

ISSA



Operating Committee

Working Group 3: Communication Standards and Reference Data

June 2012

Abstract

This document describes the key initiatives in the area of communication standards and standards surrounding reference data, assesses the current issues, and sets out recommendations for ISSA community members to enable adoption and progressive implementation of standards and to promote best practices.

Addressees of this Document

This paper is addressed to issuers and their agents, market intermediaries such as custodian banks, brokers, asset managers, industry associations/groups, market infrastructures and regulators.

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Disclaimer

Neither ISSA nor the authors of this document warrant the accuracy or completeness of the information or analysis contained herein. Readers are encouraged to develop their own base of information and understanding.

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1. Executive Summary

1.1 The Promise of Standards

Standards have the potential to transform, even create industries. One of the best examples of this is the Internet, which would not be possible without the open standards that support it. In the financial industry, standards play a crucial role in ensuring assets are transferred and ownership rights protected. Standards have transformed some aspects of our business in pre- and post-trade operations, but in this paper we present the case that there is still more to do.

In the aftermath of the last financial crisis, regulators are urgently requesting new global industry solutions with a main focus on effectively managing risk. The use of standards is understood to be a prerequisite to success in that mission. The G20's recommendations, driving the OTC derivatives markets industry towards transaction repositories and the implementation of the global Legal Entity Identifier ("LEI") standard, are good examples.

In the securities industry, standards address two distinct challenges: data and processing. This report describes the ways in which standardization is a very key tool in meeting the challenges the industry faces.

1.2 Historical Perspective

The dominant standards in use have enabled explosive growth in trading volumes worldwide by addressing both data standards and processing standards.

Data standards enable the identification of instruments, the taxonomy of products, the classification of transactions, the identification of involved parties, the coding of addresses, the numbering of accounts and very specific common codes such as for currencies, countries, branches, rates, et cetera, et cetera.

Processing standards provide a framework for financial services and solutions for the execution of business transactions, the management of financial positions and accounts. Most of these standards were created by the financial communities to solve their specific operational problems and many of them evolved over decades.

As a consequence of the global financial crisis of the last few years it is now obvious that systemic risks must be drastically reduced. The industry now faces the challenge to support the urgent regulatory demand for reliable, analytical financial reporting on critical transactions and related exposures of involved parties on a global scale. Such reporting capabilities require a much higher level of data quality and transparency, which can be enabled by improving the information flow from source to consumption across multiple players, infrastructures, standards and formats.

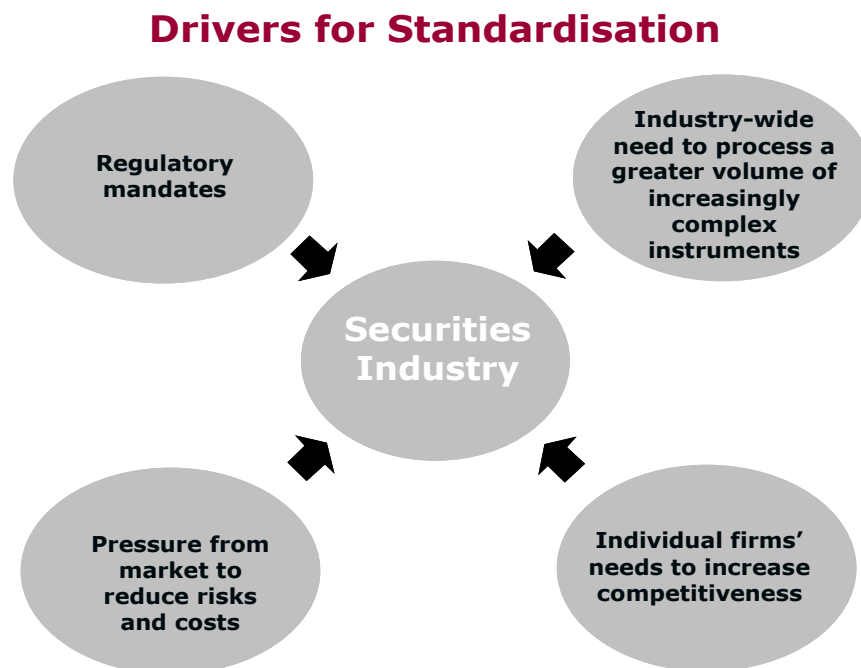
Today's financial standards still tend to emphasize the technical; new standards must focus instead on business purpose. Financial standards must therefore evolve in a coordinated fashion. Thankfully, the technology, tools and governance of standards has pro-

gressed significantly and now provide a supportive platform for evolution that can be, and must be, effective in meeting today's challenges.

1.3 Market Drivers for Standardisation

Standards are essential for electronic communication and information processing in the financial industry. The financial industry has invested several hundreds of billions of dollars in the development of standards and the enhancement of services through the use of these standards. Standardization and interoperability seem likely to be the answer to meeting industry challenges in the following areas:

- improving operational efficiency to reduce risks and technical costs;
- addressing ever-increasing regulatory mandates and the changes that accompany those mandates;
- fostering competition that will provide the industry the ability to process a greater volume of increasingly complex instruments and to continually improve service levels in terms of timeliness, accuracy and completeness; and
- helping individual organizations prioritize spending to address investments in "differentiators" beyond mandatory upgrades to enable them to stay competitive.



1.4 Future Direction – Working Group Recommendations

The industry's immediate challenge is to respond to regulators' demands for globally consistent regulatory reporting, especially as it relates to OTC derivatives. However, we believe the industry should challenge itself to be even more ambitious, driving for standards that reduce costs via the elimination of inefficiencies and improved automation.

Since investment budgets are tight, the focus needs to be on standards that are more easily "implementable".

Regulatory demands and process efficiencies can be achieved by financial intermediaries and Financial Market Infrastructures ("FMIs") focusing on the following targets:

1) Implement Trade Repositories with standard identifiers.

The data requirements of Trade Repositories ("TRs") is set by the regulators but the means and formats for collecting such data can be set by the securities industry itself. We recommend that open message standards be used for key identifiers in TR reporting. We support the development of the Legal Entity Identifies (LEI) and encourage ISDA to identify a way forward on Unique Product Identifiers and Unique Swap Identifiers.

2) Adopt the Legal Entity Identifier (LEI).

Adoption will facilitate regulatory reporting and also will enable firms to realize process efficiencies over time by using this identifier throughout their systems. To expedite adoption of the LEI we recommend that firms map the LEI to existing data bases and over time upgrade their systems so that the LEI is directly embedded.

3) Resolve LEI open issues.

There are many open LEI issues that users need to monitor and react to. A securities industry governance model—the preferred model—would provide a utility responsive to the needs of the market as well as regulators. We note that the FSB and G20 will not announce their position until June 2012.

A challenge to effective adoption of LEI lies in the market's need to move at different speeds across regions. That need creates the risk of potential conflicts and inconsistent implementation of the LEI. The US has a more urgent need for LEI implementation than other regions, and the US Commodity Futures Trading Commission ("CFTC") has announced its plans to adopt a CFTC Interim Counterparty Identifier ("CICI") for OTS rates and CDS repositories as an interim measure.

Users should closely monitor developments, including the nature of the long term LEI funding model that is yet to be agreed. It is also unclear how ANNA's support will coordinate with local market participants.

4) Drive for increased efficiency in trade confirmations and allocations.

To date the emphasis has been in equities but this needs to be expanded to bring straight through processing (“STP”) to fixed income. We recommend that members of this Working Group 3 facilitate the formation of an industry working group, composed fixed income operations specialists from investment banks, brokerage houses and the buy side, agree to survey the issues in this area with the objective of increasing efficiency.

More generally, the industry should further focus on improving the same day affirmation (SDA) rates for trades across all asset classes which varies greatly by geography and counterparty. Absent a regulatory mandate for same day affirmation we recommend that brokers agree to report to a central facility SDA rates for their clients. We would note that the acceleration of the trade settlement cycle in Europe to T+2 should have the beneficial effect of improving SDA rates.

To encourage adoption of best practices, we would recommend to the ISSA Board to encourage that under ISSA auspices with industry participation from SWIFT, OMGEO, ISITC, Xtrakter etc a unified Electronic Trade Comparison/Matching practice guide be produced.

5) Facilitate the coexistence of post trade standards.

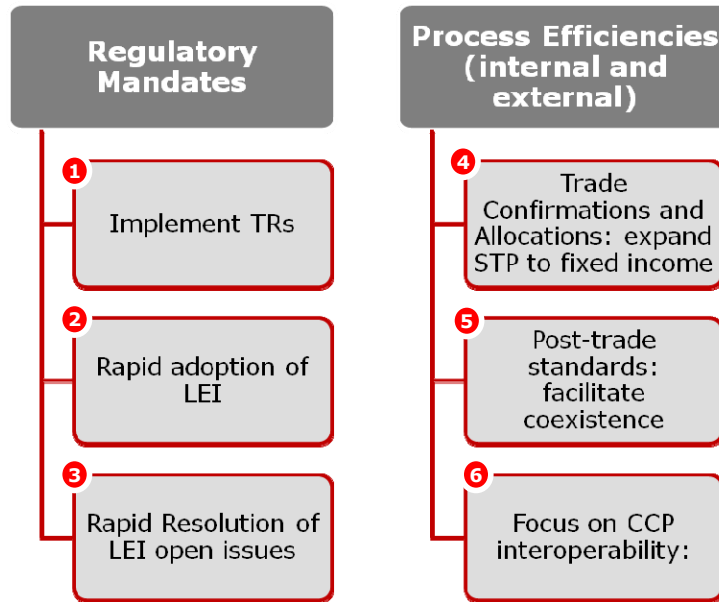
Since the industry has invested in various standards in this space (ISO 20022, ISO 15022) and needs to obtain a return on such investments, we believe the focus must be on the *coexistence* of these standards. To facilitate the coexistence of various standards, the ISO 20022 standards repository contains coexistence rules which define how the earlier ISO 15022 standard fits into the newer ISO 20022 messages and vice versa. These coexistence rules allow firms to operate their systems using just one of these standards and supplementally convert input and output from one standard to the other.

Tools that facilitate adoption of standards and tools that allow interoperability between different standards should continue to be developed and promoted. The tools need to be adapted to the specific needs of each community and its level of IT maturity. At the same time, strong alignment between interoperable standards should continue to ensure smooth evolution of standards.

6) Encourage CCP interoperability to enable firms to concentrate their clearing with one (or two) CCPs to achieve margin and operating efficiencies.

We recommend that CCP interoperability arrangements be clearly defined under contractual agreements and procedures (including emergency procedures). We also recommend that affected regulators ensure adherence to such arrangements.

Working Group 3: Recommended areas of focus



2. Report Scope

2.1 The Contextual Issue

The securities industry is facing many pressures, creating a heightened need to prioritize investment spending.

The global financial crisis has created a breakthrough as the industry now recognizes that we all operate in a single global environment that calls for basic, common global standards. In this framework, the emphasis in the industry in the coming years will continue to be on straight through processing (STP) while industry challenges continue to be present, including the following:

- Pressure to decrease cost in response to economic downturn;
- Unchanging cost drivers; and
- Ever-present operational risk.

Major efforts and investments are continuing to take place in the area of standardization. Standardization of information exchange is necessary from the beginning to the end of the financial transaction chain. This necessity forces *message standardization* as well as *data standardization* to address both time (duration) and coverage (complexity and depth).

Looking to the future, it is clear that regulators will seek to not only provide national oversight but will seek to coordinate their efforts on a global basis, thus increasing the need for globally consistent regulatory reporting. Regulators have recognized the role of standards in making business information accessible, transparent, and comparable, and it is likely that they will seek to enforce use of these standards as a means of improving transparency and easier risk monitoring. The industry should rise to the challenge by considering the regulatory response as an opportunity to implement standards that improve automation, eliminate inefficiencies and reduce costs industry-wide. Moving forward, customer demand and competitive pressures will create a dynamic to fuel additional industry-wide benefits.

However, the financial community has historically been weak in standards implementation. We often seem unable to market the benefits of standards in order to accelerate adoption of usage. To promote and accelerate the adoption of global standards the focus of the financial community should be set on the following two pillars:

Pillar 1 - the operational perspective

Strengthen the compulsory community ap-

The push for standardization and interoperability brings up the prioritization question, i.e. how to define which areas need to be addressed first that will deliver the highest benefits to a market over a defined time period.

proach for the adaptation of standards in a market, for a service community

The answer depends on many factors and should be provided collaboratively for a specific market or a distinct service community.

Where a global standard is to be implemented a coordinated community approach is required to enable an effective adoption of a standard in a market or in a service community. This includes first a driving organization which can be a financial market infrastructure, a group of leading service providers or a well established standards organization.

One of the major collective tasks is to reach a consensus in the market that the standard has to be implemented, followed by an implementation roadmap with all relevant phases, activities, milestones and relevant timelines for the implementation.

The roadmap has to be cooperatively established and confirmed by all major market participants. In a free market environment the commitment of current and expected standard users to implement the standard is crucial to support a bearable distribution of costs for development, implementation and efficient processing of services based on the new standard.

The required time to reach critical mass is relevant when justifying the benefit of an investment into new standards; therefore, a minimal number of market participants or service users must be enlisted to use the standard for a minimum number of business transactions – even at an early stage in the implementation of a new standard.

Pillar 2 – the technical perspective

Shift the focus to how “implementable” a given standard is

What is required from a more technical implementation perspective?

First: The availability of powerful tools (such as SWIFT's "Standards Developer Kit" and "MyStandards") for the development and implementation of global messaging standards. Such tools must be in place to make the definition and adoption of standards smooth. A key requirement is that they support the efficient technical use of a standard in a distinct market and/or for an individual service user group by facilitating the specification and distribution of market and/or service specific

practices and rules.

Second: The use of tools in combination with the availability of more operational and technical expertise for standards adoption facilitates a simpler and more self-evident decision-making process for all involved institutions in a market or in a service community.

Supporting both the operational and the technical pillar in the proposed way means that communities are prepared for a successful standard adoption which best promotes the required business justification/business case for a standard implementation. Both pillars help persuade senior management in markets and service communities on the good reasons for change and deliver the understandably desired value proposition for each involved institution.

2.2 Report Segments and Methodology

In developing this report, the working group looked at end-to-end transaction flows and decided to analyse the standards aspects (data and message standards) across the post-execution value chain. Two initiatives in the area of message standards look closer at the challenges of the middle office and the standards in the back-office and one initiative focuses on data standards with impacts across the value chain.

This report focuses on three challenging areas:

1) Standards in Post-Trade

Typical barriers that hinder a community from investing in new standards are the following:

- (i) a high degree of maturity in current services or a high degree of automation in current business processes such that the adoption of a new standard would cause an insufficient payback on the investment from current services and solutions; and
- (ii) a high degree of integration of the old standard in internal services with change producing a high number of technological impacts on existing infrastructures of the institutions involved.

However, the creation of a standard that is based on the information needs and process flows across the full securities industry expands the mitigation of risks, increases processing efficiency and reduces operational service costs. Standards will enable spectacular progress, building on prior successes, in the securities industry.

2) Changes in the Middle Office

These were analysed under the following work streams:

- (i) Stream 1 - Trade Repositories. The analysis focused on explaining the role of Trade Repositories (“TRs”) and the drivers of regulatory requirements in this area. The data requirements of TRs are set by the regulators but the formats for collecting such data will be set by the TRs themselves in consultation with the industry, and this is where the industry issue around standardization becomes important and relevant. The working group recommends agreeing on open messaging standards for key identifiers to be used in TR reporting, supporting the development of LEI and encouraging the International Swap Dealers Association (“ISDA”) to identify a way forward on Unique Product Identifiers and Unique Swap Identifiers.
- (ii) Stream 2 - Trade Confirmation and Allocation. The analysis focused on the coexistence of the various existing standards and agreement on the best industry model.

The working group reviewed the immediate challenges in the area and proposes three concrete action points for industry players:

- (1) Promote STP for fixed income;
 - (2) Move to industry standardization by adopting a set of minimum STP standards; and
 - (3) Ensure transparency by constituting an industry working group to produce a recommendation, an implementation timeline, and the outline for a new era of operational transparency.
- (iii) Stream 3 - CCP Interoperability. The working group evaluated the current situation by first noting that the cash equity markets have not moved to develop all the benefits that can be achieved by interoperability in the area of clearing. The group recommended that Central Counterparties (“CCPs”) implement the following:
 - (1) Create well defined agreements and procedures for all use cases of clearing, including in respect of fixed income trades;
 - (2) Agree and implement procedures with trading venues that cover full business requirements, including back-up/emergency procedures;
 - (3) Implement an agreed dispute resolution procedure; and
 - (4) Engage with regulators to ensure coordinated regulator agreements and procedures.

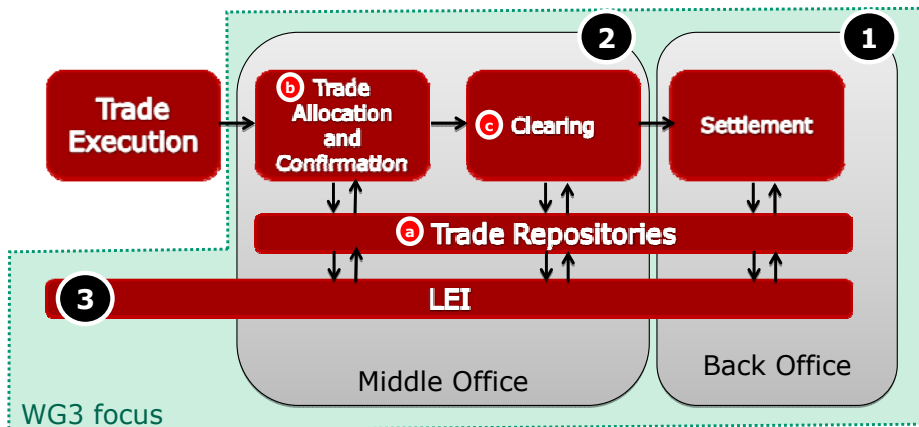
3) Legal Entity Identifier (LEI)

This section of the report focuses on the implications for Custodian/Clearers and ICSDs/CSDs. The first section describes the LEI concept and how the initiative is be-

ing organized and summarizes the project scope and implementation plan. In subsequent sections the report describes the issues for users and sets out implementation suggestions with a list of potential user benefits. The paper concludes by raising four open issues to monitor or consider in coming months: (1) the FSB’s decision on governance, (2) the funding model, (3) the low cost global execution framework, and (3) coordination between the support of ANNA and the efforts of local market participants.

The Summary Diagram below may be helpful as an overview.

Working Group 3: Communication Standards and Reference Data



WG3 analysed all post-trade aspects, in particular:

1. The challenges of the Back Office in relation to standards evolution
2. The challenges of the Middle Office with focus on a) Trade Repositories, b) Trade Allocation and Confirmation and c) CCP interoperability
3. Both the Middle Office and the Back Office are impacted by a key initiative in the area of data standards, the Legal Entity Identifier (LEI).

* * * * *

The above initiatives have been chosen based on the Working Group’s evaluation of priorities and relevance for the ISSA community. In each of these 3 areas the challenges are different. While in the Post-trade area standards – and in particular ISO15022 for Settlement and Reconciliation – have been an enabler for the interoperability approach of various market players, the advent of ISO 20022 has polarized communities on what approach to adopt.

Changes in the Middle Office are mainly driven by Regulatory pressure where the result of the financial crisis is dictating measures to control and eliminate risk. This is true whether measures concern OTC derivatives (TRs), systemic risk, CCP interoperability, or the LEI initiative.

3. Standards in the Post-Trade Area

3.1 Historical Perspective

Introduction

Standards have the potential to transform and even create industries. The story of the Internet, for example, is really a story about the success of the open standards that enable computer systems from different manufacturers to interoperate. The value of Google, Facebook, Amazon, Twitter and the rest could not have been realized without this underpinning.

