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Lot VI - Interim, final and ex-post evaluations of policies, programmes and other activities

Interim Evaluation of the Measuring Instruments Directive

Final report

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Centre for
Strategy & Evaluation Services

P O Box 159
Sevenoaks
Kent TN14 5WT
United Kingdom
www.cses.co.uk

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Abbreviations

List of abbreviations used in the text

AQUA- European Association of water and heat meters manufacturers

AWI – Automatic Weighing Instruments

CAs – Competent Authorities

CECIP - European Committee of Weighing Instruments Manufacturers

CECOD - European Committee of Manufacturers of Petrol Measuring Systems

CEN – European Standardization Committee

CENELEC – European Committee for Electro-technical Standardization

CEO -European Hand Tools Association

EGEA – European Garage Equipment Association

EN – European Norms

ESMIG - European Smart Metering Industry Group

EURELECTRIC/UNIPEDE, Union of the Electricity Industry

FACOGAZ, Association of European Gas Meters Manufacturers

FEVE – European Container Glass Association

MIs – Measuring Instruments

MID – Measuring Instruments Directive 2004/22/EC

MOT – Ministry of Transport. Used to refer to test stations that carry out vehicle tests for road safety and environmental standards

NAWI – Non-Automatic Weighing Instruments

NB – Notified Bodies

NLF- New Legislative Framework

OIML – International Legal Metrology Organisation

PRODCOM – Products of the European Community – EUROSTAT Database

POS – Points Sale

SSD – Self Service Devices

WELMEC –European Legal Metrology Cooperation

wgMI – European Commission working group on Measuring Instruments

Executive summary

This summary contains the main conclusions and the recommendations of the study 'Interim Evaluation of the Measuring Instruments Directive'. The study was conducted by the Centre for Strategy & Evaluation Services (CSES) LLP during the period November 2009 – July 2010 for the European Commission Directorate General Enterprise and Industry.

I. Introduction

The Directive 2004/22/EC of the European Parliament and of the Council of 31 March 2004 on measuring instruments (MID) has been operational since October 2006. It ensures the free movement of measuring instruments in the internal market and applies to the following instruments defined in the Annexes to the Directive:

- water meters (MI-001);
- gas meters and volume conversion devices; (MI-002)
- active electrical energy meters; (MI-003)
- heat meters; (MI-004)
- measuring systems for continuous and dynamic measurement of quantities of liquids other then water; (MI-005)
- automatic weighing instruments; (MI-006)
- taximeters; (MI-007)
- material measures; (MI-008)
- dimensional measuring instruments; (MI-009)
- exhaust gas analysers (MI-010).

Under Article 25 of the Measuring Instruments Directive the Commission was invited to report, before 30 April 2011, on the implementation of this Directive on the basis of reports provided by the Member States, and, where appropriate, to submit a proposal for amendments.

As part of the response of the Commission, an evaluation study was commissioned aiming to compile, assess and present information on the implementation and functioning of the Directive in terms of its impacts and application, in order to define the potential for improvement.

The objectives of the evaluation, as set out in the terms of reference, are to:

- Provide a quantified table of ballpark figures for each of the 10 sectors and subsectors of the measuring instruments (MIs) listed.
- Assess, to this point, the effectiveness of the Directive, and more specifically:
    - the extent that the Directive contributed to an efficiently operating internal market for the goods in question
    - the extent that the Directive influences technological innovation and to what extent it has contributed to the development of innovation

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  - the extent that the Directive achieved its aims with regard to the protection of consumers and users
  - the extent that a two tier market concerning consumer protection and competition have developed and if there is difference in the case of Member States have not opted to require Legal metrological control (optionality)
  - the participation of non-government stakeholders in the measuring instruments committee and their impression as well that of others as regards their participation
  - the overall strengths and weaknesses of the Directive

- Assess the impacts of the Directive on markets and European companies in terms of costs or administrative burdens and of tangible benefits
- Assess the implementation of the Directive in the Member States and identify the barriers to effective application of the Directive and the ways that such barriers could be overcome
- Identify measures that could be taken to improve the utility of the Directive and the expected role of the adaptation of the new approach (omnibus) to its implementation

It should be noted that this evaluation did not examine issues related to specific proposals by stakeholders and the inclusion of additional categories of instruments in the MID. This is an exercise that falls under the scope of a separate study commissioned by the European Commission.

In order to carry out this assignment, CSES used a combination of research tools including a review of relevant documents and publications, collection and analysis of market and other data from a range of public and private sources and 91 interviews with the main stakeholders related to the Directive (Member States' competent authorities, industry associations and companies active in sectors covered by the MID, standardization bodies, SMEs and consumer representatives and legal metrology experts). It also organised a survey of the notified bodies that conduct the tests for the provision of conformity to the requirements of the Directive and used the data of the SME panel survey that was organised by the Commission services.

II. Market of legal metrology instruments covered by the MID

Based on the information and data collected from a number of sources it is estimated that the MID applies to around 345 million units of MIs that are sold annually in the European market with a total sales value of around €3.25 billion. However, around 300 million units concern the small value category MI-008 instruments (material measures including measures of length and capacity serving measures) for which data on the share of MID-certified instruments circulating are rather limited. In terms of value, around 50% of the total market in terms of sales concerns utility meters (water meters, gas meters, electricity meters and heat meters) while automatic weighing instruments represent around 17% and material measures 14.3% (see Table 1).

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Table 1 – Total size of market covered by the MID

	Market size – number of items sold annually (000s)	Market size- value of items sold annually (million €s)	Share in total MIs market	Employees occupied in sector (1000s)
MI-001: **Water Meters**	18,000	450	**13.8%**	25
MI-002: Gas Meters & Conversion Devices	6,900	410	**12.6%**	30
MI-003: Active Electricity Energy Meters	14,000	610	**18.8%**	32
MI-004: Heat Meters	800	290	**8.9%**	18
MI-005: Measuring Systems for Liquids other than Water	31.2	240	**7.4%**	14-16
MI-006: Automatic Weighing Instr.	21	550	**16.9%**	25
MI-007: Taximeters	50	25-40	**1%**	1
MI-008: Material Measures[1]	300,000	440-490	**14.3%**	34
MI-009:Dimensional Measuring Instr.	300-400	70-80	**2.3%**	7
MI-010: Exhaust Gas Analysers	25-35	130	**4.0%**	17.5
Total	**345,000**	**3,250**	**100%**	**190**

The data analysis indicates the presence of around 900 manufactures active in one or more of the 10 MI sectors. Some sectors, mainly the utility meters, are dominated by a few large scale multinational companies while in others, such as the automatic weighing instruments or exhaust gas analysers, there are a larger number of small and medium size enterprises. The above number does not include the large number of SMEs that operate mainly as distributors, importers of instruments or provide repair services. The total number of employees occupied in the sector is estimated at 190,000.

Finally, data collected on the level of trade of MIs suggest that around 20-25% of MIs in the EU27 are imported while 25-30% of the MIs produced in the EU27 are exported to third countries. There is however important variation among the different categories of MIs. Trade levels in both directions are particularly high (over 50% of total) for the less technology intensive categories of material measures (MI-008) and dimensional measuring instruments (MI-009) but also for electricity meters (65%). At the same time, the share of production exported is particularly high in the case of more advanced technology instruments such as Automatic Weighing Instruments (up to 42% for the sub-category of automatic gravimetric filling instruments) and in the Gas Meters category (44%) where EU firms are the world leaders.

[1] Data refer to all material measures of length in the market. Not only MID certified.

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III. Overall findings of the evaluation

Effectiveness of the Directive

The conclusions of the analysis is that, up to this point, the MID has rather successfully provided the basis for the development of a more efficiently operating internal market through the use of a single certificate. The contribution of the MID in this respect is recognised by the great majority of stakeholders (competent authorities, notified bodies, firms) and the current situation is seen as a significant improvement in relation to the pre-MID period that had been dominated by multiple national legislations with important differences that posed important trade barriers.

Having said that, the initial period of the implementation of the Directive has been characterised by problems in a few sectors covered by the MID, that have limited its effectiveness. These include:

- Barriers posed by some national and local authorities by setting additional requirements or, in some cases, regulations concerning functionality, marking or the use of instruments. In the majority of the cases, they are issues which are not governed by the MID and concern the use of MIs after they are placed in the market. In relation to legal metrology instruments Member States give, in general, greater priority to consumer protection and other requirements concerning the use of instruments than any possible obstacles to the smooth operation of the single market. As a result, in a number of occasions their introduction imposes requirements that limit the benefits of a single MID certificate.
- Controls and requirements applied by a few national authorities that reflect practices of old national regulations that indicate a possible problem of understanding – or possibly accepting - what the implementation of a new approach Directive entails.
- Limited information on the applicability and requirements of the MID for a number of manufacturers and, more often, importers of measuring instruments. However, the evidence collected does not indicate that the problem is particularly acute.
- Sector specific problems that, according to industry reports, have an impact on the market for fuel dispensers and other liquid dispensing systems. It concerns the limitations in combining new and old components for upgrading existing instruments or systems (mix and match problem). The industry reports a negative impact on the operation of the market in some Member States and a limited uptake of MID-certified instruments as a result. Furthermore, small size producers of self-service devices or components appear to be in unfavourable position against large firms that develop and sell complete systems. Issues related to the use of modules and sub-assemblies are also reported in the case of automatic weighing instruments and for utility meters although there was no evidence of important negative impacts on the operation of the market.

With the exception of the sub-assembly issue, most of the problems mentioned could be considered as symptoms of an initial “teething period” and it should be expected that, as experience builds up obstructing practices and obstacles should gradually deteriorate.

Parameters and barriers that have an impact on the effective implementation of the Directive

The quality of market surveillance appears to be one of the important concerns of industry and it is an area where most authorities recognise that their effort until recently has been limited. To this point most authorities concentrate on checking whether the CE+M mark is properly affixed and that the

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necessary paperwork is conducted. According to a few reported cases even these typical tests are not properly performed.

The absence of proper surveillance appears to be the main reason for almost all, still limited, occasions of unfair competition reported. The authorities in most Member States refer to limited resources available as the underlying reason for the ineffective control of the market. Still, there is no evidence of a particularly problematic situation either in terms of consumer protection or in terms of the gradual development of a single market.

A second parameter is the operation of the **notified bodies in the assessment of conformity and the overall certification procedures.** On the one hand, some notified bodies tend to use WELMEC guidance documents as if they represent regulations and, in some cases, present obstacles to companies that follow alternative approaches. On the other hand, notified bodies appear also rather inconsistent in their operation with important variations in the capacity to carry the necessary tests, especially those in the new Member States. Given their key role in the conformity assessment procedure and their contact with manufacturers, such problems can create confusion in the application of the Directive.

On the positive side, **the use of normative documents** developed on the basis of OIML recommendations have **contributed on the implementation Directive** and their use is considered appropriate by almost all stakeholders. Most of these documents were used even before the MID and they help to keep Europe in line with the rest of the world, reduce the risk of creating technical barriers and help international trade. Problematic areas do exist though and the level of harmonization with European standards –where they exist – is still not complete for some categories of instruments.

Furthermore, despite the problems related to the use of its guidance documents by the notified bodies, **WELMEC[2] has a positive contribution towards the effective implementation of the Directive**. The guidance documents issued cover the full range of activities and address all different stakeholders involved. The working groups of WELMEC provide the appropriate forum for the identification of any issue and problem related to the implementation of the MID and for the formulation of the relevant proposals for consideration based on the broader possible consensus.

Role of the Directive in promoting or inhibiting technological innovation

The empirical evidence indicates that in most categories of instruments the MID has not affected technological innovation to any material extent. In general the MID appears to be technologically neutral allowing for a level playing field. The economic incentive of easier access to a broader market was the only benefit explicitly stated but only in a few occasions.

