



CONSULTATION PAPER
“THE PROPOSAL FOR THE REMOVAL OF
BARRIER 1 OF THE GIOVANNINI REPORT”

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Head of Securities Industry

January 2005



Dear Colleague,

In line with its longstanding record of formalising communication and market practice standards for the Industry, SWIFT has been asked by the Giovannini Group to leverage its experience and expertise to define a common communication protocol for the European Clearing & Settlement market. The Giovannini Group stated that SWIFT should define this solution, leveraging the expertise of the Securities Market Practice Group.

The purpose of this Consultation Paper is to solicit feedback from participants in the European Securities Clearing & Settlement market space, on a proposed protocol framework to remove Giovannini Barrier 1, which is fully defined in the paper itself.

In addition to seeking feedback on the proposed framework, the document poses a number of specific questions to which answers are sought.

The consultation phase is open until April 15, 2005 and representatives of all financial institutions and infrastructures participating in the European Clearing & Settlement process are invited to provide feedback directly to Andrew Douglas who is the SWIFT manager accountable for this project.

Many thanks in advance for your participation in this important industry consultation. Following collection of your feedback and closure of the consultation period, we shall analyse all of the information received in order to finalise a recommendation for the removal of Giovannini Barrier 1.

The analysis of the market feedback will, I am sure, require ongoing interaction with all participants. We anticipate publishing the proposed common protocol in the first part of 2006

I hope you find this document thought provoking and I look forward to receiving your feedback.

With my best regards,

Francis Rémacle

Your feedback should be sent directly to Andrew Douglas no later than 15 April 2005

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1. Introduction

According to European Internal Market Commissioner Frits Bolkestein, *"making cross-border clearing and settlement as efficient, safe and cost-effective as at national level is crucial to a real single securities market in the EU"*.

The efficiency of global Securities Clearing & Settlement has for some time been under review by a number of supranational industry bodies. Included in the issues they have set out to address is the key matter of the use of a common communication protocol.

In chronological order, the most recent reports taking a position on this issue are:

- **November 2001 - CPSS-IOSCO**, Recommendations for Securities Settlement Systems
Recommendation 16: *"Securities Settlement Systems should use or accommodate relevant international communication procedures & standards..."*
- **November 2001 – Giovannini**, Report on EU Clearing & Settlement Arrangements
Barrier 1: *"The existence of national differences in IT & interfaces used by Clearing & Settlement providers"*
- **Q1 2003 - G30**, Global Clearing & Settlement: A plan of Action
Recommendation 2: *"Harmonise message standards & communication protocols"*
- **April 2003 – Giovannini**, Report on EU Clearing & Settlement Arrangements
In the second report, the group addresses the question of what actions should be undertaken, and by whom, to eliminate the problems identified in the first report
- **May 2004 - European Commission**, Clearing & Settlement in the European Union – The way forward
Communication on Clearing & Settlement: *To ensure that EU securities Clearing & Settlement systems are efficient, safe and enjoy a level playing field via:*
 - *Liberalisation and integration*
 - *Application of competition policy*
 - *Common regulatory and supervisory framework*
 - *Appropriate governance*
- **September 2004 - ESCB-CESR**, Standards For Securities Clearing & Settlement Systems In The European Union
Standard 16: *"Entities providing securities clearing & settlement services, and participants in their systems should use or accommodate the relevant international communication procedures and standards for messaging and reference data..."*

These extracts confirm broad concurrence on the importance of a common communication protocol in promoting greater efficiency in cross-border Securities Clearing & Settlement.



How far is Europe from this goal today?

How far the European Clearing & Settlement industry is from achieving this goal is best illustrated through an extract, shown in Table 1 below, of the results of primary market research carried out by SWIFT in 2004. This took the form of a questionnaire sent directly to the fifteen (pre-Accession) European CSD's and two ICSD's regarding their use of existing communication standards.

At the time of writing, twelve responses (70%) had been received.

In Table 1, each column has the following meaning:

Available standard: Selected global standards already in place in the market.

Infrastructure use – Cross Border: This is the number of [I]CSD's indicating a use, or intended use, of the particular standard somewhere within their cross border business processes. It does not necessarily indicate a use within their current Cross Border Clearing & Settlement activity and for this reason is an optimistic view of the current situation. Additionally, as a particular standard may not cover all of the business processes for a particular market, e.g. the ISO15022 message set, then the use of a particular standard may be in parallel with the use of proprietary standards. Table 1 does not reflect this potential double usage.

Infrastructure use – Domestic: This is the number of [I]CSD's indicating a use, or intended use, of the particular standard somewhere within their current domestic business processes. It does not necessarily indicate a use within their current Domestic Clearing & Settlement activity and for this reason is an optimistic view of the current situation.

Cross Border Community Use: This reflects the current use of each standard by Financial Institutions engaged in cross border Clearing & Settlement – As SWIFT carries an estimated 65-70% of global cross border Clearing & Settlement communication, the standards associated with the use of the SWIFT network have been taken as a proxy for the entire cross border community.

