

**MiFID Joint Working Group
Real-time Market Data Subject Group**

White Paper on Price Transparency under MiFID

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Disclaimer

This White Paper is a consensus recommendation of the MiFID Real-time Data Subject Group but does not necessarily reflect the view of any organisation that is participating in this group.

If you have feedback or comments on this White Paper, please send them to the Chair of the Real-Time Market Data Subject Group, Tom Davin via e-mail at tdavin@siia.net.

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1. Introduction and Executive Summary

This paper is the result of discussions that have taken place within the Real-time Market Data Subject Group of the MiFID Joint Working Group (JWG) on the requirements for pre- and post-trade transparency under MiFID.

Pre- and post-trade transparency is henceforth jointly referred to as price transparency in this document unless the subject relates specifically to just pre- or post-trade transparency.

The paper will be distributed to the competent authority in each of the 25 EU countries, the 2 accession countries (Romania and Bulgaria) and the three European Economic Area countries (Iceland, Norway and Liechtenstein) that have also signed up to MiFID. Additionally, it is available to all participants of the MiFID JWG and can also be distributed to other interested parties.

The proposed pre- and post-trade publication model has had input and comment from the following types of market practitioners:

- sell-side investment firms
- exchanges
- data vendors
- industry associations
- software houses
- network service providers
- consultants.

The main provisos on which the model is based include the following:

- the model is implemented equally in all the participating countries,
- all data is disseminated on non-discriminatory and reasonable commercial terms,
- there is a level playing field for all participants,
- there is no monopoly situation that restricts new entrants,
- there is no discrimination relating to the distribution of data.

This paper addresses the following articles of Directive 2004/39/EC of 21st April 2004 on markets in financial instruments:

| | |
|------------|--|
| Article 27 | Obligation for investment firms to make public firm quotes |
| Article 28 | Post-trade disclosure by investment firms |
| Article 29 | Pre-trade transparency requirements for MTFs |
| Article 30 | Post-trade transparency requirements for MTFs |
| Article 44 | Pre-trade transparency requirements for regulated markets |
| Article 45 | Post-trade transparency requirements for regulated markets |

In summary, the recommendations that we are asking to be made binding at Level 3 are the following:

1. Ideally each trade report should only be published to the market (by which we mean a Data Aggregator) once. Duplications are difficult for downstream consumers to identify and remove. If an Investment Firm chooses to publish trades more than once (through multiple Data Aggregators), it is the Investment Firm's responsibility to provide a mechanism of identifying trade reports to ensure their downstream uniqueness.
2. Exclusive arrangements for real-time data publication between an Investment Firm and a Data Distributor (or a limited number of Data Distributors) or a Data Aggregator and a Data Distributor (or a limited number of Data Distributors) should not be considered sufficient to meet the MiFID requirements to publish data in a non-discriminatory basis.
3. Publishing trade reports to a web site is considered to be acceptable provided that the data is sent in an electronically readable format with a pre-determined data structure.
4. Data which is required to be made available by Systematic Internalisers and Regulatory Authorities (such as lists of regulated markets, SIs and MTFs from regulators, lists of stocks admitted to trading from regulated markets, lists of liquid shares and lists of liquid stocks in which SIs are quoting) need to be available on a timely basis in an electronically readable format so that downstream consumers of the data can use this information without the requirement for human intervention.
5. Universal Time Code (UTC) timestamps on quotes and trade reports need to be synchronised with the atomic clock with a mandatory requirement to minimise clock-drift on all individual infrastructure components to no more than 1 millisecond using industry-standard techniques. These timestamps need to be applied by the originating data source.
6. The model used to publish pre- and post-trade data needs to be the same in all the participating countries in order to achieve consistency.

2. Objectives of the White Paper

This Real-Time Market Data Subject Group White Paper describes how price transparency could be achieved within the European financial markets. It is based on the current understanding of the requirements of the MiFID.