A few areas where rather minor problems in relation to technological innovation are still present:

- A common problem seems to be the restrictive use by the notified bodies of WELMEC guidelines and the constraints that almost all stakeholders see in accepting alternative approaches to conform

[2] WELMEC –European Legal Metrology Cooperation is the organisation of national authorities in legal metrology at which meetings some stakeholders participate.

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to the essential requirements of the Directive. They are seen as posing more stringent and demanding requirements, beyond what is considered appropriate, to those firms that chose not to follow the guidelines.

- The essential requirements for some categories of MIs are seen as restrictive or prescriptive. Industry and some of the competent authorities refer to limitations in terms of the classes and types of instruments allowed (e.g. exhaust gas analysers only for cars – MI-010) and concerning the opportunities for market trials in the case of fuel dispensers (MI-005).
- An issue specific to the utility sector concerns the use of smart meters where the dominant view is that the current provisions of the Directive do not provide an optimal solution in view of the technological and market developments in place. However, the smart meters regulation has implications than go further than purely metrological issues. As a result, further experience and analysis is necessary.

Evidence of the development of two tier market and unfair competition – role of optionality

The optionality clause of the MID has been used by a number of countries (See Appendix F) although, still, for 90% of the total[3] category of MIs a national legislation in accordance to the MID is in place. According to the most recent reports, 17 countries have opted out from the Directive for one or more instruments. The main reasons for selecting to opt out concern either the absence of specific categories of legal metrology instruments from the market or the consideration that the administrative burdens imposed would be much higher than the level of consumer protection provided.

While a number of stakeholders have expressed their disagreement with the principle, the evidence is that, until now, there have been no problems in terms of unfair competition or a two-tier market. The only area where optionality was linked with unfair competition concerned taximeters but the evidence was, again, limited and weak.

Two tier markets – wherever present - do not seem to be a result of the use of the optionality principle. Two tier markets are indeed present for some categories of instruments that are also used for non-legal metrology purposes (e.g. weighing instruments, material measures, dimensional measuring), for example as parts of the production process of companies or in households. Such non-legal metrology instruments may be identical to instruments covered by the MID, but their placement in the market is, according to article 2 of the MID, not controlled by national regulation as far as metrological issues are concerned. Accordingly, parallel markets shall be expected to continue in the future irrespective of the MID and the presence or not of optionality and without posing any problems to the operation of the MIs market.

Contribution to the protection of consumers and users – role of optionality and other factors

The evidence available indicates that the Directive has in most cases not led to significant changes to the level of consumer protection and there is no evidence that the use of optionality has jeopardized consumer protection. On the contrary, in a few countries – mainly new Member States - the implementation of the Directive has helped to increase the standards applicable to some MIs.

[3] 857 of the total of 972 reflecting 27 Member States multiplied by 36 categories or subcategories of MIs.

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Consumer protection problems, where applicable, are primarily connected with the poor market surveillance in some countries or specific sectors allowing the entry and circulation of non-certified products in the single market.

Effective representation in the Measuring instruments decision making procedures

The general picture is that the MID decision-making procedures are open for input, commenting and contribution of all interested stakeholders. There is no evidence that interested parties have been excluded or that they did not have the opportunity to raise issues properly. Among the sectors that are not directly represented (mainly concerning categories MI-007 to MI-010) the interviewed companies did not consider this as problematic although there is still scope for greater level of representation.

As far as representation of SMEs and consumers is concerned, the MID appears to be low priority for their representatives and no concerns or issues were raised.

Impacts in terms of costs or administrative burdens and tangible benefits

The implementation of the Directive has provided opportunities for cost cuttings based on the use of a single certificate to enter the market. In some cases, the establishment of quality systems have also brought financial benefits on a medium to long-term horizon.

But at the same time, there is some evidence that the introduction of the MID has led to increases in the fees charged by notified bodies due to more thorough tests and that it has in general extended the length of the certification procedures. At the same time, the envisaged competition among notified bodies has not developed yet. Based on the information provided, the fees charged by notified bodies for a single certificate have increased in some countries by up to 30%.

Brought together, the introduction of the MID seems to have led to some cost savings in relation to the previous situation. These savings appear rather moderate and tend to be unevenly distributed favouring firms with higher level of exports and with presence in multiple markets. Firms that are only active in the respective domestic markets may experience higher administrative costs depending on the type of instrument and the conformity assessment procedures followed.

Impact on SMEs

The analysis indicates that small and medium size firms are, in general, neither advantaged nor disadvantaged as a result of the implementation of the MID. In two sectors (MI-005 and MI-006) the industry representatives argue that the absence of a modular approach (certification of components or sub-assemblies) may operate against SMEs that focus on the development of only parts/components that cannot be certified. However, the SME survey did not provide strong evidence of widespread problem. Only one out of 286 respondents made such reference.

More generally, the results of the survey do not indicate that SMEs experience barriers to entry in the market for MIs. Nor did it provide any evidence that the introduced conformity assessment procedures are particularly burdensome.

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Expected role of the adaptation of the new approach (New Legislative Framework - NLF) to the implementation of the MID

The adaptation of the new approach (New Legislative Framework) is expected to bring changes in the implementation of the Directive.

On the positive side, the NLF is expected to **improve the level of market surveillance** based on the requirement for the development of a surveillance plan to ensure a minimum level of market surveillance across the EU. Furthermore, the new information exchange obligations posed by the NLF should help **address the inconsistencies among the 140 notified bodies** described earlier. However, it remains unclear how the NLF provisions will be implemented given that many competent authorities refer to limited resources as the main underlying issue.

On the possibly negative side, **changes in the language requirements as a result of the NLF may create additional costs to manufacturers**. The NLF creates a possibility – although not a requirement - that Member States' authorities may require full documentation in their own language. Such a requirement may pose additional costs to companies and - probably in only few extreme cases - may lead firms that trade only a small number of instruments in a Member State to exit the specific market.

Main strengths and weaknesses of the Directive

Based on the analysis, the evaluation identified the following strengths and weaknesses in the implementation of the MID up to now.

Strengths

- The introduction of the MID has successfully provided the basis for the development of a more efficiently operating internal market through the use of single certificate allowing the placement of MIs in the market.
- Overall, the MID has proven a technologically neutral and has not created obstacles to technological innovation. There are some issues related to the use of software in some categories of instruments and of smart meters in utilities, but these are well documented through WELMEC working groups and efforts to identify the appropriate solution – through guidance documents, standards or amendments are examined.
- The optionality principle appears to be a strong point of the Directive. There is, at least up to now, no evidence that its use by Member States has led to unfair competition or to a two-tier market in the area legal metrology instruments. At the same time, the flexibility provided to Member States appears to be an important factor in achieving agreement in key areas.
- The level of representation of the most affected stakeholders appears appropriate and, while industry does not have voting rights, WELMEC working groups and the MID working group are sufficiently open and provide the opportunity for the issues to be properly raised and argued.
- The involvement of WELMEC and the various working groups represent an important asset for the successful implementation of the Directive. It provides a forum for identifying and discussing the various technical issues and other problems while the guidance documents issued are considered,

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albeit not unanimously, useful for the interpretation of the essential requirements and the conformity assessment procedures by manufacturers and notified bodies.

Weaknesses

- The low level of market surveillance is one of the key weaknesses of the implementation of the MID to this point and it appears to be the main reason for the development of two tier markets and unfair competition in some sectors and in some Member states.
- The inconsistency of notified bodies in the interpretation of essential requirements and WELMEC guidance documents represent also weak points of the implementation of the Directive. As it appears, the 140 bodies notified have varying level of capacity and follow different approaches creating great variation in the experience of manufacturers during the certification process. The issuing of WELMEC guidance documents in English language only contributes, to a certain extent, to these inconsistencies.
- The level of information concerning the Measuring Instruments Directive is rather problematic and a number of companies affected – manufacturers and more often importers – are still not properly informed of the applicability and requirements of the Directive. The absence of information should be seen in the context of a perceived limited impact and relevance of the Directive in some sectors (e.g. capacity serving measures, taximeters) and the low priority attached by the respective trade associations.
- The information exchange among competent authorities and notified bodies in relation to instruments certified or rejected is still problematic and represents an additional barrier towards a more effective market surveillance.

IV. Recommendations

Based on the results of the evaluation, it is concluded that **no actions toward amending basic provisions of the MID are necessary**.

In relation to the issues raised by the European Parliament, there is no need for action in relation to the **optionality principle, as there is no evidence that it has distorted competition or created two-tier markets of legal metrology instruments**.

At a more practical level, the utility and effectiveness of the Directive can be improved if actions by the Commission and/or the Member States in relation to the following issues take place:

- Improve the coordination and strengthen the quality of accredited notified bodies by enhancing **information and experience sharing and providing training or other relevant support in relation to the application of conformity tests, the interpretation of the essential requirements and the use of WELMEC guidance documents.** The provision of translated versions of the various WELMEC guidance documents could also have a positive role. If WELMEC does not have the necessary resources, Member States should take this responsibility. The New Legislative Framework is expected to provide the legal context for information and experience exchange but the Commission and the Member States should aim to **promote such activities and bring together the notified bodies and experts from WELMEC even before the NLF regulation is applied**.

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- **Strengthen the effectiveness of market surveillance** by developing and implementing market **surveillance plans and ensuring** the necessary resources to implement these plans are earmarked. The Commission can help **in sharing results and experience among the relevant bodies through the organisation of targeted discussion groups or forum**. In this regard, it would also be helpful if **Competent Authorities agree to prepare annual plans** including their objectives and the resources to be used and to share these plans with each other and the Commission.
- **Increase the level of information exchange among competent authorities** concerning instruments certified or rejected. The existing system for accessing EC type certificates through the web pages of 13 Member States represents a useful tool in facilitating exchange of information among Member States authorities and notified bodies. The development of a single database bringing together all information could provide the most effective solution in this respect but it may not be necessary if all Member States make the information available and adopt a more consistent approach in presenting this information.
- In relation to that, it is also recommended that a **common certificate format** be promoted in the context of WELMEC to be commonly used by all notified bodies for each category of MI.
- The Commission and Member States should consider proportionate **measures to increase the level of awareness of the Directive** by manufactures and importers through the implementation of targeted information campaigns with **the cooperation of key stakeholders at the** European and national level.
- Given the presence of specific gaps in the representation of some of the sectors covered by the MID (i.e. gas analysers, capacity serving measures) the Commission **should repeat its invitation to the relevant European trade associations**. The European Garage Equipment Association and the European Container Glass Federation are two such stakeholders identified during the course of the study.

Finally, the findings of the evaluation indicate the presence of a number of **issues concerning specific categories of instruments. The most problematic area is the combination of old and new components for liquid dispensers other than water** (MI-005). The recommendation of the evaluators is that the Commission and the Member States **attempt to address the problem and not wait for the end of the transition period**. It is outside the scope and the expertise of the evaluators to propose a specific solution – including an amendment of the MID, a guidance by the Commission or WELMEC or some other fix - given the technical character of the issue. The existing representation bodies, including WELMEC and the working group of the Directive, appear to provide the appropriate forum for discussing and addressing this issue and this process is already ongoing.

Introduction 1

This document contains the final report submitted by the Centre for Strategy & Evaluation Services (CSES) LLP in respect to the assignment: 'Interim Evaluation of the Measuring Instruments Directive'.

