Competition in EU securities trading and post trading

SWIFT is committed to supporting the goal of achieving a harmonised European financial market. We strongly believe that the elimination of the barriers to harmonisation will allow competitive market forces to shape the solution best suited to the market.

We welcome the opportunity provided by the European Commission to share our views on how these barriers are best eliminated and to continue our involvement in achieving the goal of a more cost effective and risk free European capital market.

We trust that you find our comments valuable in helping to determine the next steps in this area.

SWIFT would be pleased to provide any further clarification or detail on the comments that we have made. Questions relating to our response may be addressed to either of the contact points below.

Yours Sincerely

Andrew Douglas       Richard Young
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Background

SWIFT is an industry owned and governed co-operative that acts as a central standards body for the financial industry. SWIFT is recognised by the ‘de juré’ international standards setters such as ISO (International Organisation for Standardisation), ITU (International Telecommunication Union) and UN/ECE (United Nations / Economic Commission for Europe) as an official international liaison organisation which contributes to the initiation, definition and promotion of a number of financial standards. SWIFT is the official ISO Registration Authority for the following key financial standards:

- ISO 15022: the ISO standard for financial messaging in the securities industry
- ISO 20022: the successor to ISO 15022, ISO 20022 is the international standard for messaging in the broader financial industry, i.e. securities, payments, treasury, FX, trade etc. ISO 20022 is the only ISO approved messaging standard for the financial industry. (See Annex 1 for additional details on ISO 20022)
- ISO 9362: The Bank Identification Code (BIC) unambiguously identifies a financial institution, or an entity within a financial institution and is used extensively in automating financial transaction processing.
- ISO 10383: The Market Identification Code (MIC) is used to identify exchanges, trading platforms and other regulated or non-regulated markets.
- ISO 13616: International Bank Account Number (IBAN). The IBAN is used to identify financial accounts uniquely, throughout the world.

All ISO standards are “open standards” that can be used, without payment of royalties, on any financial network.

In addition to its standards role, SWIFT supplies secure financial communication solutions to more than 7,500 of the world’s leading financial institutions including central banks. SWIFT also provides secure messaging services to leading financial market infrastructures such as the inter-central bank TARGET system, CLS system for foreign exchange and to many central securities depositories.

Additionally, SWIFT has worked extensively with the European Payments Council on developing ISO standards to support the Single European Payments Area (SEPA) and these standards have been qualified as a significant step forward by both the European Central Bank and the European Commission.
Responses to the questions raised in Competition DG Issues Paper dated 24/5/06

Note: SWIFT has responded only in respect of those areas where we feel our experience and expertise is most relevant.

The DG Competition paper provides an overview of European securities trading and post trading where it considers there to be a ‘limited degree of competition...’ (paragraph 24), highlighting issues such as:

- ‘inability to access fungible post trading arrangements’ (paragraph 52)
- ‘[Exchanges] directly or indirectly making access to clearing and settlement arrangements difficult or impossible for a competitor (paragraph 56)
- The lack of ‘consolidated pre and post trade information (paragraph 73)
- Delayed implementation of industry standards at exchanges and CCPs making it more difficult for new service providers to compete for CCP services (paragraph 82)
- A lack of standards as a barrier to the development of competition in the settlement area (paragraph 85)

Further, the paper is clear on the desirability of competition at two levels, ‘competition in the market’ and ‘competition for the market’ (paragraph 18 et al).

The paper further asks (paragraph 102) for market participants to present concrete and realistic proposals for solutions to these issues and we are happy to share our thoughts below.

General

It is apparent that a number of the obstacles perpetuating the current situation are of a legal or regulatory nature. In this regard other than to agree that such obstacles should be eliminated as a matter of course and that this will most likely require legal and/or regulatory intervention, SWIFT has no relevant experience and thus opinion on how this can be best achieved in practice given the potential political implications. All of the views expressed below assume that such impediments have been addressed independently.

As discussed above, SWIFT’s primary area of expertise lies in the provision of standards that are applicable to both the European and the global financial services industry. These standards cover cash and securities activity from pre-trade trade through to post-trade including asset servicing.

It is SWIFT’s view that many of the issues identified in the paper can be addressed either in whole or in part, through the adoption at an industry level of ISO open standards. This applies in respect of both message structure as well as message content.
As noted earlier, SWIFT’s recent work with the European Payments Council on developing ISO standards to ‘level the competitive playing field’ has been supported by both the European Central Bank and the European Commission as the standards solution for use in SEPA.

1. Competition

Adoption of a common standard will facilitate remote access to market infrastructures as well as interoperability between market infrastructures, which in turn will promote both competition in the market as well as competition for the market:

*Competition in the market*: Greater interoperability should be facilitated between all actors:

- Participant – Participant, (Demand side and intermediaries)
- Participant – Market Infrastructure, (Supply side)
- Market Infrastructure – Market Infrastructure

(Note: From definitions published by the European Commission, participants would be defined as including both ‘Demand Side’ and ‘Intermediary’ actors whilst Market Infrastructures would be considered to be the ‘Supply Side’ actors)

Enhanced interoperability reduces the cost of switching between service providers, whether they be infrastructures or other participants, and therefore enhances competitive pressure encouraging innovation in order to create and maintain added value.

*Competition for the market*: Standardisation creates a so called ‘plug and play’ environment which allows replacement of ‘monopoly’ (natural or otherwise) service providers with less associated replacement cost and risk, ensuring the incumbent maintains a cost effective and fully functional product compared to other potential service providers in the market.

2. Data Consolidation

The cost effective consolidation of data is facilitated through the standardisation of data content and this can also be achieved through the adoption of open ISO standards. For example ISO 8601 is a standard for date and time representation, ISO 10962 provides a standard classification of financial instruments (CFI) and ISO 6166 is used for instrument identification (ISIN). Financial messages constructed under ISO 20022 use these data content standards, as well as standard fields for such data elements as price and quantity etc.

*What are the market needs for consolidation?*

This is best answered by the market practitioners who actually use the information. SWIFT would, however, assert that the presentation of the information needs to move to open standards and away from multiple proprietary formats in order to provide associated reduction in cost and risk.
3. What are the obstacles for standardisation?

We referred earlier to the fact that open industry standards are available to provide relevant standard data elements and define an appropriate message structure for use in improving market data transparency. MiFID and Giovannini provide opportunities for the industry to significantly increase the usage of these standards from pre-trade through to post-trade in both the cross-border and domestic markets. Today’s domestically focused proprietary solutions for data content and structure will continue to add cost and inefficiency to the trading, clearing and settlement process if no action is taken.

4. What is needed to remove the obstacles to standardisation in the trade and post trade spaces, and by whom?

In the financial industry the use of open standards has been gaining increasing acceptance. SWIFT recently completed, in collaboration with the industry, a study into a common communication protocol for cross border securities clearing and settlement in the EU (Giovannini Barrier 1). This study, published in March 2006 (and which is sent as an attachment in Annex 2 of this submission), recommended the use of ISO 15022 and ISO 20022 standard messages. Work has now begun with the key EU market infrastructures and institutions to implement this recommendation within a five year timeframe (the move to a Euroclear Single Platform using open standards is an example of progress being made already in this direction).