The White Paper serves as a resource for:

- Financial Institutions seeking to fulfil their MiFID obligations in terms of price transparency
- Organisations, such as Stock Exchanges, looking to aggregate the additional data for pre- and post-trade transparency required for MiFID compliance
- Market data vendors looking to collect and re-distribute the additional pre- and post-trade transparency data required for MiFID compliance
- Data Consumers who will need to access the additional pre- and post-trade transparency data as part of their ongoing business operations
- Regulators who will need to oversee the implementation of MiFID and enforce the regulations.

The White Paper assists organisations to plan for MiFID and in some of the key decisions that affected organisations will need to take. The White Paper does not provide advice regarding these decisions nor does it necessarily provide all the information necessary for an organisation to make these decisions.

The questions that the White Paper addresses include:

- What are the implications for my organisation if it is a Systematic Internaliser?
- How can my organisation report / publish data?
- What are the implications for my organisation if it is a Data Aggregator?
- What data will my organisation require?
- How and where will we get this data from?

3. MiFID Front, Middle, Back Office and Computer Standards

The Real-Time Data Subject Group recognises its proposed models will, by necessity, be built on a shortlist of standards. MiFID connectivity standards are discussed in the Reference Data Subject Group (RDSG) Discussion Paper 1.9, published 7th December 2005, authored by Anthony Kirby and Martin Sexton.

The matrix below is based on the RDSG paper and shortlists the most critical back office and electronic standards. It acknowledges no single set of standards will prevail. This is a 'multi-lingual' approach in that it does not specify a single standard but recognises that multiple standards may be able to support MiFID.

| <u>Standard Type</u> | <u>Front Office</u> | <u>Middle, Back Office, Computer</u> |
|----------------------------|---------------------|--------------------------------------|
| Protocol | To be discussed | Fast Fix 4.4, ISO 20022 |
| Symbology | | ISO 6166 ISIN + MIC ISO 10383 |
| Business Entity Identifier | | ISO 9362 BIC, ISO 16372 IBEI |
| Financial Instrument Class | | ISO 10962 |

4. Price Transparency

This section of the White Paper covers those aspects of price transparency which are common to both pre-trade and post-trade transparency requirements under MiFID. The points in this section apply to all price transparency unless specifically stated either here or in the following 2 sections of this document.

4.1. *Proposed Publishing Model*

The proposed model for real-time OTC data publishing is the result of discussions between the participants of the MiFID Real-Time Market Data Subject Group who cover almost the whole spectrum of the financial services industry.

The model is pan-European and needs to be implemented equally in all the participating countries.

The following organisation types or functions play a role in the model:

- ***Investment Firms (IF)***

Investment Firms include MTFs and Systematic Internalisers, etc. that are required to publish pre- and post-trade data under MiFID.

- ***Data Aggregators (DA)***

A Data Aggregator is a service provider that provides pre- and post-trade publishing facilities to any IF wishing to outsource its MiFID trade reporting obligations. DAs are likely to be:

- IFs, MTFs or regulated markets that themselves have to comply with MiFID trade reporting obligations and wish to share their infrastructure,
- third party service providers that currently provide this type of service in other areas of the financial services industry,
- network service providers,
- consortia of IFs.

- ***Data Distributors (DD)***

A Data Distributor receives pre- and post-trade data from one or more Data Aggregators and distributes that data to Data Consumers (see below). DDs are likely to be data vendors, exchanges and other companies already in the area of data dissemination.

