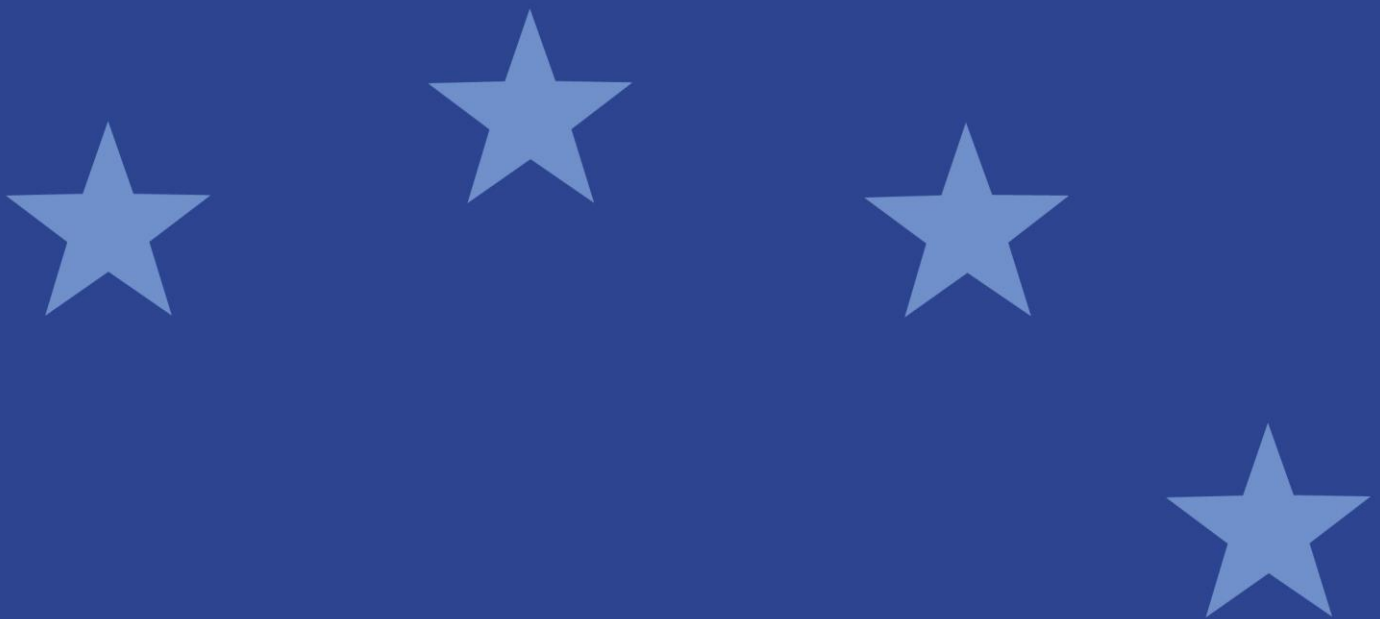




European Securities and
Markets Authority

Financial Instruments Reference Data

Annex 2.1- Project Presentation Document (PPD)



Versions

Date	Version	Description	Author
20/08/2014	0.8	First Draft	
22/08/2014	0.9	Final Draft	
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20/08/2015	5.1	Updates / Revision of delegation agreements	
01/03/2017	6.0	Revision of delegation agreements – extension of scope with transitional calculations, Tick size, and SI regime.	

Table of acronyms

Acronym	Description
EC	European Commission
EMIR	Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories
EU	European Union
ITMG	IT Management and Governance Group
MDSC	Market Data Standing Committee
MS	Member States
NCA	National Competent Authorities
SARIS	Suspension and Removal Information System

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A. Project definition

1. Problem statement

The new requirements of the Markets in Financial Instruments Regulation (MiFIR) and the Market Abuse Regulation (MAR) oblige trading venues and Systematic Internalisers to submit identifying reference data for the relevant financial instruments to competent authorities who are required to transmit it to ESMA for subsequent publication on its website. This is in particular required to support the scope of transaction reporting under MiFIR, as well as market abuse surveillance activities under MAR.

In addition, MiFIR introduces rules with respect to transparency obligations that require the publication of transparency thresholds applicable to each financial instrument.