A similar approach based around open standards for key transaction and data flows covered by MiFID would seem essential if competition is to be promoted and the attendant costs and risk are to be managed and reduced accordingly. SWIFT feels that the Commission, together with CESR, can be instrumental in providing direction to the market following industry consultation.

5. Timing and prioritisation of the necessary action

In view of the tight deadlines for the successful implementation of MiFID, SWIFT would recommend that The Commission begin the assessment process on open data standards immediately. SWIFT stands ready to provide the support required in respect of the applicable ISO standards for which SWIFT is registration authority, and upon which we have already made a public commitment to ensure these are MiFID compliant (see annex 3 below).

6. What costs would arise by moves to facilitate standardisation and who would bear them?

An important part of SWIFT’s role in the financial industry is to work to reduce costs to the industry. We do this in several ways, but most relevantly by maintaining and promoting message standardisation. In doing so, we look to see how market participants can derive the maximum benefit from their existing investment in standards. Much of the work and cost which may be incurred in moving to ISO 20022 for MiFID data flows can potentially be mitigated by the fact that ISO 20022 is also the standard increasingly being adopted to cover other parts of the transaction chain. ISO 20022 is the recommended way forward for EU securities clearing and settlement as highlighted in the Giovannini barrier 1 report discussed
earlier. ISO 20022 has also been selected to develop the financial messages that will support the Single Euro Payments Area (SEPA) initiative and also for the TARGET 2 system. By virtue of these key initiatives, ISO 20022 is fast becoming the basis of standardised communication solutions in key parts of the financial transaction lifecycle as the diagrams below illustrate.

i) Transaction Lifecycle Overview

ii) Usage of ISO20022

Aside from supporting end to end trading flow and enhanced market transparency, adoption of ISO 20022 represents a standard approach that can be used in other data flows beyond pre- and
post-trade publication. This uniquely offers participants a greater return on any investment they may have to make to move from existing proprietary solutions.

Summary
In summary, SWIFT would recommend the following concrete activities
1. Consultation with the industry on the need for regulatory intervention in speeding up the removal of public sector barriers such as legal restrictions on direct access to markets followed by action determined as necessary by the consultation

2. Consultation with the industry on the need for harmonised standards for the trade and post-trading industries, as well as the payments industry e.g. the adoption of the Giovannini protocol across the industry, followed by action determined as necessary by the consultation

3. Carry out a detailed cost/benefit analysis of any action required and share this with the industry in a timely fashion

SWIFT has extensive experience in the area of setting market standards at a global industry level, as well as addressing industry need through extensive consultation with the industry. In this regard, SWIFT would be pleased to offer its full support to the Commission, as we have with SEPA, to achieve the end goal of a more transparent, cost effective and risk free European financial services market that encourages competition and the creation of true added value.
ISO 20022 is the ISO-approved standard to develop standardised messages for the financial industry. It is based on business process modelling and has been created to address some concerns related to quality, cost of implementation and time-to-market of existing standards. A major benefit of the ISO 20022-approach is the fact that it decouples the business standard from its physical representation, leading to improved stability and interoperability. Other benefits include the existence of a dictionary with reusable components, a reverse engineering approach protecting standards-related investments and an industry-governed organisation that manages the standards.

XML has been chosen as syntax for the physical representation of ISO 20022 messages. XML is an open standard that is quickly becoming the preferred syntax for the exchange of documents and messages. Its success can easily be explained by the various benefits that it offers and by the fact that it has been adopted as a base technology by many large software providers. XML is however a “verbose” syntax, meaning that it usually results in larger messages. This aspect has led to some concerns about the transport, storage and processing performance of XML-messages. The current document also addresses these concerns and describes some ways to reduce the impact of this verbosity.

ISO20022

Drivers for the creation of ISO20022

The main drivers that have led to the creation of ISO 20022 are related to quality, cost of implementation and time-to-market.

Quality

Most standards in the financial industry focus on a part of a business process or on a particular domain in the financial industry without taking into account what is happening outside their focus area. This results in a “silo approach” which does not offer end-to-end interoperability and puts the burden of linking the various standards on the financial institutions. A concrete example can be found in the securities industry where the FIX standards support pre-trade and trade and the ISO 15022 standards support post-trade and beyond. The impact of this approach is increased by the fact that individual messages are often developed in isolation without considering the actual business processes that they need to support.

Even within their focus area, standards insufficiently take into account diversity, such as market practices, forcing the industry to spend time and energy to define the ways(s) to use the standards in various concrete situations.
The standards documentation usually leaves much room for interpretation, often leading to differences in the implementation of these standards. This will of course create problems and errors when these standards are used between financial institutions.

All of the above reduces the level of STP (Straight Through Processing) that can be achieved, resulting in additional costs for the industry.

ISO 20022 addresses these quality problems by consciously focusing on the requirements of end-to-end business processes and by involving industry experts to define and validate requirements and solutions. ISO 20022 also uses a formal business process modelling approach to reduce the ambiguity and risk of misinterpretation of the developed standards and is based on a dictionary with reusable components. This dictionary enables an industry-wide agreement on the definition of all components and the reuse of these components in multiple different messages.

**Cost of implementation**

The use of different and proprietary technologies and syntaxes forces the financial institutions to invest in multiple proprietary solutions. The current standards also offer little or no possibilities for automation, leading to high implementation and maintenance costs.

ISO20022 decouples the business standard from the physical standard. This allows the users of the standard to base their implementation on the business standard, which will protect their internal applications from a further evolution of the technology. It also means that an evolution of the technology will only impact the physical messages and will not require a revision of the underlying business standards. ISO20022 addresses the issue of proprietary technology by using well-supported open standards such as XML and UML. The use of a formal modelling approach and a dictionary with reusable components increases the automation capabilities, as it allows provisioning electronic information that can be easily processed by computers.

**Time-to-market**

The development of standards is often time consuming and does not always take into account the actual needs of the financial industry. This leads to standards that are not always available when required.

ISO 20022 addresses these issues by letting the industry set the standards development agenda and priorities. The increased automation capabilities for development and implementation of the standards also decrease the time between the definition and deployment of standards.

**Major components of ISO 20022**

The major components of ISO 20022 are the business process modelling approach, the repository, the syntax-specific design rules, the reverse engineering principles and the registration bodies and process.
Business process modelling

The ISO 20022 standards development methodology is a three-layered approach, based on business process modelling:

1. The first layer (the business layer) focuses on the business process. It starts with a business analysis to get a correct and complete understanding of the end-to-end business process. All relevant business activities and business roles are identified and for each business activity the relevant information is identified. The business analysis is followed by a requirements analysis to identify all communication needs, i.e. which information needs to be sent between which roles at what moment and under which conditions.

2. The second layer (the logical layer) focuses on the solution. During the logical analysis the main components of the solution will be identified. This includes the definition of the required messages and the description of the business transaction, i.e., the way the messages must be used to support the business process. This activity is followed by the logical design to define the detailed structure of the messages and to formalise the description of the business transaction.

3. The first two layers are technology independent and use UML (a modelling notation) to describe all aspects in a formal way. The third layer (the technical layer) focuses on the physical realisation of the defined solution. During the technical design, technology specific information, such as XML-tags, will be added and during the physical implementation the logical solution will be converted into a physical solution. This means, for instance, that the defined message structures are converted into XML Schemas.

