

We set out to explore the scores of entity identification systems that are currently in use by federal agencies. As far as we are aware, no other research project, either within the government or outside it, has ever undertaken such a task. However, two partial listings of federal entity identification systems—one focusing on financial regulatory regimes and the other focusing on the systems that identify employers—provided useful guidance.

The first is an inventory of data that is maintained and published by the Office of Financial Research of the Treasury Department. Since 2014 they have brought together data collected by most financial regulatory agencies, particularly those that are members of the Financial Stability Oversight Council (FSOC).<sup>10</sup> Their inventory lists all of the forms that FSOC member agencies use to collect data from the entities that they regulate. Since most of these forms are publicly available, we were able to review each form and determine the entity identification system it refers to.

The second is an inventory that began in 2016, when the White House Office of Management and Budget (OMB) convened an Employer Data Matching Workgroup with representatives from 14 agencies.<sup>11</sup> OMB directed the Workgroup to document the challenges of “matching and uniquely identifying establishments and firms within and between data sets and over time”; identifying strategies or policies to address these challenges; and recommending future steps to “improve the Federal government’s ability to identify and match unique firms and establishments (and the relationship between the two) within and across Federal data sets.”<sup>12</sup> The Workgroup conducted its own data inventory of the federal data sets used to identify and track employers in the United States. The inventory lists 39 data sets maintained by ten agencies.<sup>13</sup> For each data set, the inventory specifies which entity identification system is used.

By consulting these two partial listings and performing original research (all of which was further informed by our interviews with federal entity identification leaders), we identified 50 distinct entity identification systems: The Global LEI System and 49 others.<sup>14</sup>

<sup>10</sup> Office of Financial Research, *Interagency Data Inventory*, [www.financialresearch.gov/data/interagency-data-inventory/](http://www.financialresearch.gov/data/interagency-data-inventory/) (accessed June 18, 2018).

<sup>11</sup> *Employer Data Matching Workgroup White Paper*, *supra* note 6, at 804.

<sup>12</sup> *Id.* at Executive Summary.

<sup>13</sup> *Id.* at Appendix.

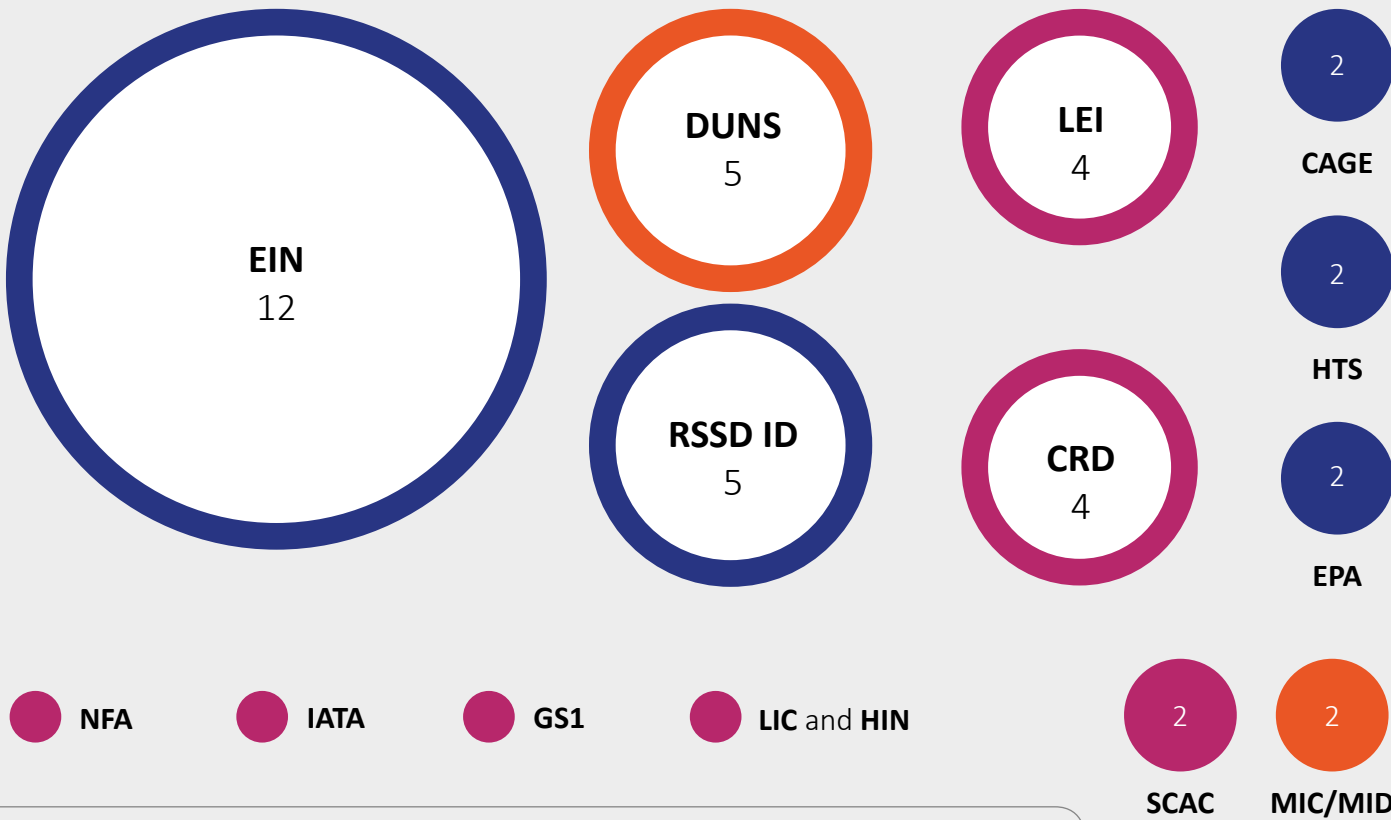
<sup>14</sup> See Appendix, *infra*, for full list.