The Markets in Financial Instruments Directive (MiFID II) also expands the scope of financial instruments subject to suspension/restoration/warning/removal coordination, currently supported by the SARIS system.

1.1 Problem impact and urgency

The Markets in Financial Instruments Regulation shall apply from 3 January 2018 and the Market Abuse Regulation shall apply from 3 July 2016.

This project shall be launched as soon as possible, given its complexity and the very short delay to implement.

1.2 Interrelations with other problems

This system is expected to be used for MiFIR Transaction Reporting, in particular to support its validation rules on transactions and transaction reports routing between relevant competent authorities.

1.3 Business processes impact

No business process analysis has been undertaken as such. However the impact of the solution on the current ESMA processes is expected, in particular in the area of market data reporting.

The impacted business processes belong to the following business categories:

Financial market surveillance		CRA III	
Economic Research		CSD Regulation	
Product intervention		Peer reviews, BUL and Mediation	
Coordinated regulatory approach	X	Training	

Packaged Retail Investment Products		Joint Committee	
CRAs		International Co-operation	
Post Trading		Corporate Reporting	
Enforcement/Independent Investigation		EU IT Projects	X
Revision of MiFID & MAD	X	Stakeholder management	
European Investment Fund Legislation		Ethics and Data Protection	
Corporate Finance		Organisational support	

1.4 Expected business

The project will make reference data available on financial instruments admitted to trading on regulated markets or traded on MTFs or OTFs as well as on certain instruments traded on the system of Systematic Internalisers.

In addition, the project will support the transparency mechanisms as specified in the MiFIR by providing information on the applicable transparency thresholds.

Finally, the project will support new requirements regarding suspension/restoration/warning/removal coordination.

By delegating the project to ESMA, NCAs expect that central data collection will align reporting entities to consistent data format across Europe, while central transparency calculations will avoid duplication of effort at NCAs level in order to perform the transparency calculations required by the regulation.

1.5 Data classification

Data set	Confidentiality level	Integrity level	Availability level
Reference data on financial instruments	PUBLIC	STRATEGIC	STRATEGIC
Transparency thresholds	PUBLIC	CRITICAL	CRITICAL
Decisions on suspensions restorations and removals	PUBLIC	CRITICAL	CRITICAL
Warnings about upcoming suspensions / removals	ESMA CONFIDENTIAL (to be confirmed)	CRITICAL	CRITICAL

2. Possible alternatives

The IT Steering Group discussed the possible alternatives and decided to propose an alternative based on centralised collection and calculation.

It was further decided by the Board of Supervisors to accept an alternative based on centralised calculation, but with the collection being performed either by ESMA or by the NCAs in their jurisdiction, as described below.

Centralised calculation and, as the case may be, collection

ESMA would collect reference data, transparency data and volume cap data from regulated markets, MTFs, OTFs, SIs, APAs and CTPs, insofar as NCAs delegate such collection of information.

Alternatively, NCAs delegating the transparency calculation could choose to collect themselves reference data, transparency data and volume cap data from regulated markets, MTFs, OTFs and SIs in their jurisdiction. These NCAs will ensure that this data is then forwarded to ESMA for validation and other purposes.

ESMA will perform technical validations on the reference data, transparency data and volume cap data received to ensure consistency and conformance with the BRDs and schema specifications.

ESMA will store and maintain the data internally. ESMA will perform transparency calculations (such as assessment of the liquidity of an instrument, determination of the Large-In-Scale, Standard Market Size, and Size Specific to an Instrument thresholds, and determination of the most relevant market in terms of liquidity).

ESMA will transmit the EU-wide instruments reference data to NCAs. ESMA will publish the reference data on financial instruments and applicable transparency thresholds on its website.

Strengths	Weaknesses
<ul style="list-style-type: none"> • Building a single system will allow for economy of scales in terms of IT system design, implementation, project management, IT infrastructure, maintenance and support. • The approach minimizes the impact of new Regulation on NCAs' IT work programme. • Delegation of NCAs' tasks to ESMA will be used instead of n-to-n cooperation arrangements between NCAs to receive data from outside their jurisdiction. • The centralisation of transparency calculations will ensure consistent transparency regime implementation across EU. • Data quality will benefit from knowledge sharing between data managers involved in the operation of the system. 	<ul style="list-style-type: none"> • This approach has the most significant impact on ESMA' resources. Significant resources will have to be allocated to the project. • The mixed system for data collection and monitoring could introduce some issues regarding data quality.