1.1 Objectives of the evaluation

The objectives of the evaluation, as set out in the terms of reference, were to:

- Provide a quantified table of ballpark figures for each of the 10 sectors and subsectors of the measuring instruments (MIs) listed with focus on establishing information on turnover, trade, employment and number of firms active, including manufacturers, importers and distributors.
- Assess, to this point, the effectiveness of the Directive, and more specifically:
    - the extent that the Directive contributed to an efficiently operating internal market for the goods in question
    - the extent that the Directive influences technological innovation and to what extent it has contributed to the development of innovation
    - the extent that the Directive achieved its aims with regard to the protection of consumers and users
    - the extent that a two tier market concerning consumer protection and competition have developed and if there is difference in the case of Member States have not opted to require Legal metrological control (optionality)
    - the participation of non-government stakeholders in the measuring instruments committee and their impression as well that of others as regards their participation
    - the overall strengths and weaknesses of the Directive
- Assess the impacts of the Directive on markets and European companies in terms of costs or administrative burdens and of tangible benefits.
- Assess the implementation of the Directive in the Member States and identify the barriers to effective application of the Directive and the ways that such barriers could be overcome.
- Identify measures that could be taken to improve the utility of the Directive and the expected role of the adaptation of the New Legislative Framework to its implementation.

1.2 Background to the evaluation – key issues raised by the European Parliament

The MID Directive was initially proposed by the Commission in 2000. It is a New Approach Directive that is based on the adoption of essential requirements applying to a range of devices and systems with a measuring function. It covered 10 categories of measuring instruments and intended to abolish the 17 corresponding old approach Directives. The MI covered devices and systems with a measuring function concerning water meters (MI-001), gas meters and volume conversion devices (MI-002), active electrical energy meters (MI-003), heat meters (MI-004), measuring systems for continuous and dynamic measurement of quantities of liquids other then water (MI-005), automatic weighing instruments (MI-006), taximeters (MI-007), material measures (MI-008), dimensional measuring instruments (MI-009) and exhaust gas analysers (MI-010). The MID intended to harmonise the technical rules across the EU

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while the instrument manufacturers were given the opportunity to develop and get accreditation for quality systems that would allow them to carry out the initial verification themselves rather than having to use the services of Authorities. It required the Member States to adopt a common system of Conformity Assessment.

Following a four year period of reading in European Parliament and Council and two amended proposals by the Commission, the Council and the European Parliament adopted the Directive on Measuring instruments (MID) in 2004 (Directive 2004/22/EC) that came into effect on the 30 October 2006. Member states were given a period of two years – until 30 April 2006 – to transpose the Directive into national legislation.

This interim evaluation of the Measuring Instruments Directive supports the European Commission in fulfilling the requirement set by the revision clause of the Directive proposed by the European Parliament asking for a report in the implementation of the Directive before 30 April 2011. This revision clause was motivated by a number of concerns of the Parliament that are addressed in the evaluation. These concerns are described in brief bellow.

Key issues raised by European parliament related to the implementation of the Directive

Use of optionality principle and impacts on single market and consumer protection

The first issue flagged by the European Parliament concerned one of the distinguishing features of the MID, namely the presence of the **'optionality clause'** that allows Member States to choose for which tasks they require legal metrological control in which case only instruments conforming with the Directive may be used. Where a Member State does not require legal metrological control, it cannot impose any other controls and may not place barriers to any instrument to circulate freely in the market. The concerns of the European Parliament in relation to optionality was that as some Member States may consider that legislation is not necessary in their territory this may lead to unequal consumer protection. Furthermore, the fact that legal metrological control is not required for all conceivably possible uses means that there is a possibility of a dual market consisting of measuring instruments conforming to the MID and other instruments. In the opinion of Parliament, this may lead to unfair competition between manufacturers and importers that supply to the regulated markets with those that supply to the unregulated markets. Furthermore, the optionality clause was also considered as possibly creating unequal treatment to consumers in the different Member States given the application of different standards.

The evaluation study examined in depth the possible issues linked with optionality - development of dual markets, unfair competition, consumer protection, problems related to market surveillance.

Technological innovation

A second issue that was raised by the Parliament related to the role of the Directive in promoting or hindering innovation and technological change. While the new approach performance requirements are intended to provide flexibility to manufacturers and enhance technological innovation, there were concerns raised by the Parliament as to the extent that the rapid pace of technological change in the measuring instruments generally, and in some particular sectors and sub-sectors, had been adequately taken into consideration in the setting of the essential requirements.

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Representation in the Measuring instruments committee

A third issue raised by the Parliament was the role and the structure of the Measurement Instruments Committee. The main issue raised was the level of representation of industry associations and other stakeholders in the decision making procedures. Following Article 15 of the Directive, the MIs Committee is made up of the relevant authorities from the Member States, but other parties such as industry, non-governmental organisations or non-Member States stakeholders – while they have a clear interest in the Directive and in the way in which it is implemented – do not have a formal role in the Committee. Still, the Committee is required to consult with representatives of interested parties.

Application of conformity assessment procedures

A final issue raised by the Parliament concerned the application of the conformity assessment procedures and the extent to which there has been a consistent application of the conformity assessment procedures among Member States and whether there were deviations from the format proposed in Council Decision 93/465/EEC. However, since then the implementation of the omnibus process to adapt the MID to Decision 768/2008/EC (New Legislative Framework) is expected to address this points of criticism by creating a common framework for the marketing of goods and by standardising procedures horizontally.

The above questions of the European Parliament are addressed in this study as part of the key evaluation questions of utility, effectiveness and impact of the Directive.

1.3 Overall Approach

The approach adopted for the organisation of the *Evaluation of the Measuring Instruments Directive* followed three stages:

Phase 1: Preparatory Tasks – Phase 1 included a set-up meeting and various preparatory tasks including Commission interviews, a review of available documents, and review of potential external reports and data sources, attendance at a working group meeting. It was completed with the submission of an inception report presenting in more detail the methodology and the tools (interview programme, interview checklists, questionnaires and data sources) that were during phase two of the study. The Inception report was submitted on the 14th of December 2009 and was approved by the Commission with comments.

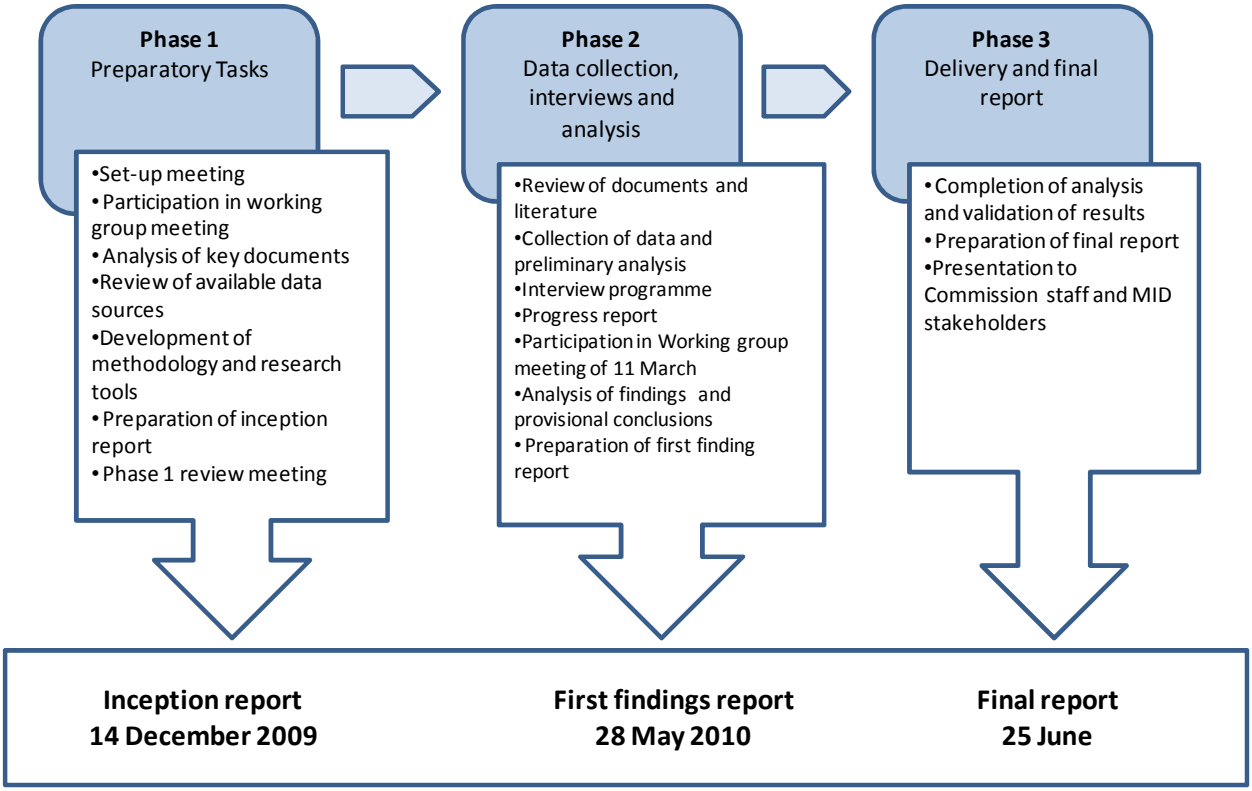
Phase 2: Fieldwork – Phase 2 involved the purchase of external market reports agreed, the conduct of interview and survey programme, analysis of each sector based on information collected and overall of the implementation of the MID. It concluded with a first findings report outlining initial findings and recommendations;

Phase 3: Analysis and Final Report – during the final phase, the research findings were subject to further analysis based on the comments of the Steering Committee. A draft final report was prepared and submitted on the 25th of June and the key findings and recommendation of the evaluation were presented during the working group meeting on 1 July in Brussels. The feedback and comments received have been integrated in this final version of the report.

Introduction

1

The following diagram summarises the methodological approach and work plan that we are following for the conduct of the study. The detailed work plan is provided in appendix A.



1.4 Structure of the report

The report is structured as follows:

Section 1: Introduction – presents the objectives of the evaluation

Section 2: Methodology – presents the approach adopted for examining the key evaluation questions and the methods and tools used for the collection of the data and information and the analysis

Section 3: Market data analysis – presents the ballpark figures for each of the sectors and subsectors of the measuring instruments.

Section 4: Analysis by sector - Presents an analysis of the information and data collected from the interview programme and the literature review for each measuring instrument sector in relation to the key evaluation questions.

Section 5: Survey analysis - Presents an analysis of the two surveys, of notified bodies and of SMEs

Section 6: Overall findings of the evaluation – Provides a synthesis of the findings of the study and addresses the key evaluation questions posed in the terms of reference.

Introduction

1

In this section we present the conclusions of the study in relation to the key evaluation questions. The effectiveness, impacts and implementation of the Directive – especially in relation to the issues raised by the European Parliament – are addressed based on the findings presented in the previous sections

Section 7: Overall conclusions and recommendations – Presents the overall conclusions of the analysis in relation to the key evaluation questions and presents a set of recommendations for moving forward

The main body of the report is supported by a list of Appendixes that include:

Appendix A - Interview programme by type of stakeholders and category of MIs covered

Appendix B – List of the documents and other sources reviewed

Appendix C – Correspondence table of EUROSTAT PRODCOM database classification codes with the measuring instruments categories

Appendix D – Notifies bodies survey questionnaire

Appendix E – Analysis of key evaluation questions by category of MIs

Appendix F - information on the use of optionality by the Member States

Methodology 2

In this section we present the work conducted during the second phase of the study including the interview programme, the survey work and the analysis of the relevant literature.

2.1 Description of fieldwork

Phase 2 of the assignment involved carrying out the core tasks of the project. These tasks included activities focusing on the different categories of measuring instruments and activities that cover the project overall.