The main advantage of this approach is the decoupling of the physical representation from the business standard. It also allows the involvement of the business experts at the right time and for the right reasons, namely to discuss the business aspects of the standard and it results in an implementation-neutral and representation-neutral definition of the standard.

Repository

All information that is relevant for the definition of the ISO 20022 standards is captured and stored in a repository which is composed of two parts:

1. The data dictionary which contains all reusable components, such as “business components” that describe the information used in business activities and “message components” that are used to compose the actual messages.

2. The business process catalogue which contains all business processes, business transactions and messages.

The availability of this repository allows open access and use of the information and guarantees the reuse of information where appropriate.
Annex 2
Giovannini – Barrier 1 – Final Protocol Document

Elimination of Giovannini Barrier One

Final Protocol recommendation

Andrew Douglas
SWIFT
March 2006
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Foreword

“SWIFT has contributed to the elimination of the so-called Barrier One with great determination. It has provided a model for other private-sector initiatives aimed at making European clearing and settlement a fully integrated function. SWIFT has moved fast to secure a mandate (informal, of course) from CESAME and has immediately embarked on a complex and structured process of analysis and consultation.

Since the beginning, SWIFT has periodically informed its user community and the wider marketplace through CESAME. The process has been highly efficient and successful in developing new standards which de facto eliminate Barrier One. The next fundamental phase is the adoption of these standards which is the result of voluntary decisions by market participants. The European Central Bank’s decision to support the new standards will be an important factor in securing their quick adoption.”

Alberto Giovannini
Chairman, Giovannini Group
March 2006

“The ESCB supports and appreciates the work done so far in helping to remove technical obstacles to market integration and paving the way towards standardized, harmonized and efficient clearing and settlement systems in Europe.

In line with the timeline identified, and assuming the protocol is implemented by other major market players, the ESCB will also adopt it for its operations.”

Daniela Russo
Deputy Director General
Directorate General Payment Systems and Market Infrastructure
March 2006

“The recommended protocol represents an indispensable contribution to integrate the European capital markets and to make cross-border Clearing & Settlement more efficient, less costly and less risky.

The removal of Barrier One is essential and a pre-requisite for the dismantling of other barriers identified by the Giovannini Group. The work done by the Independent Advisory Group is congruent and complementary to the work on the broader Recommendation 2 of the Group of Thirty. It is also worth mentioning that through the efforts in designing this solution by the industry for the industry, the private sector underlines its willingness to contribute to the reduction of impediments in cross-border Clearing & Settlement in Europe.”

Stephan Schuster
Chairman of Independent Advisory Group
Co Chair of the European G30 Monitoring Group
March 2006
Executive summary

The Giovannini Protocol has been defined on behalf of the clearing and settlement industry by a representative group of key industry participants, the Independent Advisory Group (IAG - see Attachment 1). The Protocol has also been subject to multiple industry reviews and has been endorsed by a substantial number of key European Union (EU) clearing and settlement industry participants.

The key Protocol recommendations are summarised in the following six elements:

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<th>For equities, fixed income and exchange traded funds</th>
<th>Element 1: Data standards</th>
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<td>a) It is <strong>mandatory</strong> for all participants in EU cross-border clearing and settlement and asset servicing of equities, fixed income and exchange traded funds, to implement support for the use of ISO 15022 and ISO 20022 standards and syntaxes, with coexistence solutions where appropriate, in compliance with existing market practices of the Securities Market Practice Group (SMPG).</td>
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<td>b) It is mandatory for all EU infrastructures to implement support for ISO 15022 and ISO 20022 standards and syntaxes in compliance with existing SMPG market practices to enable institutions engaged in domestic clearing and settlement activity to use these standards and syntaxes where appropriate. The long-term aim is to provide all domestic and cross-border clearing and settlement institutions with the common option to use ISO 15022 and ISO 20022 standards and syntaxes.</td>
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<td>c) It is <strong>mandatory</strong> that all participants in EU clearing and settlement implement support for all ISO data standards relevant to ISO 15022 and ISO 20022 as they are approved. This does not prevent the necessary use of local non-ISO standards where domestic users require this support.</td>
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Where relevant to other EU initiatives, such as the Markets in Financial Instruments Directive (MiFID), support for these standards should be implemented to ensure straight-through processing from pre-trade to asset servicing.

<table>
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<th>Element 2: Data security</th>
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<td>This is out of scope, as data security, that is security of data before sending and after receiving, is typically the responsibility of either the target application or the participant using the data. Security during transfer of data is dealt with in Element 5.</td>
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<th>Element 3: Data service</th>
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<td>A gap analysis of the ISO 15022 and ISO 20022 message suite must be completed by SWIFT’s Standards Department for all infrastructures in all EU States (plus other countries as necessary) to identify missing functionality. Standards must then be extended to include this functionality.</td>
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| Element 4: Transfer layer standards | It is mandatory for a Giovannini-compliant transfer layer to offer machine to machine data transfer services with the following features:
- Use of ISO 15022 and ISO 20022 structured messages and file formats where they exist
- Internet Protocol (IP) for communication and routing
It is recommended that a Giovannini-compliant transfer layer also offer manual operator based data transfer services via a graphical user interface (GUI) using ISO 15022 and ISO 20022 structured messages and file formats, where they exist. |
| Element 5: Transfer layer security | A Giovannini-compliant transfer layer must:
- Apply the following security services to all machine to machine transfers (and GUI, if provided):
  - Authentication and data integrity, via PKI
  - Non-repudiation
  - Time stamping
  The Certificate Registration Authority associated with the PKI service must implement industry recognised best practices for certificate issuance.
  Market best practice minimum key strength must be implemented. |
| Element 6: Transfer layer service | A Giovannini-compliant transfer layer must:
- Be at least available during TARGET opening hours
- Satisfy business and regulatory requirements for performance, resilience and network management
- Provide the following services:
  - Audit log of message or file (retention in accordance with local requirements as specified by the relevant securities regulator)
  - Guaranteed delivery of message or file
  - Delivery once, and only once, of message or file

**For exchange traded derivatives**
Relevant expert bodies such as the Futures Industry Association (FIA), Futures and Options Association (FOA), FpML, Eurex, LCH.Clearnet and FIX Protocol Ltd must consult on the feasibility and, if appropriate, recommend a plan to achieve compliance with the Protocol for exchange traded derivatives.

**Protocol implementation**
It is mandatory for all participants to complete implementation during a five year window beginning March 2006. Implementation will be staged over that period according to the individual plans of each participant. Compliance will therefore ramp up over the implementation period.

Implementation monitoring will be done in conjunction with ISSA and related to corresponding monitoring of G30 Recommendation 2. A key deliverable for the end of 2006 will be a mapping of all EU infrastructure plans for compliance during the implementation window.

**Cost-benefit analysis**
Qualitatively, the benefits are clear, improved efficiency and reduced risk. A quantitative cost-benefit analysis will be delivered by the end of 2006.
Introduction

In 2001, the Giovannini group, as advisor to the European Commission, published a report identifying 15 ‘barriers’ to efficient and cost-effective cross-border clearing and settlement of securities transactions within the European Union (EU). These barriers have become apparent as 25 separate countries, each with its own domestically focused legal regime, fiscal policy and national infrastructure supporting the local securities market, work towards the creation of a single integrated European capital market.