Opportunities	Threats
<ul style="list-style-type: none"> • The involvement of Seconded National Experts from National Competent Authorities in the project would efficiently contribute to its resourcing. • It would also be an opportunity to gain from experience acquired at national level on reference data and quantitative data as provided by existing trading venues. 	<ul style="list-style-type: none"> • Should a minority of NCAs decide to not benefit from an ESMA centralised solution, each of them will need to build an IT system at least to provide ESMA with standard reference, and to collect quantitative data and perform all the transparency calculations for instruments in their jurisdiction – therefore inducing some duplication of effort. • NCAs collecting data in their jurisdiction should be able to implement their own national collecting systems on time to provide ESMA all necessary information in order to not delay the creation of reference data files and the performance of transparency calculations.

3. Project description

3.1 Legal basis

According to MiFIR Article 27 “*Obligation to supply financial instrument reference data*”, trading venues shall provide Competent Authorities with identifying reference data on financial instruments admitted to trading on regulated markets or traded on MTFs or OTFs. Systematic Internalisers shall provide Competent Authorities with identifying reference data on financial instruments covered by Article 26(2) traded on their system.

According to MAR Article 2 “*Scope*”, the Market Abuse Regulation applies in particular to financial instruments admitted to trading on regulated markets, or traded on MTFs or OTFs. The availability of reference data on those financial instruments (MAR Article 4) is necessary to support the Market Abuse Regulation.

MiFIR Title II “*Transparency for Trading Venues*” specifies rules with respect to transparency obligations, based on whether an instrument is considered liquid or illiquid, or based on an instrument’s size thresholds. In addition, MiFIR Article 22 gives legal basis for NCAs and, in case of delegation of the relevant task, ESMA to collect quantitative information from trading venues, APAs and CTPs for the purpose of transparency calculations and volume cap.

MiFIR Article 36(6)d allows ESMA to verify the calculation of the annual notional amount of derivatives traded on a trading venue which notifies that it does not wish to be bound by Article 36.

According to MiFID II Article 52 “*Suspension and removal of financial instruments from trading on a regulated market*” and Article 32 “*Suspension and removal of financial instruments from trading on an MTF or an OTF*”, MiFID II expands the scope of financial instruments subject to suspension and removal from trading on a regulated market, MTF or OTF, including derivatives referenced on or related to the suspended financial instrument.

3.2 Project objectives

The objectives of the system are:

- a) To provide a complete list of financial instruments on which reference data needs to be submitted along with the list of fields as will be determined in the MiFIR Art. 27 / MAR Art. 4 Regulatory Technical Standards (including identification of the relevant Competent Authority).
- b) To perform for each instrument, the applicable transparency calculations (such as liquidity assessment, Large-In-Scale threshold, Standard Market Size threshold or Size Specific to an Instrument threshold).
- c) To compute and publish for each instrument, the average daily number of transactions on the most relevant market in terms of liquidity, in order to support the tick size regime.
- d) To compute and publish for Equity / Equity-like instruments, at the level of each instrument, the total number of transactions and turnover in the EU, over the past 6 months.
- e) To compute and publish for Non-Equity instruments, at the level of each instrument for the bond / Structured Finance Product (SFP); and at the level of the RTS2 sub-class for derivatives / emission allowance, the total number of transactions and nominal amount traded in the EU over the past 6 months.
- f) To allow NCAs to coordinate on the suspension/restoration/warning/removal of any instrument listed in the Instruments Reference data.

3.3 Project scope

ESMA will collect reference data, transparency data and volume cap data from regulated markets, MTFs (Multilateral Trading Facilities), OTFs (Organised Trading Facilities), SIs (Systematic Internalisers), APAs (Approved Publication Arrangements), CTPs (Consolidated Tape Providers), insofar as NCAs delegate such collection of information.

Alternatively, NCAs delegating the transparency calculation only will collect themselves reference data, transparency data and volume cap data from regulated markets, MTFs, OTFs, SIs, APAs, and CTPs in their jurisdiction. These NCAs will ensure that this data is then forwarded to ESMA for validation and other purposes, as per BRD and SLA specifications. In addition, ESMA will collect the financial instrument reference data from national competent authorities not delegating data collection nor transparency calculations for the regulated markets, MTFs, OTFs, and SIs in their jurisdiction.