# Current Federal Entity Identification Systems

## 50 distinct entity identification systems

Government ownership   Non-profit ownership   For-profit ownership



36 single-regime systems owned by the government

Please see appendix for glossary of abbreviations.

Three agencies primarily use the Global LEI System in four different reporting regimes.<sup>15</sup> Meanwhile, a few entity identification systems are used by multiple agencies. Indeed, 11 agencies and 12 reporting regimes use the Internal Revenue System's Employer Identification Number (EIN), and five agencies and reporting regimes use Dun & Bradstreet, Inc.'s Data Universal Numbering System (DUNS).

The EIN and the DUNS exemplify two challenges of existing identification systems. For example, the EIN was specifically built for tax reporting purposes and lacks certain features that make it more broadly applicable as an ID. Specifically, it was created for IRS use and, despite uptake among several other agencies, there is no way to clearly apply it outside of government. When we spoke to representatives from Morningstar, for example, they suggested that simply mapping the LEI to EINs would have huge benefits by providing a new connection point.<sup>16</sup>

Similarly, the DUNS number is proprietary, which ultimately limits its value. A review of the DUNS number by the Government Accountability Office found that relying on a proprietary ID has led to higher costs for the federal government, limited data access for agencies and the public, and reduced ability to introduce new competition into the market for identification services.<sup>17</sup> Furthermore, data quality is known to suffer under proprietary systems, due to limited opportunities for review and feedback. Open data exchanges—possible only with nonproprietary entity identification systems—can allow interested parties to review data for errors and submit fixes.

<sup>15</sup> (1) The Commodity Futures Trading Commission (CFTC) requires derivative transaction participants to report an LEI. (2) The CFTC requires swap data repositories—currently only three—to report an LEI. (3) The Securities and Exchange Commission (SEC) requires participants in security-based swaps transactions to report an LEI. (4) The Consumer Financial Protection Bureau (CFPB) requires home mortgage lenders to report an LEI. See Appendix, *infra*. Several other regulatory agencies have proposed rules which would result in additional requirements for their regulated entities to secure and report an LEI.

<sup>16</sup> Interview with Morningstar, April 18, 2018.

<sup>17</sup> Government Accountability Office, *Government is Analyzing Alternatives for Contractor Identification Numbers*, June 12, 2012, [www.gao.gov/products/GAO-12-715R](http://www.gao.gov/products/GAO-12-715R).

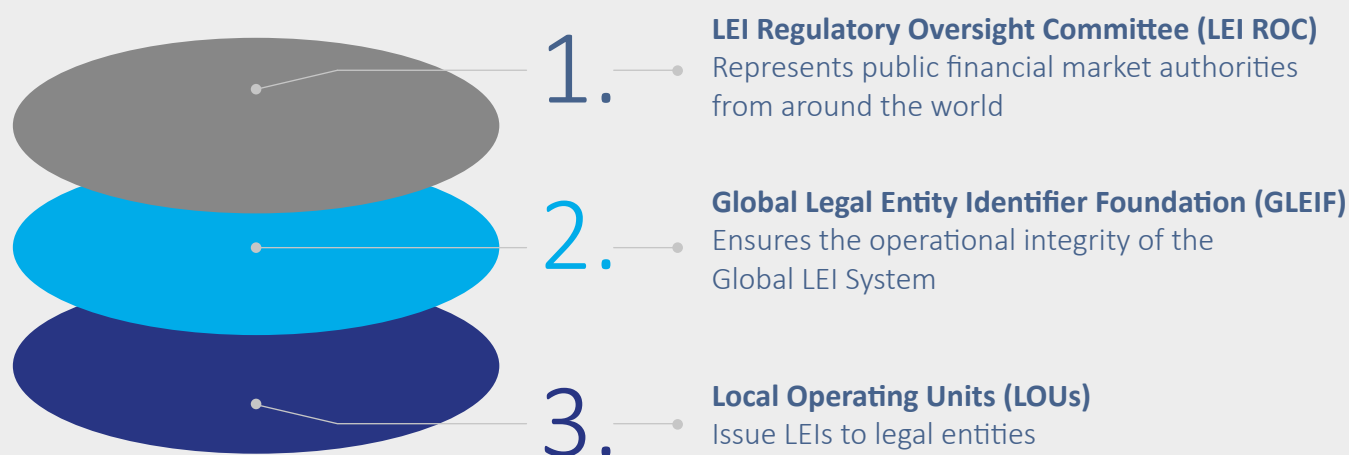
# Comparing the Global LEI System to Other Entity Identification Systems

## About the Global LEI System

As mentioned in the introductory chapter of this paper, the Employer Data Matching Workgroup clarified: “Given that the creation and use of a universal identifier is in the interest of businesses and taxpayers, it would be worth exploring whether a voluntary means of adoption of a universal identifier is viable.” This universal identifier already exists. It is the LEI.