In April 2003, a second report identified the organisations responsible for defining solutions to the elimination of each barrier. The Barrier One recommendation was:

“National differences in the information technology and interfaces used by clearing and settlement providers should be eliminated via an EU-wide protocol. SWIFT should ensure the definition of this protocol through the Securities Market Practice Group (SMPG). Once defined, the Protocol should be immediately adopted by the European System of Central Banks (ESCB) in respect of its operations. This barrier should be removed within two years from the initiation of this project.”

SWIFT accepted this responsibility and agreed with the SMPG chairman that it would carry out the necessary research to define the required Protocol with direct SMPG input.

Protocol definition process


A key element of the feedback was that SWIFT should continue to define the Protocol guided by the four principles of leverage, inclusivity, openness and neutrality.

An Independent Advisory Group (IAG - see Attachment 1) was formed based on membership of the EU’s Clearing and Settlement Advisory and Monitoring Experts (CESAME) Group to maintain these principles, analyse feedback and define the Protocol. IAG membership plus all meeting minutes and slides can be viewed at www.swift.com/index.cfm?item_id=43429.

A draft Protocol was published for industry review between 25 October 2005 and 27 January 2006. All feedback received can be viewed at www.swift.com/index.cfm?item_id=43429.

This document defines the Protocol proposed to eliminate Giovannini Barrier One.
Protocol principles

Market structure

The interaction of market participants across the transaction lifecycle can be generically represented as shown below in Diagram 1 and is used as the agreed basic market shape.

Diagram 1: Basic market shape

Purpose of the Giovannini Protocol

Without a single authoritative body defining a solution, there has been no agreed baseline toward which infrastructures could develop local solutions, leading to the creation of the current patchwork of solutions using local standards and technology.

The Giovannini Protocol defines an agreed set of EU-wide data standards and technology recommendations aimed at creating an environment where all industry participants can interoperate, eliminating some of the complexity and cost of cross-border clearing and settlement.

There is no recommendation of a Protocol review period, based on the assumption that its implementation will eliminate Barrier One and provide standardisation that should not be displaced by technological advancement.
**Protocol structure**

The Protocol is based on a two-layer structure and comprises a definition of the minimum mandatory content of each of the six elements identified below in Diagram 2.

![Diagram 2: Six element protocol structure](image)

**Protocol scope**

**Impact area**

For ‘buy-side’ communication, the Protocol should be used to generate all input to the global custodian, local custodian and (I)CSD. This will therefore include the outputs of any virtual matching utility (VMU) or electronic trade confirmation (ETC) provider, the global and local custodian and the (I)CSD. It should also include the output of the investment manager (IMI) and this is to be encouraged, although it should be recognised that IMI activity is out of scope of the Protocol.

For ‘sell-side’ communication, the Protocol should be used to generate all inputs to the settlement agent and (I)CSD. This will therefore include the outputs of the clearing house or central counterparty (CCP), settlement agent and the (I)CSD.

The impact area is represented graphically in Diagram 3.
### Instrument scope

From the original Giovannini report, the instruments in scope are clearly equities, fixed income and exchange traded derivatives. As clearing and settlement of exchange traded funds occurs in the same way as equities, they are also considered to be in scope. Non-exchange traded funds, over the counter (OTC) derivatives and commodities have not been explicitly considered in this paper, although implementation of the Protocol in these sectors is actively encouraged.

### Protocol terminology

#### Protocol

For the purposes of this document, the Protocol has been defined as a set of best practice rules governing communication procedures between any two counterparties. This includes a data standard and syntax and a number of technology elements associated with the transfer of data.

#### Data standard

Within this Protocol, a data standard is defined as having four components:
- A single agreed business process model
- A single data dictionary of agreed business data elements and their definitions
- A catalogue of messages developed using agreed data elements and syntax
- A set of agreed market practices, where relevant.

The Protocol recommends (see Section 5) the concurrent use of ISO 15022 and ISO 20022 as standards for the EU clearing and settlement industry.
The four elements identified above are stored in the ISO 20022 Repository, where they are available for inspection and use by all participants in the global financial services industry, confirming the drive of the International Organisation for Standardisation (ISO) towards the development of open standards. A summary of the characteristics of ISO 15022 and ISO 20022 is contained in Attachment 2.

Clearly, today there is little relationship between ISO and non-ISO standards, and this is a core issue that the European securities industry, and indeed the global financial services industry, faces in relation to the development of true, cost effective straight-through processing. As discussed in earlier papers, multiple standards exist within market spaces and within instrument silos, although it is clear that ISO 20022 is gaining acceptance across all areas of the European market, as illustrated in Diagram 4.

Diagram 4: ISO 20022 as a common standard for the EU financial service industry

It is hoped that the flexibility, open nature and inclusiveness of ISO 20022 will encourage existing standards in other domains to subscribe to the ISO 20022 Repository, which would lead to the creation in future of a fully interoperable Protocol hierarchy as shown in Diagram 5.
Data syntax
A syntax is the manner in which data elements are assembled to form a message. Some syntaxes are also considered to be standards, such as ISO 15022 and FIX, as they include a data dictionary and a process model. In general, translation between syntaxes is facilitated through the adoption of a single data dictionary and a single process model, as identified above.

Participants, infrastructures and institutions
In this document, the terms ‘participant’, ‘infrastructure’ and ‘institution’ are used extensively.

‘Participants’ – A collective term for all players in the clearing and settlement industry. This includes infrastructures and institutions.

‘Infrastructures’ – All commonly recognised cash and securities clearing and settlement systems and their operators, such as central securities depositories, clearing houses and central counterparties and central banks. For the purposes of this Protocol, virtual matching utilities (VMU) and electronic trade confirmation (ETC) providers are also included in this category.

‘Institutions’ – Refers to broker-dealers, custodians, settlement agents and ancillary institutions such as transfer agents that access services provided by infrastructures in the commission of clearing and settlement business.

Domestic versus cross-border applicability of the Protocol
During the 2001 Lisbon Summit, the leaders of the European States clearly outlined their belief in the benefits associated with the creation of a single integrated financial market for Europe. Ultimately, this is the goal on which many EU initiatives are converging, such as the Markets in Financial Instruments Directive (MiFID) and Giovannini for the securities market, together with the Single Euro Payment Area (SEPA) and Target 2 for corresponding payments markets. After implementation of these solutions, there will be
no distinction between cross-border and domestic transactions in the EU, there will only be EU domestic activity.

Within this EU domestic framework, all infrastructures will be accessible by all institutions. Thus, institutions operating ‘near’ to an infrastructure (today’s domestic user) will find themselves communicating via a different Protocol to those institutions ‘far’ from the same infrastructure (today’s cross-border user). Conversely, when ‘near’ institutions attempt to exploit new business opportunities that arise in the single integrated financial market by accessing a ‘far’ infrastructure, the only viable option will be via a Giovannini-compliant protocol. Over time, institutions will therefore have to implement the Protocol to communicate with ‘far’ infrastructures. This will stimulate demand to their ‘near’ infrastructures and provide the impetus for total market standardisation on this Protocol.

Opinion submitted during the review of the draft Protocol clearly demonstrates a belief that maximum economy of scale, and thus maximum benefit, will be derived through implementation of the Protocol for ‘near’ (domestic) as well as ‘far’ (cross-border) clearing and settlement activity. This document does not specify a time by when this must happen as this is beyond the scope of the Protocol but it does encourage such take up as early as possible.