**Table 1**

Available Standard	Infrastructure use – Cross border	Infrastructure use – Domestic	Cross Border Community Use*
<i>BIC</i>	5	2	100%
<i>ISIN</i>	12	12	100%
<i>Account Number</i>	No Standard	Proprietary	No Standard
<i>ISO Currency Code</i>	11	11	100%
<i>ISO Country Code</i>	12	12	100%
<i>Certificate ID</i>	No Standard	Proprietary	No Standard
<i>ISO 15022 Data Dictionary</i>	10	9	100%
<i>ISO 15022 Message syntax</i>	9	7	100%
<i>ISO 15022 Message Set (Inc. SMPG)</i>	10	9	100%
<i>IP Network</i>	12	12	100%
<i>Centrally Managed Architecture</i>	12	12	100%
<i>Dedicated Network</i>	11	11	100%

* Note, this reflects the position as at the end of 2004 when the current SWIFT migration to IP network architecture will be completed.

Superficially, the conclusion might be drawn from the above that European Cross Border Clearing & Settlement is already well on the way towards standardisation. However, this belies the fact that the chart, as mentioned earlier, reflects in certain cross-border areas more of a willingness to comply rather than actual compliance. Allied to this, at the domestic level, which for reasons to be discussed later in this document will also be impacted by changes at the cross border level, Clearing & Settlement activity shows markedly less harmonization with proprietary standards being very much the norm.

Additionally, the chart above represents only an extract of the full range of possible standards. For example, not all markets utilise English as their business language either domestically or cross border. Within the messaging activity itself, differences are even more prevalent some markets using messaging, some files, some real time, some batch, different implementations of PKI registration and certification etc.

The net result of this is a European market which whilst moving towards harmonization in certain areas remains fragmented in others.



2. The Consultation Document

2.1 The Purpose of this document

In their second report, the Giovannini Group assigned the task of defining a solution to the removal of Barrier 1 (see Section 3) to SWIFT through the Securities Market Practice Group (SMPG).

The purpose of this document is two fold:

- To share the results of the research into removing Barrier 1.
- To establish a consultation forum for participants in the European Clearing & Settlement process. This consultation provides the facility for participants to comment on the potential solution framework as well as to provide answers to specific questions raised by the primary research.

2.2 The Principles applied in creating this document

Key principles applied during the formulation of this document are:

1. *Leveraging existing activity* – We have sought to leverage existing industry initiatives to ensure that any proposed change is evolutionary rather than revolutionary. This is particularly relevant in reference to two specific areas of industry activity:
 - The implementation of ISO 15022 as a Securities industry communication standard worldwide
 - *G30 Recommendation 2*, the harmonisation of global message standards & communication protocols, worldwide.

Such leverage ensures that the burden of compliance is minimised by eliminating potential duplication or divergence between the solutions to different recommendations which essentially address the same problem. The ultimate protocol defined should be applicable beyond Europe, and, accordingly, both relevant and respectful of the G30 recommendation.

2. *Inclusive* – Research into potential solutions to Barrier 1 has embraced a broad cross section of the international financial community including Financial Institutions and Market Infrastructures from both the SWIFT and non-SWIFT communities.
3. *Openness* – By issuing a consultation document prior to a final recommendation, we have kept this process open to market opinion to encourage the formulation of a solution that can be implemented by the entire industry.
4. *Neutrality* – Due to its traditional areas of expertise and neutral position, SWIFT is well placed to recommend a Standards based solution. The Giovannini Report identifies the need for a protocol for full business interoperability. This certainly moves beyond simply messaging. Market opinion sampled during our research confirmed that SWIFT is the best placed organisation to carry out this task.



By applying these principles, we believe that the finally recommended solution will have the best chance of a successful implementation by all participants.



3. The Giovannini recommendation

3.1 What is Barrier 1?

The Giovannini Report identifies fifteen barriers as the main causes of fragmentation and inefficiency in cross border Clearing & Settlement. These barriers are grouped into three categories, i.e. technical/market practice, tax procedures and legal certainty. Eliminating them will reduce the perceived cost and risk differences between cross-border and domestic Clearing & Settlement.

This report concerns the elimination of Barrier 1, which is defined as:

“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. Once defined, the protocol should be immediately adopted by the ESCB in respect of its operations. This barrier should be removed within two years from the initiation of this project.”

3.2 Why is this relevant?

The historically fragmented European Clearing & Settlement landscape is currently undergoing wholesale structural change. Consolidation has eliminated some of this fragmentation through the creation of infrastructural ‘islands’ within Europe which allows partial rationalisation of systems with an associated cost saving to participants and the industry. However, the parallel trend towards demutualisation has increased the polarisation between those wishing to remain independent and those with a more ‘inclusive’ view of the future and as a result, it seems clear that in the short term, consolidation will not result in a pan-European CCP or CSD, a result which would resolve Barrier 1 at a stroke. Risk/cost management and reduction will continue to play key roles in shaping the future whilst the appetite to retain competitive advantage promotes the creative development of new products and services. These trends, whilst obviously impacting entities operating within Europe, also impact the position of Europe itself as a participant in the global marketplace.