The Global LEI System was set up to provide exactly the sort of system envisioned by the Employer Data Matching Workgroup—a system for legal entity identification as a public good, available for voluntary use by any public- or private-sector organization which needs to regulate, track, or do business with entities. To that end, the LEI system is global, with a governance structure to match. Its three-tiered governance structure includes the LEI Regulatory Oversight Committee (LEI ROC), the Global LEI Foundation (GLEIF), and LEI issuing organizations, also called Local Operating Units (LOUs).

### The Global LEI System operates in three tiers:



**The Financial Stability Board (FSB) and the Group of Twenty (G20) have endorsed the LEI, Global LEI System and GLEIF.**

In 2011, the Group of Twenty (G20) called on the Financial Stability Board (FSB) to provide recommendations for a global LEI and a supporting governance structure. This led to the development of the Global LEI System which, through the issuance of LEIs, now provides unique identification of legal entities participating in financial transactions across the globe.

Established by the FSB in June 2014, GLEIF is tasked to support the implementation and use of the LEI. The foundation is backed and overseen by the LEI ROC (a group of public authorities from around the globe established in January 2013 to coordinate and oversee the Global LEI System). GLEIF is a supra-national not-for-profit organization headquartered in Basel, Switzerland. GLEIF is, by its statutes, agnostic to any particular commercial or political interests, and is uniquely positioned in the entity identification market.

GLEIF services ensure the operational integrity of the Global LEI System. It continuously increases both the information available within, and the quality of, the LEI data pool and makes public access to the information ever easier. To achieve this, GLEIF has endorsed the International Open Data Charter, which aims to foster greater coherence and collaboration to promote the increased adoption and implementation of shared open data principles, standards and good practice across sectors around the world.

Today, the foundation manages a network of LEI issuing partners to provide trusted services and open, reliable data for unique legal entity identification worldwide. LOUs are duly accredited by GLEIF and are the organizations authorized to provide LEI issuance and renewal services to legal entities. GLEIF makes available the Global LEI Index<sup>18</sup>; i.e. the only global online source that provides open, standardized and high quality legal entity reference data. By doing so, GLEIF enables people, businesses and government agencies to make smarter, less costly and more reliable decisions about who to do business with.

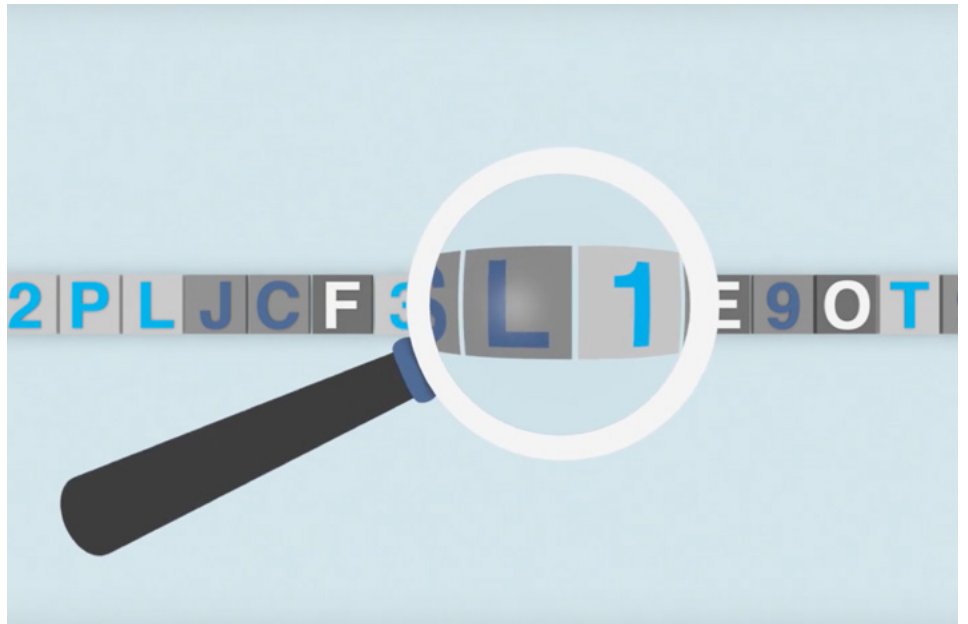
The Global LEI System ensures strong global governance while maintaining flexibility and adaptability at the operational level.<sup>19</sup>

<sup>18</sup> Global LEI Foundation, The Global LEI Index, [www.gleif.org/en/lei-data/global-lei-index](http://www.gleif.org/en/lei-data/global-lei-index) (accessed July 24, 2018).

<sup>19</sup> Financial Stability Board, *A Global Legal Entity Identifier for Financial Markets*, June 8, 2012, [www.fsb.org/2012/06/fsb-report-global-legal-entity-identifier-for-financial-markets/?page\\_moved=1](http://www.fsb.org/2012/06/fsb-report-global-legal-entity-identifier-for-financial-markets/?page_moved=1), 4-5.