ESMA will perform technical validations on the reference data, transparency data and volume cap data received to ensure consistency and conformance with the BRDs and schema specifications. The NCAs do not need to perform these technical validations themselves where it is already performed by ESMA, and the NCAs will provide the ESMA feedback files back to the entities in their jurisdiction.



ESMA will store and maintain the data internally. ESMA will perform transparency calculations (such as assessment of the liquidity of an instrument, determination of the Large-In-Scale, Standard Market Size, and Size Specific to an Instrument thresholds, and determination of the most relevant market in terms of liquidity) on behalf of all NCAs delegating transparency calculations. ESMA will allow subsequent updates of the RTS thresholds resulting from periodic recalibration.

ESMA will perform calculations such as average daily number of transactions on the most relevant market in terms of liquidity, total number of transactions, turnover and in the EU, over the past 6 months.

ESMA will perform transitional calculations covering the transparency calculations provided in the transitional provisions of the RTS on transparency for equity and non-equity instruments (RTS 1 Article 19 and RTS 2 Article 17), which need to be performed before 3 January 2018.

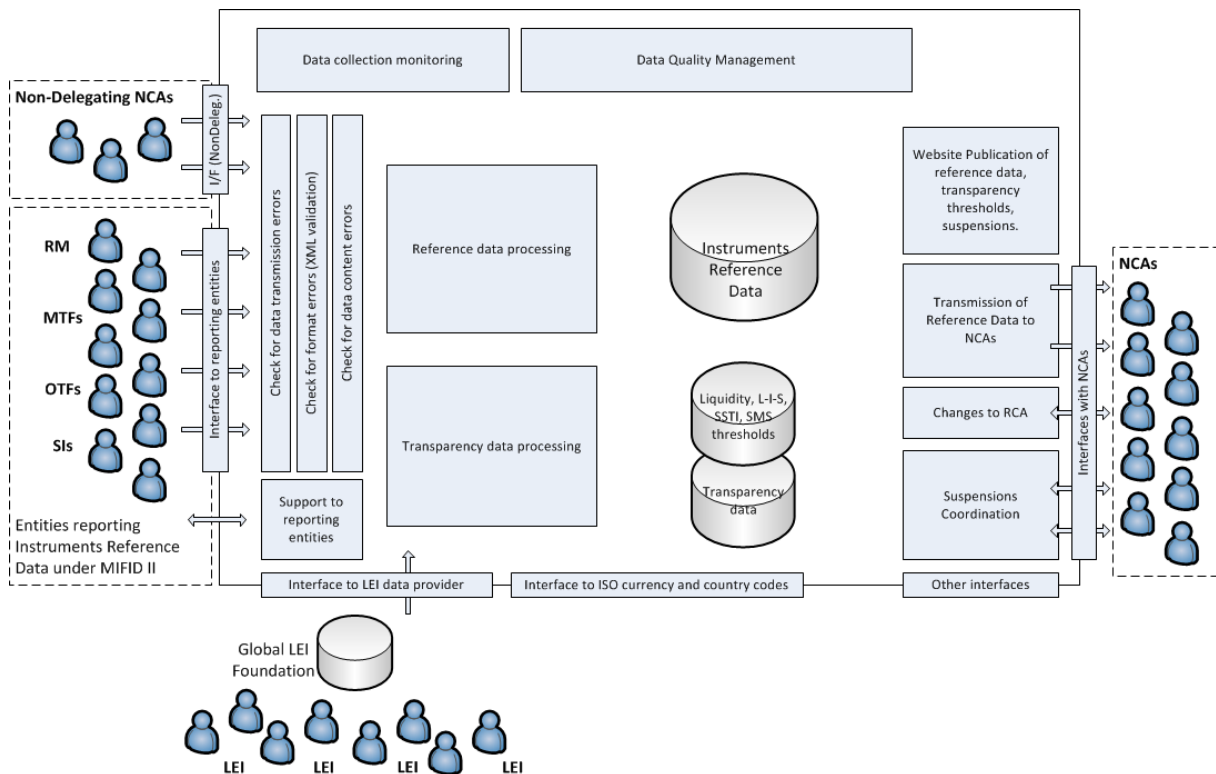
ESMA will transmit the EU-wide instruments reference data to NCAs.

