

**GS1**

**Response to**

**the**

**SIFMA-led**

**Solicitation of Interest**

**Legal Entity Identifier (LEI)**

**Data Attributes**

**for**

**US Regulatory Reporting**

**June 3, 2011**

## To the Committee:

It is our sincere pleasure to have both been asked and to respond to your Solicitation of Interest on behalf of the financial institutions and others represented in your coalition of trade associations. We are pleased to again share our thoughts on this extremely important subject. In following your process we have submitted two (2) sets of questions and received two (2) sets of responses. We include them as an Attachment, immediately following this response.

As background we have been sharing our approach and vision for a global financial industry reference data solution for nearly six years with financial institutions, financial market utilities, trade associations, data vendors and software companies, legislators, government bodies, standards organizations, auditors and corporate issuers, both here in the US and globally. The solution and approach we outline below is identical to the proposal we submitted to the US Treasury's Office of Financial Research - [US Treasury's Office of Financial Research \(OFR\) on the Legal Entity Identifier](#), the CFTC - [Commodity Futures Trading Commission \(CFTC\) on the Unique Counterparty Identifier](#), and the SEC - [Securities and Exchange Commission \(SEC\) on the Unique Identification Code](#).

As part of our research and intensive preparation on this issue, we assembled a group of interested global stakeholders and engaged with them for a year prior to opening up the dialogue to a broader global audience. As part of the GS1 Open Forum held in January, 2011, GS1 and Financial InterGroup invited academics, data and software vendors, financial institutions, financial infrastructure entities, regulators, trade associations, corporations, standards bodies, auditors and others to participate in the dialogue. Our collaboration and research informed our proposals to the three US regulators and now informs our response to this Solicitation of Interest.

Bob Carpenter, President and CEO  
GS1 US  
On behalf of GS1 Global

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[www.GS1US.org](http://www.GS1US.org)

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## Prerequisites

Below are responses to the “prerequisites” section of the SOL.

### **Business Model**

***Must operate solution on a cost recovery basis and have a formally documented governance structure with balanced representation for relevant stakeholders***

GS1 is a global not-for-profit organization, organized as a Belgium *Association Internationale Sans But Lucratif (a.i.s.b.l.-* an international not-for-profit organization). GS1 provides services through its 110 country-specific “GS1 Member Organizations” around the world, each of which is required to operate on a not-for-profit basis. The US Member Organization, GS1 US, is organized as a Section 501(c)(6) organization. All services provided by GS1 are operated on a cost-recovery basis.

The highest level of governance in GS1 is the GS1 Management Board, which is composed of representatives of all 25 global industries that GS1 now serves. If the GS1 System is selected to provide LEI issuance and LEI reference data registration, there will be seats for financial industry representatives and regulators within the governance structure. In addition, GS1 has sector-specific “project boards.” We anticipate the formation of a project board for financial services to govern GS1’s financial services-related activities, with balanced representation for all relevant stakeholder categories.

GS1 has a federated governance structure through its Member Organizations around the globe. This allows for local involvement and, where required, local regulatory oversight. However, it operates its self-registering numbering assignments from a single pool of numbers administered through a distributed data model thus assuring global uniqueness.

***Must offer the legal entity identifier service to the public without fees for basic storage, access, cross-referencing or redistribution***

In its existing operations, GS1 recovers the costs of issuing identifiers and operating reference data infrastructure through fees charged to companies that allocate and self-register identifiers. GS1 would continue to do so for the financial industry. GS1 is prepared to offer to the public, free of charge, access to financial industry LEI information. The determination of which information will be publicly available will be made through industry consensus, governed by GS1’s Global Standards Management Process, which will be informed by guidance from financial services stakeholders, and in consideration of local, national and/or regional regulation and global standards development organizations.

***Must be able to fund and sustain the effort on an ongoing basis***

GS1 has operated services specifically compatible with the requirements of this SOI for seven years, and more generally comparable services for nearly four decades. The longevity and ever-expanding scope and coverage of the GS1 System is a testimony to its ability to fund, sustain, and transform itself as industries mature and expand and as regulation adapts to these changes.

***Must be an appropriate size entity to manage a global utility of this size including adequate personnel, technology and the capacity to issue, maintain and provide access to many millions of LEIs and their related data attributes.***

GS1 has provided identification services to over 1.5 million companies, including over 40 million product identifiers and 1.5 million legal entity identifiers issued to date. GS1's Global Data Synchronization Network (GDSN) today manages reference data for 6.8 million product identifiers, with thousands of attributes for each product. The GS1 US GLN Registry today manages nearly 300,000 legal entity identifiers. These two services are explained in more detail in the main body of this response.

GS1 operates in 150 countries, served by GS1's 110 country-specific "GS1 Member Organizations." The Global Data Synchronization Network today provides services to users in 132 countries. GS1 employs 2200 people around the globe.

It should be noted that GS1, in addition to market participant identifiers (the LEI, UCI and UIC), has proposed an integrated set of unique identifiers to the OFR, CFTC and SEC that accommodates product codes for swaps and other derivatives; that allows for uniquely identifying divisions, trading desks and traders; that recognizes the importance of and identifies a unique transaction identifier for audit trail purposes; and that provides for the unique identification of financial events, both life cycle events as well as corporate events. All are accommodated within the GS1 system. We refer the reader to our proposals to the OFR, CFTC and SEC referenced in the covering letter.

## **Governance Model**

***Should be subject to supervision and regulation***

The governance structure of GS1 is open to participation by financial institutions, regulators, and other stakeholders at the national, regional, and global levels where required. GS1 Standards are created through a voluntary industry consensus process, in which regulators may participate directly, and in which regulations are routinely considered by all industry participants. The federated nature of the governance structure allows for local, regional and national differences to be accommodated within each separately regulated environment, while adhering to a globally unique numbering standard. There are many examples of GS1 Standards that were developed and are used in regulated environments, including health care, food safety, and others.

## **Operating Model**

*Should allow LEI reference data to be updated with minimal turn-around time (intraday) and market participants and regulators should be able to challenge entries and request amendments*

GS1's existing registries for reference data, including the Global Data Synchronization Network and the GS1 US GLN Registry, all support real time updating and distribution of reference data.

GS1's existing registries have defined processes for challenge and amendment of reference data. We anticipate establishing, through GS1's Global Standards Management Process, specific procedures in the financial services context for challenge and update of reference data, tuned to the needs of the financial industry and its regulators.

The process GS1 envisions for self-registration (discussed in the main body of our response) would lead to higher quality reference data input at the source, leading to a reduced need for challenge and amendment.

*Must be able to provide for LEI issuance both a self-registration model and have the capabilities to assign LEIs in cases where legal entities don't self-register with high data quality*

GS1's model for LEI issuance and registration of LEI reference data is based on the same self-registration model that it already uses for issuance of legal entity identifiers, product identifiers, and other types of identification across 25 different industry verticals around the world. This model has been used successfully for nearly four decades.

In cases where self-registration is not possible or desired, then GS1 can offer registration services on behalf of others, or GS1 can work with one or more outside neutral organizations to provide registration services on behalf of others.

## **Data Model**

*Data Model Quality assurance should include checks for existing entities including name searches, address searches, and combinations of text strings and other characteristics*

In both the case of the GLN registry and GDSN, checks of the kind described in the question are made to ensure uniqueness of the identifiers in question. In addition, other syntax validity checks are applied, and addresses are normalized using software provided by the US Postal Service and other postal authorities.

## **Technical Principles**

***Security and reliability of all IT systems involved in developing, maintaining and publishing LEI reference data should meet or exceed industry standards for real-time, high availability market service***

IT infrastructure is hosted at third party providers. The hosting environments adhere to industry standards and practices for security, redundancy, and service levels. More details are provided in later sections of this response.

***Must have experience with developing large-scale, global solution(s) elsewhere within the Financial Services industry***

GS1 Member Organizations have been actively involved with the banking industry in the areas of electronic payments and cash handling, and with commercial companies in the invoicing and payment space. GS1 has partnered with Financial InterGroup, who has extensive global experience in designing and implementing large-scale global financial industry solutions in trading, clearing, risk management, data management and networking, across the broad dimension of capital and contract markets, both across organized exchange markets as well in the over-the-counter dealer markets.

***Solution provider must have experience in international markets***

GS1 operates in 150 countries, served by GS1's 110 country-specific "GS1 Member Organizations." GS1's Global Data Synchronization Network for reference data today operates in 132 countries, served by 28 data pools (organizations providing extended reference data sets) operated across the globe.

GS1 Member Organizations provide to each local market administration, outreach, training, education, and implementation support, all tailored to the language, customs, and needs of each locality. In addition, the GS1 Member Organizations cooperate with local government and regulators.

***Must be able to issue, register and maintain entity identifiers within 12 months***

GS1 is proposing to use an *existing* legal entity identifier standard, the GS1 Global Location Number (GLN). This identification system has been in use for 15 years, with over 1.5 million legal entity and location identifiers issued to date. GS1 is also proposing to use the existing GS1 US GLN Registry as the basis for the near-term LEI reference data registry to meet immediate US requirements. This specific reference data registry has been in use for 7 years, with nearly 300,000 legal entity identifiers registered to date. We anticipate requiring only three months to add additional attributes to this existing system to meet the requirements for the 19 financial services attributes as detailed in the SIFMA-led Requirements document. A more detailed schedule and implementation plan is described in a later section of this response. For a longer

term global solution, GS1 is proposing a solution modeled on the GS1 Global Data Synchronization Network, which today operates in 132 countries to provide reference data for 6.8 million identifiers each having thousands of attributes.

Because all elements of GS1's proposals either make use of existing standards and systems without modification, or require only small enhancements to existing systems, GS1 is confident that it will be capable of issuing, registering, and maintaining legal entity identifiers well within the 12 month objective.

## **Legal**

*Should have legal staff with appropriate skills/background to deal with international laws, intellectual property rights issues*

GS1 has in-house general counsel supplemented with external resources in the areas of intellectual property and international law. GS1 can provide more details under NDA.

## **Internal Governance Model and Compliance**

*Processes should be adequately governed and auditable*

All standards development in GS1 is carried out through the GS1 Global Standards Management Process. This process is a voluntary community consensus process, with well-defined process steps, community review points, and voting gates as detailed in GS1's process manual.

Development of services offered by GS1 and its Member Organizations are carried out through a similar process which is geared towards service creation as opposed to standards development.