Table 2.1 – Main elements of fieldwork

For each category of MIs	Overall
- Literature review of relevant documents submitted by trade associations and other stakeholders - Data collection based on market reports, statistical databases, trade associations and other sources - Interviews with WELMEC working groups' convenors, trade associations and companies from each MI sector	- Literature review - Interviews with competent authorities, WELMEC working group convenors, standard bodies' representatives - Survey of MID accredited notified bodies - SME panel survey on the implementation of the Directive

For each category of measuring instruments, we carried out an analysis of the relevant literature and the interview programme including trade associations (if existing), manufacturers and users. Twelve sectors were examined separately for the 10 groups of MIs covered by the MID. Fuel dispensers (petrol pumps) that fall under MI-005 and tapes/dip sticks under MI-008 were examined separately due to the presence of trade associations representing these subsectors.

The **literature review** on each sector concerned information and documents identified in Phase 1, any reports we receive from stakeholders during the fieldwork, and any other documents from the members of the working group of Measuring Instruments (wgMI) made available through CIRCA. Additional documents concerning some of the categories of MIs as a result of a web search.

Data collection and analysis was, depending on the sector, based on the combination of the market reports purchased in the beginning of Phase 2, data from EUROSTAT, information from trade association and other industry representatives and the Member States' legal metrology authorities.

In response to the study requirements, CSES aimed to collect figures on turnover, employment size and number of firms for each sector of MIs analyzed at the European Union (EU27) level. However, data were not available for all sectors and all categories. In this case, estimates were made and the underlying assumptions and calculations are presented.

2.2 Interview programme

The **interview programme** included telephone – mainly – and few face to face discussions with a number of different stakeholders including the Member States competent authorities, the trade associations of manufacturers or importers wherever available (primarily at the European level), individual manufacturers, importers and users (e.g. utility firms). It also included European and

Methodology 2

international standard bodies, members of WELMEC working groups and representatives of SMEs and consumers.

The initial target of the interview programme was 100-112 interviews including 4-5 interviews per MI sector. The preparatory work in Phase 1 and the additional search during the fieldwork identified 127 interview targets from industry/trade associations and firms (manufacturers and/or importers) ranging from 6 to 17 per sector (the detailed list is presented in Appendix C). All these targets were contacted by email or telephone in an attempt to identify the appropriate contact person.

By the end of the fieldwork period 91 interviews were completed (see Table 2.1). In terms of the interviews with competent authorities most MS were covered by at least one interview with the exception of five that declined our invitation. All interviews with the relevant WELMEC working groups' convenors were also completed and the same applied with the interviews with standard bodies (CEN and CENELEC).

One issue was the geographical distribution of the companies in each sector. The objective of the interview programme was to achieve a broad geographical coverage and avoid interviewing more than one company from the same country and that was the basis for contacting companies in the list. The target list (see Appendix A) covered companies across Europe. However, in some sectors the interview participation rates were very low. This was particularly the case among companies in Eastern Europe countries, possibly due to language constraints. As a result, in some sectors there is a focus on companies from old member states.

Table 2.1 - Summary of interview program

Interviewees	Total contacted	Completed	Declined/no answer
Standard bodies	5	5	0
MS competent authorities	33	28[4]	5
WELMEC working groups and secretariat	8	8	0
SME representatives	1	1	1
Consumer associations	1	0	1
Trade associations and manufacturers/importers/users			
- M-001 water meters	15	5	10
- M-002 gas meters	9	7	3
- M-003 electricity meters	9	4	5
- M-004 heat meters	7	5	2
- M-005 other liquid non-water	17	4	13
- M-005 petrol pumps	14	7	7
- M-006 AWI	17	4	13
- M-007 taximeter	9	4	5
- M-008 tapes/dipsticks	11	3	8
- M-008 cap serving measures	6	3	3

[4] Two cases are based on written responses provided by DG Enterprise.

Methodology 2

Interviewees	Total contacted	Completed	Declined/no answer
- M-009 dimensional measure	11	4	7
- M-010 exhaust gas analyser	17	2	15
Total	**190**	**91**	**99**

Notified bodies survey

Separately to the interview programme, an electronic survey of the 140 accredited notified bodies was organised. The questionnaire (see Appendix D) was available in five languages

Thirty nine (39) responses of Notified Bodies had been received by 30 April representing, according to our experience, a good response rate for this type of survey (28%). It provides an extensive coverage of countries, MIs sectors and activity levels. The results of the survey are presented in Section 5.1.

SME survey

An additional source of input was the SME test panel survey organised by the Commission. The responses of 286 SMEs were forwarded to CSES and provided additional inputs in relation to the key evaluation of the impact of the Directive on SMEs. The results of the survey are presented in Section 5.2.

2.3 Market data collection

A key task of the study concerned the estimation of the market size, employment size, number of firms and level of trade of the MIs covered by the Directive and of other instruments that could also be included.

CSES used a number of sources to bring together data concerning the size of the market of MIs:

- **Market research reports** on specific categories of MIs providing data on the global and European and national market size, market trends and main manufacturers by type of instrument. CSES purchased the Multi Utility Meter Report Ed 7 2009 of ABS Research and the European Garage Equipment market study of Leo Impact Consulting concerning Exhaust Gas Analysers.
- **Data from trade associations and from manufacturers** related to market size of instruments manufactured or traded by the companies they represent. During the interviews trade associations and manufacturers were asked on the availability of data on the respective MIs covered. A few of them provide us with exact data or estimates concerning the size of the market they are active. Furthermore, the interviews provided information on average life cycle and average price of MIs that were used in the case that official numbers were not available.
- **Data from legal metrology authorities** (including the online database on MID certifications) and concerning the number of national and EC type approvals, verifications and re-verifications and inspections covering specific measuring instruments covered – or not covered – by the MID[5].

[5] For example CECOD provided data on the size of the market of industrial measuring systems and retail measuring systems for gasoline (MI-005) that were included in Annex 4 of the proposal of WELMEC working group 10. Similarly, the report of the Ministry of Economics of Latvia provides data on some of the MIs produced or circulated in the national market following the requirements of the Directive.

Methodology 2

- **European databases** on production, sales and trade volumes and values. EUROSTAT maintains data of production volumes and values (PRODCOM Annual data for period 1995-2008)[6] and trade volumes and values (External and Internal trade statistics[7] for period 1995-2008) for the EU27 at an eight-digit product classification level that, generally, fits with the product sectors of the MID. During the first phase of the study we developed a correspondence table of the different classification codes used by the statistical databases and the 12 sectors of MIs (see Appendix D).

Priority was given to data provided by market research reports as the most reliable source of information. Data from trade associations were also given priority when available. The remaining two sources were used as alternatives with rather reduced reliability. Verification data were provided from only some Member States and were not always consistent in the coverage of the different sectors. Furthermore, in many cases verifications were based on samples and it was not always possible to derive proper estimates. In the case of EUROSTAT data the correspondence between sectors and product codes was not always very clear and there were many overlapping areas. Furthermore, the derived unit costs were in some cases very different from what industry or desk research would indicate. In all cases, there was an effort to crosscheck with other sources of information. An important complication is that in a number of categories of MIs covered by the Directive the production volumes and values made available did not concern MIs used only for trade purposes. Particularly, under MI-008 (material measures) and MI-009 (Dimensional measuring instruments) large part of the market concerns household uses or other non-trade-related activities for which MID does not apply. It was not always possible to differentiate between the two uses and most trade associations did not have relevant data. As a result, the data presented in some categories provide estimates of the total size of the sector and some upper limits of the MID related market.

[6] Eurostat (2009), PRODCOM database, http://epp.eurostat.ec.europa.eu/portal/page/portal/prodcom/data/tables_excel

[7] Eurostat (2009), External and internal trade database, http://epp.eurostat.ec.europa.eu/portal/page/portal/external_trade/introduction

Market data analysis 3

In this section, we present the results of the market data analysis. Ballpark figures are provided for the total size of the market in terms of annual turnover and number of units sold, number of manufacturers and, wherever available, employment size. For some categories of measuring instruments data concerning imports and exports are also provided.

3.1 Utility meters - general

Data for the market of utility meters (MI-001-MI-004) are extracted from the ABS market research report. According to the report, the majority of companies in the sector are active in more than one of the four categories of measuring instruments. There is a strong concentration of the four sectors in few large size multinational manufacturers dominating most of the markets of Member States and some domestic suppliers dominant in only a few countries. The total utility meter industry occupies, according to the ABS report, 30,000 to 40,000 employees. The following table summarises the position of the most important players in the market.

Company	Employees	Turnover (million €)	Water	Gas	Electricity	Heat	Ranking (in terms of market share in the utility sector)
Elster (DE)	7,500	1,980	x	x	x		1
Itron (USA)	8,500	1,700	x	x	x	x	2
Landis+Gyr (CH)	5,070	1,083	x	x	x	x	3
Sensus (USA)	4,000	800	x	x	x	x	4
Diehl (DE)	*12,000*[8]	*2,000*[8]	x			x	5
Kamstrup (DK)	650	126				x	
Iskra (CZ)	n.a	n.a.			x		
Apator (PL)	1,700	90		x	x		
ZPA (CZ)	n.a	n.a			x		
AEM (RO)	1,400	n.a			x		
Maddalena (IT)	n.a	n.a		x			
Zenner (DE)	n.a	n.a	x			x	
Bruno Janz (PT)	n.a	n.a	x	x			
Watteau (FR)	n.a	n.a	x				
Metron (PL)	n.a	n.a	x	x			

Source: ABS research report

3.2 MI-001 - Water meters

According to the ABS report, Europe had in 2008 an installed base of 157 million water meters, with annual demand at around 18 million units at a total value of €447 million. Residential water meters account for €290 billion (11.5 million units) while commercial and industry the remaining €157billion but only 0.7 million units as they tend to be priced much higher. Europe imports around 10% of the total demand in meters, mainly from China while European manufacturers export around the same amount to the CIS, North America and the Middle East.

[8] Data for Diehl concern all sectors the company is active and not only utility meters.

Market data analysis 3

AQUA, the trade association of water and heat meters has 12 members, all of which are manufacturers of significant size. The main suppliers of water meters in Europe are Elster, Itron and Sensus that together occupy around 20,000 employees and control around 55% of the total share of the market. A second tier of water measuring companies includes Diehl and Zenner followed by a number of smaller companies that are mainly present in their respective national markets. These include Bruno Janz (PT), Watteau (FR), Poworgaz and Metron (Poland) and Maddalena (IT).

3.3 MI-002 - Gas Meters and volume conversion devices

According to the ABS report, Europe has an installed gas meter customer base of around 112 million gas meters. Annual demand for gas meters is expected to rise from EUR 357 million (6.9 million units) in 2008 to EUR 411 million (7.6 million units) in 2012. Europe is a net exporter of gas meters; in 2007, it exported over 4.6 million units while only importing less than 450,000 units, mainly from China.

The gas meter market is the most concentrated of the utility meter markets. Two companies, Itron and Elster are by far the largest producers in Europe representing more than 70% of the market in Germany (Elster has a 45% share of the market, and Itron 35%) but even up to 94% in Poland. Together they occupy over 16,000 employees[9]. Other large size multinational manufacturers (Landis+Gyr and Sensus) are also present on the European market but they have far smaller market shares, even from domestic manufacturers like Apator (PL). Romania and Switzerland stand out as two of the only countries where the two companies do not have a dominant share thanks to AEM Timisoara in Romania and GWF in Switzerland. In total, there are around 17 companies in Europe that, put together, occupy around 30,000 employees.

3.4 MI-003 - Electricity Meters

Europe installed base of electricity meters was around 302 million units in 2008 with the level of annual demand standing at 14 million units (€610 million). The level of production of electricity meters outstrips the total demand by around 4 million units, but the region still imports over 7.5 million units, mainly from European manufacturer's production facilities in China. Between 2008 and 2012, European demand is expected to grow by 15.8% in units and 25.8% in value.

