February 7, 2011

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Commodity Futures Trading Commission,
Three Lafayette Centre
1155 21st Street, NW.
Washington, DC 20581.

Re: RIN number 3038–AD19

Submitted to: http://comments.cftc.gov

Thank you for the opportunity to respond to your request for comment on your proposed rule making regarding Swap Data Recordkeeping and Reporting Requirements as posted in the Federal Register / Vol. 75, No. 235 / Wednesday, December 8, 2010 / Proposed Rules. The CFTC's request is unprecedented in its global scope and its outreach to the global financial industry. We responded in kind by bringing together an ad-hoc group, the Global Financial Services Data and Standards Alliance, to provide input to us to address this request.

The CFTC's task is formidable. As overseers of the largest contract markets in the world, it along with the US Treasury, and SEC seeks a global consensus of both regulators and global financial industry members on a common set of globally unique identifiers for financial products and financial market participants. While the CFTC is specifically seeking standards for Unique Swap Identifiers (USI), Unique Counterparty Identifiers (UCI) and Unique Product Identifiers (UPI), in coordinated language the SEC and the US Treasury also seek such standards for security based swaps, for mixed swaps and for legal entities. The regulators further seek an internationally recognized standards setting body to describe and assign unique identification codes. In the words of the CFTC:

> ***"Without such unique identifiers, and the ability to aggregate data across multiple markets, entities, and transactions that they would provide, the enhanced monitoring of systemic risk and greater market transparency that are fundamental goals of Dodd-Frank cannot be fully achieved."***

Further, the CFTC requires that a counterparty to a swap shall report all of its corporate affiliations into a confidential, non-public corporate affiliations reference database. The term "corporate affiliations" is defined by the CFTC to mean the identity of all legal entities that own the counterparty, that are under common ownership with the counterparty, or that are owned by the counterparty. This corporate affiliation information must be sufficient to disclose parent-subsidiary and affiliate relationships, such that each legal entity within or affiliated with the corporate hierarchy or ownership group to which the counterparty belongs is separately identified.

Each counterparty is required to report to the corporate affiliations reference database all changes to the information previously reported concerning the counterparty's corporate affiliations, so as to ensure that the corporate affiliation information is current and accurate at all times. Finally, the identification system must result in a unique identifier format that is capable of becoming the

single international standard for unique identification of legal entities in the financial sector on a global basis, if it is adopted world-wide (Federal Register / Vol. 75, No. 235 / Wednesday, December 8, 2010 / Proposed Rules, pages 76590 – 76591)

Similarly, in a subsequent white paper, authored by US government staff across many different agencies, including the Treasury, Federal Reserve, CFTC and SEC, we note that the Legal Entity Identifier (LEI) proposed by the US Treasury's Office of Financial Research (OFR) is, in coordinated language, an identical construct to the UCI for the CFTC and the UCI proposed by the SEC. These government agencies also recognize a similar and necessary hierarchical structure for corporate affiliations. They similarly propose such structures be housed in a "utility". The CFTC refers to it as a corporate affiliations confidential non-public reference database. Again in coordinated fashion the UCI of both the SEC and the CFTC, and the LEI of the OFR, should be assigned to financial market participants:

> ***"These participants include, but are not limited to, all financial intermediaries (banks and finance companies), all companies listed on an exchange, all companies that trade stock or debt, all entities under the purview of a financial regulator, and their holding companies."***

Further complicating this effort is the recognition that, however formidable the task of implementing global identifiers, it pales in comparison to the systemic risk analysis discipline that must first be defined and then developed to make use of the standardized identifiers. As these standards are expected to be used in the positions and transactions that are required for submission to the CFTC, OFR and SEC, it is still left to undefined rulemaking to do so.

Our proposal is summarized below:

1. We propose a system of universal identification for the financial industry, which includes globally unique, persistent identifiers for Legal Entities, Financial Instruments, and Financial Events. The identifiers we propose are based on the GS1 System, which is a system for the globally unique identification of businesses and their products, and which has been in existence for 40 years. The identifiers proposed for the financial industry are already well-established industry standards, and the Legal Entity Identifier proposed here is already in use internationally by many companies who also operate in the financial sector.

2. We are further proposing a method of issuing financial identifiers that are globally distributed, and directly empowers end users to issue identifiers without having to interact with an issuing authority each time. This is based on a two-step issuing process in which (1) a user company first obtains a GS1 Company Prefix which provides the user with a certain capacity to create financial identifiers, after which (2) the user creates individual financial identifiers using the GS1 Company Prefix as a component of those identifiers. 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, 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, easing database management and legacy systems implementations.

3. Finally, we are proposing 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. 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.

We are aware that the path for creating global standards as the CFTC suggests has been tried before by others without success. In 1993 the US securities industry attempted to develop a standard centralized securities data base and asked the US's then centralized securities depository, DTC, to develop it. The data vendors seeing their intellectual property appropriated for no added value, and providing an added value service of arbitrating exchange and over-the-counter prices which was manually produced at the time, declined to participate in the project. In 1995 after three years of discussion and consultation with twenty standards setting bodies, and after convening the Securities Standards Advisory Board, the Executive Director of the World Federation of Exchanges concluded its failure was due to the competitive nature of standards setting bodies that populated the financial industry at that time.

We ourselves had a similar initial experience in socializing these issues as we convened the Global Financial Services Data and Standards Alliance, despite those same constituents having just experienced a financial crisis of epic proportions, and despite the causes being in some part due to the lack of standards.

In addition, the path for regulating Swaps and other forms of Over-the-Counter derivatives has had many unprecedented milestones in its three-decade evolution toward its recently enacted regulatory status. The growth from its origins as a bi-lateral currency swap between IBM and the World Bank in 1981 has been unprecedented in the global acceptance of the products spawned, the diversity of those products and the notional volumes transacted.

It was the eye-popping notional values that attracted the international community and the Group of Thirty to study and report on the phenomenon of the growth in the derivatives market in its 1993 series of white papers. Its continued growth spurred CFTC commissioners in the past to consider regulating these markets. The Commodities Markets Modernization Act, passed in 2000, however, chose to leave these markets unregulated.

What is different now is that these markets are to be placed under regulation. Organized electronic trading systems and the introduction of a risk mitigating concept that has endured for over a century, the central counterparty, are now being brought to bear in the swaps and derivative markets. Further, as a result of analyzing the causes of the global financial crisis,

regulators have obtained a deep understanding of the problem at its roots - the lack of unique, unambiguous and universal identification of the industry's financial participants, products and the events that change both across the life cycle of a transaction. Regulators have recognized the need for a solution and now act under legislative mandate.

Finally, with humility we present ourselves through this proposal as another agent of change, with an unprecedented and unique global perspective on the problem of unique identification. We describe this problem in the financial industry for the first time as a *supply chain problem*:

- We begin with the issuers and manufacturers of financial product: corporations, financial firms and government entities. In this way, we engage the supply chain's stakeholders at the earliest point, from initial crafting of financial documents, ensuring that all further downstream processes are supplied with unambiguous identification and accurate reference data.

- Secondly, we propose straight-through-automation of the financial transaction life cycle using similar techniques as has been applied in organizing financial data such as XBRL-tagged annual reports and FpML tagged trade messages. The Interactive Disclosure project of the SEC is but one example of the many US and other world regulators who are working cooperatively with financial filers to automate the total financial supply chain.

- Thirdly, we recognize auditing firms as another significant stakeholder in the financial supply chain. It is their business to make sense of the legal structures of legal entities, swap participants, reference entities and counterparties in their audits in order to perform the materiality attestation functions required, and hence they play a critical role in addressing systemic risk.

- Finally, we believe in engaging with the financial industry at the top level, where it is of utmost importance to recognize the data problem that arises from silo business structures. CEO's and their Boards should certainly see this as an enterprise risk management issue, as a systemic risk and regulatory oversight issue, and as a business issue. Here, especially, today's lack of standards embeds huge additional costs into individual firms' operational infrastructure and, in turn, into the Financial Market Utilities that they support.

We believe that the supply chain approach to the problem, as summarized above, is one that regulators and financial institutions have not previously considered throughout the long history of attempting to solve the standards, identification, and reference data problem. All three parts of our proposal are founded upon open standards developed through voluntary global consensus standards bodies, in which we intend to fully engage all financial supply chain stakeholders as outlined above.

The authors of this proposal are GS1 US (which is part of GS1) and Financial InterGroup. Financial InterGroup is a joint venture advisory firm whose principles and advisory board have

contributed deep domain knowledge and brought the understanding of risk management and data management together in responding to this rule making comment letter in partnership with GS1.

GS1 is a global voluntary consensus standards body and a standards administrator, the latter a category of non-profit organization that does not exist in the financial industry. GS1 has 1.5 million end user members who participate in GS1 through GS1 Member Organizations in 108 countries. Through the work of its members, GS1 sets standards for identification of physical products, legal entities, and electronic messages that are used in twenty-five different segments of the global economy. These standards are developed by the participating member companies, with GS1 providing facilitation of the process. Through its 108 world-wide Member Organizations GS1 also acts as the identification registration authority that has uniquely, unambiguously and universally identified 40 million products in the trade supply chain. GS1 has been doing this uninterrupted for nearly 40 years.

GS1 has been granted Approved Referenced Specification Originator Organization (ARO) status within the International Standards Organization (ISO), a designation which allows GS1 standards to be directly referenced by ISO standards, and through this means GS1 is able to rapidly gain ISO status for its standards. No other organization in the financial sector has this status, which, in serving the financial sector, would allow GS1 to accommodate rapid deployment of new standards that may be required in the future. This could prove to be of extraordinary value in keeping pace with the traditional innovative nature of the financial industry. The industry has forever complained about the ISO standards processes' inability to accommodate the rapid changes that characterize an industry at the crossroads of continual technological innovation, new product innovation and investor behavioral changes. GS1's ARO status allows such standards to be developed and ratified rapidly within GS1 and then quickly published as a corresponding ISO standard.

Furthermore, the CFTC's interest in a Unique Product Code for swaps could well be accommodated within the scope of this proposal as reference data associated with the USI. GS1's ARO status could serve a much speedier and effective process in assigning these codes in keeping with the innovative nature of the swaps and broader derivatives markets while creating a universal and complete catalogue for CFTC position limit monitoring, and for CFTC, SEC, OFR, and individual financial institutions data aggregation purposes.

The work of our partnership in collaboration with the Global Financial Services Standards and Data Alliance culminated in two Open Forum discussions with representatives and participants from all parts of the global financial industry. The resulting dialogue on building a global consensus has informed this proposal.

As conveners of the Open Forum, we anticipate formalizing a governance structure and analysis framework, offering for consideration the GS1 Global Standards Management Process as the mechanism by which to do so. This will allow for the immediate use of existing GS1 standards, and provide a venue for further development and enhancement. We hope to forge a consensus view amongst all constituents around this proposed solution as a starting point for the development of the global solution requested by your office.

Because our proposal builds on existing, widely adopted standards that can be employed without modification, an extremely fast timeline for implementation is possible. Our proposed legal entity identifier and the institutional arrangements for their issuance are already well established domestically and internationally. They are available to be placed into use for the financial industry *immediately*. Furthermore, we believe that there are 30,000 + Swap participants and non-Swap dealers requiring financial identifiers many of which already use GS1 identifiers and would incur no additional fees for issuing financial legal entity identifiers; thus the minimal annual costs have already been assumed. We also believe the technique we propose for self assigning financial instruments including unique swap identifiers both by Swaps Dealers and Swap Execution Facilities, and self assigning financial and life cycle event identifiers at no additional cost will minimize the overall cost of the identification system.

We offer several options for registering these numbers within the existing GS1 model, including two that leverage existing registration systems for legal entities, and two alternatives for access and distribution of reference data. The existing systems may be used to obtain a working reference data registration system for the US within six months, while in parallel the industry works towards an internationally federated system of reference data registration over a 1–3 year period.

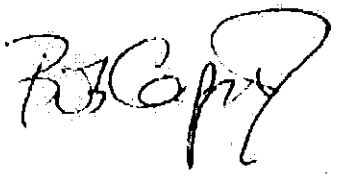
It is our belief from GS1's 40 years of experience across twenty-five sectors internationally that the financial services industry can benefit from the GS1 global identification system because: it has no intelligence in its numbers; it separates the identification of "things" from its commercial or business use; it already exists; and that it has proven to uniquely unambiguously and universally identify businesses and products and changes to both. GS1 has done so through four decades of changing global business practices, advances in technology, and changing market practices of two new generations of people with very different and ever evolving purchasing and investment attitudes than previous generations.

GS1's principles and practices endure today in an environment where people expect anytime, anywhere, anyplace, and anyhow access to information, a very different world than four decades ago. Unique identification has become a hallmark of the advances of global communication as we witnessed the unique identification and registration system of the Internet making all of this possible. The financial services industry has equally endured considerable change over these four decades. The future of the financial supply chain and its participants will be better served in following the lead of its global regulators. In adopting the GS1 identification system the financial industry will be following in similar manner as GS1 has successfully served many of these same companies in the commercial trade supply chain.

In closing, we are pleased to offer our deep understanding of the financial services industry, our expertise in identification standards, and the work we have done at the crossroads of data management and risk management to the CFTC, the US Treasury, the OFR, SEC, and Federal Reserve. We are prepared to help refine your understanding of possible solutions gained from ours and other proposals submitted, and to work cooperatively with you and others to obtain true industry consensus.

The next six months are crucial. We request dialogue with your office and others so that progress may be made on the work plan described in this proposal. We are hopeful that you and other interested regulators around the world will allow us to continue the consensus building we have begun, support us in the further analysis work we need to do, and allow a global consensus to be formed, in time for your decisions on effective dates for these proposed rules.

GS1US, Inc



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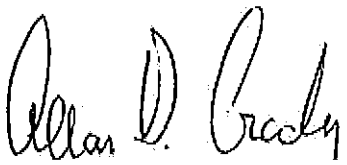

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Response to

Commodities Futures Trading Commission

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A proposal to the Commodities Futures Trading Commission

Introduction

With the Dodd-Frank Act now the law of the land, we are facing the monumental work of implementing financial reform in practice. Industry members are eager to engage with the many government bodies in harmonizing industry initiated efforts with that of the government's task. It is understood that the government cannot do this alone, nor should they, and the rule making comment letter we are responding to is recognition of this needed cooperation. The objective of the legislation, managing and mitigating systemic risk, will not be achieved if underlying operational risks, such as data inconsistencies across the industry, are not resolved first. Expected further rule making on requirements to obtain position and transaction data from financial industry members, Financial Market Utilities, and Securities Information Processors, such as newly organized Swaps and Securities Based Swaps Data Repositories and Derivatives Clearing Organizations is complemented by the mandate for the government to set data standards. No data aggregation analysis can proceed without a commitment to consistent and timely organization of the underlying data. The benefit to the industry in helping to do this is in reducing operational risks, being able to aggregate data across the many silos of business that characterizes the largest systemically important financial institutions, realizing the long sought after desire of straight-through-processing across the entire industry and, finally, in reducing infrastructure costs.

The issue of non-standard global identifiers for financial instruments, financial contracts, financial events, business entities, counterparties and supply chain participants for transaction matching and position aggregation coupled with the costly and duplicative reference data and valuation prices used to clear, settle and value positions and transactions has been a long standing industry issue. Today, there are many ad-hoc in-house identifiers that every global financial institution implements, a myriad of market data vendor and exchange supplied symbols, hundreds of software and technology supplier codes, all different, but all needing to be the same.

There are (1) local identifier numbers like CUSIP, SEDOL, Valor, and Sicovan; (2) market data codes like RIC, BIC, and Quick codes; (3) attempts at global identifiers like ISIN, D&B, AVID and Red Clip; and (4) regulator led identifiers like CIK and TIN numbers for some of these categories. However, there are no global identifiers that uniquely, unambiguously and universally identify the global financial industry's transactions and supply chain. The regulation has provided motivation, as was the case in past crises, for the industry to come together, as other industries have in the past, to solve this problem through global collaboration.

Most industries have invested in universal product and supply chain identification coding systems to uniquely identify their physical products and documents, and their manifestation in electronic transactions. They further have standardized their identifiers for transportation intermediaries, delivery locations and counterparties. They began this investment nearly four decades ago when the Universal Product Code was created and manifested in the ubiquitous bar code now seen on over 40 million products around the globe. Nearly twenty-five business segments of the global economy, comprising 1.5 million businesses in over 100 countries have invested in GS1, a global, non-profit, voluntary industry consensus association. There are approximately 2500 people employed full time at GS1 and its 108 Member Organizations worldwide doing the most important functions supporting seamless straight-through-processing, administering standards and synchronizing referential data bases in an increasing global and automated supply chain. Today nearly one-third of business transactions among GS1's members are completely electronic transactions.

The reality of scanning items at the check-out, automated inventory replenishment, just-in-time delivery and direct store delivery systems are just some of the efficiency benefits made possible by standards administered by GS1. GS1's global identification standards and data carrier / marking systems also help to mitigate operational and systemic risks as regulators can, for example, track tainted aspirin back to its manufacturing plant.

This is in contrast to the financial industry, where financial regulators could not find the mortgage that was defaulted on in a U.S. city that wound up as a toxic asset on the balance sheet of a failing bank in Australia. Financial regulators could not see the counterparty positions allegedly held by Bernard Madoff at a London OTC options dealer. And they missed the numerous movements of securities bundled into Lehman's Repo 105 collateral moving from the U.S. to the U.K. and back again.

Importance of Reference Data

The importance of reference data can be understood by recognizing that all financial transactions are represented as data in information systems. If the identifying data is wrong, the transaction does not enter the intensely automated systems of the capital and contract markets. If it does pass first-line error detection, in subsequent downstream processes, when additional identifying information is appended, it too may be faulty and not settle or get paid. In internal enterprise uses of this data, the disparate identifying data may not permit such data to be aggregated for credit limit purposes, for performance attribution and analysis, or for calculating risk exposures. Finally, in regulatory reporting at this granular level, and on any global scale, the lack of common identifiers across systemically important financial institutions has thwarted regulators' ability in any automated fashion to observe risk exposures building up across the global financial system.

The retail and manufacturing industries understood this issue a long time ago and standardized on universal identifiers for products and electronic data interchange standards for communicating across suppliers, distributors and retailers. The financial payment and settlement infrastructure similarly has such identifiers: for financial products, for supply chain participants (counterparties, financial intermediaries, corporations, issuers, etc), for financial markets and currency designations, for valuation and market prices,, and for other referential information such as credit ratings and economic data that are used in valuation models.

However, unlike retail and manufacturing industries, the financial industry reference data that should be standardized and identical across each organization is not. It is sourced independently from a myriad of commercial businesses and industry intermediaries. Each financial institution performs duplicative functions in an attempt to represent each unique product, business entity and valuation price identically, but fails to do so. The consequence is that proprietary and conflicting identification codes exist across the entire range of referential data including such fundamental identifiers as symbols for corporate issuers, symbols used in contract markets, numbering conventions for securities and financial contracts, supply chain business entity identifiers, and counterparty identifiers. To compound the problem, payment, clearing and settlement systems' operators and regulators maintain proprietary codes and duplicate sourcing and maintenance functions: dates and rates for corporate and life cycle events and valuation prices for all manner of traded financial instruments are obtained and organized in this manner. All such reference data is represented as 70% of the data content of financial transactions. Thus, the effect on operating costs and operational risk in faulty data entering into the books and records of financial firms and into the payment and settlement systems is significant. In fact, those infrastructure institutions that operate payment, clearing and settlement systems have capital structures, aside from margin and collateral cover, that are in large measure supporting the risk of mismatched transactions caused by faulty data.

Inadequate Regulatory Structures and Vulnerabilities

The charter of the Office of Financial Research (OFR) is to provide input to the Financial Services Oversight Council on the vulnerability of the US economy to systemic threats. It is understood that without a global view, such threats cannot be detected. Systemic risk is a global phenomenon, and needs to be measured by multiple global regulators across multiple financial firms.

The purpose of the current set of proposals for data standards developed by the CFTC and other US regulators is intended to provide the underlying data structure and standards for reporting position and transaction data to the OFR, for purposes of analyzing threats to the US economy. However, US regulators cannot compel other sovereign jurisdictions to comply. Systemic risk cannot be dealt with from regulatory silos.

The G-20 has already assigned the global responsibility of systemic risk analysis to the Financial Stability Board, an entity similar to the Bank for International Settlements which oversees the Basel global capital standard. Basel, now in its third transformation, is a governance model that regulators need to emulate for global data standards. The Basel regime respects sovereign regulation while providing the framework for common standards implemented by each sovereign regulator. It may the best model for transcending regulatory silos.

Examples of the patchwork of local, overlapping and non-existent regulatory oversight became increasingly apparent as local markets became global. This was most easily recognized throughout the globally interconnected payment and settlement networks and facilities, a system set up primarily as the mechanism to mitigate risk between financial institutions, and where systemic risk was first detected and defined almost four decades ago.

The Herstaat Bank failure in 1974, shortly after the SWIFT inter-bank payment system went live, was the first modern day instance of systemic vulnerability when its failure froze payments, prompting the Bank for International Settlements to establish a working committee, known today as the Basel Committee, to study systemic risk. Further vulnerabilities were apparent

- In October 1987 the US capital and contract markets collapsed freezing funds in each of the separate stock, options and futures settlement systems when normally such funds would be dispersed daily to member firms.

- In the 1990's when the newly installed NYMEX futures clearing system failed and froze funds for a two day period in the 1990's;

- On September 11, 2001 the government securities settlement system collapsed as a result of the destruction of the Bank of New York's downtown New York facilities; and

- In 2005 the paper backlog of unsettled transactions in the rapidly growing OTC derivatives market nearly froze the collateralized debt and credit default swaps markets where no organized payment and settlement system existed.

In recognition of this last event, in March, 2008 the President's Working Group on Financial Markets called for an industry cooperative to design a standardized payment and settlement system for all OTC derivatives that would moderate complexity throughout the transaction life cycle and foster more accurate valuations of these financial instruments.

Today there are a myriad of regulated, non-regulated and loosely regulated entities that collectively comprise the global payment and settlement infrastructure.

- The Depository Trust Company, a securities settlement system, is a state-chartered limited purpose trust company, and its affiliates, the National Securities Clearing Corporation and the Fixed Income Clearing Organization, are SEC-registered clearing agencies.

- Omgeo, a matching service, jointly owned by the Depository Trust & Clearing Corporation (DTCC) and the Thomson-Reuters Corporation, is organized as an SEC exempt clearing corporation.
- The Continuous Linked Settlement Bank, a foreign-exchange settlement system, is a federally chartered Edge Act corporation.
- SWIFT and LinkUp Markets, each a financial services messaging and network provider, have no specific financial regulatory charter or license.
- The Options Clearing Corporation is an SEC chartered facility, but owned by the five US SEC regulated options exchanges.
- The clearing corporations of the Chicago Mercantile Exchange and the Intercontinental Exchange are singularly owned by their exchange parents under charter by the Commodity Futures Trading Commission (CFTC).
- Other CFTC chartered futures and derivative clearing corporations such as the Clearing Corporation and LCH.Clearnet are separately organized entities owned by their members.

Problem of Systemic Risk

A significant problem of systemic risk to the global financial industry has historically been embedded in the clearance, payment and settlement matching process, as transactions entered into must wait a period of time before they are finalized (actual transfer of the electronic representation of the contracts and payment takes place) both within the trading platforms and at an institutional settlement level. Increasingly the listed futures makets have become institutionalized with commodity pool operators and hedge funds demanding block allocation processes and deliver vs. payment mechanisms to accommodate third party administrators and evolving account allocation rules. This increasingly institutional process is not dissimilar to the investment manager - prime broker – custodian mechanism that has evolved in the global capital markets. Further, as Swaps markets become increasingly traded and cleared electronically the need for a transaction audit trail for transactions executed in swaps execution facilities should evolve as has occurred for exchange trade products in such markets as equities, options and futures.

The embedded payment delay is a function of each financial institution independently sourcing referential data from multiple vendors and public sources that comprise the data elements used in matching. Each side of a transaction, as represented, for example by a unique product or business entity code or a valuation price, or delivery address and account number, requires identical codes to match. Further, most clearance, payment and settlement system operators have their own proprietary coding requirements. A period of time is thus required to reconcile differences whether between direct market participants or their financial agents. This period of time varies

depending upon the financial product traded, the region or country traded within, and the domicile of the counterparties that traverse different market closing time zones. Failures of financial institutions between the trade-date and the settlement date, specific financial transactions that are unresolved at settlement-date, and fraudulent trades, have all occurred due to the lack of timeliness of settlement. All financial transaction markets have a goal of shortening the settlement cycles with a vision toward simultaneous real-time trading, clearance, payment, and settlement.

Why do we need global identification solutions to this identification problem? Because systemically important financial institutions are global, transcending sovereign governments' reach, local regulators rules, and even regional compacts' oversight. And we now realize that we have no mechanism for "seeing" the same counterparty's risk exposure in different financial firms that each counterparty has received loans from or entered into SWAPs contracts with or had risk exposure limits set by them. As it became abundantly clear from the failure of Lehman Brothers, we could not understand which pieces of the Lehman firm each financial institution was dealing with, nor understand in what capacity they were doing business, nor were able to aggregate the risk exposure each had as individual institutions to Lehman's failure. Lehman and other global entities had been forced to accommodate each local regulator's rules for reporting; each vendor's, trading market, or Financial Market Utilitie's commercial and business interests in packaging their unique identification language into their valued added product or service; and each government's prescription for keeping its ledgers in certain format with its own identification language.

As the CFTC and other regulators are asking, the industry must organize itself to help with the regulators' task. By so doing it will bring another order of magnitude change in processing efficiency and reduced costs and, of course, reduce the operational risk of each institution that can cascade into systemic risk in the global financial system. Data management in the financial services industry needs to be a full-time endeavor. We need a federated, industry focused, global standards organization and standards-based registration authority like GS1.

Cost of the Current Global Reference Data System

Over the many decades that the issue of faulty and duplicate reference data had been debated there was one overriding issue that appeared to hinder financial institutions from dealing with the problem. The business case was never made. A P&L manager, and there were and are many in the silo operational structure of the largest financial institutions, had to be convinced that the costs/benefits were worth the effort. The "soft" benefits of operational efficiency and lowered risk were always "understood" but no quantification was ever attempted across the many silos so that the financial institution itself could be aware of the value to its stakeholders at the enterprise level.

The cost of reference data and the savings that the industry can achieve if the infrastructure of non-standard standards is fixed as is being proposed here, is enormous. Our own estimates are in the range of US $.25 billion – $1.25 billion, the amount each of the largest US domiciled financial institutions spend annually on this function (see **Operational Risk & Data Management: Costs, Capital Requirements & Risk Mitigation,** A.D. Grody, G. Kaple, F. Harmantzis, *Journal of Operational Risk, Vol. 1, No. 3, 2006*, presented at the Financial Management Association, European Conference, Stockholm Sweden, June, 2006 http://ssrn.com/abstract=849224. An extensive template for valuing each institutions expenses in this regard has been prepared and presented to our Alliance.

Various surveys and anecdotal evidence about costs and savings are prevalent in the discussions of this issue in the past and to the current time. The legislative record on the Dodd Frank Act contains estimates of an unidentified investment bank's $300 million in projected savings form a new standards regime. The record also contains a cost estimate of $1 billion for the US Treasury to initially fund the Office of Financial Research and its Data Center, after which the largest financial institutions will be assessed for its on-going operations, estimated at $500 million annually.

While the significance to the economic stability of the US economy is now paramount as the reason to get on with "fixing the plumbing" of the financial system, it still behooves us as business men to make the case of significant infrastructure cost savings. The SEC's thoughts in their rule making comment letter http://sec.gov/rules/proposed/2010/34-63446.pdf at page 204 echoes our own thoughts and objectives as stated in this proposal.

> **"A common set of reference identifiers for participants and products could yield significant efficiencies in both the public and private sectors..... financial firms could eliminate the use of multiple proprietary reference systems and move to a single, widely accepted system."**

We believe that the largest global financial institutions have an opportunity to realize the significant benefit of cost reduction and operating efficiency inherent in the SEC's statement. This would be in addition to the risk mitigation benefit inherent in new capabilities. This benefit could be realized from common identification standards for better aggregating data across business silos to understand the enterprise risk each systemically important financial institution is taking. And it will be in addition to providing the transparency needed for regulators to "see" that which they are mandated to oversee and cannot do right now.

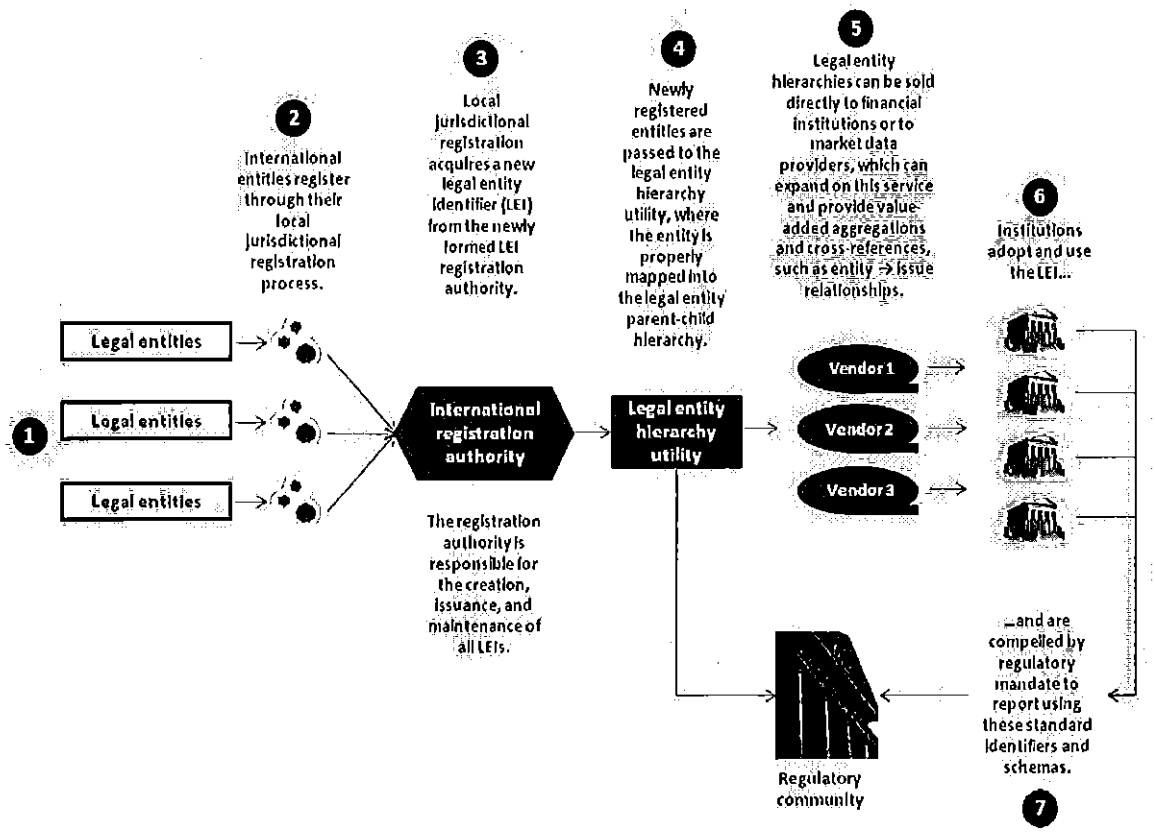
It is with this cost savings benefit in mind that we seek alternatives for supporting the CFTC's interest, like the OFR's in a common utility for global reference data.. One such facility, which we have discussed with the Alliance, is a collaborative effort to create a common utility for reference data in all its dimensions. In our dialogue with industry members we have referred to it as the Central Counterparty for Data Management and was subject of a paper **Infrastructure**

issues in the securities industry: The case for a central counterparty for data management Journal of Securities Operations & Custody Volume 2 Number 3, Fall 2009 Volume 2 Number 3, A.D. Grody, http://ssrn.com/abstract=1393022 . In this proposal you will find its analogue in our proposed Reference Data Registration Authority Data Pool which we refer to as the RDRA Data Pool or simply the RDRA. This definitional term aligns more closely with the concepts found in both the OFR's rule making comment http://www.treasury.gov/initiatives/Documents/OFR-LEI_Policy_Statement-FINAL.PDF at page 4

> **"Complete automation of back-office activities remains elusive, in part because of the lack of a universal identifier for legal entities."**

and the subsequently released white paper **Creating a Linchpin for Financial Data: The Need for a Legal Entity Identifier** http://ssrn.com/abstract=1723298 authored by Federal Reserve personnel and co-authored by various government agency personnel including CFTC, SEC, and OFR personnel. It is presented below in its entirety as Figure 1. In the white paper it is described as a public/private mechanism constructed to serve as a potential solution to the Legal Entity Registration Process (and to the UCI identification and registration process sought by the CFTC and SEC); to serve in a subsequent extension to legal hierarchies and there distribution; and to create other value added services. We have further expanded on this concept in this proposal to include registration of all required financial industry identifiers and their associated reference data.

Figure 1 – Governments' Potential Legal Entity Registration and Distribution Approach



Outline of the Proposed Solution

The following sections describe in detail our proposal for addressing the requirements laid out in the OFR notice. The highlights of our proposal are as follows:

- *Identification* We propose a system of universal identification for the financial industry, which includes *globally unique, persistent* identifiers for Legal Entities (UCI), Financial Instruments (USIs), and Financial Events (corporate changes and life cycle events) 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 identifiers proposed for the financial industry are already well-established industry standards, and the Legal Entity Identifier proposed here 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 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. 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. 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.

The next three sections describe in detail these three aspects of the proposal.

Universal Identification for the Financial Industry

We are proposing a system of universal identifiers for the financial industry. Three identifier structures are proposed:

- Legal Entity Identifier (LEI)
- Financial Instrument Identifier (FII)
- Financial Event Identifier (FEI)

While the CFTC rule making notice specifically asks for comment on the UCI, USI and UPI, we feel that a comprehensive system should include the SEC's and OFR's ability to identify business entities, financial instruments and financial events as well. The need to include identification of financial instruments and financial events in addition to business entities was raised by Alliance members and suggested in the SEC's rulemaking on product identification regarding SWAPS (SEC at http://sec.gov/rules/proposed/2010/34-63446.pdf - page 204; CFTC at http://www.cftc.gov/stellent/groups/public/@otherif/documents/ifdocs/federalregister112210.pdf - pages 48 and 49). Further, in the OFR's request for comments at

http://www.treasury.gov/initiatives/Documents/OFR-LEI_Policy_Statement-FINAL.PDF - page 7 it states that the LEI "where possible, be compatible with existing systems, work across various platforms, and not conflict with other numbering or identification schemes."

We note that in the various constructions of the many financial instrument identifiers that exist today, the issuer of securities has been identified as part of the numbering convention. While in many cases not the same as the counterparty contemplated by the CFTC and the SEC, and the legal entity contemplated by the OFR, certainly some of the legal entities hierarchical affiliations would be identified as issuers of or counterparty's in financial instruments. Therefore, in the case of the financial instrument identifier, where we wish to give full consideration of the OFR's request for the LEI not to conflict with other numbering or identification schemes, there may be a need for a transitional period where existing financial instrument identifiers will be supported by the new standards, recognizing that existing standards (i.e. CUSIP in the US is recognized in IRS rulemaking) are embedded in legislation. A fuller discussion is presented on this issue in the Requirements Regarding LEI (and by association the UCI) Characteristics section of this proposal.