## About the LEI

The LEI is a 20-digit, alpha-numeric code 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 participating in financial transactions. Each LEI contains information about an entity's ownership structure and thus answers the questions of 'who is who' and 'who owns whom'. Simply put, the publicly available LEI data pool can be regarded as a global directory, which greatly enhances transparency in the global marketplace. As of mid 2018, more than 1.2 million LEIs have been issued to legal entities globally.



## Comparison with other entity identification systems

There are four key reasons why the LEI is preferable to alternative solutions:

1. Many federal entity identification systems are unique to their specific agencies, often built to fulfil highly targeted purposes, and lack governance structures that could ensure their flexibility for broader use.<sup>20</sup> Some do operate across multiple agencies, but even the most widely-shared system, the IRS' EIN, lacks flexibility. Only the Global LEI System has been intentionally built for flexibility.
2. Every federal identification system is managed by a single central authority with sole control over the issuance of identification codes. For example, only the IRS issues EINs; only Dun & Bradstreet, Inc. issues DUNS numbers. So, when an agency chooses to use EINs for its entity reporting needs, it joins a system under the sole control of the IRS; when an agency chooses to use DUNS numbers, it accepts Dun & Bradstreet's control. By contrast, the Global LEI System is federated. Any agency or company can seek and receive accreditation as a LOU and issue LEIs to registering entities. No one single agency or company controls all registration for the whole system.
3. High quality data only matters if it can be readily accessed and used. Proprietary entity data has traditionally led to higher costs, reduced data access, and limited competition.<sup>21</sup> The LEI, on the other hand, is nonproprietary, with its supporting structures and associated data managed in accordance with the principles of open data. Only nonproprietary identification systems permit full access and use. The founders of the Global LEI System required that the LEI be made available for the wider public good. As such, users can access the LEI data via a public API. This fights the specter of monopoly, helps promote data use, and even boosts data quality.<sup>22</sup>
4. Data verification and validation are key to a successful entity identification system. Without it, data quality would decay and eventually render the system unusable. The Global LEI System provides validation services at the registration and the annual renewal phase, has a robust data quality management program, and requires high standards of service and quality from the network of LOUs.<sup>23</sup>

<sup>20</sup> See Appendix for more details.

<sup>21</sup> Government is Analyzing Alternatives for Contractor Identification Numbers, *supra* note 17, at Letter to Sen. E. Benjamin Nelson.

<sup>22</sup> *Who is Who and What is What?*, *supra* note 7.

<sup>23</sup> Global LEI Foundation, *GLEIF Annual Report, 2016*, available at [www.gleif.org/\\_documents/blog/20170515-gleif-publishes-annual-report-2016/2017-05-05\\_gleif\\_annual-report\\_2016-final.pdf](http://www.gleif.org/_documents/blog/20170515-gleif-publishes-annual-report-2016/2017-05-05_gleif_annual-report_2016-final.pdf).

Embracing a global entity identifier like the LEI could help federal agencies in a number of ways. Existing entity IDs are often out-of-date and lack governance structures needed to ensure that they keep pace with changes in technology, corporate structure, and more. The LEI is adaptable, growing, and has a strong governance structure that allows it to evolve with public- and private-sector requirements.

For these reasons, the Data Foundation argued in its previous paper that the U.S. government should consider universal adoption of the LEI.<sup>24</sup> In some cases, the LEI will serve as a useful replacement for other IDs currently used by an agency. In others, the LEI need not be the only entity ID used by government agencies, but it can serve as a valuable “linchpin” to help map various sources of entity data together.<sup>25</sup>



<sup>24</sup> Id.

<sup>25</sup> John A. Bottega and Linda F. Powell, *Creating a Linchpin for Financial Data: The Need for a Legal Entity Identifier*, 2010, available at [papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1723298](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1723298) (accessed May 31, 2018).

## Better Knowledge, Better Oversight

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Why would an agency that already collects entity information using an existing system want to invest the time and money necessary to convert that system to a comprehensive one, in whole or in part? Through our research and interviews, we have identified several answers to that question.

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### Existing systems are hard to adapt or out-of-date

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Agencies often use entity identification systems that were purpose-built, but now lack the flexibility or governance structures to adapt to changing agency needs or to be fully leveraged by emerging technology.

For example, representatives from Customs and Border Protection (CBP) explained that CBP's existing entity identification system—the Manufacturer ID Number (MID)—dates back to the 1980s and no longer suits CBP's own needs or the needs of partner agencies. It was created using a formula that cannot guarantee unique identification and there is no obvious way to update it to work for current agency needs.<sup>26</sup>

Specifically, CBP needs an entity identification system that provides a unique code that can handle supply chain issues, and that can identify parent-child relationships within broader entities.<sup>27</sup> For CBP it makes more sense to seek out an existing solution, rather than attempting to re-engineer the existing entity identification system to fit evolving needs.

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### Existing systems are not ideal for external applications

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As previously stated, many of the entity identification systems currently being used by federal agencies were built specifically for internal use. These systems may be serving their internal purpose, but are limiting the ability of the agency in question to understand how their regulated entities are operating elsewhere.