In the financial industry, standards play a crucial role, ensuring, for example, that even if a payment is routed through several banks in several different countries, the money arrives safely in the account of the creditor. Standardization is fundamentally about finding common solutions to common problems, to the ultimate benefit of all players. Standardization can drive commoditization of some products and services, but by doing so it also creates a platform on which new value can be built.

Is the transformative power of standardization delivering all the benefits to the securities industry that it could? Standards have certainly transformed some aspects of our business in pre- and post-trade, but in this report we describe why there is still more to do. The challenges facing our industry—from regulation, competition and changing customer needs and expectations—mount every day. Standardization is one of the key tools at our disposal to meet these challenges directly and collectively.

The sections that follow, and those included in the noted Annexes, set out the way standards are currently deployed in the post-trade area, and examine some of the issues and challenges that are currently occupying standardisers and standards implementers. But before giving detail, below we share an overview of the current standards landscape and the contingencies that have shaped it.

Of the countless financial industry standards, most are local, evolving according to the needs and technologies of a specific market at a specific time. Others—the minority—were conceived from the outset to be global in scope, suitable for cross-border business. The dominating standards in the securities industry all have in common a principal concern with enabling interoperability between organizations, often at multiple levels, from low level technical requirements (communication protocol, character encoding scheme), through syntax (how the data is arranged and formatted), to semantics (what the data means).

Different generations of standards emphasize different levels; in the 1970s, 80s and early 90s, storage and network bandwidth were expensive, and financial standards concentrated on the technical level, to ensure that messages were efficient to send and store. More recently, network protocols and data formats have themselves been subject to cross-industry standardization, and real-time processing costs have fallen dramatically. Today, financial standards tend to de-emphasize the technical, trusting existing technology to cover

this part of the picture, and focus instead on semantics—the business meaning of the data exchanged.

The Standards Coordination Group Investment Roadmap

The Standards Coordination Group is a collaboration between FIX Protocol Ltd. (“FPL”), Financial Products Markup Language (“FpML”), International Securities Association for Institutional Trade Communication (“ISITC”), Society for Worldwide Interbank Financial Telecommunication (“SWIFT”), Extensible Business Reporting Language (“XBRL US”) and Financial Information Services Division of SIIA (“FISD”).

These standards bodies have come together to create the Investment Roadmap, a document that aims to align the efforts of each standards body in a way that minimizes overlap between standards and maximizes interoperability. You can read more background information on each of the standards in the Investment Roadmap in Annex B.

Current Coverage of Standards Based on the ‘Investment Roadmap’

The Financial Services industry is responsible for raising billions in investor funding value, processing trillions in transaction value and protecting the ownership rights for billions of investors. In order to manage this industry in an orderly, efficient and low risk manner, the industry has developed specialized segments and has adopted standards.

As usual in the evolution of a line of business, firms in different sub-segments have interacted over time with other sub-segments, producing inevitably a patchwork of open and closed proprietary standards. Each standard solves a specific set of information needs, but does not manage or address the industry’s needs as a whole.

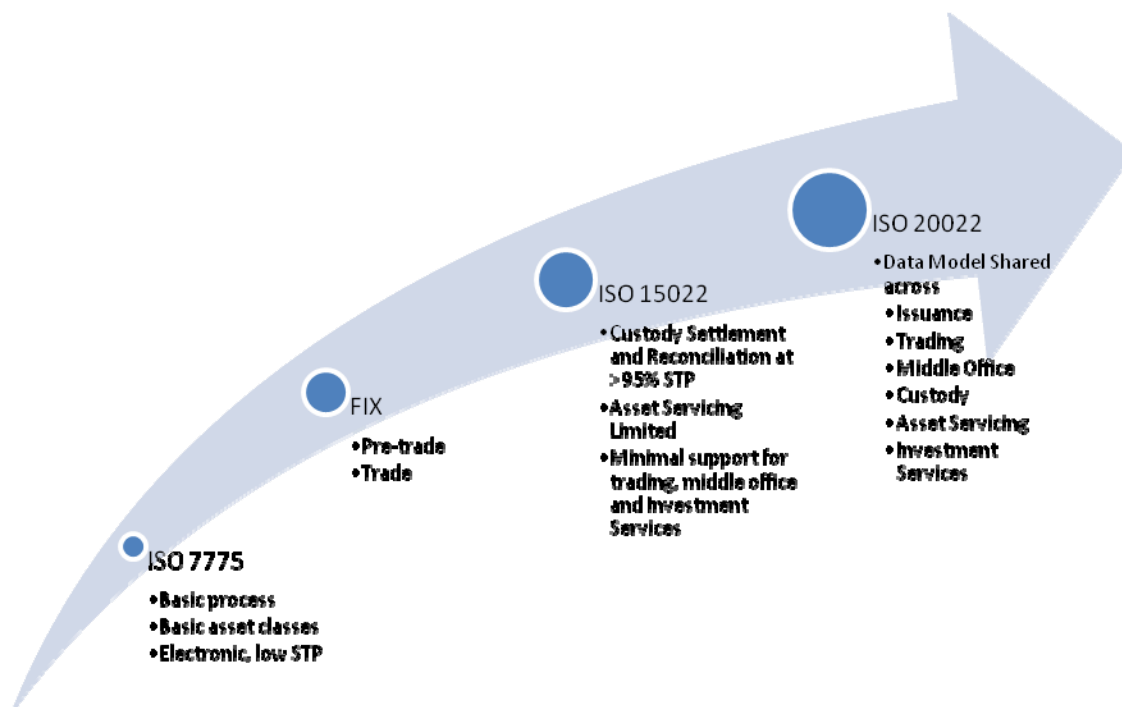
The inevitable results of these beneficial but disparate standards are:

- Multiple technology environments
- Competing standards communities
- Data quality issues
- Increased risk
- Increased manual processing

The following list of standards and the subsequent diagram summarize the evolution of independent financial industry standards, and the pressing challenges of the time that the standards were created to address:

- ISO 7775 – The need to communicate a growing volume of custody information internationally.
- FIX – The need to automate the exploding volumes of trades.

- ISO 15022 - The need to automate to support exploding volumes of custody transactions.
- ISO 20022 – The need to improve data quality across ALL roles in the investment industry.



For obvious cost and risk reasons, the industry is highly unlikely to suddenly discard a working, if less than ideal, set of solutions for a brand new, all encompassing alternative. And changes in standards and technologies rarely create technology solutions that are universal to all sub-segments. Nonetheless, the industry today is faced with the need to improve the information flow from source to consumption across multiple roles, infrastructures, standards and formats, and pressures from regulators to improve transparency also generate increased information needs.

The Investment Roadmap is intended to work toward comprehensive solutions without requiring a radical re-engineering of the whole industry's information management processes. This approach is enabled by the ISO 20022 standards approach, which manages both an information model and a process model.

The approach starts by identifying the information associated with assets, transactions and reports. Each event is defined by a set of related information items that uniquely and fully define the event. Additionally, the data set is managed and modified according to a defined, best practice process, and a secondary step takes the information needs and defines a syntax to package the information acceptable to the role and technical needs of the parties involved.

The separation of information needs from communications needs allows firms to benefit from each new standard internally by reducing infrastructure complexity and helping to improve data quality. The concept that a multitude of syntaxes can co-exist without changing the information content reflects the reality of the industry and provides a foundation capable of supporting a more flexible and robust infrastructure. In turn, that form of infrastructure can meet evolving information needs without resorting to unmanageable practices.

3.2 Issues Relating to Financial Services Infrastructures

Definitions

By Financial Services Infrastructures or FMIs we refer to institutions that facilitate the recording, clearing and settlement of monetary and other financial transactions. According to BIS, the term FMIs refers to Central Securities Depositories, Central Counterparties and Trade Repositories. In this section, we will be focusing on CSDs only. CCPs and TRs are analysed in a later section of the report.

The CSD Ecosystem

CSDs need to communicate with numerous counterparties for many purposes and require secure, electronic communications channels to underpin and streamline all interactions a CSD undertakes. These counterparties include: CSD participants, Transfer Agents and fund distributors, regulators, issuers and information providers, other CSDs, NCBs/T2/CCBs, and clearing houses/CCPs. For greater detail regarding each counterparty and the associated communication streams in the CSD ecosystem see Annex C.

Current Situation - Industry Challenges

The global financial crisis created a breakthrough in the sense that it led to recognition within the financial services industry that we all operate in a single global environment that calls for global basic standards.

The participant communities that CSDs serve want reduced costs, minimal risks and excellent service levels. CSD participants do not want to have to build and maintain multiple connections to different market infrastructures. They want to adhere to global standards, to streamline connectivity, to harmonise their domestic and international activities and to maximise the benefits of their investment in their existing infrastructure.

CSDs are under growing competitive pressure as their core services become increasingly commoditised. In Europe this pressure will intensify as initiatives such as TARGET2 Securities ("T2S") come into play. These pressures are forcing CSDs to climb up the value chain and develop new capabilities in areas such as asset servicing. The same pressures are also forcing CSDs to maximise their own operational efficiency and minimise risk and costs.

The G30 and CPSS-IOSCO have issued recommendations and principles for FMIs in the area of communication standards, as the Giovannini report did previously. The text of the G30 and CPSS-IOSCO recommendations are provided in Annex D.

Proprietary vs. Industry Standards

The suggestion that proprietary standards are diametrically opposed to industry standards is imperfect since a proprietary standard often develops into an industry standard. Local market communities (in all their shapes and sizes) have developed local standards in close cooperation with, and responding to the very diverse needs of, their underlying markets. In that sense, these standards are far better equipped to serve the needs of the market than a top-down ISO-message.

Proprietary standards have been very effective and have therefore proven very resilient, even in the face of strong trends towards harmonization. A good example of this is the NYSE Euronext markets settling at Euroclear. While ISO15022 has been embraced by Belgian and Dutch market players, in France adoption has been rather limited. Some may see in this the reluctance of one market to change while others embrace change; however, the reality is a lot more subtle. In the end each and every community has to weigh the benefits and disadvantages of opting for a broader standard, which inevitably gives the incumbent standard a strong advantage.

In the context of T2S, it will be interesting to see, how markets will deal with the ISO20022 that T2S is adopting. Will local markets adopt the ISO20022 and drop their local standards? And, if they decide to opt for ISO20022, to what extent will they do so?

Reluctance to Adopt Standards

A number of reasons explain reluctance to adopt the “challenger” standard:

- The cost of adaptation for the entities that decide to make the change;
- A limited business case for entities with limited external activity (or external activities that run on different systems);
- Limitations in terms of usability of the external standard for all existing local market standards;
- The degree to which markets are isolated from other markets;
- The cost of maintaining multiple standards (at least for the local market infrastructures) versus the impact of a “big bang” migration of the entire market.

In a nutshell, while harmonization has undoubtedly very important benefits, it does require significant investments that impact those entities (or parts of entities) that benefit the least from the introduction of these standards (as these businesses are already on a local standard).

One trigger that could change this would be a dramatic increase in the internationalization of the markets and an overall increase of cross-border holdings.

In Annex E, we outline a wide variety of factors that affect migration to new technology, including new standards. Notable factors are: (1) different IT maturity, knowledge and in-house expertise at FMIs regarding standards and tools; (2) need to harmonize processes; (3) changing business environment; (4) difficulty and risk of adoption; and (5) differing views regarding the relative benefits of open, global markets.

3.3 Issues Relating to Financial Service Providers

The securities industry may very well need more time to develop and move to ISO 20022 messages. In fact, not that long ago the securities industry invested in migrating from ISO 7775, the very first securities message standard developed by ISO in the '80s, to ISO 15022, which was developed just prior to the advent of the Internet and XML.

ISO 15022 is the precursor of ISO 20022, and the development of ISO 20022 messages does not mean that the equivalent ISO 15022 messages will be automatically obsolete. They will co-exist as long as desired by the user community.¹

To facilitate this co-existence, some new ISO 20022 messages will initially mirror precisely the equivalent ISO 15022 messages to ensure easy translation from one standard to the other.

Interoperability within the financial industry is good, but interoperability with all industry sectors is even better since financial communications include the communication between financial institutions and their clients from other industries.

¹ In fact, ISO 15022, like ISO 20022, uses a central dictionary and catalogue of messages maintained by a RA (Registration Authority) under the supervision of an RMG (Registration Management Group), but there are no SEGs (Standards Evaluation Group) and ISO 15022 does not use a syntax-independent modelling methodology.

In addition the Securities Market Practice Group on a global scale, and many local market practice groups on a national scale, are influencing the use and ongoing maintenance of MT messages based on the ISO 15022 standard.

Furthermore, ISO 15022 uses specific syntax, thereby requiring specific knowledge and programming expertise. Nevertheless the MT syntax of the ISO 15022 standard is one of the widest used in the global financial industry. Most financial communities and institutions cope well with MT and have a lot of knowledge and experience concerning the use of the syntax for internal message processing and MT-enabled communication services (such as SWIFT or other communication service providers as in the Swiss market infrastructure for all market internal message services based on MT).

ISO 20022 can help support interoperability between different message standards, through its business and message modelling approaches. All the ISO 20022 message models share a common understanding and representation of business concept, which helps the business information to flow smoothly from one message to the other along the transaction life cycle, even if the syntax used to identify and format these concepts in the “physical” messages are different.

Adoption vs. Conversion vs. Coexistence: Challenges and Opportunities

The true migration question is whether the industry should pursue the coexistence of multiple standards (e.g. an existing ISO 15022 standard with a new ISO 20022 standard) or migration of a legacy standard (e.g. an ISO 15022 standard) to a new standard (e.g. an ISO 20022 standard)?

The co-existence scenario does not include a replacement strategy for the old standard: both standards will coexist in parallel for a longer time period. This is the expected scenario for most ISO 15022 messages applied today for the automation of securities core processes, which includes the processing of trade orders, settlement, reconciliation and corporate actions

Assuming that the old message format is broadly used in the financial community, new message formats should be reverse-engineered from the old message standards, and the maintenance process should include procedures to enable a controlled co-existence of both standards. Such “transition” rules are relevant in the interoperable environment required for the use of multiple standards along the value chain of a business transaction.

In reality, the financial services industry has always had several standards in place. This can be attributed to the nature of activities in the market place and the different types of clients across the different sectors within this industry. Maintaining multiple standards comes at a higher cost, to which firms are highly sensitive in the current environment. It is very difficult to justify a change in standards even though it may result in a better technical standard unless it is driven by the business value inherent in that change.

In a nutshell, in the longer term all major players in this industry will have to handle both MT and MX, as long as some clients and counterparties are using MX formats and some are using MT formats.

For detailed discussion of standards transition models and methodologies and various transition considerations, see Annexes F and G.

3.4 Benefits for the Industry

Adoption of Standards – How will it evolve?

There are three main drivers for the adoption of standards:

1) Regionally-driven and/or locally-driven industry initiatives

Such industry initiatives target the harmonization of differing practices and processes, the mitigation of risks, the increase of processing efficiency, and the reduction of operational service costs. The use of standards will in fact help in reaching these goals. Examples are the development of T2S in Europe, the implementation of the European corporate action and general meeting standards, and the XBRL initiative in US that electronically connects the issuer and the investor.

2) Financial market infrastructures and custody service providers are replacing legacy communication infrastructures and message standards

Many local market infrastructures and custody service providers are still using legacy communication protocols and proprietary message standards. It is expected that some of these markets and service providers will replace their legacy solutions by implementing globally accepted messaging standards for the communication within their respective service community. Such an implementation normally means a costly change process over several years for a market, which must be justified to a service community by a reasonable economic case with targets such as increasing processing efficiency and competitiveness. Such incremental implementation in use of global standards, based on rationalized efficiencies, can lead to enhanced interoperability of services and more efficient communication with other markets and service communities. A good example of a market infrastructure driving such a change programme is JASDEC, the Japanese securities depository, which has decided to switch from local proprietary standards to ISO 20022 for all securities core processes over the next six years.

3) New industry solutions as a consequence of regulatory mandates

As a result of the last financial crisis, regulators are urgently requesting new global industry solutions mainly focused on effectively managed risks. One major goal is to sustainably manage counterparty exposure in financial transactions, with analytical processes based on more accurate and reliable data and use of standards understood to be a prerequisite. The G20's recommendations which drive the OTC derivatives markets industry towards transaction repositories and the implementation of the global LEI standard are good examples.

Factors Influencing a Successful Adoption of a Standard

1) Incentives to Adopt a New Standard

Influencing Factor	Effect on Standard Adoption
High number of functional gaps in current products and services	The more functional gaps in product and business services can be filled by a new standard, the higher the benefits of refined services will be. Providing such added value is the most important factor influencing successful adoption, especially with regard to the increasingly tight economic conditions in the financial industry.

Reaching a sufficient number of current and expected users in a standard adopting community	In a free market environment the number of current and expected standard users in a market/service community is crucial to support bearable distribution of costs for development, implementation and efficient processing of services based on the new standard.
Short time to reach critical mass	The required time to reach critical mass is relevant when justifying the benefit of an investment into new standards; therefore, a minimal number of market participants or service users must be enlisted to use the standard for a minimum number of business transactions – even at an early stage in the implementation of a new standard.
New business opportunities are created by new technological features	Technological change can accelerate the adoption of a new standard when the added value provided by the new features contributes to efficiency and competitiveness of a market/service community.
Agreement within a market/service community to replace an old standard, forcing members to adopt the standard and change related processes and services	A standards community (such as ISO) or a service community (such as SWIFT) can decide to no longer maintain and support an old standard in order to force the community to migrate to a new standard. This happened for a set of funds messages when the SWIFT community decided to stop the ongoing support of MT fund templates by November 2015. Current users of MT fund templates need to decide whether they want to migrate to the new standard on the SWIFT network. The risk is that markets/service communities will find suitable communication alternatives, e.g. by using the services of another network provider which permits continuing use of the old standard.
Regulatory directives force implementation of a standard and change related processes, services and solutions	This is the most radical way to cause all impacted participants to adopt a message standard independent of the economic consequences of the implementation. Some of the current participants may well drop out of the market because they cannot afford the investment. On the other hand, a regulatory mandate can open new business scenarios where infrastructures and major market participants can help smaller participants comply with mandate directives by providing them the necessary added value services.

2) Barriers to Adopting a New Standard

Influencing Factor	Effect on Standard Adoption
High degree of maturity of current services, e.g. meas-	The more mature a service is, the lower the positive efficiency impact of the new standard will be.

ured by the degree of straight-through processing	This effect can be seen as an important barrier leading often to a low readiness of markets/service communities to invest in new standards.
High degree of automation of current business processes	The higher the degree of automation in the old business processes, the lower the positive effect on efficiency of current processes and services. In markets/service communities with a high degree of process automation this effect often leads to low acceptance of a new standard.
Adoption causes an insufficient life-time of current services and solutions to recoup investment	Having adopted a standard means that a market/service community agreed to invest, implement and maintain solutions based on this standard when providing business services to the respective community. The investment can be considerable depending on the size of the standard and the degree of its integration in market infrastructures, banking solutions and services. Normally investments in industry core services are very high (such as the ISO 15022 for all securities core services ten years ago). Mature and well-established market infrastructure and banking solutions therefore need a minimal life-time of at least 20 to 25 years to justify their cost. This cost is automatically passed on to the underlying industry through use.
High degree of integration of the old standards in internal services, processes and solutions	The more deeply the old standards are integrated into banking solutions, the higher the effort and costs of adopting of a new standard. During the last decade many financial infrastructures and institutions started to integrate standards deeply in their internal solutions and communication interfaces by reusing data definitions of ISO 15022 for transaction data bases and the design of user interfaces. This hinders many markets/service communities in moving to a rapid implementation of ISO 20022 and the related migration of all implemented ISO 15022 standards.
Significant technological impacts on existing infrastructures in involved institutions	The more technological impacts a standard causes on communication and messaging infrastructures, the higher the implementation effort and costs. This effect can be a significant barrier for the readiness to invest in new standards.
Insufficient readiness to invest in an early stage of adoption	A minimum number of major institutions in a market/service community must be committed to adopt the standard in an early stage – this should be considered an economic pre-condition.
High migration effort and costs when switching from the old to	The adoption of a new standard will directly influence the way how services are provided in a market/service

the new service	community. It often causes a change in previous well-established procedures and behaviours of service providers. This change therefore requires therefore a migration phase, often combined with parallel offerings of the new and the old service over a period of time. The institutions involved, service providers and service users, must be able to manage this situation. It requires special expertise, a concrete migration plan and in most cases the availability of supporting tools, on both operational and technical levels.
High dependency on other communities and community members (including possible competitors)	Loss of freedom in a market/service community to decide on the functional scope and the accurate timelines for the implementation and maintenance of services based on community-driven industry standards discourages adoption of new standards.
Lack of incentive to share knowledge at the competitive edge of markets, services and products	In service areas where competition dominates among service providers, the adoption of global standards will only happen in a limited way. The agreement on content of a standard means that a detailed information on rules and practices must be shared, both in the market and with other service communities. It is therefore much more likely that each provider sets its own service rules and guidelines, which can only be accessed in a closed community. This means that such rules and guidelines are not typically mapped in many areas of the financial community with openly accessible standards.