The structures proposed herein are based on existing global standards for identification that are part of the GS1 System of standards. In particular, we propose the GS1 Global Location Number (GLN) as the Legal Entity and UCI Identifier, and two variants of GS1 Global Document Type Identifier (GDTI) as the Financial Instrument Identifier and USI and as the Financial Event and Life Cycle Event Identifier. The terms Global Business Entity Identifier (GBEI), Global Financial Instrument Identifier (GFII), and Global Financial Event Identifier (GFEI) are used to refer to these GS1 identifiers. The following table summarizes the identifiers and their roles:

Role	Identifier Name	Based on GS1 Standard
Legal Entity Identifier (LEI) and UCI	Global Business Entity Identifier (GBEI)	Global Location Number (GLN)
Financial Instrument Identifier (FII) and USI	Global Financial Instrument Identifier (GFII)	Global Document Type Identifier (GDTI)
Financial Event and Life Cycle Event Identifier (FEI)	Global Financial Event Identifier (GFEI)	Global Document Type Identifier (GDTI)

We believe there are significant advantages to using these existing GS1 standards:

- These standards exist today, and have been ratified through an international voluntary consensus standards body. This means that they can be deployed immediately, without waiting for a new standard to be created and approved.

- GS1 standards are already in use by many companies throughout the world, and the GLN is already widely used to identify legal entities in the context of physical supply chains and in the associated electronic messages. Those companies that already use GLNs for this purpose can immediately use their existing GLNs as financial LEIs under this proposal. We estimate that between 30-50% (depending on geographic region) of companies worldwide that would need financial LEIs are already using GS1 identification standards, based on our analysis of listed public companies.

- GS1 identification standards are designed to provide unique identification worldwide, and are supported by a network of 108 country-specific GS1 "member organizations" across the globe. Ample capacity exists for the issuance of GS1 identifiers both in the US and worldwide to meet the needs of the financial industry. (Present US capacity is approximately 100 billion GBEIs, an equivalent number of GFIIs, and a virtually unlimited number (10^{43}) of GFEIs. International capacity is approximately five times those numbers.

The identifiers proposed here are all based on a common structure consisting of two main parts:

- A GS1 Company Prefix assigned to a user company, which provides that user company the capacity to issue a certain number of GBEIs, GFIIs, and GFEIs; and

- Remaining digits assigned by the user company to create an individual GBEI, GFII, or GFEI.

- There is also an additional "check digit" that helps protect data integrity, and the GFEI includes a third component to identify individual financial event.

The GS1 Company Prefix, its role in issuance of GBEIs and other identifiers, and the benefits this approach brings are discussed in the following section.

Legal Entity Identifier (LEI) -- the Global Business Entity Identifier (GBEI)

We are proposing the following structure for a Global Business Entity Identifier (GBEI), based on the GS1 Global Location Number (GLN). The GBEI is a global identifier that uniquely identifies a business entity that is a participant or reference entity or counterparty in financial transactions or in the supply chain of financial services process, such as a clearinghouse, counterparty, custodian, data vendor, dealer, depository agent, exchange, financial institution, issuer, trading advisor, etc. GBEIs are issued in such a way that they are globally unique, across all countries, markets, and regulatory regimes.

The GBEI number is a non-intelligent number, with no intrinsic meaning. Information about the entity or location resides in an associated database or registry and would include (among other data) name, address, contact information, the role of the entity, and the hierarchical position in which it resides relative to the parent and/or subsidiary legal identifiers. If there are other identifiers in use for that entity, they may be cross-mapped to the GBEI in the associated database. Registration of such reference data is discussed later.

The GBEI may be issued in one of three ways:

- For a company that already has a GS1 Company Prefix, that company will assign a GBEI to each business entity under its authority that needs to be identified based upon criteria to be established in further consultation with regulators and perhaps public auditing firms

- For a company that is required under regulation to obtain a GS1 Company Prefix, that company will do so by requesting one from its GS1 local registration authority and then assign a GBEI to each business entity under its authority that needs to be identified based upon criteria to be established in further consultation with regulators and perhaps other government entities.

- For a company that requires a single GBEI but does not issue financial instruments nor participate in financial contracts, or otherwise does not have a need for a GS1 Company Prefix, an individual 13-digit GBEI value may be issued by the local GS1 Member Organization to the requesting entity.

Over time most organizations go through a number of life cycle events, including mergers, acquisitions, divestitures, private placements, initial offerings, index changes, bankruptcies, and physical moves. There are scenarios where one company's GBEI values may need to be integrated into the purchasing company's existing structure. Such changes may be accommodated easily by updating the associated reference data records.

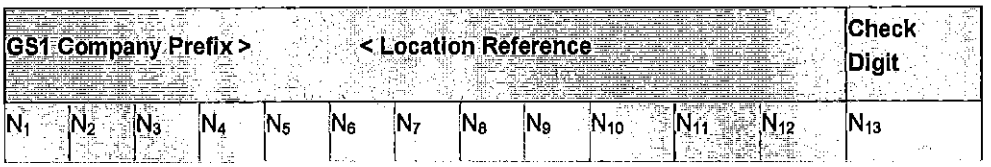
It is anticipated that rules for allocation of GBEIs and for the construction and maintenance of associated reference data will be adopted by industry and approved by regulators in consultation with public company auditors who, themselves, on behalf of their clients, need to understand the companies' legal identities and legal structures. GS1, as a voluntary consensus standards body, has an established process by which industry stakeholders can develop allocation rules of this kind, including appropriate input from regulators. Such rules would address questions such as the following:

- When one organization acquires another organization, the GBEI values of the acquired organization may continue to be used and integrated into the acquiring company's hierarchy.

- When one organization makes a partial purchase of another organization, the GBEI values of the acquired organization continue to be used and integrated into the acquiring company's hierarchy.
- Should a company change its name, the same GBEI value continues to be used.
- If a legal entity relocates to a new city, town or country (i.e. a physical location change), the same GBEI continues to be used.

It is the assigning company's responsibility to communicate and register each GBEI into the GS1 Global Registry, and to register reference data with a reference data registration authority (RDRA), subject to regulation. Registration of identifiers and reference data is discussed in a later section.

GBEI Identifier Key Structure



The GBEI is the GS1 Global Location Number (GLN) identifier key structure, which is a 13-digit number constructed from three parts:

- *GS1 Company Prefix* The GS1 Company Prefix is provided by the local GS1 Member Organization to the user company that wishes to create a GBEI. The GS1 Company Prefix is a six to eleven digit number that is assigned exclusively to the user company. If a user company already has a GS1 Company Prefix that is used for other business applications, that GS1 Company Prefix may also be used to generate financial services GBEIs.
- *Location Reference* The Location Reference is a one to six digit number assigned by the user that identifies the legal entity. The length of the Location Reference Number varies, based on the length of the GS1 Company Prefix. The combined length of the GS1 Company Prefix and the Location Reference Number is always 12 digits. (Leading zeros are used as necessary.)

  The policy for assigning Location Reference numbers is up to the user holding the GS1 Company Prefix to determine for itself; however, a typical policy is to assign the first legal entity the value 1 (with as many leading zeros as necessary), the next legal entity the value 2, and so on for as many GBEIs as the user needs to create. It is the responsibility of the user to ensure that each legal entity is assigned a distinct Location Reference, and therefore a globally unique GBEI.

- *Check Digit* A one digit number that is calculated algorithmically from the other 12 digits, according to the procedure given in the GS1 standard. The Check Digit helps ensure the integrity of the identifier by providing for the detection of keyboarding errors and the like

Financial Instrument Identifier (FII) – the Global Financial Instrument Identifier (GFII)

We are proposing the following structure for a Global Financial Instrument Identifier (GFII), based on the GS1 Global Document Type Identifier (GDTI). The GFII proposed here is a global identifier that uniquely identifies a security, a financial contract, or a financial instrument. GFIIs are issued in such a way that they are globally unique across all countries, markets, and regulatory regimes.

The GFII number is a non-intelligent number, with no intrinsic meaning. Information about the financial instrument resides in an associated database or registry and would include (among other data) name, address, contact information, type of instrument or contact, and the GBEI of the issuer or originator of the contract. If there are other identifiers in use for that instrument or contract, they may be cross-mapped to the GFII in the associated database.

The GFII may be issued in one of three ways:

- For a company that already has a GS1 Company Prefix, that company will assign a GFII to each financial instrument under its authority that needs to be identified based upon criteria to be established in further consultation with regulators and perhaps public auditing firms

- For a company that is required under regulation to obtain a GS1 Company Prefix, that company will do so by requesting one from its GS1 local registration authority and then assign a GFII to each financial instrument under its authority that needs to be identified based upon criteria to be established in further consultation with regulators and other government entities

- Over time most organizations go through a number of corporate and life cycle events, including mergers, acquisitions, divestitures, private placements, initial offerings, bankruptcies, physical moves, cash flow changes, index adjustments, and factor adjustments.

There are scenarios where one issuer's GFII values may need to be integrated into the purchasing company's existing structure. Such changes may be accommodated easily by updating the associated reference data records.

It is anticipated that rules for allocation of GFIIs and for the construction and maintenance of associated reference data will be adopted by industry and approved by regulators in consultation with public company auditors who have to perform due diligence in valuing security and contract positions maintained in a financial institutions records as part of its audit. GS1, as a voluntary

consensus standards body, has an established process by which industry stakeholders can develop allocation rules of this kind, including appropriate input from regulators. Such rules would address questions such as the following:

- When one organization makes a total purchase of another organization, may the GFII values of securities issued by the acquired organization continue to be used and integrated into the acquiring company's hierarchy?

- When one organization makes a partial purchase of another organization, may the GFII values of securities issued by the acquired organization continue to be used and integrated into the acquiring company's hierarchy?

- Following a corporate action or a life cycle event that has a material effect on an existing financial instrument or contract, may the same GFII value continue to be used to identify that instrument?

It is the assigning company's responsibility to communicate and register each GFII into the GS1 Global Registry, and to register reference data with a reference data registration authority (RDRA), subject to regulation. Registration of identifiers and reference data is discussed in a later section.

GFII Identifier Key Structure

GS1 Company Prefix >						< Document Type Number						Check Digit
N_1	N_2	N_3	N_4	N_5	N_6	N_7	N_8	N_9	N_{10}	N_{11}	N_{12}	N_{13}

The GFII uses the GS1 Global Document Type (GDTI) identifier key structure, which is a 13-digit number constructed from three parts:

- *GS1 Company Prefix* The GS1 Company Prefix is provided by the local GS1 Member Organization to the user company that wishes to create a GFII. The GS1 Company Prefix is a six to eleven digit number that is assigned exclusively to the user company. If a user company already has a GS1 Company Prefix that is used for other business applications (including the issuance of GBEIs and GFEIs), that GS1 Company Prefix may also be used to generate financial services GFIIs.

- *Document Type Number* The Document Type Number is a one to six digit number assigned by the user that identifies the financial instrument. The length of the Document Type Number varies, based on the length of the GS1 Company Prefix. The combined length of the

GS1 Company Prefix and the Document Type Number is always 12 digits. (Leading zeros are used as necessary.)

The policy for assigning Document Type numbers is up to the user holding the GS1 Company Prefix to determine for itself. However, a typical policy is to assign the first financial instrument the value 1 (with as many leading zeros as necessary), the next financial instrument the value 2, and so on for as many GFIIs as the user needs to create. It is the responsibility of the user to ensure that each financial instrument is assigned a distinct Document Type Number, and therefore a globally unique GFII.

A Document Type Number of all zeros is reserved for use in the GFEI, as described in a following section.

- *Check Digit* A one digit number that is calculated algorithmically from the other 12 digits, according to the procedure given in the GS1 standard. The Check Digit helps ensure the integrity of the identifier by providing for the detection of keying errors and the like.

It is recognized that there already exist systems of identifying securities, contracts, and other financial instruments. In some cases, such existing systems are embedded in legislation (e.g., CUSIP as the US identification in IRS rulemaking). On the other hand, it is also recognized that none of the existing systems attain the goals of global uniqueness, persistence, and comprehensiveness that are understood to be needed to fully address the issue of systemic risk.

Therefore, we anticipate that there will of necessity be a period of transition in which the GFII co-exists with existing numbering systems for financial instruments, perhaps for decades as had been the case in country specific standards setting regulatory mandates in the past.

There may also be a need to employ techniques to achieve backwards compatibility, such as schemes that embed an older identifier within a GFII under specified conditions. Similar techniques have been used in other situations where GS1 identifiers have been used to unify older systems of identification; for example, the GS1 Global Trade Item Number encompasses the older Universal Product Code, the European EAN code, the International Standard Book Number (ISBN), the US National Drug Code (NDC), and others. In Appendix VIII we illustrate how such an approach might be taken with respect to the GFII and GFEI proposed herein. We propose bringing together financial industry stakeholders and, through the GS1 Global Standards Management Process (GSMP), a voluntary consensus standards body, develop the specific techniques needed within the financial industry to properly accommodate existing financial instrument identification systems and enable a smooth transition towards a universal GFII.

Financial Event Identifier (FEI) – the Global Financial Event Identifier (GFEI)

We propose the following structure for a Global Financial Event Identifier (GFEI), based on the GS1 Global Document Type Identifier (GDTI). The GFEI proposed here is a global identifier that uniquely identifies an event that pertains to a specific financial instrument such as a corporate event of a security or a life cycle event pertaining to a specific financial contract, or uniquely identifies an event that is not tied to any specific financial instrument such as a bankruptcy or the announced merger of two companies. GFEIs are issued in such a way that they are globally unique, across all countries, markets, and regulatory regimes.

The GFII number is a non-intelligent number, with no intrinsic meaning. Information about the financial instrument resides in an associated database or registry and would include (among other data) name, address, contact information, type of instrument, details of dates, rates, cash flows, currency, other action codes, and the GBEI of the issuer. If there are other identifiers in use for that instrument, they may be cross-mapped to the GFII in the associated database. The only aspect of "intelligence" in the GFEI is that in the case of an event pertaining to a specific financial instrument, the first 13 digits of the GFEI are identical to the 13-digit GFII that identifies that financial instrument.

The GFEI may be issued in one of two ways:

- For a company that already has a GS1 Company Prefix, that company will assign a GFEI to each financial event under its authority that needs to be identified based upon criteria to be established in further consultation with regulators and public auditing firms
- For a company that is required under regulation to obtain a GS1 Company Prefix, that company will do so by requesting one from its GS1 local registration authority and then assign a GFEI to each financial instrument under its authority that needs to be identified based upon criteria to be established in further consultation with regulators and public auditing firms

It is the assigning company's responsibility to communicate and register each GFEI into the GS1 Global Registry, and to register reference data with a reference data registration authority (RDRA), subject to regulation. Registration of identifiers and reference data is discussed in a later section.

GFEI Identifier Key Structure

GS1 Company Prefix >								< Document Type Number				Check Digit	Serial Number*	
N_1	N_2	N_3	N_4	N_5	N_6	N_7	N_8	N_9	N_{10}	N_{11}	N_{12}	N_{13}	N_{14}	variable N_{30}

*See discussion of eliminating this component of the GFEI through substitution of reference data and other discussions of the use of these digits for backward compatibility to be found in Appendix VIII

The GFEI is the GS1 Global Document Type (GDTI) identifier key structure, which is a 14- to 30-digit variable-length number constructed from four parts:

- *GS1 Company Prefix* The GS1 Company Prefix is provided by the local GS1 Member Organization to the user company that wishes to create a GFEI. The GS1 Company Prefix is a six to eleven digit number that is assigned exclusively to the user company. If a user company already has a GS1 Company Prefix that is used for other business applications (including the issuance of GBEIs and GFIIs as described elsewhere), that GS1 Company Prefix may also be used to generate financial services GFEIs.

- *Document Type Number* The Document Type Number is a one to six digit number assigned by the user that identifies the financial instrument to which the financial event pertains. There are two possibilities:

  - For a financial event that pertains to a specific financial instrument, the GS1 Company Prefix, Document Type Number, and Check Digit are identical to the GFII of that financial instrument. That is, in this case the first 13 digits of the GFEI are identical to the GFII of the relevant financial instrument.

  - For a financial event that does not pertain to a specific financial instrument, the Document Type Number is all zeros.

  The length of the Document Type Number varies, based on the length of the GS1 Company Prefix. The combined length of the GS1 Company Prefix and the Document Type Number is always 12 digits. (Leading zeros are used as necessary.)

- *Check Digit* A one digit number that is calculated algorithmically from the preceding 12 digits, according to the procedure given in the GS1 standard. The Check Digit helps ensure the integrity of the identifier by providing for the detection of keying errors and the like.

- *Serial Number* A variable-length number (but always having at least one digit) that identifies the financial or life cycle event. The first event for a given financial instrument or corporate wide event is assigned Serial Number 1, the next event for the same financial instrument (or corporate wide event) Serial Number 2, and so on.

Issuance of GBEIs and Other Identifiers

This section outlines the envisioned process for issuing Global Business Entity Identifiers (GBEIs). A similar process applies to the Global Financial Instrument Identifier (GFII) and Global Financial Event Identifier (GFEI).

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 stark 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 GBEIs, GFIIs, or GFEIs, 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 an individual GBEI by assigning the remaining digits according to the structure defined for the GBEI (see sections above). A user company may repeat this step as many times as needed for each GBEI that it needs to create.

In the context of financial services, we also anticipate that each time a company issues a unique GBEI it will be required to register that GBEI into the GS1 Global Registry, and to register reference data with a Reference Data Registration Authority (RDRA) of its choice.. Registration of identifiers and reference data is discussed in a later section.

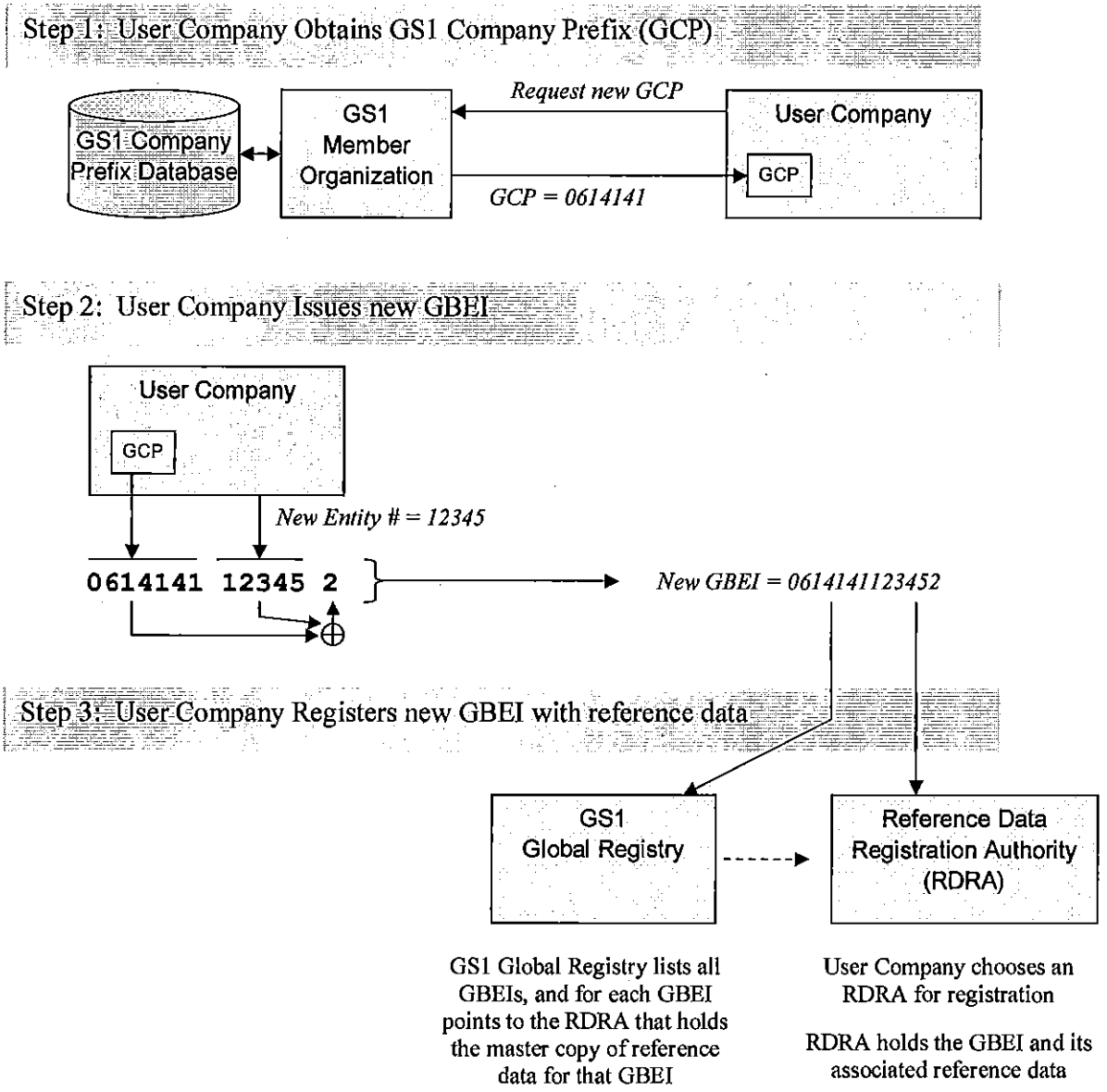
Figure 2 illustrates the issuance process.

This structure for issuing GBEIs 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 GBEIs, GFIIs, and GFEIs without further interaction with GSI. This reduces costs for end users.

- Once a user holds a GS1 Company Prefix, the act of issuing a new GBEI or other identifier 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 2 - Global Business Entity Identifier Issuance Process



The highly decentralized nature of this process helps to ensure that GS1 does not become a bottleneck for the financial industry. This is further aided by the fact that GS1 Company Prefixes are themselves allocated in a distributed fashion, across 108 GS1 Member Organizations worldwide. At the same time, the assignment of GS1 Company Prefixes is coordinated in a way 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 GBEI 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, who does not issue any securities but may for example, be a swap participant that may only require a single GBEI. In such a case, the user company may request a single individual GBEI 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 GBEI 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 GBEI functions exactly the same as any other GBEI, and is globally unique with respect to all GBEIs regardless of how issued. The user company would register its individual GBEI in the same manner as it would a GBEI 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.

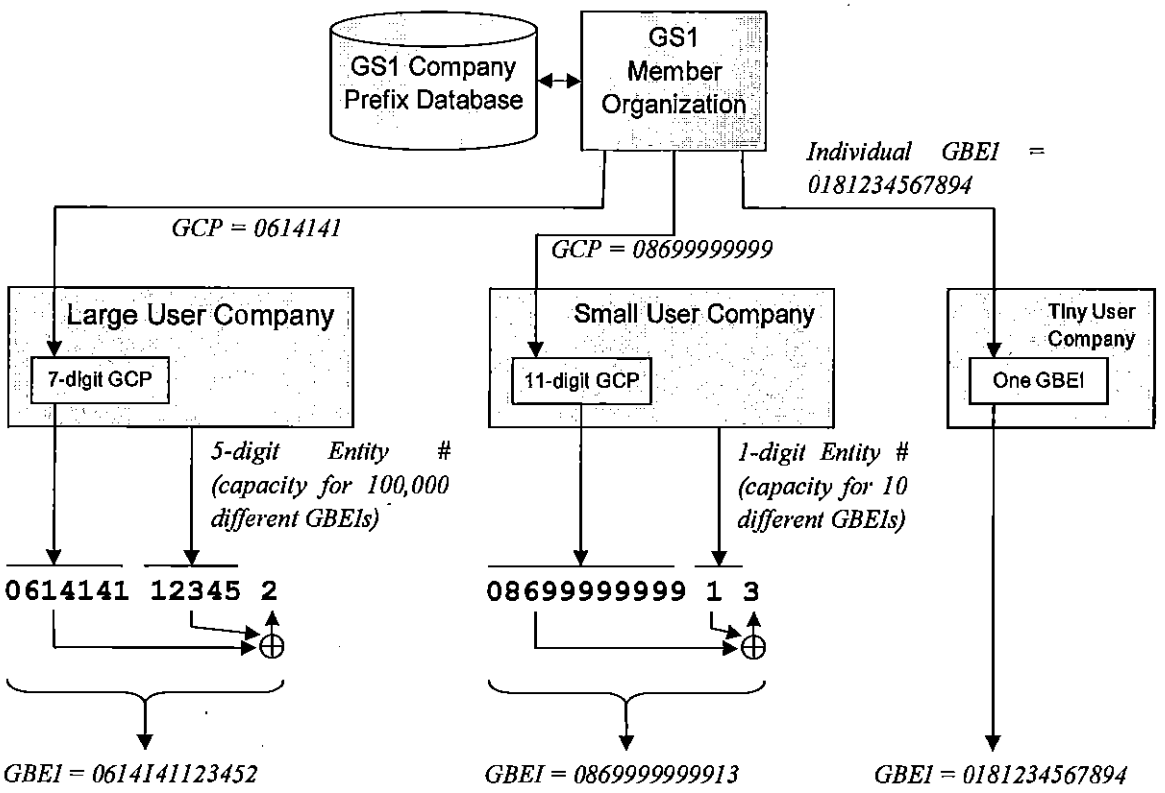
- It is anticipated that there will be some user organizations, typically very large or very complex corporations that will need to issue many GBEIs.
- There are also certain securities issuers, such as the US Treasury or the Chicago Board Options Exchange that will need to issue a very large number of GFEIs.
- At the other end of the spectrum, there will be many organizations that only need to issue a small number of GBEIs or GFIIs, including very small entities that may only need a single GBEI.

The GS1 System accommodates these varying user requirements through its use of a *variable length* company prefix (see Figure 3). While the overall length of an GBEI is always 13 digits (of which 12 digits are assigned, the 13th 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 GBEIs might request from GS1 a 7-digit GS1 Company Prefix. A 7-digit company prefix leaves five digits available for the creation of GBEIs by the user – thereby giving that user the capacity to issue up to 100,000 distinct, globally unique GBEIs.

- At the other end of the spectrum, a small business that only anticipates issuing a handful of GBEIs 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 GBEIs using that company prefix. As noted earlier, an even smaller organization might request a single GBEI, without ever obtaining a company prefix.

Figure 3 - Variable Length GS1 Company Prefix Within a Fixed Length Key



User organizations 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 user organization to be clairvoyant with regard to its future capacity needs. If a user organization exhausts the capacity provided by the company prefix it obtained, it simply goes back to GS1 to ask for the allocation of another GSI 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 GBEIs. If XYZ later discovers that it needs to issue an eleventh GBEI, it simply goes back to its GS1 Member Organization and requests a second company prefix. It can

then issue more GBEIs 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 or UCI. Ownership and other attributes of each LEI and UCI are recorded separately as reference data. In the GSI 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 4. :

Figure 4 – 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 GBEIs 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 GBEIs, as that would invalidate all of the historical financial records pertaining to it. Instead, the ABC entities continue to operate using their existing GBEIs beginning with 6666666. To reflect the change in ownership, the registered reference data for the ABC GBEIs are updated to indicate they are now subsidiaries of XYZ, but the GBEIs 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 GBEIs.
A Small Company Establishes A Single New Affiliated Company
Itty-Bitty Corp is a very small company that obtained an individual GBEI 1234567890128. Several years afterwards, Itty-Bitty creates a wholly-owned subsidiary. The subsidiary obtains a second individual GBEI 1357902468018. There

is nothing in the GBEI 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 at 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 ("non-significant") numbers, 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.

Registration of Identifiers and Reference Data

This section outlines the envisioned process for registering Global Business Entity Identifiers (GBEIs) and associated reference data. A similar process applies to the Global Financial Instrument Identifier (GFII) and Global Financial Event Identifier (GFEI).

As described in the previous section, the identifiers proposed here are issued directly by an end user company, using a GS1 Company Prefix previously obtained from a GS1 Member Organization. In order for an identifier to be used in business transactions with other parties, it must be registered with a registration authority.

Registration is the process by which a company participating in the financial supply chain

- Declares that a new identifier has been issued
- Provides reference data that describes the legal entity (or financial instrument or financial event) identified by the contributor. (Below we describe how in our proposal this involves both a Reference Data Registration Authority chosen by the company issuing the identifier, and the GS1 Global Registry.)
- Is subject to verification and quality assurance procedures for the reference data as established by the reference data registration authority. Verification procedures may include confirming that the identifier is not a duplicate of a previously registered identifier, and confirming the correctness of the reference data.

Following registration, the reference data for an identifier is now available for publication by the reference data registration authority to parties authorized to receive such data including its availability in the public domain, where regulation permits.

Organizational Structure of Registration Authorities

Conceptually, the registration authority for financial identifier reference data is a single repository: all financial identifiers are registered in the repository, and so reference data for all identifiers worldwide is available from a single source. However, we do not believe it is practical

for the registration authority to literally maintain a single database. Today's distributed technology allows for a federation of local databases, perhaps maintained by country, perhaps by class of financial instrument. Moreover, we do not believe it is desirable, nor likely to be acceptable, to have such databases (whether physically distributed or not) under the control of a single registration authority.

There are many reasons why we believe a single registration authority, 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 registration authority 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 operation 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 registration authority that is located in their country, subject to that country'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, we propose a *federated* model for registration of financial reference data, in which there is one governance structure but many registration authorities worldwide. Such a system operates on the following principles:

- A Global Registry of financial identifiers is to be maintained under a federated model of registration authorities but under a single governance model
- Any identifier may be initially registered with any registration authority (possibly subject to local regulation, as described below). The reference data is provided by the user organization to the chosen registration authority.

- All registration authorities synchronize with each other, so that data registered with one registration authority is made available to all the other registration authorities.

- Therefore, another user who wishes to obtain reference data (and is authorized to do so), may go to *any* registration authority, and the data will be available regardless of whether that data was originally registered with a different registration authority.

- Any given registration authority may be subject to local laws and regulation, and a user organization's choice of registration authority may also be constrained by local laws and regulation.

- Global standards for financial reference data registration authorities 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 registration authority operating in a given jurisdiction, beyond what the global standards require. Local laws and regulations would specify how a registration authority is certified to be in compliance with the global standards and accredited to act as a registration authority 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 registration authority to use from amongst the registration authorities operating within the user's jurisdiction.

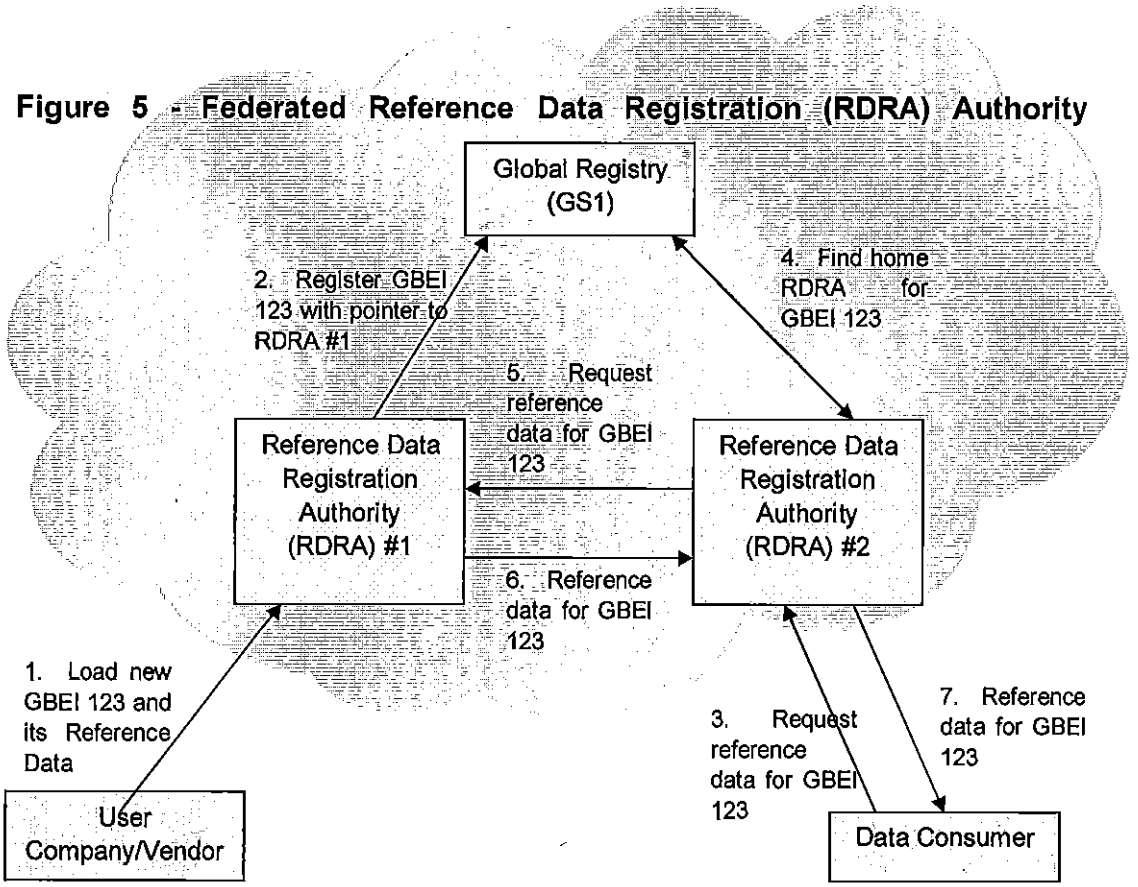
- GS1 maintains a top-level directory, the GS1 Global Registry that lists all registered identifiers, and indicates which registration authority was chosen by the user for the registration of each identifier. Entries in this top-level directory are maintained through collaboration between GS1 and the registration authorities.

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 registration authority; e.g., that it be not-for-profit, etc.
- Government audit procedures to which registration authorities are subject
- Local data or additional quality assurance procedures above and beyond what is specified in the global standards
- The number of registration authorities 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 registration authority for the entire country or region
    - Authorize a single, independent not-for-profit organization to act as registration authority for the country or region
    - Allow for multiple registration authorities 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 registration authorities 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 counterparty only has *one* identifier that is the same in *every* registration authority that has a copy of its reference data. The reference data is also the same regardless of which registration authority is used to query for that data. Figure 5 illustrates how reference data is registered and synchronized in a federated system:

Figure 5 - Federated Reference Data Registration (RDRA) Authority



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 works exactly as described above: there is a federated network of "data pools" (corresponding to "registration authorities" 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. See Appendix VII for a diagram depicting this.

Definition, Verification, and Access of Reference Data

The previous section proposes a federated structure for the registration, maintenance, and distribution of financial identifier reference data, defined by global standards and subject to further regulation by local jurisdictions. At the next level of detail, there are design questions that must be addressed, including:

- Exactly what reference data attributes are to be collected for each GBEI, GFII, and GFEI? The CFTC proposed rulemaking lists name, location, electronic address, and legal status as attributes for UCIs. Other attributes for UCIs may include ownership relationships between UCI's (both current and historical), contact information, related identification such as tax ID numbers, and many more. Likewise, there are many attributes one can imagine are needed for FIIs and FEIs.

- What quality assurance controls and verification procedures must a registration authority apply to any new or modified reference data? This may include checks for duplicate numbers; heuristic checks for possible duplicates by considering name, address, and other characteristics; independent verification of provided data; and so on.

- How rapidly must reference data be synchronized and propagated through the worldwide network?

- What are the rules for authorizing the access to reference data by parties other than the provider of the data? What data is public, and what data is private?

We believe that the answers to questions such as this must come from a consensus of the stakeholders involved, and will involve new analysis to the extent that some of this data is data that has hitherto not been collected in any consistent fashion industry-wide.

For this reason, we propose that the answers to the questions above be provided by the *community* through voluntary industry consensus bodies. We seek to leverage the work of existing standards bodies, such as the Global Financial Services Data and Standards Alliance, the ANNA Registration Authority, XBRL International, and others. Where new standards are required, they could be developed within the GS1 community using GS1's Global Standards Management Process, or any of the above-named bodies, as determined by the industry.