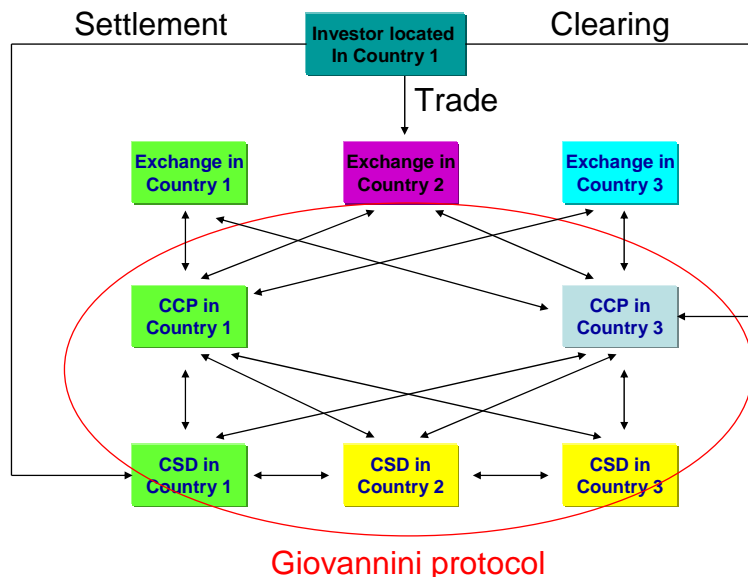
Given these trends, an evaluation of the current and potential future European landscape illustrates why eliminating Barrier 1 remains relevant to improving the efficiency of Clearing & Settlement in Europe.

Firstly, it is clear that to satisfy the European Commission’s goal (see Section 3.3) competition must exist at the trading or Exchange level. Cross or multiple stock listing, liquidity and geographic or industry specialisation will dictate that participants must be free to trade on the Exchange of their choice, selecting according to perceived commercial advantage. This will ensure that the European Capital Markets remain in the forefront of liquidity generation for the global issuer community and promotes the continued inflow of investment into Europe as well as the encouragement of more cross border investment between European states.

However, preserving the competitive element of trading is only one component in keeping the European financial machine in the forefront of Global Capital Markets. Competitive costs from enhanced operational efficiency are also a critical element as a highly liquid and competitive trading market is ‘window dressing’ if the underlying operational environment is inefficient and costly.

Given all of the above factors, within the short to medium term, the European landscape is likely to resemble the current structure represented in the diagram below.

**Diagram 1:
Potential European Clearing & Settlement landscape**



Thus choice is preserved with Investors free to trade, clear and settle in the location of their choice using the intermediaries of their choice. However, the cost of this choice is a continued level of systemic and business fragmentation for the foreseeable future and this establishes the true purpose of removing Barrier 1:

- in the short term, to create systemic harmonisation thereby eliminating current duplication of technological cost associated with multiple proprietary connectivity links
- in the long term, providing the basis for business harmonisation which will eliminate unnecessary operational costs associated with proprietary processing

Assuming the removal of relevant legal and regulatory impediments, such a scenario is only possible using a common communication protocol to create linkages where they do not exist, and harmonise linkages where they do exist, both amongst the infrastructural components, and the between infrastructures and participants.

3.3 What is the scope of the solution?

To define a solution to a problem, the first and most important step is to accurately define the problem. To do this, it is necessary to examine what the Giovannini Report asks for in respect



of removing Barrier 1 and then eliminate all ambiguity, ensuring all parties have the same expectation from the solution in terms of what it will, and will not address. Here, it is useful to be mindful of the ultimate goal of both the Giovannini Group and the European Commission as sponsors of the Giovannini report.

The goal of the Giovannini Group and the European Commission is to create an efficient and safe European Clearing & Settlement system through market led reform. In simple terms, the removal of Barrier 1 must make the European Clearing & Settlement process safer, more efficient and thus cheaper.

Examination of key terms in the Giovannini Report definition of Barrier 1 helps clarify the scope of the solution.

3.3.1 “Clearing & Settlement”

The European Commission (in their consultation document of May 2004) defines the term “Clearing & Settlement” as *“the full set of arrangements required to finalise a securities or derivatives transaction. These arrangements encompass a broad collection of institutions, instruments, rules, procedures, standards and technical means.”*

Bearing in mind the goal summarised earlier, it is important to ensure that any proposed recommendation is as inclusive as possible to avoid any risk that the market develops alternative solutions and standards for activities not specifically identified as ‘in-scope’.

For the avoidance of doubt, the recommendation is the following:

All participants should assume that the proposal for the removal of Barrier 1 is to be applied to communications in all post trade activities, including asset servicing and securities related cash activity, unless specifically stated otherwise. For the purposes of this document, the term "asset servicing" includes corporate actions and income processing, proxy voting, securities reporting, reconciliation and reference data.