ESMA will publish the reference data on financial instruments and transparency calculations results on ESMA's website. The data collected may be used as well for the purpose of MiFIR Articles 5 and 36(6)d.

Regarding suspension coordination, the objective is to extend suspensions coordination to instruments traded on Organised Trading Facilities (OTFs), and to support updated rules on derivatives referenced on or related to the suspended financial instrument.

ESMA will publish decisions made on suspensions, restorations and removals. Warnings and follow-up suspensions will remain non-public information.

Through this project, ESMA will be in charge of the data quality of the information provided by Trading Venues, Systematic Internalisers, APAs, CTPs, and of the resulting information published by ESMA. The system will implement automated data consistency checks that will be run at the data collection stage.



The following features are out of the project scope:

- a) Suspensions: the system will help NCAs to coordinate on suspensions, but will not directly notify Trading Venues. NCAs will remain responsible for it.
- b) Trading Halts are not part of the scope.

3.4 Project deliverables

The deliverable of this project should be an IT system providing reference data along with information on liquidity, applicable transparency thresholds, and allowing for suspension coordination.

3.5 Success criteria

The main success criteria for the project will be the ability to support EU investors and regulators with reference and transparency data, while controlling the number of interfaces and IT systems needed across the EU to support the requirements set by the regulation.

3.6 Assumptions

LEI¹ – The Global LEI Foundation has been established for creating a central database of LEI. This database is available since mid-2015. In order to avoid duplication of effort, this project will make the assumption that this external database will be available on time, and will offer the appropriate service level and interfaces to be used for the purpose of the MiFIR Instruments Reference data.

Entities – It is estimated that 300 to 500 entities would report Instruments Reference Data and associated quantitative data under MiFID II.

Reference data – It is estimated that 16-36 million new instruments are created per year. OTC Derivatives are assumed not being in the scope.

Quantitative data – It is assumed that the quantitative data necessary to support transparency calculations and the transparency thresholds does not require collecting transaction-level data from the investment firms and Approved Reporting Mechanism reporting to the Transaction Reporting system. Instead aggregated daily data on volumes and number of transactions per financial instrument would be collected from Trading Venues Systematic Internalisers, APAs and CTPs.

Availability of SNEs – ESMA is in charge of the data quality of the information provided by Trading Venues and of the published information. This implies that Seconded National Experts (SNEs) are available at ESMA during the definition and development phases, to help in the testing and deployment of the system, and to provide business-level support on the support requests.

3.7 Constraints

Regulatory Technical Standards to be implemented for reporting data under MiFIR were submitted to the Commission for endorsement in June 2015 and were initially expected to enter into force in September 2015.

The Markets in Financial Instruments Regulation shall apply from 3 January 2018.

The Market Abuse Regulation shall apply from 3 July 2016.

3.8 Risks

Given the number and variety of reporting entities, the delay may be short to connect and validate testing with all of them by the MiFIR legal deadline. A phased approach will be followed with respect to deployment and testing.

Some NCAs have pointed out some shortcoming with respect to the completeness and accuracy of the current Reference Data System. While there are expectations towards improvements on reference data quality, this project will have to face at the same time a much wider scope of financial instruments on which no experience has been gained in the previous years. While the centralisation of reference data collection and monitoring is expected to lead

¹ Legal Entity Identifier



to improvements on data consistency, some of the expectations regarding data quality may not be met within the scope of this project.

3.9 Approach towards corporate, common systems and reusability

In the course of the project ESMA will study the possibility to reuse already existing applications as building blocks.

B. Project organisation

4. Governance information

4.1 System owner

ESMA Markets Division.

4.2 System supplier (if known)

ESMA IT team and external providers.

4.3 Approving authority

ESMA Head of Markets Division, Market Data Standing Committee, Secondary Markets Standing Committee and IT Management and Governance Group.

C. Project deliverables

The following deliverables will be prepared during the project:

- a) Business Requirements Document;
- b) Functional Specification Document;
- c) System Architecture Document;
- d) Installation Guide;
- e) Test Plan;
- f) Test Specifications;
- g) User Manual;
- h) Operations Guide;

- i) Infrastructure Document;
- j) IT system in production.