Financial Reference Data and the Internet

Global standards for identification of legal entities, financial instruments, and financial events as proposed herein, together with standardized reference data, open up a new world of possibility for information gathering and dissemination through the financial sector, and also for the registration, regulation, and oversight of this data. We have seen this already through the public companies' publication of financial statement data in XBRL format on the public Internet. The availability of this information has made it possible for Google and other data gathering

organizations to automatically discover and digest this information, and make it available in new and innovative forms of benefit to the entire financial sector. The adoption of global standards for identification, as proposed herein, will have a dramatic positive effect on the effectiveness of such techniques, as they will have a far more reliable way to correlate disparate information. Moreover, it opens up the possibility that through the use of digital signature technology, it will be possible for a company to publish *authoritative* reference data about its legal entities, financial instruments, and financial events, conceivably without the need for formal registration in a centralized reference database – a properly signed XBRL document published on a company's public web site can itself serve as authoritative reference data. We recognize, of course, that there is still a place for authoritative databases managed in a more traditional regulated manner (as described in earlier sections), especially in the short to medium term. But the essence of risk management is the free flow of information, and the horizons opened up by universal, global, standardized identification and reference data are truly exciting.

Implementation Timeline

The Dodd-Frank Act makes it clear that there is an urgent need to implement a solution as quickly as possible. At the same time, it is essential that any implementation steps serve to move the industry towards scalable, global, standards that address all aspects of the systemic risk problem, and not just another silo solution that is limited to one region, one regulatory regime, or one type of financial identification.

In our opinion, the above requirements can only be met by adopting an *existing, widely-adopted, international* standard *without modification.* If an existing standard requires modification or enhancement to meet the financial industry's requirements, there will be an unacceptable delay in reaching the point where implementation can even begin. Conversely, if narrower regional standard is adopted, it may never scale in scope to fully address systemic risk internationally.

Our proposal is based on existing international standards, and for this reason all three elements of our proposal can be implemented immediately:

- *Identification* The Global Business Entity Identifier (GBEI) is GS1's Global Location Number (GLN), already in use worldwide as a unique, persistent, and universal identifier for legal entities. No modification to the existing international standard is required to meet all OFR requirements. Timeline for implementation: immediate – the standard already exists.

- *Issuance* The process for issuing GBEIs is well established and in use across the globe, supported by GS1 Member Organizations in 108 countries. A large number of financial companies (we estimate about 30-50% of securities issuers, for example) have already obtained a GS1 Company Prefix giving them the capacity to create GBEIs, GFIIs, and GFEIs. Many of these already have issued GLNs to identify legal entities for purposes of electronic commerce, and those GLNs may be used without modification as GBEIs. Other

companies may simply contact their local GS1 Member Organization to obtain a GS1 Company Prefix or an individual GBEI. Timeline for implementation: immediate – the arrangements for issuance already exist.

- *Registration of Reference Data* Here a key consideration is to establish exactly which reference data elements are required to address systemic risk, as well as other purposes within the financial industry. By way of example, in Appendix IX we give an example of the reference metadata and reference data elements that may be required, to show the level of detail that will need to be considered. As stated earlier, we believe that the definition of reference data, registration and validation procedures, and federation of multiple registration authorities worldwide ultimately needs to be addressed through new global standards developed through a consensus of all relevant stakeholders. On the other hand, it is necessary to establish a starting point rapidly. We therefore propose a multi-pronged approach:

  - GS1US has already established a "GLN Registry" which registers reference data for legal entities identified by the GLN (i.e., our proposed GBEI). This may be used immediately for self-registration by issuers of legal entity information associated with a GBEI. Timeline for implementation – immediate.

  - We propose adapting existing databases of legal entities and UCI's – for example, the AVOX database now owned by DTCC, the Kingland (US) database, the NFA Registration database, and others ,– and for regulators to simply prescribe any or all to be synchronized to the GS1 Global Registry to allow GBEI as an identification key. This will immediately provide completed, accurate reference data for approximately 800,000+ legal entities. Companies already in one of these databases will need only create a GBEI and cross-reference to the existing database, thereby speeding the registration process. Similarly, and with similar regulatory prescription, data vendors and others who supply reference data or other services to financial institutions and using an identification system already in use may also synchronize to the GS1 Global Registry. Timeline for implementation – 3–6 months.

  - In parallel with the above, we recommend initiating development of new international standards for the definition of reference data, registration and validation procedures, and federation of multiple registration authorities worldwide. Existing standards, such as XBRL standards for identification of legal entities and their ownership relationships, may speed this process. The timeline for this will vary depending on which standards bodies are selected, but based on past experience we can expect approximately 3 months to form working groups within an existing standards body and attract a critical mass of participant companies, 3–9 months to develop and agree to detailed requirements, and 6–12 months to develop and ratify technical standards after that.

Summary of CFTC Requirements

This section summarizes requirements stated in the OFR Statement on Legal Entity Identification for Financial Contracts, and describes how the proposal above meets each requirement. The requirements articulated in the OFR statement effectively include the requirements set forth in Section II(C) of the CFTC proposed rulemaking.

Requirements Regarding LEI (UCI and USI) Characteristics

This section summarizes requirements articulated in Section II (A) of the OFR statement, defining the requirements for anLEI acceptable for use with data reported to the Office. We point to these requirements as necessary for both the UCI and the USI to be compatible with the requirements of the OFR. The OFR's mandate to aggregate data from government agencies, financial market utilities and financial institutions for systemic risk analysis is to be brought together in the Data Center of the OFR under the provisions establishing the OFR under the Dodd-Frank Act.

Requirement	How Met
Standards-based, by an international "voluntary consensus standards body"	GS1 Identifiers, as proposed, are specified by international standards and ratified through the GS1 Global Standards Management Process (GSMP). GS1 and the GSMP meet the definition of a "voluntary consensus standards body" as defined in OMB Circular A-119.
Unique and persistent (not reassigned)	GS1 Identifiers are defined in such a way that they are unique and persistent. GS1 allocation rules specify that identifiers are not to be reassigned.
Persistent across corporate actions or other changes	Because GS1 Identifiers do not carry "intelligence" about what organization they identify, they may persist across corporate actions or other changes. GS1 allocation rules provide specific guidelines for handling mergers, spin-offs, etc. and would work in conjunction with the proposed GFEI.
Non-significant (that is, include minimal information about the entity in the identifier itself)	The principle of non-significance is a cornerstone of the design of the GS1 system. GS1 Identifiers are designed to carry no information about the entity it identifies; instead, this information is associated with the identifier in external reference data. The identifier includes enough information to identify the entity that issued the identifier (which may or may not be the same as the entity denoted by the identifier), which allows a

Requirement	How Met
	query for reference information to be routed to the entity responsible for the identifier.
Accommodate expected growth	The GBEI as proposed herein 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. The GFII as proposed herein has similar capacity, and the GFEI has a nearly unlimited capacity (10^{43}). While it is expected there will be some inefficiency in fully utilizing the maximum capacity, it is judged that there is still ample capacity to meet expected growth. There is also precedent within the GS1 system where an identifier's capacity was expanded to meet growth, by adding digits in a fully backward-compatible way.
Available to all participants	GS1 operates as a neutral organization; no restrictions are placed on who may participate
No contractual restrictions on use	Once a GS1 identifier is issued by an end user company that legitimately holds a GS1 Company Prefix, there are no restrictions on the use of that identifier. The licensee of a GS1 Company Prefix is contractually obligated to maintain its membership in GS1 and not to resell identifiers; these restrictions are necessary to ensure the integrity of the system.
(If possible) compatible	The GLN is already used by GS1 members as a legal entity identifier, and the proposed GBEI for financial services would

Requirement	How Met
with existing systems	not conflict with this use. Existing GS1 members could use an existing GLN as a GBEI legal entity identifier in the financial context. Similar considerations apply for the GDTI and its use as a GFII and GFEI. This idea of compatibility is suggestive of the fact that the existing financial instrument codes have the first digits describing the issuing company, in the case of CUSIP it's the first six digits– the same company that a legal entity identifier (GS1's proposed GBEI) would also identify. The LEI will be used for identifying participants in financial transactions, as in the example of a legal entity: buying stock on behalf of its treasury or pension fund; being a counterparty in an interest rate SWAP; being a reference entity in a Credit Default SWAP (CDS); having credit extended by a financial institution; a financial institution aggregating the legal entity and its affiliates positions, revenue, etc. to understand the size and profitability of the relationship; or of its risk should the business entity or any of its issuing affiliates be downgraded, those downgrades taking place by individual issue of debt (its bonds all of which have CUSIP numbers and associate ISIN numbers for example). These issues of securities are also part of the reference entities in CDS's and in Indices used in SWAPS and other financial products such as Index Funds, ETF's, Collective Trusts, et al. In order to understand a company as a legal entity and the risk that changes to corporate viability and changes in riskiness of its individual securities it issues, or as others make reference to it in their financial dealings, a linkage of some sort must be made to the LEI and the issues of that company. That could be accomplished in the existing GS1 framework where the ISIN data base, the Bloomberg data base, the CUSIP data base, the ISDA Master Agreement data base, etc. as certified Data Pools within the GS1 Data Synchronization Network, linked up to the and through the LEI's of GS1's Global Registry. Once synchronized to the the GS1 registry, the Registry acts as a global mapping function allowing vendors, and financial institutions directly, to interoperate by associating older legacy or best practice numbering conventions with the new unique and universal identifiers.

Requirement	How Met
(If possible) platform-independent	GS1 Identifiers are simple numeric or alphanumeric strings, which can be supported by any information technology platform
(If possible) not conflict with existing numbering systems	GS1 Identifiers are designed to be distinguishable from other numbering systems and not conflict
Accessible via secure, open standards	All GS1 standards are freely available for download and use. GS1 standards are created under a process that includes an Intellectual Property policy intended to ensure, to the extent possible, that standards are not encumbered by IP claims. GS1 standards for information exchange include industry standard security provisions.
Reliable and secure against corruption or misuse	GS1 identifiers can be verified against a published list of GS1 Company Prefixes to ensure that an identifier was created using a properly issued prefix. They can also be verified against reference data to ensure each identifier is properly registered. It is expected that regulations for providing XBRL templates for sources of reference data such as prospectuses, offering memorandum, financial event announcements, etc., and auditing of identifier registration and registration of associated reference data will emerge to address other aspects of this requirement.
Capable to become the single identifier for all financial legal entities worldwide	All GS1 Identifiers are globally unique, and assigned via a global process that ensures uniqueness and also the availability of identifiers across the globe. GS1 has local organizations in 108 countries, each catering to local requirements.

Requirements Regarding Institutional Arrangements for Issuing LEIs

This section summarizes requirements articulated in Section II(B) of the OFR statement, defining requirements for the institutional arrangements for issuing LEIs.

Requirement	How Met
The issuing agency should have expertise in implementing standards	GS1 works across many different sectors, and seeks to create cross-sector standards wherever possible. This reflects the trend towards multi-sector involvement of end users, who are more and more operating in multiple sectors. GS1 has become

Requirement	How Met
for the financial sector	increasingly active in serving banks globally. It is anticipated that the registrars of financial reference data will be operated by organizations having deep experience in the financial sector, and may include existing organizations such as the CUSIP Service Bureau, ANNA Service Bureau, the SEDOL registration authority of the London Stock Exchange; data vendors such as Bloomberg, Thomson-Reuters, Counterparty Link, Kingland, Markit, Credit dimensions, etc; existing Financial Market Utilities such as DTCC, Euroclear, CME Clearing. LCH.Clearnet, Clearing Corporation, OCC, Clearstream, Linkup Markets, etc, etc., and potentially new entrants as more reference data becomes available through direct input from XBRL templates as has occurred with GAAP and IFRS financial statements.
The issuing agency should be not-for-profit	GS1 is a not-for-profit organization
The issuing agency should have formally documented governance	GS1's Global Standards Management Process has a formal governance procedure, with the highest authority invested in a Management Board consisting of representatives from stakeholder companies.
The issuing agency should have balanced representation of all stakeholders	GS1's Global Standards Management Process (GSMP) requires that all standards working groups have balanced representation from relevant stakeholder groups, and working groups may not operate nor votes be taken unless these participation minimums are met. The Management Board and other governance bodies within the GSMP also have balanced representation, and we would expect representatives of the financial industry to be appointed to those bodies.
The issuing agency should be subject to supervision and regulation	This regulatory oversight is possible within the individual sovereign regimes that oversee their existing domiciled financial institutions. However, the financial industry is global transcending any sovereign regime. This was apparent in 1988 at the inception of the first Basel capital regime which continues to prescribe and modify the global capital standard. We suggest that the Financial Stability Board of the G-20 be involved in overseeing a global data standard in the same way as the capital

Requirement	How Met
	standard is administered globally.
The issuing agency should have a strong ethics policy including conflict of interest	GS1 has strong policies regarding anti-trust and regarding the conduct of all participants. GS1 has: Ethics policies, Anti-trust rules, A Code of conduct, and An intellectual property policy. All are available upon request.
The process for issuing LEIs should be timely and non-discriminatory, and not hinder issuers' or contract businesses creation of new financial instruments	As discussed in the section "Issuance of GBEIs and Other Identifiers", each user company is empowered to issue GBEIs by itself, with no interaction with GS1 once a GS1 Company Prefix has been obtained. This offers the greatest possible speed of issuance. The process to obtain a GS1 Company Prefix is open to any company on a non-discriminatory basis, and can be accomplished very quickly (some GS1 Member Organizations even provide web-based self-service).
The master identifier list must be available at all times	In our proposal, the master identifier list, the GS1 Global Registry is available globally and in real time, 24-7. Reference data are maintained by registration authorities separate from GS1 although GS1 may choose to enter this component of the service at some future date, separate and apart from their non-profit functions in facilitating standards development and maintaining the GS1 Global Registry.. The policies for access to this data are to be set by standards established through a voluntary industry consensus process.
The issuance process must be available at all times	As discussed in the section "Issuance of GBEIs and Other Identifiers", each user company is empowered to issue GBEIs by itself, with no interaction with the GS1 once a GS1 Company Prefix has been obtained. In this respect, the issuance process is by definition available at all times to any company who has a GS1 Company Prefix.

Requirement	How Met
Security & reliability of all IT systems involved in issuance must meet or exceed industry standards for a real-time, high availability market service	GS1 has a security and reliability standard to which its member organizations adhere. The GS1 Global Data Synchronization Network is compliant with ISO 27000. Additional information is available upon request
Identifiers must be available to the public without fees for storage, access, cross-referencing, or redistribution	In our proposal, the master identifier list, the GS1 Global Registry maintained by GS1 is provided under GS1's status here in the US as a 501(c)6 non-profit company. Reference data are maintained by registration authorities separate from GS1. The policies for access to this data are to be set by standards established through a voluntary industry consensus process, with the potential for commercial providers to set their own policies, subject to local laws and regulation.
The cost of issuing identifiers and maintaining their reliability may be recovered through other fees, as long as they are reasonable and they are not imposed on end-users	GS1 Member Organizations charge a fee for the issuance of a GS1 Company Prefix. These fees are established in each local market by the relevant GS1 Member Organization, and are generally scaled based on the capacity requested (e.g., a shorter GS1 Company Prefix, which gives a user company a greater capacity to issue GBEIs, has a higher fee than a longer company prefix). It is expected that registration authorities as described herein will also charge fees for the establishment and distribution of reference data. No other party may charge a fee for the use of an identifier in an electronic transaction that would refer to a legal entity, or other identifier prescribed by GS1. It should be noted that we estimate that 30-50% of companies requiring financial LEIs already have obtained GS1 Company Prefixes, and so for those companies no additional fee is required in order for them to issue GBEIs.

Requirements Regarding Institutional Arrangements for Developing, Maintaining, and Publishing LEI Reference Data

This section summarizes requirements articulated in Section II(C) of the OFR statement, defining requirements for the institutional arrangements for Developing, Maintaining, and Publishing LEI Reference Data.

Requirement	How Met
Reference data for an LEI must be sufficient to verify that users have correctly identified an entity	We propose that the precise requirements for what reference data is registered with a GBEI be established by a global standard, as defined by a voluntary consensus standards body. It is anticipated that such standards will address this requirement.
Reference data for LEI must include name, location, electronic address, and legal status of the legal entity identified by the LEI	We propose that the precise requirements for what reference data is registered with a GBEI be established by a global standard, as defined by a voluntary consensus standards body. It is anticipated that such standards will address this requirement.
The registration authority should have expertise in implementing standards for the financial sector	Our proposal provides for many registration authorities, each granted the right under local laws and regulations to act as a registration authority for that jurisdiction. It is expected that such regulations will ensure that a registration authority has suitable expertise. This may include existing organizations such as: the CUSIP Service Bureau, ANNA Service Bureau; the SEDOL registration authority of the London Stock Exchange; data vendors such as Bloomberg, Thomson-Reuters, Counterparty Link, Kingland, Markit etc; existing Financial Market Utilities such as DTCC, Euroclear, OCC, Clearstream, Linkup Markets, etc.; and as Alliances of financial institutions and Financial Market Utilities as contemplated in Appendix III of this proposal are formed.
The registration authority should be not-for-profit, have formally documented governance, have balanced representation of all stakeholders, and be subject to supervision and regulation	Our proposal provides for many registration authorities, each granted the right under local laws and regulations to act as a registration authority for that jurisdiction. It is expected that such regulations will set appropriate requirements in these areas overseen by a global data standards regime such as proposed above wherein the Financial Stability Board or other regulators takes on the responsibility of coordinating individual sovereign country regulators, as the Basel Committee now does under the global capital regime it oversees. However, we do believe that there may be benefits to allowing for-profit organizations to act as registration authorities, too.

Requirement	How Met
The registration authority should have a robust quality assurance process. QA processes should ensure non-duplication of LEIs, and checks for existing entities including name searches, address searches, and combinations of text strings and other characteristics.	In our proposal, we anticipate that minimum quality assurance procedures and measures would be established through global standards as defined by a voluntary consensus standards body. Within a local jurisdiction, local laws and regulations could establish more stringent rules as well. In the GS1 Global Data Synchronization Network, each data pool implements policies designed to ensure non-duplication, using the GS1 Global Registry as a reference to coordinate these checks worldwide.
Updates to reference data accomplished with minimal lag time	In our proposal, we anticipate that minimum performance metrics for registration authorities would be established through global standards as defined by a voluntary consensus standards body. Within a local jurisdiction, local laws and regulations could establish more stringent rules as well. Most data pools in the GS1 Global Data Synchronization Network provide for real-time updating and availability of reference data, and some provide for web-based self-service updating directly by end users.
Has process for participants and regulators to challenge data and request amendment	In our proposal, we anticipate that such processes would be established through global standards as defined by a voluntary consensus standards body. Within a local jurisdiction, local laws and regulations could establish more stringent rules as well. In the GS1 Global Data Synchronization Network, data pools provide 24x7 support through their call centers to resolve data transcription errors or other technical problems. As users are responsible for registering their own reference data, any challenge as to the accuracy of that reference data is made directly to the responsible end user. In a regulated environment, there could be an established legal process for doing so. During a transitional phase, we expect that reference data will be provided from existing databases assembled by existing financial data analysis companies.

Requirement	How Met
The process for registering reference data should be governed and auditable	In our proposal, we anticipate that such requirements would be established through global standards as defined by a voluntary consensus standards body. Within a local jurisdiction, local laws and regulations could establish more stringent rules as well. Public auditing firms can be engaged as deemed appropriate. In the GS1 Global Data Synchronization Network, all data pools maintain audit logs for traceability. Service Level Agreements establish conditions for auditing and verification. Security testing is performed on a regular basis.
Security and reliability of all IT systems involved in issuance must meet or exceed industry standards for a real-time, high availability market service	In our proposal, we anticipate that minimum performance metrics for registration authorities would be established through global standards as defined by a voluntary consensus standards body. Within a local jurisdiction, local laws and regulations could establish more stringent rules as well. The GS1 Global Data Synchronization Network is compliant with ISO 27000. Additional information is available upon request
Reference data should be built upon the universal LEI, if one is adopted by the Office	The Global Business Entity Identifier (GBEI) defined herein is intended to serve exactly this purpose.. The GS1 Global Location Number (GLN) upon which it is based is already used as a key to reference data in the GS1 Global Data Synchronization Network, which is used in many industry supply chains to distribute reference data among trading partners.

Appendix

Appendix I

Open Forum Proceedings

- Global Financial Services Strategy - January 19, 2011
- Global Financial Services Data and Standards Alliance Brochure
- Open Forum Meeting January 11, 2011
- Open Forum Meeting Summary January 11, 2011
- Open Forum Speech - January 11, 2011
- Notes on OFR LEI
- Research Notes on US Agency Rulemaking

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Solving the Data Management Challenges in The Global Financial Services Industry

Table of Content

- Fixing the Plumbing in The Global Financial Services Industry

- Solving the Data Management Challenge – requests from US regulators - CFTC, SEC, Federal Reserve, and US Treasury

- Solving the Identifier Challenge - How the GS1 System can address the needs of the Global Financial Services Industry

- History and Potential Solutions to the Data Management Challenges in The Global Financial Services Industry

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Fixing the Plumbing

in

The Global Financial Services Industry

Need to Fix the Plumbing - 1

Multiple IBM Common Stock Global Identifiers

- CUSIP (US) 459200101
- AUSTRIA 851399
- COMMON CODE 9703799
- ISIN US4592001014
- ITALY 550304
- JAPAN 584006000
- NETHERLANDS 45480
- SEDOL 2005973
- SEDOL: CANADA-TORONTO 201382
- SEDOL: FRANCE-PARIS 5217689
- SEDOL: GERMANY-FRANKFURT 5199204
- SEDOL: JAPAN-TOKYO 6003649
- SEDOL: JAPAN TOKYO 6464956
- SEDOL: MEXICO-MEXICO CITY 2667715
- SEDOL: NETHERLANDS-AMSTERDAM 4463353
- SEDOL: NETHERLANDS-AMSTERDAM 5199323
- SEDOL: PERU-LIMA 2436517
- SEDOL: SWITZERLAND – SWISS S.E. 4514325
- SEDOL: UNITED KINGDOM- LONDON 40868
- SEDOL: USA – NEW YORK 2005973
- SICOVAM 12964
- SVM 9254608
- VALOR 941800
- WPK 851399

What Was Your Exposure to Lehman Brothers in:

These Products?		These Business Relations?	
Unique Securities Issues Outstanding		Bond Indenture Trustee	General Partner
		Commodity Trading Adviser	Investment Adviser
Lehman Brothers Bank FS	2,717	Counterparty	Index Vendor
Lehman Brothers Finance SA	467	Custodian	Limited Partner
Lehman Brothers Treasury Co.BV	3,657	Collateral Depot Agent	Market maker
Lehman Brothers Holdings Inc.	2,228	Dealer	Prime Broker
Neuberger Berman Inc.	7	Depository Agent	Reference Entity
		Escrow Agent	Real Estate Manager
Unique Issuing Identities	204	Fiduciary	Syndicate Manager
Subsidiary Issuers	79	Floor Broker	Underwriter
		Futures Commission Merchant	

Source: S&P/Financial InterGroup

Unstructured Corporate Event Notification

OPT:01:"ELECTRONIC DATA SYSTEMS CORPORATION" UPDTEXT:643251::#:0099:"SMK INFORMATION SERVICES" EXTENDED THE OFFER TO PURCHASE SHARES OF ELECTRONIC DATA COMMON STOCK FROM HOLDERS OF 99 OR FEWER SHARES HELD AS OF RECORD DATE SEPTEMBER 20, 2002, UNTIL 07-18-2003. TERMS: HOLDERS WILL RECEIVE CASH AT A RATE TO BE DETERMINED AT THE CLOSE OF BUSINESS ON THE DATE OF TRANSFER, LESS A PROCESSING FEE OF $1.50 PER SHARE: THE OFFER WILL EXPIRE ON JULY 18, 2003 (05:00 PM EDT). THERE IS NO PROTECT PERIOD OR WITHDRAWAL PRIVILEGE AVAILABLE. NOTE: HOLDERS MAY PURCHASE ADDITIONAL SHARES TO REACH 100 AT A DEPOSIT PRICE TO BE DETERMINED, PLUS A $1.50 PER SHARE PROCESSING FEE. THE OFFER IS NOT REGISTERED WITH THE SEC. A MAXIMUM NUMBER OF 10,000 SHARES PER WEEK WILL BE ACCEPTED ON A FIRST COME, FIRST SERVE BASIS:

Need to Fix the Plumbing - 2

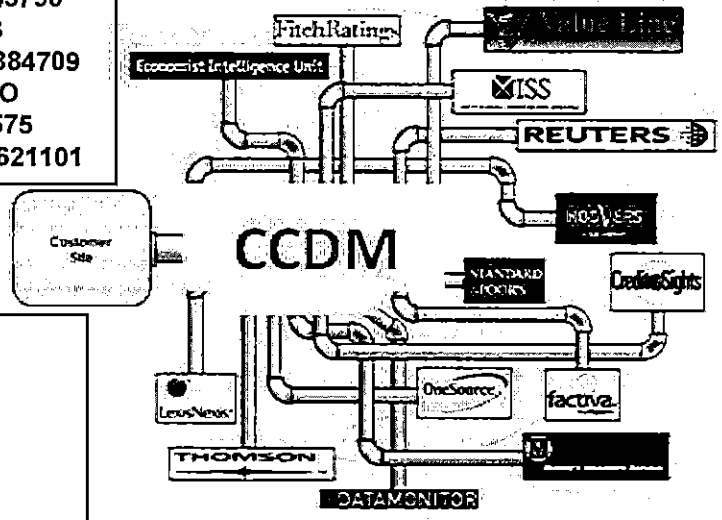
Quote Source	Preferred Designator	Alabama Power 5.20% Pfd Stk	ABC Bancorp 9.00% Pfd Sec	Citigroup Capital IX 6% TruPS
NYSE	PR	ALPPRN	BHCPR	CPRS
AMEX	.PR.	ALP.PR.N	BHC.PR	C.PR.S
A.G. Edwards	.	ALP.N	BHC.	C.S
Bloomberg	/P	ALP/PN	BHC/P	C/PS
CBS MarketWatch	PR	ALPPRN	BHCPR	CPRS
Charles Schwab	/PR	ALP/PRN	BHC/PR	C/PRS
	+	ALP+N	BHC+	C+S
E-Trade	.PR.	ALP.PR.N	BHC.PR	C.PR.S
Fidelity	PR	ALPPRN	BHCPR	CPRS
JPMorgan	PR	ALP PRN	BHC PR	C PRS
Quicken	PR	ALP PRN	BHC PR	C PRS
S&P	-	ALP-N	BHC-	C-S
ScotTrade	p	ALPpN	BHCp	CpS
Vanguard	_p	ALP_pN	BHC_p	C_pS
Yahoo!	-p	ALP-pN	BHC-p	C-pS

Need to Fix the Plumbing - 3

The Many Identities of TESCO PLC

GS1 Prefix	50000358
Edgar Online	0000885834
GSI Online	0000885834
ICC Document	00445790
Perfect Information	1113
Disclosure	S_0884709
LSE Ticker	TSCO
CUSIP Issuer	881575
CIN	G87621101

Fixing the Plumbing



CIK	0000885834
ISIN	GB0008847096
SEDOL	0884709
UK Registration	00445790
Factiva	TSCO
First call	C:1182700
ISS	151655
Revere Research	218152
Investext	TESCO PLC
Street Events	TSCDY
Citywatch	GB00008847096
ExtelFinancials	157
Thomson M&A	881575
Thomson NI	881575
RIC	TSCO.L

Avid	3213705
Bloomberg	TESC:LN
D-U-N-S Number	216854067
Experian	00445790
Fitch-Research	80359969
Moody's	2714
S&P Ratings Xpress	339672
BvD Zephyr	G800445790
Hoover's	90426
Ipreo Co. Insights	622
Mergent Financials	00000019052
Onesource	90171
Revere research	218152
Extel	S_0884709

Sources: Alacra, DTCC, Financial InterGroup, GS1

Need to Fix the Plumbing – 4

Description	Firm 1		Firm 2		Firm 3		Firm 4		Firm 5		Average across all		Initial comments
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	
Interest Rate	49	0.6%	8	0.1%	515	6.1%	27	0.3%	20	0.2%	124	1.5%	
Maturity Date	65	0.8%	64	0.8%	160	1.9%	64	0.8%	35	0.4%	78	0.9%	
Issue Date	1,655	19.6%	1,052	12.5%	3,187	37.7%	7,905	93.6%	1,052	12.5%	2,970	35.2%	Root cause appears to be data defn.
Dated Date	551	6.5%	154	1.8%	222	2.6%	397	4.7%	132	1.6%	291	3.4%	
Next Call Date	7,867	93.1%	7,694	91.1%	8,449		7,581	89.7%	7,672	90.8%	7,704	91.2%	
First Interest Date	538	6.4%	152	1.8%	273	3.2%	472	5.6%	233	2.8%	334	3.9%	
Next Interest Date	1,184	14.0%	1,238	14.7%	8,449		1,226	14.5%	2,582	30.6%	1,558	18.4%	
Bond Amt Outs.	1,871	22.1%	158	1.9%	386	4.6%	3,351	39.7%	686	8.1%	1,290	15.3%	
Country of Issue	3,085	36.5%	199	2.4%	1,785	21.1%	220	2.6%	316	3.7%	1,121	13.3%	Problems with code table values.
Currency Code	3	0.0%	3	0.0%	3,348	39.6%	3	0.0%	146	1.7%	701	8.3%	Problems with code table values.
Trading Units	8,449		2,167	25.6%	1,177	13.9%	2,217	26.2%	1,011	12.0%	1,643	19.4%	
S&P	1,518	18.0%	8,447		986	11.7%	541	6.4%	1,160	13.7%	1,051	12.4%	
Moody	1,298	15.4%	833	9.9%	772	9.1%	279	3.3%	1,018	12.0%	840	9.9%	
Fitch	2,720	32.2%	2,484	29.4%	8,449		3,371	39.9%	2,431	28.8%	2,752	32.6%	
Security Name	8,039	95.1%	8,442	99.9%	8,367	99.0%	8,442	99.9%	7,962	94.2%	8,250	97.6%	Root cause appears to be data defn.
CSD Eligible	8,449		8,449		3,980	47.1%	657	7.8%	8,449		2,319	27.4%	Limited data, more data points req'd. Also code table.
Initial Offering Px	8,449		1,640	19.4%	2,625	31.1%	8,449		1,711	20.3%	1,992	23.6%	Limited data, more data points req'd.
Original Issue Disc.	8,449		8,449		8,449		975		8,449		975		Limited data, more data points req'd.
WAC	8,449		8,449		8,449		8,449		8,449				Limited data, more data points req'd.
WAM	8		8,449		8,449		8,449		8,449				Limited data, more data points req'd.

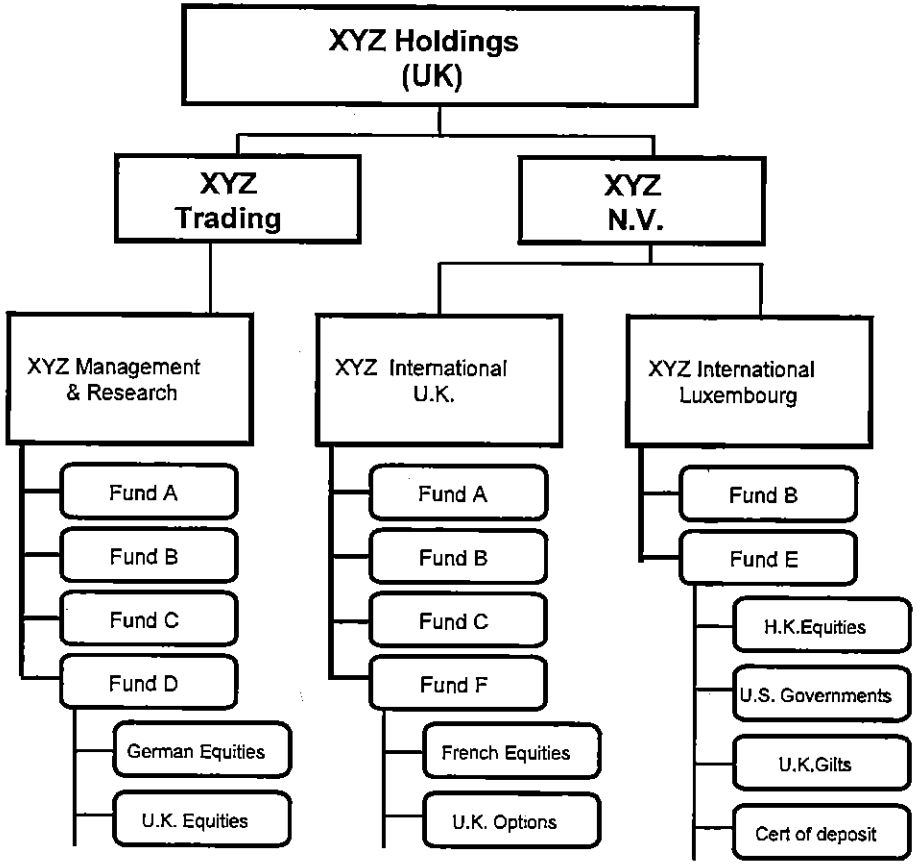
Source: EDM Council/IBM 2008

Sample of 8,449 securities, 5 participating firms

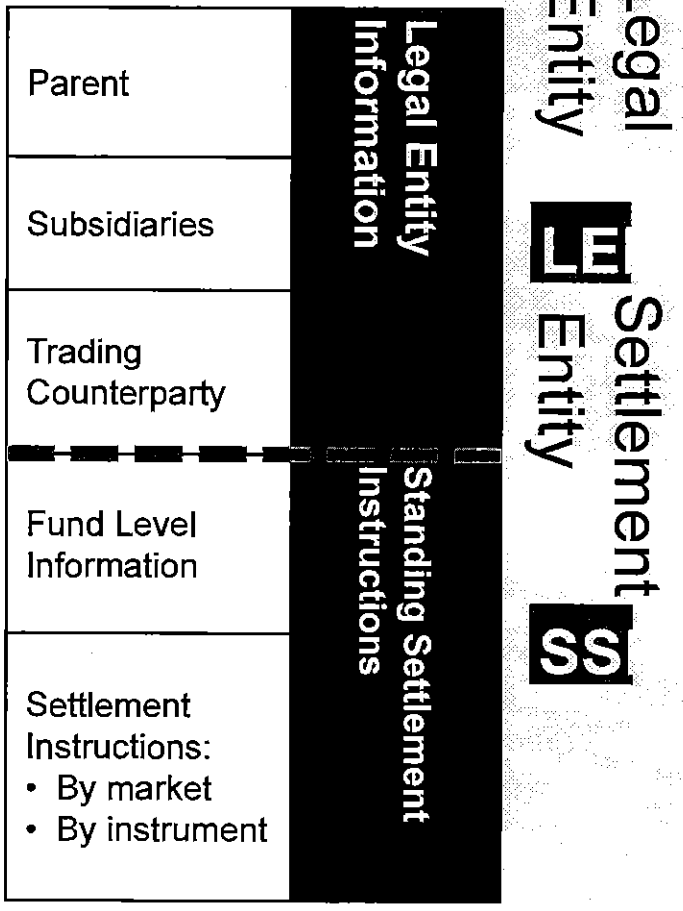
The cells show the number of times a given participant's value did not match the other participants

The % for a given participant shows the number of discrepancies divided by 8,449. A yellow cell indicates that the cell represents a greater discrepancy rate than the average for that row. The % is shown as a blank in instances where there was not enough reported data for meaningful analysis.