Conclusions

1) No linear evolution expected for standard adoption

As mentioned before, the evolution toward standards adoption depends on many different factors.

During a first phase of the adoption, the standard is normally used by a relatively small group of early adopters. This group includes at least one driving service provider and a number of committed service users. It is important for the success of the standard that the time to reach critical mass is not too long. The ideal case is that critical mass can already be reached by the committed group of early adopters.

During the second phase of adoption, depending on the success of the standard-based new service offerings, the number of users can increase rapidly and volumes can grow tremendously until the majority of the participants have implemented the respective services in a market, in a service community.

In the third phase of adoption, when the user potential in a market/service community is exhausted, it will be very important to convince other markets and service communities to use the standards in order to increase the benefits of the standards.

2) Coexistence is here to stay for a long time

We all live in a world, where diversity is, and will be, a matter of fact. Many roads still lead to Rome!

We have to accept plurality also in standards, methods, practices, processes, services and products, as well as in technical procedures, solutions and message syntaxes. One major reason for this multiplicity is, and will continue to be, that we live in a free and competitive environment where, in most cases, economic reasons will be the most crucial factor influencing a decision to adopt (or not adopt) new standards, methods and syntaxes.

Therefore the main questions are:

- (i) Is the standard convenient enough to be adopted by an institution, a market, or a service community?
- (ii) What benefits can be achieved, related to higher competitiveness, enhanced products and services, improved management of risks, higher operational efficiency, and/or improved technical solutions and infrastructures?
- (iii) How bearable are the costs of change induced by a standard implementation for an institution, a market, or a service community?

The potential impacts caused by a standard's adoption must be addressed when responding to the foregoing questions, including:

- The potential degree of change to products, service offerings and processes and the implementation effort needed to effect such change;
- The potential degree of change to IT solutions and infrastructures and the implementation effort needed to effect such change;
- The potential need for replacement of obsolete IT solutions and infrastructures and the effort needed to effect such replacement;
- The potential need for a migration of obsolete products and business services, including communication services with clients and counterparties; and
- The expected effort involved in ongoing maintenance costs.

Each decision to adopt and invest in a standard depends therefore on very basic conditions:

- The size and economic strength of the institution, market, or service community;

- The maturity and efficiency of infrastructures, solutions, and processes already in use; and
- The expected benefit of the adoption of the new standards, mainly depending on the already achieved quality of products and services.

3) Multiple standards, market practices, communication methods & syntaxes will be used in parallel

Multiple standards will co-exist:

- ISO standards (ISO 15022; ISO 20022) of the financial industry will co-exist with local financial market standards and with standards of other industries.
- Not every service and process of the financial industry is qualified enough to be a reasonable candidate for an ISO standard.

Many distinct market & service practices and rules will direct the use and implementation of standards in different markets and service communities around the globe:

- Relevant market and service communities will continue their distinct practices around how to use a standard in the specific market or in a individual service.
- Many practices related to markets and services will therefore co-exist.

Many complementary and/or competitive communication methods will be used:

- Traditional communication methods with exchange of files and electronic messages over financial networks.
- Other mature communication methods, e.g. use of web portals and applications based on state-of-the-art user interfaces over the Internet and/or appropriate private networks.
- New communication methods, such as the use of electronic templates based on XBRL.

Multiple syntaxes will be in place:

- Many syntaxes will co-exist in parallel (examples are MT, FIX, XML, others) depending on the ongoing willingness of each user community to further implement and maintain messages in a defined syntax for their specific service needs.

A Way Forward: A Coordinated Community Approach

Standards can help institutions achieve a higher level of data maturity by improving data quality. A standard's impact on the maturity of data is closely linked to the ability of an institution to integrate and reuse standard related metadata (as the ISO 20022 standards repository) for its own internal models, data elements, data structures, practices, rules, methods.

A coordinated community approach enables an effective adoption of a standard in a market or in a service community. This includes first a driving organization which can be a financial market infrastructure (for example, a CSD in a market for the implementation of corporate action standards), a group of leading service providers (for example, the top-5 distributors of investment funds) or a well established standards organization (such as the Swiss Commission for Financial Standardization).

One of the major collective tasks is to reach a consensus in the market that the standard has to be implemented, followed by an implementation roadmap with all relevant phases, activities, milestones and relevant timelines for the implementation. The roadmap has to be cooperatively established and confirmed by all major market participants.

An important issue for an efficient standard adoption in a distinct market and/or for an individual service user group is that the specific market and/or service practice must be agreed by addressing all relevant community needs. The resulting practice then defines in detail how the standard will be implemented and used. The goal is that the related community agrees on principles and rules by providing and documenting practices for a market or for a service

It is recommended that this work take place collaboratively so that both major providers and users are directly involved in the process. All participants can benefit from the very specific standards knowledge, which should be imparted by involved standard experts during the market practice definition phase.

This process also requires tools for the use of standards and market practices in internal systems and maintenance processes as well as tools for mapping and translation to support the necessary coexistence of multiple standards.

4. Changes in the Middle Office

In this section, the report analyses the following three key industry areas where standardization activities are currently taking place and where best practices should be encouraged:

- Stream 1: Trade Repositories (TRs)
- Stream 2: Trade Confirmation and Allocation Standards
- Stream 3: CCP Interoperability

4.1 Stream 1: Trade Repositories: Operational Model (Global, Regional); Standards/Processes Required to Support TRs in a Cost-Effective Way

Trade Repositories and Financial Regulation

Trade Repositories are entities that maintain a centralised electronic record or database of OTC derivatives data. Most existing TRs were established in the mid-2000s, but recently the development of TRs for different asset classes has accelerated. This acceleration is a response to the 2009 recommendation of the G20 that OTC derivatives contracts should be reported to TRs, which recommendation was in turn a response to the lack of transparency during the 2008 financial crisis on inter-organisational exposures arising from OTC derivatives trades. The recommendation was intended to ensure the collection, maintenance and reporting of comprehensive data for all OTC derivatives, in order to improve transparency in the derivatives markets, mitigate systemic risk, and protect against market abuse.

Since the G20 agreement, several legislative initiatives designed to provide the legal framework to underpin such reporting to TRs have begun to take shape. In the EU this reporting requirement is part of the European Market Infrastructure Regulation ("EMIR"), which is currently on track to be implemented during 2013. In the US, the reporting requirement is part of Title VII of the Dodd-Frank financial reform legislation, and is currently the subject of final regulatory rule making, with planned implementation during Q3 and Q4 2012 (depending on the underlying asset class).

In parallel with the developing requirement for reporting of transactions to TRs, the industry itself has taken steps to ensure that the recording of OTC derivatives across asset classes can be implemented effectively. The International Swaps and Derivatives Association initiated a process in 2010 to select TR providers for the recording of OTC derivatives at the global level for four major classes of OTC derivatives: interest rate derivatives, equity derivatives, credit derivatives and commodity derivative instruments.

In a separate initiative, the Global Foreign Exchange Division of the Association for Financial Markets in Europe ("AFME"), Securities Industry and Financial Markets Association ("SIFMA") and Asia Securities Industry & Financial Markets Association ("ASIFMA") issued a request for proposal in April 2011 for provision of a foreign exchange TR.

Main Stakeholders

As mentioned above, TRs have existed for a number of years but the regulatory drive post-G20 has given them increased focus and prominence. Current regulation has also created more detailed and more onerous processing requirements on TRs, including in terms of data scope, contents, timeliness etc. The industry processes run by ISDA and AFME to identify TRs for all OTC derivative asset classes, in satisfaction of regulatory requirements, has resulted in the identification of the following providers of TR services:

- DTCC – Trade Information Warehouse – Credit Derivatives
- DTCC – Equity Derivatives Reporting Repository
- DTCC – Global Trade Repository for Interest Rates
- DTCC/SWIFT – Global FX Trade Repository
- DTCC/Efetnet - Commodities Trade Repository

Although the DTCC entities are in process of developing these five repositories as part of a single consistent industry solution, DTCC is not the only provider of such services. Other TRs are either available or under development from providers including:

- Tri-optima – (interest rate TR)
- RegisTR created by the Spanish stock exchange (Bolsas y Mercados Españoles) and Clearstream Banking Luxembourg.
- Trade repositories aligned to CCP solutions
- Hong Kong Monetary Authority
- Cetip, Brazil

Several other G20 countries have launched consultation processes during Q1 2012 regarding implementation of TRs for entities and trades in their jurisdictions. It is not clear yet, however, whether this will lead to development of separate TRs, or whether existing TR providers will reuse or extend their solutions to meet these regulations.

Aside from the potential providers of TR services, the dominant players in the OTC derivatives market itself are the G-14 dealers: Bank of America, Barclays, BNP Paribas, Citigroup, Credit Suisse, Deutsche Bank, Goldman Sachs, HSBC, JPMorgan Chase, Morgan Stanley, Royal Bank of Scotland, Société Générale, UBS, and Wells Fargo.

The leading regulators driving change in this space include: in the US -- CFTC, SEC, and OFR; in the EU -- ESMA, European Commission, FSA, and AMF; and a global focus on TRs is provided by CPSS-IOSCO as part of their market infrastructure recommendations.

Current Situation

While acknowledging that reporting of OTC derivatives transactions to trade repositories is not totally new, it certainly is the case that this activity will now become more widespread and in most of the key markets for derivatives it will be accompanied by regulatory mandate. Institutions which are party to such transactions will be compelled to undertake what for many will be a partly or totally new reporting requirement.

Regulators are drafting rules covering the information that will be required to be reported to them under the new rules, and the rules will also be specific about the data required. The formats which TRs will use to collect information from market players are by and large the responsibility of the TRs themselves to define, and this is where standardisation becomes important and relevant.

The rationale behind the requirement for trade repository reporting is closely linked to the push for safer derivatives markets, and goes together with the parallel push for transparent electronic trading and central clearing of OTC derivatives. Trade repositories will provide the framework to enable regulators to assess developing risks in the markets and to assess the exposure of players in these markets to each other. In the past, e.g. during the failure of Lehman Brothers, the information available to regulators was not seen as adequate and/or accurate for risk assessment purposes.

The detailed rules and regulations giving effect to the regulatory mandates for reporting to TRs are in the process of being developed and finalised over the course of 2012. In the US, the CFTC rules for reporting of swaps to TRs were published in December 2011, while implementation rules for the EU EMIR legislation, including for reporting to TRs, will be developed by ESMA during 2012.

A key challenge for the industry is that there appear to be small, but significant, differences between the various regulations, for example, the terms of data content, timeliness and the need for single or double-sided reporting. These differences increase the pressure for a standard and flexible means for submitting data into TRs.

CPSS-IOSCO will be finalising their recommendations for TRs during 2012 as well.

As the above timelines suggest, the data and format requirements for reporting to regulators will be decided soon, with compliance starting across markets from late 2012 onwards.

Key Issues

A key issue for many industry participants relates to exactly who has an obligation to report which trades under different jurisdictions' rules. This can depend on several factors,

including the physical location of the trader and the underlying asset of the derivative. Another factor relates to the nature of the organisation and its counterparty. Reporting obligations on buy-side end-users of derivatives are not yet always clear, nor are the possible role and/or obligations on service providers such as custodians.

A further complication relates to client confidentiality requirements under some jurisdictions' rules, which can conflict with reporting obligations under other jurisdictions' rules!

As noted above, the industry is starting to see more detail from regulators in terms of their requirements for data. There is, however, still further to go, with greater clarity needed on the standards and formats which will be expected from Trade Repositories for direct reporting to regulators. This is something ESMA has included as part of the general consultation on EMIR, launched in February 2012. This in turn will determine how the industry itself will report to the TRs to ensure compliant reporting. Open standards such as FpML have been developed to specifically address the needs of OTC derivatives and have been put forward as a method of reporting to TRs.

In general, the question of how the data is collected is left fairly open in the regulatory rules so far published. For example the CFTC rules published in December 2011 state the following:

"In reporting swap data to a swap data repository as required by this part, each reporting entity or counterparty shall use the facilities, methods, or data standards provided or required by the swap data repository to which the entity or counterparty reports the data. A swap data repository may permit reporting entities and counterparties to use various facilities, methods, or data standards."

Essentially this means that, provided the TR can supply the information required by the CFTC, there is flexibility as to how the information is actually reported to the TR. This could become a challenge for the industry as too much flexibility across multiple TRs could challenge institutions with multiple reporting obligations across several TRs, all of whom might be using different formats and data collection methodologies.

It is likely, but not guaranteed, that data content for reporting to TRs will be similar (although not identical) across regulators and markets. Similarly, data standards in terms of identifiers for content should be agreed at the global level, though this may not happen. Certainly, irrespective of formats, if the data content and identifiers differ for the same data elements across repositories, such disparities will cause significant operational issues for those who have a reporting obligation or who are discharging such obligations on behalf of others.

As a related note, there is also a potential challenge around untangling who has the obligation to report, with differences in approach on this point existing between Dodd Frank and the EU EMIR legislation (single-sided versus double-sided reporting possibilities).

Working Group Recommendations and Proposed Concrete Next Steps

Clearly standardization is key, and the industry needs to be pro-active in coming up with solutions which can readily be adopted by regulators. Industry solutions that will lead to practical rules for reporting to TRs are the best way to move forward and can be achieved by collaboration.

The first priority is to agree on standards for key identifiers to be used in TR reporting. Here again, the rules published by CFTC in December 2011 provide a useful guide to the key identifiers that regulators will be looking for within reports:

- (i) Unique Swap Identifier ("USI") – a unique, shared, identifier for each trade.
- (ii) Legal Entity Identifier – a unique identifier for each legal entity.
- (iii) Unique Product Identifier ("UPI") – an means of identifying the derivative "type".

The industry should look for pragmatic solutions that build on existing concepts. The USI might present significant implementation challenges, particularly in markets (such as FX) where there is very limited central infrastructure.

Agreeing on, and gaining acceptance from all stakeholders for, the standards for these three identifiers is important, with agreement on LEI being the most crucial. The industry supports the development of LEI as put forward by the industry process in summer 2011 and through which SWIFT/DTCC/ISO were selected to provide a solution. Considerable progress has been made on the LEI, where an industry-led process in summer 2011 produced a recommended solution consisting of a new ISO standard 17442, to be administered and maintained by an industry utility operated by DTCC and SWIFT. The CFTC has already given a US regulatory endorsement to ISO 17442, and an endorsement is also expected at the global level through a process led by the Financial Stability Board.

Working groups under ISDA have been developing proposed standards for the UPI and USI formats. This work should be completed during Q1 2012.

On reporting formats, today's standardized solutions are usually proprietary or, alternatively, based on the FpML open standard. FpML, however, is a very flexible standard and therefore strict usage guidelines are required in order to provide the necessary standardization to enable inter-organisational integration. Following receipt of a clearer understanding from global regulators of the reporting requirements they need, the relevant standards bodies in this space, such as the Standards Coordination Group ("SCG") which includes ISO, FPL, FpML (ISDA) etc. should work with the industry and TRs to identify the needs in terms of open standards development and deployment.

Reporting parties and TRs should set up a working party to agree open messaging standards for the reporting of data to Trade Repositories.

Industry and TRs should continue to engage with regulators on the needs of regulators in terms of data content and formats.

Finally, additional analysis in the light of emerging regulatory requirements needs to be conducted on whether the industry has the optimal choices in this space in respect of open standard formats.

Standardization Benefits for the Industry

Under regulatory mandate, a greater degree of transparency will be required going forward for the OTC derivatives markets. The implementation of requirements is most advanced in the US, but will be followed closely by the EU, other European countries and also by some Asian markets. Market players are therefore faced with reporting across derivative asset classes to an unknown number of repositories. Similarly, regulators trying to build up a global picture of exposures will require data which is capable of easy aggregation. Both of these realities point to the need for standardization in content and format for the data which is to be reported.

Standardization benefits at the regulatory end-point in terms of identifiers have been recognised by the CFTC, as stated in their recent rules that the benefits of a standardised approach to identifiers would lead to:

- “Improved policy analysis by financial regulators employing legal entity reference data as the basic infrastructure for identifying, describing, classifying, labelling, organizing, and using information about trades, counterparties and market instruments
- Improved identification and quantification of existing or altered interconnections between firms
- Improved real time analysis across multiple financial markets to identify systemic risk, market stresses and potential contagion effects across asset classes
- Improved financial transaction processing, internal recordkeeping, compliance, due diligence, and risk management by financial entities.”

For firms undertaking reporting to one or more repositories, standardised identifiers, and the possibility for these to be used within open messaging standards, would lead to operational efficiencies for firms with a reporting obligation or with such an obligation on behalf of others. It is significant that the recent draft CPSS-IOSCO recommendations for financial market infrastructures (which includes TRs) recommend that such institutions should:

“[U]se or accommodate the relevant internationally accepted communication procedures and standards in order to facilitate efficient recording, payment, clearing, and settlement across systems.”

This clearly acknowledges that standardization is beneficial for key processes of financial market infrastructures, including TRs.

4.2 Stream 2: Trade Confirmation, Allocation Standards and Related FIX Evolution; Coexistence of Various Standards and Best Industry Model

Introduction

Straight Through Processing (STP) of cash equity and fixed income transactions has reached high levels of adoption by large firms in most markets, but serious challenges are coming down the pipeline for all securities firms. These challenges need market-wide attention.

Despite 20 years of investment in STP, neither the buy-side nor the sell-side of the market has achieved the levels of operational efficiency they require to be able to confidently say that operational risk is under control. The challenge will increase under a regulator-imposed T+2 settlement regime in European securities. When T+2 is viewed in conjunction with a new, punitive name-and-shame policy targeting those firms who settle trades late, it is clear that STP, especially in the allocation and confirmation stages of the process, needs urgent attention from most, if not all, market participants.

The current state of securities operations in respect of trade notification, allocation, confirmation and affirmation, is clearly a 2 tier market, divided into those who are automated versus those who are not. Firms that have invested in middle and back-office technology routinely achieve very high levels of process efficiency; those who have not present increasing operational risk to themselves and to their brokers. In addition, a noticeable dichotomy also exists between the sell-side and buy-side. Inter-sell-side traffic ("street side") is highly efficient, but a breakdown occurs where the sell-side and buy-side interact.