**Service provision**

Transfer layer functionality is independent of data layer, and can be sourced from single or multiple providers according to the preference of the purchaser (see Section 5.2.1).
Protocol content

Data layer for equities, fixed income and exchange traded funds

Element 1: Data standards

a) It is mandatory for all participants in EU cross-border clearing and settlement and asset servicing of equities, fixed income and exchange traded funds to implement support for the use of ISO 15022 and ISO 20022 standards and syntaxes, with coexistence solutions where appropriate, in compliance with existing SMPG market practices. ‘All participants’ includes, but is not limited to:

- Virtual matching utilities and electronic trade confirmation providers*
- Clearing houses and central counterparties*
- [I]CSDs
- Central banks and cash clearing systems
- Broker-dealers
- Subcustodians and global custodians
- Local and global settlement agents
- Entities supporting asset servicing activity, such as transfer agents

For entities marked *, which operate at a perceived boundary between two syntaxes, the generation of ISO 15022 and ISO 20022 messages into the downstream process is mandatory. The additional system support to accept inbound ISO 15022 and ISO 20022 messages is a recommended option. For all other entities, acceptance and generation of ISO 15022 and ISO 20022 messages, where they exist, is mandatory.

b) It is mandatory for all EU infrastructures to implement support for ISO 15022 and ISO 20022 standards and syntaxes in compliance with existing SMPG market practices to enable institutions engaged in domestic clearing and settlement activity to use these standards and syntaxes where appropriate. The long term aim is to provide all domestic and cross-border clearing and settlement institutions with the common option to use ISO 15022 and ISO 20022 standards and syntaxes.

c) It is mandatory that all participants in EU clearing and settlement implement support for all ISO data standards relevant to ISO 15022 and ISO 20022, as they are approved. This includes, but is not limited to:

| ISO 3166  | – Country Codes | ISO 4217  | – Currency codes |
| ISO 6166  | – ISIN          | ISO 8601  | – Date and time format |
| ISO 9362  | – BIC           | ISO 10383 | – MIC |
| ISO 10962 | – CFI           | ISO 13616 | – IBAN |

This does not prevent the necessary use of local non-ISO standards where domestic users require this support.

Where relevant to other EU initiatives, such as MiFID, support for these standards should be implemented to ensure STP from pre-trade to asset servicing. Non-compliant syntaxes should become compliant with the ISO 15022 and ISO 20022 standard as defined in Section 4.5.2.
Element 2: Data security

This is out of scope as security of data before sending and after receiving is typically the responsibility of either the target application or the participant using the data. Security during transfer of data is dealt with in Element 5 (see Section 5.2.2).

Element 3: Data service

a) A gap analysis of the ISO 15022 and ISO 20022 message suite must be completed by SWIFT Standards Department for all infrastructures in all EU States (plus other countries as necessary) to identify missing functionality. Standards must then be extended to include this functionality.

The gap analysis should prioritise the analysis of discrete processes, such as settlement instruction, for all countries, rather than look at all processes for a specific country.

b) If required, mapping between syntaxes (for example at the interface between trade and post-trade activity) will be conducted by the relevant standards authorities on a country by country basis and at a product by product level, in compliance with existing market practice and business rules.

c) To ensure timely maintenance of ISO 15022 and ISO 20022 messages and to allow for continued innovation of processes and instruments, custom messages can be created using extensibility tools and rules provided by the standards authority, pending incorporation into the ISO 15022 and ISO 20022 standards.

Transfer layer for equities, fixed income and exchange traded funds

Element 4: Transfer layer standards

It is mandatory for a Giovannini-compliant transfer layer to offer machine to machine data transfer services with the following features:

- Use of ISO 15022 and ISO 20022 structured messages and file formats where they exist
- Internet Protocol (IP) for communication and routing

It is recommended that a Giovannini-compliant transfer layer also offer manual operator based data transfer services via a graphical user interface (GUI) using ISO 15022 and ISO 20022 structured messages and file formats where they exist

Note: Transfer layer providers do not need to offer every service as part of their commercial offering, but each participant must be able to transfer data using the mandatory service identified above. Selection of transfer services appropriate to a specific communication is agreed bilaterally between participants.

Element 5: Transfer layer security

A Giovannini-compliant transfer layer must:

- Apply the following security services to all machine to machine transfers (and GUI, if provided):
  - Authentication and data integrity, via public key infrastructure (PKI)
  - Non-repudiation
  - Time stamping
Liability arising from authentication and non-repudiation can vary from 0-100% according to the commercial positioning of the service by the transfer layer provider.

- The Certificate Registration Authority associated with the PKI service must implement industry recognised best practices for certificate issuance.
- Market best practice minimum key strength must be implemented.

**Element 6: Transfer layer service**

A Giovannini-compliant transfer layer must:

- be at least available during TARGET opening hours
- satisfy business and regulatory requirements for performance, resilience and network management
- provide the following services:
  - Audit log of message or file (retention in accordance with local requirements as specified by the relevant securities regulator)
  - Guaranteed delivery of message or file
  - Delivery once and only once of message or file

**Exchange traded derivatives**

Relevant expert bodies such as the Futures Industry Association (FIA), Futures and Options Association (FOA), FpML, Eurex, LCH.Clearnet and FIX Protocol Ltd must consult on the feasibility and, if appropriate, recommend a plan to achieve compliance with the Protocol for exchange traded derivatives.

During pre-publication feedback, FIA accepted responsibility to lead an industry consultation on the applicability of the Protocol to global exchange traded derivatives. This study will be delivered within two years of publication of the Protocol, with a plan to achieve compliance within five years of publication of the Protocol, if relevant.
Protocol implementation

Following extensive consultation with the clearing and settlement participants, implementation of the Protocol over a five year continuum, commencing from publication in March 2006, has been identified as an achievable solution. This continuum is illustrated in Diagram 6. This establishes a minimum Protocol ‘shelf life’ of five years, and whilst it may preclude the use of the latest developments, it provides participants with the certainty of a realistic period for amortisation of development costs. It encourages early implementation to give the longest period of guaranteed usage. This guarantee period is felt to be one of the best ways to promote take up, ensuring participants have time to recoup their investment in the Protocol.

Implementation by participant type:

| Infrastructures | It is mandatory for all infrastructures supporting the clearing and settlement of equity, fixed income and exchange traded funds, that is VMU and ETC providers, clearing houses and CCPs* and (I)CSDs to have implemented support for the data and transfer layers by March 2011. The majority of infrastructures have indicated their willingness to adopt the Protocol (see Section 7.1) predominantly by a staged implementation. Consequently, for certain infrastructures, implementation projects are already underway and will ensure compliance in certain areas will be achieved well before 2011. As part of the implementation monitoring process (see Section 8), a roadmap of implementation plans for all infrastructures will be drafted by the end of 2006. |
| Cross-border institutions | It is mandatory for all institutions engaged in cross-border clearing and settlement of equity, fixed income and exchange traded funds, that is broker-dealers, global and sub-custodians, global and local settlement agents, to implement support for the data and transfer layers by March 2011. It should be noted that many current cross-border institutions already comply with at least the data layer element of the Protocol through the broad industry migration to ISO 15022 initiated on the SWIFT network in 2003. |