D. Timetable

5. Budget and planning

5.1 Estimated effort

The budget estimate below makes the assumption of the participation of the following countries:

- Delegation of both data collection and transparency calculations: **Bulgaria**, Cyprus, Czech Republic, Denmark, **Estonia**, Finland, France, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Liechtenstein, Luxembourg, Malta, Netherlands, Norway, Portugal, Romania, Slovakia, Slovenia, Sweden.
- Delegation of transparency calculations, excepting collection in their jurisdiction: Austria, Belgium, Croatia, Germany, Spain, United Kingdom.

Detailed set-up costs

	(for reference) original cost estimates in EUR	Updated cost estimates in EUR
Interface with NCAs, TV,SI,OTF,APA,CTP	225,000	240,000
Support implementation and testing by TVs	335,000	130,000
Publication to NCAs and website	340,000	400,000
Reference data processing	380,000	430,000
Transparency data processing	270,000	990,000
Data quality management	290,000	330,000
Suspensions and restorations	315,000	315,000
System operation and administration modules	430,000	470,000
Licenses / Hardware	400,000	850,000

Project delay	N/A	180,000
Risk provision (20%)	615,000	865,000
Transitional transparency calculations	N/A	400,000
Tick Sizes and Systematic Internalisers	N/A	200,000
Total cost	3,600,000	5,800,000

5.2 Estimated timing

The following table summarises the indicative timetable for the development of the system:

Task	Deliverables	End date
System definition and design	System specifications	April 2016
	Interfaces specifications	November 2016
Phase 0 – HUB connectivity for submitting entities		
Development	IT system in testing environment	January 2016
Testing	Testing report	September 2016
Phase 1 – Instruments Reference Data		
Development	IT system in testing environment	December 2016 February 2017
	<ul style="list-style-type: none"> - data collection and provision to NCAs - data publication and RCA publication 	
Testing data collection and data provision to NCAs	Testing reports	February 2017 June 2017
	<ul style="list-style-type: none"> - data collection and provision to NCAs - data publication and RCA publication 	

Installation to Production and Go-live	IT system in production environment <ul style="list-style-type: none"> - data collection and provision to NCAs - data publication and RCA publication - data quality observation period 	July 2017 July 2017 December 2017
<i>Phase 2 – Transparency Data Collection, Interface to support Double Volume Cap</i>		
Development	IT system in testing environment	June 2017
Testing	Testing report	September 2017
Installation to Production and Go-live	IT system in production environment	September 2017
<i>Phase 3 – Transparency calculations, Suspensions coordination</i>		
Development	IT system in testing environment	September 2017
Testing	Testing report	December 2017
Installation to Production and Go-live	IT system in production environment	January 2018

5.3 Estimated benefits

Not applicable.

5.4 Funding source

The project will be funded by special contributions for the NCAs' delegated IT projects.

E. Budget

6. Set-up costs

Internal resources:

It is estimated that the following internal ESMA resources are required for the setup of the functions incumbent on ESMA under this project.

Task	Workdays
Project management	550
Architecture	100
Information Security	100
TOTAL	750

The estimated annual maintenance cost will be **€410,600 in 2017 and €1,790,000 in 2018**.

Detailed maintenance costs

	Cost in EUR (rounded)
IT system maintenance - 20% of the setup cost	1,070,000
Helpdesk support for submitting entities	130,000
Data quality managers (4 FTEs)	590,000
Total maintenance cost per year	1,790,000

F. Annex: Responses to ESMA's survey and assumptions

This annex presents the data behind the key assumptions for the planning of projects of MiFID transaction and reference data reporting.

The analysis presented in this document was based on the answers received to the questionnaire that was sent to NCAs by ESMA on 2 July 2014.

Eleven NCAs provided their answers to the questionnaire. Therefore, as regards the missing data ESMA used other data sources or made assumptions on the data volumes. All the assumptions made are described in the document.