Both processes are governed by the GS1 Management Board and its subcommittees. A Process Oversight Committee exists to audit that all processes are followed correctly, and the processes themselves are designed to produce outputs that allow it to be audited by external parties if needed.

## Responses to SOI Section III

In this section, we respond to questions posed in Section III of the SOI.

### Company History

*Include specific past experiences and current performances that would directly apply to the goals and objectives of this SOI.*

There are three components of the GS1 System that exist today and which we propose to use directly to meet the financial industry's requirements for an LEI and LEI reference data registry. They are:

- *Legal Entity Identifier* The GS1 Global Location Number (GLN) has been in existence as a global standard for legal entity identification for 15 years, with over 1.5 million GLN identifiers issued to date. The methodology for issuing GLNs and other GS1 identification has been the foundation of the GS1 System since its inception in 1974, and has to date supported the self-issuance of over 40 million globally unique identifiers by 1.5 million companies in 150 countries across the globe.
- *GS1 US GLN Registry* This registry for legal entity reference data has been in use since 2004, and today holds reference data for nearly 300,000 legal entities that are identified by GS1's GLN legal entity identifier. In this registry, each legal entity has 28 associated data attributes. 10 of these 28 attributes are identical those in the list of 19 attributes in Figure 1 of the SIFMA-led Requirements document. We propose simply to extend the GLN Registry with approximately nine additional attributes to meet the needs of the financial industry, which we believe can be accomplished in three months. This is a proven solution that is already in use, operates under well-defined service level agreements, and which already has a complete supporting infrastructure for quality assurance, customer support, and the like.
- *GS1 Global Data Synchronization Network (GDSN)* We propose to model the long-term solution on GS1's Global Data Synchronization Network (GDSN). This approach is based on the industry requirements expressed to date. GDSN has been in existence since 2004 to register, maintain, and distribute reference data associated with globally unique product identifiers, with over 6.8 million product identifiers registered to date, and tens of thousands of product attributes defined. GDSN has sophisticated access control mechanisms to ensure that reference data is distributed only to authorized parties, and a well established change control mechanism and process for updating the definitions of available attributes. GDSN has a *federated* architecture in which multiple "data pools" around the world, coordinated through a GS1 "global registry," collaborate to provide seamless service around the globe. Today there are 28 data pools serving 132 countries. Having multiple data pools provides for competition (and thus choice and lowered costs to end users), and the ability to serve local

markets in a tailored fashion. More importantly, we believe that the federated model is essential for a solution to be accepted internationally, as we explain in the body of our proposal.

## **Organization**

*Include names and titles of all key-operating personnel. Include name and related business related experience of each officer, director, general partner, stockholder, or limited partners holding more than 5% interest in the company.*

For GS1 US:

- Bob Carpenter, President and CEO
- Gay Whitney, SVP Industry Engagement
- Katy Theroux, SVP Solutions, Customer Engagement, and Human Resources
- Yegneswaran Kumar, SVP & CFO
- Bernie Hogan, SVP Emerging Capabilities and Industries
- Bill Voltmer, President 1SYNC

For GS1 global:

- Miguel A. Lopera, President and CEO
- Sally Herbert, President of Standards & System Development, President of GS1 GDSN Inc.
- Philippe Wéry, Chief Financial and Administration Officer
- Patrick Vanlombeek, Chief Marketing Officer
- Malcolm Bowden, Chief Solution Officer

*Please disclose whether any of these individuals have been convicted of any crimes involving dishonesty or have filed bankruptcy in the past.*

None.

## Account Management Structure

*Provide an organizational chart of those individuals critical to the success of this potential agreement within your organization beginning with your Chairman and/or COO.*

Please see the above list of executives, and the answer to the second question in the “Implementation Plan” section of the Appendix B response, and the answer to the question in the “Resources” section of the Appendix B response.

## References

*All references should include company name, address, telephone, and contact name.*

*Provide three major account references that closely parallel the requirements published by the Trade Associations. Include services provided and annual billings. Provide three major account references that you have not retained. Include services provided, annual billings, and their reason for departure.*

GS1 is a not-for-profit organization. GS1 is a standards development organization, and GS1 operates services on a not-for-profit, cost recovery basis for the industries that it serves. We do not engage in for-profit service development or deployment. As such, it seems that the questions asked to not apply to our type of organization.

If the Committee can be more specific about the type of references you seek, given the nature of GS1 and GS1 US’s business, we will be happy to comply.

## Strategic Alliances

*List in your response all strategic alliances you plan to use and in what capacity, if your company is endorsed as one of the solution provider for the LEI effort.*

- *Financial InterGroup* GS1 has partnered with Financial InterGroup for its deep financial industry expertise. Financial InterGroup is a strategy and development firm advising financial enterprises and their technology suppliers on issues related to mergers and acquisitions, new product and market development, global strategies, restructurings, information systems, communications infrastructures, and risk and data management. Its principals and advisory board members have been practitioners in and advisors to many of the leading service companies and many of the largest of financial enterprises globally. It has unparalleled expertise in the relationship of data management and risk management, publishes extensively on these subjects in the academic literature and trade press, and its members have been present as advisors or practitioners at every major infrastructure event throughout the last six decades of financial services evolution.

- *VeriSign* GS1 partners with VeriSign to deliver global network services. GS1’s Object Name Service, a global lookup service that is the foundation of the “Internet of Things”, is

operated by VeriSign. VeriSign's extensive experience in networking, security, and global-scale directory services may play an important role in the long-term global solution described herein.

- *Summa Technology Group* SummaTG provides leading companies B2B Integration as a managed service. GS1 uses Summa's development, hosting, and co-location services for the GS1 Global Data Synchronization Network.
- *Savvis Inc.* Savvis is a global leader in IT infrastructure services with a platform spanning North America, Europe, and Asia. GS1 US uses Savvis's hosting and co-location services for the GS1 US GLN Registry.

## **Legal Actions**

***Provide information concerning any pending lawsuits or regulatory proceedings, disciplinary actions, sanctions, license suspensions or revocations, etc or any potential conflicts of interest.***

GS1 US, 1SYNC, GS1 *a.i.s.b.l.* (GS1 Global) and the American Hardware Manufacturer's Association (AHMA), are named defendants in the matter of Edgenet Inc. v. GS1 US, Inc. et al, Case No. 09-CV-65 pending in the United States District Court for the Eastern District of Wisconsin (Milwaukee Division). To date the defendants have successfully defended the action, as the Court recently dismissed, with prejudice, the majority of plaintiff's second amended complaint. The Court has ordered that only claims of copyright and misappropriation of trade secret survive the defendants' motion to dismiss and it also has denied plaintiff's attempt to pursue an interlocutory appeal. GS1 US and 1SYNC deny the allegations and will continue to vigorously defend against all liability and damages.

GS1 US is also a named defendant in the matter of Bar Code Talks Inc v. GS1 US, Inc. filed in state court sitting in Spokane Washington, wherein plaintiff asserts various breaches of contract and other claims against GS1 US for denying its request to amend its database to reflect a change in ownership of a specific UPC or company prefix. GS1 US denies the allegations and will continue to vigorously defend against all liability and damages.

There are no other pending lawsuits or recent judgments against GS1 US.

***Provide information concerning all judgments against your company in the past two years. Provide information concerning material judgments against your company in the past five years.***

There have been no judgments against GS1 US in the past five years.

## Responses to SOI Appendix B

In this section, we respond to questions posed in Appendix B of the SOI.

### Executive Summary

*Please indicate the capacity in which you are responding to this SOI, i.e., international standards body, issuing authority, facilities manager, or a combination of one or more of the aforementioned.*

GS1's primary role is an identification issuing authority and as an international standards body. GS1 also creates and operates registration and lookup services on behalf of the industries it serves. GS1 is also prepared to support a federated solution as the roles of others are incorporated into an overall service through independent solution providers other than GS1. This is a model that has worked well for certain industries that have existing, entrenched solution providers that create value for their clients. The GS1 model is flexibly applied based upon the needs of each industry it works with.

*Provide an executive summary of your proposed solution, highlighting aspects where you believe you bring in extraordinary capabilities and value that would differentiate your organization in a global implementation.*

We believe the key differentiators of our proposal are as follows:

- *Built upon existing, proven standards and technology* GS1's proposal is based on *existing* standards and technology that have been *proven* in many years' use by other industries. We believe GS1 is the only organization that already issues legal entity identifiers on a worldwide basis and operates global registries for associated reference data. Consequently, we believe GS1's proposal offers the *least risk* and the *fastest time* to implementation. Specifically:
  - *An already existing LEI* GS1 already issues globally unique, persistent legal entity identifiers, called Global Location Numbers (GLNs). These are used today by companies around the world to identify legal entities in electronic purchase orders, invoices, and other business documents, with over 1.5 million such identifiers issued to date. There is no need to create new identification standards in a lengthy development process; existing GS1 global standards can meet the needs of the financial services industry.
  - *Already in use by the companies that need LEIs* Many of the companies that would require LEIs under proposed financial rulemaking are the same companies that already use GS1 GLNs as legal entity identification in electronic commerce. An estimated 30 – 50 percent of companies that require financial identifiers in a sample of the major trading market indices already use the GS1 System of standards:

33% of the S&P 500

83% of the DAX 30

30% of the FTSE 100

53% of the Nikkei 225

- *An already existing system for registering and distributing reference data* GS1 already operates several systems for registering and distributing reference data. In the US, the GS1 US GLN Registry maintains reference data for nearly 300,000 legal entity identifiers. Globally, the Global Data Synchronization Network (GDSN) maintains reference data for 6.8 million product identifiers, each with thousands of attributes, and delivers this through a federated network of 28 data pools serving 132 countries.
- *International from Day 1* GS1's legal entity identifier and systems for maintaining and distributing reference data are based on global standards, and are currently used today in countries across the globe. GS1's Global Standards Management Process is an international forum for creation of voluntary industry consensus standards. GS1's 110 Member Organizations across the globe provide for support of international users including education, training, customer support, and participation in community processes, all with local expertise and language.
- *User-driven governance processes* GS1's Global Standards Management Process and its process for developing services are designed to ensure fair, balanced participation from all categories of stakeholders. Minimum participation requirements for end users (in both number and balance) ensure that all decisions truly reflect industry consensus. GS1 is governed by global and local Management Boards comprising senior stakeholders from the various industries served. It is suggested that the financial services industry will benefit through the review and adoption of these GS1 governance protocols and proven practices.
- *Globally-recognized Standards Development Process* As an existing global, neutral, voluntary consensus standards body, GS1 operates a user-driven Global Standards Management Process (GSMP) for the development of any new identification and reference data standards that may be required. Also, GS1 is recognized by the International Standards Organization (ISO), collaborates with many other standards setting bodies, and can provide standards for financial institutions/financial intermediaries and market participants who are non-financial corporations and businesses that use capital and contract markets
- *National Sovereignty and Regulation* GS1 proposes a federated model for an international service that provides the necessary flexibility to take into account concerns for national sovereignty and different national preferences for regulation and oversight. The federated

model allows a country to operate in a way that is protected from interference by other countries, and allows each country's implementation to be subject to local regulation, different confidentiality regimes, and differing degrees of direct governmental control.