Unless stated to the contrary, participants should also assume the proposal is instrument neutral, i.e. it is applied to all traded instrument types.

3.3.2 “Clearing & Settlement Providers”

The **key participants** in any reform of Clearing & Settlement are those whose roles are integral to the process, i.e. **Central Counterparties** (Clearing), **Central Securities Depositories** (Settlement & Custody) and **Central Banks** (cash settlement, collateral etc). However, these are generally not retail service providers and access to their services is provided through wholesale service providers such as **Custodians** (Global and Domestic) and **Clearing Members** (Global and Self Clearing). **Investment Managers** and **Brokers** are also important participants as initiators of Clearing & Settlement activity through trading and investment.

Note: It is not the purpose of this document to debate the allocation of participant responsibility within the Clearing & Settlement process. The above represents only a list of the parties that will be involved in the removal of Barrier 1.



3.3.3 “Information technology” and “Interfaces”

Within this document, the terms “**Information Technology**” and “**Interface**” are applied in their broadest sense to mean all hardware, software and networking systems implemented to provide access to **Clearing & Settlement services**.

3.3.4 “EU-Wide”

When research began, the European Union comprised fifteen countries. Research has therefore focused on the situation faced by these **fifteen countries plus 2 ICSD’s**. However, an additional ten countries (‘Accession Countries’) have joined the EU and whilst not addressing their specific situations, it is anticipated that the final recommendation will be applied to participants in all EU countries, both current and future.

Indeed, post removal of all fifteen Giovannini barriers, there is an excellent case for making compliance with a standardised EU capital markets system, part of the European Union qualification procedure.

Questions arising from Section 3

1. Do you agree with the scope of the solution as defined? If not, please define your suggested amendment and explain why it is required.
2. Is there any more likely structural scenario that would make the implementation of a common protocol redundant? If ‘yes’, please define your scenario and explain why it is more likely and how it makes the protocol redundant.

4. The proposed protocol framework

4.1 The Basics

This section of the document lays out a proposed framework for the protocol with the intention of identifying the minimum mandatory baseline of features needed to provide a usable protocol that guarantees interoperability between participants.

A simple three layer model is considered appropriate to frame the solution to the removal of Barrier 1:

Layer 1 – Data layer: Here, rules are applied to the business data exchanged between participants. This document makes no attempt to define the nature of the applications using this data but will identify the minimum specific features needed to promote application interoperability.

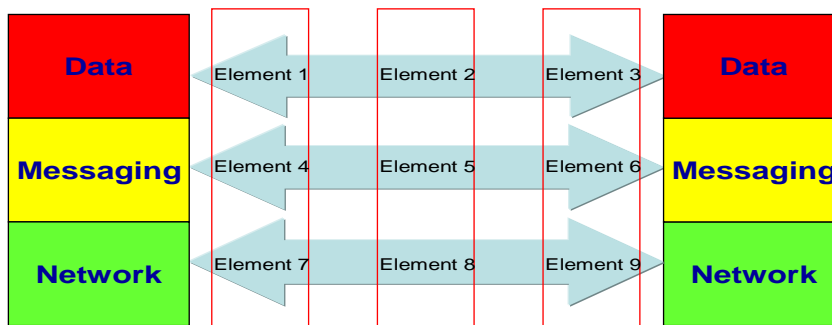
Layer 2 – Messaging layer: This layer considers the use of communication channels appropriate to business activity, e.g. message based, file based or operator based communication, together with appropriate security standards and levels of service.

Layer 3 – Network layer: This foundation layer must identify minimum standards for telecommunication infrastructure together with appropriate security standards and levels of service, e.g. security, availability, reliability and survivability etc.

Within each layer, there are key components divisible into Standards, Security and Service. The intersection of each layer with each key component identifies nine elements of an interoperability protocol, as shown in Diagram 2.

The definition of the final protocol will identify the mandatory minimum feature content of each element required to achieve interoperability. The enforcement of this minimum baseline will provide interoperability and facilitate the reduction of both cost and risk for all users.

Diagram 2:
Basic structure of an interoperability protocol





4.2 The Detail

This section outlines the potential mandatory minimum features contained within each of the nine protocol elements identified above.

4.2.1 – Data layer

4.2.1.1 Element 1; Data Standards

There are a number of critical requirements that must be satisfied by the creation of a common data standard for use by applications:

1. *Common process model*: Process **modelling identifies** for each business process, the **key players**, business **elements** to be exchanged, **how to group the elements into messages** and **when to send the messages** in support of each process. These models must then be agreed by the relevant participants.

To fully remove Barrier 1, modelling is needed for all processes in the Clearing & Settlement lifecycle from pre-trade through to post-settlement, for all types of financial instruments.

Agreed models should be stored in a repository accessible by all industry participants.

2. *Common Data Dictionary*: Once business data elements have been identified and agreed through modelling, they must be captured in a single place for reference by all participants, typically in the form of a data dictionary.

The data dictionary should be accessible by all industry participants.