Daily volume of transaction reports

Member State	Data provided by NCAs (# of transactions daily)		MiFID II volume estimated by ESMA (# of transactions daily)
	MiFID I volume	MiFID II volume	
Austria			-
Belgium			-
Bulgaria			-
Croatia			-
Cyprus			-
Czech Republic		180,000	180,000
Denmark			-
Estonia			-
Finland			-
France	4,000,000	6,000,000	6,000,000
Germany	7,000,000		10,500,000
Greece			-
Hungary			-
Ireland	650,000		975,000
Italy			-
Latvia		500	500
Lithuania			-
Luxembourg	100,000		150,000
Malta			-
Netherlands		700,000	700,000
Poland	60,500		90,750
Portugal		1,650,000	1,650,000
Romania			-
Slovakia			-
Slovenia			-
Spain		900,000	900,000
Sweden			-
United Kingdom		17,000,000	17,000,000
Total			38,146,250



Eleven NCAs provided data on either current or future volumes. For those NCAs who provided only current transactions volumes ESMA assumed that the number of transaction would grow by 50% when MiFID II is in place. Considering those assumptions, the estimated daily volume of transactions will be 38 million (for the group of eleven NCAs only). It should be noted that with the exception of Italy, data on all the biggest markets were already provided. Therefore ESMA expects that the remaining countries will contribute c.a. 10 million transactions. As a result, the total volume of transactions to be reported under MiFID II could be with high confidence estimated at 40-50 million daily.

Number of entities reporting transaction data

Member State	Data provided by NCAs				No of IFs in MiFID register	Estimated current number of reporting entities
	Entities reporting under MiFID I		Expected under MiFID II			
	IFs	Other entities	IFs	Other entities		
Austria					94	94
Belgium	30	6	40	11	49	36
Bulgaria					4	4
Croatia	22	0	24	0	0	22
Cyprus					57	57
Czech Republic	61	0	73	4	34	61
Denmark					153	153
Estonia					2	2
Finland					55	55
France	350	1	350	1	597	351
Germany		40			747	40
Greece					63	63
Hungary	25	22			43	47
Ireland	27	1			115	28
Italy					89	89
Latvia	15	1	30	10	0	16
Lithuania					5	5
Luxembourg	101		184		139	101
Malta					119	119
Netherlands	55	2	200	7	298	57
Poland	60	3			80	63
Portugal					69	69
Romania					34	34
Slovakia					17	17
Slovenia					17	17
Spain	70	10	100	18	272	80
Sweden	60	4	68	4	147	64
United Kingdom	0	7				7
Total	876	97	1069	55	3299	1751



14 NCAs provided estimated numbers of Investment Firms (IFs) and other entities (i.e. Trading Venues, Approved Reporting Mechanisms, etc.) which are currently reporting transaction data directly to NCAs.

However, as some Member States provided also estimated numbers of reporting entities under MiFID II, ESMA decided to use the current number of reporting entities for the purpose of the cost estimations. ESMA does not expect that many new reporting entities will be authorised before the MiFID II reporting start date. The number of entities to which ESMA should connect to before January 2018 will therefore be close to the current number of reporting entities.

For the NCAs that did not provide any estimates, ESMA assumed that the number of reporting entities should be lower than the number of Investment Firms in the ESMA MiFID register for which the respective country is the Home Member State.

The last column presents either the number of entities currently reporting transaction data (for those NCAs which answered the questionnaire) or the number of Investment Firms in the MiFID registers (for those NCAs which did not answer the questionnaire). The sum of 1,751 entities seems to be the top limit of entities to be connected to by ESMA, and having in mind that in most cases the number of actually reporting entities is lower than the total number of IFs (e.g. IFs may report their transactions via third parties or trading venues), ESMA assumes that the number of entities to be reporting as of January 2018 will be close to 1,500.

It is expected that the number of reporting entities will grow after 2018, however no more than a few hundred new entities is expected (rather less than 2,000 altogether).