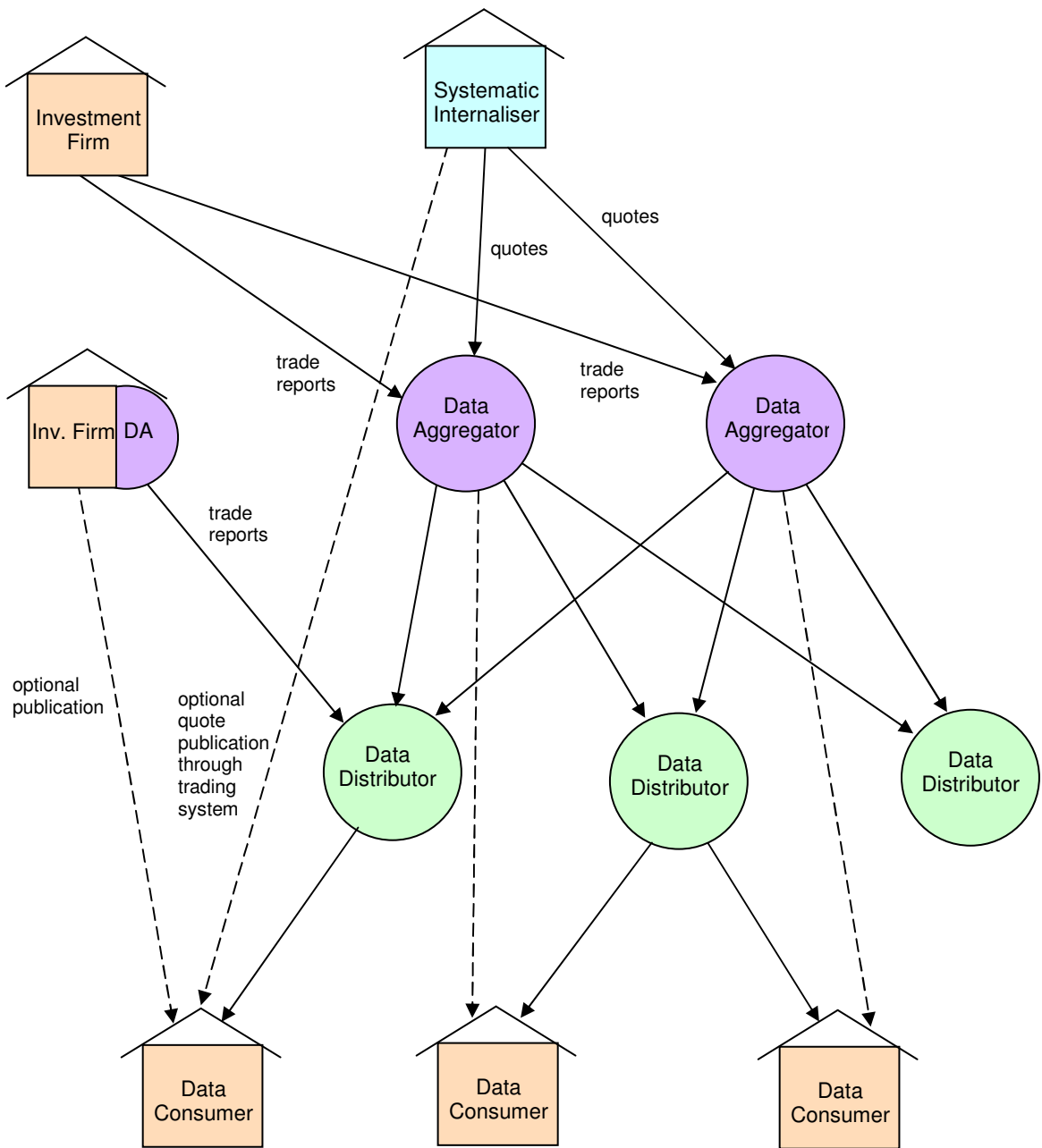
- ***Data Consumers***

Data Consumers are all entities and individuals that wish to receive pre- and post-trade market data and include investment firms, other buy-side firms, individual investors, etc.

- ***Competent Authorities***

Competent Authorities are the market regulators in each country.

The publishing model is illustrated in the diagram below. It shows the flow of data and the function of each stage in the data publishing process.