* See Section 7.2 for further information related to clearing houses and CCPs.
<table>
<thead>
<tr>
<th><strong>Domestic institutions</strong></th>
<th>It is optional for all institutions engaged in domestic clearing and settlement of equity, fixed income and exchange traded funds, that is broker-dealers, local custodians and local settlement agents, to implement support for the data and transfer layers by March 2011.</th>
</tr>
</thead>
</table>
| **Others**               | **Exchange traded derivatives:** Relevant expert bodies must complete a feasibility study on compliance with the Protocol as defined in Section 5.3 by March 2008. If relevant, this study must include plans to achieve compliance by March 2011.  
**Standards gap analysis:** SWIFT must complete the ISO gap analysis for all current infrastructure clearing and settlement processes as defined in Section 5.1.3 by March 2008, and begin work to fill the identified gaps as soon as feasible thereafter. Due to ongoing process and product innovation, it is impractical to specify an end date for this activity.  
This work commenced on 16 February 2006 when 20 European CSDs attended a gap analysis initiation meeting at SWIFT’s offices in Brussels. It is intended to complete the high level analysis for all EU CSDs by mid-2006. A similar programme for clearing houses is under construction. |
Protocol support

Due to the absence of regulatory enforcement, the success of the Protocol hinges on implementation by all EU clearing and settlement participants and especially by infrastructures. If this does not happen, the cross-border market will remain as it is today, fragmented and costly.

As part of the draft Protocol review, participants were asked to confirm:
• their belief that the Protocol would eliminate Barrier One
• their commitment to implement within the originally stated deadlines.

Support for the Protocol, summarised by participant type, has been explicitly given as described in the sections that follow.

Central securities depositories

As the lynchpin of the ultimate success of the Protocol, it is encouraging to confirm that all responding central securities depositories (CSDs) indicated broad support for the Protocol as a solution to Barrier One. The majority believe that continuous implementation over the five year period is both appropriate and reasonable. Written commitment respecting such a deadline as far as is possible, has been received from 21 of the 25 EU CSDs and both (I)CSDs:

<table>
<thead>
<tr>
<th>Austria</th>
<th>OeKB</th>
<th>Belgium</th>
<th>Euroclear BE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>VP</td>
<td>Estonia</td>
<td>SSD Ltd</td>
</tr>
<tr>
<td>Finland</td>
<td>APK (NCSD)</td>
<td>France</td>
<td>Euroclear FR</td>
</tr>
<tr>
<td>Germany</td>
<td>Clearstream Banking</td>
<td>Greece</td>
<td>Helex</td>
</tr>
<tr>
<td>Hungary</td>
<td>Keler Rt</td>
<td>Italy</td>
<td>Monte Titoli</td>
</tr>
<tr>
<td>Ireland</td>
<td>CRESTCo (Euroclear)</td>
<td>Lithuania</td>
<td>CSDL</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>Clearstream Banking</td>
<td>Netherlands</td>
<td>Euroclear NL</td>
</tr>
<tr>
<td>Slovakia</td>
<td>SDCP SK</td>
<td>Slovenia</td>
<td>KDD</td>
</tr>
<tr>
<td>Spain</td>
<td>Iberclear</td>
<td>Sweden</td>
<td>VPC (NCSD)</td>
</tr>
<tr>
<td>Poland</td>
<td>KDPW</td>
<td>Portugal</td>
<td>Interbolsa</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>CRESTCo (Euroclear)</td>
<td>ICSDs of Clearstream Banking</td>
<td>Euroclear Bank</td>
</tr>
</tbody>
</table>

The CSDs from whom no commitment has yet been received are those from:

Cyprus       Czech Republic
Latvia        Malta

Clearing houses and central counterparties

Both Eurex and LCH.Clearnet as major cross-border clearing houses, whilst expressing support for the Protocol as a solution for the elimination of Barrier One, have expressed concerns about the ability of the current ISO standards to support the clearing process. The high level five year goal remains in place subject to the results of the planned clearing house and central counterparty gap analysis (see Sections 5.1.3 and 6).
Virtual matching utilities and electronic trade confirmation providers

Clear participant feedback is an expectation that any service provider currently operating in, or entering this space, should do so in conformance with the Protocol. The only relevant organisation providing commitment in this space was Omgeo which confirmed that it "will accommodate a new industry protocol in accordance with [our] clients’ needs". Omgeo also confirmed its belief that to be truly successful, this initiative will ultimately require regulatory support to generate critical mass.

Institutions

Explicit support for the Protocol as a solution to the elimination of Barrier One and a commitment to implement the Protocol was provided by 17 of the largest European and global clearing and settlement institutions. These are:

- ABN AMRO
- BNP Paribas
- Credit Anstalt
- Deutsche Bank
- HypoVereinsbank
- Lehman Brothers
- Morgan Stanley
- Royal Bank of Scotland
- The Bank of New York
- Citigroup
- Credit Suisse
- HSBC
- JPMorgan
- Merrill Lynch
- Northern Trust
- State Street
- UBS

ING also expressed broad support for the Protocol as a solution to Barrier One, but felt unable to comment on implementation at this time.

In addition to individual institutions, the following organisations representing the views of multiple institutions also expressed support for the Protocol as a solution to Barrier One:

- APACS
- European Association of Cooperative Banks
- European Banking Federation
- European Savings Banks Group
- French Association of Securities Professionals (‘AFTI’ - 500 institutional members)
- French SWIFT National User Group, (GUF - 100 institutional members)
- German SWIFT National User Group
- Norwegian SWIFT National User Group (33 institutional members)
- Swedish SWIFT National User Group
- Swedish Securities Dealers Association
- Securities Market Practice Group as well as the individual National Market Practice Groups of Austria, Belgium, Finland, Sweden, the United Kingdom and Ireland.

Investment managers

The following organisations explicitly endorsed the Protocol:

- BVI (The Association of German Asset Managers)
- Efama (The European Fund and Asset Management Association)
- Scottish Widows
Regulators

Support for the concept of the single communication protocol solution has been provided by the following securities regulatory authorities:

Austria       Denmark
Ireland       The Netherlands
Others

Unqualified support for the Protocol as a solution to Barrier One has been offered by the following EU and non-EU organisations, although in many cases, concerns were expressed in relation to the originally identified timeframes:

Hong Kong Monetary Authority
Hong Kong Exchange
ISITC US
Japanese National Market Practice Group/ISITC Japan
Jasdec
SIS SegaIntersettle
SIS x-clear
South African National Market Practice Group
Swiss Commission for Financial Standardisation (SCFS)
Thailand Securities Depository

In addition to concerns about implementation timeframes, further qualified support for the solution, summarised below, was provided by the following organisations:

**BT Radianz:** Considers this “an appropriate solution to the elimination of Barrier One for equities and fixed income clearing and settlement”, that the industry should use “the most widely adopted standard for clearing and settlement in each individual asset class” and that a “high level of interoperability between standards within one agreed protocol should be the industry's goal”. BT Radianz “supports the use of open, industry-driven and industry-owned standards and believes participants should be free to use those most appropriate to their needs and, as such, standards should not be mandated by other parties”.