- *Neutral, no conflicts* GS1 is a neutral, not-for-profit organization operating on a cost-recovery basis. It does not offer any for-profit services to the financial industry or any other industry. GS1's role as the steward of a voluntary industry consensus standards process and as an operator of services on behalf of the financial industry is free from conflicts of interest, and is separate and apart from the competitive offerings of vendors, software companies and infrastructure providers.
- *Decouples Issuance from Registration* The GS1 proposal decouples the *issuance* of identification numbers from the *registration* of reference data. This allows for competition to drive down costs, avoids disenfranchising existing organizations with experience in financial data management, and also provides for local regulations that may vary from country to country.

The following summarizes our proposal which was made to the OFR, the SEC, and the CFTC. Our intention is to satisfy the OFR's requirements for a Legal Entity Identifier (LEI), the SEC's requirements for a Unique Identifier Code (UIC), and the CFTC's requirements for a Unique Counterparty Identifier (UCI). Throughout this document, we will use the term LEI, with the understanding that it is intended to serve as an LEI, UIC, or UCI as described by these government agencies.

As stated in our submissions to the OFR, the SEC, and the CFTC, GS1's proposed solution has three components:

- *Identification* We propose a system of *universal identification* for the financial industry, which includes legal entity identification that satisfies OFR's, SEC's and CFTC's requirements. The identifiers we propose are based on the GS1 System, which is a system for the globally unique identification for business that has been in existence for 40 years. The Legal Entity Identifier proposed here is GS1's Global Location Number (GLN), which is already in use internationally by many companies who also operate in the financial sector.
- *Issuance* We propose a method of issuing financial identifiers that is *globally distributed*, and *directly empowers end users* to issue globally unique identifiers without having to interact with an issuing authority each time. This is based on a two-step issuing process in which a user company first obtains a GS1 Company Prefix which provides the user with a certain capacity to create financial identifiers, after which the user creates individual financial identifiers using the company prefix as a stem. Because the GS1 Company Prefix issued to the end user is globally unique, all identifiers created by that end user are also globally unique. This is a proven methodology already well established in many sectors for

the globally unique identification of legal entities, products, supply chain logistics units, and other business objects. A variable-length company prefix is used, which is an innovative method by which a wide range of capacity requirements across end user companies can be accommodated, while still having a short, fixed overall length for identifiers that eases database management.

- *Reference Data* We propose a method for the registration and distribution of reference data pertaining to financial identifiers that decouples the process of issuing an identifier from the process of registering and verifying reference data. We propose a self-registration method in which an end user creates a standardized business document that defines the reference data for a given LEI (using an XBRL template or other standard adopted by the industry), certifies the accuracy of this data with an independent auditor or other certifying authority, and submits the certified data to a reference data registry. All parts of this process are designed for automated, “straight through” processing, minimizing the possibility for error.

As regards the reference data registries themselves, a key feature of our proposal is the possibility for multiple, federated registration authorities. For the purposes of registration and access to reference data these registration authorities act collectively as a single, worldwide resource. The federated structure, however, makes it possible for the system to scale internationally, as it can accommodate differences in local laws and regulation across jurisdictions, and address concerns related to national sovereignty that inevitably arise in an international environment. It also provides for competition and for leveraging the expertise of existing solution providers. Recognizing the urgency of a short-term solution to meet immediate regulatory requirements in the US, we propose a phased approach in which GS1’s existing GLN registry for the US is used to meet short-term needs, scaling later to a fully international, federated approach.

We believe that all three of these components must be addressed in order to deliver an effective solution to the financial industry. Recognizing, however, that the SIFMA-led SOI has chosen to focus attention on the third of these three components, the remainder of this section will describe in detail our proposal for registration and distribution of reference data. Please see the earlier referenced proposals to the OFR, CFTC and SEC for more information about the identification and issuance components of our proposed solution.

A key differentiator of our proposed solution is that **all three components exist today and are in use at scale**. The GS1 Global Location Number (GLN) has been in existence as an international standard for legal entity identification for 15 years, with over 1.5 million GLN identifiers issued to date. The methodology for issuing GLNs and other GS1 identification has been the foundation of the GS1 System since its inception in 1974, and has to date supported the self-issuance of over 40 million globally unique identifiers by 1.5 million companies in

150 countries across the globe. The reference data component of our proposal is based on two reference data registries operated by GSI today, as detailed below.

It is well recognized that any LEI solution truly capable of addressing systemic risk must necessarily be an international solution, due to the highly interconnected nature of financial markets around the world. Therefore, it is essential that any solution be capable of scaling to a fully international environment. We recognize, however, that today we face a short-term requirement to meet the regulatory requirements of US regulators. These requirements are known today in much more detail than are international requirements. For this reason, GSI proposes a two-phase approach to providing a reference data registry solution to the financial industry:

- *Short-term* We propose to use GSI US's existing GLN Registry. This registry for legal entity reference data has been in use since 2004, and today holds reference data for nearly 300,000 legal entities that are identified by GSI's GLN legal entity identifier. In this registry, each legal entity has 28 associated data attributes. 10 of these 28 attributes are identical those in the list of 19 attributes in Figure 1 of the SIFMA-led Requirements document. We propose simply to extend the GLN Registry with approximately nine additional attributes to meet the needs of the financial industry, which we believe can be accomplished in three months. This is a proven solution that is already in use, operates under well-defined service level agreements, and which already has a complete supporting infrastructure for quality assurance, customer support, and the like.
- *Long-term* We propose to model the long-term solution on GSI's Global Data Synchronization Network (GDSN). This approach is based on the industry requirements expressed to date. GDSN has been in existence since 2004 to register, maintain, and distribute reference data associated with globally unique product identifiers, with over 6.8 million product identifiers registered to date, and tens of thousands of product attributes defined. GDSN has sophisticated access control mechanisms to ensure that reference data is distributed only to authorized parties, and a well established change control mechanism and process for updating the definitions of available attributes. GDSN has a *federated* architecture in which multiple "data pools" around the world, coordinated through a GSI "global registry," collaborate to provide seamless service around the globe. Today there are 28 data pools serving 132 countries. Having multiple data pools provides for competition (and thus choice and lowered costs to end users), and the ability to serve local markets in a tailored fashion. More importantly, we believe that the federated model is essential for a solution to be accepted internationally, as we explain below.

More information about the GSI US GLN Registry and the GSI Global Data Synchronization Network may be found in the Operating Model section and other sections below.

GSI has long experience in issuing identification and managing reference data in an international setting. GSI's standards for product identification and electronic commerce are the most widely accepted standards of their kind in the world. All consumers are familiar with GSI's Global Trade Item Number (known as the Universal Product Code or U.P.C. in North America, and the European Article Numbering code or EAN elsewhere in the world) which appears on the labels of consumer products in 150 countries around the world. Less visible to consumers, but equally important, are GSI's identifiers for legal entity identification (the GLN) which are an integral part of electronic commerce messaging between trading partners around the world.

As a consequence of this experience, GSI recognizes that a globally-acceptable solution for registration and distribution of reference data must be a federated model. By a "federated model," we mean a system that provides seamless access to all reference data regardless of origin or point of access, but where the data is held in a collection of repositories that interact to provide this seamless access rather than as a single repository. There are several reasons why a federated model is essential to operating in an international environment:

- Having a single, centralized worldwide database is unlikely to scale adequately to meet worldwide demand, especially as more stringent real-time requirements for access and updating evolve
- A single registrar would have no corresponding global regulator and would thus be a highly vulnerable "weak link" in the worldwide financial system as the oversight of that single organization would not be possible under current global regulatory regimes
- In an international setting, it is highly unlikely that any country would accept a system where information critical to the oversight of that country's financial markets is held by some registration organization located outside of that country. Many, if not all, countries will see this as an issue of national sovereignty, and want to have registration for their own financial entities handled by a registrar that is located in their country or its regional extension, subject to that sovereign entity's own laws and regulations, and able to function regardless of the state of foreign relations with other countries.
- Maintaining financial reference data is a highly complex task requiring considerable skill and expertise. Moreover, there are many value-added services that can be provided around the maintenance of and access to reference data. It is highly desirable in this space to foster continuous innovation, to improve cost effectiveness, and to allow for competition while not disenfranchising existing service providers who provide value added services to the financial industry (i.e. market and reference data vendors, financial market utilities, trading venues, et al).
- It is desirable to leverage the capabilities of the many existing companies and organizations that have expertise in maintaining a myriad of financial reference data (i.e. tax-identification

numbers, tax exemption certificates, delivery addresses, credit ratings, transfer agent registries, et al).

## **Data Standards / Model**

*Describe the data standards you would develop to support this effort. Include details around your data model including attributes, metadata, etc.? How will you ensure that this is extensible in the future?*

We believe the following standards are needed:

- A data standard that defines the structure and allocation of the LEI itself.
- A data standard or collection of standards that defines the structure and meaning of reference data associated with each LEI. Initially, this would be a single standard that defines a core set of attributes similar to those defined in Figure 1 of the SIFMA-led Requirements document. Over time, we expect this will grow to encompass additional data as the industry identifies additional requirements, and may grow to a modular set of standards that reflect different types of data that need to be associated with the LEIs for different types of legal entities, and different operational purposes.
- A data standard for the submission of LEI reference data by a registrant to a registrar during the process of self-registration. This data standard should be designed to be auditable, so that a registrant can work with an independent auditor or other designated certifying agent to certify the accuracy of the data prior to its registration and entry into the LEI reference data repository.
- A data and interface standard for the query of data from the registry by users and applications.
- Data and interface standards to support the inter-registry communication needed to support the federated model.