This report expresses the view that given the intense regulatory pressure under which firms are operating today, coupled with the ongoing imperative to cut costs, the industry needs to take ownership now of the future of post-trade processing, marshalling those tools at the industry's disposal to finally finish the STP rollout job by bringing all professional participants in securities markets up to a minimum standard of effectiveness. Reaching at least that level of effectiveness will reduce a great deal of operational risk management problems, and will prepare the industry for the inevitable demands from world regulators for faster, more reliable and more transparent value transfer.

The Immediate Challenges

Forthcoming regulations in Europe will name, shame and penalise those firms responsible for failed settlement. In particular, EU CSD regulation will impose demanding new settlement discipline, backed by a system of fines for regular failures.

An EU-wide T+2 settlement regime will impose new demands on post-trade processes and also on downstream error-correction, funding and liquidity management processes.

Global demands for increased transparency throughout the process will lead to requirements around instrumentation, performance monitoring and reporting processes.

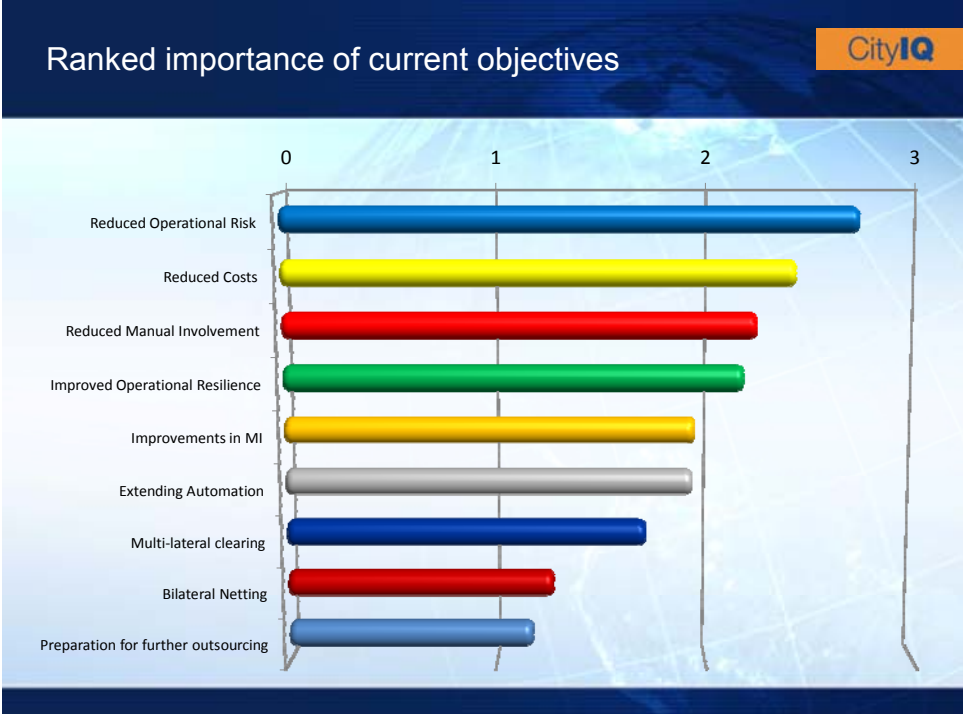
What do these challenges mean, in practical terms – and how do they translate to new requirements for securities operations of various sizes? What local and systemic risks are implied, and how can these be controlled in advance? What changes should be made? Where should the burden of those changes fall? And, what will happen if the right actions are not taken?

The State of Play on the Buy Side

In the most recent survey of buy-side attitude to securities operations, performed in the summer of 2011 by specialist consulting firm CityIQ, more than 100 firms were canvassed. About 40 senior representatives responded with intensity on a number of subjects. In particular, as the chart below shows, reducing operational risk is a high priority for buy-side operations managers. The main concern among buy-side operations managers is the pressing need to improve implementation of standard communications at both broker/dealers and custodians. This is as true for firms who have outsourced parts (or even all) of their back-office operations, as for those firms who keep their operations in-house.

The survey results show clearly that a new incentive is needed to drive new levels of consistency into existing STP communications channels and to extend the reach of those channels to counterparties and settlement agencies that do not yet use them at all. This chart shows how the survey respondents rank their current top-level objectives.²

² The CityIQ methodology rarely yields a score above 2 on this scale; the fact that operational risk and resilience (and the related subjects of costs and manual involvement) are receiving so much focus now are well illustrated in this chart



This conclusion is surprising after so much work has been done on automation worldwide, but it is confirmed by independent analysts (Basis Point Group, Ewing Marion Kauffman Foundation) who have documented high and rising rates of settlement failures in domestic US settlement systems and who suspect the same is true of systems in high-volume European markets. Oxera’s regular reports on settlement charges in the Eurozone for the EU Commission show that while unit settlement fees are indeed on a gradual downward trend -- especially within market infrastructures -- overall industry costs of settlement continue to rise, indicating that settlement participants themselves are unable to deal with current transaction volumes in a cost-efficient manner.

For buy-side firms, these problems are not manifested in cost penalties for plain vanilla cash-equity transactions (thanks to the beneficial impact of contractual settlement with custodians), but for derivatives and other OTC instruments (including some fixed income stocks, exchange-traded funds, OTC hedge instruments, etc) significant financial risks are still inherent in the process.

The industry appears reluctant to improve, and one reason is the lack of clear incentive. While STP investment has a demonstrable ROI for most firms, there is usually higher ROI—or more a compelling case—for investment in the front office. Brokers will reward producers who generate extra business with finer commission tariffs, but those who are good at operations are barely recognized, let alone rewarded.

There is also buy-side concern about business continuity. Clearly, the operational risk of any part of the STP chain failing is significant in cost terms (especially in a highly-automated process such as trade confirmation matching), but the downstream effects on

settlement liquidity management are now even more serious. Equity and debt markets turn over at very high speed, which makes it harder than ever to cause the right stock to be available for delivery at the right time. Moreover, the threat of a wholesale move to T+2 raises the spectre of systemic operational problems not seen in Europe since 1987, nor in the US since 1974.

The State of Play on the Sell Side

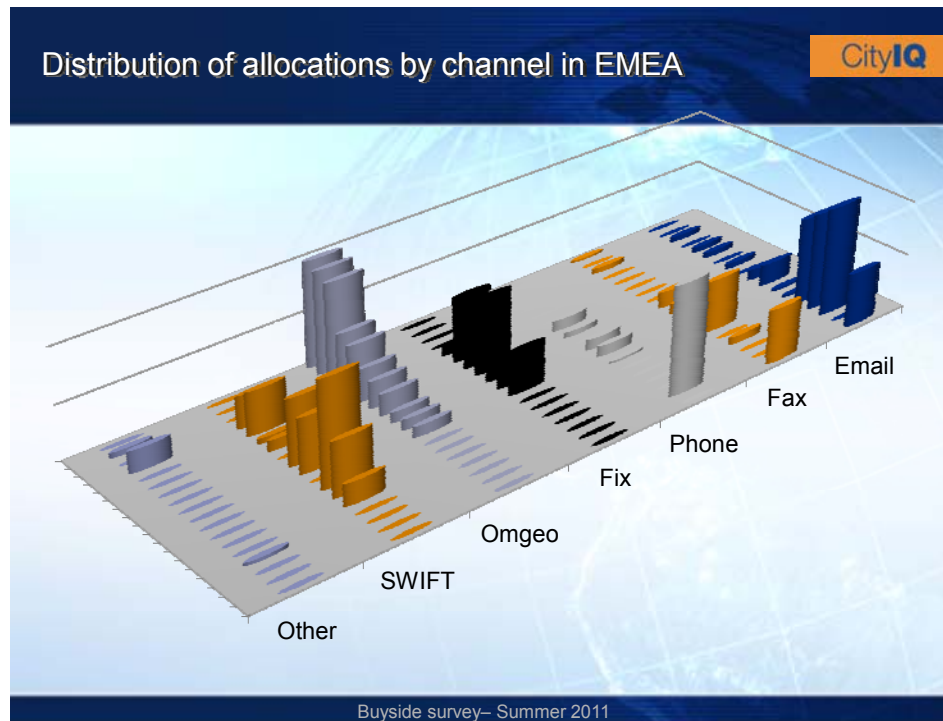
After 20 years of STP evolution in post-trade securities operations, sell-side firms have the same problems as buy-side firms, but on a massively increased scale. Transaction volumes (despite a recent correction) are running at around 25 times the level of business in 1991, and the number of counterparties and clients with and for whom business is done has actually increased, despite constant predictions of widespread consolidation. The average trade size has decreased dramatically, constricting available margin for the broker/dealer. Unlike asset managers, the broker/dealer's business model is very much transaction-based, and the latent inefficiencies in processing trades attack the fundamental profitability of brokers directly. For brokers, a lack of automation inhibits growth, impedes efficient settlement liquidity management, creates extra costs and, crucially, represents unacceptable levels of operational risk. Brokers classify their post-trade challenges, listed below, clearly:

1) Nonautomated Clients and Counterparties

A typical large broker/dealer in Europe has around 1300 clients and counterparties in the region, of which around 300 provide around 80% of business and which are participants in automation channels from trade order through confirmation and settlement processes. The remaining 1000 parties are largely manual: sending orders by phone or spreadsheet, receiving trade notifications by email or verbally, sending allocations by spreadsheet or fax, and so on. In the US, more clients are forced into automation channels by the mandatory confirmation and settlement model, but despite that, there is a high (and growing) incidence of settlement failures, especially in fixed income markets, as evidenced by recent research by the Basis Point Group.

2) Same-day Affirmation ("SDA")

The Omgeo report of September 2010, suggests more than 30% of cash equity and fixed income trades in US markets are affirmed after trade date. The SDA rate for trades matched on the OMGEO CTM system globally is above 90%, but the figure for US domestic trades (not processed on CTM yet) is below 50%. The SDA percentage is higher in continental European markets but still low in comparison to industry expectations and (in many cases) regulatory requirements. According to a recent survey by CityIQ, around half of all allocations are distributed on non-automated channels. See the illustration below:



Manual allocation distribution leads to transcription errors as details are rekeyed. Errors are frequently detected only when the trade is presented for settlement, by which time it is too late to recover without massive incremental cost, effort and risk. In the above chart the x-axis has a set of buy-side firms, who participated to the survey and specified the channels they use to distribute trade allocations to brokers. The survey was conducted on the basis that their input would be anonymous, so no firm names are provided.

An improvement in this critical area of operations, especially among the unautomated participants in the ETC process, is clearly overdue.

Working Group Recommendations to Meet ETC Challenges

It is clear from various recent analyses that we are at the start of a new wave of interest and investment in improving the post-trade securities processing chain, especially in the US and in Europe, and the drive to do this is coming from both the buy and sell sides, notably because of the need to better manage operational risk ahead of T+2 and the more rigorous settlement performance expectations of the CSD regulations in Europe and increasingly in the US.

However, while there is a clear appetite for improvement, securities firms are looking for clarification concerning what should be done, by whom and when in order to address these challenges.

Below we propose a short list of "action points" that could be taken to provide considerable incentive to all firms in the securities industry to prepare well -- not just for regu-

latory compliance, but to achieve a new level of operational efficiency that will be necessary improve operating margins in an increasingly difficult commercial environment.

Action Point 1: Promotion of STP for Fixed Income

Background:

Automation of processing of European fixed income trades is far behind cash equities in even the major houses even though for fixed income trades average transaction values are much higher than for equities, transaction patterns and shapes are much more highly standardized, the number of active trading counterparties is relatively small, the relative homogeneity of instruments is high, and the concentration of settlement liquidity in ICSDs is far higher than is imaginable for equities. Yet the incidence of manual intervention in the fixed income STP chain is much higher than for equities. Why?

It appears that automation of fixed income trades has lagged behind that of equities for two main reasons:

- Transaction volumes have risen much less sharply in recent periods, but priority has been given to equity processing, where STP scalability and exception reduction has been more urgent; and
- Settlement efficiency is high; the concentration of settlement liquidity in national and international CSDs is part of the reason for that, but another part is the dominance of principal (rather than agency) trading in fixed income markets.

As a supplemental note, "fixed-income" covers a wide range of instrument types. For example, OMGEO recognizes some 23 discrete forms of fixed-income issues, and on the sell-side, this has led to enormous platform fragmentation internally. This may well have inhibited STP rollout in fixed income silos.

The pattern is changing, as equity trade volume growth has slowed and as regulatory attention is shifting towards transactions of very high value among systemically significant firms. It is also significant that fixed income stocks are used as instruments of monetary policy, tier-1 capital (which itself is under ever-increasing regulatory scrutiny), prime collateral and also as the fundamental underlying asset in several high-risk, high-visibility, high-topicality derivative instrument constructions, including credit default swaps ("CDSs"), interest rate derivatives ("IRDs"), and as support in securities financing transactions.

All that said, operational risk is much higher for a fixed income trade than for an equity trade. The table below shows the average value of daily failed trades in the US, and how that value compares to the total value of issued securities of each type, as at September 2010:

Asset Type	Average Daily value of failed settlements	Annual Fails as % of issued value
US Treasuries	\$4.1bn	2.5%
US Mortgage-backed	\$114.4bn	46.4%
US Agency	\$4.5bn	3.9%
US Corporate Bonds	\$2.8bn	0.7%
US Equities	\$0.4bn	0.1%
US ETFs	\$1.0bn	3.8%

(source: Basis Point Group, March 2011)

While automated allocation and confirmation matching will not solve all settlement failure problems, it is clear from the analysis in the OMGEO report (as well as from numerous other authoritative analyses) that pre-settlement processes are a contributing factor. Pre-settlement processes for fixed income securities are desperately in need of attention, compared with the relatively efficient picture for equities. As operational risk management becomes a steadily more important part of the operations manager's everyday responsibility, tolerance to STP breakages and manual error declines, and fixed income is clearly becoming a major area of focus.³

There is a clear opportunity in fixed income to increase STP rates dramatically. There is nothing intrinsically difficult about standardizing and automating transaction flow around fixed income. Indeed, the relative simplicity of the fundamental instruments (far less complex "corporate actions", for example) and the concentration of both trading parties and settlement liquidity, will make STP faster and more cost-effective to achieve than was possible for equities. The first step is the establishment of collective will.

Proposal

The first step needs community acknowledgment of the problem and an organized, cross-industry agreement on a set of actions to address it that are free of competitive risk. Both of those actions have been achieved before and can be achieved again, given the right stimulus. That stimulus may already be forming, in

³ Another reason for fixed income and equity processing being treated differently (from the STP perspective) lies in the historic, but still common, divide between their respective operations architectures. Large and small firms have different trading desks, applications, operations departments and risk management systems handling the two different asset classes (and sometimes also further fragmented within fixed-income as well), and in some cases, the twain never meet. In this respect, investment management firms may actually be more integrated than the large investment banks, for whom the two lines of business are often separated geographically as well as culturally and operationally.

the guise of growing regulatory initiatives in the US and in Europe which seek to bring transparency, security and order to all high-risk and high-value transactions.⁴

It is recommended to the ISSA Board that a working group of specialist fixed income operations professionals, drawn from investment banks, brokerage houses and buy side firms and facilitated by representatives from ISSA Working Group 3, construct and agree a survey, the objective of which would be to establish the level of automation and manual intervention across the fixed income community at each stage of the STP process, in order to establish where the industry should focus its attention for improvement.

Action Point 2: Industry Standardization: Minimum Standards of STP

Background

Industry associations including ISSA itself, ISITC, and most notably the independent Securities Market Practice Group ("SMPG") have developed many practical, detailed and authoritative templates of best market practice over the years. These templates define information flows, and in several cases require turnaround or response times to each flow as well as detailed rules for the population of fields within messages. These serve as extremely valuable "functional specifications" of optimal market practice applicable to all key equity and fixed income markets, and many institutions at the top tier of each segment already embed these practices in their daily processing.

Within the strict scope of ETC and matching, SMPG has produced a market practice guide for the ETC process and ISITC has produced a market practice guide covering the matching process. OMGEO participants are believed to have constructed a market practice guide covering required turnaround or response times. A combination of the three foregoing practice guides would serve the market well as a benchmark of good practice, against which all firms could be measured.

However, since the initial wave of interest in buy-side STP in the mid-1990s, brokers have tried various ways to extend the reach of market practice guidance beyond the top 100 investment managers, as yet with qualified success. Those firms that have outsourced their middle-office operations, or their external messaging functions, have typically been converted already into active SWIFT, FIX or Omgeo CTM users by their insourcers, but the vast majority of small to mid-sized investment managers are still operating in-house and manually.

⁴ See Facing the Unknown: Building a Strategy for Regulatory Compliance in and Uncertain World, 15 July 2011, available at www.swift.com.

The smaller firms argue that for them, the fax machine, the email, or the spreadsheet distributed via FTP make sense. If rekeying has to happen at the broker end, and if this takes place out of hours and is a little error-prone, so be it. Any error caused by the broker will be covered by the broker if it goes wrong, so little or no operational risk falls on the investment manager.

Even those firms who have implemented SWIFT and/or OMGEO solutions have not necessarily fine-tuned their STP systems to comply with market practice, thus exposing themselves and their counterparties to operational and settlement risk as missing or unautomatable information causes trades to fall out of the automated process.

Proposal

It is recommended to the ISSA Board that a working group be formed, under the auspices of ISSA and with participation from SWIFT, OMGEO, ISITC and Xtrakter, to produce a unified global ETC/Matching Market Practice guide, supported by all relevant industry groups. The three market practice guides identified above should be the source material and the end product should be submitted to SMPG for adoption, publication and promotion, assisted by the considerable communications firepower of ISSA, SMPG, OMGEO and ISITC, who should distribute it to all brokerage and buy-side firms (targeting small and mid-sized firms in particular) with a cover letter signed by all four industry groups that specifies a required compliance schedule. That cover letter would request a statement of intent to comply with the market practice, with a target compliance implementation date. This statement should be publicized so as to assist clients and counterparties with operational risk assessment.

It is our recommendation that the same publication authority selected to collect and publish details of SDA rates (see below), should also publish the names and implementation dates of all firms in relation to market practice compliance, as gathered from the letters of intent.

Action Point 3: Transparency

It is a long-established mantra of operations managers worldwide, that if you implement and monitor a process, it tends to improve.

Our first recommendation is that securities industry participants should be obliged to publish same-day affirmation rates for each of their clients and counterparties, via a competent authority, for cash equity and fixed income transactions.

Background

The Omgeo report of September 2010, which focused on same-day affirmation rates, confirms that more than 30% of cash equity and fixed income trades in US markets are affirmed after trade date. The figure is actually higher in continental

European markets but still low in comparison to industry expectations and (in many cases) regulatory requirements. Why?

By Omgeo's own analysis, the answer lies in the way in which small to mid-sized investment management institutions operate. The larger firms already boast STP rates in excess of 90% for equities and 70% for fixed income. They typically use more than 25 brokerage firms and more than 10 custodians – which indicates a high STP rate across many bilateral channels, and throughout the post-trade process. Since 80% of transactions are concentrated in just 25% of institutions, this leaves a long tail of small to mid-sized firms who do not use transaction automation at all. This is supported by the recent survey by CityIQ as well as by direct interviews with members of the broker/dealer community. One large investment bank calculated in 2010 that some 78% of manpower costs in its London operations were directly associated with this long tail of non-automated transactions.

The position of the small investment managers is often qualified by a statement such as "Of course, if you can show us a better system, we'll be happy to use it... Provided it takes no time to learn, adds value to us, imposes no costs above those we're paying now and is at least as convenient as our usual channel".

Several large brokerage firms and at least one market infrastructure have tried to address this problem by offering easy-to-use, web-based tools to capture transactions and deliver reports in ways that are both user-intuitive and based on structured data records. So far, these initiatives have failed to bring large numbers of the non-automated counterparties into the STP catchment. The reasons for this failure are usually cited as unwillingness to change, suspicions of attempts to "lock in" expensive provider relationships using technology that is hard to replace, and the potential of having to use different applications with each brokerage firm.