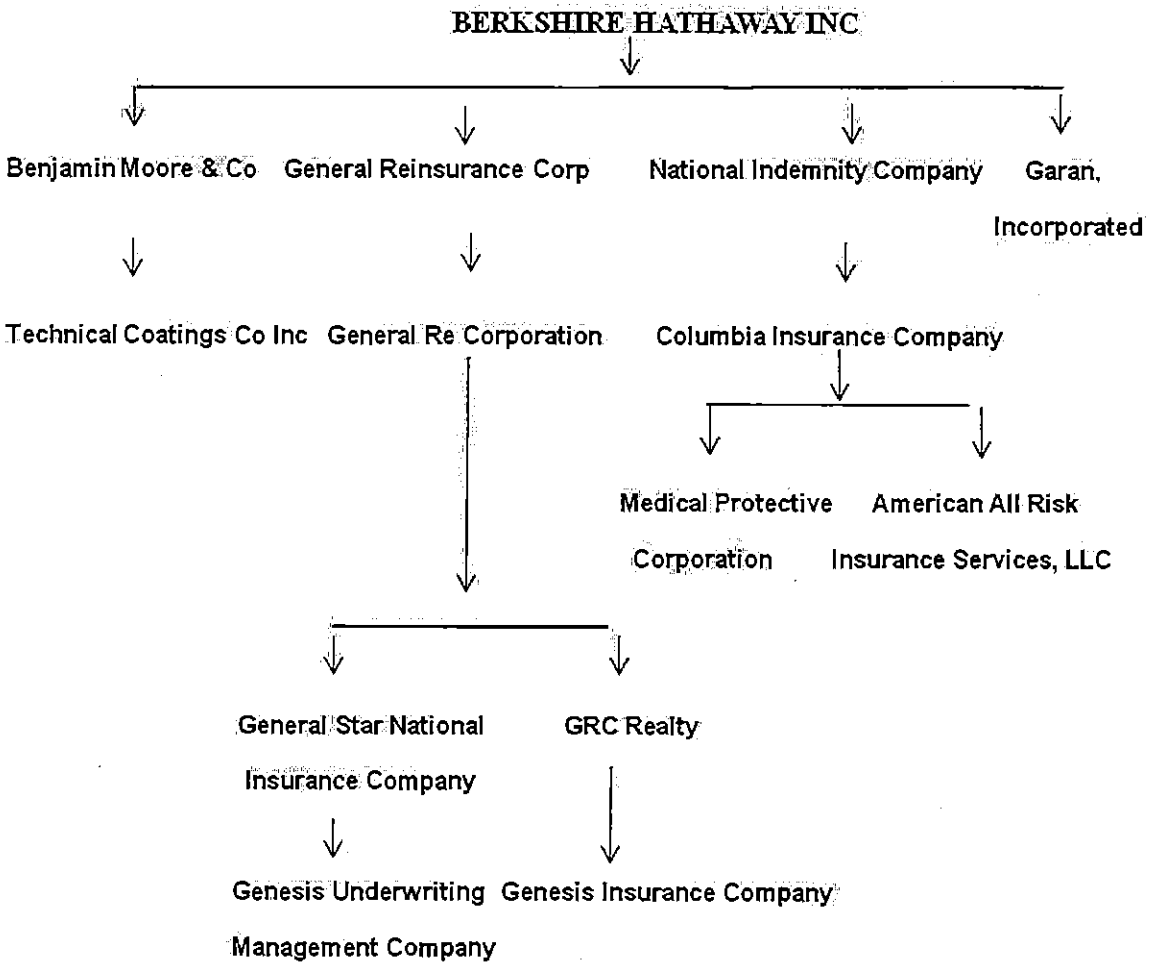
Need to Fix the Plumbing - 5



Source: Reuters 2002, Financial InterGroup, 2007



Need to Fix the Plumbing - 6



No Uniformity in IDs or Hierarchy across Single Entity as Issuer, Obligor, and/or Reference Entity

BERKSHIRE HATHAWAY INC
Data Identity:

Service (partial list)	Identifier
Avox/Avid No.	12501262
Cusip Issuer	084670
S&P Rating	100264
Compustat Issuer	002176
Dun & Bradstreet	001024314
Edgar Online	0001067983
Red/Clip CDS	08CAD7
Fitch Rating	80090742
Telekurs	20823

Source: S&P ,20098Financial InterGroup, 2009

GS1 US

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Solving the Data Management Challenge requests from US regulators CFTC, SEC, Federal Reserve, and US Treasury

THE REQUEST FROM US REGULATORS

"....prefer to adopt a universal standard developed and implemented by the financial industry .....through a consensus process.....participation of international standard setting bodies would be beneficial.... by July 15, 2011.....plans to issue a regulation mandating the use of such a standard....."

US Treasury

".....unique opportunity to facilitate the establishment of a comprehensive and widely accepted system for identifying entities that participate not just in the SBS market, but in the financial markets generally....."

".....A common set of reference identifiers for participants and products could yield significant efficiencies in both the public and private sectors.....financial firms could eliminate the use of multiple proprietary reference systems and move to a single, widely accepted system....."

Securities and Exchange Commission

".....unique identifier format that is capable of becoming the single international standard for unique identification of legal entities in the financial sector on a global basis...."

Commodities Futures Trading Commission

".....gather financial industry participants to explore the variety of issues. This work could include encouraging market participants to host information gathering sessions....."

Federal Reserve

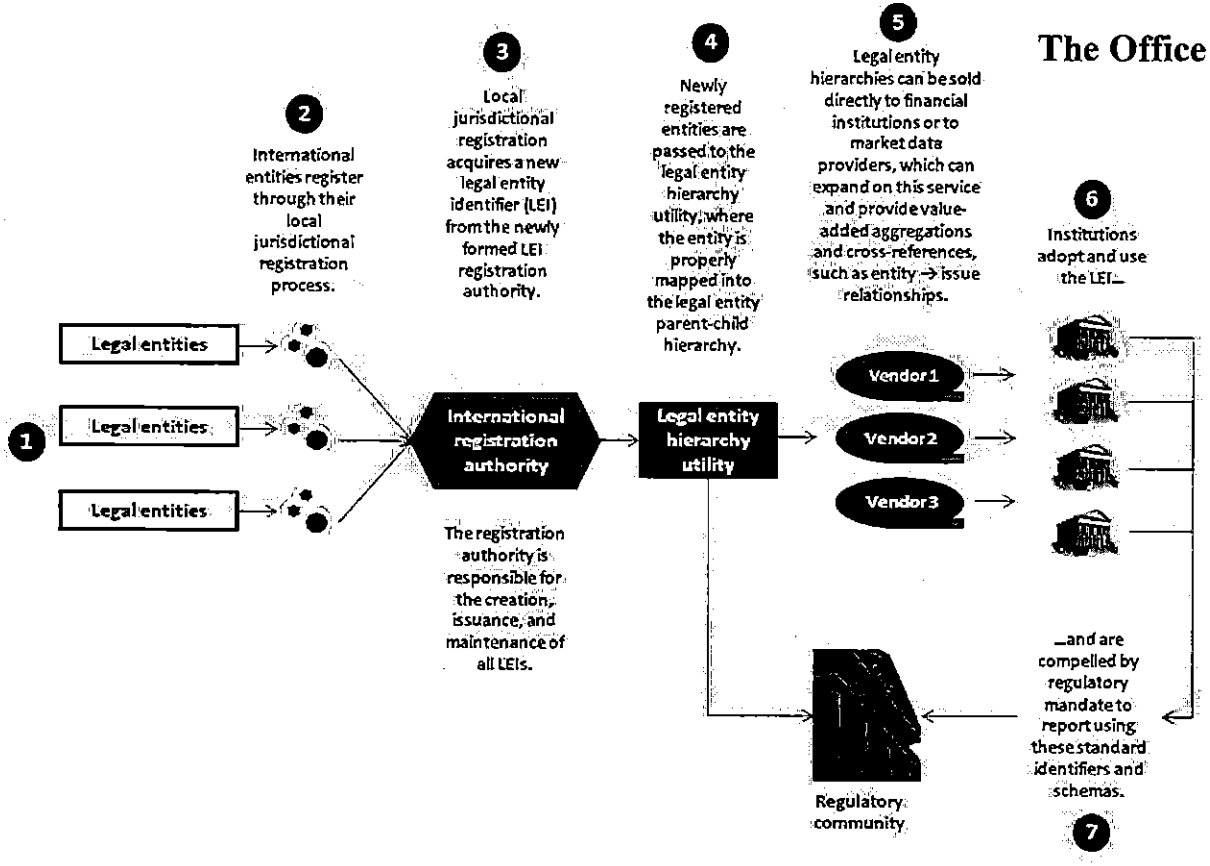
Creating a Linchpin for Financial Data:
The Need for a Legal Entity Identifier

The Legal Entity Identifier

".....prepare and publish a financial company reference database, a financial instrument reference database, and formats and standards for data reported to the Office."

"..... those data include information that identifies counterparties...."

US Treasury
The Office of Financial Research



Government 's Suggested Design of Public/Private Legal Entity Identification System

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Solving the Identifier Challenge

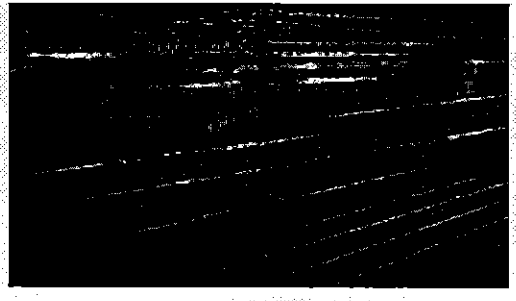
How the GS1 System can address the needs of the

Global Financial Services Industry

GS1

GS1 designs and implements a global system of supply chain standards. To do this,GS1 brings together companies representing all parts of the supply chain.

Global, neutral, multi-sector standards



Not for profit, user-driven organisation with 1 million members

Over 100 local offices providing local support and expertise

About GS1

- GS1 is a **not-for-profit** organization
- GS1 is **neutral** from the business partners
- GS1 is **user-driven and governed**
- GS1 **serves all companies**, both multinationals and SMEs
- GS1 is a **platform for collaborative agreements** between business partners

GS1 System

- A system of globally unique identifiers for everyday use
  - A focus on business needs
  - Allowing trading partners to identify themselves, their products, and make use of available technologies
  - A system that can be incorporated into multiple technologies and languages – old and new

What we have heard

- The solution needs to be global
  - Local support is critical
- A proven solution is needed
  - Industry and regulators do not have the time to create new standards
- An industry collective response to the regulators will yield the most benefit
- A solution should cover Legal Entity, Financial Instrument, and Corporate Action identification
- Identification starts at the beginning of the chain
  - Issuer involvement is key
- All stakeholders need to be involved
- Supply chains are converging
  - Walmart is a bank

GS1 Global Company Prefix

Foundation for Unique Identification

- Assigned by GS1 US or other GS1 Member Organization
- Uniquely identifies the company to which it was assigned
- Used in all GS1 identification numbers
  - This ensures the uniqueness of the identifier being used
- Current users of the GS1 System today

	S&P 500	DAX 30	FTSE 100	Nikkei 225
GS1	33%	83%	30%	53%

- Financial industry represents an additional 16% of S&P 500

GS1 Identification

- **GLN Global Location Number (locations)**
  - Physical Location or Business Entity e.g. Financial Issuer, Counterparty, Reference Entity, Delivery Location, et al
- **GDTI Global Document Type Identifier (documents)**
  - Paper issuance or electronic document identifier e.g. Financial instrument, Master Agreement, Trust, Proxy, Corporate Event Notification, et al
- GSRN Global Service Relation Number (service relationships)
  - Service relationship Identification
- GTIN Global Trade Item Number (trade items)
  - Product Identification e.g. U.P.C. barcode
- GIAI Global Individual Asset Identifier (individual assets)
- GRAI Global Returnable Asset Identifier(returnable assets)
- SSCC Serial Shipping Container Code (logistics units)
- GSIN Global Shipment ID Number (shipment)
- GINC Global Identification Number for Consignment (consignment)

The GS1 System and Financial Services

Identify	GS1 PotentialSolution
Universal Issuer/ Legal/Business/ Counterparty/ Supply Chain Identifier/ (BEI/POT/BIC/IGI/MIC)	Global Location Number (GLN)
Subsidiary/Affiliate/SIV/ Trust/CIV etc and Service Location Identifier i.e. SSI's, physical delivery locations, etc.	Global Location Number (GLN)
Universal Instrument Identification (UII)	Global Document Type Identifier (GDTI)
Financial Event Identifier	Attribute used in combination with GS1 GDTI

Global Location Number

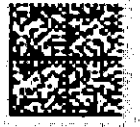
- Global Location Number (GLN)
  - A GLN (Global Location Number) is used to uniquely identify any business entity or location (physical or legal), i.e., the Business, Legal or Financial Intermediary Entity Identification. The GLN is owned and assigned by the Issuer or business entity in the financial supply chain

- Potential Usage
  - Identify operational parties, financial instrument issuers, delivery locations, electronic intermediaries (NSCC, Omgeo, CLS), electronic settlement depots (DTCC, Euroclear), subsidiaries, etc.

Global Document Type Identifier

- Global Document Type Identifier (GDTI)
  - The term "document" is applied broadly to cover any official or private 'papers' that infer a right or obligation within the financial supply chain. The GDTI is owned and assigned to and by the Issuer.
  - A financial supply chain participant issues a GDTI in order to maintain a copy of the electronic or paper record. Provides a link to a database that holds the extended data attributes that permit identifiers to be operationalized: i.e. CFI codes, terms and conditions, descriptive information, etc.
  - Use as the Universal Instrument Identifier for issues of stocks, bonds, contracts, proxy material, prospectus, etc.

- Using the GS1 Data Matrix symbol for traceability at document level



(253) 06141400000990001
(91) Announcement
(92) 20090127
(93) Pfizer Inc
(94) 0000914121-09-000310

(253) 06141400000500001
(91) Merger
(92) 20090522
(93) Pfizer Inc
(94) 333-158237

GS1 Identifiers in Global Use

- GS1 Identifiers flow between trading partners as part of the day-to-day business processes used around the world.
- GS1 Identifiers are incorporated into a number of current standards and processes.
  - Barcodes,
  - EPC-enabled RFID
  - GS1 XML messaging
  - ANSI X12 EDI
- GS1 identifiers can be included in dictionaries and messaging standards of other standards organizations to provide for unique identification:
  - XBRL (eXtensible Business Reporting Language)
  - SWIFT (Society for Worldwide Interbank Financial Telecommunication)
  - ANSI X9, the Accredited Standards Committee X9 (ASC X9)
  - FIX Protocol, the Financial Information eXchange ("FIX") Protocol

The Retail Industries Identification System has long been Coveted by the Financial Industry

The retail industry, which was burdened with the requirement to move physical goods, was well ahead of the securities industry in implementing standards of reference data and utilizing them in advanced systems, thus affecting the equivalent of straight-through-processing.

Grody A.,
EDI Systems Trends in the U.S. Retail Industry
and its Implications for the Securities Industry,
NYU Salomon Center and
Center for Research on Information Systems,
June 25, 1993

The securities industry is lagging the retail industry in its ability to create standards for reference data so that it can move on to its own straight-through processing world.

Brown A., Vats S.,
Merrill Lynch – Moving to a Data Centric View,
2nd Annual XML for Market Data,
FISD,
April, 2004

Wal-Mart has two assets, data and process, just like you. The securities industry should be chastised for falling so far behind, not only the retail industry but the manufacturing industry, in its lack of ability to communicate across individual firm boundaries.

Dr. Michael Hammer,
Re-engineering the Financial Services Industry,
Enterprise Data Management Council,
June 16, 2005

...eventually the technically elegant IBM-born UPC won the battle to be chosen by the industry. No event in the history of modern logistics was more important. The adoption of the Universal Product Code, on April 3, 1973, transformed bar codes from a technological curiosity into a business juggernaut.

French, S., Price, K.
Avox
FIMA 2006 London
November 15, 2006

Long lines were forming at checkout counters. Inventory management and price-labeling were manual and error prone. Labor-intensive check-ins stymied delivery to outlets. Error rates, pilferage and unaccounted inventory discrepancies began to soar. Leading retailers including Kroger Co. and A&P, along with manufacturers such as H.J. Heinz and General Foods, insisted the industry take on the task of solving these problems, for themselves, and leveraged available technologies to create one of the fabled success stories of the information age, the creation of the Universal Product Code.

Dr. Robert Mark, Allan D. Grody,
The Financial Industry Needs Its Own Universal Product Code
American Banker
June 25, 2010

GS1 US

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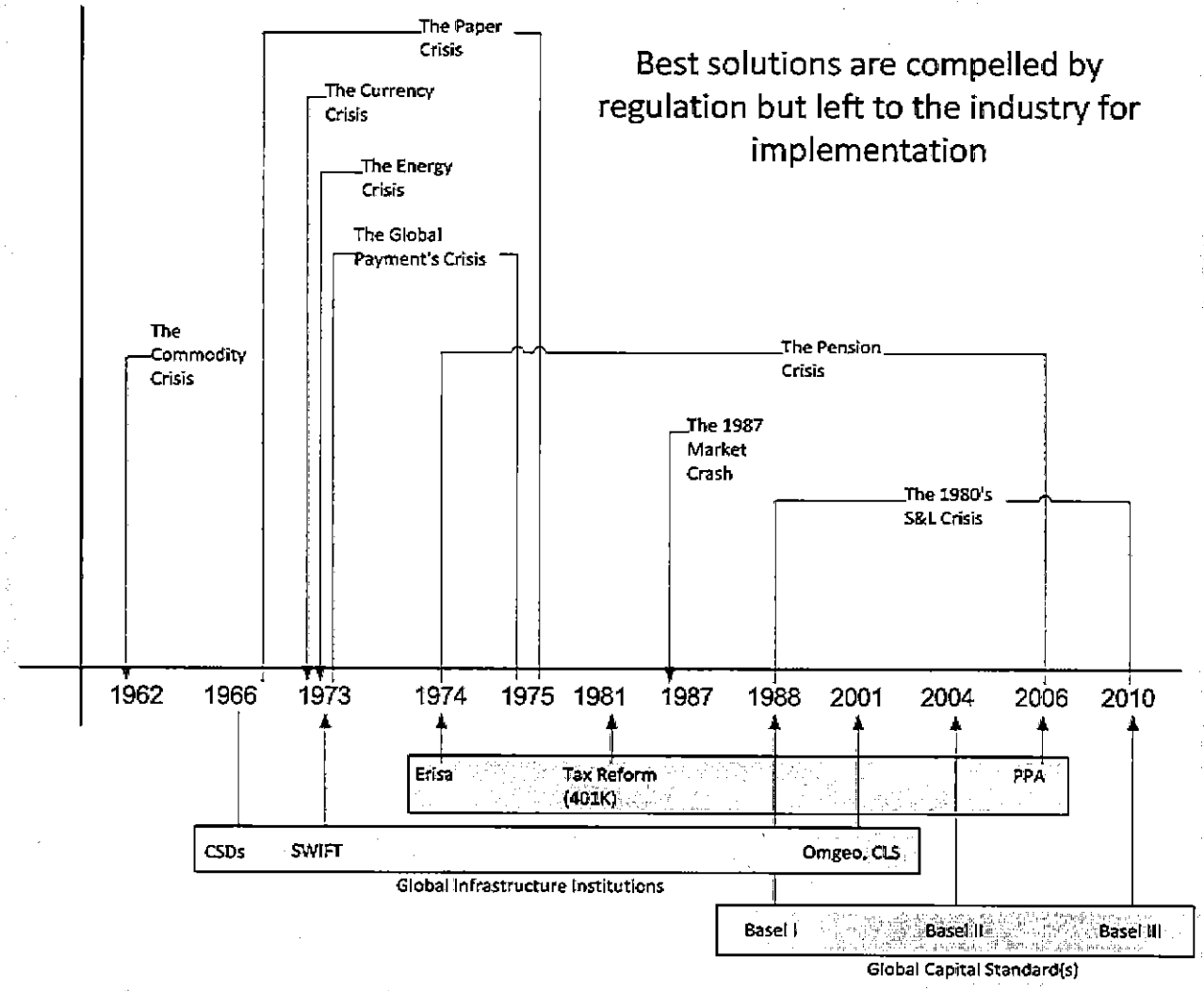
History and Potential Solutions to the Data Management Challenges in The Global Financial Services Industry

2

A Brief History of Modern Day Financial Crisis and its Operational Consequences

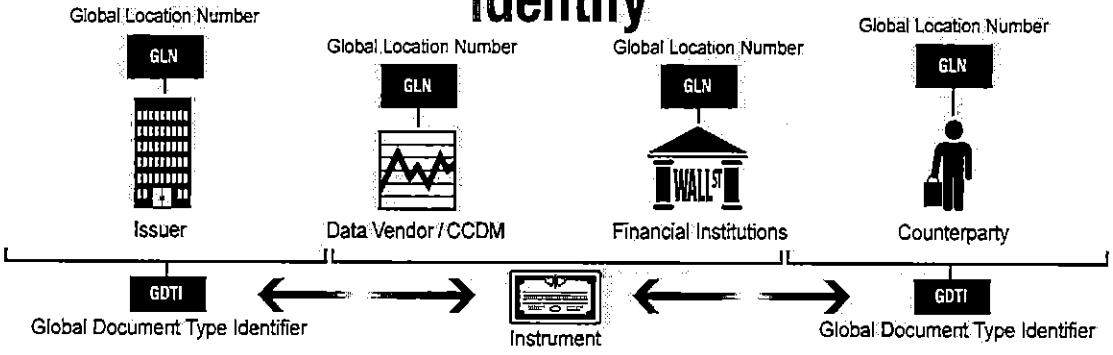


Best solutions are compelled by regulation but left to the industry for implementation

GS1 System Applied to Financial Services

(Possible scenario using GS1 Identifiers)

Identify

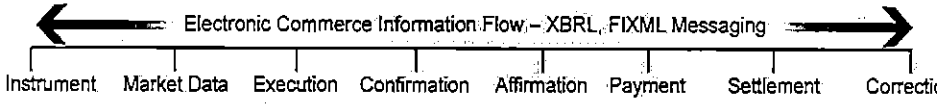


Capture

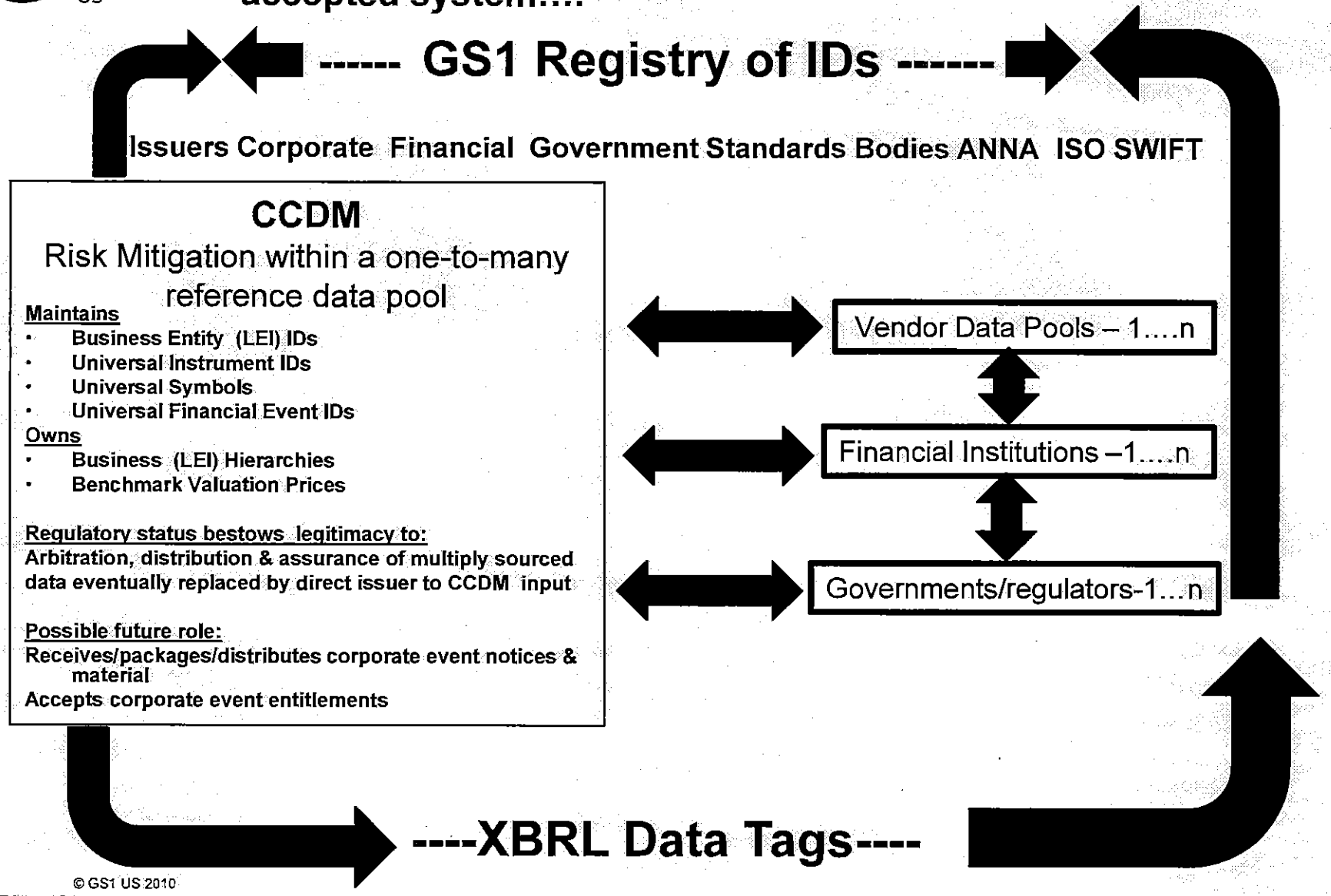
Instrument / Business Entity / Supply Chain IDs

Share

Data Vendors / Infrastructure Entities **Corporate Events / Document Delivery**



SEC "...financial firms could eliminate the use of multiple proprietary reference systems and move to a single, widely accepted system...."



© GS1 US 2010

Joint Work Groups Established

Joint GS1 US / FIG

Financial Event Identification

Objective is to develop a globally accepted unique ID for corporate events and a means to convey such through SWIFT and XBRL messages. Determine mechanism for tying corporate event ID to Financial Issuer Identifier and Business Entity Identifier.

Business Entity Identification

Objective is to review, identify and potentially adopt a GS1 key structure for business entity identification. Develop financial services guidelines for managing the identification keys.

CCDM

Objective is to develop the operational framework for the Central Counterparty for Data Management. Define first set of goals and objectives Including governance and regulatory structure.

Financial Instrument Identification

Objective is to review, identify and potentially adopt a GS1 key or industry best practices key structure (ISIN) for financial instrument identification (UII). Develop financial services guidelines for managing the identification keys.

Global Financial Services Data and Standards Alliance

A Call to Mitigate Systemic Risk *proposed by Financial InterGroup and GS1 US*

GS1 US, in partnership with Financial InterGroup (FIG) and with the support of MIT, is jointly establishing a Global Financial Services Data and Standards Alliance with an initial focus on global data standardization issues. The goal of the alliance is to deliver and oversee a strategy that addresses the need for unique identification and Straight-Through-Processing. This Alliance will develop and provide oversight to the global financial services industry, in focused areas of short-term benefit, i.e. business identification and hierarchies of business ownership; financial event identification; at-source tagging and bar-coding of financial documents; and in longer-term foundational areas, i.e. financial instrument identification; valuation benchmark pricing; consortium purchasing of market and reference data; and risk mitigation and cost reduction arising from maintenance of duplicated reference data bases.

A Call for Action

A key issue in the financial services industry is the lack of global identification standards that universally, unambiguously and uniquely identify financial products and trade counterparties; and that support a unique audit trail from financial event announcements and at-source issuance to final investment and asset servicing of financial instruments.

- There are dozens of identification numbers assigned by different agencies, each attempting to uniquely identify financial instruments, business entities or financial supply chain participants. *See Figure 1-I, Figure 1-II.*
  - Financial instrument (product) identification (securities, bonds, etc.) is inconsistent amongst financial industry participants.
  - Products are assigned identifiers by intermediaries, and not by the originating party, hindering the ability to track objects back to their originators.
- The current unstructured corporate event announcement process, using various intermediaries, results in a lack of consistent, accurate communication of the issuer message.

The most effective way to address these issues is to organize the community into an alliance that will enable effective collaboration for short-term needs and longer-term actions.

Background

The recent financial crisis in global financial markets has exposed problems with fundamental infrastructure components of the industry's identification system for financial instruments, financial events, counterparties, business entities and participants in the supply chain of the financial services industry.

Risk management systems and global payment, clearance and settlement systems that firms rely on to mitigate systemic risk have come under stress and found incomplete due to faulty and ambiguous identification of products and trade parties. The proprietary and non-standard nature of financial transaction identification poses one of the most intractable and long-standing impediments to systemic risk mitigation; straight-through-processing initiatives; and further operational efficiencies in the global, interconnected supply chain of the financial system. Financial services companies are annually spending billions of dollars to manually reconcile transactional data in order to clear transactions and aggregate data for analyzing risk. Regulators have now awoken to the need to fix the "plumbing" that supports the global financial industry as a means of mitigating the contagion of systemic risk that nearly collapsed the world's financial markets.

Figure 1-I

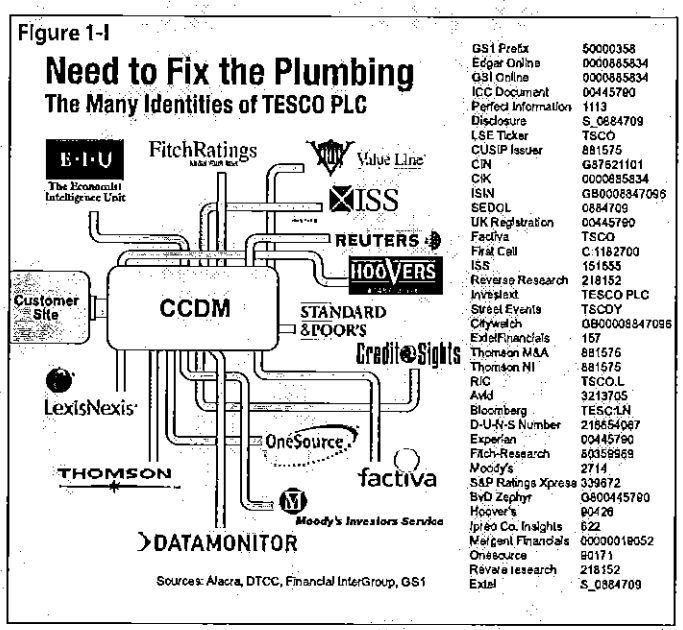


Figure 1-II

Multiple IBM Common Stock Identifiers

- CUSIP 459200101
- Austria 851399
- Common Code 9703799
- ISIN US4592001014
- Italy 550304
- Japan 584006000
- Japan 6680
- Netherlands 45480
- SEDOL 2005973
- SEDOL: Canada - Toronto 2013802
- SEDOL: France - Paris 5217689
- SEDOL: Germany - Frankfurt 5199204
- SEDOL: Japan - Tokyo 6003649
- SEDOL: Japan - Tokyo 6464956
- SEDOL: Mexico - Mexico City 2667715
- SEDOL: Netherlands - Amsterdam 4463353
- SEDOL: Netherlands - Amsterdam 5199323
- SEDOL: Peru - Lima 2436517
- SEDOL: Switzerland - Swiss S.E. 4514325
- SEDOL: United Kingdom - London 40868
- SEDOL: USA - New York 200597
- SICOVAM 12964
- SVM 9254608
- VALOR 941800
- WPK 851399

Source: Standard & Poor's, 2008

proposed by:

Benefits

Value to the Financial Issuer

- *Unique business identification provides clear, concise and global identification of the business entity and its hierarchies of inter-related ownerships that act as issuers, counterparties, reference entities and supply chain participants in financial transactions*
- *Issuer controls financial instrument identification and financial event message to processors*
  - *Concise, global business entity and instrument identification removes ambiguity in product identification, risk aggregation and corporate event downstream processes*

Value to Business Entities

- *Globally unique entity identification allows regulators and financial institutions to concisely identify and aggregate risk exposures across enterprises and across firms*
- *Globally unique financial event identification provides unambiguous transaction audit trail from issuer to investor*
- *At-source application of standard data tags and identifiers allows for complete automation of the financial transaction life cycle*
- *Rationalizing the multiple financial instrument identifiers will allow for eliminating duplicate and risky infrastructure mapping costs*

Value to the Financial Industry

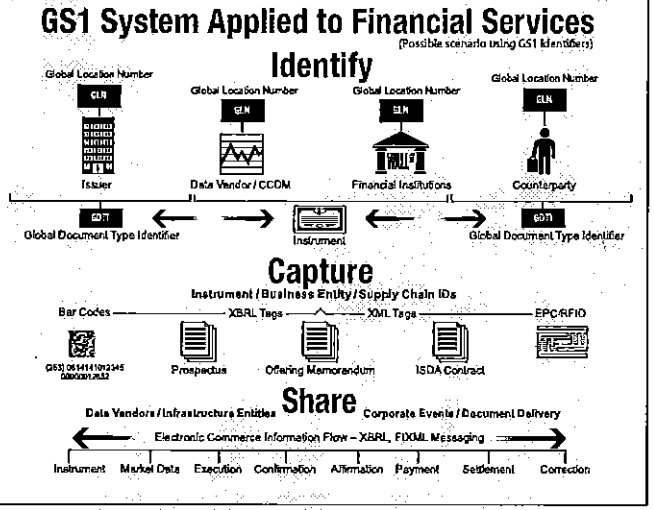
- *Creates capability for Straight-Through-Processing*
- *Provides for risk mitigation*
- *Enables enhanced transaction visibility*
- *Lowers total cost of operations*
- *Enacts a global solution for the financial services industry, allowing individual countries, markets, regulators and financial firms to participate at marginal incremental cost*

Purpose and Scope of the Global Financial Services Data and Standards Alliance

- Bringing a community of global financial institutions, their suppliers and infrastructure facilities together to solve common supply chain challenges
- Providing the financial services industry with globally unique identifiers
- Allowing members of the financial services industry to structure a solution that meets their needs and addresses regulatory bodies' concerns
- Creating a framework that is globally interoperable and scalable

See Figure 2.

Figure 2



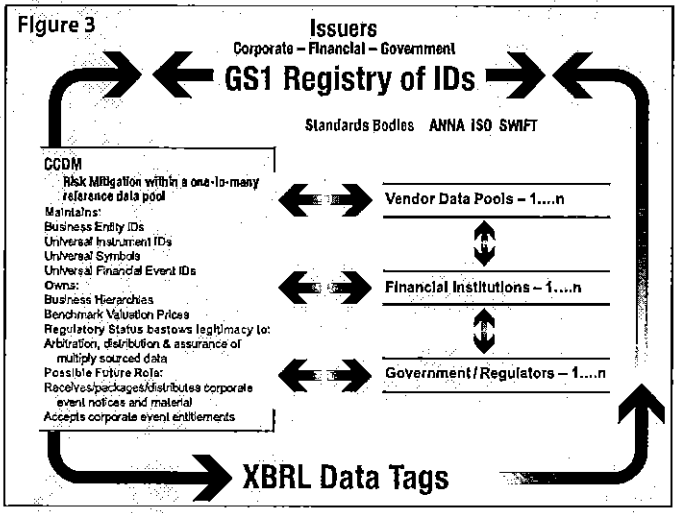
Goals / Objectives for the Alliance

- Leveraging existing investments in standardized technology that support the GS1 Registry of unique identifiers used by current GS1 member companies around the globe
- Review and document business entity identification issues and determine global requirements
- Review and document corporate event identification issues and determine global requirements
- Review and document financial instrument identification issues and determine global requirements
- Review and document reference and market data acquisition, maintenance and distribution costs and duplication issues and determine global requirements

Potential solutions will be identified for each, along with evaluating the applicability of utilizing the GS1 identification standards and creating the Central Counterparty for Data Management (CCDM), a "one-to-many" Data Pool within the GS1 Data Synchronization Network framework.