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<sup>26</sup> Interview with Customs and Border Protection, May 14, 2018.

<sup>27</sup> Id.



This is where the idea of the LEI as a linchpin becomes supremely important. By replacing such single-purpose entity identification systems with the LEI, agencies can achieve instant integration of information about the same entities from other agencies and other jurisdictions. Alternately, in situations where it may not be practicable to completely replace a single-purpose entity identification system immediately, mapping the existing system to the LEI can help bring transparency and understanding. Agencies that are happy with their internal entity identification systems may still find significant value in mapping them to the LEI.

So, what does this value look like? At the moment, economists at the SEC and the Federal Reserve Board (for example) looking into similar questions affecting the same company may miss out on valuable insights because the two bodies use different identifiers, limiting their ability to effectively communicate and share information.<sup>28</sup> If the two agencies mapped their internal entity identification systems to a more-comprehensive one like the LEI, they could more easily share information and insights.

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#### Existing systems lack clarity, data quality, or consistent data models

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Many of the existing entity identification systems in use at the federal level are not particularly well documented. What does that mean? According to Chris Taggart, CEO of OpenCorporates and a member of the GLEIF Board of Directors, the people working with a given entity code on a day to day basis may not know what it really represents. Does the identifier really identify location rather than the entity, is it unique, and what are the underlying rules of the identification system? These questions are often difficult to answer, even for agency personnel who are intimately familiar with the system.<sup>29</sup>

For example, Taggart told us that it took his organization two years of research and conversation to fully understand what the Securities and Exchange Commission's (SEC) Central Index Key (CIK) Code really represented.<sup>30</sup>

The LEI, with its publicly available data model, clearly laid out certification of mapping processes, and data quality management procedures<sup>31</sup> could help agencies get a better understanding of the entities they regulate as well as the entity identification systems they use to track them—if a mapping solution were to be created.

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<sup>28</sup> *Who is Who and What is What?*, supra note 7.

<sup>29</sup> Interview with Chris Taggart, April 23, 2018.

<sup>30</sup> Id.

<sup>31</sup> Global LEI Foundation, Access and Use LEI Data, [www.gleif.org/en/lei-data/access-and-use-lei-data](http://www.gleif.org/en/lei-data/access-and-use-lei-data) (accessed May 31, 2018).

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### Some existing systems provide a code that is not truly unique

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Because some of the existing entity identification systems being used by various federal agencies were not necessarily conceived as broadly relevant or permanent when created, many produce a code that is not reliably unique. For example, the same legal entity may have multiple registrations as a taxpayer or as a government contractor, resulting in multiple codes for the same entity. CBP representatives cited the fact that the MID is not truly unique as an ongoing problem.<sup>32</sup> Additionally, Chris Taggart indicated that the commonly used IRS managed Employer Identification Number (EIN) might not be usefully unique either.<sup>33</sup>

The Federal Communications Commission (FCC) provides an interesting example of this problem. The FCC currently uses one main code to track its registrants: the FCC Registration Number, or FRN.<sup>34</sup> The FRN was originally designed as a login credential, tied to individuals who file certain types of reports with the FCC on behalf of their companies. The FCC has worked to create a structure that allows for multiple employees, each with their own login, to be associated with a single entity, like one associated with a taxpayer identification. However, complicated corporate structures, for example from corporate mergers and holding company arrangements, still result in difficulty in associating related entities.<sup>35</sup>

The Consumer Financial Protection Bureau chose to use the LEI for its information collection related to the Home Mortgage Disclosure Act (HMDA) in part because of its ability to improve the consistency and quality of the related data. Previously, loan issuing entities were assigned an ID (the Respondent Identification Number) that could change every year, resulting in multiple numbers assigned to the same organization.<sup>36</sup> This is not an uncommon problem across agencies, and one that is already being solved by the LEI.

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<sup>32</sup> Interview with Customs and Border Protection.

<sup>33</sup> Interview with Chris Taggart.

<sup>34</sup> Federal Communications Commission, FCC Registration—Commission Registration System, available at [www.fcc.gov/licensing-databases/fcc-registration-commission-registration-system](http://www.fcc.gov/licensing-databases/fcc-registration-commission-registration-system) (accessed May 31, 2018).

<sup>35</sup> Interview with Steven Rosenberg, May 2, 2018.

<sup>36</sup> *Who is Who and What is What?*, supra note 7.

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### Use of a common system could boost productivity and save money

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Recent research has shown that continued adoption of the LEI could result in annual savings of more than \$150 million in the investment banking industry alone.<sup>37</sup> More broadly, the current combination of entity identification systems used across the federal government complicates reporting and increases the burden for regulated entities. A common entity identification system would reduce this burden and boost productivity, not just for regulated entities, but for government agencies as well.

Currently, agencies that manage their own entity identification systems incur significant costs related to data quality management, technical development, and compliance. Those that have chosen to use an existing, proprietary system like the DUNS number pay significant sums for the privilege,<sup>38</sup> and outsource further costs to users of the data.

The LEI, on the other hand, places a small—and continuously decreasing—cost on registering entities while removing significant costs from its institutional users.

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### Existing systems do not produce usefully open data

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The LEI is anchored in the principles of open data, which can provide multiple distinct benefits to agencies.