We propose that these standards be developed as follows:

- *A data standard that defines the structure and allocation of the LEI itself* GS1 is proposing using the existing GS1 Standard for the Global Location Number (GLN). This is a widely adopted international standard for legal entity identification, used today to identify legal entities in electronic purchase orders, invoices, and other business transaction documents. Over 1.5 million GLNs have been issued to date around the world.
- *Data standards that further define the reference data associated with an LEI* To the extent that the LEI minimum data attributes for regulatory reporting and aggregation purposes, as described by the OFR and further evolved in the SIFMA-led Requirements document, is

found sufficient and complete then it will become the reference data associated with the LEI. To the extent that other data attributes are found to be needed we propose developing such standards through a global voluntary industry consensus process. GSI's Global Standards Management Process (GSMP) is available to develop such standards. Moreover, there are standards organizations that are already widely accepted in the financial industry (e.g. for bank and bank branch codes; communication messaging; asset identification, et al). GSI would seek to leverage those standards rather than developing new standards. Our proposals to the OFR, SEC and CFTC recognize legacy and best practice standards and accommodate them in a practical way, either for perpetual use or as temporary best practice identifiers that will be replaced over time as legacy systems are decommissioned.

- *A data standard for submission of LEI reference data during self-registration* As XBRL is a widely-accepted suite of standards for the submission of financial data, we believe XBRL is a very appropriate choice for this purpose. However, GSI would determine such submission standards through a global voluntary industry consensus process. Here, GSI's Global Standards Management Process (GSMP) is available to develop and/or adopt such standards, if the industry chooses. To the extent that other standards organizations are already widely accepted or other input mechanisms are available from within the financial industry, we would seek to leverage those standards and systems rather than developing new ones.
- *Data and interface standards for interacting with reference data registries, and for inter-registry communication in the federated model* GSI is proposing to develop and/or adopt such standards through a global voluntary industry consensus process. Here, too, GSI's Global Standards Management Process (GSMP) is available to develop such standards, if the industry chooses. To the extent that other standards organizations are already widely accepted or other input mechanisms are available from within the financial industry, we would seek to leverage those standards and systems rather than developing something new.

GSI standards are designed for extensibility. There are well-defined mechanisms for versioning of data and accommodating extensions within each data structure. The Global Standards Management Process provides a well-defined process by which users can request enhancements to existing standards, which then leads to revision of the standards through the voluntary industry consensus process.

In the context of GSI's Global Data Synchronization Network, there is a well-defined process for the roll out of enhancements to standards for reference data, such that all participating data pools can implement enhancements in a coordinated way that is predictable to end users.

*Describe your capabilities around hierarchy maintenance including processing of changes. Would your model be able to accommodate and maintain several layers of hierarchy information?*

Yes. Existing GSI Standards for product reference data already incorporate several notions of hierarchy. The Global Data Synchronization Network's data models for product reference data include hierarchy of packaging levels (the relationship between item-level, case-level, and pallet-level product identifiers, for example), and hierarchy of product categorization. The GSI US GLN Registry for legal entity identifiers includes a "parent" attribute which supports an unlimited number of layers of ownership hierarchy.

*Explain how the proposed data standards will adhere to the principles detailed in the business requirements document. Besides the aforementioned principles, what other principles would you recommend when developing the data standards?*

GSI's legal entity identifier, the GLN, meets the requirements detailed in Section 6.1 of the SIFMA-led Requirements document as follows:

- *Persistent* GSI identifiers are governed by an "allocation rules" standard, which specifies the conditions under which a legal entity requires a distinct legal entity identifier, and how identification does or does not change when various events occur in the life of the identified entity. We anticipate that through the GSI Global Standards Management Process the existing GLN allocation rules will be modified as necessary to meet the requirements of the financial industry.

In particular, "persistent" is defined in the SIFMA-led Requirements document as meaning "The LEI should follow a legal entity through its life regardless of corporate actions or other business or structural changes." We would expect this principle to be reflected directly in the GLN allocation rules. The rules themselves would be more detailed, and enumerate specific types of corporate actions and the resulting effect on the legal entity identifiers. For example, while we agree in principle that an LEI should follow a legal entity through its life regardless of corporate action, there are certain corporate actions in which this principle is in conflict to other principles identified in the SIFMA-led Requirements document. For example, in the case of two companies, each identified with a legal entity identifier, that merge to form a single legal entity, it is not possible for *both* to have each of the original legal entity identifiers persist in naming the new entity, *and* follow the "singular" principle ("There must be only one LEI per legal entity"). In cases like this, the allocation rules would specify which of the two original legal entity identifiers would persist as the identifier for the merged entity, or whether a third legal entity identifier must be created for the merged entity. The relationship between these identifiers would be expressed through reference data; e.g., in the latter scenario the reference data for the new LEI would name the two old LEIs as "predecessor" LEIs. This would also be covered in the allocation rules. The merger example

above is just one example of a number of scenarios that we would expect to be addressed in allocation rules. The GS1 Global Standards Management Process provides for the consensus-based maintenance and enhancement of the allocation rules over time by industry stakeholders.

- *Neutral* The SIFMA-led Requirements document defines “neutral” as meaning that the identifier has no embedded intelligence. In the GS1 System, this is referred to as the principle of “non-significance” and is a core principle underlying the construction and use of all GS1 identification including the legal entity identifier.
- *Singular* As with the “persistent” principle above, we agree with this principle and would put it into effect through the construction of allocation rules for the legal entity identifier. Please see the description and examples above for the “persistent” principle.
- *Unique* This is a fundamental principle of GS1 identification, and is reflected in the allocation rules for the GLN. As described elsewhere in this response, GS1 employs a distributed allocation methodology that ensures global uniqueness. Checks for uniqueness are also performed when identifiers are registered with their reference data.
- *Extensible (Scalable)* The GS1 legal entity identifier (GLN) has a theoretical maximum capacity of one trillion unique legal entity identifiers, of which approximately 110 billion are currently reserved for issuance in the US, and another 445 billion reserved for issuance in other countries. (The remaining 465 billion are held in reserve and not yet allocated to any country.) Of the 110 billion capacity currently reserved for the US, approximately 27 billion have already been allocated to US-based companies (this is the collective *capacity* allocated to those companies; the actual number of identifiers issued so far by those companies is several orders of magnitude smaller). In contrast, the document authored by Bottega and Powell (“Creating a Linchpin for Financial Data: The Need for a Legal Entity Identifier”) estimated that the number of legal entities requiring identification at between 500,000 and 2 million, or 0.002% of the current capacity.
- *Structurally Fixed* The GS1 legal entity identifier (GLN) is and has always been 13 digits in length, constructed as described elsewhere in this response.
- *Reliable (Quality)* See responses to other questions that deal with reference data quality. The legal entity identifier itself includes a check digit, which helps to avoid keying errors when identifiers are subject to manual data entry.
- *Interoperable* The GS1 legal entity identifier (GLN) is widely used as a legal entity identifier in many widely deployed standards for electronic commerce. GS1 numbering systems are recognized by ISO standards, and are designed for automatic identification and

data capture in an unambiguous way. The GLN is a 13-digit number that may be processed by any computing system whatsoever.

***How will you ensure that the developed data standards are globally accepted and comply with local regulations?***

GS1's Global Standards Management Process is designed to engage participants from across the globe, and thereby ensure global acceptance. Compliance with local regulation is addressed by individual participants in standards development working groups, including regulators themselves.

***Describe the likely scenarios and processes to refine, and/or update the proposed data standards?***

GS1 has a formal process for creation and enhancement of standards, called the Global Standards Management Process (GSMP). This process has four steps:

1. Statement of Business Need: industry stakeholders formally document the business need that is to be addressed by a change to standards.
2. Requirements Analysis: industry stakeholders jointly define the business and technical requirements that the change to standards must meet.
3. Solution Development: industry stakeholders draft the changes to existing standards and/or create new standards documents.
4. Deployment: the new or changed standards are ratified by the GS1 Management Board following an evaluation that due process was followed in all the preceding steps, the new or changed standard is published, and collateral materials to assist in implementation are created and disseminated.

All stages are open for participation by all stakeholders. Each stage includes a step of community review, and a community ballot to proceed to the next step.

The above process is tuned to the size and nature of the changes. For small maintenance changes, such as additions to code lists or minor enhancements, requirements are gathered in a very lightweight form and processed through the later steps as a batch, resulting in a period maintenance release of the standard. For larger or more complex changes, a separate work effort is initiated resulting in a new version of the standard addressing the change at the end of the process.

A controlled roll-out process is used to deploy changes to standards to the operating data registries.

## Operating Model

*Describe in detail your proposed operating model including but not limited to registration, maintenance, verification, distribution, access, etc.*

Though the SOI focuses on registration of LEI reference data, GS1 considers the issuance of the LEI itself to be an integral part of its operating model and is, therefore, included in the discussion below.

The operating model is described in three parts:

- The operating model for self-issuance of Legal Entity Identifiers by financial industry participant companies
- The operating model for self-registration of reference data associated with Legal Entity Identifiers by financial participant companies, in the short-term solution
- The operating model for self-registration of reference data associated with Legal Entity Identifiers by financial participant companies, in the long-term solution

The description of the operating models below is taken directly from GS1's submissions to the OFR, SEC, and CFTC.

### 1. Self-Issuance of Legal Identity Identifiers

This section outlines the envisioned process for issuing Legal Entity Identifiers under the GS1 proposal.

A distinguishing feature of the GS1 System is that globally unique identifiers are issued in a two-step process, which empowers an end user company to issue individual identifiers for itself with no intermediary involved. This is in contrast to the issuance process used in the financial services industry today. The issuance process in the GS1 System works as follows:

- A user company that anticipates a need to issue LEIs (or any other type of GS1 identifier) first obtains a GS1 Company Prefix from a local GS1 Member Organization. The GS1 Company Prefix is a string of six to eleven digits that may be used in the next step to issue individual identifiers. A user company chooses the length of the GS1 Company Prefix it requests based on its anticipated capacity requirements, as described below.
- Once a user company has obtained a GS1 Company Prefix, it may issue individual LEIs by assigning the remaining digits according to the structure defined for the LEI in the relevant GS1 Standard (in this case, the Global Location Number standard, which specifies a 13-digit number overall, comprised of the GS1 Company Prefix, the remaining digits assigned by the end user company, and a check digit calculated as a function of the other twelve). A user company may repeat this step as many times as needed for each LEI that it needs to create.

In the context of financial services, we also anticipate that each time a company issues a unique LEI it will be required to register that LEI and its associated reference data into an LEI registry. Registration of identifiers and reference data is discussed in a later section.