See Figure 3.

Figure 3



proposed by:

A final report will be produced, including a summary of the issues and their potential solutions for business entity identification and hierarchies, issuer identification, corporate event identification, financial instrument identification, valuation prices, and reference and market data.

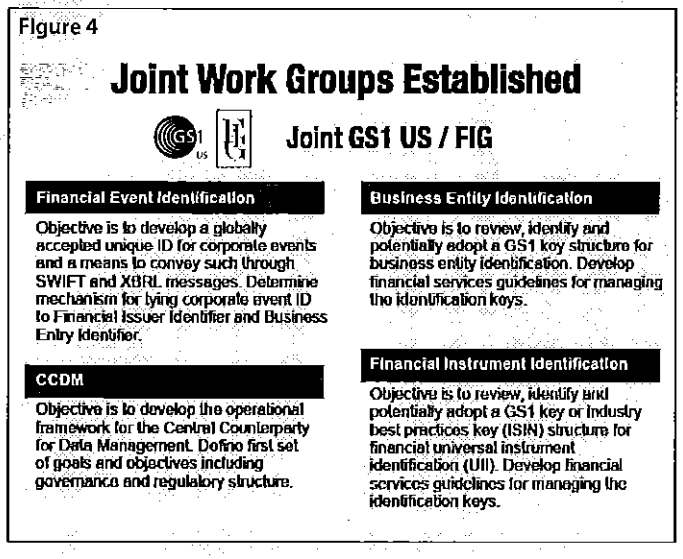
Alliance Organization Next Steps

- Define organizational/governance structure.
  - Identify and establish work groups, such as Business Entity, Corporate Event, Financial Instrument Identification and Reference and Market Data. *See Figure 4.*
  - Establish objectives for each defined work group
  - Identify Chair/Co-Chair and facilitators
- Define financial requirements and timeframes
- Define resource requirements and timeframes

Participants Outreach

- Global Financial Institutions; Financial data vendors and processors, Financial Market Utilities and other infrastructure institutions; GS1 Member Organizations; Global financial industry standards organizations; Regulatory / legislative bodies; Stock, options, swaps and futures exchanges; other associations and stakeholders.

Figure 4



Moving Forward: Priorities & Milestones

Identify key stakeholders and markets

- Outreach and communication to the financial services industry; to legislative and regulatory bodies; to academics and other thought leaders; and to trade associations
- Determine grouping(s) of issues
  - Develop and agree-to issue statements
  - Determine short, mid-range and long-term deliverables
  - Assess legislative impact
- Determine working groups
- Perform analysis and review of issues and potential solutions
  - Discuss operational considerations and develop guidelines for business entities, financial issuers, and financial instrument identification and the impact of mergers, acquisitions, name changes, etc.
  - Discuss implementation/migration plans
- Present solutions for industry discussion and review
- Develop a preferred solution set
- Gain industry endorsement of proposed solutions
  - Develop messaging
- Develop implementation/adoption timelines
  - Determine roll-out program
- Establish educational and informational programs
- Discuss additional 'future' industry directions/initiatives

GLOBAL FINANCIAL SERVICES INDUSTRY OPEN FORUM

January 11, 2011

THE REQUEST FROM REGULATORS TO THE GLOBAL FINACIAL INDUSTRY

"....prefer to adopt a universal standard developed and implemented by the financial industry .....through a consensus process.....participation of international standard setting bodies would be beneficial.... by July 15, 2011.....plans to issue a regulation mandating the use of such a standard....."

US Treasury

".....unique opportunity to facilitate the establishment of a comprehensive and widely accepted system for identifying entities that participate not just in the SBS market, but in the financial markets generally....."

".....A common set of reference identifiers for participants and products could yield significant efficiencies in both the public and private sectors.....financial firms could eliminate the use of multiple proprietary reference systems and move to a single, widely accepted system....."

Securities and Exchange Commission

".....unique identifier format that is capable of becoming the single international standard for unique identification of legal entities in the financial sector on a global basis...."

Commodities Futures Trading Commission

".....gather financial industry participants to explore the variety of issues. This work could include encouraging market participants to host information gathering sessions....."

Creating a Linchpin for Financial Data:
The Need for a Legal Entity Identifier

AUTHORS (as individuals):
John Bottega, Federal Reserve Bank of New York
Linda Powell, Board of Governors of the Federal Reserve System
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FDIC: Alan Deaton,Mark Montoya
FINRA:Marty Colburn ,Peter Oldershaw ,Elena Shuvalov
SEC: David Blaszkowsky, Matthew Reed
US Treasury: Lewis Alexander

GLOBAL FINANCIAL SERVICES INDUSTRY OPEN FORUM

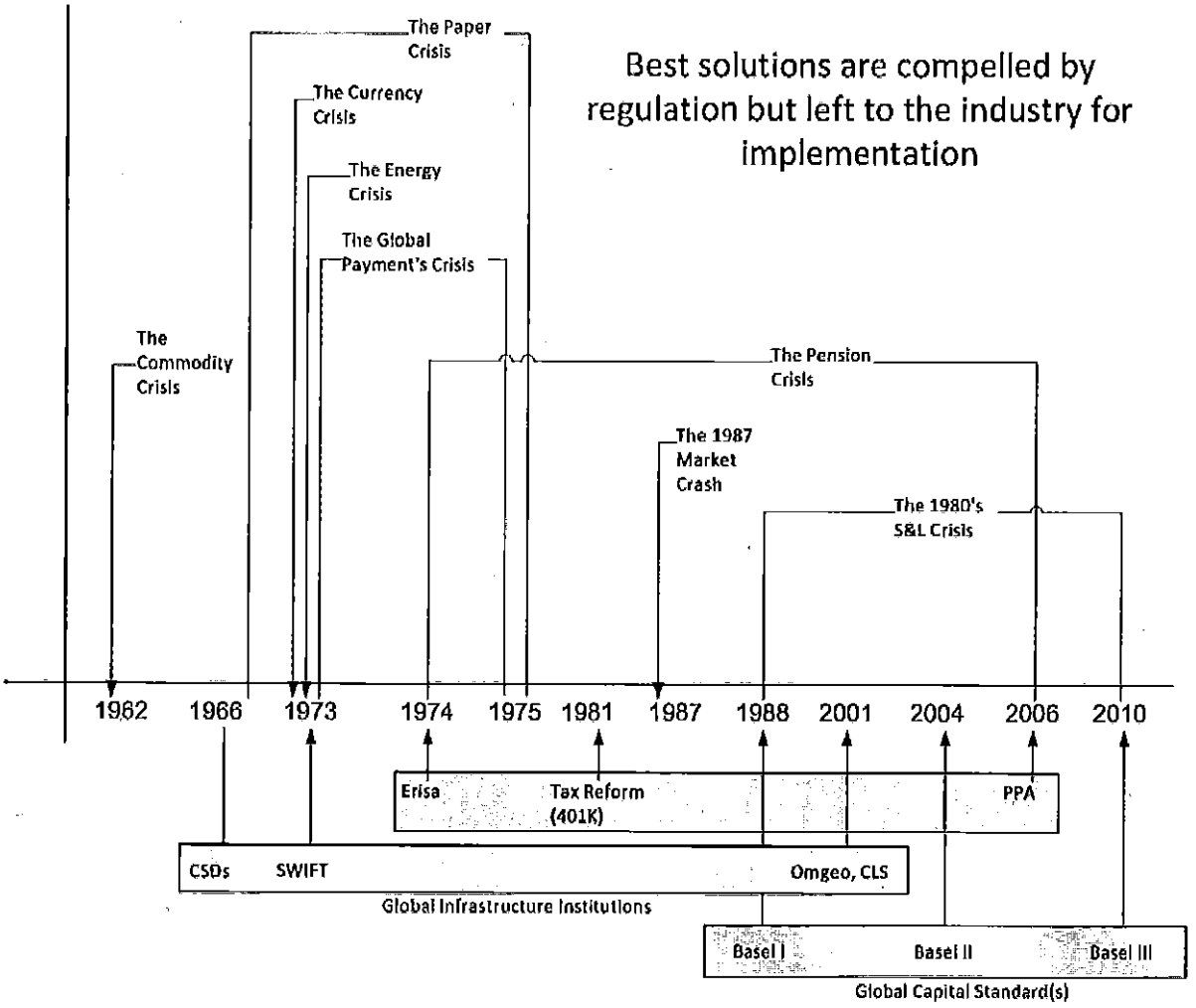
REPRESENTATIVES OF THE GLOBAL FINANCIAL INDUSTRY SUPPLY CHAIN INVITES YOU TO RESPONDS TO THE CALL AND PARTICIPATE IN THIS OPEN FORUM SESSION

ANNA
Bank of NY Mellon
Credit-Suisse
Deutsche Bank
Fidelity
Financial InterGroup
Google-Finance
GS1
JMSmucker
JPMorganChase
NYSE-Euronext
PricewaterhouseCoopers
State Street Bank
SWIFT
XBRL

GLOBAL FINANCIAL SERVICES INDUSTRY OPEN FORUM

"....prefer to adopt a universal standard developed and implemented by the financial industry ....."

US Treasury



GLOBAL FINANCIAL SERVICES INDUSTRY OPEN FORUM

The Dodd Frank Legislation has left the "catalogue" of business entities involved in the financial supply chain to the industry to define and implement

Section 154(b)(2)(A) only requires requires the Office to:

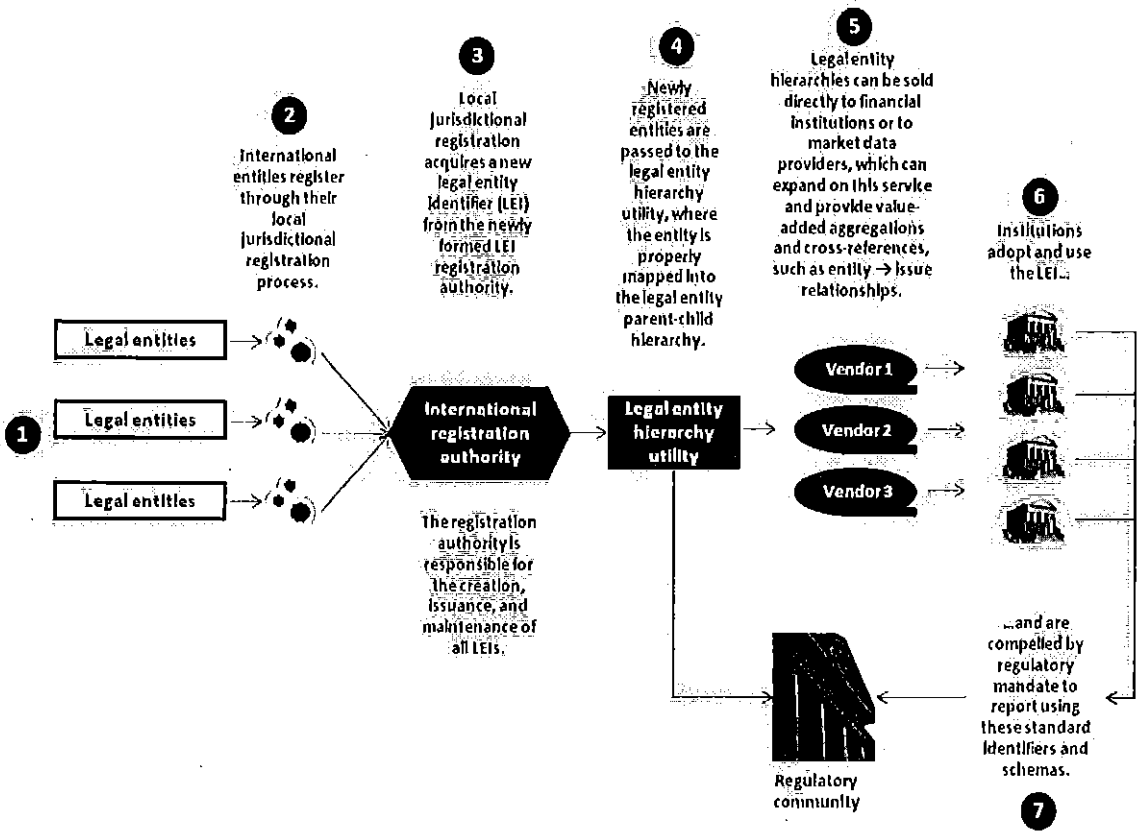
"…..**prepare and publish a financial company reference database, a financial instrument reference database, and formats and standards for data reported to the Office.**

Section 151(6)(B) provides only that:

"….. **those data include information that identifies counterparties….**"

US Treasury
The Office of Financial Research

ONE CONSTRUCT FOR DOING THIS IS PRESENTED BY GOVERNMENT INDIVIDUALS



GLOBAL FINANCIAL SERVICES INDUSTRY OPEN FORUM

THE ISSUE IS RECONGNIZED MORE GENERALLY AS BOTH AN INDUSTRY AND A REGULATORY ISSUE

".....Complete automation of back-office activities remains elusive, in part because of the lack of a universal identifier for legal entities....."

US Treasury

"A common set of reference identifiers for participants and products could yield significant efficiencies in both the public and private sectors.....financial firms could eliminate the use of multiple proprietary reference systems and move to a single, widely accepted system....."

Securities and Exchange Commission

".....maintaining internal identifier databases and reconciling entity identification with counterparties is expensive for large firms and disproportionately so for small firms....."

Commodities Futures Trading Commission

THE REQUIREMENT OF GLOBAL STANDARDS AND A "CATOLUGE" OF IDENTIFIERS PRE-DATES THE CURRENT RULE MAKING INITIATIVES

CITICORP CHAIRMAN JOHN REED'S 1989 STUDY OF THE GLOBAL PAYMENTS AND SETTLEMENT SYSTEM FOR THE GROUP OF THIRTY RESULTED IN A FINAL MONITORING REPORT CONCLUDING:

"The implementation of reference data standards has proven difficult. With no global owner of reference data and friction between the needs of the domestic and cross-border market users, progress has been slow. Future progress will require greater efforts by market infrastructure operators and international institutions with global reach."

Group of Thirty,
May, 2006

GARRETT MAYERS DE OYENZ, CHAIRMAN OF THE FEDERATION D' BORSE VALORES (NOW THE WORLD FEDERATION OF EXCHANGES) AND CONVENOR OF THE SECURITIES INDUSTRY ADVISORY BOARD CONCLUDED:

"Twenty standards setting organizations were asked to vote and the majority 1. said it was a good idea, 2. it was needed, but 3. only a minority opted in to setting up a governance structure and providing funding. The failure was ascribed to the realization that standards setting bodies saw themselves in a competitive business."

SSAB (Securities Standards Advisory Board)
First Annual Cross-Industry Standards Conference,
September 20, 1995

GLOBAL FINANCIAL SERVICES INDUSTRY OPEN FORUM

THE ISSUE HAS BEEN FRAMED FOR TOO LONG WITHOUT A KEY FINACIAL SUPPLY CHAIN CONSTITUENCY BEING CONSIDERED – THE ISSUERS

Issuers, in the form of global trade supply chain champions have done for twenty five (25) segments of the global economy what still needs to be done with the financial supply chain.

They have pledged their commitment to bring their constituents to the table through their global federation of standards setters GS1

"The retail industry, which was burdened with the requirement to move physical goods, was well ahead of the securities industry in implementing standards of reference data and utilizing them in advanced systems, thus affecting the equivalent of straight-through-processing."

Grody A.,
EDI Systems Trends in the U.S. Retail Industry
and its Implications for the Securities Industry,
NYU Salomon Center and
Center for Research on Information Systems,
June 25, 1993

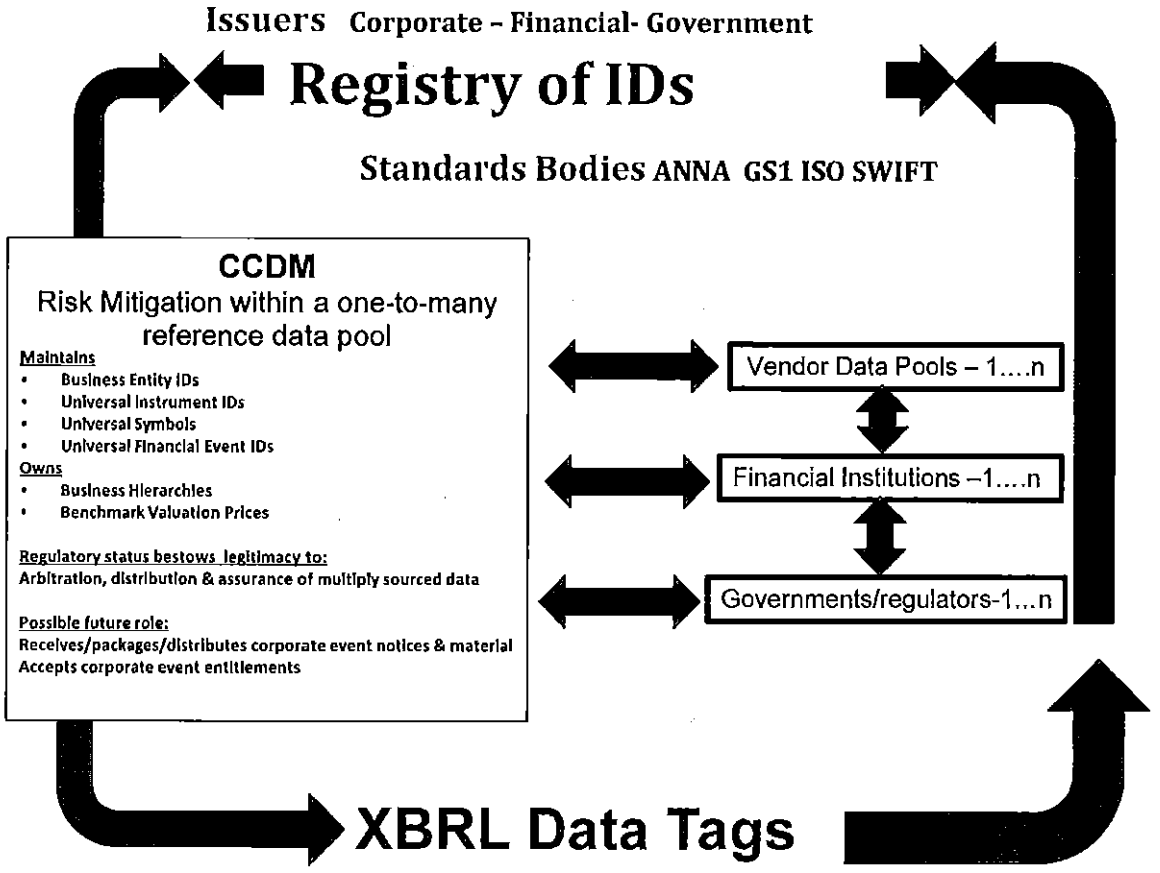
THE ISSUE HAS BEEN FRAMED FOR TOO LONG WITHOUT GIVING PROMINENANCE TO A SIGNIFICANT REPORTING STANDARD THAT HAS TAKEN HOLD IN REGULATORY FILINGS AT THE BALANCE SHEET AND INCOME STATEMENT LEVEL AND NOW NEEDS TO BE EXPANDED TO THE FINANCIAL TRANSACTION SUPPLUY CHAIN

*"The Securities and Exchange Commission voted unanimously Wednesday to propose a rule requiring companies — by as early as next year — to file financial statements in an "interactive data" format. The proposed schedule is a landmark moment for interactive data-tagging, using the system known as XBRL, for extensible business reporting language. Christopher Cox, the SEC chairman, called the development something that would "significantly transform the SEC's business model," and **compared XBRL's importance to that of the first personal computers and the requirement that financial statements be published online in the Edgar database".***

SEC Maps Interactive Data-filing Mandate
CFO Magazine
May 14, 2008

GLOBAL FINANCIAL SERVICES INDUSTRY OPEN FORUM

ONE APPROACH AMONGST THE MANY TO CONSIDER



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GLOBAL FINANCIAL SERVICES INDUSTRY OPEN FORUM

CAN WE RALLY THE GLOBAL FINACIAL INDUSTRY AROUND A SINGLE WORK PROGRAM BETWEEN GOVERNMENTS, THEIR REGULATORS AND INDUSTRY?

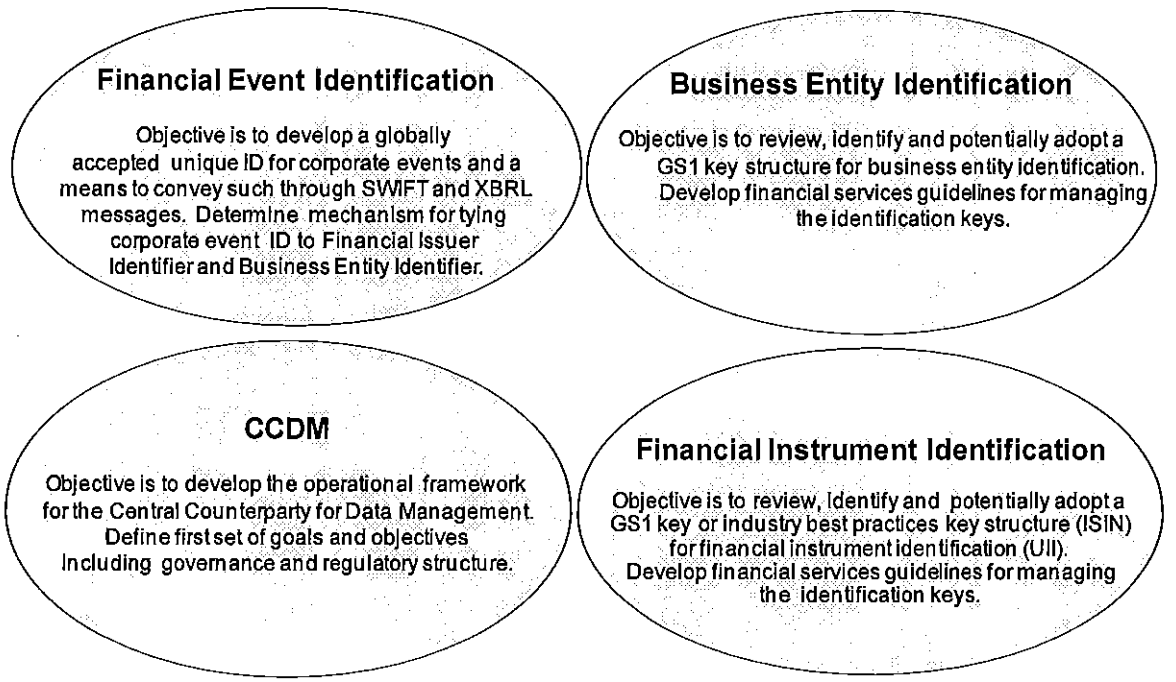
"The difficulty lies not so much in developing new ideas as in escaping old ones."

John Maynard Keynes

"We cannot solve our problems with the same thinking we used when we created them."

Albert Einstein

Joint Work Groups Established



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FINANCIAL SERVICES OPEN FORUM SUMMARY OF PROCEEDINGS

January 11, 2011
9 AM EST

WELCOME

Rich Tinervin- Moderator

- Richard Tinervin of Financial InterGroup (FIG) called the meeting to order.
- The lines were opened for general questions.
  A question was asked whether the discussion is centered on the use of GS1 identifiers (legal entity, financial instrument id), and whether the proposal pertains to one-off contracts as well as secondary markets.
  - Allan Grody (FIG) responded that the Alliance is not promoting anyone's standards, and this call is a means to an all inclusive outreach to build an industry consensus on solutions to the identifiers issue as requested by the regulators. GS1 provides an alternative perspective and is willing to share its knowledge; everything is open for discussion. The goal is to present a financial industry unified position.
  - Bernie Hogan (GS1) noted that the GS1 system is extensible to other industries and that GS1 has been doing work in financial services on the banking side relating to payments and settlements.
  - When asked about different identifier solutions promoted by different financial services parties, Allan Grody responded that the different groups are presenting themselves as 'the' solution – but they are not presenting a comprehensive, encompassing approach. His opinion is that the regulators would like the industry to present an endorsed framework, as it would not be in the industry's best interest nor for regulators to become the arbiters or decision maker on which solution to pick if the industry does not choose its own course of action.

The Request and Need for Change

- Allan Grody went through his presentation of the current issues. (See attached transcript)

The first two Polling Questions were addressed:

- As of this moment, to the best of your understanding, do the organizations present on today's call intend to submit their own company, government agency or trade association responses to the US rule making request?

Yes 44% No 33% Undecided 22%

- Would the organizations present on today's call think they can be considerate of the government's request for a global consensus and be willing to have one

Global Financial Services Industry response to current and future government rule making comment requests regarding data structures?

Yes 43% No 24% Undecided 33%

A Financial Services Industry led global solution verses different government/regulatory country/regional solutions

- Rich Tinervin remarked that the industry has had 25 years to come to consensus, but instead there are a series of silo approaches.

- Comments: It was remarked that any solution not involving the issuer would be sub-optimal. It was also noted that there has been no debate/discussion within the industry regarding risk mitigation with the issuer community, who is the 'manufacturer' of the financial product.

An industry led identification system which is staged over a period of years.

- John Bassani (PWC) remarked on the efforts of the leading accounting firms regarding legal entity data, managing auditor independence and assisting their clients to move forward to meet regulatory requirements.

The second two Polling Questions were addressed:

- Do the organizations present on today's call believe we are close to agreeing on one identification system that can be implemented globally?

Yes 26% No 58% Undecided 16%

- Do the organizations present on today's call desire to have one unique and universal global identification and standards system?

Yes 80% No 10% Undecided 10%

The lines were then opened for discussion.

- Topics raised concerned:
  - The issuer community and their relevance to the solution
    - The most efficient and effective way to provide visibility is to start at the top of the financial 'supply chain' and engage the issuer community
  - The four standards bodies (SWIFT, ANNA, XBRL and GS1) working together to help develop an industry solution
    - Bring the best ideas forward from the four

How the industry should respond to the US Treasury's request for standard legal entity identifiers (LEI), their hierarchies of ownership and a centralized data utility to house this information

- Comments: There are a lot of challenges over Legal Entity Identifiers (LEIs) - all financial institutions have the same challenge as there is a lot of complexity around this topic, i.e. industry component, naming conventions, legal names, legal addresses, etc. Implementation is viewed as a multi-year event. There is a need for the industry to push itself toward consensus. .

Organization, process and timeframe for how the industry will work together in presenting an industry led solution

- Comments: This is a global issue. We need to work collaboratively to developing a solution. We envision a group comprised of many types of participants. Trade associations could serve as conduits to the diverse membership.
- Questions were raised about the Financial Services Alliance and other organizations, such as SIFMA and SWIFT, and their initiatives regarding entity identification.
    - Allan Grody noted that the Alliance is the first truly global group, has been at it for 5 years, and includes the issuer community. The Alliance members participating have the endorsement of their management teams. Additionally, the commercial enterprises that service the financial services community continue to be important to the overall solution.
    - Rich Tinervin stated that the Alliance has reached-out to SWIFT, ISO, XBRL, ANNA, SIFMA, EDM Council, etc and hope to be able to collaborate together.

The third set of Polling Questions were addressed:

- Do the representatives on today's call believe they can continue supporting unique regional or country specific solutions while also satisfying government requests for one consistent, global identification standards system?

Yes 47% No 20% Undecided 33%

- What would be a practical time frame for adopting any new global regulatory guidelines for data standards – implemented over what period of time? One year; 2-5 years; greater than 5 years?

1 Year 15% 2 – 5 Years 77% > 5 Years 8%

- Bernie Hogan addressed a question from Dr. Bruce Weber from the London School of Business regarding a prospective solution being object oriented with backward compatibility and extensibility. It was noted that GS1 goes to great pains to ensure forward and backward compatibility.

NEXT STEPS

- Jan 19th meeting at PWC at 300 Madison Avenue, NYC 8AM – 12PM
  - Sponsoring a meeting; can be attended virtually
  - Another communication will be going out shortly

The last Polling Question:

- Do the organizations present on today's call desire to work together to formulate a consensus approach to respond to the US agency's rule making initiatives on data standards?

Yes 59% No 18% Undecided 24%

Having completed its work, the meeting adjourned at 11:30 AM.

Note: the poll results are not statistically valid due to the variability in the number of poll responses to each question. Therefore, this information should be considered directional.

An Opening Address Convening the First Global Open Forum

for

Responding to Regulators' Requests

for a

Global Consensus on Data Standards

Given by

Allan D. Grody

President,
Financial InterGroup Holdings Ltd

January 11, 2011

Introduction

Good morning to you all and welcome. As a general observation the proposed requirements for data standards are for governments' need to protect the financial industry from another financial crisis. They have come to understand these requirements from their own knowledge as regulators, and in interaction with the financial community, academics, economists, even Nobel Prize winners. They have had the foresight to suggest that it may well benefit the industry to accommodate such standardization and identification. These documents reach out to us, as global leaders, practitioners and standards setters to provide the guidance and deliver on the consensus they are seeking from the industry. Furthermore, while their perch as rule makers is US centric, they have decidedly taken a global perspective through embracing the implementation as one to be carried out by the global financial industry and its standards bodies.

Section 152 of the Dodd Frank Act establishes the Office of Financial Research (OFR) within the Department of the Treasury. Among other things, section 153 authorizes the Office to collect data to support the Financial Stability Oversight Council's duties, to provide such data to the Council and member agencies, and to standardize the types and formats of such data. This is to be done within the Data Center of the OFR, such data center also a creation of the legislation.

In another government document, referred to as the Lynchpin document authored by individuals from the Federal Reserve and a number of regulatory agencies it is expected that in constructing one data standard, the Legal Entity Identifier (LEI) all eligible market participants, including governmental agencies such as the Federal Deposit Insurance Corporation, or infrastructure participants such as the DTCC, must be assigned a unique LEI. These participants include, but are not limited to, all financial intermediaries (banks and finance companies), all companies listed on an exchange, all companies that trade stock or debt, all entities under the purview of a financial regulator and their holding companies.

Reference data for a legal entity could include its name, country of incorporation or principal place of business, and legal relationship to other entities. Identification of the legal entity is a fundamental ingredient in creating the reference database that government regulators need to aid in observing risk exposures building up in the US economy and the contagion of systemic risk that may be arising from other economies around the globe.

In this Lynchpin document, authored just a few weeks ago, the next steps toward resolving the LEI problem are described as gathering financial industry participants to explore the variety of issues. This work could include encouraging market participants to host information gathering sessions or rely upon regulators to develop a public process for examining these issues.

This is what our Open Forum is all about – we have headed the call and those organizations on this conference call truly represent the participants in the financial supply chain – global financial institutions, regulators, data and software vendors, auditors, trade associations, consultants, academics and thought leaders, approximately one hundred participants in all represented today to call this meeting to order.

ANNA
AskGet.com
Asset-Control
Avox
Bank of NY Mellon
Black Diamond Risk Enterprises
CFTC
Committee to Establish the National Institute of Finance
Credit-Suisse
CUSIP Global Services
David M. Rowe Advisory Services
Deloitte & Touche
Deutsche Bank
EDM Council
Federal Reserve Board
Federal Reserve of New York
FDIC
Fidelity
Financial InterGroup
Financial Stability Board
FISD
Fitch Ratings
Fix Protocol Ltd
Golden Source
IBM
Interactive Data Corporation
Jordan & Jordan
London School of Business
Mintz & Partners
Google-Finance
GS1
JMSmucker
JPMorgauChase
NYSE-Euronext
Oliver Wyman
PricewaterhouseCoopers
SEC
SIFMA
SIX Telekurs
State Street Bank
SWIFT
XBRL

I note that the rule makers, the US Treasury in particular, prefers to have a universal standard developed and implemented by the financial industry. We thank them for this preference as it is well understood through our recent history of financial crisis, from the early 196o's salad oil scandal, to the paper crisis that befell Wall Street in the late 1960's, to the first utterance of the words "systemic risk" during the German Bank Herstatt's failure in 1973 and on to the market crash of 1987, industry solutions followed regulatory rule making. It is left again to a partnership between industry and government to resolve this current crisis, through wise improvements in capital standards as in Basel III and in far reaching data standard reform across the global financial system. Without such reform, neither regulators nor our financial institutions will be able to observe the coming of the next financial crisis.

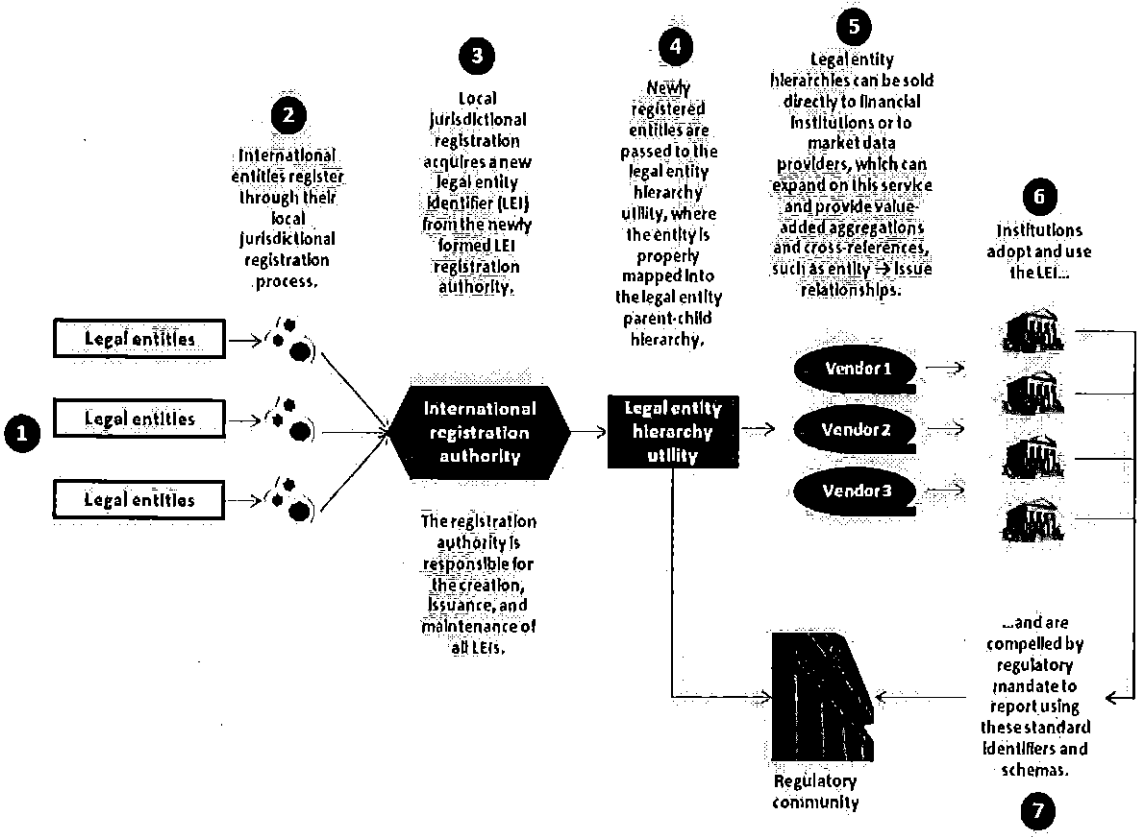
We also thank the US regulators for reaching beyond their own domestic jurisdiction in seeking a global standard, recognizing that while regulators have operated in their own local markets or sovereign jurisdictions .financial institutions operate across all these government contrived boundaries as capital and contract markets are truly global.

I note that the Dodd-Frank Act refer to organizing data in a reference data base (the term "catalogue" is used) only for financial companies not for legal entities. In fact the Dodd-Frank passages referenced by the US Treasury for the OFR's authority to require LEI's and their associated hierarchies of legal entities only references the word "counterparties".