The dichotomy between the unit and value rise is due to the decisions by a number of governments to invest in advanced metering systems. As a result, demand for electromechanical and basic electronic meters should fall from 52% of the total market in 2008 to 14% in 2012, while demand for AMI (Advancd Measuring Infrastructure) Meters should grow from 20% to 79% over the period.

The largest manufacturers present in Europe are Landis+Gyr (30% of the market in value) and Itron (17%) and are the dominant players in most Member States' markets. Elster is also present albeit at a lower level with 1.6% of a market that occupy over 22,000 employees Other notable players include the Egyptian El Sewedy through its purchase of Iskra in 2006, and other national or regional companies such as Apator (Poland), ZPA (45% of the Czech market) and AEM Timisoara (85% of the Romanian market). Finally, a number of manufacturers provide meters in one country exclusively, such as ENEL for Italy or Sagem in France. In total, there are around 25 manufacturers in Europe that occupy approximately 32,000 employees.

[9] This number refers to the total number of employees and not only to the sector.

Market data analysis 3

3.5 MI-004 - Heat meters

The installed base of heat meters in Europe in 2008 stood at around 10 million units, with annual demand at around 800,000 units (value of €290 million). Europe produces most of its demand in heat meters and exports are relatively few, as there is no large market outside Europe requiring meters of the quality and technology built in Europe. The market for heat meters is relatively un-homogeneous in the EU, with Germany, Poland, Sweden, Denmark and Finland the main countries where heat meters exist with over 70% of the European market). During the last few years the European market for heaters has been rather saturated but experts consider that a switch from evaporator meters to more technologically advanced ones, especially those with remote reading capabilities, will boost future demand.

The European market is dominated by Kamstrup (around 47% of the 10 million installed meters) that specialises in this category and occupies around 650 employees. Other companies with important presence in the sector are the large-scale manufacturers Diehl (22% of the sector), Landis+Gyr (12%) and Itron (6 %). In total it is estimated around 10 companies are active in the sector in Europe occupying approximately 18,000 employees[10].

3.6 MI-005 - Measuring systems for liquids other then water

MI-005a – Fuel dispensers

According to the European Committee of Manufacturers of Petrol Measuring Systems (CECOD) there are currently around 120,000 petrol stations in the EU27 with approximately 300,000 petrol dispensers installed. CECOD suggests that petrol dispensers have an annual life cycle of 12 years and, based on this assumption, estimates that the size of the European market on an annual base is around 25,000 systems with a total value of around €200million based on a unit price of around €8,000. CECOD did not provide data on imports/exports. Based on PRODCOM database data concerning petrol pumps[11] the level of imports from outside Europe does not exceed 3% of the total market size.

In terms of the manufacturing base, CECOD has a total of 21 members of which 10 are producers of fuel dispensers for petrol stations. Overall no more than 20 companies are active in the specific sector. There are a few large size players including Gilbarco, Tokheim and Dresser Wayne with presence across Europe that represent more than 60% of the market. Most other manufacturers are present in only a few Member States. It is estimated that the main companies in the sector employ around 10,000 employees without referring to importers or local distributors. Furthermore, based on PRODCOM data for fuel pumps[12] around 16% of the production of Europe is exported outside EU while imports represent no more than 3% of the market.

[10] This number refers to the total number of employees of the companies and not only those in the sector. The actual number is likely to be lower due to the smaller number of units sold in Europe compared to other utility meters.

[11] One dispenser may have more than one pump.

[12] Number of dispenser and pumps do not coincide as depending on the arrangement one dispenser may have more than one pumps for different fuels.

Market data analysis 3

MI-005b – Other liquid dispensing systems

Based on CECOD data the existing installed measuring systems on tank trucks[13] are around 35,000. With an average life cycle for instruments of around 10-12 years, it is estimated that around 3,200 new MIs enter the market on an annual basis with a total value of around €20million, giving a price per unit of €6000. Concerning MIs in fixed installations[14] CECOD refers to a total installed base of 25,000 instruments across the EU and an annual market of around 3,000 new MIs entering the EU market. Their reported market value is close to €52.5 million.

However, as in the case of fuel dispensers, the data from national verification from a few countries indicate that CECOD data may underestimate the total size of the market.

CECOD did not provide data concerning the number of manufacturers and employees occupied in the sector. Based on the information on the number of MID certificates issued and the input of one manufacturer there are around companies across Europe that are active in measuring systems in trucks or fixed installations. Almost all of them belong to the SME category with less than 250 employees, most with less than 100. There are also a number of very small local companies across Europe that assemble components that do not have MID certified instruments that are mainly used for non trade purposes. The estimated number of employees occupied in the sector is around 4,000-6,000.

3.7 MI-006 – Automatic Weighing Instruments

Based on data provided by the European Committee of Weighing Instruments Manufacturers (CECIP) concerning the eight countries[15] that are represented by the association, the total value of production of AWI in 2008 was close to 23,000 units of which around 17,000 were used for legal metrology purposes falling under the MID. The value of these instruments in 2008 was around €440 million that is around 15% of the total production of automatic and non-automatic weighing instruments. According to CECIP, its members represent around 75-80% of the total production in Europe so it can be estimated that the total number of AWI is around 28,000 and the MID related around 21,000 with a total value of €550million, giving a price per unit of €2750. Based on an average life cycle of approximately 10 years the installed base should be around 210,000 instruments.

Concerning the share of different categories of AWI, the data provided by CECIP indicate that catchweighers represent 42% of the total production (8,750), filling instruments around 36% (8,000), discontinuous and continuous totalizers 19% (4,000) and rail weighbridges 4%(900). The above numbers are close to that of PRODCOM database that include also instruments not used for legal metrology. They indicate a total annual market size of around 15,000 catchweighers and checkweighers, 14,000 filling instruments, 7,000 continuous and discontinuous totalisers and, based on the 4% estimate of CECIP, 1500 weighbridges.

Concerning the size of the sector, CECIP data suggest the presence of around 700 companies active in the production of automatic and non-automatic weighing instruments. Among those, approximately 100 companies are present on the market with their own original products such as balances and scales for

[13] System on (un)loading ships, rail, road tankers and systems for refueling aircraft.
[14] Systems for cryogenic liquids, milk, liquid and liquefied gases.
[15] CZ,UK,DE,FR,NL,PL,SK,IT

different applications and in many market segments among which 30-50 produce AWI. In total, the weighing industry employs around 50.000 people 50% of which are employed by SMEs. CECIP reports also the presence of 4000 - 5000 very small or micro companies (1-3 employees) that are service providers, but also occasionally assemble scales in limited editions. Based on the 15% of the AWI sector we can estimate that the sector occupies around 7,500-10,000 employees in Europe.

3.8 MI-007- Taximeters

Concrete data based on market analysis is not available for the taximeter market in Europe. The figures provided are estimates based on the data provided concerning the number of verifications from the certifying authorities in some countries and additional information provided by manufacturers.

The data from verifications in some countries (DE, FI, NL, LV, and SLO) and the discussions with manufacturers indicate an average of one taxi per 1000 inhabitants across Europe (range between 500 in FI to 2300 in NL). Assuming one taximeter per taxi and a total European population of 500 million we can estimate a stock of around 500,000 taximeters in the market. The estimates of the life cycle of taximeters ranged around 10 years indicating around 50,000 taximeters sold annually in Europe. According to the information collected the price of taximeter varies between €200-400 in Central and Eastern Europe countries to close to €800 in Nordic countries. Thus, the value of the taximeter market is around €25-40 million.

Concerning the number of companies in the sector, the information from Member States on the number of MID certificates and the interviews indicate the presence of a small number of manufacturers (still almost all classified as SMEs) present in multiple countries – either directly or through local distributors (and exports outside Europe). The main manufacturers identified with presence in multiple countries include Digitax (IT), Hale Electronics (AU), Interfacom (ES), Kienzle Argo (DE), ATA (FR) that together still do not occupy more than 500 employees, not including the various local distributers. These companies do not specialise in taximeters only but may cover a wide range of electronic systems related to the transportation and logistics sectors. In addition, in a number of EU countries there are very small size companies (<25 employees) that – with few exceptions - focus exclusively on the respective domestic or local markets. In the case of the UK, according to one interview source, there up to 35 such enterprise of 1-2 employees almost none of them selling MID certified taximeters. Most commonly, there are one or two local companies (specialised or not) whose taximeters compete with those of the domestic manufacturers[16]. In total, there should be around 50-60 companies around Europe occupying at most 1000 employees. However, one should also add the distributors, installers and service providers in each country for which it was difficult to provide any meaningful estimate.

3.9 MI-008 – Material measures

Material measures of length

Data for the material measures of length have been very limited. PRODCOM and number of national verifications from a small number of countries were the only sources available. Measuring rods and tapes coincide with two codes of PRODCOM database (Measuring rods and tapes and divided scales-

[16] We identified such companies in Czech Republic, Finland, Sweden, Greece, Poland, Latvia.

Product code 28293975 and Hand held instruments for measuring length-Product code 28293979). According to the PRODCOM data[17] the total number of units sold in Europe in 2008 was close to 130 million with an estimated value of €290million, giving a price per unit of €2.50. On the basis of a 10 year life cycle the total installed base is estimated at around 1.3billion units. However, only a small share of this total volume is used for trade purposes but the Hand Tools Association stated that they do not have figures on the number of tools subject to metrological control and the interviews did not provide any further guidance.

In terms of companies, the hand tools association has a total of 22 members under the subgroup measuring instruments – most of which produce measuring tapes and rods. In additional the certificates database indicates around 15 more companies with at least one MID certificate. These companies occupy in total around 14,000 employees. Information on SMEs present in the domestic markets is not available.

Capacity serving measures

Data from European Glass Containers Association (FEVE) indicate that the total volume (in tonnes) of the production of glass-made containers sold in 2008 was around 22.4million tones[18] of which around 1.4million tones concerned tableware (glasses, jars but also bowls etc.) which, as a very rough estimate, represents around 3.5 billion glasses[19]. However only a small proportion of these glasses and jars are sold for trading purposes and are MID-certified. FEVE did not have precise data on the share of production directed towards containers for trade purposes (thus falling under the MID) in 2008. Inputs from its members suggest that the share of capacity serving measures that are CE-marked does not exceed 5% of the total production. This indicates a total volume of 150-200 million capacity serving measures sold across Europe. Although an installed base may not be a meaningful concept in the case of capacity serving measures, with an average lifecycle of 0.7 years, the installed base should be around 250 million.

In terms of companies active, the overall tableware glass sub-sector (that includes also most of the companies' manufacturing capacity serving measures) is widely distributed across the EU. One study[20] of the sector indicated that there are 50-60 large installations spread out across the EU along with around 200 small to medium size firms occupying around 20,000 employees. France, Germany, Italy and Austria account for 60% of EU production with the remainder coming from 16-18 other Member States (EC (2008)). Production in the new Member States takes mainly in Poland and the Czech Republic, which each produce 5-5½% of EU output while Slovakia accounts for 3% of EU output. An important part of the

[17] The total size of the market for each code is calculated based on the following formula:
Market size for EU27 = Total value(volume) of products sold in EU27 (PRODCOM Data) – Value(volume) of Exports (TRADE Data) + Value(volume) of Imports (TRADE Data)

[18] Data include Turkey.

[19] Based on glass weight of 0.4kg according to FEVE.

[20] http://www.allbusiness.com/nonmetallic-mineral/glass-glass-manufacturing/545690-1.html

domestic market is also served by imports from China (either Chinese companies or European companies with facilities in China) and Turkey[21].