First, the purpose-built entity identification systems used at various agencies result in siloed data and limited opportunities for communication across programs, agencies, and with outside partners. Transition to the LEI, or even mapping internal data to it, will stretch the usefulness of these systems and lead to unforeseen applications.

Second, open data—as well as the global, public-good structure of the LEI and GLEIF—can help fight against monopoly practices and inertia, a problem that is well acknowledged with existing proprietary IDs currently in use across the federal government.<sup>39</sup>

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<sup>37</sup> The Legal Entity Identifier: The Value of the Unique Counterparty ID, *supra* note 3.

<sup>38</sup> The GSA currently pays about \$19 million per year for DUNS related services. See *Government is Analyzing Alternatives for Contractor Identification Numbers*, *supra* note 17.

<sup>39</sup> *Who is Who and What is What?*, *supra* note 7.

## Conversion to a Comprehensive Identification System

Crucial to identification clarity is the conversion to one, idealized system. As such, we have identified five factors to consider when assessing the feasibility, or justifiability, of a given entity identification system to be converted (or mapped) to the Global LEI System. These factors may be helpful for agencies as they consider shifting from existing, internally-focused entity identification systems, or from shared but limited ones like the EIN and the DUNS number, to more universally applicable options, especially the Global LEI System.

The five factors are:

- 1. Shared systems.** Does the agency already share an entity identification system with other agencies? In situations where a particular entity identification need is being served by a shared system, conversion may be easier than in situations where the agency uses a purpose-built entity identification system.
- 2. Existing LEI map.** Does the agency use an entity identification system that has already been mapped to the LEI, for research or oversight purposes? An existing, stable map can make conversion much easier.
- 3. Overlap with existing LEI system.** What amount of overlap exists between entities covered by the system and entities already registered in the Global LEI System? A substantial overlap reduces the cost of conversion.
- 4. External use.** Are outside stakeholders interested in the data being collected, whether for public policy, oversight, or commercial use, or is it purely used for internal purposes? If external use is important or valuable, then it can provide additional justification for the cost of conversion.
- 5. Value of interoperability.** Does the agency make extensive use of external data sources? The greater the need to integrate external data sources, the greater the value of the interoperability that conversion to the Global LEI System provides, further justifying the cost of conversion.

It is also worth noting here that GLEIF has developed a certification process to ensure that organizations which map the LEI to their own identifiers use reasonable methodologies and/or processes to do so accurately. For example, this process has already been used to map the

Business Identifier Code (BIC), in use by several banking regulators, and the LEI. The process matches BICs assigned to an organization against its LEI. With the launch of the open source BIC-to-LEI relationship files, GLEIF and SWIFT pioneered a cooperation model that, for the first time, enabled market participants to link and cross-reference key entity identifiers free of charge.<sup>40</sup> This mapping certification should lower the barrier of entry for government entities considering the LEI for their entity identification needs.

## Difficulty of applying factors

Before highlighting some specific entity identification systems that we believe may be ready to be transitioned or mapped to the LEI, it is worth discussing some of the challenges that we faced during our research. These challenges made it difficult to assess readiness for specific entity identification systems to transition:

- Data sets are often hard to find. Of all the agencies we surveyed, only a few had easily accessible open data sets. Without access to a data set, it is difficult to measure how many entities are covered by a particular reporting requirement, let alone how much overlap exists with the LEI. It may be possible to reverse engineer the number of entities by finding the associated Paperwork Reduction Act submission through the Office of Information and Regulatory Affairs, but that information can be difficult to confirm. Overall, this made our research more difficult, but should not cause problems for agencies that desire to evaluate the feasibility of a move to the LEI, since they have access to their internal data.
- Furthermore, certain hurdles ensured that our list of agencies, reporting requirements, and entity identification systems is likely not comprehensive, although it is broad and detailed. Without access to agency forms, understanding which entity identification systems are being used by specific agencies is often impossible. Some agencies have useful form inventories, but many more do not.<sup>41</sup> The White House Office of Information and Regulatory Affairs, which already posts links to forms when agency information collections are undergoing review, could provide a useful service to researchers by adding a link to non-confidential forms to their existing Inventory of Approved Information Collections.<sup>42</sup>

<sup>40</sup> Global LEI Foundation, LEI Mapping, [www.gleif.org/en/lei-data/lei-mapping](http://www.gleif.org/en/lei-data/lei-mapping), (accessed May 31, 2018).

<sup>41</sup> See Securities and Exchange Commission, Forms List, [www.sec.gov/forms](http://www.sec.gov/forms) (accessed July 24, 2018).

<sup>42</sup> White House Office of Information and Regulatory Affairs, Information Collection Review, [www.reginfo.gov/public/do/PRAMain](http://www.reginfo.gov/public/do/PRAMain) (accessed July 24, 2018).