3. *Common syntax*: Once a common business model is agreed and a common data dictionary accepted, the creation of common messages using a common syntax is possible. This syntax must be broad enough to accommodate all required data fields for all agreed business processes. In the absence of 100% adoption of a common syntax, translation between existing syntaxes may be necessary.

Agreed messages should be stored in a common repository accessibly by all industry participants.

4. *Business and Syntax Synonyms*: Whilst the ultimate goal is to develop a common data standard, it must be recognised that prior to standardisation, there could be multiple overlapping data standards and syntaxes dealing with specific areas of the transaction lifecycle. Therefore, it is important to identify where differing terms within each standard/syntax have the same meaning. Such cross referencing is an essential precursor to the process of syntax translation required if overlapping standards exist.

The synonyms should be part of the data dictionary.

4.2.1.2 Element 2; Data Security

This section does not refer to the physical implementation of application security measures such as passwords or smart cards. It is assumed that such definitions will be adequately covered by a participant's internal security guidelines. Rather, this relates to the implementation of logical security based on an understanding of both the nature of the



business being conducted and the role of specific individuals within that business. This is commonly referred to as role or relationship based access control and can be built into either the application or the messaging interface, i.e. specific individuals are only able to carry out specific activities defined as appropriate to their role.

4.2.1.3 Element 3; Data Service Level

At the Data Layer, the key goal of Barrier 1 is the establishment and then maintenance of interoperability through standards. This requires a commitment from application providers and users to implement data standards changes within an agreed timeframe to prevent divergence and ensure continued interoperability. Such commitments would form the basis of a mandatory compliance requirement.

4.2.2 – Messaging layer

4.2.2.1 Element 4; Messaging Standards

All participants must be able to communicate using a range of standard mechanisms for information transfer. These are:

1. *File based service*: For exchanging structured financial messages or reports in bulk
2. *Message based service*: For exchanging individual structured messages
3. *Operator based service*: For providing an interactive user interface

It is considered impractical to create mandatory conditions under which specific mechanisms must be used other than to state that all mechanisms should be potentially available for all communication purposes. It is expected that participants and service providers will agree on the most appropriate mechanism for a specific purpose, influenced by their mutual risk and cost profiles.

4.2.2.2 Element 5; Messaging Security

There are a mandatory set of minimum security features that should be implemented at the messaging layer. These are:

1. *Authentication of the source of a communication*: Provided by the implementation of Public Key Infrastructure (PKI) security. Built into this should be an approval mechanism to prevent unsolicited traffic from non-approved counterparties.
2. *Data integrity and confidentiality must be guaranteed for messages and files*: Again, the use of PKI security secures data from modification during transmission.
3. *Non repudiation (sender & receiver)*: Participants should not be able to deny that a message or file was exchanged as well as being able to guarantee the integrity of the content. Non-repudiation is only required for business critical messaging and other research is being conducted by SWIFT to define those business scenarios where non-repudiation would be considered mandatory.
4. *Time stamping*: All communications must be time stamped at a predetermined point in the delivery process.



4.2.2.3 Element 6; Messaging Service Level

There are a number of features that apply at the Messaging Service Level. Not all of them should be considered mandatory for the definition of a baseline protocol.

Additional features can be applied according to the level of service required by the participants. Selection and implementation of such features will be primarily driven by the cost and risk profile of each participant and providers of service may choose to specify additional features for their service. Such services would typically be agreed as part of a Service Level Agreement (SLA) between participants and/or service providers.

The following are considered to be the mandatory baseline:

1. *Messaging layer continuity*: The messaging layer must offer protection against various types of failure including:
 - Failure of customer hardware/software
 - Failure of central messaging servers
2. *Message/file audit*: Log and store route, timestamp and security data for dispute resolution and regulatory compliance
3. *Message/file guaranteed delivery*: Sent message/file must result in a received message regardless of network blockages, outages or the availability of the target application. If the target application is not available, the communication service will retry delivery or wait for a notification from the receiving party.
4. *Message/file delivery once and only once*: A mechanism for ensuring no possibility of repeat delivery of data such as settlement instructions.

The following features are also provided in certain circumstances but current research has not identified them as being mandatory:

1. *Message/file archive and retrieval*: Transmitted data archival, with a retrieval mechanism accessible by all participants, for dispute resolution and regulatory compliance
2. *Message/file store and forward*: To compensate for participant downtime and allow greater flexibility in timing of communications.
3. *Message/file replay*: Ability to retransmit a message/file or a message/file stream (e.g. in cases where an internal system or network failure causes a participant to “lose” a message or set of messages)
4. *Message/file validation*: Facility to measure sender compliance with specific data standards and in cases of non-compliance, abort sending and report errors to sender.
5. *Message/file analysis*: Examination of archived data to determine patterns in message handling or message content
6. *Message/file delivery control*: Users can control the order in which messages/files are sent and received, e.g. prioritisation.