The result is that even after 20 years of investment designed to eliminate the costs, risks and manual effort involved in processing faxes, emails and firm-specific spreadsheets, these are still the channels of choice for nearly 70% of small to mid-sized securities firms worldwide.

Proposal

There are many implementation models which might be appropriate for SDA reporting, and it would be premature for this paper to define one. Rather, we recommend to the ISSA Board that ISSA seek to establish a working collaboration with AFME's post trade working group to define the requirements for SDA reporting and to examine the various different methods, cost-recovery models and vendor solutions available before proposing a solution, possibly via an RFI process.

The AFME post trade working group includes representation from international buy- and sell-side firms, as well as from the standardization and service provider, global custodian and CSD communities. To ensure good collaboration and optimized

sharing of resources between all stakeholders, it is recommended that ISSA approach AFME with a view to establishing such co-operation.

Subject to agreement on this, we estimate that over no more than three months a well-constructed and representative working group should be able to define the core information requirements and construct an RFI. A further three months should be sufficient to harvest and analyse responses, to produce a recommendation and an implementation timeline. By the end of 2012, the outline of a new era of operational transparency should be clear.

4.3 Stream 3: CCP Interoperability -- Why the Cash Equity Markets Must Move Forward

CCP interoperability has long been on the agenda of the European equity markets. Even as the landscape of the securities industry has changed, interoperability has remained at the forefront of many industry debates. Interoperability offers a way to take advantage of volume discounts, which reduce costs, and it gives the flexibility to trade the same instrument anywhere and settle in one place. A multiple Central Counterparty (CCP) user choice model is the safe and simple way to aggregate matched flows of different stock names across venues for immediate single volume discount benefits of reduced transaction and collateral costs.

During the recent capital markets crisis, the interoperating CCPs performed well. While CCP failure is unlikely as a general matter, it is reassuring to know a back-up exists. In the event of CCP outage, members able to elect an interoperable CCP as an alternate can continue trading. On paper this sounds like utopia, but in practice can CCP interoperability work? If yes, what are the benefits for investors, particularly those operating in multiple markets?

Introduction

Following Alberto Giovannini's identification of barriers contributing to frictional costs of cross-border European post-trading, the European Commission brought together a gathering of the relevant thought leaders under the work of the Clearing and Settlement Advisory and Monitoring Experts' Group (CESAME 1+2) to monitor progress required to address these barriers.

Much good CESAME work included two positive outcomes. One was the clear path to address the barriers and progress outlined in the public CESAME Group reports. The other was an exercise by Oxera, the economists commissioned by the Commission, to review the trend of European post-trade fees. The observations of the first were that the private sector had made good progress on issues it could address, while addressing barriers that required involvement of the public sector needed extra time (some are still outstanding). The observation of the initial Oxera tariff report was that fees, expressed as "cost per ticket" seemed to reduce over time.

The insights from those outcomes are more profound. The industry does not have to wait for an “intellectual utopia” of prescriptive legislation to address market structure issues when the industry can behave within the existing regulatory framework, and a post-trade community looking only at “cost-per-ticket” may be focusing on the wrong metric, particularly as the trend of shrinking trade size biases the result. Instead, the better metric is to translate the value of fees as a proportion of value traded to give a more “apples-to-apples” comparison. In Oxera’s study, in the cases of some European markets recording a falling cost per ticket, fees as percentage of value traded actually increased due to the trend of a rising number of trades to process the same order value.

The lesson is if the industry does nothing, it will cost more, year on year, to process the same value of order flow. One solution is for individual firms to consolidate multi-market clearing into the CCP of choice via full interoperability.

The History of Interoperability in European Markets

The European equities clearing landscape is a complex and fragmented marketplace in comparison to other markets such as the US market. The US market supports more than 50 execution venues; however, it has consolidated its market infrastructure to a single CCP and CSD for the entire market space. In Europe, due to the historical evolution of national markets, each individual country’s market was functioning independently from others, leading to each market having its own exchanges and clearing and settlement facilities. With the introduction of MiFID in 2007, competition was introduced at the trading layer, resulting in the advent of Multilateral Trading Facilities (MTFs) (often with independent clearing solutions), as well as some consolidation mainly among primary exchanges. With CCP interoperability choice becomes available at the clearing layer.

An early example of Cash Equities CCP interoperability in the European market place followed the launch of virt-x in London in 2001. In 2003, the virt-x Recognised Investment Exchange platform became the first to offer “choice” of two CCPs for members to clear their trades. Over the last 2 years, the European markets have observed significant movements and successful implementations in the context of CCP Interoperability leading to concept of a “user choice” model.

A CCP “user choice” model enables international users to consolidate clearing across markets with a choice of CCP that has best affinity with a user’s commercial profile without imposing switching costs on those domestic members that wish to remain with the incumbent. The model can deliver a stock tradable on many platforms to its single home CSD. Equities Exchanges first introduced linked CCPs in 2003 in Switzerland, with SIX x-clear and LCH. In 2008, the London Stock Exchange was next with SIX x-clear and LCH.Clearent.

Market participants consider a trading facility attractive if it offers greater efficiencies and lower costs. With the introduction of BATS Chi-X Europe and Turquoise this year, following UBS MTF in 2011 activating full interoperability, Europe has achieved the milestone that half of all EU developed share trading by value now matches on platforms – Exchanges and MTFs- featuring full interoperability. Burgundy and pan European Regulated Market Equiduct have announced 2012 plans to join the interoperating ecosystem. CCP interopera-

bility is thus becoming the rule rather than the exception in Europe, and we encourage those outlying markets feeding only a functional vertical silo to consider a fully interoperable clearing model for enhanced efficiencies and business continuity.

Interoperability... Reaping the Benefits

Looking at markets such as the UK and continental Europe, we believe that the introduction of multiple interoperable CCPs encourages economies of scale, primarily because it reduces both systemic and risk barriers to entry for larger international market participants. Interoperability allows each participant to centralise its business with one single CCP of “choice”, leading to cost reduction and simplified implementation. Functionally, interoperability gives the flexibility to trade the same instrument in multiple markets and settle in one place. This emerging EU landscape, while appearing to fragment as more interoperable CCPs are introduced, in fact allows individual firms to consolidate their respective pan-European market flows to a single CCP of their choice to scale benefits. A firm can benefit from its eligible flow in one step without forcing switching cost on those that wish to stay with the incumbent clearer. Full interoperability also allows total predictability that a matched order will clear through the trader’s CCP of choice.

Interoperability... Enabling Regulatory Compliance

The additional risk associated with interoperability has been mitigated under arrangements put in place by interoperating CCPs in accordance with regulatory conditions.

Collateral margining:

Regulators require that intra-CCP exposure be margined and that the collateral posted by each CCP is in addition to and independent from that which is normally collected from participants. Experience has shown there to be a net margin reduction as an advantage of increased margining offset at a CCP of choice exceeds the extra collateral required to secure inter-CCP exposures. In addition, contributions to fragmented central default funds can be consolidated. As a result, overall CCP exposure, and respective collateral, of market participants is reduced. To this end, margin collected to secure inter-CCP exposures is held under a ring-fenced arrangement at a trusted third party and can only be accessed under prescribed circumstances of default.

Systemic risk:

Interoperability eliminates a single point of failure in clearing for any given trading venue, i.e. trading can continue if a single CCP is unavailable (unless there are very asymmetric market share distributions). Interoperability also provides individual clearing members with backup facilities; clients of an unavailable/defaulting CCP can be switched to an interoperating CCP.⁵

⁵ A “hot standby” solution allowing clearing clients to switch CCPs within 24 hours requires a completed and tested setup at an alternative CCP (accounts, connectivity,

Business continuity arrangements:

Regulators have required extensive BCP arrangements between interoperating CCPs and trading venues.

Transparency:

All interoperability agreements between CCPs are available for review by their participants.

Interoperability... Enabling the Market User

From a market user viewpoint, we see clear commercial and structural benefits from CCP interoperability. These benefits are listed below.

Commercial Benefits to Users

- Trade different instruments in different markets but consolidate at the marginal rate of the CCP of choice.
- Trade the same instruments in different trading venues with single net settlement at CCP of choice rather than settling trades in the same instrument with multiple CCPs.
- Reduce overall margin. The net margin paid to the CCP of choice rather than separately to multiple CCPs provides greater savings than the additional margin posted to CCP of choice to collateralize inter-CCP exposure.
- Lower technology and operating costs by linking to one CCP rather than maintaining multiple links and reconciling to many.
- CCP interoperability enables consolidation of clearing and settlement activity, with the benefit of volume discounts to mitigate the impact of the orderbook trend of shrinking trade size: with no change in tariffs, costs increase as a percentage of value traded. The solution is to introduce "user choice" to allow firms to consolidate clearing multi-market, reduce frictional costs and encourage liquidity.

Structural Benefits to Users

- Trade everywhere and in different time zones with settlement in the home market of the underlying security.

etc). As this comes at an additional cost, only a few large market participants have explored this route so far.

- Users can choose the most robust CCP according to their own safety criteria. This might be a CCP that maintains a single default fund across multiple asset classes or one that clears only one instrument type (e.g. cash equities) and is not exposed to other instrument types (e.g. commodities or derivatives)

Additional elements of risk that might have been introduced as a result of multiple interoperable CCPs have been sufficiently mitigated by market participants working closely with regulators to agree on suitable procedures. Earlier in 2011, Dutch, Swiss and UK regulators reviewed interoperability again and compiled a set of guidelines to harmonize the procedures and the margin requirements that would be needed between interlinked CCPs. Regulators joined with four CCPs to focus on certain business aspects and finalise outstanding items. Some of the items identified were timeline for payment of inter-CCP margin liabilities, Business Continuity Planning ("BCP"), stress testing, liquidity, finality, transparency, reporting and scalability.

Based on experience in European cash equities markets, we believe there are a number of best practices that should be applied in other markets when introducing an additional CCP. For example, four interoperable CCPs have gained sufficient experience with implementing interoperability that the introduction of CCP choice for new trading venues (Exchanges or "MTFs") can be done in a short time frame. The interoperability framework put in place with regulators is considered crucial in this regard, as it allows the addition of trading venues with minimal legal effort and no or limited regulatory dependency.

Implementation of CCP interoperability has been relatively straight forward in newer markets (e.g. MTFs), specifically those that were introduced post-MiFID. These markets have also reaped the benefits of similar/standardised interfaces, operational procedures and settlement solutions.

Naturally, complexities have arisen in the more mature markets that have highly developed Trading / Clearing / CCP models tailored specifically to their existing needs and requirements. Other potential obstacles include local tax regimes and proprietary interfaces. But to date, these complexities have not prevented interoperability in these markets even though they have required extra consideration ahead of implementation.

Working Group Recommendations: How CCPs can Implement Interoperability in 4 Simple Steps

- (i) Create well defined agreements and procedures. These must include not only the day-to-day operating procedures; they must also cover such processes as handling technical defaults (where a CCP is solvent but cannot fulfil its obligations for defined reasons, e.g. a technology outage) and genuine default situations.
- (ii) Make arrangements with trading venues that cover both day-to-day operations and disruptive events, such as the suspension of trading by a CCP due to the operational difficulties of another.
- (iii) Implement an agreed dispute resolution procedure.

- (iv) Engage with regulators. Where multiple jurisdictions are involved, early involvement of relevant regulators helps ensure that all arrangements are satisfactory and consistent with regulator co-ordination agreements and procedures.

CCP interoperability will also benefit from message standards harmonisation. This harmonisation will enable CCPs and their members to standardize communication on processes managed differently by the CCPs today. Indeed, various standards are available for CCPs to communicate with their members: FIX, ISO20022 and proprietary messages.⁶

Interoperability...The Only Way Forward

In 2012, Europe achieved a milestone --half of developed European value traded is now matched on platforms – Exchanges and MTFs - offering full interoperability. Full interoperability is thus becoming the rule rather than the exception in Europe, and we encourage outlying markets feeding only a functional vertical silo to consider a fully interoperable clearing model for enhanced efficiencies. Interoperability will make Europe a simpler, cheaper and more efficient place to do business and will align it more closely to the regulatory vision of a single market. If the industry does nothing, it will cost more, year after year, to process the same value of order flow.

European National exchanges are strongly encouraged to open up to Interoperability sooner rather than later for cash equities. Exchanges world-wide are upgrading. Adding the choice of interoperable CCPs can speed the onboarding of international members and their scalable flow. As institutional investors and automated trading firms increasingly seek to enter new regions, it makes sense for Asian, Latin American, and emerging markets to explore the adoption of interoperability to enhance prospects for growth.

CCP interoperability has been successfully implemented in a number of European cash equities markets. However, it would be premature to say whether this could be easily introduced to the derivatives markets, as these products have unique characteristics and risk profile. For example, the settlement cycle in the cash equities markets is typically T+2 or T+3, whereas derivatives have a much longer settlement period, and it is quite common for positions to be closed prior to maturity. There is also limited fungibility in the derivatives markets, as recognised by EMIR, which also presents potential obstacles. As a consequence of the above, the role and the added value of interoperable CCPs is different in different markets.

⁶ Chapter 3 of this report addresses “Standards Evolution in Post Trade”. This sub-section therefore does not go into detail on this important element of CCP interoperability.

5. Legal Entity Identifier (LEI) Implications for Custodians/Clearers and ICSDs/CSDs

Part 1 of this Chapter describes the LEI concept and summarizes how the initiative is being organized. It also describes the project scope and the implementation plan. This part is drawn without alteration from the first eleven pages LEI Project Scope and Preliminary Implementation Plan of January 31st 2012 issued by DTCC, SWIFT, ISO and ANNA (Association of National Number Agencies). The remainder of the LEI Project Scope and Preliminary Implementation Plan is included in Annex H.

Part 2 of this Chapter provides ISSA's commentary on outstanding issues and suggestions for users regarding the implementation of the LEI.

5.1 Legal Entity Identifier Description

Introduction

The lack of an international standard identification system for financial counterparties makes it difficult for financial firms to develop a consistent and integrated view of their exposures, such as in the case of default of a counterparty. This is a challenge not only for firms, but also creates an obstacle for regulators to aggregate and share information effectively across borders.

Although no common entity ID convention exists in the market today, a range of regulatory initiatives is driving the creation of a universal Legal Entity Identifier standard for financial markets.

An LEI is a unique ID associated with a single legal entity. At its core, the LEI is simply a reference data tool to standardize how a counterparty is identified on financial transactions. Its goal is to help improve the measuring and monitoring of systemic risk, and support more cost-effective compliance with regulatory reporting requirements.

For regulators, a standard identifier will allow them to conduct more accurate analysis of global, systemically important financial institutions (or other firms with regulatory reporting obligations) and their transactions with all counterparties across markets, products and regions, providing them with a new tool for better identifying concentrations and emerging risks. For risk managers in all financial institutions, the LEI will similarly increase the effectiveness of tools aggregating their exposures to counterparties across the globe.

This document is intended to provide a summary overview of the global coordination underway to develop a global LEI standard and implement an LEI Utility infrastructure.

A Global Drive to Adopt a Universal Standard

The LEI project is a global effort involving countries and counterparties around the world.

Regulators and financial firms globally have been exploring ways to overcome the current fragmented system and create a common identifier. The importance of creating a global system of identifiers has been recognized by the Group of Twenty (G-20) Leaders, Finance Ministers and Central Bank Governors⁷, and the Committee on Payment and Settlement Systems and the Technical Committee of the International Organization of Securities Commissions (“CPSS-IOSCO”)⁸.

In the United States, the Dodd-Frank Act created the Financial Stability Oversight Council (“FSOC”) and its data and research arm, the Office of Financial Research (“OFR”). Almost immediately, the OFR recognized that adopting a global standard LEI was an essential tool that the OFR would need to aggregate information from all reporting firms regarding activity with their common counterparties. As a result, the OFR issued a Policy Directive in November 2010 citing the criticality of the global LEI and stating its preference to adopt, through rulemaking, a universal standard for identifying parties to financial contracts. According to the OFR, the standard should be established and implemented by private industry and other relevant stakeholders through a consensus process.

The global financial industry has been actively working together to identify, propose, and gain broad consensus towards a global LEI solution. In May 2011, a coalition of international financial industry associations and their member organizations released “Requirements for a Global Legal Entity Identifier (LEI) Solution,”⁹ which outlined the industry’s views of the requirements for the LEI system. They launched a Solicitation of Interest (“SOI”) process to identify and evaluate potential solution providers for the LEI infrastructure.

After extensive dialogue and due diligence, the coalition of trade associations finalized its recommendations¹⁰ to the global regulatory community in July 2011 as follows:

1) Standards Body:

The International Organization for Standardization – that is ISO’s proposed standard, ISO 17442 – is recommended as the new, authoritative legal entity identification standard. Created through the robust ISO process, this standard meets the characteristics set forth by the Trade Associations; specifically, that the identifier be persis-

⁷ G20 Cannes Summit Final Declaration, November 4, 2011: <http://www.g20.utoronto.ca/2011/2011-cannes-declaration-111104-en.html>

⁸ CPSS-IOSCO Final Report on Requirements for OTC Derivatives Data Reporting and Aggregation: <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD366.pdf>

⁹ The Trade Associations Global LEI Proposal: www.sifma.org/lei-industry-requirements/

¹⁰ The Global Legal Entity Identifier Industry’s Process & Recommendations: www.sifma.org/lei-recommendation-process/

tent, neutral, singular, unique, extensible, structurally fixed, reliable, and interoperable.

2) Solution Providers:

The Depository Trust & Clearing Corporation (“DTCC”) and SWIFT, along with DTCC’s wholly-owned subsidiary Avox Limited, are recommended as key partners to operate the core LEI utility as the central point for data collection, data maintenance, LEI assignment, and quality assurance. DTCC and SWIFT are member/user-owned industry cooperatives whose missions include reducing risks and costs for the financial services industry. The firms are user-governed and have non-profit or cost-recovery business models.

- (i) SWIFT is recommended to register and assist entities with self-registration.
- (ii) DTCC is recommended to, working through a new LEI Utility, collect requests for new LEIs to be created, validate the information provided by leveraging Avox’s capabilities, maintain and store the reference data associated with each LEI, and maintain the public distribution of the LEI database.

3) Federated Registration:

The Association of National Numbering Agencies (“ANNA”), through its network of 82 National Numbering Agencies (“NNAs”), is recommended as a key partner in the solution for registering, validating and maintaining LEIs for issuers, obligors, and other relevant parties in the 118 home markets they serve. The NNAs are envisioned as the “face” of the LEI Utility to those markets, while leveraging the functionality of the centralized LEI Utility for the assignment, further validation and global distribution of LEIs.

Global Coordination Effort

Momentum is building for the development of an LEI standard, and implementation of a global LEI system. The effort is being pushed forward on a number of parallel fronts involving solution providers, regulators, and market participants, as follows:

DTCC and SWIFT have been working closely with market participants around the world to better understand the specific requirements of the LEI Utility. To foster this idea exchange, four industry-led working groups made up of more than 40 global financial institutions have been meeting since the third quarter 2011 to focus on four areas of the requirements:

- Business model
- Data quality
- Technical requirements
- Unique identification issues related to various types of investment funds

The working groups were instrumental in defining a phased implementation plan, and in particular, determining the functions which are planned for the initial phase to meet reporting requirements for OTC derivatives regulatory reporting. In all phases, the solution providers will rely on the global ISO 17442 LEI standard, which is in the process of being finalized.

The initial phase relies on the code structure and data record for the proposed ISO standard for LEI (see "LEI Phase 1 Components" section later in this document), as well as enhancements to the existing infrastructure. Future phases will require a new "utility strength" global infrastructure, which will have similar robustness, reliability, and business continuity capabilities as other financial market infrastructures, such as securities settlement systems and trade repositories.