Section 154requires the Office to prepare and publish a financial company reference database, a financial instrument reference database, and formats and standards for data reported to the Office. Section 151provides that those data include information that identifies counterparties

In this regard, we speculate that such a reference data base of LEI's in as broad a scope as is being requested now was not contemplated in the legislation establishing the "catalogues" to be maintained by the OFR. The legislation specifically and exclusively requires only two (2) catalogues, those being for financial companies and financial instruments. Whether by design or by the failure of political will in drafting the legislation it is left to us as an industry to accommodate this missing piece of the final reference data solution. As all who have toiled at constructing reference data bases in the past, we can all appreciate how important the construction of a standardized business entity data base and its hierarchies of legal components are to the ability to aggregate risk exposures within a single firm and certainly to aggregate such systemic exposures across multiple firms.

On this page you can see one construct for fulfilling the mandate somewhat expressed in the legislation but fully fleshed out in the Lynchpin report. It calls for a for-the-public-good international registration authority to issue and maintain LEIs and an LEI hierarchy utility, presumably also a public good, and thereafter a commercial function that adds value to both.



Now in thinking about all this, the regulators wisely recognized that the issue is both an industry and a regulatory issue. They understood that the complete automation of back-office activities, that elusive mantra we all chant STP – straight-through-processing, remains elusive, in part because of the lack of universal identifiers

They also wisely saw that a common set of reference identifiers for participants and products could yield significant efficiencies in both the public and private sectors as financial firms could eliminate the use of multiple proprietary reference systems and move to a single, widely accepted system

They noted that maintaining internal identifier databases and reconciling entity identification with counterparties is expensive for large firms and disproportionately so for small firms.

For those of you who follow the literature on this subject, upwards of a billion dollars is spent by each of the large financial institutions annually on duplicating data management functions that provides no strategic advantage and that could be shared in a common utility.

Also as many of you in the industry understand, the requirement of global standard and a "catalogue" of identifiers pre-dates the current rule making initiatives. As long ago as 1989 then Citicorp chairman John Reed spearheaded a Group of Thirty sponsored study of the global

payments and settlement system. In its final monitoring report nearly two decades later the Group of Thirty called for a global owner of reference data in order to make future progress. It further recognized that greater efforts by market infrastructure operators and international institutions with global reach would be required.

During this same period Garrett Mayers de Oyenz, Chairman of the Federation d' Borse Valores (now the World Federation of Exchanges) and convener of the Securities Standards Advisory Board concluded that the failure to make meaningful progress on consensus building around data standards was ascribed to the realization that standards setting bodies saw themselves in a competitive business.

As the list of the conveners of this open forum clearly shows, we are here today to demonstrate that those obstacles of the past no longer obtain.

Now to add a promising new dimension to the potential for realizing the STP vision for our industry and the Systemic Risk Analysis vision for our regulators we propose a new paradigm in our thinking on this subject.

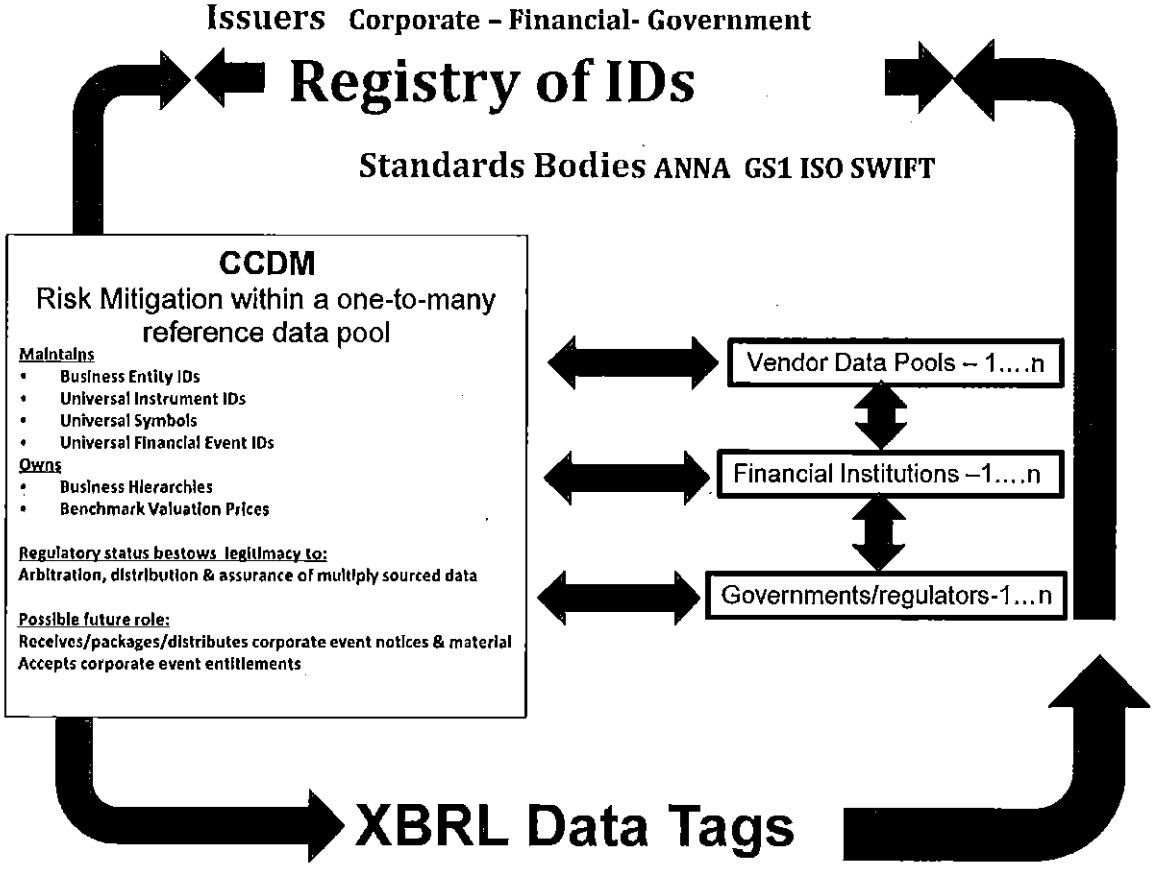
That is that the issue has been framed for too long without a key financial supply chain constituency being considered – the issuers. These issuers are now around this Open Forum table in the form of global trade supply chain champions. Here they have done for twenty five segments of the global economy what still needs to be done within the global financial.

They have pledged their commitment to bring their constituents to the table through their global federation of standards setters - GS1.

Further, the issue has been framed for too long without giving prominence to a significant new reporting standard, XBRL that has taken hold in regulatory filings at the balance sheet and income statement level and now needs to be expanded to the financial transaction supply chain.

Christopher Cox, the former SEC chairman compared XBRL's importance to that of the first personal computers and the requirement that financial statements be published online in the Edgar database".

To turn to a potential industry constructed solution, I am sure only one of many alternatives that may become available as we think through this in a united fashion – industry – regulators – standards setting bodies – issuers and their auditors all sitting at the same table.



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The construct shown here respects the public-good-nature of the unique, universal and unambiguous identifiers required by regulators and the financial industry alike-- we call this the U3 Identification System. It is present in what is referred to in the diagram as the Registry of IDs. It also respects the interests of all those value producing vendors, software companies and the like and provides for their continuation as commercial enterprises It should further spur the industry's financial institutions to think of establishing a broad utility, not unlike the LEI utility, but more complete in respect of all the data attributes necessary to perform the myriad of operation processes necessary to make an identification system useful as a processing system.

Here, as more prospectuses, offering memorandum, financial event announcements, etc. get translated through XBRL templates into direct input as reference data, the utility emerges over time as a complete reference data repository, eventually to be thought of as a public good.

Now, finally the challenge - to rally the global financial industry around a single work program between governments, their regulators and industry. We are attempting to do this through our neutral Global Financial Services Data and Standards Alliance. We have been busy on a work program you see here, dealing not only with legal entity identification, but with financial event announcements, financial instruments and the utility concept as well. We have a lot on our plate. We invite everyone to the table where, as some great thinkers have said, we will hopefully find that:

"The difficulty lies not so much in developing new ideas as in escaping old ones."

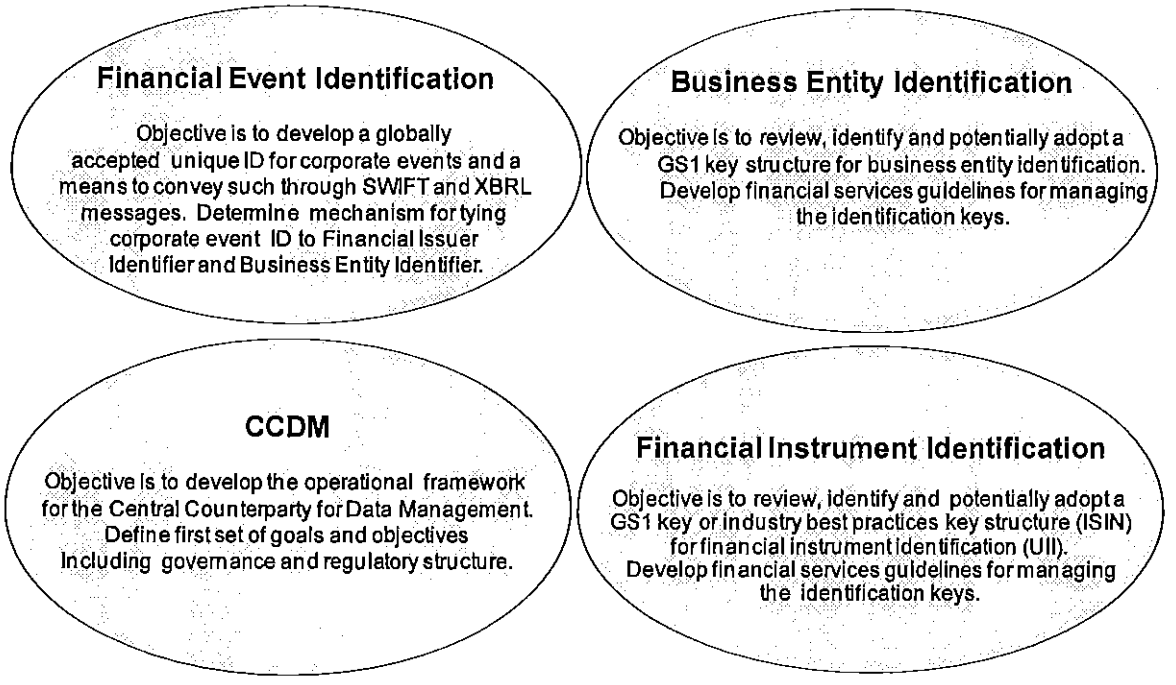
John Maynard Keynes

and

"We cannot solve our problems with the same thinking we used when we created them."

Albert Einstein

Joint Work Groups Established



Research Notes on

Legal Entity Identification

As contained in the

Rulemaking Comment letter

of the

US Treasury, Office of Financial Research

and the

White Paper

Creating a Linchpin for Financial Data: The Need for a Legal Entity Identifier

Authored by various government personnel

Prepared by

Financial InterGroup Holdings Ltd

On behalf of the

Global Financial Services Data and Standards Alliance

December 19, 2010

Introduction

We have prepared this **Research Note** on the Legal Entity Identifier (LEI) as a means to focus our next working group conference call to discuss this. All terms used in defining the LEI appear to define a business entity and its hierarchical affiliations involved in the financial supply chain.

For brevity we have excerpted relevant comments from each of the two documents while providing links to the complete documents. For objectivity, we have refrained from editorializing on the implications of these rule making proposals to members of the working group as well as the industry at large. That is the purpose of the conference call.

If we may be permitted, as a general observation the proposed LEI requirements are for governments needs, as they have come to understand it from their own knowledge as regulators, and in interaction with the financial community, academics, economists, even Nobel Prize winners. They have had the foresight to suggest that it may well benefit the industry to accommodate such standardization and identification. In the White Paper they speculate on and provide a diagram depicting a LEI utility not unlike a component of the Central Counterparty for Data Management. Again, these documents reach out to us, as global leaders, practitioners and standards setters to provide the guidance and deliver on the consensus they are seeking from the industry. Furthermore, while their perch as rule makers is US centric, they have decidedly taken a global perspective through embracing the implementation as one to be carried out by the global financial industry and its standards bodies.

Finally, we note that the Dodd-Frank rules quoted refer to organizing data in a reference data base (the term "catalogue" is used) only for financial companies not for legal entities. In fact the Dodd-Frank passages referenced by the US Treasury for the OFR's authority to require LEI's and their associated hierarchies of legal entities only references the word "counterparties". In this regard, we speculate that such a reference data base of LEI's in as broad a scope as is being requested was not contemplated in the legislation establishing the "catalogues" to be maintained by the OFR. The legislation specifically and exclusively requires only two (2) catalogues, those being for financial companies and financial instruments.

DEPARTMENT OF THE TREASURY
Office of Financial Research
Statement on Legal Entity Identification for Financial Contracts

http://www.treasury.gov/initiatives/Documents/OFR-LEI_Policy_Statement-FINAL.PDF

Page 3

The Office of Financial Research

Section 152 of the DFA established the Office within the Department of the Treasury. Among other things, section 153(a) of the DFA authorizes the Office to collect data to support the Council's duties, to provide such data to the Council and member agencies, and to standardize the types and formats of such data. Section 153(a) also provides that the Office should assist member agencies in determining the types and formats of data authorized by the DFA to be collected by member agencies. Section 154(b)(2)(A) requires the Office to prepare and publish a financial company reference database, a financial instrument reference database, and formats and standards for data reported to the Office. Section 151(6)(B) provides that those data include information that identifies counterparties

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In addition, section 154(b)(2) of the DFA requires the Office to prepare and publish a financial company reference database. Reference data for a legal entity could include its name, country of incorporation or principal place of business, and legal relationship to other entities. Identification of the legal entity is a fundamental ingredient in creating a reference database of financial companies.

Page 6

If a LEI is established to the satisfaction the Office by July 15, 2011, the Office, in consultation with the Chairperson of the Council, plans to issue a regulation mandating the use of such a standard for data reported to the Office.

Creating a Linchpin for Financial Data: The Need for a Legal Entity Identifier

to create at source (i.e. directly through the reporting corporations) corporate event XBRL announcement templates and standards for organizing such data for direct entry to the SEC's EDGAR corporate filing system.

To date, mutual risk sharing within payment and settlement systems has only been applied to the value portion of transactions (principally quantities, transaction prices and currency values). These same techniques, however, can be applied to the matching and settling of the reference data components of these transactions. While not value-bearing, reference data are at the heart of the intertwined payment and settlement system. Acquiring, maintaining and managing such data is costly, estimated at upwards of $1.25bn annually for each of the largest financial enterprises, with faulty data being at the core of significant components of operational losses.

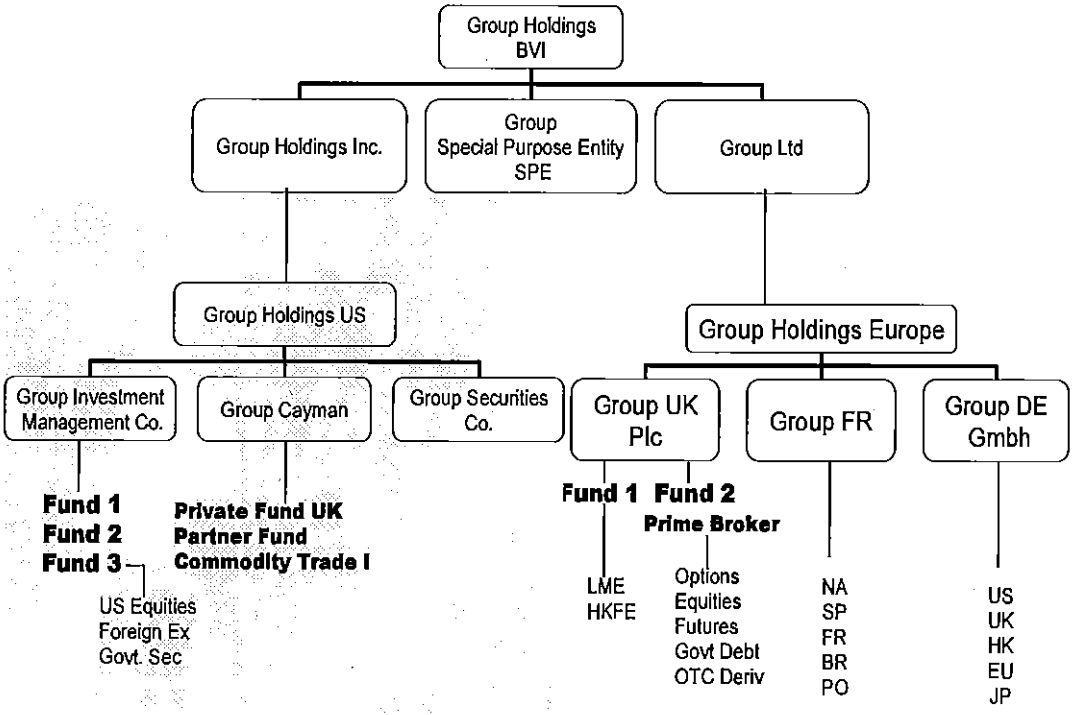
The importance of reference data can be understood by recognizing that all financial transactions are represented as data in information systems. If the data are wrong, the transaction does not settle. The retail industry understood this issue a long time ago and standardized on universal barcode identifiers for products and electronic data interchange standards for communicating across suppliers, distributors and retailers. The financial payment and settlement infrastructure similarly has such identifiers for financial products; supply chain participants (counterparties, financial intermediaries, corporations, issuers, etc); financial markets and currency designations; valuation and market prices; and other referential information such as credit ratings and economic data used in valuation models.

However, financial industry reference data that should be standardized and identical across each organization are not. These data are sourced independently, with each financial institution performing duplicative functions in an attempt to represent each unique product, business entity and valuation price identically, but failing to do so. The consequence is that proprietary and conflicting identification codes exist across the entire range of referential data, including such fundamental identifiers as symbols for corporate issuers, symbols used in contract markets, numbering conventions for securities, supply chain business entity identifiers, and counterparty identifiers. To compound the problem, payment and settlement systems operators and even regulators maintain proprietary codes and duplicate sourcing and maintenance functions. Even dates and rates for corporate events and valuation prices for all manner of traded financial instruments are obtained and organized in this manner. Such reference data are represented as 70 per cent of the data content of financial transactions. Thus, the effect on operating costs and operational risk in faulty data entering the payment and settlement systems is significant. In fact, those infrastructure institutions that operate payment and settlement systems have capital structures that are primarily supporting the risk of mismatched transactions caused by faulty data.

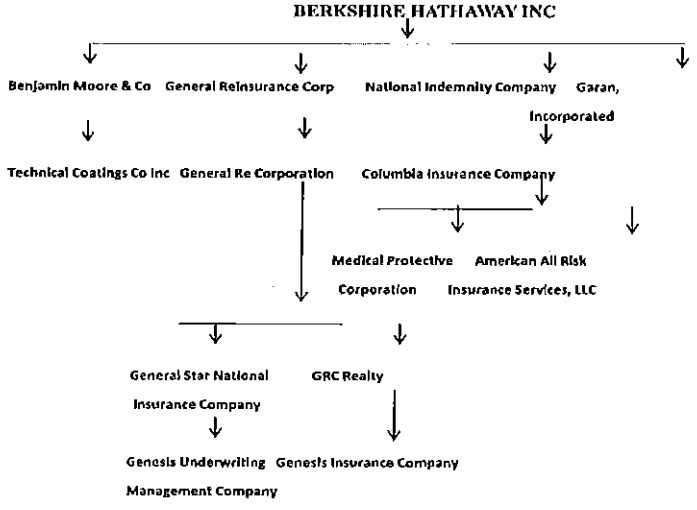
The majority of operational losses are due to transaction processing errors — the failure of people, systems and the data they act upon to operate seamlessly, from origination of the transaction through to payment and settlement. This is sometimes referred to as straight-through-processing. These losses result from human error, from failure to follow existing procedures, or from inadequacies within the procedure when first established, such as wrong codes or identifiers. These losses are normally considered unintentional and correctable with proper business planning and controls.

The aggregation of data issue is also of significant concern. The first issue is that there is no standard entity identification system for describing in computer readable context the identities of financial enterprises or corporate entities, nor is there any standard mechanism for associating ownership/relationships with other entities that collectively comprise the totality of the enterprise

Financial Institution Structure



CORPORATE STRUCTURE



BERKSHIRE HATHAWAY INC
Data Identity:

Service (partial list)	Identifier
Avox/Avid No.	12501262
Cusip Issuer	084670
S&P Rating	100264
Compustat Issuer	002176
Dun & Bradstreet	001024314
Edgar Online	0001067983
Red/Clip CDS	08CAD7
Fitch Rating	80090742
Telekurs	20823

Source: S&P ,20093Financial InterGroup, 2009

When financial institutions attempt to aggregate credit limits, credit exposure and/or risk exposure of a single entity, each organization may not do it in the same way, as there is no uniform identity or hierarchical construct for the same entity set used by all. When reporting on performance and profitability by client the financial enterprise may not aggregate the data

correctly within its own systems owing to the multiplicity of reference data bases previously described resident in each institution. Finally, when reporting information to regulators, these same problems manifest themselves to the point that regulators cannot be confident that the reports from each financial institution are reporting on the same components of the aggregated entity being described.

The second issue is the valuation methods of the positions (security holdings) that each financial institution maintains. There are multiple sources for the prices used and multiple methods for valuation, thus leading to different valuations for the same financial instrument, potentially held for the same client in different financial institutions. In addition, the sourcing of this data through multiple intermediaries, as well as directly from original sources of this data, leads to incorrect information due in part to the proprietary formats and identification codes each intermediary imposes on the data notwithstanding the fact that existing messages to communicate this data have been devised and standardized.

Fix Protocol Ltd created the Financial Information Exchange (FIX) protocol to standardize the communication of pre-trade and trade information. Since 1995 it has allowed counterparties and supply chain participants in capital market transactions to communicate electronically such information as indications of trading interest, placement of orders, receipt of executions, and the allocation and confirmation of trades for delivery and payment. In response to the SEC's request for comment on what the SEC should do to facilitate the standardization of reference data, the FPL responded that it was "encouraging that the SEC recognizes reference data and standardized protocols as a significant issue" and commented further that reference data standardization is not as nearly developed as the FIX message standards that contains it.

Valuation prices defined as reference data are different then prices which are seen on a stock ticker, or used in the front office for trading purposes, commonly referred to as market data. Each exchange market place or dealer market, or its associated clearing and settlement facility, publishes many reference prices (closing price, settlement price, last sale price, last quoted price, et al). They also use differing procedures at the end of the trading day to determine the reference price used as the settlement price for valuing portfolios and collateral, and for margin (loan) calculation purposes.

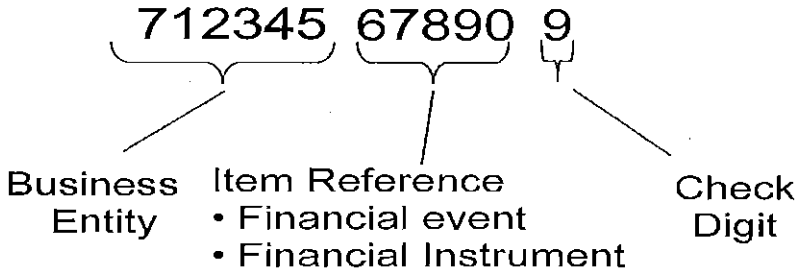
Also, reference prices for some non-exchange traded instruments are aggregated and distributed by their dealer associations, others have no central mechanism for aggregation and are either left to individual firms "calling around" to get dealers' prices, or left to entrepreneurs to build an aggregation and distribution service. Still other financial instruments, which either trade infrequently, or are not expected to trade at all, are priced through formula. Municipal bonds and over-the-counter derivatives are examples, requiring such reference data as credit ratings, historical prices, calendar data, etc., as inputs to these calculations.

Appendix III

The Future State of Reference Data

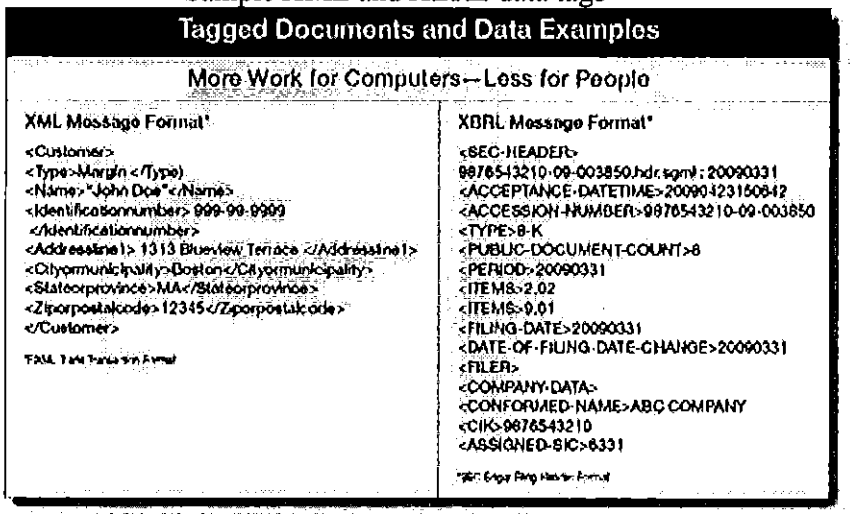
A prospectus, offering memorandum, financial event announcement, incorporation or business organizational documents, ISDA master agreement, and other such paper document is conceived and developed at the origins of a business formation, financial transaction and/or financial event. It is embodied in a word processed document available in digitized form, compatible with standard computer machine processed formats. It is subsequently transformed by standard mapping software into an extensible markup language (XML) format. This format, in a preferred embodiment is XBRL. XBRL contains its own algorithmic translation capabilities but other XML languages such as FpML may also be used such as for derivatives presentations. Using a predesigned XBRL taxonomy the data elements are transformed through mapping software from human readable (word processed) data into machine readable content at an elemental level. The data in transformed XBRL format is tagged with meaningful data names and with the first instance of the tag i.e."<BusinessEntityID>", "<FinancialEventID>" "<FinancialInstrumentID>", etc, and then again the second instance of the identical tag, such tag being unique, unambiguous, consistent and universal. The actual Business Entity Identifier, Financial Event Identifier and Financial Instrument Identifier is a number of variable length assigned by the business entity or its designated agent after applying for such identity through a global registry, which is the designated assigner of such identities. Such a number, also unique, unambiguous, consistent and universal (referred to as U3 identifiers) is placed within the first and second instance of the tag.

Sample identification numbers:



Sample elemental data from prospectuses, incorporation papers, etc.

Sample XML and XBRL data tags



Sample word processed names of business entities, financial instruments, etc

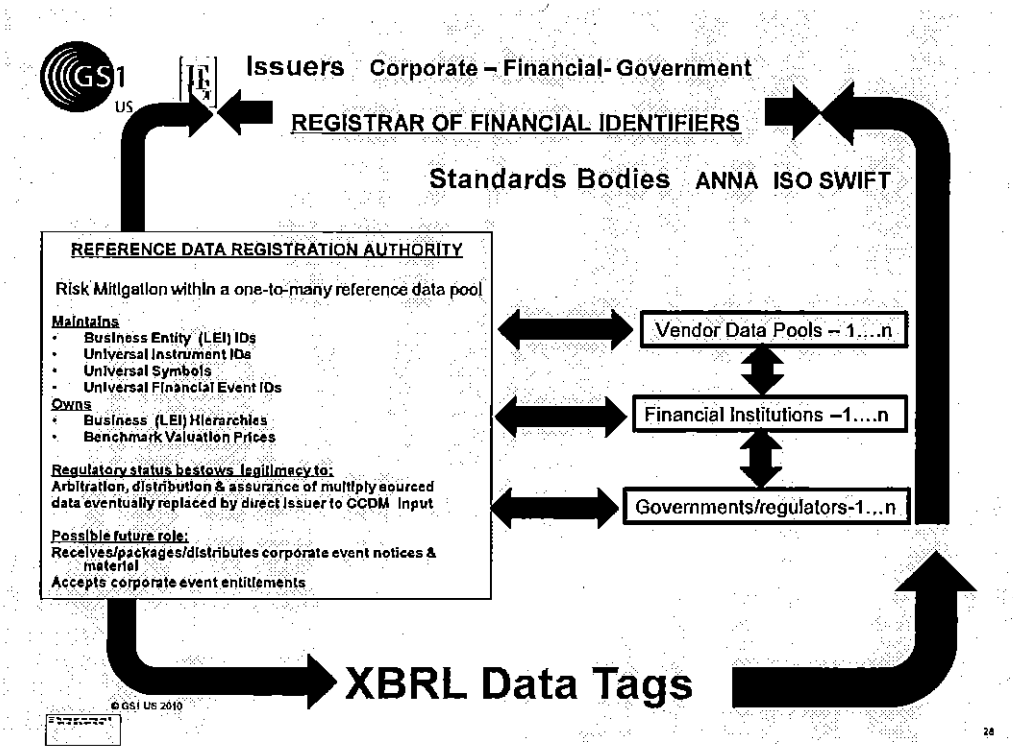
Tosco PLC
Siemens AG
Grupo Aeroportuario del Pacifico, S.A.B
General Motors Common
NQL Energy Services Inc. Class A
Ford Debenture Series A 4 ¼% June, 2035, J &J 30

The tagged data is transmitted via communication lines to the central storage devise of the Registrar of Financial Identifiers (RFI) Registry where it is filed in a computer storage medium with other information similarly sourced and communicated. The identity keys are linked to unique, unambiguous and universal descriptions in human readable language for describing the instrument, business entity, and financial event in standardized abbreviated form. It is further linked to a symbol. In similar manner information about supply chain participants, legal business hierarchies of the business entity, and their role in the supply chain is further described in unique, unambiguous and universal manner through other U3 coding conventions. The identification numbers are used as the storage key by the computer storage device for later retrieval by other component systems.

Additional information will be maintained in a computer storage device of the Reference Data Registration Authority's (RDRA) Data Pool connected by a communication device to the RFI's Registry linked by identity keys and/or symbol. Such information as the full, official description of the financial instrument, its terms and conditions, its trading venue(s) and/or listing markets, it's currencies of trade, its place and currency of settlement and other such data attributes of the financial instrument will be stored as reference data in the RDRA's Data Pool (also see below). Similar fuller information about business entities and their legal hierarchies, and financial events and their relationship to financial instruments and business entities are also stored in the RDRA's Data Pool. Other data pools are maintained by commercial vendors and linked to the RFI's

Registry to synchronize their identifiers so they can maintain all manner of supplemental data, to be made available to all others who have synchronized their data identifiers to the RFI's Registry.

Finally, regulators, government agencies and financial institutions are linked to the RFI's Registry, Data Pool as well as Vendor Data Pools of their choice, and linked to each other through the use of the unique, unambiguous and universal identifiers sourced from either the RFI Registry or the RDRA Data Pool.



Vendor Data Pools are of special interest as they can be a source of inconsistent and incorrect information as the information may be obtained from multiple sources, each different from the other. Such errors can occur for valuation prices, in financial event data, and in business entities and their legal hierarchies. This can lead to different valuations for the same financial instrument, different payments for an asset that has accrued a dividend, and in different reporting aggregations of a businesses' credit limit or risk exposure by using erroneous legal entity identities or associations.

The RDRA Data Pool will acquire many sources of such inconsistent, perhaps incorrect reference data from such Vendor Data Pools, from governments and regulators, from financial institutions (i.e. exchanges, clearing houses, settlement facilities, securities depositories, electronic dealers, electronic trading networks, national numbering associations, accredited trade associations, etc.) and from regulated electronic distributors of reference and market data such as Securities Information Providers (US) and Multilateral Trading Facilities (EC).

Where additional or intermediary sources of reference data is available, leading suppliers will be identified through established surveys, through industry acknowledged anecdotal evidence, through available repositories of historical loss data associating such losses to faulty reference data suppliers, and through statistical accumulation of failure rates of data accumulated through the data storage devices of this invention.

The multiply sourced reference data will be matched using various tolerance and risk checks to assure the credibility of the reference data and, if found acceptable against established criteria, passed on for subsequent transmission for downstream use and/or data storage. Where either no match is found or tolerance or risk checks are breached, various reference data elements along with the sources of the information are stored for later exception reporting.

The RDRA Data Pool will distribute such data to its members, as requested on demand by selection criteria decided by the member institutions, such selection criteria being established within the routers for each assemblage of a financial transaction, whether done by a human hand on a keyboard or by an automated system. As an example, envision a particular day in which there is heavy trading in IBM. Traders within many firms are accessing the symbol, financial instrument ID, traded market, currency, regulatory fee, etc. for each specific transaction of IBM. They are also accessing counterparty identifiers, clearing and settlement agent descriptors such as clearing location ID and settlement depot ID, and other supply chain information to clarify who they are transacting business with and on whose behalf.

The RDRA will use a unique interactive network supported by specialized scalable content routers with embedded XML (or other) schemas representing all potential reference data content requests of all assembled financial transactions. The router, deployed within a distributed overlay network, includes an algorithm that allows for content selection, content routing and load balancing. This network is built-out from single intelligent routers, each of which is capable of sharing, adjusting and re-balancing its routing loads and content selection criteria with its "next-in-line" router.

The router software allows for the network to select the path that a message will follow to its destination through setting of user controlled profiles within the router which interrogating the content of an XML or other schema defined message. The user need only send his/her profile, in this case in the form of a request for a specific reference data set to the nearest router. The routers talk to each other and exchanges aggregated profiles. A message/packet is distributed through the network because each router knows the interest of its neighbor routers and they know their neighbors' profile. The software dynamically adjusts the filtering between any two contiguous nodes in the network thus allowing for dynamic load balancing and scaling. Packets may travel through multiple routers and each router makes a decision on what to do with it. The routers operate within a multicast network. A message will be delivered to multiple users if it matches multiple profiles.

The matching of user defined profiles to the message content is done by an algorithm which operates on the entire schema for the message resident in the specialized router software. It matches an "interest profile", that is a subset of the schema, as represented by a user controlling the selection as specified in the same schema as the message. The interest profile can be thought

of as a standing query on a database, wherein the message that passes the query will be forwarded, otherwise not.
A forwarded message represents a validated string of reference data and will calculate a unique encrypted tag number combining the bit values of reference data content with a random number, and place the resulting number in a tagged field. It will then be logged and carried along with the transaction for audit purposes in validating a warranty request on any failed transactions. Also note, that the network is schema agnostic. If end users agree on a new schema, it can be implemented immediately; nothing needs to be changed inside the network.

The router software separates a message into a header and an optional "payload". If the message is unstructured, the header contains a content descriptor; if the message is, for example, a structured XML message it can go fully into the header. The distinction between header and payload simply defines what the router uses for its routing decision.

The benefit of this solution is that the heavy lifting of selection of data is done in the network where large band-width abounds vs. either receiving all the data at the client (Server, PC or Hand-held device) and doing the filtering at that point or maintaining user profiles at a centralized server as in an ASP model. Also by raising the abstraction level of what a network can do, the cost of building and maintaining applications are greatly reduced. Previously a network could only deliver to a specific terminal address. If required to build a data centric solution, multiple layers of middle-ware are required on top of the network. This solution allows data abstraction within the network and routing directly to the application.

Access to the RFI Registry and RDRA Data Pool will be available through both commercial and proprietary networks, operating within standard network communication protocols, and may use standard and/or proprietary routers/servers and/or other computer devices directly imbedded and/or overlaid on the networks to broadcast, read and/or forward messages, and to update and store message profiles. Such message profiles will be created by broker-dealers, asset managers, custodians, and other users, for determining general or specific content within financial transactions. Such profiles may consist of data arrayed as XML schemas, XML DTD's, SQL queries, Java scripts, and other content and/or computational profiling arrangements, both standard and proprietary.