7. *Agreed interface provisioning, implementation and support contracts:* Typically, such an SLA would contain details of expected lead times, recovery or repair commitments, etc.
8. *Testing facilities:* A test facility should ideally be available to service users in order that they can carry out development work, training etc., away from the live system.
9. *Provision of Adapters based on standard technologies:* To promote interoperability, the messaging interface should accommodate adapters allowing interconnection to multiple interface technologies.

4.2.3 – Network layer

4.2.3.1 Element 7 – Network Standards

1. *IP-based network infrastructure:* The proliferation of the internet and the fact that many applications, data carriers and enterprises have adopted this networking technology means that networks based on the so called Internet Protocol (IP) infrastructure must be adopted as a basic facilitator of interoperability.

4.2.3.2 Element 8 – Network Security

1. *Secure private communication:* The IP network should be built on dedicated network or should use an IP virtual private network (VPN) solution.
2. *Data Encryption:* Encryption of data on transmission should be based on a strong standard algorithm, e.g. AES (Advanced Encryption Standard) for symmetric or RSA for asymmetric solutions.

4.2.3.3 Element 9 – Network Service Level

An SLA for a Network Service should include a number of key features identified qualitatively below:

1. *Service:* The network provider should provide commitment on issues such as service provisioning and implementation, time to restore, quality of service and availability.
2. *Provision of adequate diversity and contingency:* An IP network should offer protection against various types of failures, and in the event of failure, commitment on back up and recovery procedures, times etc.:
 - Failure of customer premises equipment
 - Failure of the network access line (the ‘local loop’)
 - Failure of a particular route within the network provider’s IP network
 - Failure of one or more network providers if the service provider is utilising multiple underlying networks
3. *Network management and monitoring:* This is a non-trivial task including activities such as management of routes, equipment configurations, fault identification, fault rectification and security. It can either be handled by users who prefer to keep control



over their network, or it can be outsourced to a network provider. If outsourced, detailed responsibility and commitments should be documented.

4.3 Service Provision

There are four key issues related to the provision of these services that must be considered:

1. *Mandatory outsourcing of services:* Within the solution framework, there are certain mandatory services which for various reasons, participants should outsource to a neutral 3rd party. These can be categorised as:
 - *Arbitration and dispute resolution services:* Typically this includes services such as non-repudiation and time stamping etc, the results of which would be considered as the neutral evidence required to resolve an operational dispute between two counterparties.
 - *Commodity services:* Certain features are key to creating an interoperable process model, but only if they are implemented in a common manner, i.e. they are commoditised. Bespoke implementations of such features may comply with the letter rather than the spirit of the “standard” and do not contribute to achieving the ultimate goal of business interoperability. A prime example is in the use of data standards where participants agree a specific bilateral use of a common data standard. This contributes only to improving the efficiency between the two counterparties concerned and is unlikely to contribute to the increased efficiency of the market in the long term.

Such situations must be avoided for services essential for the successful implementation of a common communication protocol. Such commodity services would include, for example, the provision of PKI. There is no commercial advantage to be gained from the implementation by an institution of a bespoke PKI service and indeed, bespoke implementations impose significant administrative and operational burdens on counterparties. Such commodity services should be unilaterally implemented to common technical standards by the provider[s] of the messaging and/or network services.
2. *Messaging/Network from single/multi supplier[s]:* Participants can purchase bundled messaging and network services from a single supplier or may choose to un-bundle and obtain specific services from specific suppliers. This choice will be governed by cost and existing commercial relationships. Also, in accordance with a participant’s specific risk policy, they may select multiple suppliers of the same service, e.g. network services from two independent suppliers to provide alternative resiliency solutions.
3. *Messaging layer build or buy:* The decision on whether to build a bespoke interface or buy “off the shelf” will be a strategic choice by the participant based on internal competencies, commercial relationships etc.
4. *Accreditation of service suppliers:* All of the above issues point to the potential desirability of an independent accreditation of suppliers of the mandatory elements of the protocol, i.e. the independent measurement of specific capability against a set of



pre-determined criteria. Suppliers of these services would then be accredited or labeled to provide potential users with a reference benchmark providing confidence that:

- The service provided meets the minimum criteria established for interoperability at the relevant level
- Services provided by independent suppliers can be integrated with a minimum amount of effort and cost
- Dispute resolution and commodity services are provided according to common standards and architecture
- Network interoperability is possible

Questions arising from Section 4

1. Do you believe the nine protocol elements correctly frame a potential communication protocol?

If “not”, please specify the elements you would include/delete and why.

2. Do you agree that the features of each protocol element are defined correctly?

Are there additional features you believe should be part of the mandatory baseline, e.g. should message archival and retrieval be a mandatory feature of the messaging service element?

If so, what are these features and why should they be included?

Conversely, are there any features which are defined within the mandatory baseline that you believe should not be included? If so, what are they and why should they not form part of the baseline.

3. Should a minimum set of performance standards be quantified for each Service element.

If yes, what is the minimum acceptable content and how would you quantify it, e.g. Service should be open 24x7 with 99.999% availability.