The recommended solution providers have begun to define how the LEI Utility should be initially delivered. The specific actions taken include:

- The drafting of the business requirements for the initial phase, including self and third-party registration, validation against publicly available information, record states providing full transparency as to the sources and timeliness of the information, distribution of the database and customer support, some of which is summarized in this document.
- The process to include local jurisdictional input and support from NNAs participants to provide the most accurate information on entities

Regulators and the FSB Process

The global regulatory community continues to focus on achieving consensus around LEI, especially about how the LEI Utility should be governed. In the summer of 2011, the FSB launched its process for gaining consensus around LEI, and held a workshop in September 2011 of more than 50 private sector experts and 60 representatives from the international financial regulatory community. The result of the workshop was the preparation of a roadmap that will lead to recommendations regarding the implementation of a global LEI system.

At the G-20's November 2011 summit in Cannes, the G20 declared support for the LEI:

"We support the creation of a global legal entity identifier (LEI) which uniquely identifies parties to financial transactions. We call on the FSB to take the lead in helping coordinate work among the regulatory community to prepare recommendations for the appropriate governance framework, representing the public interest, for such a global LEI by our next Summit."

As a result of the G-20 mandate, the FSB is overseeing this consensus-building around key topics, including implementation and phasing:

- The governance and oversight model for the Global LEI representing the needs of regulators, firms and the public interest.
- The confidentiality/privacy and access issues relating to publishing data about legal entities across borders, especially relating to data regarding ownership, particularly each entity's immediate and ultimate parent. This latter data is critical to achieve a long-term objective of the LEI initiative: to allow regulators and financial services firms to construct accurate ownership/affiliation hierarchies among firms they are counterparties with in order to more accurately depict the totality of their counterparty risk.
- The operational and funding models for the Global LEI system and Utility.
- The implementation phasing of the LEI initiative among countries, regions, asset classes and expansion of the scope of reference data beyond the basic descriptive data.

The industry and recommended solution providers are participating in this process. They have made proposals for consideration concerning global governance and oversight, a funding model and revenue model for self-registration and self-validation and the corporate and legal structure of the LEI Utility itself. This work is preliminary and designed to provide input to the industry and global regulatory community.

The FSB has formed an FSB LEI Expert Group of key stakeholders from the global regulatory community to take forward this work on the LEI.¹¹ The FSB expects to deliver recommendations for these issues to the FSB Plenary in April 2012 and then, in turn, to the G-20 prior to its next Summit in June 2012.

Importantly, regulators in many jurisdictions including Hong Kong, Canada, Australia, as well as IOSCO, have all recognized the importance of developing a unique, international LEI.

ISO Process

ISO has developed a standard that meets the requirements for a global LEI standard, ISO 17442. At the conclusion of the latest stage in international consensus building on December 14, 2011, ISO reported that that the draft standard received unanimous support from the ISO Member Bodies. This now places ISO in a very strong position to be able to proceed towards final publication of the ISO LEI standard in 2012.

¹¹ FSB Call for members of the FSB Legal Entity Identifier (LEI) Initiative Industry Advisory Panel: http://www.financialstabilityboard.org/meetings/cfm_120112.pdf

Federated Registration – Role of NNAs

The NNAs are envisioned as the “face” of the LEI Utility for validating and maintaining LEIs for issuers, obligors, and other relevant parties in the 118 home markets they serve. This includes providing on-the-ground support for entities seeking LEIs.

The various NNAs may play one of the following four roles, working with the central LEI Utility that will be responsible for publishing the LEI record in the LEI database:

- **Web-link:** The NNA provides a link on its website to the LEI Utility where registration and validation is accomplished.
- **Data collection:** The NNA collects the core data elements required and passes these to the LEI Utility for validation.
- **Data and document collection:** The NNA collects the core data elements required plus any publicly-available supporting documentation and passes these to the LEI Utility for final validation.
- **Data, document, and payment collection:** The NNA collects the core data elements, relevant documentation, and implements a payment process to collect the self-registration fee and passes all of this information to the LEI Utility for final validation.

Scope of Coverage

What entities will be eligible for an LEI?

Any legal entity that enters into a financial transaction will be eligible for an LEI. For example:

- Transacting entities
- Issuing entities
- Reference entities
- Reporting entities
- Ultimate parent entities

Other participants in financial transactions (including exchanges, utilities, registrars, regulators, and industry organizations) will obtain LEIs as deemed necessary in the future. Individuals (i.e., natural persons) are excluded from LEI’s scope.

No threshold of any type will apply to the issuance of LEIs (e.g., capitalization of legal entity, notional size of transaction).

What will the LEI look like?

The LEI is a unique 20-character alphanumeric code that would be assigned to all entities that are counterparties to financial transactions through the newly developed ISO standard, namely ISO 17442. The LEI itself will be neutral, with no embedded intelligence or country codes, which would create unnecessary complexity for users.

What core principles will guide the LEI infrastructure?

- LEI data is freely available, easy to access, without restrictions on redistribution or licensing.
- All LEI data accepted through the web portal and file upload will be published. The LEI Utility will make all of its LEI reference data available in the public domain.
- Global coordination between regulators so that all endorse the same LEI standard for regulatory reporting.
- At-cost business model, global governance representing the public interest and transparent standards-setting process.
- Clearly defined responsibilities for obtaining an LEI, with self-registration by the entities themselves as the targeted end state.
- Limited list of data elements, including core hierarchy data needed for systemic risk analysis.

What are the attributes of the LEI?

The initial data model will include the following mandatory attributes:

- LEI (i.e., the identifier itself)
- Exact legal name
- Address
- Country of formation
- Legal form
- During Phase 1, legal form will be captured upon registration in a free-form text field and will not be validated by the LEI Utility through publicly available authoritative sources. In most cases, the exact legal name also includes reference to legal form, and this will be validated by the LEI Utility.

- LEI status (e.g., available, disabled)
- Other metadata (e.g., date LEI issued; last updated; date disabled)
- Ultimate Parent
 - Ultimate Parent is not a part of the data record in the ISO 17442 standard; however during Phase 1, the LEI Utility will require the Ultimate Parent field to be filled in by the self-registrant, unless restricted by law. In the initial phase, a record submitted without the Ultimate Parent field completed will, nonetheless, be processed. Various percentage ownership conventions promulgated by national regulators for determining who the ultimate parent of the entity is will be supported by the LEI Utility.

LEI Usage and Impact – A Preliminary View

Today, market participants use many codes to identify counterparties and issuers – marketplace identifiers, company registration numbers, tax reference IDs, vendor identifiers, and firms’ own internal numbering systems.

The LEI will not necessarily replace these codes. Instead, the LEI will be the authoritative entity identifier for regulatory reporting and will be mapped by firms with reporting obligations (and likely by the reference data vendor community) to existing codes. This is a far more cost-effective method of introducing LEI, rather than changing the existing identifiers used in multiple internal business and compliance applications across the industry.

Today’s entity data itself may be collected and stored by market participants in multiple systems, including client master and security master databases, and transaction capture, customer relationship management, financial analytics, risk management systems and more. This means that the LEI ultimately will need to be mapped to a wide range of identifiers within many different databases – including internal legacy systems and vendor data feeds. Firms should consider whether the implementation of LEI is an opportunity to improve such complex mapping schemes.

In preparation for the anticipated regulatory usage of the LEI, firms that seek to gain the benefits of this broad global industry initiative should start to actively consider how the LEI can be incorporated into their reference data models and mapped to other identifiers.

Phased Implementation

The global LEI solution will be rolled out in phases. Full implementation of the LEI Utility is being driven by a broad group of global regulators, trade associations and financial services firms who are striving to achieve consensus regarding the use of the LEI to support regulatory reporting and systemic risk monitoring (see “Regulators and the FSB Process” section earlier in this document).

This group will determine the implementation phases related to countries, regions, asset classes and expansion of the scope of reference data beyond the basic descriptive data. The ISO LEI Standard 17442 will be leveraged across asset classes for all phases of the implementation.

The timeframes have been developed in response to recently enacted and impending regulations related, in particular, to the reporting of data on OTC derivatives to trade repositories.

The phased-in approach in terms of records and asset classes follows:

	<i>Phase 1</i>	<i>Phase 2</i>	<i>Phase 3</i>
<i>Timeframe</i>	<i>Now – June 2012</i>	<i>Full-year 2012</i>	<i>Beyond 2012</i>
<i># of Records</i>	<i>Up to 50k</i>	<i>400k+</i>	<i>1.5mm</i>
<i>Asset classes</i>	<i>OTC derivatives (CDS, IRS mainly)</i>	<i>Other derivatives, some non-derivative</i>	<i>All</i>

The U.S. CFTC became the first regulator to mandate the use of the LEI in regulatory reporting. CFTC Rule 17 CFR Part 45 – Swap Data Recordkeeping and Reporting Requirements – beginning in mid-2012, will require dealers executing OTC derivatives transactions with their global counterparties to report those transactions subject to CFTC oversight to Trade Repositories, identifying themselves, their counterparties and the reference entities of the contracts with LEIs.

The Hong Kong Monetary Authority (“HKMA”), the Canadian Securities Administrators (“CSA”) and the Australian Securities & Investment Commission (“ASIC”) have also recognized, and some cases indicated their intention to apply, a global LEI regime.

LEI Phase 1 Initial Business Model

All long-term decisions regarding the funding model, revenue model, governance and oversight models will be finalized in conjunction with ongoing discussions with the FSB Expert Group. However, at the request of the industry and OTC Derivatives regulators, ISO, DTCC, SWIFT and ANNA are working together to deliver Phase 1, targeted for June, 2012 and the interim business model will be based on principles endorsed by the coalition of trade associations:

- The LEI Utility will be an industry utility, operated on an at-cost model basis. As a preliminary step, DTCC and SWIFT are planning to form a joint venture company, and that company will contract for service provision with SWIFT, DTCC and any individual NNAs that provide services to the LEI Utility. DTCC and SWIFT will work with the industry and regulators to determine the appro-

appropriate interim governance model for the first phase, prior to establishment of formal governance and regulatory oversight framework by the FSB.

- The LEI Database will be available free of charge to all users, including commercial data vendors, without licensing, and with no restrictions on usage.
- Funding of the investments in new functionality, legal set-up work, documentation and all other components of the first phase have been made by DTCC and SWIFT. These investments are being tracked for inclusion in the full funding model agreed by the industry and FSB.
- In order for the Utility, once in operation, to recover its costs and over time, return the initial funding for the full build out of the LEI Utility back to the funding firms, a small registration/certification fee is to be charged via the web portal. This is envisioned to be \$200 per entity for initial registration/certification and \$100 for annual maintenance certification by the entity. Once the LEI Utility Governance body is formed, that body will review financials of the Utility and will be in position to change the pricing at any time, including lowering it as appropriate.

5.2 Issues for Users and Implementation Suggestions

The following issues and recommendations should be considered by users with respect to the implementation of LEI:

1) Governance model

The industry has proposed a securities industry governance model, but the FSB will make its recommendation towards end-April 2012 for submission to the G20 Plenary Meeting of mid-June. A securities industry governance model will ensure that over time the product is developed and enhanced to the maximum benefit of users (by optimizing end-to-end efficiency) as well as regulators. Increased market transparency will assist the entire securities industry, including end investors, financial intermediaries, (I)CSDs, issuers, issuer paying agents, legal counsel etc.

While access to the data will be free of charge, the long term funding model for LEI has yet to be agreed and is dependent on the governance model.

2) Different market needs regarding timing-potential conflicts and consistency issues

The US needs a more urgent LEI implementation to satisfy reporting of OTC derivatives (CDS and rates) by 16 July 2012, whereas the FSB will not announce their position on LEI until June 2012. The US CFTC has announced plans to leverage CICI until the FSB completes its analysis and recommends a governance structure and process for Global LEIs. The CFTC intend to adopt the global model and transition CICI to LEI when the FSB process is final. This gives rise to two concerns:

- (i) While it is hoped that all regulators and rules will be coordinated, there is no guarantee that will happen.
 - (ii) There are potential differences between US and European requirements
- Although not optimal from an efficiency perspective, the LEI providers may need to build some flexibility into their business model to accommodate any such differences.

The roll-out schedule beyond the support of the initial CFTC requirements is vague. This needs to be firmed up and prioritization will be driven by regulatory requirements.

3) Suggested user implementation model

Users typically maintain several internal client master files throughout their organizations and LEI is easiest to implement by mapping the LEI to these legacy master files and re-writing systems over time based on the LEI. This by itself will entail cost and effort for user firms but is more practical with a lower initial cost than a big bang adaptation of all systems to process the LEI directly.

4) Costs and benefits to users

A hard quantification of costs and benefits has not yet been done.

With respect to costs, there is a substantial cost avoidance benefit to implementing LEI globally rather than individually in each jurisdiction. Global implementation would enable data to be aggregated by regulators and firms without additional costs to consolidate.

Potential user benefits include:

- (i) The most immediate use of LEI is to satisfy regulatory reporting requirements and the immediate priority for users will be to focus on including LEI in systems that support the reporting tools.
- (ii) A global adoption of hierarchy management with ultimate parent data would improve the ability of risk managers to identify and aggregate exposures to counterparties globally. If entities in some countries cannot supply ultimate parent data, then risk management gains will be confined to entities located in jurisdictions that can. After regulators, the greatest beneficiaries of LEI are Global Systemically Important Financial Institutions ("G-SIFIs") who need to aggregate risk data globally.
- (iii) More efficient interfaces with market data vendors including rating agencies and clearing and settlement organizations, under a fully implemented model with benefits dependent on the pace of roll-out.
- (iv) More efficient client on-boarding with benefits dictated by the pace of roll-out.
- (v) Ability to better manage risks and pricing within a user's companies, e.g., risk and sales can share information such as credit risk and price prospects accordingly.

- (vi) Other user benefits include greater ease in conducting research and aggregating research data.

5) Open issues to watch

- (i) The FSB decision, to include the governance model
- (ii) Long term funding model (dependent on governance model)
- (iii) Low cost global execution (which will be dependent in part on governance model and operational model)
- (iv) Support by ANNA of local participants (how will it work)

6. Core Conclusions and Next Steps

The chart below sets out the core conclusions of this working group as noted in the various sections of this Report. The chart includes recommendations and in some cases specific next steps.

Area	Working Group Recommendations and Next Steps
Standards in post-trade	Support coexistence of standards by encouraging development and promotion of tools that facilitate interoperability between standards or that support communities to adopt standards.
Changes in middle office: Trade Repositories	<p>Agree on standards for key identifiers to be used in TR reporting. The rules published by CFTC in Dec 2011 provide a guide to the key identifiers that regulators will be looking for within reports:</p> <ul style="list-style-type: none"> ▪ Unique Swap Identifier (USI) – i.e. a unique, shared, identifier for each trade. ▪ Legal Entity Identifier (LEI) – a unique identifier for each legal entity ▪ Unique Product Identifier (UPI) – an means of identifying the derivative ‘type’ <p>1) The industry needs to support the development of LEI as put forward by the industry process in summer 2011 and through which SWIFT / DTCC / ISO were selected to provide a solution.</p> <p>2) The industry needs to work with the process managed by ISDA to identify a way forward on UPI and USI identifiers.</p> <p>3) Reporting parties and TRs should set up a working party to agree on open messaging standards for the reporting of data to TRs.</p> <p>1) The industry and TRs should continue to engage with regulators concerning their needs in terms of data content and formats.</p>
Changes in middle office: Promotion of STP and transparency	<p>1) Promotion of STP for Fixed Income</p> <p>2) Encourage Industry standardization: Minimum Standards of STP</p>

	3) Promote transparency
Changes in middle office: CCP interoperability	<p>1) Create well defined agreements and procedures: These must include not only the day-to-day operating procedures but also must cover such processes as handling technical defaults (where a CCP is solvent but cannot fulfil its obligations for defined reasons) and genuine default situations.</p> <p>2) Make arrangements with trading venues that cover both day-to-day operations and disruptive events, such as the suspension of trading by a CCP due to the operational difficulties of another.</p> <p>3) Implement an agreed dispute resolution procedure.</p> <p>4) Engage with regulators. Where multiple jurisdictions are involved, the early involvement of affected regulators to ensure that all arrangements are satisfactory and the existence of regulator co-ordination agreements and procedures.</p>
Legal Entity Identifier	<p>The rapid adoption of LEI facilitates both regulatory reporting and firm mapping of the LEI to existing databases, permitting upgrading of systems over time so that the LEI is directly embedded.</p> <p><u>Adoption of LEI requires addressing the following open issues:</u></p> <p>Many LEI issues remain open that users need to monitor and react to. A securities industry governance model is preferred so that the LEI is responsive to the needs of the market and regulators. The FSB and G20 will not announce their position until June 2012.</p> <p>Another danger for the LEI is that markets are moving at different speeds across regions, thereby creating the risk of potential conflicts and inconsistent implementation of the LEI. For example, the US has a more urgent need for LEI implementation than other geographies, and the CFTC has announced its plans to adopt a CFTC Interim Counterparty Identifier (CICI) for the OTS rates and CDS repositories as an interim measure.</p> <p>Users should closely monitor developments as well as the long term LEI funding model which is yet to be agreed. It</p>

	is not yet known how ANNA's support will work with respect to local participants.
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Annex A

Glossary of Abbreviations

The definitions in this glossary are should facilitate readers' understanding of standards as discussed in this Report. They are not meant to be legally-effective definitions.

Abbreviation	Name
AFME	Association for Financial Markets in Europe
AMF	Authority of Financial Markets - France
ANNA	Association of National Numbering Agencies
ASI FMA	Asian Securities Industry and Financial Markets Association
ASIC	Australian securities & Investment Commission
BCP	Business Continuity Planning
BIS	Bank of International Settlements
CCB	Cash Correspondent Bank
CCP	Central Counter Party
CDS	Credit Default SWAP
CESAME	European Commission's Clearing and Settlement Advisory and Monitoring Expert group
CFTC	US commodity Futures Trading Commission
CICI	CFTC Interim Counterparty Identifier
CPSS-IOSCO	Committee on Payment and Settlement Systems and the Technical Committee of the International Organization of Securities Commissions
CSA	Canadian Securities Administrators
CSD	Central Securities Depository
DTCC	Depository Trust & Clearing Corporation
EMIR	European Market Infrastructure Regulation
ESMA	European Securities and Markets Authority
ETC	Electronic Trade Confirmation
FISD	Financial Information Services Division of SIIA (Software Information Industry Association)
FIX	Financial Information Exchange
FMI	Financial Market Infrastructure
FPL	Fix Protocol Ltd.
FpML	Financial Products Markup Language
FSB	Financial Stability Board
FSOC	Financial Stability Oversight Council
G-SIFI	Global Systemically important Financial Institution
HKMA	Hong Kong Monetary Authority
ICSD	International Central Securities Depository
IRD	Interest Rate Derivatives
ISDA	International Swaps and Derivatives Association
ISITC	International Securities Association for Institutional Trade Communication

LEI	Legal Entity Identifier
MT	SWIFT message standard using FIN syntax
MTF	Multilateral Trading Facility
MX	SWIFT message standard using XML syntax
NCB	National Central Bank
NNA	National Numbering Agencies
OFR	Office of Financial Research
OTS	Office of Thrift Supervision and now part of the Office of Comptroller of Currency
RA	Registration Authority
SCG	Standards Coordination Group
SDA	Same Day Affirmation
SEG	Standards Evaluation Group
SMPG	Securities Market Practice Group
SOI	Solicitation of Interest
STP	Straight Through Processing
SWIFT	Society for Worldwide Interbank Financial Telecommunication
T2	TARGET2 – Eurosystem’s payments system
T2S	TARGET2 Securities – Eurosystem’s TARGET2 for securities settlement system
TA	Transfer Agent
TR	Trade Repository
UPI	Unique Product Identifier
USI	Unique Swap Identifier
W3C	World-Wide-Web Consortium
XBRL	Extensible Business Reporting Language

Annex B

Supplement to Section 3.1 – Standards in the Investment Roadmap

FIX

The Financial Information eXchange (“FIX”) protocol was originally created in 1992 to enable the electronic exchange of trading data between Fidelity Investments and Salomon Brothers. FIX defines a low-level data communications (“session”) protocol for point-to-point communications. It also specifies a syntax (designed to be compact and quick to process), and a set of message definitions covering equity, foreign exchange, fixed income and derivatives business. FIX now dominates formal data exchange in the pre-trade space, where low latency and high throughput are of paramount importance. FIX is also increasingly present in the post-trade area.