Secondly, in an overnight or periodic updating mode, such information as closing prices (for example every financial instrument master record is updated) gets stored at the central store of all reference data (the RDRA Data Pool) as well as in the downstream distributed data stores specific to each organization.

Finally, the central store of reference data at the RDRA Data Pool is both dynamically and periodically being updated by various suppliers and creators of the basic information of reference data. For example, a notification is received that on a certain date, Hewlett Packard will acquire Compaq, or that as of a specific date the holders of stock in Company X will now have twice the number of shares due to a 100% stock dividend, or that one dealer went out of business, or that a new futures exchange is starting up, or a new company is assigned a trading symbol and ID number, or that an exchange will be closed on a certain date, etc. Further, internally contained reference data triggers events such as in a financial instruments master record containing information as to a conversion date and conversion rate for a bond, or the approaching ex-date

for a stock dividend. All such changes will be broadcast to also find its way downstream to the distributed data stores.

The above description would obtain during the initial installation period. However, over time, the separate downstream stores of reference data and the multiply sourced reference data will be eliminated as more issuers transform written/word processed documents into XBRL formatted documents and business application are rewritten or modified to input to and access the central store of reference data (the RDRA Data Pool).

It is a final objective to provide methods to record the sourced reference data and pre-trade and approved post-trade financial transactions into the position and transaction records kept at each financial institution, such transactions accumulated into positions by matching financial instrument ID's and Business Entity IDs of the approved (settled, paid for and delivered or received financial instrument) with previously stored position records. Such matching first takes place by identification keys (Financial Instrument ID and Business Entity ID) and then is followed by arithmetically accumulating the quantities and amount fields of each financial transaction with the quantity and amount fields of the previously stored position record. Where no such previously stored position record exists, the financial transaction record or aggregated financial transaction records is defined as the first instance of the position record.

Such position records are stored in a computer storage device at each financial institution and used with valuation prices received from direct sources into the RDRA Data Pool and/or from Vendor Data Pools. Such valuation prices are used by each financial institution to value positions by multiplying the quantity of the position by the valuation price. The resulting positions and position valuations along with associated reference data such as financial instrument ID and Business Entity ID is then used to post to the risk management, regulatory reporting and inventory management data bases of the financial institution; and the resulting amount fields of these same records are posted to the sub-ledger and ledgers of the financial institutions where they are then posted into the balance sheet, income statement and cash flow statements of the financial institution.

In a final embodiment the same position and position valuation data, uniquely, unambiguously and universally identified by accessing such identifiers through the RFI's Registry linked to the RDRA Data Pool; and the corporate event, business hierarchy and valuation prices provided through the RDRA's Data Pool will be used by financial institutions exclusively. Such use will be for aggregating and reporting on credit limits and risk exposures of individual business entities; for aggregating and reporting performance, profitability and risk by product, by client, by firm; for reconciling such data between external financial infrastructure institutions such as central depots and between brokers, banks, asset managers and custodians; and for reconciling the official books and records with the subsidiary data bases such as is done by external audits.

Appendix IV

GS1 and its Global Registry

GS1 – The Global Standards ADMINISTRATOR

GS1 is a leading global organization dedicated to the development and implementation of universal standards that are open, global, multi-sector, and are focused on improving the efficiency and visibility of global supply chains. The GS1 System is the most widely used supply chain standards system in the world. GS1's main activity is the development, evolution and maintenance of the GS1 System. GS1 relies on its Member Organizations (MO's) operating in 108 countries, comprised of over 1 million business entities, to support and promote the adoption of the GS1 System worldwide. And every day, at least 5 billion bar codes are read all over the planet.

Each GS1 Member Organization is a neutral, not-for-profit, subscription-based entity that serves a national subscriber community. GS1 capitalizes on the expertise and local perspective of Member Organizations to provide the tools and support necessary for enabling subscribers around the world to implement the GS1 System pursuant to their local conditions.

GS1 US (formerly the Uniform Code Council (UCC)), is GS1's largest Member Organization and services the United States. In addition to providing implementation support services for the GS1 portfolio, GS1 US also provides standards-based services and solutions to the U.S. marketplace, making it more efficient, effective and competitive. In its nearly 40-year history, GS1 US has become one of the world's most respected and influential standards and global commerce organizations.

> Every day, more than 200,000 member companies rely on the standards and services of GS1 US for the effective management and control of their supply chains, And every day, GS1 US strives to keep a leader's pace in developing, maintaining, supporting and expanding the services it offers to fulfill its mission. GS1 US remains committed to working with industry to create the next generation of standards and solutions to enhance the efficiency, visibility, security and sustainability of the 21st century global supply chain.

How the GS1 System Works

The **GS1 System** is an integrated system of global standards that provides for accurate identification and communication of information regarding products, assets, services, locations, business entities and trade parties. The most implemented supply chain standards system in the world, the GS1 System is the foundation of a wide range of efficiency-building applications and solutions.

Based on GS1's Identification system, a common recurring set of Identification keys, companies around the world are able to *globally and uniquely identify* physical things like trade items, assets, logistic units, shipments, and physical locations, as well as logical things like corporations or a service relationship between provider and recipient. When this powerful identification system is combined with GS1 Barcodes, EPC (Electronic Product Code) - enabled RFID (Radio Frequency Identification) tags, electronic commerce (eCom) business messages, and the Global Data Synchronization Network (GDSN), the connection is made between these physical or logical "things" and the information the supply chain needs to identify them. With the connection made, one world of global commerce comes into view.

1. The **GS1 Identification System** is composed of seven global Identification Keys. Each GS1 Identification Key supports a distinct type of supply chain item (i.e., trade item, service, location, business entity, trading partner, logistic unit, returnable container, etc.) and provides a link between the item and information pertaining to it. The GS1 Identification Keys can be encoded into GS1 Barcodes and EPC-enabled RFID Tags for identification and automatic data capture, and communicated between trading partners for electronic data processing using GS1 eCom) electronic commerce) and GS1 US Electronic Data Interchange guidelines to provide vital information for commercial transactions.

GS1 Key	GS1 Key Title	Type of Supply Chain Information
GTIN	Global Trade Item Number	*Trade items*
GLN	Global Location Number	*Locations, business entities & trading partners*
SSCC	Serial Shipping Container Code	*Logistics units*
GIAI	Global Individual Asset Identifier	*Individual assets*
GRAI	Global Returnable Asset Identifier	*Returnable assets*
GSRN	Global Service Relation Number	*Service relationships*
GDTI	Global Document Type Identifier	*Document types*

2. The **Global Data Synchronization Network (GDSN)** is an internet-based, interconnected network of interoperable data pools and a global registry (the GS1 Global Registry™) that enables companies around the globe to exchange standardized product and location data with their trading partners and customers. GDSN assures that the data exchanged is accurate and compliant with universally supported standards. GDSN consists of trading partners and vendors (i.e. suppliers, commercial data base owners, data vendors and retailers), data pools (services that hold and process trading partner and vendor data) and the GS1 Global Registry (a worldwide directory to help the GDSN community locate data sources and manage ongoing data synchronization relationships between trading partners and vendors).

   The GDSN Board of Directors sets the Strategic direction for the Global Data Synchronization Network (GDSN) and the GS1 Global Registry (GR). The Board oversees the execution of the GDSN and the GR approved plan.

3. The **Global Standards Management Process (GSMP)** is the global forum for users to identify needs that require standards based solutions in order to create a more efficient Supply Chain. Specifically, the GSMP provides a comprehensive set of methods and rules allowing both the GSMP and EPC communities, and affected industry groups, to identify their needs which can lead to globally agreed standards and guidelines.

   The Board Committee for Standards (BCS) is the governing body of GSMP. The GSMP organization structure includes BCS advisory groups to aid in the leadership and operation of GSMP. Those groups include the Architecture Group, Process Oversight Committee and Technical Standards Committee.

4. **GS1 Barcodes** are used in a variety of applications. There are several types of barcodes for use by GS1 members. Each type of barcode supports a different business need and, therefore, GS1 supports users by providing guidelines for selecting the barcode that best fits member applications.

GS1 Barcodes

U.P.C. (or EAN outside of U.S. and Canada)	▪ Are specified for retail Point-of-Sale (POS) because they are designed for the high volume scanning environment. ▪ When used in logistics, must be printed larger than the "terget" size to accommodate logistics scanning. ▪ Limited to carrying GS1 Keys and special identifiers for restricted applications like variable measure trade items and internal numbering.
GS1 DataBar	▪ A family of symbols that can be scanned at retail point-of-sale (POS) ▪ Smaller than U.P.C. or EAN and can carry additional information such as serial numbers, lot numbers of expiration dates (i.e., benefit of more data at POS as well as the ability to bar code smaller items).
GS1-128	▪ Used on cartons, can carry additional data, such as lot numbers ▪ GS1-128 barcodes can carry all GS1 Keys and attributes. ▪ Previously referred to as UCC/EAN-128 or EAN-128.
ITF-14	▪ ITF-14 barcodes can only carry GTINs. ▪ Can be printed directly on corrugated cartons.
GS1 DataMatrix	▪ The only "2D Matrix" symbol specified for use by GS1. ▪ Hard surface printing (i.e., no labels) ▪ Requires camera based scanners. ▪ Increasingly the symbol of choice for healthcare (items not crossing POS), electronic components and direct part marking ▪ Non-retail uses due to camera-based scanner requirement
Composite Component	▪ The only "2D linear" symbol specified by GS1 ▪ Called a component because it is only used with a linear bar code like GS1-128 or GS1 DataBar. ▪ Not as widely used as other barcode symbologies.

Involvement with National and International Standards and Standards Organizations

By design, the GS1 System, while supporting global commerce, allows for local implementations. The development of GS1 US activities over the years has reflected the changing technological and business environment. Prior to a focus on global standards, GS1 US has been active in the development of national standards in the United States under the American National Standards Institute (ANSI).

ANSI has served in its capacity as administrator and coordinator of the United States private sector voluntary standardization system for more than 90 years. ANSI facilitates the development of American National Standards (ANS). GS1 US has participated with ANSI for several decades.

With the development of the barcode in the 1970's and its use for product identification within an enterprise, the next logical step was to enable trading parties to communicate information electronically amongst trading partners globally. In the 1980's GS1 US began a long-standing initiative with ANSI X12 (Electronic Data Interchange) for the development of electronic commerce standards, including the development of product identification, order-to-cash, warehousing and ancillary support processes. The X12 EDI standards are made operational through the development of implementation guidelines, which reflect common business practices for an industry or industry sector. GS1 US has developed implementation guidelines that have been adopted by a number of industries, including the food, foodservice, beverage, retail, healthcare, industrial/commercial and publishing industries. The organization has maintained a leadership role at X12, and currently holds the chair position of the X12M Supply Chain subcommittee.

GS1 has been participating with UN/EDIFACT (the UN's standards initiative) for the last twenty years in the development of UN/EDIFACT-based EDI standards, and has developed a set of implementation guidelines under GS1 EANCOM.

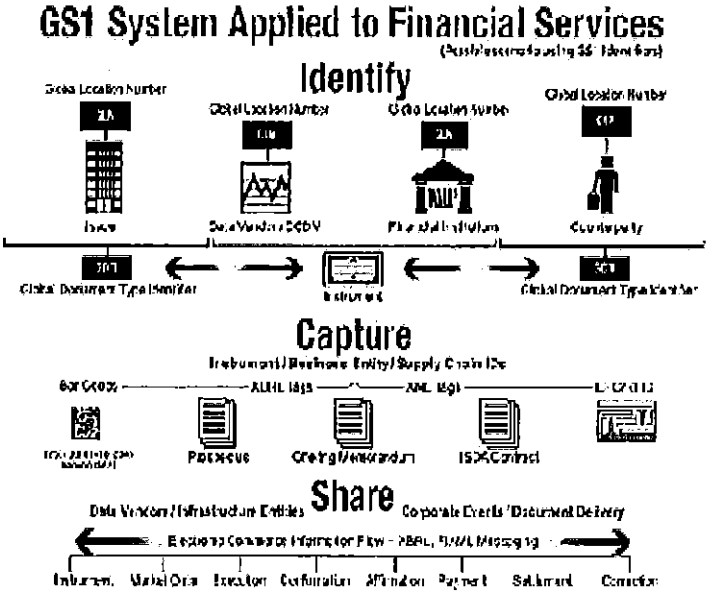
Resulting from the development of the Internet and improved data communication technologies, GS1 has harnessed a new set of technological tools and developed a series of global XML (eXtensible Markup Language) electronic commerce standards that allow businesses to complement their existing messaging processes with newer capabilities.

GS1 has also been a leader in the development of data carriers, such as the barcode and EPC-enabled RFID tag technologies. Aspects of these technologies are incorporated under ISO (International Organization for Standardization) standards, in which GS1 participates.

Additionally, within ISO, GS1 US serves as the Secretariat for the ISO/IEC JTC 1/SC 31 Subcommittee by agreement with ANSI. ISO/IEC JTC 1/SC 31 is the subcommittee that oversees Automated Identification and Data Capture (barcodes).

Whether by barcode, EPC-enabled RFID, GS1 US X12 EDI or GS1 XML messaging, GS1 Keys flow between trading partners as part of the day-to-day business processes used around the world. The core component of any of the GS1 Keys is the 'company prefix' – a globally unique identifier assigned by a GS1 MO to a member company. Once a member company receives its company prefix, it then has the ability to create globally unique identifiers for its products (GTIN), its locations, business entities and trading partners (GLN), its documents (GDTI), its assets (GIAI or GRIA) and parties to whom services are provided (GSRN). Regardless of the industry, the GS1 Keys provide accuracy, reduce uncertainty, and thereby reduce risk amongst the trade parties.

GS1 identifiers are incorporated into a number of current standards and processes. As an example, the GTIN and GLN are included within the ANSI X12 EDI and UN/EDIFACT dictionaries and message documents for a wide range of business processes. For the financial industry, GS1 Keys offer the ability to uniquely identify financial institutions, financial events, data vendors, clearing entities, counter parties, issuers and the various financial instruments they issue, thereby helping to reduce uncertainty and risk in the aggregation of various business reports, and in the communication and payment of financial transactions



GS1 identifiers can be included in dictionaries and messaging standards of other standards organizations to provide for unique identification, such as:

- XBRL (Extensible Business Reporting Language), a technology standard that is used for the reporting of business and financial information and can make the process of creating, distributing, reporting and analyzing information more efficient and effective;

- SWIFT (Society for Worldwide Interbank Financial Telecommunication), which provides a proprietary communications platform for products and services that allow customers to connect and exchange financial information, such as payments and securities transactions, securely and reliably;

- The International Organization for Standardization (ISO), which works with Accredited Standards Committee (ASC) X9 to develop, establish, maintain and promote standards for the Financial Services industry in order to facilitate delivery of increasingly information intense financial services and products, and promotes international standardization through itself and the Association of National Numbering Agencies (ANNA);

- FIX Protocol, the Financial Information eXchange ("FIX") Protocol, which is a series of messaging specifications for the electronic communication of trade-related messages pertaining to financial instruments.

The GS1 standards can work in conjunction with other identifiers or may form the basis for a migration from a non-global (domestic, local, regional or proprietary identifier) to a GS1 global identifier.

The GS1 System – a continually evolving four decades old user driven, global, robust, multi-sector, universal and scalable unique identity and data synchronization system – is designed to fit all industries' identification needs.

GS1 Company Prefix for the Financial Services Industry

Overview:

The **GS1 System** is an integrated system of global standards that provides for accurate identification and communication of information regarding products, documents, assets, services, locations, business entities and trade parties. The most implemented supply chain standards system in the world, the GS1 System is the foundation of a wide range of efficiency-building applications and solutions.

The basis for the GS1 System is the **GS1 Company Prefix** – a variable length, globally unique number that is assigned by one of the 108 GS1 Member Organizations' to an entity (company/organization). No two entities can have the same company prefix – thereby ensuring unique identification for that entity within the country in which it was assigned, and around the world.

The GS1 System is flexible enough to handle scenarios where a company may have a need for more than one GS1 Company Prefix, such as through a merger or acquisition, or through normal business growth. There are rules that guide the use of the GS1 Company Prefix and the various GS1 Keys.

The GS1 Company Prefix allows the owner of that prefix to create globally unique identifiers that are important to that entity/organization. For the financial industry, GS1 Keys that offer operational enhancements include:

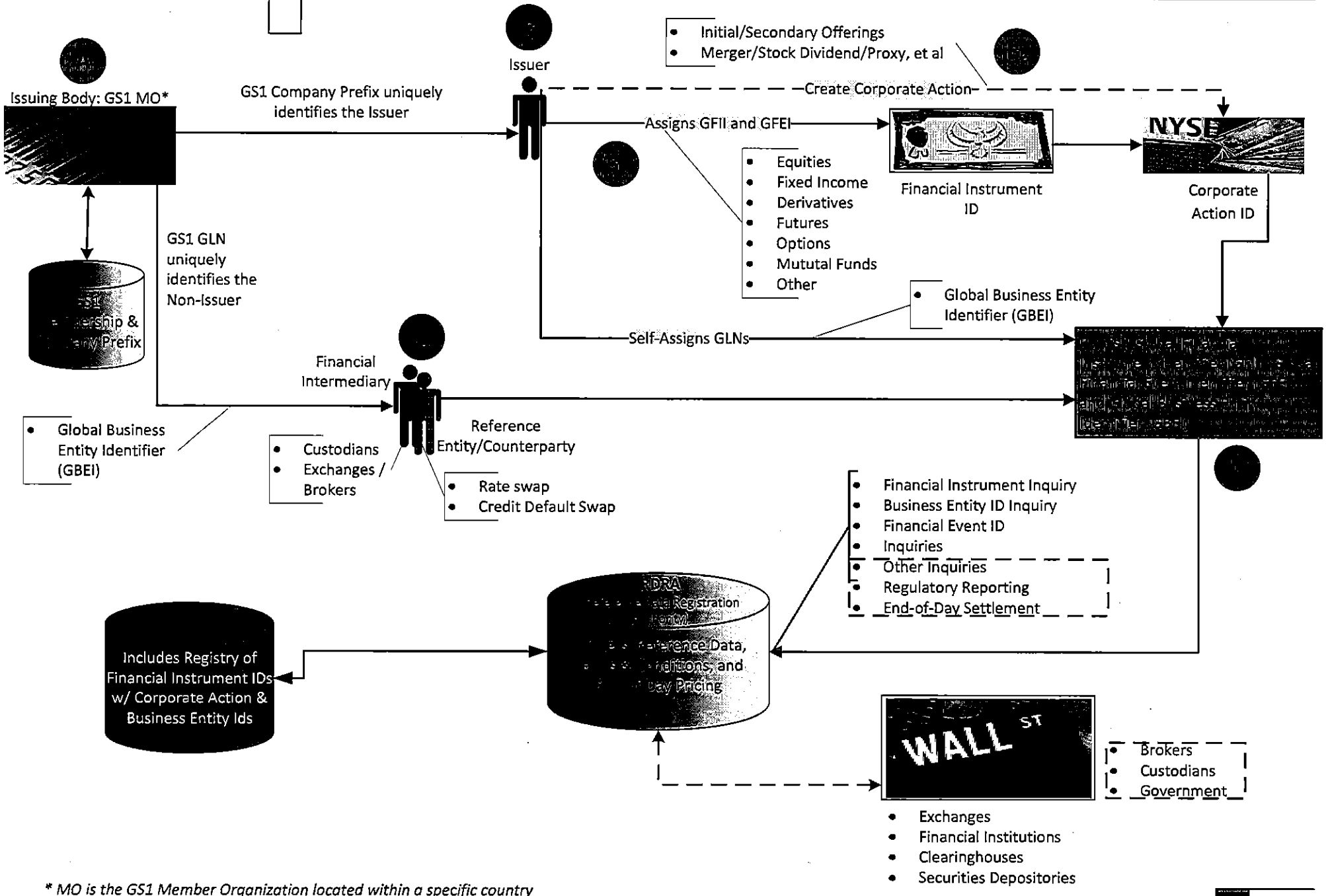
- **Global Location Number (GLN),** used to identify an entity and its locations. Examples of parties that could be assigned a GLN include an underwriter, custodian, and the issuer of a financial instrument or a counterparty. The GLN information would typically include full name and address information. The GS1 Company Prefix forms the base of the number, to which a location reference number and check digit are included, to complete the 13-digit number.

- **Global Document Type Identifier (GDTI),** used to identify a document type, and includes an optional serial number. With the GDTI it is possible to identify the class of document (stock, bond, etc.) as well as an individual occurrence of that document. Examples of document types include a stock, a bond, a mortgage or a prospectus.

To obtain a GS1 Company Prefix, a company need only contact their local GS1 Member Organization office and submit the appropriate documentation.

Should a company already have a GS1 Company Prefix, that GS1 Company Prefix may be used to create the GLN and GDTI identifiers.

Financial Instrument Identification and Business Entity Identification



** MO is the GS1 Member Organization located within a specific country*

GS1 and ISO (International Standards Organisation)

ISO (the International Organization for Standardization) consists of 157 national body members and is a well know and respected developer of international standards. Since its inception in 1947, ISO has developed and published, for a broad array of subjects, more than 16,500 international standards.

We commonly use, as a short cut, the term ISO to include other international standards development organizations such as IEC (the International Electrotechnical Committee founded in 1906) and "JTC 1" (Joint Technical Committee 1 of ISO/IEC). Each of these organizations is an important contributor in the development of global standards supporting the GS1 System.

GS1 is also a well know and respected developer of global application standards (e.g. the GS1 General Specifications). The GS1 application standards reference specific ISO "core" technical standards that are needed to implement the GS1 applications. For example: the ISO/IEC standard for EAN/UPC symbology describes how to construct the EAN/UPC symbol and the GS1 General Specifications specify data content, symbol print quality, conformance requirements and application usage. There is a symbiosis that exists between GS1 and these organizations since both the technical and application standards are necessary for any implementation of the system.

Consensus and Connection

Each of these organizations provides standards that are consensus driven through an international community of members. Sharing similar philosophy, process and procedure offers opportunity to work together on many levels. The most productive outcome of this relationship has been the work accomplished with the ISO/IEC Joint Technical Committee 1 (JTC 1) for Information Technology. In particular, Subcommittee 31 of JTC 1 (Automatic Identification and Data Capture Techniques) has been an enduring and fruitful cooperative relationship. Here's how GS1 has been, and continues to be, involved in the "ISO" process:

GS1 was instrumental in the founding of ISO/IEC JTC 1 SC 31

GS1 US holds the SC 31 Secretariat and has administered the Secretariat since its inception.

Secretariats may only be held by a National Body therefore only a GS1 MO may hold that position.

The United States (ANSI) was chosen to be SC 31 Secretariat by the JTC 1 Community

GS1 US (ANSI accredited member) administers the SC 31 Secretariat

GS1 has a Liaison relationship to JTC 1 SC 31 and its Working Groups

EPCglobal, Inc. is in the process of establishing a separate Liaison relationship with JTC 1 SC 31 and specific RFID related Working Groups.

Many GS1 MO members actively particlpate in the activities of SC 31 as members of their individual National Committee (National Body)

Many GS1 MO members actively participate in SC 31 Working Groups as "Experts" assigned through their National Committee (National Body)

GS1 GO and GS1 MO members serve as SC 31 Working Group Conveners (Chairman) and Secretaries.

The Results

The results of this collaboration have been nothing short of spectacular. The following lists the ISO/IEC JTC1 SC31 Working Groups (WG) and their Subgroups (SG) and the standards published by these groups that are core technical standards for the GS1 System. The standards shown in blue indicate that these standards are exclusive to the GS1 System.

Working Group 1 develops technical standards for optically readable media. The focus of this working group is on one and two dimensional bar code symbologies and optical character recognition (OCR-A and OCR-B).

Working Group 2 develops technical standards for data structures used for automatic identification applications.

Working Group 3 develops technical conformance standards for automatic identification applications of optical and RFID technologies.

Working Group 4 develops technical standards for RFID technology. Multiple frequency bands are addresses by this working group including the UHF band with EPC content fully covered.

Data Carriers (SC 31/WG 1)

ISO/IEC 15420: Information technology -- Automatic identification and data capture techniques -- Bar code symbology specification -- EAN/UPC

ISO/IEC 15417: Information technology -- Automatic identification and data capture techniques -- Bar code symbology specification -- Code 128

ISO/IEC 15438: Information technology -- Automatic identification and data capture techniques -- PDF417 bar code symbology specification

ISO/IEC 15424: Information technology -- Automatic identification and data capture techniques -- Data Carrier Identifiers (including Symbology Identifiers)

ISO/IEC 16022: Information technology -- Automatic identification and data capture techniques -- Data Matrix bar code symbology specification

ISO/IEC 16390: Information technology -- Automatic identification and data capture techniques -- Bar code symbology specifications -- Interleaved 2 of 5

ISO/IEC 24723: Information technology -- Automatic identification and data capture techniques -- EAN.UCC Composite bar code symbology specification (Currently being renamed GS1 Composite bar code symbology specification)

ISO/IEC 24724: Information technology -- Automatic identification and data capture techniques -- Reduced Space Symbology (RSS) bar code symbology specification (Currently being renamed GS1 DataBar bar code symbology specification)

ISO/IEC 24728: Information technology -- Automatic identification and data capture techniques -- MicroPDF417 bar code symbology specification

Data Structure (SC 31/WG 2)

ISO/IEC 15418: Information technology -- Automatic identification and data capture techniques -- GS1 Application Identifiers and ASC MH 10 Data Identifiers and Maintenance

ISO/IEC 15434: Information technology -- Automatic identification and data capture techniques -- Syntax for high capacity ADC media

ISO/IEC 15459: Information technology -- Automatic identification and data capture techniques -- Unique identifiers

Conformance (SC 31/WG 3)

ISO/IEC 15415: Information technology -- Automatic identification and data capture techniques -- Bar code print quality test specification -- Two-dimensional symbols

ISO/IEC 15416: Information technology -- Automatic identification and data capture techniques -- Bar code print quality test specification -- Linear symbols

ISO/IEC 15419: Information technology -- Automatic identification and data capture techniques -- Bar code digital imaging and printing performance testing

ISO/IEC 15421: Information technology -- Automatic identification and data capture techniques -- Bar code master test specifications

ISO/IEC 15423: Information technology -- Automatic identification and data capture techniques -- Bar code scanner and decoder performance testing

ISO/IEC 15426-1: Information technology -- Automatic identification and data capture techniques -- Bar code verifier conformance specification -- Part 1: Linear symbols

ISO/IEC 15426-2: Information technology -- Automatic identification and data capture techniques -- Bar code verifier conformance specification Part 2: Two-dimensional symbols

ISO/IEC 19782: Information technology -- Automatic identification and data capture techniques -- Effects of gloss and low substrate opacity on reading of bar code symbols

ISO/IEC 24720: Information technology -- Automatic identification and data capture techniques -- Guidelines for direct part marking (DPM)

RFID Conformance (SC 31/WG 3/SG 1)

ISO/IEC 18046: Information technology -- Automatic identification and data capture techniques -- Radio frequency identification device performance test methods

ISO/IEC 18047-6: Information technology -- Radio frequency identification device conformance test methods -- Part 6: Test methods for air interface communications at 860 MHz to 960 MHz

RFID for Item Management (SC 31/WG 4/SG 1)

ISO/IEC 15961: Information technology -- Radio frequency identification (RFID) for item management -- Data protocol

ISO/IEC 15962: Information technology -- Radio frequency identification (RFID) for item management -- Data protocol: data encoding rules and logical memory functions

ISO/IEC 2479: Information technology -- Automatic identification and data capture techniques -- Radio frequency identification (RFID) for item management -- Software system infrastructure

RFID for Item Management (SC 31/WG 4/SG 2)

ISO/IEC 15963: Information technology -- Automatic identification and data capture techniques -- Radio frequency identification (RFID) for item management -- Unique identification for RF tag

RFID for Item Management (SC 31/WG 4/SG 3)

ISO/IEC 18001: Information technology -- Radio frequency identification for item management -- Application requirements profiles

ISO/IEC 18000-1: Information technology -- Radio frequency identification for item management -- Part 1: Reference architecture and definition of parameters to be standardized

ISO/IEC 18000-6: Information technology -- Radio frequency identification for item management -- Part 6: Parameters for air interface communications at 860 MHz to 960 MHz

ISO/IEC 24710: Information technology -- Radio frequency identification for item management -- Elementary tag license plate functionality for ISO/IEC 18000 air interface definitions

RFID for Item Management (SC 31/WG 4/SG 5)

ISO/IEC 24729-1: Information technology -- Radio frequency identification for item management -- Implementation guidelines -- Part 1: RFID-enabled labels

ISO/IEC 24729-2: Information technology -- Radio frequency identification (RFID) for item management -- Implementation guidelines -- Part 2: Recycling and RF tags

ISO/IEC 24729-3: Information technology -- Radio frequency identification for item management -- Implementation guidelines -- Part 3: Implementation and operation of UHF RFID Interrogator systems in logistic applications

Vocabulary

ISO/IEC 19762: Information technology -- Automatic identification and data capture techniques -- Harmonized vocabulary -- Abbreviations

ISO/IEC 19762-1: Information technology -- Automatic identification and data capture (AIDC) techniques -- Harmonized vocabulary -- Part 1: General terms relating to AIDC

ISO/IEC 19762-2: Information technology -- Automatic identification and data capture (AIDC) techniques -- Harmonized vocabulary -- Part 2: Optically readable media (ORM)

ISO/IEC 19762-3: Information technology -- Automatic identification and data capture (AIDC) techniques -- Harmonized vocabulary -- Part 3: Radio frequency identification (RFID)

ISO/IEC 19762-4: Information technology -- Automatic identification and data capture (AIDC) techniques -- Harmonized vocabulary – Part 4: Conceptual relationship between terms

GS1 and ISO: Partnering for Standards

GS1 designs and manages a global system of supply chain standards
Some people think that GS1 is a company that sells barcode numbers — but that's simply not an accurate picture. In fact, GS1 is a not-for-profit organisation that for the past 30 years has been dedicated to the design and implementation of global standards for use in the supply chain.

The GS1 System does indeed include data and application standards for bar codes. But it also encompasses electronic business messaging standards, standards for secure and continuous data synchronisation, standards for using the Electronic Product Code with radio frequency identification (RFID) technology, and more.

These GS1 standards provide a framework that allows products, services, and information about them to be exchanged efficiently and securely for the benefit of businesses and the improvement of people's lives, everyday, everywhere.

Originally created by manufacturers and retailers to improve the efficiency of the distribution of food and consumer goods to retail stores, GS1 standards today are used by hundreds of thousands of companies in dozens of sectors including healthcare, transportation and logistics, aerospace, defence, high tech, and still, of course, the retail supply chain.

GS1 provides services and support to users of its standards
Beyond simply designing and maintaining standards, GS1 also provides training, implementation support, and a wide range of community management services. All of our day-to-day efforts are focused on our belief in the importance of robust, international, consensus-based standards.

As GS1 standards penetrate more highly regulated sectors such as healthcare, defense, food safety and chemicals, and are deployed to provide new services such as food traceability or anti-counterfeiting efforts, broader understanding of our collaborative work with ISO, and the associated acceptance of GS1 standards by national regulators, will be even more important.

GS1 and ISO share the same values
GS1 enjoys strong working partnerships and alliances with a variety of trade associations, governmental organisations and standards bodies, including:

- AIM Global: The Association for Automatic Identification and Mobility
- HL7: Health Level 7
- ICCBBA: The International Council for Commonality in Blood Bank Automation
- ISBN: International Standard Book Number
- ISSN: International Standard Serial Number
- ISO: The International Organization for Standardization

- UN/CEFACT: The United Nations Centre for Trade Facilitation and Electronic Business
- WCO: The World Customs Organization
- WHO: The World Health Organization

GS1's working relationship with ISO, the International Organization for Standardization, is a particularly long and active one. ISO is the world's largest developer of standards. Headquartered in Geneva, it represents 158 national standard bodies: one per member country. A number of GS1 staff members participate actively in ISO standard development committees, or even serve as their Chair or secretariat.

GS1 and ISO share the same values and the same beliefs in the vital importance of neutral, global standards. GS1 understands and respects the significant weight the ISO stamp carries, and the reluctance some companies feel to use standards that do not carry it. This is one reason why so many GS1 Standards are ISO-compliant, as well as why GS1 has adopted many ISO standards. This compliancy covers standards for Identification, GS1 Bar Codes, and Electronic Data Interchange, as well as standards for RFID via the significant contributions GS1 EPCglobal makes to ISO.

Appendix V

Extensible Business Reporting Language (XBRL)

XBRL provides a open freely available language that enables standardization of a very broad range of business information (and related concepts) for use both within the enterprise and by external stakeholders. XBRL provides a very comprehensive financial and nonfinancial reporting framework.

As an international platform, XBRL enables standardization of:
a very broad range of financial and nonfinancial business information (context, definitions, currencies, time, etc.);

- presentation rules (how it looks);
- business rules (formulas, models, validation and analytical concepts); and
- relationships (to things that are relevant such as standards, regulations, policies, formulas, knowledge, etc.).

XBRL is very unique in these characteristics, as a result is currently in use by over 220 regulatory and governmental agencies around the world including its current use by many statutory regulators to address the legal entity topic which is part of our discussion on Thursday.

One very unique XBRL feature is the 'formula' standardization attribute that was key in the FFIEC's adoption of XBRL back in 2006. The XBRL formula standard enabled a dramatic improvement in the quality of data received from the banks as outlined in their white paper here: http://www.xbrl.org/Business/Regulators/FFIEC-White-Paper-31Jan06.pdf. This standardized formula concept enables collaboration on formulas across applications and organizations and is also currently in reasonably wide use within the investor analyst community.

XBRL is also relevant to the broadest range of company internal ledgers and subsystems (financial and nonfinancial) via the XBRL Global Ledger Taxonomy. This ledger and subsystem standardization taxonomy is in use across all such systems for a growing number of companies looking to improve their internal enterprise transparency and corporate process agility while lowering their IT costs. A recent article on this topic is outlined here: XBRL for Business Intelligence http://bigfatfinanceblog.com/2011/01/06/xbrl-for-business-intelligence/ Further, the Open Compliance and Ethics Group (OCEG) XBRL working group comprised of 50 large multinationals is using the XBRL Global Ledger Taxonomy as a foundation for building a Governance Risk and Compliance Taxonomy.

In some countries, the government is using XBRL across 'all' or a very broad range of agencies to converge the current agency specific silo based reporting processes into a data centric approach that eliminates the redundant information requests across agencies and streamlines reporting and analysis for both companies and governmental agencies. These so called Standard Business Reporting ("SBR") programs are touted to lower compliance costs by 25%. Dutch and

Australia examples are available here: https://www.sbr.gov.au/content/public and http://www.sbr-nl.nl/.