Responsibilities and actions of each type of organisation with respect to price transparency

Investment Firms

1. An Investment Firm can decide to use one or more Data Aggregators (DAs) to publish all its pre- and post-trade data or it must make proprietary arrangements to publish this data. However, the IF needs to ensure that, in the case of post-trade transparency, each trade is published via one channel only.
2. An IF can connect to more than one DA. There are several reasons why an IF might follow this path including:
 - to reduce dependency on any one DA,
 - to prevent a single point of failure. In this scenario, the connections from the IF to each DA may be either concurrently live so that no switching is required in the event of failure or live to a 'primary' DA with hot-standby connections to one or more backup DAs to ensure it meets the MiFID requirements of 'immediate' publication.
 - DAs may choose to specialise in pre- or post-trade data relating to specific countries, asset classes or subsets of these.
3. An IF may choose to operate as a DA either on its own or as a consortium with other IFs, since it may see business opportunities in providing DA services to other IFs, setting up a consortium DA operation or investing in a DA
4. An IF may choose to make proprietary arrangements for pre- or post-trade publication. If it does so, it must make its data available to all DDs and Data Consumers on non-discriminatory and reasonable terms and through a means and in a format that facilitates easy consolidation.
5. An IF must keep the Independent Party (see below) informed at all times of which DA or DAs it is using to deliver its data.
6. Contracts between an IF and its DA(s) need to include clauses which ensure that access to the IF's data will be provided on a non-discriminatory and reasonable commercial basis and that the DA will adhere to all of the MiFID obligations regarding transparency.
7. Once an IF has delivered its pre- and post-trade data to a DA, it is considered to have met its publishing requirements under MiFID. The IF should not be required to provide the data directly to any DD or Data Consumer.
8. An IF can provide its pre- or post-trade data directly to its own clients irrespective of any use that it may make of a DA. In this instance, it is the responsibility of the IF's own client's to ensure that any data duplication issues are resolved.

Data Aggregators

1. There should be no requirement for Data Aggregators to be regulated by any Competent Authority or other body. Normal commercial processes should ensure that DAs will provide services appropriate to their role on a non-discriminatory and reasonable commercial basis.
2. A DA can provide services across one, several or all of the 28 participating countries.
3. A DA must be non-discriminatory and reasonable in providing the data that it receives from IFs to DDs. This needs to be set out in the contracts between each DA and its client IFs.
4. There is nothing to prevent a DA from providing data directly to a Data Consumer on the same non-discriminatory and reasonable commercial basis as it provides data to a DD. The Data Consumer needs to accept that the data received from one DA will be a subset of all the data and will need to perform itself any required consolidation with data from other DAs.
5. The primary role of a DA is to provide the facility to deliver pre- and post-trade data to DDs and Data Consumers on behalf of its client IFs but it may also provide other value-added services and facilities to its client IFs such as transaction reporting to the Competent Authorities.
6. As part of its remit to publish data, a DA will perform data quality checks on the data received consistent with competitive and commercial demands.
7. If a Regulated Market, the operator of a Regulated Market, a data vendor or any other third party chooses to be a DA, it must operate on a non-discriminatory and reasonable commercial basis.
8. If a Regulated Market or the operator of a Regulated Market chooses to operate as a DA, this function should not be subject to any additional regulatory obligations beyond those applied to non-exchange DAs. A Regulated Market or operator of a Regulated Market or Markets should be permitted (but not required) to act as a DA for instruments not admitted to trading on their Market without having to meet any additional legal requirements.
9. A DA should not demand that a DD pays for other products or services provided by the DA or any other party in order for the DD to have access to post-trade data that is available from the DA.

Data Distributors:

1. There should be no requirement for Data Distributors to be regulated by any Competent Authority or other body. Normal commercial processes should ensure that DDs will provide services appropriate to their role and on a non-discriminatory and reasonable commercial basis.
2. A DD will receive data from as many DAs as it wishes. There should be no regulatory obligation for a DD to take data from all DAs.
3. A DD will perform data quality checks on the received data consistent with competitive and commercial demands.
4. There is no need for data transmission between one DD and another unless a DD also operates as a DA.