4. Which of the mandatory features identified above have you already implemented?

5. What is your opinion of the need to implement a market wide Data Standards compliance commitment, i.e. when new data standards are published, all participants agree to implement within specific timeframes. If you agree, is a 6 month mandatory compliance window appropriate? i.e. compliance with the standard is mandatory within 6 months of publication,.

6. What is your opinion on the mandatory outsourcing of dispute resolution and commodity services to the provider[s] of messaging and/or network facilities?

If you agree that outsourcing of such services should be mandatory, what services should be considered:

- appropriate to dispute resolution



- as commodities

7. Do you agree that an independent accreditation of Messaging/Network suppliers is required to guarantee the conformance of suppliers to the stated baseline functionality?

If no, should there be a single provider of Messaging and Network services for European Clearing & Settlement?

If yes, who should provide this accreditation facility?
8. If you do not agree with either accreditation or single service provision, how do you believe compliance with the baseline functionality should be monitored and maintained?
9. Should the providers of Messaging and Network functionality police the quality of traffic against the defined standards? (Note, this requires the service provider to 'read' content)

If yes, should they be empowered to stop traffic that does not conform to agreed standards or merely report on non-conformance?
10. Is the minimum security level defined at the messaging layer appropriate to all communication:
 - a. generic/non binding information exchange such as end of day price distribution.
 - b. binding information exchange such as statements, status reports notifications etc.
 - c. business critical information exchange such as instructions and confirmations.
If not, what should the minimum level of security be for each type of information exchange?



5. Issues arising from the primary research

During primary research, a number of independent issues and questions have been raised which are detailed here for consideration and response as part of the consultation process:

1. System vs business interoperability
2. ISO 15022 vs ISO 20022
3. Is two years a realistic timeframe and when did the clock start?
4. What is the applicability of a cross border protocol to domestic activity?

1. *System vs business interoperability?*

The ultimate goal is increased market efficiency through interoperability which can be achieved in one of two ways:

- System interoperability via the implementation of ‘middleware’ translating between two different underlying system protocols at the point of interface
- Business interoperability achieved through standardisation of the underlying business processes which facilitates system interoperability

The pragmatic prevailing view, and one shared by G30, is that the overriding concern is to effect improvement in the efficiency of Clearing & Settlement in the short term. If the expediency of using middleware speeds up the delivery of improvement, this is deemed an acceptable compromise. However, the goal of business interoperability should remain a visible and preferable long term target.

From a practical perspective, implementation of short term system interoperability may mean that once a participant has achieved such interoperability, it becomes difficult to convince them of the value of business interoperability.

2. *ISO 15022 vs ISO 20022*

ISO 15022 successfully created a common data dictionary and common messages for key business processes within the global Securities industry but is not based on the common business modelling process defined as a requirement in Section 4.2.1.1, nor is it syntax independent.

ISO 20022 (also known as UNIFI – UNiversal Financial Industry message scheme) builds on ISO 15022 and defines the additional rules and tools needed to satisfy all of the requirements identified in Section 4.2.1.1.

ISO 20022 covers the entire range of financial activity i.e. cash, treasury, FX, etc, as well as Securities.



ISO 20022 disengages the business model from syntax and defines a central Financial Repository that will contain:

- Agreed business models for all business processes
- Agreed Dictionary of business elements
- Agreed communication structures which can be converted to messages using an agreed syntax
- Synonyms for different syntaxes

Additionally, ISO 20022 establishes a common forum for defining, prioritising and approving future business modelling and associated new message development. Separate business specific groups (Standards Management Groups, SMG), e.g. Securities pre-trade, settlement, derivatives, etc., will prioritise, review and validate business models ensuring there is no duplication of effort and that the industry works against a single agreed business model.

All agreed updates to the Financial Repository will be made by the ISO Registration Authority in compliance with ISO standards and related technical specifications. For ISO 20022, the Registration Authority is SWIFT.

ISO 20022 assumes the use of other ISO standards such as ISIN, BIC, Currency codes etc. A full listing of these is contained in the Glossary under entries beginning 'ISO..'

ISO 20022 has been independently approved by ISO and other industry specific standards bodies as the long term strategic goal of the financial industry. Where ISO 15022 does not currently address a specific business process, or where multiple standards exist within the same business process, the process will be modelled in ISO 20022 and supporting messages created accordingly. Thus, the migration to the long term goal of ISO 20022 will be staged through:

- i) Current participants (i.e. ISO15022 users) continuing to use existing ISO 15022 messages together with ISO 20022 messages for business processes where ISO 15022 messages do not exist.
- ii) New participants (i.e. non-ISO15022 users) implementing the ISO20022 Data Dictionary which will allow them to:
 - Use the synonyms it contains to create, through reverse engineering, relevant ISO 15022 messages
 - Implement ISO 20022 for business processes where ISO 15022 messages do not exist.
- iii) The ISO 15022 data elements and messages will be converted to ISO 20022 standards only when business requirements dictate this is necessary.