We need to note that the above data do not cover the capacity serving measures made from plastic (mainly polycarbonate and polypropylene) which can be significantly cheaper (5-10 times) and are increasingly used in bars and pubs. We did not find any data on the specific segment of the market to allow for proper estimates.

3.10 MI-009 – Dimensional measuring instruments

The data concerning dimensional measuring instruments are very limited. Only a couple of countries provided data on number of verifications and re-verifications and such data appear to be rather inconsistent. The only other source is PRODCOM database which covers electronic instruments, appliances and machines for measuring or checking geometrical quantities (Product code 26516650) and Optical instruments, appliances and machines for measuring or checking (Product code 26516630). The data for 2008 indicate a total volume sold in Europe at a level of 6million units for a value of €1.4billion. With an estimated 10 year life cycle the installed base should be around 60million units. However, it is again unclear what share of the market represents instruments used for trade purposes. Extrapolating from the number inferred number based on verifications in Germany (700,000 instruments) one can estimate that the installed base of MID related dimensional measuring instruments is no more than 3-4 million units (5% of the total).

Concerning the number of companies active, the only source is the certificates database indicating the presence of 20 companies with – based on their own sources – around 7000 employers. Small size firms with no MID certified products are not included in these estimates. Distributors and importers are also not included in these figures.

3.11 MI-010 – Exhaust gas analysers

According to the Gas analysers report[22] there were 17,050 units sold in 11 EU members in 2008 including Germany, France, Italy, Spain, Benelux, the three Scandinavian countries (DK, SE, NO) and the UK. For the EU27 we can estimate around 22,000 units sold around the EU (based on 0.5 cars/capita in EU15 and 0.3 cars/capita for new Member States)[23]. Their life cycle is around 8 to 10 years which indicates an installed base of 250,000 units. Based on the same source the size of the total EU27 market is estimated at around €90million. The above numbers are more or less in agreement with that derived from the limited data on verification of gas analysers that indicate an average of 1000 analysers per car in Europe (250million cars in Europe) that corresponds to an installed base of around 250,000 analysers.

Based on the gas analysers report the production volume of the EU7 in 2008 was around 28,000 units which indicates that close to 40% is directed towards exports. Production in Germany, Italy and the UK represent close to 88% of the total volume.

[21] According to PRODCOM imports to EU27 represent around 24% of the total value of drinking glasses sold. However the correspondence with the data presence is not very clear. Exports from EU represent around 45% of the number of glasses produced.

[22] European Garage Equipment market study 2008 – Leo-Impact Consulting GMBH

[23] http://europa.eu/rapid/pressReleasesAction.do?reference=STAT/06/125

Market data analysis 3

In terms of manufacturers, the European Garage Equipment Association refers to a total of 650 companies in the sector as a whole, occupying around 40,000 employees. The market report refers to around 60 companies present in the EU27 (including companies from other European countries) occupying around 17,500 employees[24]. Based on a market research report[25] the European diagnostic equipment market is dominated by 8-10 suppliers that include Robert Bosch-Automotive Aftermarket (DE), Gutmann Messtechnik (DE), Texa Spa (IT), SPX-Technotest (US), AVL DiTEST (AT), Omitec (UK) and Snap-on (USA), Brain Bee (IT). The combined market shares of these suppliers accounts for around 60% of the overall European sales.

3.12 Summary of market data

Table 3.1 bellow summarizes the data estimates for each of the measuring instruments sectors and subsectors examined. In total, we estimate that the MID applies to around 345 million units of MIs sold annually in the European market with a total value of €3.25 billion. The greatest share in terms of value concerns electricity meters (18.8%) and automatic weighing instruments (16.9%). In total, the utility meters represent 50% of the total value of the MID instruments. On the other side, taximeters represent less than 1% in terms of total market size.

In terms of the size of the sectors, around 900 companies are involved in the production of the 10 different categories of legal metrology instruments based on the information collected although this number does not include distributors or importers. In terms of employees, the data available indicate a total of 175,000-205,000 occupied in companies that manufacture MIs[26]. This number does not include distributors or importers of instruments but it may also include some double counting in the case of utility meter companies that are active in more than one sectors.

Finally, the available data on share of imports and exports indicate a variation in terms of the dependence from non-EU markets. In the case of the lowest technology sectors of MI-008 and MI-009, reach up to 50% of the market, while in the case electricity meters sector close to 65%. In many cases these are European companies with established manufacturing base outside the EU. In most other categories, the level of imports does not exceed 20% of the total market size. We should note here that the data for some categories of MIs are based solely on the PRODCOM database and should be treated with caution.

[24] This is the number of the employees of the companies that may be present in other sub-sectors of the garage equipment industry.

[25] http://www.researchandmarkets.com/reports/603619/strategic_analysis_of_the_european_diagnostic

[26] In the utilities sectors, most of the large scale companies are active in more than one categories. By adding the numbers for each category there is a possible double counting.

Market data analysis

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Table 3.1 – Summary table with EU27 market data for measuring instruments[27]

	Installed base –no. of units (000s)	Market size – number of items (000s)	Market size-value (million €s)	Share in total MIs market	Imports (% of market value)	Exports (% of value of production)	No. of firms in Europe	Employees occupied
MI-001: Water Meters	157,000	18,000	450	13.8%	13%	14%	20-30	25,000
MI-002: Gas Meters & Conversion Devices	112,000	6,900	410	12.6%	7%	44%	15-20	30,000
MI-003: Active Electricity Energy Meters	302,000	14,000	610	18.8%	60%	65%	25	32,000
MI-004: Heat Meters	10,000	800	290	8.9%	20%	32%	10	18,000
MI-005: Measuring Systems for Liquids other than Water	360	31.2	240	7.4%				
Fuel dispensers	300	25	200	6.2%	3%[28]	16%[28]	20	10,000
Measuring systems on tank trucks	35	3.2	20	0.6%	n.d	n.d.	30-40	4,000-6,000
Measuring systems on fixed installations	25	3.0	20	0.6%				
MI-006: Automatic Weighing Instr.	210	21	550	16.9%			350	25,000
Automatic catchweighers and checkweighers	150	9			3.5%[31]	19%[31]		
Automatic gravimetric filling instruments	140	8			16%[31]	42%[31]		
Discontinuous and	70	4			n.d.	n.d.		

[27] Data for MI-001, MI-002, MI-003 and MI-004 include also Norway, Switzerland and Turkey.
[28] Based on Eurostat PRODCOM data for petrol pumps. One fuel dispenser typically has more than one pump.

Market data analysis

3

	Installed base –no. of units (000s)	Market size – number of items (000s)	Market size-value (million €s)	Share in total MIs market	Imports (% of market value)	Exports (% of value of production)	No. of firms in Europe	Employees occupied
discontinuous totalisers								
Rail-weighbridges	15	0.9						
MI-007: Taximeters	500	50	25-40	1.0%	n.d.	n.d.	50-60	1,000
MI-008: Material Measures		305,000	440-490	14.3%				34,000
Material measures of length[29]	1,300,000[29]	130,000[29]	290[30]	8.9%[30]	50%[31]	29%[31]	40[32]	14,000[30]
Capacity serving measures[33]	250,000	175,000	150-200	5.4%[34]	25%[33]	45%[33]	250	20,000
MI-009:Dimensional Measuring Instr.	3,000-4,000	300-400	70-80	2.3%	55%[33]	65%[33]	20-30[34]	7,000
MI-010: Exhaust Gas Analysers	250-350	25-35	130	4.0%	n.d.	n.d.	50-60	17,500
Total		**345,000**	**3,215-3,290**	**100%**	**22-27%**	**25-30%**	**880-940**	**175,000-205,000**

[29] Data refer to all material measures of length in the market. Not only MID certified.
[30] Given that these figures include also non MID certified instruments this number should be smaller.
[31] Concerns only measuring rods and tapes.
[32] Does not include very small firms which, usually, do not produce MID products.
[33] Data represent upper estimates
[34] Includes only companies that hold MID certificates.

Analysis by sector 4

In this section we present the findings of the analysis for the 12 categories of measuring instruments based on the data collected focusing on the overall experience and specific problematic areas. Direct reference to the empirical evidence and the information collected from the different sources is made where applicable. A detailed analysis with the findings for each category of measuring instruments concerning all evaluation questions – including examples or relevant data were available - is presented in a tabular format in Appendix E.

4.1 MI-001 – Water meters

The findings of the fieldwork suggest that the **sector has benefited from the use of a single certification towards the development of a more coherent single market.**

With the exception of two countries for residential use and four for industrial, **optionality has not been used in the case of water meters.** In the countries used, the authorities referred to either absence from the market (concerning industrial meters) or no perceived policy need. The findings of the study indicate that there are no issues or problems linked to optionality. More generally, in relation to the level of consumer protection, the industry (represented by AQUA) proposes that the actual users of meters are the water distribution companies that have a vested interest in using reliable water meters. These companies have the mechanisms to test the quality of the meters and as a result, **consumer protection should not be considered an issue**.

With regards to the impact of the MID in innovation, **the industry does not see the Directive as hampering innovation as a result of the essential requirements** as in most respects the provisions of the MID are similar to those under the older Directive 75/33/EEC. The only issue mentioned concerns the current levels of operating conditions defined in the Directive that is considered inappropriate[35]. A more important issue concerns the coverage of smart meters by the MID. According to some industry representatives and competent authorities, they are the most important category of meters. While close to half of competent authorities suggest that smart meters should be covered by more rules in the MID there is no consensus. A number of forums and consultations are still ongoing that are expected to provide proposals in relation to the future of smart meters.

The industry does not consider that the MID has created additional administrative burden. The MID did not radically change the previous regime but adapted and harmonised pre-existing rules and procedures.

Another important positive aspect of the MID in the case of MI-001 is the increased participation of the industry – represented by AQUA - **in WELMEC's working groups. It has** increased the opportunity to raise issues and participate and provide input in relation to all critical issues that concern the application of the MID.

Finally, given the dominance of few large firms in the sector, the **impact of the MID on SMEs** in the sector is not considered an issue by manufacturers. The absence of important problems from those SMEs active in the sector – manufacturers, importers and distributors – is also supported by the results

[35] For the moment a ratio of 10 between the defined permanent flowrate and the minimum flowrate allowed. The industry considers that a ratio of at least 40 is appropriate.

of the SME survey that did not indicate problems concerning either the conformity procedures or any significant barriers to trade.

4.2 MI-002 - Gas Meters

The findings of the study suggest that **MID has been well received and has been an improvement on the previous regime**. The main strength of the Directive has been the **improvement of free trade and the development of a truly common market**. Particularly positive, as stated by both industry and governments, is the opportunity for manufacturers to participate in public procurement contracts throughout Europe without the need for national certification, increasing competition and, possibly, lowering prices.

With regards to technological improvements, **the MID is generally considered as technologically neutral and it is not seen as hampering technological innovation**. In contrast, there are suggestions that the introduction of the Directive has pushed average standards up in some countries benefiting consumers. However, there are fears expressed that potential future developments in the gas metering field need more rules in the MID in relation to the display of energy or monetary values or the use smart meters. Such equipment, that will fit to existing instruments are expected to increase in future in response to energy efficiency regulations. However, while many Member States support the inclusion of smart meters by the MID, the industry proposed that no change should take place at this moment as there is the need to gather experience on technical issues before any new legislation.