Competent Authorities:

1. Competent Authorities are responsible for any regulator-required market data monitoring or surveillance for trading abuse regarding all trades executed within their jurisdiction.
2. There should be no requirement for a CA to qualify or accredit any DA or DD. Market forces will determine the optimal number of DAs and DDs operating within a jurisdiction.
3. Where a CA wishes to examine trade reports, it can obtain these from a DD or from as many DAs as necessary or directly from IFs.

Independent Party:

The Independent Party would be a non-discriminatory, reliable, central, non-governmental entity, such as an industry group (e.g. one of the pan-European associations that represents financial institutions) or other neutral party, serving as the consolidation point for the list of DAs used by each IF.

1. The Independent Party will maintain a list of the available DAs, this list will be made available through the Independent Party's website. This will enable market participants (primarily DDs and IFs) to identify the available DAs to which they can deliver data or which they can approach to receive data.
2. The Independent Party will maintain a list of all liquid shares and Systematic Internalisers as detailed in point 2 of section 4.4 below.

4.2. Other potential models that were considered

Before arriving at the above recommended model, the Subject Group considered other possible models and elements of models.

These included a possible approach suggested by the FSA for imposing accreditation of organisations that would act as collectors and distributors of post-trade data. The Subject Group felt that there would be practical issues if CAs were to impose accreditation requirements. It was also felt that such accreditation schemes would result in a greater degree of dis-aggregation than if commercial forces are allowed to play out.

The Subject Group also considered the suggestion that there should be a single consolidated provider of pan-European data – a suggestion advocated by some buy-side firms. However this was not felt to be compatible with the wording of the Level 1 MiFID text concerning openness, competition and the prevention of monopoly situations.

4.3. Time synchronisation

The countries covered by the MiFID regulations cover several time zones and additionally each organisation will use its own time-stamps when sending out pre-trade quotes and trade reports. In order to minimise the impact of the differences across the whole financial market in Europe, this White Paper recommends that each organisation uses industry standard software to synchronise time to atomic clocks in those parts of their systems which control the sending of price transparency information outside their organisation.

4.4. Instruments and Organisations subject to Price Transparency Obligations

1. The securities markets and market data industry both need clear and timely information regarding the shares and the organisations that are subject to MiFID requirements:
 - a. shares that have been designated as liquid,
 - b. shares that have been admitted for trading on a Regulated Market,
 - c. the firms that have been designated as Systematic Internalisers and the shares in which they act in that capacity.
2. While the designation of Liquid Shares and Systematic Internalisers will be made by the competent authority in each Member State, it would be desirable to have a central facility that would host a consolidated list of all Liquid Shares subject to MiFID requirements and Systematic Internalisers in Liquid Shares. The central facility should be able to provide this information electronically and be responsive enough to reflect daily changes in status especially among Systematic Internalisers that may be initiating or discontinuing SI activities for any particular share.

5. Pre-trade Transparency

1. The White Paper's discussion of pre-trade data includes quotes published by Systematic Internalisers and MTFs' depth data - e.g., dealer quotes, order book, periodic auction data.
2. Investment Firms may choose to use different mechanisms to publish their pre- and post-trade data as required by MiFID. For example, a Systematic Internaliser may publish its pre-trade data directly as part of its external trading interface but utilise a Data Aggregator to publish its post-trade data.
3. The RTMDSG notes the important distinction between:
 - a. a Systematic Internaliser or MTF that provides its OTC pre-trade information to multiple Data Aggregators (potentially including exchanges acting as Data Aggregators)

and

- b. an Investment Firm that posts its trading interest on multiple execution venues.

In the former case, the data should be considered as duplicate by the vendors and consumers downstream from the Data Aggregators and they should be treated accordingly. In the latter case, however, the trading interest from each of the trading venues should not be considered duplicate because they represent separately accessible trading interests.