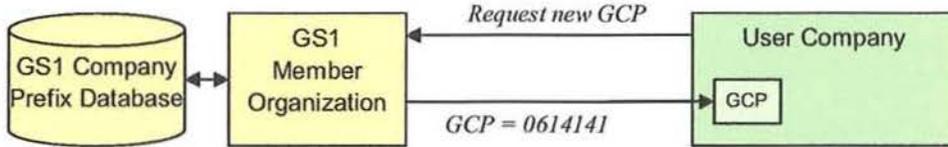
Figure 1 illustrates the issuance process.

This structure for issuing LEIs provides many benefits:

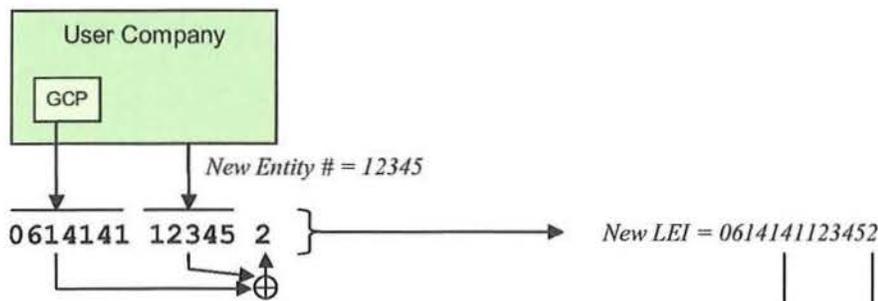
- It reduces the degree of interaction between an end user and the issuing authority (namely, GS1). A single GS1 Company Prefix provides the end user the capacity to issue many LEIs without further interaction with GS1. This reduces costs for end users.
- Once a user holds a GS1 Company Prefix, the act of issuing new LEIs or other identifiers can be carried out by the end user without further interaction with GS1. This reduces the time required for an end user to create a new identifier.

## Figure 1 - Global Business Entity Identifier Issuance Process

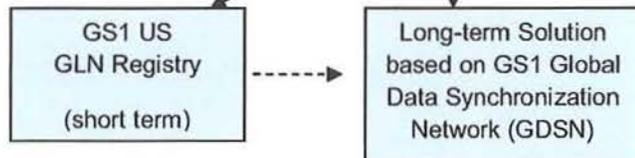
Step 1: User Company Obtains GS1 Company Prefix (GCP)



Step 2: User Company Issues new LEI



Step 3: User Company Registers new LEI with reference data



The highly decentralized nature of this process helps to ensure that GS1 and local regulators do not become bottlenecks for the financial industry. This is further aided by the fact that GS1 Company Prefixes are themselves allocated in a distributed fashion, across 110 GS1 Member Organizations worldwide. At the same time, the assignment of GS1 Company Prefixes is coordinated to ensure global uniqueness of all numbers.

The variable length of the GS1 Company Prefix allows the available numbering capacity to be used very efficiently, despite wide variation in the individual capacity requirements of individual

user companies. At the same time, the overall fixed length of the LEI simplifies its use in databases and other information systems.

In some instances, a user company has only a very limited need to issue identifiers: for example, a small company with a simple organization that does not issue any securities but may for example, be a swap participant that may only require a single LEI. In such a case, the user company may request a single individual LEI from its local GS1 Member Organization, rather than requesting a GS1 Company Prefix. The GS1 Member Organization in this case issues a complete 13-digit LEI from a reserve of available numbers maintained by the GS1 Member Organization for this purpose (essentially, the GS1 Member Organization allocates a GS1 Company Prefix to itself, from which it issues individual identifiers). Once issued, an individually-issued LEI functions exactly the same as any other LEI, and is globally unique with respect to all LEIs regardless of how issued. The user company would register its individual LEI in the same manner as it would a LEI created via the two-step process.

### **Capacity**

In the GS1 System, each company obtains a GS1 Company Prefix (GCP), which effectively gives that company control over a portion of the overall numbering space from which the company can issue its own identifiers. This leads to questions concerning the capacity for numbering required by different user organizations.

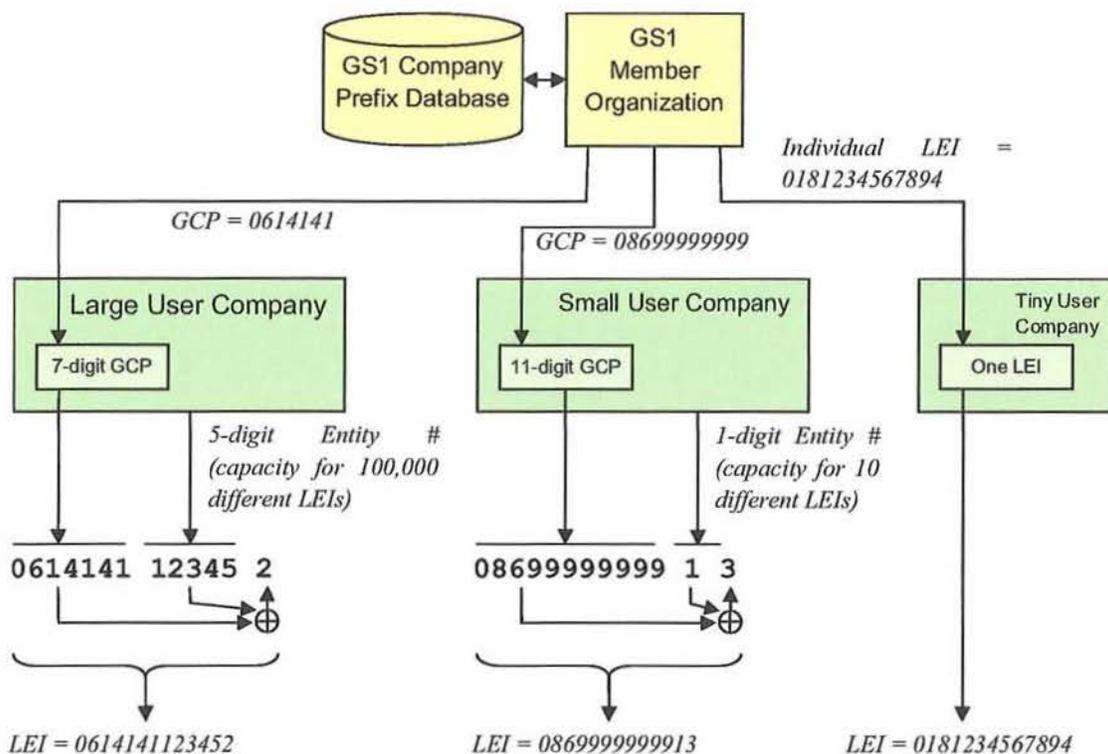
- It is anticipated that there will be some user organizations, typically very large or very complex corporations that will need to issue many LEIs.
- At the other end of the spectrum, there will be many organizations that only need to issue a small number of LEIs, including very small entities that may only need a single LEI.

The GS1 System accommodates these varying user requirements through its use of a *variable length* company prefix (see Figure 2). While the overall length of an GBEI is always 13 digits (of which 12 digits are assigned, the 13<sup>th</sup> being calculated algorithmically from the other 12), the number of those 13 digits that are the company prefix varies, with the number of digits available for assignment by the user holding the company prefix varies in an inverse fashion.

- For example, a large conglomerated enterprise requiring a very large capacity to create LEIs might request from GS1 a 7-digit GS1 Company Prefix. A 7-digit company prefix leaves five digits available for the creation of LEIs by the user – thereby giving that user the capacity to issue up to 100,000 distinct, globally unique LEIs.
- At the other end of the spectrum, a small business that only anticipates issuing a handful of LEIs might request an 11-digit GS1 Company Prefix, leaving one digit for assignment by the user. This small business therefore would have capacity to issue up to 10 LEIs using that

company prefix. As noted earlier, an even smaller organization might request a single LEI, without ever obtaining a company prefix.

**Figure 2 - Variable Length GS1 Company Prefix Within a Fixed Length Identifier**



Market participants are encouraged to obtain an appropriate length company prefix according to their capacity requirements, to avoid “wasted” identifier space through capacity allocated to a user but not used to issue identifiers. On the other hand, it is not necessary for a company to be clairvoyant with regard to its future capacity needs. If a company exhausts the capacity provided by the company prefix it obtained, it simply goes back to GS1 to ask for the allocation of another GS1 Company Prefix, giving it fresh capacity to create new identifiers.

- For example, XYZ Corporation requests an 11-digit GS1 Company Prefix, giving it the capacity to issue 10 distinct LEIs. If XYZ later discovers that it needs to issue an eleventh LEI it simply goes back to its GS1 Member Organization and requests a second company prefix. It can then issue more LEIs using that company prefix. If XYZ has discovered that its capacity requirements have increased dramatically, it may ask that the second company prefix be shorter, providing greater capacity for new identifiers.

### Non-Significance of the Company Prefix

It is important to note that the GS1 Company Prefix is intended to facilitate the *allocation* of identifiers only. It is *not* intended to be parsed from the LEI or other identifier, and does not serve to identify the company that holds the LEI. Ownership and other attributes of each LEI are recorded separately as reference data. In the GS1 System, the lack of any meaning associated with the GS1 Company Prefix, or indeed to any part of an identifier, is called the “principle of non-significance.” The reason for non-significance can be appreciated by considering how identifiers persist across various corporate events as seen here in some typical scenarios in Figure 3:

**Figure 3 – Common Occurring Corporate Events in the Life Cycle of a Legal Entity**

A Large Company with Multiple Legal Entities
XYZ Corp and ABC Co are large companies. XYZ has obtained the 7-digit GS1 Company Prefix 5555555, and ABC has the Company Prefix 6666666. XYZ has created many LEIs beginning with its prefix, e.g., the GBEI 5555555012343; ABC has done likewise, e.g., the GBEI 6666666543219. On some date, XYZ Corp acquires ABC Co, and all of the ABC legal entities become subsidiaries of XYZ. It is not desirable to assign all of the former ABC entities new LEIs, as that would invalidate all of the historical financial records pertaining to it. Instead, the ABC entities continue to operate using their existing LEIs beginning with 6666666. To reflect the change in ownership, the registered reference data for the ABC LEIs are updated to indicate they are now subsidiaries of XYZ, but the LEIs themselves do not change. XYZ Corp now has two company prefixes, 5555555 and 6666666, and identifiers beginning with those two prefixes are now tied together through the reference data which is updated to so indicate their relationship. Any unused numbering capacity under ABC’s 6666666 prefix is one of the assets that XYZ has acquired, and going forward XYZ may use either prefix to create new LEIs.
A Small Company Establishes A Single New Affiliated Company
Itty-Bitty Corp is a very small company that obtained an individual LEI 1234567890128. Several years afterwards, Itty-Bitty creates a wholly-owned subsidiary. The subsidiary obtains a second individual LEI 1357902468018. There is nothing in the LEI numbers themselves to indicate the ownership relationship; instead, this relationship is registered in the reference data.