A number of other problematic, although not critical, issues were also identified in the study. One stated drawback is the **lack of a common definition for 'light' and 'heavy' industry** which leads to some interpretation problems in terms of which types of meters fall under the Directive or not and, in few circumstances, may operate as a trade barrier. As reported, the threshold in Germany is over 9,000 times that of the Netherlands. Another **problematic issue regards the level of market surveillance** that is still seen as too limited despite recent improvement. Having said that there was no evidence provided of unfair competition or of consumer protection issues most probably due to the concentration of the market in few large players (both in terms of manufacturers and users). Finally, the quality of notified bodies varies and the different interpretations they give to WELMEC guidance documents and the essential requirements are reported as a problem for firms when products previously and approaches accepted by one body are rejected by another.

Finally, concerning the **representation of industry** in the working group meetings of the MID and of WELMEC, both trade associations related have been actively involved and made a very positive assessment of the capacity to have their opinion and views taken into consideration.

4.3 MI-003 - Electricity Meters

The findings of the study suggest **an overall positive experience** from the implementation of the MID for electricity meters. Overall the introduction of the MID is seen as **a positive development by the electricity meter industry that considers that MID has helped simplify the relevant legal framework** and makes a positive assessment of the use of a single certificate for accessing the EU market.

Having said that, there are again **issues/problems that hamper the creation of an effective single market**. One issue raised concerns some functionalities of electricity meters that are limited by national regulation and require national certification. This results in a situation where old and new regimes run in

parallel. Furthermore, as in the case of gas meters, the freedom provided by the MID to Member States in determining the different classes of meters (residential, commercial / light industrial) is also seen as creating obstacles in the smooth operation of the market.

The industry was also critical of the fact that some harmonised EU standards related to the MID are in conflict with some of the standards of the International Electrotechnical Commission as they create confusion and complications for firms[36]. The view of the role of WELMEC guidance documents is that they are not always clear and supportive.

In relation **to the impact of the MID on technological innovation**, the main issue raised concerned the need for more rules for smart meters in the Directive. The fieldwork has shown that some manufacturers feel that WELMEC's guidance documents are unclear although this is not the view of the industry as a whole.

Optionality is not an issue for the sector as only one country (Malta) has selected not to regulate the market of electricity meters.

The interviews with industry also indicate that the MID **has not led to an overall decrease in the administrative burden** as a result of the presence of national regulation for some functionalities. Most suggested that any decrease in the administrative burden achieved in relation to light industrial and commercial meters has been cancelled out by the increase in procedures for residential meters.

In contrast to the other utility meter manufacturers, the association representing manufacturers of electricity meters – Eurelectric – were rather **negative concerning their representation and role in the decision making procedures**. Despite their participation in most of the relevant working groups, they consider that the absence of voting rights for industry limits their opportunity to influence decisions.

4.4 MI-004 – Heat Meters

The findings of the study suggest **an overall positive experience** from the implementation of the MID for the heat meter sector that recognised a positive contribution of the MID in the simplification of the market. In that respect, some manufacturers suggested that the introduction of the MID might help the development of heat metering in the countries where it is currently not present.

Concerning optionality, five countries opted out from the MID and for residential heat meters and six for commercial and light industrial ones. The countries that opted-out of the MID for heat meters did so because of the lack of heat meters in their national markets. Although initially that industry considered that this was a risk for the creation of a truly harmonised market, there has been **no evidence so far of a two-tier market developing as a result of optionality**.

In relation to the **representation in the MID processes**, the industry representatives were particularly positive about the presence and contribution in WELMEC working groups that operate as a forum for the exchange of experience and points of views. The documents drafted by WELMEC are also seen as

[36] According to the report on the MID provided by Eurelectric "the definition of 'Rated Operating conditions' is not as satisfactory as that in IEC standards and 'Critical change value' is an arcane metrology concept also not well defined'.

crucial to the success of the MID helping towards the harmonisation of views within the framework of the Directive.

Furthermore, in contrast to other sectors, the view of the industry is that WELMEC guidance documents play a positive role in the definition of a common interpretation of the MID and have also helped in the development of a common interpretation by notified bodies which, in turn, has contributed in the **decrease of the administrative burden to manufacturers**.

A more **problematic aspect – consistent with other sectors- is the rather poor level of market surveillance.** However, it is not seen as a critical problem as manufacturers usually sell their meters to trusted customers. Still, the introduction of the NLF is expected to have a positive contribution although the extent to which this will improve the situation remains unclear.

4.5 MI-005 Measuring systems for liquids other then water

MI-005a – Fuel dispensers

The findings of the fieldwork suggest that while the specific sector has **benefited from the use of a single certification** that helped towards the development of a single market, a number of issues and obstacles pose rather important problems to manufacturers and to CAs. They lead to what appears to be a **relatively problematic overall experience** for manufactures from the implementation of the Directive up to this point.

The first important issue in relation to the **efficient operation of the single market** concerns the reported additional requirements posed by some authorities and inspection bodies of Member States in relation to additional requirements and checks concerning CE+M marking or the use of the necessary seals. According to the industry representatives (CECOD) such requirements concern the use of MIs but are still in practice affecting their circulation in the market. We need to note though that such claims are disputed by the relevant authorities while the evidence provided was limited.

The second issue is linked directly with the document of the Directive and what the industry considers a problematic arrangement – or omission in the provisions of the MID - concerning the possibility to combine "old" non-MID certified points of sales[37] with new MID-certified fuel dispensers in petrol stations (and the reverse). It is seen as a major **limitation for the development of the market** in a number of countries – CECOD and the national petrol stations association reported that over 80% of the UK market is still operating on the basis of non-MID certified dispensers[38]. It is proposed that current arrangement is particularly problematic for **small sized firms** that produce only part of the whole system. There are diverging views as to whether this is only a transition period problem - suggested by many CAs and the Commission- or if it may continue even beyond 2016 as proposed by industry. Furthermore, the proposal for the introduction of a sub-assembly approach for points of sale and self-service devices or the issuing of a guidance document have already been submitted and are under review and analysis in the relevant working groups of WELMEC. However, there is no consensus on the appropriate solution to this point.

[37] A Point of Sale (POS) system is a system for managing the sales of goods. The term refers to the software and hardware associated with check-out stands, and all of the bundled features which are included.

[38] See also a description of the mix and match issue in the table concerning MI-005a in Annex E and in section 6.1.

Analysis by sector 4

In relation to the impact of the Directive on **technological innovation**, there are questions of the appropriateness of the **OIML standards. The supporting WELMEC documents are seen as rather prescriptive** but no strong negative or positive impact could be identified. In that respect, what is seen as a strict approach to WELMEC guidelines adopted by a number of notified bodies contributes to creating obstacles and limitations in specific occasions. A more specific problem concerns the **limitations posed in real market tests** of new systems since there is no testing period allowed by the Directive.

In that respect the 10-year **transition period** is considered by industry as **prolonging the problematic situation** concerning the combination of new and old equipment and has led to a delay in the introduction of new MID-certified equipment. On the positive side it has helped companies that were not adequately prepared.

The **administrative costs** linked to the implementation of the Directive appear to be at rather similar levels as in the past, although this may vary between notified bodies and types of certification procedures. Companies present in multiple markets (which are most of the main players in the EU market) suggest that they still benefit from the reduction of certificates.

The level of **market surveillance** was also highlighted as rather poor in most countries – limited to the CE+M marking and document tests – and completely absent in a smaller number of them. Still, there was **no evidence of problems of unfair competition** provided.

Finally, **the industry is actively represented** in the relevant procedures and discussion in the relevant working groups of the MID and of WELMEC and the views expressed are given proper consideration. However, from the industry side it is proposed that the importance of WELMEC in the implementation of the Directive - through the issuing of guidance documents and the formulation of proposals for solving various issues – makes their observer status inadequate.

MI-005b – Other liquid dispensing systems

As in the case of fuel dispensers, there is a rather mixed view concerning the experience from the implementation of the Directive so far. It balances the **clear benefits from the use of a single certification** for accessing a wider market with a number of problems/issues that manufacturers face that include:

- The **national regulations concerning the use of instruments** – thus not covered by the MID - which in some cases create market barriers
- the **limitations concerning the combination of new and old equipment** for the revamping of dispensers in fixed installations
- the requirements concerning the certification of modified equipment for additional MID certificates for what are considered by industry as minor modification to MIs, **increasing the total administrative costs** for each product even if costs for issuing each certificate by notified bodies has not changed drastically
- the limitations posed to **manufacturers of separate equipment/components** – mainly SMEs – that cannot be MID-certified that, as suggested, benefit large size firms of complete systems. However, this change is not as radical given the 10-year transition period and the fact that a full system

approach was already introduced in the national legislation of most Member States even before the MID.

The **optionality principle** has been used by a number of countries (5) for specific sub-categories of dispensers due to the absence of such instruments in the country or the view of government and stakeholders that specific regulation would only pose additional administrative costs without any additional benefits to consumer protection, beyond those applicable by general consumer protection legislation. The findings of the study **did not bring any evidence of a two-tier market of legal metrology instruments, of unfair competition or of any consumer protection issues as a result of optionality**.

Unfair competition was reported but it is primarily seen as a result of the reported **limited market surveillance** in a few Member States, particularly among the new Member States and the south.

Finally, as in the case of petrol dispensers, the **representation of industry stakeholders in the MIs committee is adequate.** However, the observer role in WELMEC is not considered appropriate by industry.

4.6 MI-006 – Automatic Weighing Instruments

The key finding of the analysis of the implementation of the MID in relation to the Automatic Weighing instruments is that **the adoption of the international standards and single certificate represent a very important contribution of the Directive.** It has **facilitated the operation of the single market and led to important cost savings** in terms of overall certification costs for firms. However, as described below, the practical experience concerning the implementation of the MID, including the operation of the notified bodies, the market surveillance and some of the administrative work required are problematic and, as a result, limit the effectiveness of the Directive.

In relation to **technological innovation** the dominant view of industry is that **the MID provides ample space for technological innovation** based on the generic essential requirements following OIML recommendations. However, the use by notified bodies of WELMEC guidance documents "as if they were law" – i.e. representing the only way of conforming to the requirements – is seen as delaying the process and restricts the willingness of some companies to develop innovative solutions.

Optionality has been used by a small number of countries (IE, MT, CY, SE, UK, CH) and primarily concerned rail weighbridges due to the absence of these categories of instruments from the domestic market. CECIP referred to one country where optionality was used to favour domestic production but no specific example was provided. Overall, while individual cases cannot be excluded, **companies did not identify important problems in terms of unfair competition or consumer protection due to the use of optionality.**

Some, rather limited, issues of consumer protection are seen as a result of the limited and problematic market surveillance which, as suggested by the industry, only focuses on administrative issues (CE+M marking and supporting documents). The use of golden prototypes[39] was reported used by

[39] Use of prototypes that comply with essential requirements in order to acquire the MID certificate but subsequent production of sub-standard products.

some manufacturers although CECIP did not provide information on the country where this takes place or the extent of the problem.

Concerning **administrative costs**, the evidence suggests that there has been a small increase in the costs of a single certification but this is clearly outweighed by the savings of the use of single certificate. These savings are clearly greater for larger firms with presence in multiple markets.

Finally, in **terms of representation** in the relevant MID procedures, the sector is adequately and actively represented through CECIP in the relevant working groups although there are reservations concerning the capacity to follow all working groups and monitor all working documents and the extent that their inputs are taken into account.

4.7 MI-007 – Taximeters

The overall experience from the implementation of the MID in relation to taximeters suggests that the Directive **has not yet led to the creation of an efficiently operating single market.** However, at the same time**, it has not created any problems and obstacles in relation to the circulation of products in the market or the development of new products and innovation**.

Non-MID related national legislation concerning tariffs structures and the use of taximeters remain the most important part of the applicable regulations and represents, according to manufacturers, the main obstacles towards the development of an effective single market. Still, such a problem should not be overstated since the few multinational companies in the sector are present in a large number of EU countries.