There are a reasonably wide range of open freely available taxonomies highly relevant to business reporting of financial and non-financial data including the:

- 2009 US GAAP Taxonomy and Mutual Fund Risk and Return Taxonomy currently used by the US Securities and Exchange Commission ("SEC") for all public companies http://www.sec.gov/info/edgar/edgartaxonomies.shtml
- XBRL Global Ledger Taxonomy http://www.xbrl.org/GLTaxonomy/
  International Accounting Standards Board ("IASB") International Financial Reporting Taxonomy http://www.ifrs.org/XBRL/IFRS+Taxonomy/IFRS+Taxonomy.htm
- European Union ("EU") Committee of Executive Banking Supervisors ("CEBS") Common Reporting Framework Taxonomy ("COREP")
  http://www.eurofiling.info/corepTaxonomy/taxonomy.html
- European Union ("EU") Committee of Executive Banking Supervisors ("CEBS") Financial Reporting Framework Taxonomy ("FINREP")
  http://www.eurofiling.info/finrepTaxonomy/taxonomy.html
- FFIEC Call Report Taxonomy
- Global Reporting Initiative G3 Framework Taxonomy
  http://www.globalreporting.org/ReportingFramework/G3Guidelines/XBRL/ provides a broad CSR styled reporting taxonomy
- World Intellectual Capital Initiative Framework Taxonomy http://www.wici-global.com/taxonomies.php This taxonomy framework also includes industry sector KPIs developed by the METI in Japan, the software sector in the US and CSR KPIs by the analyst community in Germany.
- Enhanced Business Reporting Taxonomy Management Discussion and Analysis Taxonomyhttp://www.aicpa.org/INTERESTAREAS/ACCOUNTINGANDAUDITING/RESOURCES/EBR/Pages/EnhancedBusinessReportingConsortium.aspx
- A taxonomy specifically designed for US MD&A disclosures
  US Proxy Reporting Taxonomy https://east-myservice.broadridge.com/XBRL/
- A taxonomy for proxy disclosures including executive compensation
  US Federal Standard Chart of Accounts Reflects the ledger concepts relevant to US Federal Agencies
- XBRL US Mortgaged Backed Securities Taxonomy provides a taxonomy useful to this information aggregation problem so visible in the last few years; white paper "Bringing Transparency to the Mortgage-backed Securities Market"
- Dutch and Australian Standard Business Reporting taxonomies "The Time Is Right for Standard Business Reporting"

Appendix VI

Association of National Numbering Agencies (ANNA)

ANNA

ANNA was formed under Belgian law as a 'scrl' Association in 1992 with 22 National Numbering Agencies as the original founding members. Today, ANNA has 78 National Numbering Agencies with full membership rights (ANNA Numbering Agencies at http://www.anna-web.com/index.php/numbering-agencies) and an additional 27 associate members (ANNA partners at http://www.anna-web.com/index.php/anna-partners) covering 117 countries. As a direct result of the current number of ANNA members; the coverage of ISIN assignment (in accordance with the ISO 6166 standard) is in excess of 200 countries worldwide.

The wide coverage versus the actual number of members is due to establishment of substitute numbering agencies to assist with ensuring wider market adoption and the promotion of the ISO 6166 standard. Substitute agencies have been designated to assign ISIN numbers in jurisdictions where no National Numbering Agency exists in order to achieve global coverage.
ANNA has three main remits from ISO (International Organization for Standardization), to promote, maintain and develop the ISIN and CFI standards and to support the MIC standard
As the Registration Authority for ISO 6166 and ISO 10962, ANNA is empowered by ISO to carry out its duties with respect to the ISIN and CFI Standards. As the organization responsible for the publication of such standards, ISO assumes responsibility for those functions, which are essential for the standard to achieve its purpose in an efficient and practical manner. The international standard ISO 10383 (Market Identifier Code – MIC) specifies a universal method of identifying exchanges, trading platforms and regulated or non-regulated markets as sources of prices and related information in order to facilitate automated processing. ISO have appointed SWIFT as the Registration Authority for ISO 10383.

As each National Numbering Agency is deemed the best placed entity to monitor and track developments in their respective jurisdiction, assistance in the coordination of the current MIC list maintained by SWIFT is deemed an important element of the NNA function in that market. As the importance of using MIC increases with the continuing evolution towards security processing automation, each NNA is requested to proactively monitor developments in their market and if there are changes, either advise SWIFT directly or as has been the practice in the past, inform the ANNA Secretariat of such changes. It is important to identify any changes that have a direct impact on the accuracy of the MIC list SWIFT maintains – such as the addition of new exchanges and/or trading platforms in their market or the closure of such entities.
This therefore illustrates the close working cooperation required both directly and indirectly between ISO as our governing body, the SC4 membership (the responsible ISO sub-committee focused on ISO standards related to financial instruments) and ANNA as the entity responsible for implementation of the standards.
ANNA in collaboration with ISO continually monitors the ISO 6166 and ISO 10962 standards ensuring they meet the needs of the securities industry.All revisions of existing ISO standards,

including that of the ISIN, have to be approved by the voting member countries of ISO, under the umbrella of the ISO TC68/SC4 group. ANNA has participated in every revision of the Standard in the last 18 years. It is important to note for the purpose of understanding the process that ANNA is not allowed to simply amend the standard at their own discretion. Furthermore, any change to an existing standard has to go through a voting process, which can take between 9 months and two years from the time of inception to being adopted as an official international standard.

In the case of securities, other than debt securities, where a NNA recognized by ANNA operates, this organization issues the ISIN for securities whose issuer is registered or domiciled in the country where the NNA operates. For debt securities the NNA who issues the ISIN is either one of the international securities clearing organizations or the responsible NNA in accordance with ISO 6166.

The ANNA Service Bureau ("ASB") (operated with direct oversight by ANNA) has been in production since July 2001. It is up to the efforts and commitment of the ANNA members as a whole, to ensure availability of ISINs and CFIs via the ASB. As of March 1, 2010 ISIN and CFI data collected and distributed by the ASB reached 10.2 million (4 million active) ISIN codes and 7.8 million (3.2 million active) CFI codes from 79 members. The number of ISIN codes is 836.349 for equities and 4.7 million for debt instruments.

The database requires an initial bulk ISIN/CFI master file from the ANNA members which is periodically re-submitted to ensure coverage, availability and accuracy. Where ANNA has not achieved ISIN coverage or where ISO 6166 compliance issues exist with a specific NNA, the ANNA Board of Directors analyses the specific case, determines the appropriate course of action and implements a sequence of preventative measures to rectify the situation.

ANNA Service Bureau

Standard & Poor's and Telekurs developed and manages the ANNA Service Bureau under contract to ANNA. Since 2001 the Service Bureau is tasked with improving upon all aspects of the timely, accurate and standardized identification of financial instruments, as well as the equitable distribution of this information. The Service Bureau operates as a central hub receiving and consolidate ISIN data from the ANNA members and partners, and disseminates this information to the market, delivered via downloadable file transfer protocol (FTP) on a daily or weekly basis as a bulk transmission in a relational database format; and via Web-based query tool that provides access to all ISIN data via personal computer.
The ANNA Service Bureau also offers the International Securities Identification Directory, or "ISIDPlus." ISIDPlus is a cross-referencing database of security identifiers, mapping over 440,000 instruments and 2,000,000 national security identification to the ISIN data base. ISIDPlus data is available in a common-delimited relational database format and accessible via Internet service on a daily or weekly basis.
The national and international numbering systems currently incorporated in ISIDPlus include:

Argentina
Austria

Belgium (SVM)
Brazil
Canada
Clearstream
Denmark
EUROCLEAR
France (SICOVAM)
Germany (WPK)
Great Britain (SEDOL)
Italy
Japan
Luxembourg
Panama
Netherlands
Norway
Peru
Spain
Switzerland (VALOR)
United States (CUSIP/CINS)
Venezuela

ISIN - International Securities Identification Numbering System

The standard provides a uniform structure for a number that uniquely identifies securities. It details organizations, known as National Numbering Agencies (NNA's) that are responsible for issuing the ISIN in each country. In those countries where no NNA is in operation, four NNA's have agreed, on a regional basis, to act as a substitute agency.

ISIN consists of a total of 12 characters as follows:

- The first two characters are taken up by the alpha-2 country code as issued in accordance with the international standard ISO 3166 of the country where the issuer of securities, other than debt securities, is legally registered or in which it has legal domicile. For debt securities, the relevant country is the one of the ISIN - allocating NNA. In the case of depository receipts, such as ADRs, the country code is that of the organization who issued the receipt instead of the one who issued the underlying security. The next nine characters are taken up by the local number of the security concerned. Where the national number consists of fewer than nine characters, zeros are inserted in front of the number so that the full nine spaces are used. The final character is a check digit computed according to the modulus 10 "Double-Add-Double" formula.

Who issues the ISIN

In the case of securities, other than debt securities, where a NNA recognized by ANNA operates, this organization issues the ISIN for securities whose issuer is registered or domiciled in the

country where the NNA operates. For debt securities the NNA who issues the ISIN is either one of the international securities clearing organizations or the responsible NNA in accordance with ISO 6166.

In order to accommodate for the situation where no National Numbering Agency (NNA) exists four numbering agencies (Standard & Poor's - CUSIP Service Bureau in the US, WM Datenservice from Germany, SIX Telekurs Financial from Switzerland and National Depository Center from Russia) have been designated as Substitute Numbering Agencies (SNAs). Areas of responsibility have been divided geographically so that total coverage is achieved. Once a country has appointed a national numbering agency that agency and the substitute agency work closely together in order to ensure a smooth transition of the numbering function.

CFI Guidelines

1. General classification procedure as described in the standard

In principle, the CFI code reflects characteristics that are defined when a financial instrument is issued and that remain unchanged during its entire lifetime. However, a few events that may lead to a new CFI code for the same instrument are anticipated, such as the changing of voting rights or ownership restrictions by a stockholders' meeting. A special section of these guidelines lists such events.

The sequence of categories and groups given in ISO standard 10962 (section 4. Codes and Definitions) supports the classification of ambiguous instruments. A financial instrument, for which the definition of several categories or groups is correct, should be classified under the first possible category or group. (1st = E-Equities, 2nd = D-Debt, 3rd = R-Entitlements, 4th = 0-Options, 5th F-Futures, 6th = M-Others).

2. Common units of limited partnerships

Common units of limited partnerships companies are classified as "Equities", group "Shares".

3. Preferred shares

Convertible preferred shares are classified as "Equities", group "Convertible shares" and not as "Preferred shares".Saving shares and preference shares (similar to preferred shares but junior in claims) have to be classified under the category "Equities" group "Preferred shares".

4. Investment trusts, SICAF, SICAV

Units issued by investment funds that are constituted as companies (e.g. investment trusts, SICAV, SICAF etc.) are classified under category "Equities" (E), group "Units" (U).

Attribute "Closed-end" (3rd digit in Group EU) classify units that are sold on either an organized exchange or in the over-the-counter market and are usually not redeemed.

"Open-end" funds permanently sell new units to the public and redeem outstanding units on demand, resulting in an increase or decrease of outstanding capital.

Units issued by entities named "funds" that in reality were created for financing purposes ("Securitization") and not for collective investment such as Foods communs de créances,

collateralized mortgage obligations, etc. should be classified as "Debt instruments" and not as category "Equities".

5. Other Equities
Shares/units of associations, cooperative societies, mutual benefit associations, participation certificates, dividend-right certificates are classified under the category "Equity", group "Other".

6. Mixed units/combined instruments:
Instruments consisting of

- Share(s) or unit(s) and bond(s) and warrant(s),
- Share(s) or unit(s) and bond(s),
- Share(s) or unit(s) and warrant(s), are classified under the category "Equity", group Other".
- Whereas mixed units consisting of shares and debt instruments are classified under the category "Equities", group "Other" and bonds with warrants attached build their own group within the category "Debt instruments", mixed units consisting of
  - a number of debt instruments and
  - debt instrument(s) and other (e.g. insurance policies)
  are classified under the category "Debt Instruments", group "Other".

7. Bonds with warrants attached/Bonds ex warrants
Bonds that were originally issued as bonds with warrants but that have been separated from the warrants are classified as "Debt instruments", group "Bonds".

8. Convertible bonds with warrants attached/Convertible bonds ex warrants
Convertible bonds that are issued with warrants attached are classified as category "Debt instruments", group "Bonds with warrants". When the warrants are detached, the convertible bonds ex warrants are classified as category "Debt instruments", group Convertible bonds".

9. Hybrid instruments, innovative financial instruments
For GROIs, CLOUs, IGLUs and other innovative instruments, guideline 1 is applicable.

10. Medium Term Notes Programs
All notes (tranches) of a medium term note program, under which individual notes may be issued with a lifetime of one to 30 years, are classified as medium term notes, including the shorter-term notes (one year or less). Medium term notes (MTN's) cum warrant and convertible MTN's should be classified as D=Debt, T=Medium Term Notes. The standard does not provide any special classification in such cases.

11. Money market instruments
Money market instruments are classified strictly according to their duration. Debt instruments with duration of more than 12 months are classified as bonds.

12. ECP-Programs (Euro-Commercial paper programs)
Euro-commercial paper issues are not considered as medium-term notes programs and are strictly classified according to the length of their lifetime.

13. Variable interest
Debt instruments that have a variable interest rate during a certain period and then bear a fixed interest rate until maturity are classified as debt instruments with variable interest (category "Debt instruments", different groups possible). Instruments with a fixed interest rate but variable interest amounts, for example due to indexed nominal (par) value, are classified as category "Debt instruments" with variable interest.

14. Attribute "Redemption/Reimbursement"
A possible premature repayment for tax reasons is not considered a call feature (values C, B, Q). Premature partial repayments provided for an issuance are considered to be amortization plan or amortization plan with call feature (values A or B).

For additional information:

Liaison Report to ISO/TC 68 SC4 Date of Report: August 2009
http://www.annaweb.com/files/SC4_ANNA_report%20_Brussles%202009.pdf

ANNA Annual Report on ANNA Service Bureau
http://www.anna-web.com/files/ASB_Annual_Report_for%202009_V2_070610.pdf

Appendix VII

Reference Databases

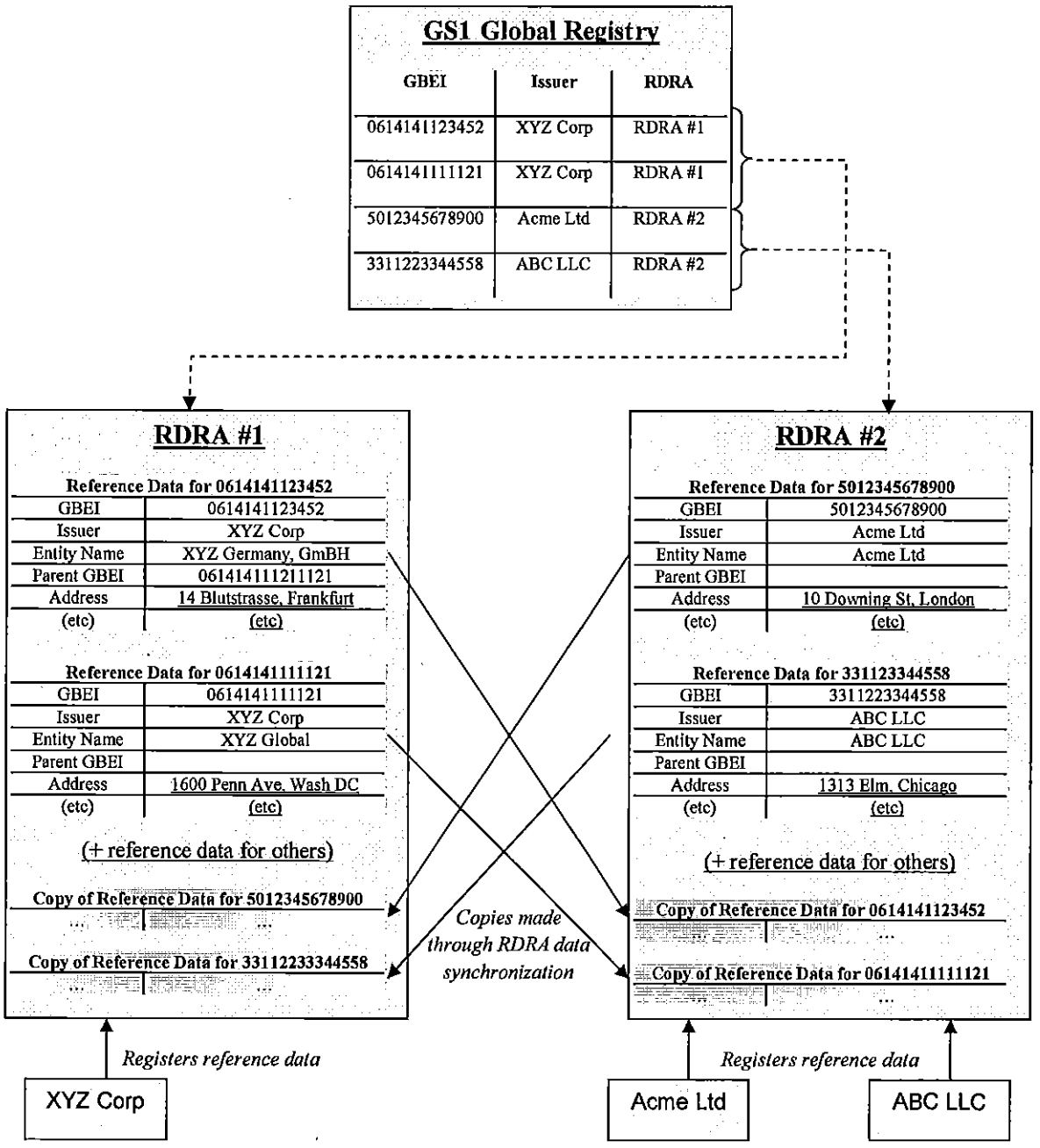
In the proposal, we show a federated system of Reference Data Registration Authorities (RDRAs), with the GS1 Global Registry acting as a centralized directory for identifiers. This results in a very beneficial division of responsibility across the financial supply chain:

- GS1, as an international *neutral* body having no vested interest in any part of the financial supply chain, provides the minimal top-level support required to tie the components of the system together:
    - GS1, through the Global Standards Management Process, facilities the setting of standards for identification and reference data by all stakeholders
    - GS1 issues GS1 Company Prefixes, empowering end user companies to issue their own globally unique identifiers
    - GS1 operates the GS1 Global Registry, which lists each identifier and the thinnest possible additional information, as little as just the name of the issuing company and a pointer to the RDRA chosen by that company to act as master for that identifier's reference data.
    - GS1's governance structure ensures that all stakeholders across the financial industry and across regions are adequately represented in the carrying out of the above functions
- Reference Data Registration Authorities are companies having deep financial expertise, and compete in a marketplace to provide services to financial entities, subject to local regulation:
    - RDRAs hold authoritative reference data for financial identifiers, in compliance with global standards and local regulation
    - RDRAs validate and perform quality assurance on reference data, in compliance with global standards and local regulation
    - RDRAs make reference data available to other parties subject to local regulation regarding disclosure and availability of reference data
    - RDRAs synchronize with each other through the GS1 Registry to provide a single point of access for all reference data regardless of where registered
    - RDRAs may provide value-added services to end users around creation, scrubbing, , querying, analysis and distribution of financial reference data, above and beyond the

minimal requirements implied by global standards and local regulation. RDRAs compete with each other to provide such services.

- Local laws and regulations provide for national concerns to be properly addressed:
  - Local regulation may dictate requirements RDRAs must meet to be allowed to operate within that jurisdiction. Compliance to standards is expected to be such a requirement in all cases, but there may be additional requirements imposed on RDRAs within a given jurisdiction.
  - Local regulation may establish certification and auditing processes with which RDRAs must comply
  - Local regulation may constrain what RDRAs an end user company must use in order to do business within the jurisdiction
  - In some countries, local regulation may stipulate that there is only a single RDRA for that jurisdiction, operated as a department of the government itself
- End users are given maximum freedom to conduct their business with as little friction as possible:
  - End users issue their own identifiers for legal entities, financial instruments, and financial events, using a GS1 Company Prefix previously obtained. No interaction with GS1 is required to create the identifier.
  - End users register their identifiers with the GS1 Global Registry.
  - End users choose an RDRA with which to register their reference data. RDRAs may compete for this business on the basis of fees, value-added services, etc. In some cases, the end users may delegate to the RDRA some of the work of assembling the reference data, subject to approval by the end user.

The following diagram shows the data relationships arising from this model:


GS1 Global Registry
GBEI
Issuer
RDRA
0614141123452
XYZ Corp
RDRA #1
0614141111121
XYZ Corp
RDRA #1
5012345678900
Acme Ltd
RDRA #2
3311223344558
ABC LLC
RDRA #2
RDRA #1
Reference Data for 0614141123452
GBEI 0614141123452
Issuer XYZ Corp
Entity Name XYZ Germany, GmBH
Parent GBEI 061414111211121
Address 14 Blutstrasse, Frankfurt
(etc) (etc)
Reference Data for 0614141111121
GBEI 0614141111121
Issuer XYZ Corp
Entity Name XYZ Global
Parent GBEI
Address 1600 Penn Ave, Wash DC
(etc) (etc)
(+ reference data for others)
Copy of Reference Data for 5012345678900
Copy of Reference Data for 33112233344558
Copies made through RDRA data synchronization
RDRA #2
Reference Data for 5012345678900
GBEI 5012345678900
Issuer Acme Ltd
Entity Name Acme Ltd
Parent GBEI
Address 10 Downing St, London
(etc) (etc)
Reference Data for 331123344558
GBEI 3311223344558
Issuer ABC LLC
Entity Name ABC LLC
Parent GBEI
Address 1313 Elm, Chicago
(etc) (etc)
(+ reference data for others)
Copy of Reference Data for 0614141123452
Copy of Reference Data for 06141411111121
Registers reference data
XYZ Corp
Registers reference data
Acme Ltd
ABC LLC

Appendix VIII

GFII Backward Compatibility

The main body of this proposal describes a *unified* system of identification for financial legal entities, financial instruments, and financial events, all based on a common structure that utilizes the GS1 Company Prefix to decentralize allocation all the way to the individual end user company. We believe this is greatly superior to having separate, siloed identification systems for different purposes. By obtaining a GS1 Company Prefix, an end user company is empowered to create globally unique, unambiguous identification for its legal entities, financial instruments, and financial events – as well as all of the non-financial assets it may need to identify in the other parts of its business, including trade items, logistics units, fixed assets, service relationships, documents, and others.

Any move towards a new system of identification must, however, take account of existing identification systems that are well-established, despite the limitations of these systems that have led to the desire for something new. In the financial setting, the BIC, AVID, CABRE, KINS or DUNS, NFA, or Markit codes are viewed by some as a legal entity identifier or may be extended to become one. More significantly, the ISIN code is a well established identifier for financial instruments, and it federates many regional systems of financial instrument identification such as CUSIP. Furthermore there are many symbol codes used in the contract markets and by extension it appears new symbol code may find their way into newly defined swaps and derivatives infrastructure institutions. It is therefore incumbent upon us to explain how our proposed new system for identification of legal entities and financial instruments can co-exist, at least during a transitional period, with these established systems.

A well-designed strategy for introducing a new identifier must take into account the needs of many stakeholder groups to ensure that all parties have available to them a satisfactory means of transition. Therefore, we believe that the final word on how this transition is to be accomplished cannot be written by us in this proposal, but rather must be worked out carefully with adequate representation from all industry stakeholder groups. Our proposal identifies standards development forums in which such a consensus may be established.

Therefore, our purpose in this appendix is to show several alternative approaches for achieving backward compatibility, rather than making a specific recommendation. We aim to show that transition to a unified system of identifiers based on the GS1 System is not only doable, but that many options exist to allow industry to chart the most effective course based on their input.

In general, there are two approaches by which a new system of identification can co-exist with an older system:

- *Mapping* A mapping lookup system can be established, so that one may look up a new identifier and obtain the corresponding old identifier, and vice versa.

- *Embedding* Old identifiers can be embedded *within* the new identification syntax, so that for every old identifier there is a corresponding new identifier whose value is determined by a fixed transformation (e.g., prefixing the old identifier with a particular prefix established for that purpose). Conversely a new identifier can be parsed to determine whether there is a corresponding old identifier, and, if so, to extract the old identifier.

We illustrate in turn how these approaches may be applied to financial industry identifiers.

Mapping

In the mapping approach, reference data is used to map between new identifiers and old identifiers:

- A reference data system is established for registering reference data associated with a new identifier. The reference data for a new identifier contains a data element that gives the corresponding old identifier (or many such data elements, if there are many old identification systems).

- Likewise, existing reference data systems for old identifiers are enhanced with a new data element that gives the corresponding new identifier.

In our proposal, mapping from our GBEI, GFII, and GFEI identifiers to existing identification such as BIC and ISIN would be done via the reference data registered through the Reference Data Registration Authorities (RDRAs) and the GS1 Global Registry. We also anticipate that existing databases such as those maintained by Bloomberg, Thomson-Reuters, CME, etc, would be enhanced to include new identifiers.

During a transitional period, both the old and new identifiers would be permitted in financial transactions, with information systems using the mappings where translation is necessary.

A "sunset" date would then be established, after which only new identifiers are acceptable for use in financial transactions that are necessary for interoperability and for regulatory reporting, and old identifiers would only appear in historical data.

Embedding

In the embedding approach, an old identifier is embedded in the structure of a new identifier so that systems can convert between the old and new without the need for a mapping table, while newer systems that only process new identifiers are unaware that an old identifier is in use at all.

This approach has been successfully employed by GS1 in the past to integrate older systems of product identification into GS1's Global Trade Item Number (GTIN). An example will help to illustrate the concept.

Consumer products are labeled in most part of the world using a 13-digit code called a GTIN-13. (In North America, there is also a 12-digit GTIN-12, but this is not relevant to the present discussion.) However, the book industry had already established the 10-digit International Standard Book Number (ISBN) at a time when books were rarely sold in the same stores as other consumer products. Eventually, however, it became clear that this was an obstacle to retailing, because point of sale devices need to scan both books having ISBNs and other products having GTINs.

The embedding approach was used to solve this problem. The ISBN was embedded in the GTIN code by reserving all GTINs beginning with the digits "978" for use by the book industry. Each 10-digit ISBN code could then be represented as a GTIN by prefixing it with 978: 978 + ISBN = GTIN. For example, the ISBN 81-7525-766-0 becomes the GTIN 9788175257665. (The last digit in both cases is a check digit calculated from the others, and it changes as part of the embedding process.)

In this way, systems capable of processing GTIN could simply view a book GTIN as any other GTIN, without knowing that there is an embedded ISBN. However, older systems that need to know the ISBN can easily extract it from a GTIN beginning with 978, and likewise if an older system has an ISBN it can communicate with a newer system expecting a GTIN by prefixing the ISBN with 978.

GS1 has used this approach with several other older coding systems, such as the US National Drug Code (embedded in GTIN by prefixing with "03").

In the context of our proposal for the financial services industry, the most significant older identification system we need to address is the ISIN code for identifying financial instruments. Here, the process of embedding an ISIN into the 13-digit GFII structure proposed here is not quite as straightforward, because of the number of characters in an ISIN and the fact that alphabetic characters are allowed (unlike the 13-digit GFII which is all numeric).

One approach would be to create a new GS1 code that is slightly longer than the GDTI upon which our GFII proposal is based, and which permits alphabetic characters, so that we would have a GS1 identifier based the same GS1 Company Prefix as other identifiers, but which is capable of embedding an ISIN or symbol for backward compatibility. While this approach is viable, it loses the benefit of leveraging an existing standard without modification, which we view as critical to rapid implementation.

To live within the constraints of existing GS1 identifiers, we must seek an alternative means of embedding the ISIN. In any proposal, we must show how we identify financial instruments that

have a corresponding ISIN as well as financial instruments that do not (i.e., new financial instruments created after the adoption of GFII, which are only given a new identifier). Also, we need to show how to create GFEI identifiers for financial events, both those that pertain to a specific GFII (with or without a corresponding ISIN) and those that do not. This is a total of five cases to consider.

One possible solution is as follows. We take advantage of the existing GS1 GDTI structure which consists of a 13-digit part (including a Company Prefix, Document Type, and check digit), followed by a variable-length alphanumeric serial number of up to 17 characters. Here is how that structure could be used for each of the five cases enumerated above.

GFII	With a corresponding ISIN	<Company Prefix> <Security> <Check Digit> <ISIN> or <Symbol>	Up to 25 characters
	Without a corresponding ISIN or Symbol	<Company Prefix> <Security> <Check Digit>	13 digits
GFEI	Pertaining to an instrument having a corresponding ISIN	<Company Prefix> <Security> <Check Digit> <ISIN> <Event ID>	Up to 30 characters
	Pertaining to an instrument not having a corresponding ISIN	<Company Prefix> <Security> <Check Digit> <Event ID>	Up to 18 characters
	Not pertaining to a specific instrument	<Company Prefix> <Zeros> <Check Digit> <Event ID>	Up to 18 characters

In the above scheme, the presence or absence of an ISIN or symbol embedded within the identifier can be determined by examining the 14th character: if it is a letter, there is an embedded ISIN or symbol; if it is a digit, there is not.

This is not the only possible embedding scheme, nor even necessarily the best one. For example, by taking advantage of the internal structure of the ISIN or symbol it may be possible to embed it more efficiently recognizing that only a few country codes are in use and that the national part of the ISIN follows more restrictive syntax rules depending on each country. These are the kinds of technical details we would want the industry to work through in the standards process.

Comparison

We believe the mapping approach is the most flexible, because:

- It can be used even if there are multiple "old" systems of identification, even if a single entity is simultaneously identified by several identifiers from different systems.

- It can be used even if the allocation rules for the new identification system are different than in the old system. For example, suppose an older system of identification stipulates that a legal entity must be assigned a new identifier if it is purchased by another entity, but our desired rule for the new system is that its identifier should not change in that circumstance. In the mapping approach, the entity can keep its new identifier, and the mappings updated to reflect the change to the older identifier. In the embedding approach, it would be impossible to satisfy both systems' allocation rules.

- The mapping approach avoids embedding any intelligence into the identifier. The avoidance of intelligence in the identifier is widely understood to be a desirable characteristic.

- It provides for a complete sunset of older systems, whereas the embedding approach tends to perpetuate the older systems if only as an embedded portion within a newer identifier.

In summary, it must be recognized that mapping systems introduce complexity into information systems. We believe that our proposal for distributed maintenance of reference data mitigates this difficulty, because for the first time there will be a reliable means to distribute mapping information. However, the embedding approach is available for consideration, should end users determine that it is overall the most cost-effective and reliable way to achieve their collective goals of a more efficient, less costly and less risky infrastructure systems..

Appendix IX

Reference Data Elements

As stated in the body of this proposal, we believe that a complete definition of the reference data elements needed to address requirements of the financial community, including and especially the understanding of systemic risk, is something that should be worked out through a voluntary global consensus standards process involving stakeholders from all parts of the financial supply chain. Therefore, this proposal does not include a specific definition for reference data elements.

By way of illustration, however, below is a list of meta-data and data elements we think is representative of what an eventual standard ought to include. It is presented here to show in general terms the scope of reference data we believe is needed to address industry needs.

GBEI Related Reference Data (illustrative)

Meta Data

Taxing Jurisdictions	Reporting Jurisdictions	Country/Place of Domicile
Registration Authorities	Legal Addresses	Regulatory Agencies
Economic Categories	Risk Categories	Financial Reporting Agencies
Web addresses	Location Addresses	Financial Market Utility
Trade party	Bankruptcy	Financial Market Participant
Materiality Ontology	Ownership Ontology	Non- Financial Market Participant
Eligible Contract Participant	Financial Instrument/Ownership/Materiality Ontology	

Data Elements

Place of Domicile	Transfer Agent
Broker-Dealer	Proxy agent
Inter-dealer	Custody Agent
Futures Commission Merchant	Floor Agent
Trading Desk	Give-up Agent
Investment Manager	Clearing Agent
Trading Adviser	Settling Agent
Pool Operator	Escrow agent

Fund Operator	Redemption Agent
Prime Broker	Place of Trading
Settlement Account	Counterparty
Collateral Account	Reference Entity
Locations of Settlement	Guarantor
Delivery Location	Affiliate
Standing Settlement Instruction	Subsidiary
Swaps Dealer	Swaps Data Repository
Major Swaps Participant	Counterparty
Reference Entity	Swaps Execution Facility

GFEI and GFII Related Reference Data (illustrative)

Meta Data

Products	De-listing	Expiration
Suspension	Reorganization	Trade Restriction
Quotes	Regulatory Criteria	Proxy
Trades	Index Change	Conversion
Closing Prices	Redemption	Periodic Payment
Credit Ratings	Rights Offering	Risk Change
Collateral	Optionality References	Legging Components
Futures equivalent	Master Agreement	Margin
Notional values		

Data Elements

Product/Security Identifier	Merger
Symbol	Acquisition
Contract	Rights
Series	Warrants

Classification of Financial Instrument	Ex-date
Market	Record Date
"Acting in Capacity" Code	Payable date
Currency code	Capital distribution
Interest Rate	Cash-in-lieu
Pool Factor	Dividend rate
Regulatory Fees	Coupon rate
Tax Rates	Conversion factor
Trade Date-Settlement Date relationship	Sinking Fund dates
Expiry Date	Tender factors
Maturity Date	Redemption dates
Reset Date	Certificate numbers
Prompt Date	Pool factor
Independent amount	No of days in calculation

For the sake of comparison, the table below shows the data elements that GS1US has defined in its GLN Registry for Healthcare. This is a database of reference data for legal entity identifiers used by US Healthcare companies in commercial transactions (manufacturers, distributors, and healthcare providers such as hospitals). Note that the GLN Registry for Healthcare is based on the same GLN identifier that we propose for use as a financial Legal Entity Identifier (what we term a Global Business Entity Identifier or GBEI). The specific data elements, however, are tailored to the needs of the healthcare industry rather than the financial industry. Nevertheless, it shows how a registry for legal entity identifiers based on GS1 standards is working today in practice.

Column	Notes
GLN	Required if Company Owns its own Prefix
	Required if Action equals Update
Action	Required
	Must be equal to "New" or "Update".

Level	A new child location record shall appear in import file beneath its parent. For example, for a Level "3" record, the system will look at the previous records for the last level "2" in the import file to determine the parent location.
Name	Required
Name 2	Optional
NPI	Optional
Address	Required
	USPS address validation is mandatory if Country equals US
	If Action equals Update, value is ignored
Address 2	Optional
	USPS address validation is mandatory if Country equals US
	If Action equal Update, value is ignored
Address 3	Optional
City	Required
	USPS address validation is mandatory if Country equals US
	If Action equal Update, value is ignored
State	Required
	USPS address validation is mandatory if Country equals US
	If Action equal Update, value is ignored
Zip	Required
	USPS address validation is mandatory if Country equals US
Country	Required
	If Action equal Update, value is ignored
Phone	Required
Corporate Relationship	Ignored if Party Role equals Supplier
	Required if Party Role equals Healthcare Provider
	Available values: Owned, Managed, Leased, Affiliated
Location Type	Ignored if Party Role equals Supplier
	Required if Party Role equals Healthcare Provider
	Available valid values: Bill To, Ship To, Deliver To, Paid By, Order By
	Multiple values may be specified and should be separated by a comma and a space (,)
Class Of Trade 1	Ignored if Party Role equals Supplier. Import uses codes, Export sends full descriptions.
	Required if Party Role equals Healthcare Provider
	Available values: See Appendix 4.2.3.
	If Action equals Update, value is ignored

Class Of Trade 2	Ignored if Party Role equals Supplier. Import uses codes, Export sends full descriptions.
	Required if Party Role equals Healthcare Provider
	Available values: See Appendix 4.2.4.
	If Action equals Update, value is ignored
Class Of Trade 3	Ignored if Party Role equals Supplier. Import uses codes, Export sends full descriptions.
	Required if Party Role equals Healthcare Provider
	Available values: See Appendix 4.2.5.
	If Action equals Update, value is ignored
Class Of Trade Comment	Ignored if Party Role equals Supplier
	Optional if Party Role equals Healthcare Provider
Status	Required - Value must be either "Active" or "Inactive".
Business Sector	Ignored if Party Role equals Healthcare Provider. Import uses codes, Export sends full descriptions.
	Available Values: See Appendix 4.2.6
GPO	Required for GPO Approvers but not for Suppliers.
Parent GLN	Required if Party Role equals Supplier. A top-level location will not have a parent location
Role (Exports Only)	Valid values: Healthcare Provider, Supplier
Parent Location Name (Exports Only)	
Date Last Updated (Exports Only)	Format equals YYYY-MM-DD hh:mm:ss.0
Ready Now	format YYYY-MM-DD HH:MM:SS.0 Ignored if Party Role equals Supplier