SWIFT MT, ISO 7775 and ISO 15022

SWIFT’s original mission, when it was created in 1973, was to “automate the telex” (the then dominant mode of interbank communication). To achieve this, SWIFT created a secure electronic network for exchanging messages, and the MT standard which defined the content of messages in a way intended to make them unambiguous and machine-processable. The SWIFT MT standard defines a proprietary syntax and message definitions that now cover Payments, Treasury, Derivatives, Commodities, Securities, Trade Services and Cash Management businesses. SWIFT MT is the dominant industry standard in cross-border high-value payments.

The first attempt to cover the post-trade business in the MT syntax was ISO 7775. This standard was first published in 1984, and went through several revisions. Users of ISO 7775 were commonly able to achieve STP rates for settlement of between 45% and 65%. In 1995, ISO 7775 was superseded by the technically more advanced ISO 15022 standard. ISO 15022 extends the MT syntax, and defines messages covering principally securities post-trade settlement & reconciliation business, corporate actions and collateral management. ISO 15022 introduced the concept of a Data Field Dictionary, a repository of reusable data elements from which larger messages can be built, which works to ensure that the same business concept is represented in the same way in different message types. The migration from ISO 7775 to ISO 15022 was completed in 2004 at great cost to the securities industry. But the STP benefits were significant: ISO 15022 users now commonly report STP rates of 95% or better for settlement. It would be simplistic to suggest that this improvement was solely due to the technical superiority of the standard. Rather, in many firms the migration, and the sense of shared purpose in the industry that made it possible, was the catalyst for the major back-office re-engineering and integration projects that were required to improve STP.

SWIFT operates the Registration Authority (“RA”) for ISO 15022, which is responsible for maintaining the content of the Data Field Dictionary, as well as the catalogue of available messages. The original MT standard and ISO 15022 are both supported by the SWIFT FIN service which defines a transport protocol, and provides an addressing scheme to allow messages to be sent securely between SWIFT members.

FpML

Financial Products Markup Language (FpML) is a standard for describing OTC derivatives. It does not define its own syntax, but instead relies on eXtensible Markup Language (XML), a syntax developed by the World-Wide-Web Consortium (W3C) that is in widespread use in many industries, and is well supported by modern computing platforms. FpML is managed by the International Swaps and Derivatives Association (ISDA). The first version was published in 1999. The latest version, which at the time of this writing (February 2012) is about to be finalized, is version 5.3. FpML is already widely used within institutions, but is now increasingly in focus as a means of submitting details of derivatives contracts to regulatory repositories.

ISO 20022

ISO 20022 grew out of ISO 15022, but abandoned the former standard's proprietary syntax in favour of a syntax-independent design, the idea being that users of the standard could choose the syntax in which to exchange messages according to their technical needs, without affecting the underlying message definitions. In practice, the principal syntax used for ISO 20022 is XML. ISO 20022 defines messages in a number of business areas: Securities (settlement & reconciliation, corporate actions, investment funds), Payments, Trade Services, Cards and Foreign Exchange. ISO 20022 is not yet widely used in the post-trade space, but has been selected as the single standard supported by the Eurosystem's Target 2 for Securities settlement system (T2S), which is expected to go live in 2015. ISO 20022's Settlement & Reconciliation and Corporate Actions messages have been "reverse-engineered" from the equivalent messages in ISO 15022 in a way that ensures that although the technical representations may differ, the data content of the messages in both standards is the same. This measure aims to ensure that users of ISO 15022 – of which there are many – remain interoperable in terms of data with future users of ISO 20022.

The ISO 20022 methodology starts by creating a clear, formal representation of the business area that is in focus, with all the various concepts, relationships and terminology fully defined. This picture is known as the ISO 20022 Business Model (an evolution of the ISO 15022 Data Field Dictionary). Only when the business model is complete does the methodology consider message definitions, which set out the information that needs to be exchanged between business partners to complete a business process. The elements of each message refer to the definitions in the business model. This is much more useful than just providing a one or two sentence description, because the business model contains the complete context; it shows exactly where the element (or the concept it represents) fits in the overall picture.

The business model provides a stable and authoritative set of reference concepts for the financial industry. Its authority derives from the fact that it is built and ratified according to a strict process that captures and consolidates the views of international industry experts in all the business areas it covers. When ISO 20022 defines *Account* or *Creditor*, *Payment* or *Security*, these definitions, and their relationships to other definitions, are highly detailed and internationally agreed. The business model, therefore, can act as a semantic "hub," a core set of definitions that can be formally associated with other things to provide them with

a precise meaning, where these other things can be elements in another standard (local or international), fields in an application’s proprietary data model, or entries in a different “dictionary”. It is this capability of the ISO 20022 Business Model that the Standards Coordination Group Investment Roadmap seeks to exploit. By formally linking the data elements in each of the standards concerned to definitions in the business model, the roadmap aims to provide an unambiguous cross-reference that will enable interoperability between the standards at the level of the meaning of the data exchanged, even as they continue with their distinct syntaxes and structures. The below chart depicts the various standards that exist in the various stages of the transaction lifecycle and identifies where interoperability can be achieved through the shared ISO 20022 Process and Information Model.

	Function	Cash Equities & Fixed Income	Forex ⁽²⁾	Listed Derivatives	OTC Derivatives ⁽²⁾	Funds
Issuer	Pre-Investment decision	◆	N/A	◆	N/A	◆
Front Office	Pre-Trade	▲	▲	▲	■	●
	Trade	▲	▲	▲	■	●
Middle Office	Post-Trade	▲ ●	▲ ●	▲ ●	■	●
	Clearing / Pre-Settlement	●	●	▲ ●	■	●
Back Office	Asset Servicing	● ◆	N/A	●	■	● ◆
	Collateral Management	▲ ●	N/A	▲ ●	■ ●	N/A
	Settlement	●	●	●	●	●
	Pricing / Risk / Reporting	■ ●	■ ●	■ ●	■ ●	■ ●
Investor Supervision	▲ ●	▲ ●	▲ ●	■	●	
Issuer Supervision	◆	N/A	◆	N/A	◆	

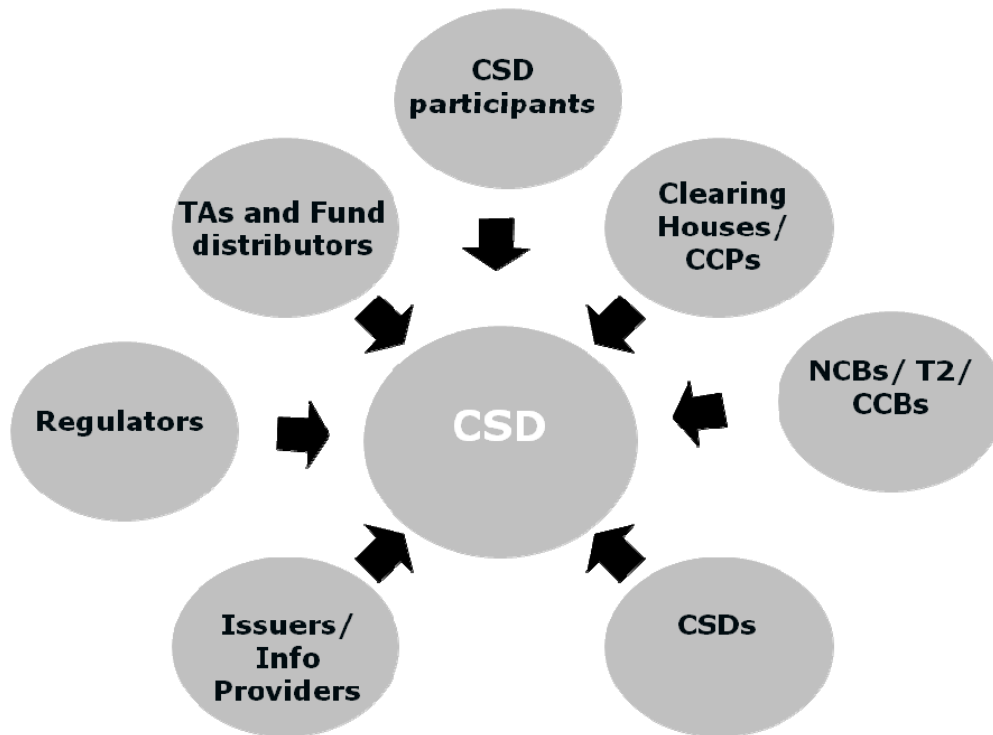
▲	FIX	●	ISO/XML	■	FpML	◆	XBRL
Shared ISO 20022 Process and Information Model							

Market Practice and Usage Guidelines

Message standards—even those with a semantic core like ISO 20022— are always open to some degree of interpretation. Moreover, the information needs of the standards’ users differ from market to market, as do local conventions and customs. This informal usage information tends to exist, at best, in unstructured market practice documentation (PDFs or spreadsheets) or, at worst, only in the heads of the users. Implementers of the standard need to take all this informal information into account, in addition to the formal definitions provided by the standards bodies, and this is one of the key obstacles to the success of standardization. So this is increasingly an objective for standards bodies and larger users—to collect and publish in standardized formats the information that describes the re-

al-world usage of standards, to be provided alongside the idealized definitions that are formulated when the standard is created, but before the standards are used.

Annex C
Supplement to Section 3.2 – The CSD Ecosystem



Communication with CSD participants

Settlement services - through processing advices a CSD informs its customers of acceptance, validation results, matching results and any other pre-settlement status; after settlement, confirmations and statements are sent.

Investor services - including corporate actions processing, proxy voting and tax reclamation.

Financing services - securities lending and borrowing and collateral management services provided by CSDs to lubricate the settlement process.

Information services - databases to support the automation of the securities settlement process, including securities databases, participants databases and standing arrangements databases.

CSD Communication with Clearing houses/Central Counterparties

The workflow includes:

- Receiving from clearinghouses/CCPs clearing participants settlement obligations

- Sending to clearinghouses/CCPs settlement fails notifications, leading to potential buy-in procedures
- Sending to clearinghouses/CCPs information about corporate actions impacting the holdings they have in their account as collateral or impacting unsettled instructions

Communications on Cash Transactions: Central banks, Target2 and Correspondent Banks

Sending cash payment instructions to settle the cash leg of delivery vs. payment transactions

Receiving formal confirmation of cash availability or receiving confirmation of actual cash debit

Confirming to a central bank that collateral has been moved to its account - or has been pledged to it, so the central bank can extend credit lines to a participant for cash management purposes

Communications with Other CSDs:

The exchange of settlement instructions and confirmations with other CSDs if the local market uses the local CSD for the settlement of foreign listings on the local exchange.

Linkages with external providers of centralised settlement functions and shared infrastructures for value-added service.

Communications with Issuers and Information Providers

Exchange information with issuers or issuer agents about new or existing issues - ranging from the creation of an issue on the CSD system (including ISIN creation) to activation of a new issue as part of a prearranged programme to specific corporate events affecting the issue.

Exchange meeting information and results, and forward voting instructions.

Receive corporate actions information or price information from external data vendors for non-domestic instruments

Transaction reporting: Communications to Regulators

Under MiFiD in the EU, all market activity needs to be reported to the regulator. CSDs can carry out reporting of transactions on behalf of their community.

Communications with Fund Servicers: Transfer Agents and Fund Distributors

When CSDs act as local or international hubs linking fund distributors with fund providers, they need to carry out a variety of communications - ranging from forwarding subscription and redemption orders and confirmation back, to carrying out the actual fund settlement as part of the normal settlement process.

Annex D

Supplement to Section 3.2 – International Standards

Use of International Standards as Recommended by G30

"Harmonise messaging standards and communication protocols. All market participants should adopt ISO15022 as the global standard for straight-through securities messaging across the entire securities life cycle. All market participants should support and use communication networks that adopt open, standardised, IP-based protocols for securities."

CPSS-IOSCO Principle 22 on Communication Procedures and Standards

The CPSS-IOSCO consultative report on Principles for Financial Market Infrastructures (March 2011) identified Principle 22 on Communication Procedures and Standards:

"An FMI should use or accommodate the relevant internationally accepted communication procedures and standards in order to facilitate efficient recording, payment, clearing, and settlement across systems."

Key considerations

- (v) *An FMI should use, or at a minimum accommodate the use of, internationally accepted communication procedures that can support interoperability between the FMI, its participants, their customers, and other users (such as third-party service providers and other FMIs).*
- (vi) *An FMI should use, or at a minimum accommodate, internationally accepted communication standards, such as standardised messaging formats and reference data standards for identifying financial instruments and counterparties.*
- (vii) *An FMI that operates across borders should use, or at a minimum accommodate, internationally accepted communication procedures and standards."*

Annex E

Supplement to Section 3.2 – Barriers to Adoptions of Standards

Different IT maturity, knowledge and in house expertise at FMIs about standards and tools

Market infrastructures with a multinational presence or aspirations to that status have a good knowledge of the standards and a lot of expertise in house.

It is probably less the case for FMIs with a strong local focus.

In that sense, one can wonder if the situation at FMIs is fundamentally different from those at the FMIs' clients.

Need to harmonize processes

When talking about harmonization processes, the changes cut even deeper than when trying to apply a given standard to different practices and processes.

The harmonization of processes has impacts that reach – almost inevitably – the entire user community, leading to even more costs and in the end delivering even less benefits.

All too often—and this is particularly the case in the context of T2S—the maintaining of non-harmonised processes is chosen as the alternative to a loss of functionality.

Euroclear, in its White Paper, indicates that it will suppress the “Pension Livrée” service. This move was welcomed by a large number of players and supported by the vast majority of the ESES markets as part of their contribution toward a more harmonized repo processing in Europe.

Unfortunately, most markets have decided to keep their current processes, making only the minimal changes required to allow continuing service in a T2S environment. The result of this is that these markets will continue to have non-harmonised processes that will be running in virtual silos on T2S.

In a way, this is even more critical than the lack of harmonization at the level of messaging. It leads to the conclusion that for a large integration project to deliver benefits, it should lead to a full harmonization of all processes that take place on and around it.

Euroclear has always been very vocal about this and has been very active in trying to convince the ECB and the wider T2S community to engage in an analysis of all non-harmonised processes in the T2S markets and this under the banner of ‘Cross-CSD settlement’. It went however much further than the pure cross-CSD settlement and really raised the question about the need for deeper harmonization in case of deeper integration.

This combination of system consolidation and business harmonization is a particularly hard nut to crack. It is therefore not unlikely that T2S will be delivered without ma-

major changes at the level of the processes that run alongside T2S and that interact with T2S.

It will be interesting to see what appetite there still will be to engage in harmonization of these processes once T2S is in operation.

Changing business environment

In this complex environment, the question any organization that faces these potential changes must ask is what its best course of action.

There is no straight-forward answer. Some must harmonize, while others will benefit more by not harmonizing.

Many different elements influence this: the openness of the party to other markets, their size, their core business, their strategic aspirations (e.g. global v. niche player), the nature of their competitors, their own strategy.

Rather than to impact the willingness to harmonize, it just adds this to a growing pile of complicating questions, of which harmonization may be the least troublesome one.

Difficulty and risk of adoption

Difficulty and risk of adoption is particularly true in the context of T2S where CSDs basically have to perform "open heart" surgery on their systems. With T2S, all balances and all bookings will take place outside the CSDs' core system. In that sense, T2S cuts out the core of the CSDs' businesses and brings it onto an external platform.

Processes that are today entirely internal will have to become external, translated in understandable messages and sufficiently harmonized to allow T2S to stick to one interpretation of one standard itself.

Something like this has not been attempted before, and one thing is for sure: CSDs will have to build additional application layers to allow them to interact with the external platform. And for whose benefit?

A CSD can adopt a number of approaches: minimize what it outsources and minimize the impact on the own core systems, or maximize the use of T2S, by decommissioning as much as possible.

This is actually a false option. Once on T2S, there will be no way a CSD will escape the need to open itself to settle against other CSDs. So it will have to go through these modifications anyhow.

A lot more important is the question around the extent to which local practices will be harmonized. The risk of adoption is the biggest here: a T2S without the harmonization it badly needs to deliver at least one of its initial promises.

Benefits of open, global markets

These benefits will be reaped most at front offices, but will inevitably impact back-offices as well.

However, as indicated above, it will be more beneficial to those entities that already have important cross-border activity, while parties with a strong local presence and activity will reap fewer benefits.

One can only hope that the arrival of open and global markets will encompass the activity of these entities, though there will always be geographical and linguistic limitations that have a role to fill even in a global market.

Annex F

Supplement to Section 3.3 – Standards Transition Models and Methodologies

Implementation of multiple standards by message conversion

This can be done with two scenarios:

1. *Implementation of the new standard by converting inbound messages of the new standard to the old standard and outbound messages of the old standard to the new standard:*

- With this scenario internal banking applications will continue to process the old standard; messages received and sent in the new standard are directly converted to or from a message in the old standard.
- This method can be appropriate as an interim scenario when existing application interfaces have not been changed.

2. *Implementation of the new standard by converting inbound messages of the old standard to the new standard and outbound messages of the new standard to the old standard*

- With this scenario internal banking applications will only process the new standard; messages received and sent in the old standard are directly converted to or from a message in the new standard.
- This method is especially suitable for a scenario when old messages will be replaced in a short migration period or for all users of new standards which did not run the old standard before.

Implementation of multiple standards by integration of both standards in parallel without conversion

In this scenario banking applications are able to process several messages standards in parallel *without converting one message standard to another*:

- As an example a banking application is able to process a subscription order for funds when receiving the message (a) in the FIX order format, (b) in the ISO 15022 order format and (c) in the ISO 20022 order format.
- All data formats (structures and data elements) of external message are directly mapped to the internal data format used for a fund order and vice-versa when orders are sent in different formats to the outside world.
- In addition many banking applications are capable of processing other internal order formats – as for instance an internal format for the subscription order used in a E-Banking service.

This method is suitable in a coexistence scenario when multiple standards are implemented and used over a long period of time:

Such a well-directed implementation of several standards in parallel is an appropriate way to support interoperability of services by receiving and sending messages in different standards which are used in parallel along the value-chain.

Annex G

Supplement to Section 3.3 – Standards Transition Considerations

Coexistence in different segments of the market:

Securities messages tend to be more complex than payments arena; hence, the adoption will be more costly in terms of implementation. Based on the statistics published by SWIFT in 2009, settlement and reconciliation messages account for 91% of the category 5 messages and these messages represent 36% of all SWIFT messages. In contrast, corporate actions (though a smaller family) represents a different challenge when compared to settlement and reconciliation. Corporate actions are complex and there is lot of harmonization work is still to be done globally.

The financial service providers when dealing with securities also have to face liquidity and cash issues and these are handled using category 2 and 9 messages. But the securities industry has no real influence over the migration of payments area to MX messages.

Conversion with a forced migration

It is a difficult question whether conversion via a forced migration will generate benefits for the industry in the long run. In the case of the ISO 15022 migration that was mandated few years ago, the message set had been around for a number of years, yet virtually no one adopted them until they were forced to by a migration end-point and mandated penalty charge and cut-off date. The market waited until the last moment, hoping that dates would change. This delay introduced huge strains on internal and supplier resourcing. Given that the ISO 15022 messages were better at conveying the full details of the securities trading compared to the ISO 7775 messages, the 15022 conversion story indicates the considerable extent of inertia that needs to be overcome to move between standards. The industry as a whole is not opposed to a forced migration but the “how” and “when” needs to be addressed in conjunction with the market.