4. While SIs and MTFs may need to publish multiple copies of their pre-trade data through multiple channels, the RTMDSG believes that most Data Consumers will only wish to see one copy of such duplicate data. As such, SIs and MTFs that publish data, as well as Data Aggregators and Data Distributors are encouraged to manage their products to facilitate the minimisation or reconciliation of duplicate data.
5. The RTMDSG recognizes at least three approaches to the mitigation of duplicate pre-trade data:
 - a. SIs and MTFs publish each piece of their pre-trade data with a unique identifier. A time-stamp in milliseconds together with a quote identifier and SI / MTF identifier should be considered sufficient to identify data uniquely. Data Distributors and Data Consumers could use this information to identify and reconcile duplicate data. This unique identifier should be passed through by any Data Aggregator(s) that the SI has employed to publish its data. Any time-stamp affixed by the Data Aggregator should be in addition to the original SI time-stamp.
 - b. SIs and MTFs publish each piece of their pre-trade data through only one DA.
 - c. As noted below, an SI or MTF may provide pre-trade data access through its trading interface, in addition to publishing its pre-trade data to the market through another channel. In these instances, it should inform its directly-connected trading clients that the pre-trade information that they receive is duplicate data that is also being disseminated to the market through other channels.

6. Provision of Pre-Trade Data in Conjunction with a Trading Interface:
 - a. Investment Firms that are acting as MTFs or SIs should be permitted to provide their pre-trade information directly to their trading customers in conjunction with their external trading interface. Providing these customers with timely access to their pre-trade data is critical. Provision of the pre-trade data solely to trading clients should not fulfil an IF's pre-trade publication obligations.
 - b. IFs should not be required to provide all interested parties in the market with access to their pre-trade data through their external trading interface in order to be considered non-discriminatory in the publishing of their data. They should be able to fulfil their MiFID obligations for pre-trade transparency in other ways provided that the publication through all channels is simultaneous. This will result in the publishing of duplicate pre-trade information to the market.
 - c. In instances where an SI or MTF publishes data as part of its trading interface and also through a DA, the SI / MTF should take steps to ensure that the market is aware of the duplication – so that DDs and consumers seeking to construct a consolidated database do not include both sources of data. In particular, it should inform its directly-connected trading clients that the pre-trade information that they receive is duplicate data that is also being disseminated to the market through other channels.

6. Post-trade Transparency

6.1. Trade report publishing process

There is one additional responsibility for Investment Firms to those listed under price transparency in section 4.1 above with respect to post-trade transparency:

Each trade report is delivered by an IF to only **one** DA to ensure that there is no downstream duplication of trade information. The use of unique trade identifiers was discussed within the Subject Group but was rejected due to the perceived difficulty of maintaining such a system across all 28 jurisdictions.

6.2. Trade report information

The Commission Regulation currently states that the following details need to be published as part of a trade report:

- trading day
- trading time
- instrument identification
- unit price
- price notation
- quantity
- venue identification

In the list of fields in Table 1 of Annex 1 of the Commission Regulation, there is a field called a Transaction Reference Number. It is the recommendation of this Group that this field is always included as part of a trade report since without it it will not be possible to relate any subsequent corrections that need to be made to an already published trade report, for example an error in the quantity, so that cumulative volume fields and VWAPs can correctly reflect the executed volume. There is a cancellation flag field listed in the table; this, together with a reference number, would allow erroneous trades to be cancelled and correct updates sent to replace them.

In situations where an SI is reporting anonymously (as it is permitted to do under the MiFID rules provided that it published quarterly trading figure for those liquid shares in which is it acting as an SI), this reference number may need to be amended by the DA in order to maintain the anonymity of the SI.

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If you have feedback or comments on this White Paper, please send them to the Chair of the Real-Time Market Data Subject Group:

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