The previous examples make clear that any attempt to embed intelligence in an identifier, especially in an attempt to capture parent-child or other ownership relationships between identifiers, is thwarted by the fact that those relationships change over time. It is for this reason that GS1 identifiers are to be considered as opaque numbers (“non-significant”, or “neutral” to use the term from the SIFMA-led Requirements document), and any information about what identifiers mean or their relationship in a hierarchy of ownership is to be obtained through consulting the appropriate reference data associated with each identifier.

## **2. Self-Registration of LEI Reference Data – Short Term**

To meet the short-term needs of US regulators and their constituents, GS1 is proposing to use the existing GS1 US GLN Registry, which today has nearly 300,000 legal entity identifiers and their reference data registered.

A key feature of our proposal is that we propose the creation of a data standard that defines a machine-readable document for the submission of reference data (e.g., an XBRL template), and that we anticipate the involvement of auditors or another suitable certification agent in the reference data self-registration process. These will greatly contribute to high data quality.

In more detail, the process for the initial issuance and registration of an LEI works as follows:

- A company self-issues its own LEI using a previously obtained GS1 Company Prefix, as outlined in the previous section of the response to this question. At this stage, however, the LEI may not be used in financial transactions.
- A company creates reference data for its LEI, in the form of an electronic document conforming to a data standard to be established (e.g., XBRL template).
- A company works with an independent auditor to obtain an auditor’s certification for the reference data. The auditor applies suitable criteria as agreed by the industry.
- The company submits its reference data in electronic form, together with the auditor’s certification, to the GS1 US GLN Registry.
- The GS1 US GLN Registry confirms that an auditor’s certification is present, and performs additional quality checks on the completeness of the data, avoidance of duplicate data, validity of the LEI, etc. Note, however, that checks requiring a detailed understanding of the financial and legal situation of the registrant have been performed by the auditor, relieving GS1 from having to perform this task.

Registration of LEIs is subject to annual renewal. As part of the renewal process, a company must once again submit an auditor’s certification as to the accuracy of its LEI reference data. In addition, regulators may require certification at other times; e.g., when a corporate action changes the ownership structure of an LEI. Here we refer you to our proposals to the OFR,

CFTC and SEC wherein we discuss the Global Financial Event Identifier (GFEI) and the mechanism by which such information is made part of the self-registration process. In this way, ongoing data quality can be maintained.

### **3. Self-Registration of LEI Reference Data – Long Term**

To meet the long-term needs of global financial markets and their regulators, GS1 is proposing to use an approach modeled on the existing GS1 Global Data Synchronization Network (GDSN). This is a federated model which today is realized by 28 data pools serving 132 countries, coordinating with each other via the GS1 GDSN Global Registry (not to be confused with the GS1 US GLN Registry that forms the basis of our proposed short-term solution).

Conceptually, the registry for LEI reference data is a single repository: all LEIs are registered in the repository, and so reference data for all LEIs worldwide is available from a single source. However, we do not believe it is practical for the registry to literally be a single database. Today's distributed technology allows for a federation of local databases, each serving different regional markets. Moreover, we do not believe it is desirable, nor likely to be acceptable in an international setting, to have such databases (whether physically distributed or not) under the control of a single registrar.

There are many reasons why we believe a single registrar, even one that operates distributed databases, is inadequate to meet the desire for a worldwide identification system:

- Having a single, centralized worldwide database is unlikely to scale adequately to meet worldwide demand, especially as real-time requirements for access and updating evolve
- A single registrar would have no corresponding global regulator and would thus be a highly vulnerable “weak link” in the worldwide financial system as the oversight of that single organization would not be possible under current global regulatory regimes
- In an international setting, it is highly unlikely that any country would accept a system where information critical to the oversight of that country's financial markets is held by some registrar located outside of that country. Many, if not all, countries will see this as an issue of national sovereignty, and want to have registration for their own financial entities handled by a registrar that is located in their country and/or region, subject to that sovereign entity's own laws and regulations, and able to function regardless of the state of foreign relations with other countries.
- Maintaining financial reference data is a highly complex task requiring considerable skill and expertise. Moreover, there are many value-added services that can be provided around the maintenance of and access to reference data. It is highly desirable to allow for competition in this space, to foster continuous innovation and improving cost effectiveness.

- It is desirable to leverage the capabilities of the many existing companies and organizations that have expertise in maintaining financial reference data.

For these reasons, for the long term we propose a *federated* model for registration of financial reference data, in which there is one governance structure but many registrars worldwide. This is modeled after the GS1 Global Data Synchronization Network, and operates on the following principles:

- Reference data for LEIs worldwide is to be maintained under a federated model of registrars but under a single governance model
- Any identifier may be initially registered with any registrar (possibly subject to local regulation, as described below). The reference data is provided by the user organization to the chosen registrar in the same manner as described above for the short-term solution.
- All registrars synchronize with each other, so that data registered with one registrar is made available to all the other registrars.
- Therefore, another user who wishes to obtain reference data (and is authorized to do so), may go to *any* registrar, and the data will be available regardless of whether that data was originally registered with a different registrar.
- Any given registrar may be subject to local laws and regulation, and a user organization's choice of registrar may also be constrained by local laws and regulation.
- Global standards for financial reference data registrars are established through a voluntary consensus standards process, such as the GS1 Global Standards Management Process. These standards would address the following:
  - Minimum data requirements for reference data that must be recorded for each new identifier.
  - Interfaces by which users or vendors supply reference data for new identifiers and update existing reference data.
  - Interfaces for querying for reference data.
  - Protocols for synchronization of reference data between registration authorities.
  - Procedures for challenging reference data and requesting updates.

Local laws and regulations may impose additional constraints for a registrar operating in a given jurisdiction, beyond what the global standards require. Local laws and regulations

would specify how a registrar is certified to be in compliance with the global standards and accredited to act as a registrar within that jurisdiction.

- Subject to local laws and regulation, a user wishing to register reference data for an identifier, maintain previously registered reference data, or query to obtain reference data, *chooses* which registrar to use from amongst the registration authorities operating within the user's jurisdiction.
- GSI maintains a top-level directory, the GSI Global Registry, that lists all registered identifiers, a minimal set of commonly-used reference data attributes associated with each registered identifier (i.e. the SIFMA-led requirements defined for the 19 data attributes associated with the LEI), and indicates which registrar was chosen by the user for the registration of each identifier. Entries in this top-level directory are maintained through collaboration between GSI and the registrars.

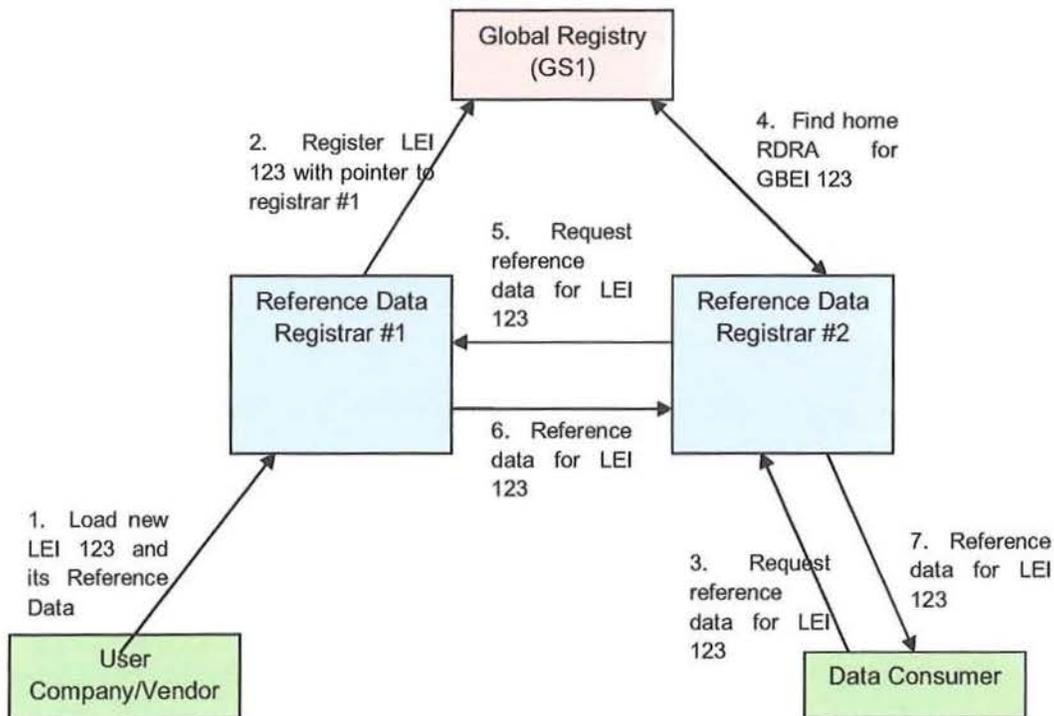
This model provides for seamless access to reference data which *appears* to end users as a single, worldwide database, but provides for scalability, competition, and flexibility for local laws and regulations. Local laws and regulations may address the following:

- Constraints on the governance and/or corporate organization of a registrar; e.g., that it be not-for-profit, etc.
- Government audit procedures to which registrars are subject
- Local data or additional quality assurance procedures above and beyond what is specified in the global standards
- The number of registrars that are permitted to operate in a given jurisdiction. For example, a given country or regional jurisdiction could decide to:
  - Provide only one, state-operated registrar for the entire country or region
  - Authorize a single, independent not-for-profit organization to act as registrar for the country or region
  - Allow for multiple registrars to operate within the jurisdiction, potentially allowing for competition on service fees and value-added services.