3. *“This barrier should be removed within a period of two years from the initiation of this project.”- Is ‘two years’ a realistic timeframe and when did the clock start?*

The “barrier removal clock” has clearly not yet started.



Experience also suggests that two years for true business interoperability is an unrealistic goal although short term system interoperability may be possible within such timeframes.

It is important to note that the EU has a stated preference for allowing market forces to effect the necessary changes and will only consider issuing a Directive if market forces do not bring about the required changes. This in itself suggests a realistic time horizon of more than two years if a Directive becomes necessary.

To ensure broad take up of the final recommendations, infrastructural commitment will be of critical importance e.g. the Euroclear Group stated intention to incorporate relevant recommendations into the design of its Common Communication Interface and the Clearstream Banking group stated intention to evolve their existing CreationConnect product suite to support the relevant agreed standards and market practices.

4. What is the applicability of a cross border protocol to domestic activity?

Many infrastructural service providers, i.e. CSD's and CCP's, have already made substantial investment in developing their own IT platforms, usually and understandably for the benefit of the majority of users, i.e. their domestic community trading domestic securities. For settlement and clearing, there is little practical difference between a settlement originating from a domestic participant and one from a cross border participant and a change to the cross border 'system' will invariably impact the domestic 'system'.

CSD's and CCP's might be expected to be reluctant to make investment to implement a solution specifically designed to improve the Clearing & Settlement of cross border securities trades, an activity with little current relevance to their principal community.

As stated earlier, one of the long term goals of removing these barriers is to increase cross-border trading between European states. Thus, the final Barrier 1 recommendation should be important to domestic participants as it will make cross-border trading a more cost effective and therefore realistic proposition, there being little doubt that this will be an attractive strategic development to many investing/trading institutions as they strive to maximise performance and minimise their risk exposure to a single market.

In regard of protecting the existing investment of domestic communities in their domestic Clearing & Settlement systems, the question of system interoperability vs business interoperability is key. If system interoperability is implemented in the short term, this can be used to isolate a domestic system from the need to implement short term change, thereby preserving the domestic process whilst improving the cross border process. This in effect allows short term improvement whilst providing a bigger window to achieve the ultimate goal of business interoperability.

Questions arising from Section 5

1. What is the industry view on establishing two distinct goals, effectively phasing the implementation of the solution:
 - a. A short term system interoperability goal to be achieved within an agreed timeframe, e.g. two years?



- b. A long term business interoperability goal to be achieved within an agreed timeframe, e.g. five years?
2. If such a phased strategy is appropriate, what would be considered to be acceptable time frames for achieving each goal?
3. If such a strategy is inappropriate, what is the industry view on a more acceptable solution and why?
4. What mechanisms should be used to encourage take up of the recommended protocol within agreed timeframes, e.g. mandatory migration, financial penalties etc.
5. What is the industry view on the standards co-existence requirement outlined above? Does such a strategy adequately support the ongoing improvement of the Clearing & Settlement process? If not, what alternatives exist?



6. Next phases

January 5th, 2005 – Publication of consultation document

April 15th, 2005 – Closure of the public consultation period

Q2, Q3, Q4 2005 – Review of consultation feedback, ongoing interaction and definition of recommendation

2006 – Publishing of final recommendation



ANNEX 1 Glossary

IBAN - International Bank Account Number (European Committee for banking standards)

IPSec - Short for *IP Security*, a set of protocols developed by the IETF to support secure exchange of packets at the IP layer. IPSec has been deployed widely to implement Virtual Private Networks (VPNs).

ISO 3166 - Country code

ISO 4217 - Currency code, i.e., ISO 3166 country code followed by one character for the currency

ISO 6166 - International securities identification numbering system (ISIN)

ISO 8532 - Format for transmission of certificate numbers

ISO 9362 - Specifies the elements and structure of a universal bank identifier code (BIC) for use in automated processing in banking and related financial environments. The BIC consists of 8 or 11 contiguous characters (letters and/or digits without special characters such as blanks, separators, punctuation, etc.) and comprises the first three or all four of the following four components: bank code, country code, location code, branch code

ISO 10962 - Classification of Financial Instruments (CFI code)

ISO 15022 - Sets the principles necessary to provide different communities of securities participants users with the tools to design message types to support specific information flows. These tools consist of a set of syntax and message design rules, a dictionary of data fields and a catalogue for present and future messages built by the industry with the above mentioned fields and rules.

ISO 20022 – An extension of the Securities specific ISO 15022 standard to cover all financial business processes for all financial instruments. The standard was designed to provide the rules and tools necessary to allow the creation of common business models, a common data dictionary and the use of a common syntax.

MIC - Codes for exchanges and market identification

Protocol - An agreement governing procedures used to exchange information between co-operating entities. Protocols usually include how much information is to be sent, how often, how to recover from transmission errors and who is to receive the information. It can also include definitions of message formats plus message sequencing and interpretation rules.

Syntax – Rules governing the arrangement of data into a structured form, i.e. how to structure a message

XML - eXtensible Mark-up Language