**FIX Protocol Ltd:** Answered “yes provided that the scope is settlement processing and that the distinction between ISO 15022 and ISO 20022 and the depiction of standards within diagram 1 is clarified”. FPL also believes that “extending the most widely adopted standard in a space to universal coverage is the best first step towards achieving the industry's goals of simplicity, automation and ROI”. Thus, for the focus on cash equities and fixed income, FPL sees “the FIX Protocol being used from pre-trade up to and including post-trade and pre-settlement, and the ISO 15022 messages to service settlement”.

**SIA:** Whilst being generally supportive of the initiative in a European context, SIA caution that it is “difficult to predict how relevant this cross-border protocol would be for and among more autonomous markets outside of the EU, if its expansion were proposed at any stage”.

It should be noted that STRATE, the South African CSD, felt the Protocol was an inappropriate solution to Barrier One due to the recommendation of both ISO 15022 and ISO 20022, as well as expressing reservations about the timelines.
**Monitoring**

G30 Recommendation 2 is congruent with this Protocol, that is the implementation of ISO 15022 XML (now called ISO 20022) solutions over IP networks. ISSA has responsibility for the ongoing monitoring of the global implementation of G30 Recommendation 2. It is logical to leverage this, and ISSA agreed at its November 2005 Board Meeting, that in conjunction with SWIFT, it would take on joint responsibility for monitoring and reporting implementation progress for the Protocol.

SWIFT and ISSA will work during the second quarter of 2006 to devise an appropriate implementation monitoring programme that will allow regular reporting to the CESAME group.

A key element of the monitoring programme will be the mapping of the current EU landscape for infrastructures. This will indicate, for all infrastructures, the following information:

- Current status against the key elements of the Protocol
- Plans for 100% compliance to be achieved in stages over the five year implementation continuum
- Key milestones where compliance for specific functions will be achieved
- An estimated end date for their programme to adopt the Protocol
- Identification of dependencies and issues.

This landscape map, built in conjunction with the infrastructures, is intended for delivery by the end of 2006.
Cost-benefit analysis
To justify industry investment in Protocol compliance, a tangible benefit must be demonstrated. At present, this analysis is qualitative, as described in the sections below.

General industry
Implementation of the Giovannini Protocol will provide automatic compliance with the requirements outlined in other industry initiatives:

**G30 Recommendation 2:** “Harmonise messaging standards and communication protocols - All market participants should adopt ISO 15022 as the global standard for straight-through securities messaging across the entire securities life cycle. Over time, XML should become the language to describe standardised messages. All market participants should support and use communication networks that adopt open, standardised, IP-based protocols for securities transactions.”

**CPSS-IOSCO Standard 16:** “Securities settlement systems should use or accommodate the relevant international communication procedures and standards in order to facilitate efficient settlement of cross-border transactions.”

**ESCB-CESR Standard 16:** “Entities providing securities clearing and settlement services, and participants in their systems should use or accommodate the relevant international communication procedures and standards for messaging and reference data in order to facilitate efficient clearing and settlement across systems. This will promote straight-through processing across the entire securities transaction flow.”

Additionally, the industry is currently concerned with the implications and implementation of the Market in Financial Instruments Directive (MiFID) which states:

**MiFID Article 34:** “Member states shall require that investment firms from other Member States have the right of access to central counterparty, clearing and settlement systems in their territory for the purposes of finalising or arranging the finalisation of transactions in financial instruments.” (Note: Article 33 additionally refers to access to regulated markets, but these are outside the scope of the Giovannini Protocol)

Whilst this relates primarily to the relaxation of legal restrictions on remote access, once these have been removed, the Protocol will eliminate any technical issues around direct cross-border infrastructure access.

Implementation of the Protocol will, therefore, provide a substantial industry compliance cost saving by addressing five separate initiatives concurrently.

Participant type
Infrastructure: Participation in the 2003 industry migration from ISO7775 to ISO 15022 means many infrastructures have already adopted solutions that are partially or totally data layer and transfer layer compliant. Thus, the cost of compliance for them is less than for those operating only bespoke local solutions. However, as there are gaps in the recommended data standard, it is likely that all infrastructures will have at least some development work to implement new messages as they become available to provide full ISO 15022 and ISO 20022 support for existing non-standard processes. It is assumed that such maintenance activity will be accommodated during the regular development cycle of
an infrastructure and that it is a cost of doing business rather than an additional
development cost.

The cost-benefit analysis for infrastructures will focus on the cost of implementing
ISO15022 and ISO 20022 middleware to isolate their core systems and domestic
participants from short term changes to their systems. This will be offset by the fact that
an infrastructure may operate a legacy system requiring wholesale replacement, and the
Protocol will provide them with a consistent and stable target for a development already
planned.

Cross-border institution: This sector is already largely compliant with at least the data
layer requirements through migration to ISO 15022. Thus, their focus will be on cost
reduction and potential access to new markets made possible by standardised direct
infrastructure connections.

Domestic institution: Predominantly, this category will not have implemented many, if
any, of the identified Protocol elements. Nor does the Protocol mandate this, although it
does recognise that additional cost savings are possible through wholesale adoption of the
Protocol by domestic as well as cross-border participants.

The proposed Protocol allows sufficient flexibility for domestic markets to migrate,
where cost justified, within timeframes they can set, making adoption of the Protocol a
project to be accommodated within normal development cycles and budgets.

A quantitative cost-benefit analysis is currently being conducted, and this will be
published later in 2006 and delivered as a separate report.
Next steps

This Protocol is delivered to the EU clearing and settlement industry participants for immediate commencement of implementation.

During 2006, the implementation monitoring process will include further deliverable reports on the following:

- Implementation map for all infrastructures
- Cost-benefit analysis
- Best practices details where relevant (to be provided in response to requests made during review)
Attachment 1: Composition of Independent Advisory Group

Chairman  Stephan Schuster  
Co-Chair of G30 European Monitoring Committee  

Secretariat  Andrew Douglas  
SWIFT  

Clearing and settlement participant representatives:  
ABN AMRO  Ruud Sleenhoff  
Head of Market Infrastructures  
BNP Paribas  Pierre Willems  
Head of Local Clearing and Custody Product  
Citigroup  Brian Crabtree  
Director, Global Transaction Services  
Deutsche Bank  Stephen Lomas  
Head of Domestic Custody, Trust and Securities Services  
Deutsche Börse  Karl van Gestel  
Head of Settlement and Custody Design  
Federation Bancaire  Didier Hermans  
European Advisor  
Euroclear  Jan Sonck  
Director, Common Communications Interface  
LCH.Clearnet  Pierre-Dominique Renard  
Director Infrastructure and Service Design  
Morgan Stanley  Keith Berrett  
Executive Director  
NCSD  Heikki Ylipekkala  
Director, Business Development  

Exceptional invitees:  
FIX Protocol Ltd  Kevin Houstoun  
Global Technical Committee Co-chair  
Peter Randall  
Executive Director  
ISSA  Thomas Rohr (UBS)  
VP, Securities Messaging  
SMPG  Charles Boniver  
Bank of New York
## Attachment 2: ISO 15022 and ISO 20022 compared