It is important to note that while under this proposal there are potentially many registrars for financial reference data worldwide, this is *not* the same as the current situation of many independent identification systems across the globe. The difference is that in this proposal, all financial identifiers are allocated from the *same* universal space of financial identifiers, and so a given legal entity or participant or counterparty only has *one* identifier that is the same in *every* registrar that has a copy of its reference data. The reference data is also the same regardless of

which registrar is used to query for that data. Figure 4 illustrates how reference data is registered and synchronized in a federated system:

**Figure 4 - Federated Reference Data Registrar Network**



This federated structure has been successfully deployed by GS1 and its members in other sectors of the global economy. In the consumer goods sector, the GS1 Global Data Synchronization Network (GDSN) provides reference data about consumer products to all supply chain participants who need such data. (Reference data about a consumer product includes such things as: product name, product description, manufacturer, target market, dimensions, weight, nutrition information for food products, dosage information for pharmaceutical products, etc.)

The GDSN is a federated network of “data pools” (corresponding to “registrars” in the above description), and each product manufacturer chooses a data pool with whom to register its product reference data. The data pools synchronize using protocols established by GS1 standards, and so reference data about any product is available from any data pool, regardless of which data pool was used to register the data in the first place. GS1 maintains a database called the “Global Registry” which maps each product identifier to the home data pool for that product.

GDSN today has 28 data pools operating in 132 countries, and collectively they hold reference data for 6.8 million product identifiers, each having thousands of attributes. In an analogous way financial intermediaries who provide reference data today will each be certified as a Reference Data Registration Authority (corresponding to the GDSN concept of a “data pool”) and synchronize through the GS1 Registry.

*What processes will you implement to ensure high quality of data both at the onset and subsequently at steady state? What checks and balances do you intend to employ to ensure that these quality assurance processes are adequately robust?*

A key feature of our proposal is that we propose the creation of a data standard that defines a machine-readable document for the submission of reference data (e.g., an XBRL template), and that we anticipate the involvement of auditors in the reference data self-registration process. These will greatly contribute to high data quality.

In more detail, the process for the initial issuance and registration of an LEI works as follows:

- A company self-issues its own LEI using a previously obtained GS1 Company Prefix. At this stage, however, the LEI may not be used in financial transactions.
- A company creates reference data for its LEI, in the form of an electronic document conforming to a data standard to be established (e.g., XBRL template).
- A company works with an independent auditor to obtain an auditor’s certification for the reference data. The auditor applies suitable criteria as agreed by the industry.
- The company submits its reference data in electronic form, together with the auditor’s certification, to the LEI reference data registry. In this way, the registry operator is assured of the accuracy of the incoming data.
- The reference data registry confirms that an auditor’s certification is present, and performs additional quality checks on the completeness of the data, avoidance of duplicate data, etc. Note, however, that checks requiring a detailed understanding of the financial and legal situation of the registrant have been performed by the auditor, relieving the registry operator from having to perform this task.

Registration of LEIs is subject to annual renewal. As part of the renewal process, a company must once again submit an auditor’s certification as to the accuracy of its LEI reference data. In addition, regulators may require certification at other times; e.g., when a corporate action changes the ownership structure of an LEI. In this way, ongoing data quality may be maintained.

The above comments apply to both the short-term and long-term solutions envisioned by GS1.

GS1 believes that the specific design decisions within the above framework, namely the design of the reference data submission document, the minimum criteria for auditor certification, and the minimum quality checks performed by the registry, are best determined through a global consensus standards process that involves all stakeholders, including solution providers, financial market participants, auditors, and regulators. We do not believe it is the place for GS1 or any single solution provider to dictate these decisions, and hence we do not provide further detail here.

***What avenue(s) will be available to the users of the proposed LEI solution to challenge and remedy data accuracy issues? How will you ensure the transparency of the challenge/remedy process?***

GS1's existing registries utilize the following data challenge process. A request to review or amend data is received through GS1's customer service organization. A "ticket" is opened to track the request. GS1 will then embark on a verification procedure to determine the appropriate changes to be made. This determination is reviewed with the data registrant. In the event of a disagreement, appropriate legal counsel is sought, and all parties work towards a successful resolution. In all cases, an audit trail for the entire process is kept with the ticket, and remains available after the ticket is closed.

GS1 anticipates using a similar data challenge process for financial reference data, which GS1 will design in consultation with financial industry stakeholders.

***What processes will you implement to periodically verify, and update the LEI data while maintaining an audit trail? How will the process be initiated, coordinated and driven?***

GS1 Member Organizations verify company information as part of the annual renewal and billing process. Engaging the Auditing and Accounting firms in the annual process will significantly improve data quality.

The GLN Registry maintains an audit history by company of who added or modified a record, who approved the additions or modifications as well as the attributes that were modified.

***Describe the SLAs you intend to implement as part of the proposed LEI solution. Further, specify how the relevant metrics (around process, volume, accessibility, availability, etc.) will be captured, measured, and published on an ongoing basis.***

The SLAs ultimately implemented will be determined after gathering requirements from all relevant industry stakeholders. The starting point will be the SLAs already in place for the GS1 US GLN Registry (for the short-term solution), and the GS1 Global Data Synchronization Network (for the long-term solution).

For the short-term solution, the following SLAs apply:

Operates according to a documented service level agreement, which covers technical support availability, priority levels and escalation, service level benchmarks, maintenance windows, security, disaster recovery, reporting, and acceptance criteria. The current availability target is 99.9%, and the service currently operates at that level.

For the long-term solution, the following SLAs apply:

The GS1 Global Data Synchronization Network operates according to a documented service level agreement, which covers technical support availability, priority levels and escalation, service level benchmarks, maintenance windows, security, disaster recovery, reporting, and acceptance criteria. The current availability target is 99.5% and the service currently operates at 99.9%.

For both the short-term and long-term solution for financial services, GS1 will work with industry stakeholders to determine the appropriate service level requirements and develop a suitable SLA for the services offered for financial services.

## **Business Model**

*Describe in detail your business model with a specific focus on how you plan to fund and sustain the effort? Cost for basic registration services must be kept very low. What is your estimate of the cost for basic registration and maintenance?*

GS1 operates as a not-for-profit organization, and provides its services on a cost-recovery basis. The business model is very well established as GS1 has been in operation for nearly four decades. As the GS1 proposal is based on *existing* solutions (the GS1 US GLN Registry and the GS1 Global Data Synchronization Network), the solution *is* already funded and sustained.

See the next question for cost of services.

*Provide details around your proposed fee structure and how you plan to account for usage, complexity, etc.*

The fee structure would be determined based on a consideration of the services to be offered and market requirements. We also expect that the fee structure would be determined on a per-country basis, reflecting different market conditions and expectations in each country.

As a basis for comparison, here are highlights of GS1 US's fee structure for the services which we propose to employ in the LEI solution.

- The fee a GS1 member pays to register a GLN and its associated reference data in the GS1 US GLN Registry is based on an annual subscription which gives the subscribing company the right to register an unlimited number of LEIs. The annual subscription fee is based on company size, and ranges from \$250 to \$8000 per year, with no limit on the number of LEIs

registered. In the case of a company with many LEIs, the annual subscription fee is amortized over all the LEIs that are registered, resulting in a low cost per LEI.

***Describe the information and services to which you will provide free access. Provide details on how you plan on keeping the information/services free***

GS1 is prepared to offer to the public, free of charge, access to financial industry LEI information. The determination of which information will be publicly available will be constrained by regulatory considerations and, within those constraints, made through industry consensus as established by GS1's Global Standards Management Process. GS1 supports its operations on a cost-recovery basis from membership fees and fees charged for services such as allocation of GS1 Company Prefixes and registration of reference data (see previous question).

The GS1 US GLN registry today offers a service free to the public on GS1US's public website that allows a user to enter a legal entity identifier and have displayed all of its registered data attributes.

***Provide details on your ability to accommodate requests for customized services within your proposed LEI solution.***

One of the key benefits of the federated model which GS1 proposes for the long term is that each registrar (data pool) may offer its own customized services on top of the basic functions of registration and distribution of standardized reference data. The federated model allows different registry operators to compete on the basis of value-added or customized services which they offer.

***Why do you believe your operating model would deliver the most cost effective solution?***

The short-term model proposed by GS1 is based on an *existing* registry for reference data associated with globally unique legal entity identifiers. Therefore, this will be extremely cost-effective compared to other proposals because we are not proposing the construction of an entirely new service.

The long-term federated model proposed by GS1 delivers the most cost effective solution because it allows for competition between different registrars (data pools). We believe that free-market competition is the best way to ensure low costs and high quality service for end users.

## **Risk**

***Describe in detail your approach to business continuity planning and the measures you would adopt to ensure business continuity.***

Assuming that this question refers to continuity of the services that GS1 will offer, GS1 operates all services in accordance with commonly accepted industry practice for highly available, 24x7

services. All services are hosted in external co-location environments, which GS1 selects on the basis of the service level agreement that these companies offer. The continuity and disaster recovery processes that these providers employ include nightly backups of all systems, off-site storage of backup media, automated fail-over, full semi-annual disaster recovery tests, and redundancy testing.

***Describe approach to prevent fraudulent LEIs from being issued.***

As detailed in the responses in the “Operating Model” section, there are several points in the proposed process in which verification to prevent fraud will take place:

- To obtain a GS1 Company Prefix, a company must present proof of its corporate identity.
- When registering an LEI and its associated reference data, the following checks occur:
  - The reference data must be submitted with an independent certification of accuracy from a financial auditor. The auditor is required to apply verification criteria as agreed by industry and regulators.
  - The registry verifies that the GS1 Company Prefix portion of the LEI corresponds to a GS1 Company Prefix that was duly issued and is still active.
  - The registry performs other self-consistency checks on submitted data; e.g., checking for duplicate LEIs.
- In addition, we anticipate annual renewal of registrations as well as renewal at the time of corporate actions affecting LEI reference data, and the same checks apply at each of these renewal points.
- Access to LEI reference data to regulators, auditors, and, where permitted, to the public provides an opportunity for other parties to perform additional verification.

## **Legal and Compliance**

***How would your solution support regional conventions and regulations and provide local certification while being a global solution?***

As described earlier, the long-term solution envisioned by GS1 is a federated model, in which there are many registrars (data pools) worldwide providing service to a regional market, collaborating with each other to create a seamless global system for registration and distribution of LEI reference data.

A key benefit of the federated model is precisely that it allows for regional conventions, regulation, and certification. Each participating registrar may be subject to the applicable local regulation, and local regulators may specify which registrar worldwide may be used for

registration of LEI reference data in that particular regulatory regime. In that regard, local regulators may impose local certification requirements for registrars to operate in their jurisdiction.