## Likely candidates for conversion

Despite these challenges, we have been able to identify a number of agencies and reporting requirements that we believe would benefit from consideration for conversion to the Global LEI System, or, failing that, for mapping to the Global LEI System. In doing so, we have identified three reporting requirements with associated public data sets that may be useful in comparing to the LEI data sets. These are:

- The Centers for Medicare and Medicaid Services, which provide NPPES health care provider data that are disclosable under the Freedom of Information Act (FOIA) to the public.<sup>43</sup>
- The Federal Deposit Insurance Corporation, which shares Reports of Condition and Income (Call Reports) and Uniform Bank Performance Reports (UBPRs) for most FDIC-insured institutions.<sup>44</sup>
- The Consumer Financial Protection Bureau (CFPB), which shares data collected under the Home Mortgage Disclosure Act (HMDA).<sup>45</sup> The CFPB already requires entities to register for and report an LEI, although they use an additional entity ID for internal purposes.

We have also identified a number of regimes across several domains that use the same identifiers. At the very least, we believe that mapping these IDs to the LEI could be a worthwhile exercise for the agencies, and provide a useful and transparent bridge to the public.

<sup>43</sup> Centers for Medicare and Medicaid Services, Data Dissemination, [www.cms.gov/Regulations-and-Guidance/Administrative-Simplification/NationalProviderStand/DataDissemination.html](http://www.cms.gov/Regulations-and-Guidance/Administrative-Simplification/NationalProviderStand/DataDissemination.html) (accessed May 31, 2018).

<sup>44</sup> Federal Financial Institutions Examination Council, Central Data Repository, [cdr.ffiec.gov/public/](http://cdr.ffiec.gov/public/) (accessed May 31, 2018).

<sup>45</sup> See Consumer Financial Protection Bureau, Explore the Data, [www.consumerfinance.gov/data-research/hmda/explore](http://www.consumerfinance.gov/data-research/hmda/explore); Federal Financial Institutions Examination Council, HMDA Data Publication, [ffiec.cfpb.gov/data-publication/](http://ffiec.cfpb.gov/data-publication/) (both accessed May 31, 2018).

## Further candidates for conversion

The Securities and Exchange Commission collects entity information under a wide array of regulations and legal structures. They currently use three internal entity IDs, as well as several managed by other agencies or organizations. The CIK number is used to track entities that file using the SEC’s EDGAR system, while the SEC uses Commission File Numbers to track entities that are regulated under the Securities Exchange Act and the Investment Company Act.

The SEC has partially explored the LEI, requiring its use in at least one recent rulemaking. It seems that the SEC would be a prime candidate for a more comprehensive embrace of the LEI.

Additionally, we believe that the Federal Communications Commission (FCC) could consider LEI adoption or mapping. The FCC currently uses one main code to track its registrants, the FRN.<sup>46</sup> However, as we discussed earlier in this paper, the FRN is limited in its ability to associate related entities. Internally, the FCC has occasionally worked to map various FRNs to their parent companies, but there is no automated or ongoing system in place to do so.<sup>47</sup>



<sup>46</sup> FCC Registration—Commission Registration System, *supra* note 36.

<sup>47</sup> Interview with Steven Rosenberg.

# Conclusion

Currently, the United States federal government relies on a wide range of disconnected ID codes to track the various entities that it regulates, tracks, and does business with. This piecemeal approach limits the ability of regulatory watchdogs to conduct oversight, and to understand how entities work and interact across sectors. It also inhibits the ability of regulators to obtain a complete picture of entities’ activities, and limits the ability of market sectors to assess risk and opportunity. Many agencies may find a purpose-built approach to entity identification sufficient for internal use, but there are clear downsides to siloes.

Luckily, there is a solution to this problem, a key that will help bridge gaps in understanding across regulators, across government, across sectors, and across the world. That solution is the LEI, which can function as the single entity ID for some existing entity reporting needs, while simultaneously serving as a bridge to help others connect to a wider world.

The LEI has already been embraced by the global financial sector, including financial regulators in the United States. It tracks more than a million entities around the world, a number that will continue to grow. And it is well suited to identify entities across industries and is already being used or considered for use in tracking energy companies, mortgage lenders, and more.

The LEI does not simply have to serve the financial sector. It can serve as the “linchpin” for entity reporting needs across all U.S. agencies, enabling universal entity identification at last.





## Appendix—Listing of U.S. Federal Agencies and Entity Identification Systems

The following listing summarizes the entity identification regimes used by 36 U.S. federal agencies and agency divisions/offices for three types of regimes: regulatory, statistical, and procurement. A more detailed chart, subject to change, which includes legal authorities, links to data sets, and other background information, is available for review at [datafoundation.org](https://datafoundation.org).

Entity Identification System	Agency	Nature of Regime: Regulatory, Statistical, or Procurement
Employer Identification Number (EIN)	Internal Revenue Service	Regulatory
	Department of Commerce	Regulatory
	Treasury Department - Financial Crimes Enforcement Network	Regulatory
	Securities and Exchange Commission	Regulatory
	Federal Communications Commission	Regulatory
	Internal Revenue Service	Regulatory
	Federal Election Commission	Regulatory
	Census Bureau	Statistical
	Census Bureau*	Statistical
	Consumer Financial Protection Bureau	Regulatory
	Treasury Department - Bureau of the Fiscal Services	Procurement
	Centers for Medicare and Medicaid Services	Regulatory
Data Universal Numbering System (DUNS) Number	General Services Administration	Procurement
	Department of Commerce	Statistical
	Department of Defense	Procurement
	Environmental Protection Agency	Regulatory
	Treasury Department - Office of Foreign Asset Control	Regulatory
Replication Server System Database ID (RSSD ID)	Treasury Department - Financial Crimes Enforcement Network	Regulatory
	Federal Financial Institutions Examination Council	Regulatory
	Office of the Comptroller of the Currency	Regulatory
	Federal Reserve	Regulatory
	Federal Reserve*	Regulatory