Yearly maintenance releases: Impact of ISO20022 changes

What will be the impact of ISO 20022 introduction on the existing ISO 150022 messages? For ISO 20022 CA messages and S&R messages, SWIFT has created compliant subsets of the ISO 20022 messages that are fully interoperable with their MT equivalents. In other areas, like high-value payments, MX implementation guidelines have been published to accommodate the restrictions of the MT messages for players active in the cross-border space. The maintenance of the two standards is completely aligned, time wise and content wise. In some cases, a change to an ISO 20022 message can be accommodated in the ISO 15022 world using a workaround that does not change the ISO 15022 definition. The joint working group attempts to do this where practical to minimize the impact on ISO 15022 users.

Changes to ISO 20022 messages are always approved by the relevant ISO 20022 SEG. These changes will only impact ISO 15022 if they are also approved by the SWIFT community, following the normal maintenance process. However, in order to facilitate the coexistence of the two standards, it makes sense that decisions around changes be agreed for the two standards at the same time. A joint maintenance working group (the

ISO 20022 SEG and the MT Maintenance Working Groups) should meet at the same time to discuss the potential changes.

Annex H

Supplement to Chapter 5 – Remainder of LEI Project Scope and Preliminary Implementation Plan of January 31st 2012 issued by DTCC, SWIFT, ISO and ANNA

The following is the exact text of the remainder of LEI Project Scope and Preliminary Implementation Plan of January 31st 2012 issued by DTCC, SWIFT, ISO and ANNA, including Appendix, not included in part 1 of Chapter 5 of this Report.

* * * * *

LEI Phase 1 Initial Business Model

All long-term decisions regarding the funding model, revenue model, governance and oversight models will be finalized in conjunction with ongoing discussions with the FSB Expert Group. However, at the request of the industry and OTC Derivatives regulators, ISO, DTCC, SWIFT and ANNA are working together to deliver Phase 1, targeted for June, 2012 and the interim business model will be based on principles endorsed by the coalition of trade associations:

- The LEI Utility will be an industry utility, operated on an at-cost model basis. As a preliminary step, DTCC and SWIFT are planning to form a joint venture company, and that company will contract for service provision with SWIFT, DTCC and any individual NNAs that provide services to the LEI Utility. DTCC and SWIFT will work with the industry and regulators to determine the appropriate interim governance model for the first phase, prior to establishment of formal governance and regulatory oversight framework by the FSB.
- The LEI Database will be available free of charge to all users, including commercial data vendors, without licensing, and with no restrictions on usage.
- Funding of the investments in new functionality, legal set-up work, documentation and all other components of the first phase have been made by DTCC and SWIFT. These investments are being tracked for inclusion in the full funding model agreed by the industry and FSB.
- In order for the Utility, once in operation, to recover its costs and over time, return the initial funding for the full build out of the LEI Utility back to the funding firms, a small registration/certification fee is to be charged via the web portal. This is envisioned to be \$200 per entity for initial registration/certification and \$100 for annual maintenance certification by the entity. Once the LEI Utility Governance body is formed, that body will review financials of the Utility and will be in position to change the pricing at any time, including lowering it as appropriate.

LEI Phase 1 Components

Working with the industry working groups, the recommended solution providers have developed data models and workflow models needed to support Phase 1 – all with the goal of providing timely and accurate entity records.

This first phase leverages DTCC/Avox's knowledge of global entity validation, and SWIFT's capabilities as an existing ISO Registration Authority. To supplement these existing capabilities, a new web portal, available through the LEI Utility's web site, is necessary to support:

- Self-registration by the entities themselves.
- Third-party registration of entities by trade repositories, vendors and other intermediaries that can help validate the information.
- Assignment of provisional legal entity identifiers, or after the draft ISO 17442 Standard is finalized, assignment of LEIs within minutes of self-registration or third-party registration.
- Self-certification by the entities of information entered about them by third parties.
- Near real-time availability of LEIs and their corresponding legal entity data within the LEI Utility database after LEIs are assigned.
- Web-based, database search capability.
- Credit card processing through selected providers for registration/certification fee payment.
- A download capability of the full LEI database via industry standard interfaces to be determined (e.g., secure FTP). This full database snapshot will be provided at least once daily. A download capability of changes made the prior business day to the LEI database via industry standard interfaces to be determined (e.g., secure FTP).

The availability of this initial free, public, validated database by mid-2012, fully aligned with the draft ISO 17442 standard, is viewed as essential to help the global community prepare for a broader implementation of legal entity identifiers, which may grow in later phases to more than a million in number. The table below describes the basic components that are required for the LEI Utility, and how these components will be supported for Phase 1 and beyond. Phase 1 is primarily predicated on time-to-market concerns, namely being on-line by June 2012.

While the industry has provided guidance with regard to phasing, discussions are continuing among the industry and global regulators as part of the FSB process.

Chart A (see Appendix) shows the main components/types of support envisioned for the LEI Utility, and what is expected to be implemented during the first phases and in future phases.

LEI Phase 1 Details

While many of the components that comprise the LEI Utility will be improved and enhanced over time, there is general agreement regarding the basic data model and processing scenarios for supporting LEI requests and providing information in the publicly-available database.

Considerable work with industry working groups defined the following:

1. Field Classifications, including which fields are required to be compliant with the draft ISO 17442 standard and other fields that the industry believes are either mandatory or optional.
2. Process Scenarios, defining the workflows associated with validating and assigning LEIs to requesting parties, and the nomenclature surrounding that workflow.
3. Record States, describing for database users where in the validation workflow a particular entity record is, and what the results of the validation are.

Field classifications and process scenarios for Phase 1 and beyond are detailed in Charts B, C and D (see Appendix).

LEI Future Phases

The industry working groups have provided considerable input into potential future phases of the LEI Utility, some of which was described in the “Phased Implementation” section earlier in this document. There are many other elements that will require constant review and planning as the LEI Utility expands in scope.

Some considerations identified for future phases include:

- Multiple language and character set support
- User registration improvements, including contact information support
- Bulk registration improvements
- Address field linked to jurisdictions
- Enhanced security and privacy capabilities
- Additional billing and payment options
- Enhanced duplicate and anomaly detection procedures
- Enhanced data sharing capabilities
- Multiple data centers/database locations based upon regulatory requirements

In addition, the ultimate corporate structure and governance/oversight and business model of the LEI Utility, including the involvement of regulators, funding of the LEI Utility and broader financial industry participants, is still under discussion.

While considerable progress is being made on the LEI project, the effort remains in the formative stage. To be sure though, support for the LEI initiative is strong in both the public and private sectors, and coordination and cooperation continues toward the implementation of a global LEI solution.

Appendix

Chart A

The basic components of the LEI Utility are as follows:

Component	Type of Support	Phase 1 Means of Support	Future Phase Support
Entity Registration	Web Self-Registration, Certification, Self-Update	New Web Portal	Web Portal
	Web Third-Party Registration	New Web Portal	Web Portal
	File Transmission Self-Registration,	File accepted but uploaded manually by Utility staff	Automated upload
	File Transmission Third-Party Registration	File accepted but uploaded manually by Utility staff	Automated upload
Registration Payment	Credit card through selected provider	New Web Portal	PayPal, credit cards, direct invoicing, other providers
Entity Processing	De-duplication	DTCC/Avox capabilities	Utility-enhanced processes
	Initial Entity Validation	DTCC/Avox capabilities	Utility-enhanced processes
	LEI Assignment	SWIFT as RA for the ISO LEI Standard (provisional legal entity identifiers or final LEI)	SWIFT as RA for the ISO LEI Standard (final LEI upon standard finalization)
	Entity Challenge	New Web Portal using existing DTCC/Avox capabilities	Utility-enhanced processes
	On-going maintenance	New Web Portal using existing DTCC/Avox capabilities	Utility-enhanced processes
Component	Type of Support	Phase 1 Means of Support	Future Phase Support
Data Services	Database Search	New development but using Avox processes	Utility-enhanced processes
	Database FTP Delivery	New development but using DTCC/SWIFT processes	Utility FTP site

Operations and Support	Quality assurance, data analysis, BCP	DTCC/SWIFT/Avox operations staff	Utility staffing
	Help desk/legal/customer support	DTCC/SWIFT/Avox operations staff	Utility staffing augmented by NNA staffing
	User Authentication	Basic user ID/password methodology	Requirements to be defined
	Data Privacy	Separation of publicly available information and user information	Requirements to be defined
Corporate Structure	Corporate oversight	Separate LEI Utility to be established	Requirements to be defined

Chart A Explanations

Entity Registration

During the first phase, the Utility will support self-registration and third party registration via the new web portal described in the “LEI Phase 1 Components” section above. The Utility will also provide limited operational support for accepting a Bulk File upload of entities, by the entity itself (e.g., a bank holding company wishing to register itself and all its subsidiary companies), as well as a group of entities that are not part of the registrant’s corporate hierarchy, meaning a registration of entities of interest or potential counterparties. Priorities and turnaround time will take into account the needs of the OTC derivatives industry to meet new regulatory reporting requirements. LEIs for entities processed via Bulk File upload will be assigned after validation through publicly available authoritative sources.

Registration Payment

The fees to be charged for registration will be processed via the web portal, via a payment provider/credit card mechanism to be determined. The initial options will be limited. In phase two, the selection of methods will be broadened.

Entity Processing

The Utility will address duplication, which is the same entity receiving two different LEIs. In the first phase this will be performed by providing close matches to the registrant on the web portal and prompting them to ensure that they are registering a different entity, as well as after LEI assignment, by Utility staff using processes currently in place at Avox. These processes are expected to be enhanced in future phases when the full Utility platform is implemented

Initial Entity Review by LEI Utility Against Public Authoritative Sources (Referred to in the chart as "Initial Entity Validation")

This refers to the process, after LEI assignment, that the Utility will use to review or "validate" the information using publicly available authoritative sources in over 200 jurisdictions around the world. During Phase 1, the Utility will use the current processes in place at Avox, which have been developed over a decade of performing such legal entity validation work. It is anticipated that these processes will be enhanced during future phases via new methodologies, standards, and conventions suggested by experts from the global industry and regulatory communities.

LEI Assignment

In the case of web portal registration, LEIs will be assigned within minutes of registration. During the first phase, if the draft ISO standard is not yet finalized, then the assigned number will be referred to as a provisional legal entity identifier. At such time the standard is finalized, the number will be called an "LEI" and it is not expected to change in any way. While the Utility assigns the number via the web portal, SWIFT plays the role of Registration Authority for ISO.

Entity Challenge

Anyone will be able to challenge an existing record contained in the public database. Such a challenge will not cause the record to change, but will prompt an investigation and re-validating via publicly available authoritative sources by Utility staff. In Phase 1, this process will be based on the process Avox employs today on its free, open internet site. Enhanced processes will be developed for future phases.

On-going Maintenance

Upon self-registration or self-certification by an entity of a record registered by a third party, the Utility will collect e-mail addresses for the entity and will use this information to prompt the entity to maintain the record by certifying that the information is correct or updating it if it has changed. In addition, the Utility will maintain the record itself by re-validating against publicly available sources in response to news, corporate actions, and challenges, and in the absence of any of these prompts during a calendar year, at least annually.. In Phase 1, these procedures will be based on current Avox capabilities but will be enhanced in future phases.

Database Distribution

The web portal will provide new search capabilities, in addition to the current capabilities of Avox. During Phase 1, there will be a download capability of the full LEI Database via a widely utilized interface to be determined (e.g., secure FTP). This full database will be as of prior day close of business. In addition, there will be a download capability of changes made the prior business day to the LEI database, via a widely utilized interface to be determined (e.g., secure FTP). These processes will be enhanced in future phases.

Operations and Support

The Utility will provide quality assurance, data analysis and business continuity capabilities. During Phase 1, these will be outsourced to DTCC and Avox. In future phases, these types of services may be delivered by the Utility itself.

User Authentication during Phase 1, will be via basic user ID/password methodologies employed via secure web sites, although it is anticipated that additional methods will be employed in future phases. Any information collected from users in order to issue these IDs and passwords and to send e-mail notifications will be kept private and separate from the entity information contained in the Utility Database. During Phase 1, the Utility will only collect public reference data , and it will publish it all in the Utility database. The Utility will not be collecting confidential entity data in any form or database.

Corporate Structure

For Phase 1, a separate LEI Utility organization will be created. How that organization evolves for future phases will be guided by the tenets and approaches under discussion through the FSB's efforts.

Chart B

Field Classifications

ISO 17442 Data Record	Core Fields of Industry	Optional Fields	Internally Generated Fields
Legal Entity Identifier (LEI)	Legal Entity Identifier (LEI)	Immediate Parent LEI	LEI Assignment Timestamp
Legal Name	Legal Name	Registered Language Legal Name	Update Timestamp
Address (Includes Country)	Address (Includes Country)	Alternative Names	Disabled Timestamp
LEI Assignment Timestamp	LEI Assignment Timestamp	Source URLs	Initial Request Timestamp
Last Update Timestamp	Last Update Timestamp	Alternative Identifier Type	Validation Timestamp
Disabled Timestamp	Disabled Timestamp	Alternative Identifiers	Next Validation Timestamp
	Entity Status		Processing Timestamp
	Ultimate Parent LEIs		Review Timestamp
	Legal Form		Previous Names
			Record State
			Certification State
			Successor LEI
			Predecessor LEI *

* Can be inferred by the user via the published data

■ Fields that will be available for the first phase of development

□ Fields that will be considered out of scope for the first phase of development

Chart B Explanations

Chart B defines the data fields that envisioned for entity registration and creation. Those fields intended in the initial phase of the Utility are shaded in black and the fields under review for implementation at a later date are shaded in gray.

ISO 17442 Data Record

The draft ISO 17442 standard defines a required set of attributes for entity creation. As noted in the chart, all fields required in the draft standard are included in the initial phase of the LEI Utility.

Core Fields of Industry

The industry-led business requirements definition initiative has defined additional fields for entity registration. This includes all of the fields required by the ISO 17442 Data Record, in addition to others. Three additional fields identified by the industry are to be included in Phase 1.

Optional Fields

During discussions with industry working groups, regulators, and other interested parties, a list of optional fields that can be provided during entity registration have also been developed. These items will be reviewed with the LEI Utility Governance Committee for inclusion in future phases.

Internally Generated Fields

Additional fields, e.g., status information, will be populated by the Utility to ensure adequate transparency and support auditing of the LEI records.

Chart C

	Process	Submitter Type	Submission Mechanism	LEI Assignment Period	Initial Certification State	Initial Record State
Scenarios	Registration	Primary Party	Web	Prior to Review	Certified	Under Review
	Registration	Primary Party	File	After Review	Certified	Validated
	Registration	Third-Party	Web	Prior to Review	Not Certified	Under Review
	Registration	Third-Party	File	After Review	Not Certified	Validated
	Certification	Primary Party	Web	-	Certified	Under Review

Chart C Explanations

Chart C outlines the process scenarios for submission of information to the LEI Utility along with a set of variables based on the submission method.

Process

A user can submit information for a new record, which is termed a registration request. *Registration* indicates the creation of a new entity record by the entity themselves (self-registration) or a third-party (third-party registration). If a record already exists, the user can also take action on its own legal entity or a legal entity that their firm is related to via a certification request. Certification is the process of advising the LEI Utility of the accuracy of a record registered via a third-party and the ongoing periodic maintenance of that record.

Submitter Type

Under self-registration or validation, a party can submit information on behalf of the entity they represent, or related entities within their corporate structure for which they are the responsible party. Under third-party registration, a party can take action on a legal entity that their firm is not related to.

Submission Mechanism

The two methods of submitting information to the LEI Utility are via a web-based registration portal, or providing a Bulk File that includes numerous entities that the Utility will take action on. During Phase 1, the Utility will provide limited operational support for accepting a Bulk File upload of entities, by the entity itself (e.g., a bank holding company wishing to register itself and all its subsidiary companies), as well as a group of entities that are not part of the registrant's corporate hierarchy, meaning a registration of entities of interest or potential counterparties. Priorities and turnaround time will take into account the needs of the OTC derivatives industry to meet new regulatory reporting requirements. LEIs for entities processed via Bulk File upload will be assigned after validation through publicly available authoritative sources.

LEI Assignment Period

The timeframe and process in which a legal entity identifier is assigned to the submitted record is dependent upon the use case and the veracity that can be placed upon the submission. In certain cases, LEIs can be assigned prior to internal review by the LEI Utility operations. Other cases require a review of the submitted data prior to assignment. In both cases, once the identifier has been assigned, the legal entity will be listed on the registration portal. Initial Certification State

Information being submitted by a party within the legal entity themselves is noted within the record for that legal entity. Self-registration and certification requests will be marked as *Certified* while third-party submissions are marked as *Not Certified* (meaning the entity itself has not yet reviewed and validated that the information is correct). Records marked as *Not Certified* can be updated by the entity themselves via the certification process.

Initial Record State

The entity record also has an attribute to indicate the review being done on a record. Based upon the operational review that is required prior to assignment of an LEI, this Record State attribute can vary when the LEI record is first published. *Under Review* denotes that the entity has been assigned to the LEI Utility for operational review, although the record is published prior to this review taking place. *Validated* indicates that the record has undergone operational validation prior to the file being assigned an LEI. These states are clarified further in the text accompanying Chart D.

Record State as a Result of Review

		Process			
		Primary Party Registration (via Web Portal)	Third-Party Registration (via Web Portal)	Certification (via Web Portal)	Bulk Registration (via file submission)
Public Information (PI) is...	Consistent	Validated	Validated	Validated	Validated
	Consistent Except for Minor Errors (Misspelling, Punctuation, etc.)	Validated (Resolve to Public Information)	Validated (Resolve to Public Information)	Validated (Resolve to Public Information)	Validated (Resolve to Public Information)
	Not Available	Inadequate Sources (Resolve to Registrant Data)	Inadequate Sources (Resolve to Registrant Data)	Inadequate Sources (Resolve to Registrant Data)	<i>Returned to submitter</i>
	Conflicting	Conflicting Sources (Resolve to Registrant Data)	Conflicting Sources (Resolve to Public Information)	Conflicting Sources (Resolve to Registrant Data)	<i>Returned to submitter</i>

Record States of *Removed by Request*, and *Under Review* happen as the result of specific events, and do not conflict/overlap with other Record States

Chart D Explanations

Chart D outlines the state of an LEI record as a result of the review by the LEI Utility operations. Their review of publicly available sources may determine that information submitted by the registrant or certifier falls into four possible categories:

- The submitted information is *consistent* with what is found via public sources.

- The submitted information is *consistent with minor errors* that could be due to issues like misspelling or punctuation inconsistencies.
- The submitted information is *not available* in the public realm.
- The submitted information is *conflicting* with the information found via public sources. (Note that since public sources may not always immediately reflect new information or changes, this is not necessarily indicative of an error.)

Depending upon the method used to submit the information to the LEI Utility, the resulting entity Record State may change or the record may be returned to the submitter. These Record States are made public along with the record.

Validated

Indicates the record has been reviewed by the LEI Utility, and contains information that is consistent with publicly available sources.

Inadequate Sources

Indicates that there is not enough information in the public domain to verify the record.

Conflicting Sources

Conflicts occur when information from publicly available sources conflicts with the submitted information.

When the information for an entity is not consistent with that found in publicly available sources, the LEI Utility must display the record using information either from the submitter or the public sources. Chart D indicates which of these choices is followed by the Utility, based on the Record State and the type of registration/submission. The information source used for display in the LEI database is shown in the chart as the source resolved to.

Annex I

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