<table>
<thead>
<tr>
<th>ISO 15022</th>
<th>ISO 20022</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SCOPE</strong></td>
<td><strong>SCOPE</strong></td>
</tr>
<tr>
<td>ISO 15022 is a standard developed specifically for the securities industry.</td>
<td>ISO 20022 is a standard developed to cover all aspects of the Financial Services industry, including securities, cash, trade etc.</td>
</tr>
<tr>
<td><strong>DATA DICTIONARY</strong></td>
<td><strong>DATA DICTIONARY</strong></td>
</tr>
<tr>
<td>Yes - ISO 15022.</td>
<td>Yes - As the ISO 20022 data dictionary becomes fully populated, there will be a mixture of new data elements and terms that already exist in the ISO 15022 data dictionary. Terms already existing in ISO 15022 will be identified in ISO 20022 by a synonym linking both dictionaries e.g. trade date in ISO 20022 is linked to ISO 15022 using the synonym - 98a: TRAD</td>
</tr>
<tr>
<td><strong>BUSINESS MODELS</strong></td>
<td><strong>BUSINESS MODELS</strong></td>
</tr>
<tr>
<td>None</td>
<td>Yes - Before messages can be created, the business process must be analysed and flows between different participants fully mapped. These ‘business information diagrams’ illustrate the relationship of all business components (e.g. security and cash related to instrument) as well as activity flows representing business processes (e.g. trading) and the order in which processes must be carried out (e.g. trading prior to settlement) Once processes are modeled, individual communications or ‘messages’ are modeled. A message model is syntax independent and is used to generate messages in the desired syntax.</td>
</tr>
<tr>
<td><strong>MARKET PRACTICE</strong></td>
<td><strong>MARKET PRACTICE</strong></td>
</tr>
<tr>
<td>Yes - Defined by the Securities Market Practice Group (SMPG) to harmonise inherent differences in global market practice leading to greater standardisation which reduces the cost and risk associated with an activity. ISO 15022, however, leaves room for interpretation of Market Practices which has meant that the hoped for standardisation resulting from the adoption of Market Practice, has not necessarily been fully realised.</td>
<td>Yes - Market Practice defined for ISO 15022 will be used by ISO 20022 where appropriate. However, ISO 20022 does not allow the same leeway for interpretation as exists in ISO 15022 through the application of specific additional of logic layers: Messages include rules in their structure, e.g. in the PEP/ISA transfer message, once a security is identified as PEP, the message is structured in such a way as to make it impossible to give information for ISA’s. Schema rules (i.e. in the message definition), e.g. a deal must be specified as an amount of money or a number of units Rules delivered with schemas (i.e. as pieces of code), e.g. for physical delivery, an address must be given. Since these rules are delivered with the schemas, they are not subject to interpretation by programmers. SMPG will continue to harmonise markets in areas where no global market practice exists.</td>
</tr>
<tr>
<td>SYNTAX</td>
<td></td>
</tr>
<tr>
<td>---------------------------------</td>
<td></td>
</tr>
<tr>
<td>The ISO 15022 syntax is specific to ISO 15022 messages. Therefore, implementation of ISO 15022 messages requires specific expertise and programming which reduces flexibility and increases cost.</td>
<td>XML is the ISO approved syntax for the physical representation of ISO 20022 messages. XML is a de facto industry standard used by many organisations and for which many off-the-shelf tools are available. As syntax is independent of both the model and dictionary, if a new syntax is chosen in the future, the dictionary and the business models will not change, i.e. there will be no impact on firms’ applications that process the business content of messages.</td>
</tr>
</tbody>
</table>
Attachment 3: Glossary

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>APACS</td>
<td>Association for Payment Clearing Services</td>
</tr>
<tr>
<td>BIC</td>
<td>Bank Identification Code</td>
</tr>
<tr>
<td>CCP</td>
<td>Central CounterParty</td>
</tr>
<tr>
<td>CESAME</td>
<td>Clearing and Settlement Advisory and Monitoring Experts Group</td>
</tr>
<tr>
<td>CESR</td>
<td>Committee of European Securities Regulators</td>
</tr>
<tr>
<td>CFI</td>
<td>Classification of Financial Instruments</td>
</tr>
<tr>
<td>CPSS</td>
<td>Committee on Payment and Settlement Services</td>
</tr>
<tr>
<td>CSD</td>
<td>Central Securities Depository</td>
</tr>
<tr>
<td>ESCB</td>
<td>European System of Central Banks</td>
</tr>
<tr>
<td>ETC</td>
<td>Electronic Trade Confirmation</td>
</tr>
<tr>
<td>FIX</td>
<td>Financial Information eXchange</td>
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<tr>
<td>FOA</td>
<td>Futures and Options Association</td>
</tr>
<tr>
<td>FPL</td>
<td>FIX Protocol Ltd</td>
</tr>
<tr>
<td>FpML</td>
<td>Financial Products Mark-up Language</td>
</tr>
<tr>
<td>G30</td>
<td>Group of Thirty</td>
</tr>
<tr>
<td>GUI</td>
<td>Graphical User Interface</td>
</tr>
<tr>
<td>IBAN</td>
<td>International Bank Account Number</td>
</tr>
<tr>
<td>IMI</td>
<td>Investment Management Institution</td>
</tr>
<tr>
<td>ICSD</td>
<td>International Central Securities Depository</td>
</tr>
<tr>
<td>IOSCO</td>
<td>International Organisation of Securities Commissions</td>
</tr>
<tr>
<td>ISIN</td>
<td>International Securities Identification Number</td>
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<td>ISO</td>
<td>International Organisation for Standardisation</td>
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<td>ISSA</td>
<td>International Securities Services Association</td>
</tr>
<tr>
<td>MIC</td>
<td>Market Identification Code</td>
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<tr>
<td>MiFID</td>
<td>Markets in Financial Instruments Directive</td>
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<td>NCSD</td>
<td>Nordic Central Securities Depository</td>
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<td>OTC</td>
<td>Over The Counter</td>
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<td>PKI</td>
<td>Public Key Infrastructure</td>
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<td>SEPA</td>
<td>Single Euro Payment Area</td>
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<td>SIS</td>
<td>SegaInterSettle</td>
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<td>SMPG</td>
<td>Securities Market Practice Group</td>
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<tr>
<td>TARGET</td>
<td>Trans-European Automated Real-time Gross settlement Express Transfer</td>
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<tr>
<td>VMU</td>
<td>Virtual Matching Utility</td>
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ISO message standards will be ready for MiFID

SWIFT forms industry working group; completes initial MiFID analysis

BRUSSELS, 15 December 2005—SWIFT announced today the completion of its initial analysis of the impact of MiFID (Markets in Financial Instruments Directive) on ISO 15022 and ISO 20022 standards.

SWIFT is creating a standards working group to coordinate the analysis and implementation of the various harmonisation initiatives in the securities industry.

This analysis shows that the majority of MiFID’s requirements, scheduled to come into force in 2007, are already covered by the existing ISO 15022 messages and the ISO 20022 messages, currently awaiting ISO approval. Some minor changes will be required to ensure the ISO message suite is 100% MiFID compliant.

SWIFT confirms these minor changes will be made in consultation with the industry to ensure all ISO messages are compliant and available for use by November 2007, when MiFID enters into force.

Johan Kestens, Head of Marketing at SWIFT notes “This analysis shows that ISO standards are the way to go for the securities industry. They can cope with existing and future regulation.”

Invitations to participate in the standards working group have been sent and the initial meeting will take place in early January 2006 at SWIFT’s offices in Belgium. In addition to MiFID, the standards-related issues to be addressed include changes to remove the barriers identified in the Giovannini initiative, Securities Market Practice Group and other harmonisation initiatives.