Entity Identification System	Agency	Nature of Regime: Regulatory, Statistical, or Procurement
Legal Entity Identifier (LEI)	Commodity Futures Trading Commission	Regulatory
	Commodity Futures Trading Commission*	Regulatory
	Securities and Exchange Commission	Regulatory
	Consumer Financial Protection Bureau	Regulatory
Central Registration Depository (CRD) Numbers	Securities and Exchange Commission	Regulatory
	Treasury Department - Financial Crimes Enforcement Network	Regulatory
	Securities and Exchange Commission*	Regulatory
	Internal Revenue Service	Regulatory
Manufacturer's Identification Code (MIC/MID)	Department of Defense	Procurement
	Customs and Border Protection	Regulatory
Commercial and Government Entity (CAGE) Codes	Department of Defense	Regulatory
	Defense Logistics Agency	Regulatory
Standard Carrier Alpha Code (SCAC)	Surface Transportation Board	Regulatory
	Census Bureau	Statistical
Harmonized Tariff Schedule (HTS) Number & Schedule B Codes	International Trade Commission	Regulatory
	Customs and Border Protection	Regulatory
EPA Identification Number	Environmental Protection Agency	Regulatory
	Environmental Protection Agency*	Regulatory
Federal Deposit Insurance Corporation (FDIC) Certificate Number	Federal Deposit Insurance Corporation	Regulatory
Federal Deposit Insurance Corporation Unique Number (UNIMUM)	Federal Deposit Insurance Corporation	Regulatory
Federal Deposit Insurance Corporation Receivership Number	Federal Deposit Insurance Corporation	Regulatory
Federal Reserve ID for Bank Holding Company (RSSDHCR)	Federal Reserve	Regulatory
Company Identifier (CID)	Federal Energy Regulatory Commission	Regulatory
National Provider Identifier (NPI)	Centers for Medicare and Medicaid Services	Regulatory
Health Plan Identifier (HPID)	Centers for Medicare and Medicaid Services	Regulatory
Alternative Payment Model (APM) Entity Identifier	Centers for Medicare and Medicaid Services	Regulatory
Drug Enforcement Administration (DEA) Number	Drug Enforcement Administration	Regulatory
FDA Establishment Identifier (Facility FEI)	Food and Drug Administration	Regulatory
International Fisheries Trade Permit (IFPT) Number	National Oceanic and Atmospheric Administration	Regulatory
Foreign Entity ID	Census Bureau	Statistical

Entity Identification System	Agency	Nature of Regime: Regulatory, Statistical, or Procurement
National Drug Code Labeler Code	Food and Drug Administration	Regulatory
Manufacturer ID	Customs and Border Protection	Regulatory
IARD Number, NFA Number, SEC ID Number	Treasury Department - Financial Crimes Enforcement Network	Regulatory
Central Index Key (CIK)	Securities and Exchange Commission	Regulatory
National Futures Association (NFA) ID	Commodity Futures Trading Commission	Regulatory
Large Trader Identification (LTID) Number	Securities and Exchange Commission	Regulatory
Investment Company Act File Number	Securities and Exchange Commission	Regulatory
FIN or SIC Identifier	Securities and Exchange Commission	Regulatory
FCC Registration Number (FRN)	Federal Communications Commission	Regulatory
499 Filer ID	Federal Communications Commission	Regulatory
Service Provider and Billed Entity Identification Number (FCC Form 498 ID)	Federal Communications Commission	Regulatory
Tribal Identifier Data Standard	Environmental Protection Agency - Bureau of Indian Affairs	Regulatory
Registered Identification Number (RN)	Federal Trade Commission	Regulatory
WPL Numbers (No longer issued, but still in use)	Federal Trade Commission	Regulatory
International Air Transport Association (IATA) code	Census Bureau	Statistical
GS1 Company Prefix	Department of Defense	Procurement
LIC and HIN	Department of Defense	Procurement
BEA Foreign Direct Investment Identification Number	Bureau of Economic Analysis	Regulatory
CUSO Registry Number	National Credit Union Administration	Regulatory
Regulated Persons Index (RPI)	Federal Maritime Commission	Regulatory
FMC License Number	Federal Maritime Commission	Regulatory
Global Intermediary Identification Number (GIIN)	Internal Revenue Service	Regulatory
Home Mortgage Disclosure Act (HMDA) Respondent ID	Consumer Financial Protection Bureau	Regulatory
FHFA ID Number	Federal Housing Finance Agency	Regulatory
ACCESS Personal Identification Number	International Trade Administration	Regulatory
Mine ID	Department of Labor - Mine Safety and Health Administration	Regulatory
Lab ID	Consumer Product Safety Commission	Regulatory
Business Account User ID	Consumer Product Safety Commission	Regulatory

\*In this instance, the agency uses the same entity identification system within multiple regimes.

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