This model allows for wide variation in the conventions and regulations that apply in any given market. For example:

- In countries that follow free-market principles, we expect that regulators will permit any number of privately-operated registrars to come into existence and compete to provide LEI registration services to end users. They may compete on the basis of additional services offered, ability to serve certain classes of end users better than others, etc.
- In some countries, the local regulators may wish to designate a single registrar as the sole authorized data pool permitted for use in that country. In such countries, the local registrar is a quasi-governmental function, and subject to oversight and regulation by the local government.
- In some countries, the government itself may choose to operate the registrar for that country, and exercise tight regulatory control.

This type of variation exists today among the 28 data pools in GS1's Global Data Synchronization Network, which collectively serve 132 countries around the world.

As noted in the "Operating Model" section, the federation of multiple registrars worldwide is *not* the same as the current situation of many independent identification systems across the globe. The difference is that in this proposal, all financial identifiers are allocated from the *same* globally unique space of financial identifiers, and so a given legal entity has *one* identifier that is the same in *every* data pool that has a copy of its reference data. The reference data is also the same regardless of which registrar is used to query for that data.

Besides the registrars, there are components of the proposed GS1 solution that are provided by GS1 itself, such as the issuance of GS1 Company Prefixes that give end users the capacity to create LEIs and maintain minimum data attributes that regulators require for performing their oversight functions.

For these components, regional conventions and regulation are facilitated by GS1's 110 "member organizations" around the world, which provide GS1 services to their respective local markets. Each GS1 Member Organization offers training, education, and customer service in a manner tailored to the local market.

## **Governance**

*Describe your internal governance structure and how it ensures all aspects of the LEI solution will be properly administered.*

GS1 has a federated governance structure that ensures balanced representation of stakeholders both locally and across the globe. The GS1 organization consists of a 110 country-specific “GS1 Member Organizations,” and is overseen by the GS1 Global Office.

Each of the 110 GS1 Member Organizations has a board of governors that is composed of stakeholders across all industry groups and stakeholder types that the Member Organization serves, including local regulators. The GS1 General Assembly consists of the chairman and CEO of each of the 110 Member Organizations, and is the high governing body in GS1. The General Assembly approves GS1 Global Management Board nominees consisting of global industry leaders and member organizations.

Specific activities of GS1 are governed by these bodies in the following way:

- For standards development under the Global Standards Management Process (GSMP), draft standards are balloted by all member companies that participate in the GSMP, and then submitted to the Board Committee for Standards (a sub-committee of the global Management Board). The Board Committee for Standards confirms that all due process steps of GSMP were followed in creation of the draft standard, and then recommends ratification to the global Management Board. The global Management Board ratifies the standard on behalf of the General Assembly.
- For pricing, local services, and other aspects that are particular to a given GS1 Member Organization, the local Member Organization’s board governs.
- For matters of policy that pertain to GS1 globally, other than ratification of standards as described above, the General Assembly governs.

*Describe whether there are any constraints on your organization(s) being overseen by a broad-based governance body comprised of members from industry and the regulatory community.*

As noted above, this is precisely how GS1’s governance already operates.

## **Information Security**

*Describe in detail your proposed steps to safeguard the privacy of the information stored within LEI systems while adhering to regulatory mandate.*

Both the GS1 US GLN registry and the GS1 Global Data Synchronization Network employ the following security safeguards, among others: firewalls, multiple trust zones, authentication of all users, required periodic password change with strict rules on password construction, anti-

virus/anti-malware protection, 128-bit SSL, cross-site scripting blocking, countermeasures against SQL intrusion, data center physical security and environmental controls, mock disaster recovery drills, and qualified system administrators.

For the communication between data pools in the federated Global Data Synchronization Network, AS2 with 168-bit encryption is employed for all messaging.

Security measures conform to SysTrust and PCI standards.

More detail regarding security may be provided under NDA.

***What processes will you put in place to contain and manage a potential security breach?***

See previous answer. More detail regarding security may be provided under NDA.

## **Solution Technology**

***Describe in detail your proposed solution technology including security (including access controls), business continuity, network, hardware, databases, interfaces (web-based, messaging, protocols and formats), and programming languages and packages used (e.g. J2EE).***

GS1 will provide information of this kind under NDA, if needed.

***Describe your technology lifecycle management processes and capabilities, including but not limited to development, QA, release management, database schema changes, and bug fixes.***

Both the GS1 US GLN Registry and the GS1 Global Data Synchronization Network employ a lifecycle management process which is governed by a detailed, written development process manual. The process includes steps of requirements gathering, technical analysis, release planning, design, development, QA, and implementation. Written design artifacts are employed at each stage, with change control and required sign-offs. Release roadmap planning is employed to provide customer visibility to upcoming changes. Testing includes unit testing, integration testing, performance testing, and security testing. Beta and certification testing is also performed. A formal process of build migration and customer notification takes place when a new release is ready to deploy.

We will share more details under NDA, if needed.

*While documenting your solution, elaborate, as appropriate, how the solution will comply with the technical principles listed in the document.*

*How would you ensure that the technology solution described herein will be able to handle the volume, update frequency and speed required as the solution is adopted on a global basis?*

As noted earlier, the GS1 US GLN registry today has nearly 300,000 legal identifiers registered, and the GS1 Global Data Synchronization Network has 6.8 million identifiers registered each with thousands of data attributes. Both of these systems in their current versions have been in continuous use for five years or more. Their current capacity and usage is therefore already at the levels that are expected to be needed in the short term, and also already at the levels outlined in the “linchpin” report. These systems are well positioned to continue to scale as volume eventually surpasses current levels in the very long term.

Operationally, both registries are monitored daily to ensure performance levels are maintained at 99%. Stress and volume testing are performed and servers/applications are adjusted if required based on the results.

## **Implementation Plan and Roadmap**

*Layout the project plan highlighting the phasing strategy, various implementation phases, milestones, and deliverables. Describe how you will adhere to the best practices related to implementing a solution of this scale.*

The project plan and schedule will be developed based on understanding both the requirements of participating financial entities as well as regulators. It is impossible to commit to a schedule at this time; however, the following example is indicative of what we anticipate such a schedule will be:

- July 2011 – GS1 is selected to provide legal entity identification and registration of LEI reference data
- October 2011 – the definition of the required legal entity reference data elements is finalized through consensus of financial industry stakeholders, including regulators, starting from the 19 attributes identified in the SIFMA-led requirements document. Legal entity identifier allocation rules are also established through a similar process, starting from the GS1 GLN allocation rules.
- January 2012 – enhancements to the GS1 US GLN Registry are made to support the new reference data attributes beyond the attributes already present (some of which overlap with those required for the financial industry). In parallel with this, financial industry outreach is performed to make financial institutions aware of the new legal entity identifier, and the processes for obtaining a GS1 Company Prefix and for registering reference data.

- April 2012 – a pilot is completed in which a selected number of financial institutions create legal entity identifiers, register reference data in the GS1 US GLN Registry, and business processes simulated to show the use of LEIs and their reference data in financial transactions. Regulators will be part of this process. Following completion of the pilot, all financial industry participants are invited to create and register their LEIs.
- July 2012 – the LEI registry is operating in steady state.

Simultaneously with the above schedule, global outreach begins to lay the groundwork for expansion of the system on a global basis. The pace and schedule for this work is highly dependent on the regulatory environment in other countries.

Note that the above schedule is dependent on tasks that are outside GS1's control, such as the timing of the industry to come to consensus on the needed reference data elements, the willingness of financial companies to participate in the new system, etc. These obviously will have an impact on the schedule.

***Provide details around your proposed team structure and implementation governance model including communication, and escalation channels. Include recent bios for personnel proposed for initial phases of work.***

The following functional departments within GS1 US will be employed in rolling out a short-term solution based on the GS1 US GLN Registry:

- *Technology Delivery* Responsible for the design, implementation, and operation of the software systems involved. Managed by the Sr Director Technology Delivery reporting to the CFO.
- *Industry Engagement* Responsible for outreach to the financial services community and liaising with other outside organizations, regulators, trade organizations, etc. Managed by an industry VP to be assigned to the financial services industry, reporting to the SVP Industry Engagement.
- *Solutions and Marketing* Responsible for supporting industry engagement and current customers through marketing efforts. Managed by the VP Solutions and Marketing, reporting to the SVP Solutions, Customer Engagement, and Human Resources.
- *Customer Programs* Responsible for customer support and the call centers. Managed by the VP Customer Programs, reporting to the SVP Solutions, Customer Engagement, and Human Resources.
- *Legal* Includes both in-house counsel and outside firms. Reports to the CFO.

- *Emerging Capabilities and Industries* Responsible for business development and liaising with the GS1 Global Standards Management Process and outside standards organizations. Managed by the SVP Emerging Capabilities & Industries.

All of the above report to the CEO.

For the long-term global solution, a federated organization will include a similar table of organization within each GS1 Member Organization that serves the financial sector in their country. The details of each such organization are tailored to the customs of each individual country. In addition, the long-term federated solution relies on a network of data pools which are independent companies typically organized as a software solutions and services company.

In addition to the above, all standards development is carried out through the GS1 Global Standards Management Process, whose governance is described elsewhere in this response.

Names and bios may be shared under NDA, if appropriate.

***Describe how you will implement this solution to ensure that issuing and registration processes can begin within 12 months.***

As noted earlier, the solution we are proposing is built using the *existing* GS1 GLN identifier for legal entities, and the *existing* GS1 US GLN Registry for legal entity reference data. Therefore, there is very low risk in achieving operational status within 12 months, because the system already exists and has been in use for 7 years. The only changes required are the definition of additional data attributes beyond those already implemented in the GLN Registry. As noted earlier, 10 of the 19 attributes identified in the SIFMA-led Requirements document are already implemented in the GLN Registry, and so the total enhancements required amounts to adding approximately nine additional attributes. Provided that the industry comes to a quick consensus on precisely what attributes are required, 12 months appears adequate to make this small enhancement.

## **Resourcing**

***Describe the number, skills, and experience of the staff you have or will retain to deliver the LEI solution. Be sure to provide details for each functional category, i.e., data, operations, technology, legal, compliance, risk, intellectual property rights, information security, and solution implementation.***

Within GS1 US, the approximate numbers for each of the functional areas listed two questions above are as follows:

- *Technology Delivery* 19
- *Industry Engagement* 20

- *Solutions and Marketing* 20
- *Customer Programs* 41
- *Legal* 3 in-house staff, and 3 external law firms with specializations in international and intellectual property law
- *Emerging Capabilities and Industries* 11

For the long-term global solution, there would be similar numbers in each of the participating countries, scaled as appropriate given the size of country.