Number of entities reporting instruments reference data

Member State	Current no of entities (ESMA registers)		Expected new entities (answers from NCAs)		Total
	RMs	MTFs	OTFs	SIs	
Austria	2	1			3
Belgium	2	8	2	3	15
Bulgaria	1				1
Croatia	1	1	0	0	2
Cyprus	1	1			2
Czech Republic	3	2	0	0	5
Denmark	2	3			5
Estonia	1	1			2
Finland	1	1			2
France	4	6	10	10	30
Germany	15	13		10	38
Greece	3	1			4
Hungary	1	1			2
Ireland	1	3			4
Italy	9	9			18
Latvia	1	1	5	5	12
Lithuania	1	1			2
Luxembourg	1	1	0	0	2
Malta	2				2
Netherlands	5	3	4	4	16
Poland	6	3	0		9
Portugal	4	3			7
Romania	4	2			6
Slovakia	1				1
Slovenia	1				1
Spain	9	4	10	10	33
Sweden	2	3	15	15	35
United Kingdom	10	68	10	40	128
Total	94	140	56	97	387

According to the MiFID register there are 94 Regulated Markets (RMs) and 140 Multilateral Trading Facilities (MTFs). Those entities will provide instruments reference data to ESMA.

Additionally NCAs estimate that 153 new Organised Trading Facilities (OTFs) and Systematic Internalisers (SIs) will be authorised under MiFID II (based on 12 answers to the questionnaire received so the total number of new OTFs and SIs may be bigger). OTFs and SIs will be also obliged to report instruments reference data.

For the purpose of the implementation cost estimation ESMA assumes that not many OTFs and SIs will be operational as of January 2018 therefore the number of interfaces to be built before the go-live should not be higher than 300.

ESMA expects that in the coming years the total number of entities reporting instruments reference data may grow up to 500. Those new entities, if they are not operational in January 2018, will be connected to the reporting solution within maintenance projects/processes (after the system go-live).

Volume of reference data

Member State	Estimated number of instruments traded on	
	RMs	MTFs and OTFs (Data provided by NCAs)
Austria	34,946	80
Belgium	13,027	
Bulgaria	448	
Croatia		
Cyprus	237	
Czech Republic	297	40
Denmark	7,879	
Estonia	23	
Finland	11,763	
France	105,860	Unknown Expect 400 equities (but they only represent a small fraction of all types of instruments covered)
Germany	866,570	3-4 million certificates are created each year 2 million derivatives are created each year ~ 100,000 other instruments
Greece	1,774	
Hungary	12,617	
Ireland	31,989	8,100
Italy	53,794	
Latvia	92	50
Lithuania	90	
Luxembourg	16,353	
Malta	101	
Netherlands	96,583	13,667
Poland	2,135	690
Portugal	727	
Romania	1,168	
Slovakia	122	
Slovenia	157	
Spain	22,057	4,000
Sweden	44,332	
United Kingdom	69,558	Unknown

Under MiFID II, ESMA estimates that 16 to 36 million new instruments could be created each year:

- The higher end of the estimation (36m) comes from the assumption that up to 6 NCAs would face a similar increase of 6 million instruments per year as Germany forecasts.
- The lower end of the estimation (16m) comes from the assumption that Germany would be an exception in the number of certificates created each year, i.e. only Germany would face an increase of 6 million instruments per year, while up to 5 other NCAs would face a similar increase only on derivatives (2 million).

Data management effort

Member State	Resources contributing to data collection monitoring	Resources contributing to data management	Resources contributing to data quality management
Austria			
Belgium			
Bulgaria			
Croatia			
Cyprus			
Czech Republic	0.2	1.5	0.5
Denmark			
Estonia			
Finland			
France	1	2	1
Germany	1	1	14
Greece			
Hungary			
Ireland			
Italy			
Latvia	2	2	2
Lithuania			
Luxembourg	1	1	1
Malta			
Netherlands	0.5	0.5	0.5
Poland	1		
Portugal			
Romania			
Slovakia			
Slovenia			
Spain	1.5	2	2
Sweden	0.6	0.5	0.8
United Kingdom	24	24	8
Total	32.8	34.5	29.8



10 NCAs provided information on the effort involved in the data collection and data quality management. It should be noted that it was difficult for some NCAs to provide exact estimations and in some cases not only the effort for transaction and reference data collection was provided but a number of FTEs involved in all the data flows under MiFID.

ESMA assumes that ESMA will limit its effort to automated data quality checks, the rest of the effort being still borne by NCAs. For the reference data it is assumed that a number of errors will need to be solved manually. However, due to economies of scale, the single reference data format across Europe, unified interfaces and the automation of the process, the effort required to ensure the data quality should be significantly lower. ESMA assumes that 2 FTEs will be involved in the data quality management for Instruments Reference Data.