The **costs and the time required for certification by notified bodies appear to have increased** since the introduction of the MID although, for those firms with presence in multiple countries, they are **outweighed by the relative costs reductions from the use of a single certificate**. Rather more problematic for firms is the inconsistent approach of notified bodies in interpreting essential requirements.

The optionality principle is only used in one country in the case of taximeters. Although one company complained about unfair competition, the evidence suggests that, as in most other sectors, it is **the problematic market surveillance** in some Member States (particularly in the UK). It **allows non MID-certified taximeters to compete** unfairly in specific local market against MID-certified ones based on a lower price.

Most probably due to the absence of a relevant European association **the taximeters sector is not represented in the MID working group** or WELMEC although companies did not appear to consider this as a particularly problematic issue.

4.8 MI-008 – Material measures

The analysis of both sub-sectors falling under MI-008 (Material measures of length and Capacity serving measures) indicates that the impacts of the Directive have been limited and that for most firms the implementation of the Directive has been “business as usual”. Still, the representatives of length measuring instruments claimed that **the introduction of a single certificate has helped reduce trade barriers across countries**.

Analysis by sector 4

In relation to technological innovation, the sector is predominantly low tech and **industry representatives did not see MID playing any particular role**, positive or negative. However, for the more high tech length measuring instruments (e.g. based on radar and x-rays) that incorporate software components, the requirement for recertification for what industry considers minor changes in the software is seen as creating additional costs but also a possible disincentive for introducing new products.

As far as optionality is concerned, **five Member States had chosen to opt out** and did not introduce legislation. The basis for the decisions was that regulation would impose burden to firms and the administration to enforce without offering consumer protection benefits. However, **the presence of two tier markets** with non CE+M marked instrument in these sectors **is not a result of optionality but the fact that larger number of these instruments are not used for legal metrology purposes** (e.g. drinking glasses or length measuring rods or tapes used in households).

The findings of the analysis indicate that in general **the administrative costs linked to the certification process have not changed significantly**. For those companies with focus on the domestic market there are probably some increases in costs on the basis of some additional MID documentation and the new machines bought for CE-marking. Given the low unit value, these costs are seen as relatively high. Still, for firms with presence in a large number of markets the use of a single certificate did bring overall cost savings.

4.9 MI-009 – Dimensional measuring instruments

Not very different from MI-008, the findings indicate that the impacts of the Directive have been rather limited while still indicating that **the use of a single certificate has helped reduce trade barriers across Member States**.

As in the case of MI-008 the **industry representatives did not see MID playing any particular role in terms of technological innovation** since the sector is rather low-tech. For the more high tech instruments that include software the requirements for recertification for minor changes is seen as delaying the innovation process.

As far as optionality is concerned, **nine Member States had chosen to opt out** and did not introduce legislation in relation to MI-009. The basis for the decisions was that regulation would impose burden to firms and the administration to enforce without offering consumer protection benefits. Companies did not provide evidence of unfair competition and **presence of two tier markets**. The presence of non CE+M marked instruments in these sectors is, as in other sectors**, not a result of optionality but the fact that larger number of these instruments are not used for legal metrology purposes** (e.g. drinking glasses or length measuring rods or tapes used in households).

The information collected also indicates that **administrative costs linked to the certification process have not changed significantly**. For those companies with focus on the domestic market the overall costs and benefits were very limited while for those with presence in a large number of markets the use of a single certificate does indeed bring some cost savings.

Analysis by sector 4

4.10 MI-010 - Exhaust gas analysers[40]

The evidence and interviews from the sector suggest that the MID had positive **benefits in developing a single market based on the use of a single certificate which has also raised the quality of the products in the market.** However, based on the data collected and the interviews, there are some indications that MID certified instruments represent a minority of instruments in some EU countries[41]. Certified inspection centres (MOTs), the main users of MID-certified gas analysers still use older non-MID certified instruments.

However, as it is reported the market is still limited by the fact that the MID covers only 4-gas analysers for cars that consume petrol and not analyzers for smaller number of gases emitted for motorbikes that consume diesel. These are still nationally controlled. As a result, manufacturers of most analysers are still required to apply for national certificates for the same equipment and thus lose important part of the benefits derived by the MID.

In relation to the impact on technological innovation, the MID itself does not appear to have any positive or negative effect. The interviews indicate that the adoption of the OIML guidelines in the definition to the essential requirements brought only limited technical changes.

In terms of **administrative costs**, the information collected indicated a small increase in the costs for obtaining a single certificate but, according to EGEA, the use of a single certificate has reduced red tape and benefited a sector dominated by small size firms.

Finally, in terms of **stakeholders representation**, the relevant trade association – European Garage Equipment Association - has not been involved in the working group of the MID or the relevant WELMEC meetings.

[40] The analysis of this category of MIs is based on limited input. EGEA – the main representing association – was not available during the period of the fieldwork but stated that it intends to send comments after the completion of the study.

[41] The representative of UK Garage Equipment Association made reference to only 6 MID conforming gas analysers approved so far in the UK. Data from other countries were not available.

Survey analysis 5

This section contains an analysis of two surveys carried out during the study. These are a survey of notified bodies conducted by CSES during Phase 2 of the study and the SME pilot survey that was organised by the European Commission. In this section we present the analysis of the findings. The surveys complement the data in the previous section provided by the interviews and documents.

5.1 Notified bodies survey

The notified bodies (NBs) survey was conducted during the period March-April 2010. It was targeted at the 140 notified bodies that have been designated by competent authorities in the Member States to assess and certify conformity in accordance to the MID Directive for one or more categories of measuring instruments and conformity assessment procedures (modules A-H1). The list of NBs was extracted from NANO Database[42]. They were contacted electronically to participate in an online survey that was made available in five languages (EN,DE,IT,FR,ES). The invitation to the notified bodies was followed by two reminders and the survey was closed on 30 April.

By the closing of the survey, CSES had received 39 responses that represented a response rate of 27.8%, which is a relatively high rate for such type of surveys. The NBs that participated in the survey covered 12 countries and, according to the data provided and the information collected from WELMEC database, represented 47% of the total number of EC type certificates (including updates) issued during the period 2006-2009. Furthermore, the four most active notified bodies in Germany, Netherlands, France and the UK participated in the survey[43].

Finally, the survey covered all categories of measuring instruments falling under the Directive and all MID modules. MI-005 (petrol dispensers and other systems for liquids other than water) were the most widely covered. In terms of modules, module F (third party product verification) was the most common followed by modules B (EC type examination), D (self-verification of production process and G (Approval and verification of one off instruments). Modules C and C1[44] that are covered by only one NB are not applicable in any of the categories of measuring instruments according to the MID.

Table 5.1 – Measuring instruments and modules covered by the Notified bodies that participated in the survey

Measuring instruments covered by surveyed NBs	
By MI sector covered	**Number**
MI-001: Water Meters	22
MI-002: Gas Meters & Conversion Devices	22
MI-003: Active Electricity Energy Meters	22
MI-004: Heat Meters	22
MI-005: Measuring Systems for Liquids other than water	31
MI-006: Automatic Weighing Instruments	30

[42] Available from http://ec.europa.eu/enterprise/newapproach/nando/index.cfm?fuseaction=Directive.notifiedbody&dir_id=125641&type_dir=NO%20CPD&pro_id=99999&prc_id=99999&ann_id=99999&prc_anx=99999

[43] Participants did not have to state the name of the NB but were asked to indicate if they wanted to be contacted and to provide the necessary contact details.

[44] Module C: Declaration of conformity to type on the basis of internal production control. Module C1 : Declaration of conformity to type on the basis of internal production control plus product testing by notified body.

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Measuring instruments covered by surveyed NBs	
By MI sector covered	**Number**
MI-007: Taximeters	18
MI-008: Material Measures	28
MI-009:Dimensional Measuring Instruments	19
MI-010: Exhaust Gas Analysers	13
By Module covered	**Number**
A1 - Internal production control plus product testing by a notified body	15
B- Type examination	17
C - Conformity to type based on internal production control	1
C1 - Conformity to type based on internal production control plus product testing by a notified body	1
D - Conformity to type based on quality assurance of the production process	15
D1 - Quality assurance of the production process	12
E - Conformity to type based on quality assurance of final product inspection and testing	12
E1 - Quality assurance of final product inspection and testing	10
F - Conformity to type based on product verification	30
F1 - Product verification	23
G - Unit verification	17
H - Full quality assurance	8
H1 - Full quality assurance plus design examination	11

Clarity of supporting documents and procedures

The focus of the NBs survey was the assessment of the extent to which the MID related standards themselves –EN standards, OIML related documents – and the relevant guidance documents issued by WELMEC were clear and helpful. It focused on the clarity of guidance for the testing of the conformity of the MIs but also the guidance on the conformity assessment procedures. The questions intended to assess whether the claims by industry and conformity assessment bodies concerning the consistency of the notified bodies were shared by the notified bodies themselves. Although it was not possible to ask notified bodies to compare their work with other NBs, the stated level of clarity of the various documents provides a relevant indication.

Overall, the notified bodies' responses suggest that the existing MID documents are appropriate and helpful. The majority of NBs (over 56%) found that EN standards and OIML documents were clear or very clear while close to 30% provided a neutral response. Only one stated that the standards are unclear. In the case of the guidance documents on the OIML documents and the essential requirements, the responses were rather less positive although again the number of NBs that expressed a negative view was small. Around 45% of NBs had a positive view of the guidance while only 10% considered that the guidance on the OIML is unclear and 16% stated the same concerning the guidance on the essential requirements.

Survey analysis 5

Table 5.2 - In relation to the testing of conformity of measuring instruments, how clear do you find the different MID documents available? (Notified bodies responses)

	EN standards		OIML normative documents		Guidance on OIML normative documents		Guidance on essential requirements	
Very clear	1	3.2%	-	0.0%	1	3.4%	2	6.7%
Clear	17	54.8%	18	56.3%	13	44.8%	11	36.7%
Neutral	9	29.0%	11	34.4%	9	31.0%	11	36.7%
Unclear	1	3.2%	-	0.0%	2	6.9%	5	16.7%
Very unclear		0.0%	-	0.0%	1	3.4%	-	0.0%
Don't exist	2	6.5%	2	6.3%	1	3.4%	-	0.0%
No opinion	1	3.2%	1	3.1%	2	6.9%	1	3.3%
Total	31	100%	32	100%	29	100%	30	100%
No answer	8		7		10		9	
Total surveyed	39		39		39		39	

Source: CSES survey

The results concerning all MIs are replicated more or less in the same format independent of the category of instruments. When cross tabulating the responses for each of the 10 sub-sectors we did not find any statistically significant differences from the overall picture.

Small differences were more apparent when comparing notified bodies from old and new Member States but again the responses do not reveal fundamental differences (see table 5.3).

Table 5.3 – Comparison of responses of notified bodies in new and old Member States concerning the perceived clarity of MID documents available? (% of notified bodies responding out of 29 from old Member States and 8 new Member States[45])

	EN standards		OIML normative documents		Guidance on OIML normative documents		Guidance on essential requirements		Total
	old MS	**new MS**	**old MS**	**new MS**	**old MS**	**new MS**	**old MS**	**new MS**	
Very clear - clear	56.6	71.4	56.5	62.5	54.5	0.0	43.5	50.0	**58.0**
Neutral	30.4	28.6	39.1	25.0	27.3	50.0	34.8	50.0	**29.0**
Unclear - very unclear	4.4	0.0	0.0	0.0	13.6	0.0	21.7	0.0	**3.2**
No opinion -not exist	8.8	0.0	4.3	12.5	4.5	16.7	0.0	0.0	**9.7**
Total	100	100	100	100	100	100	100	100	**100**

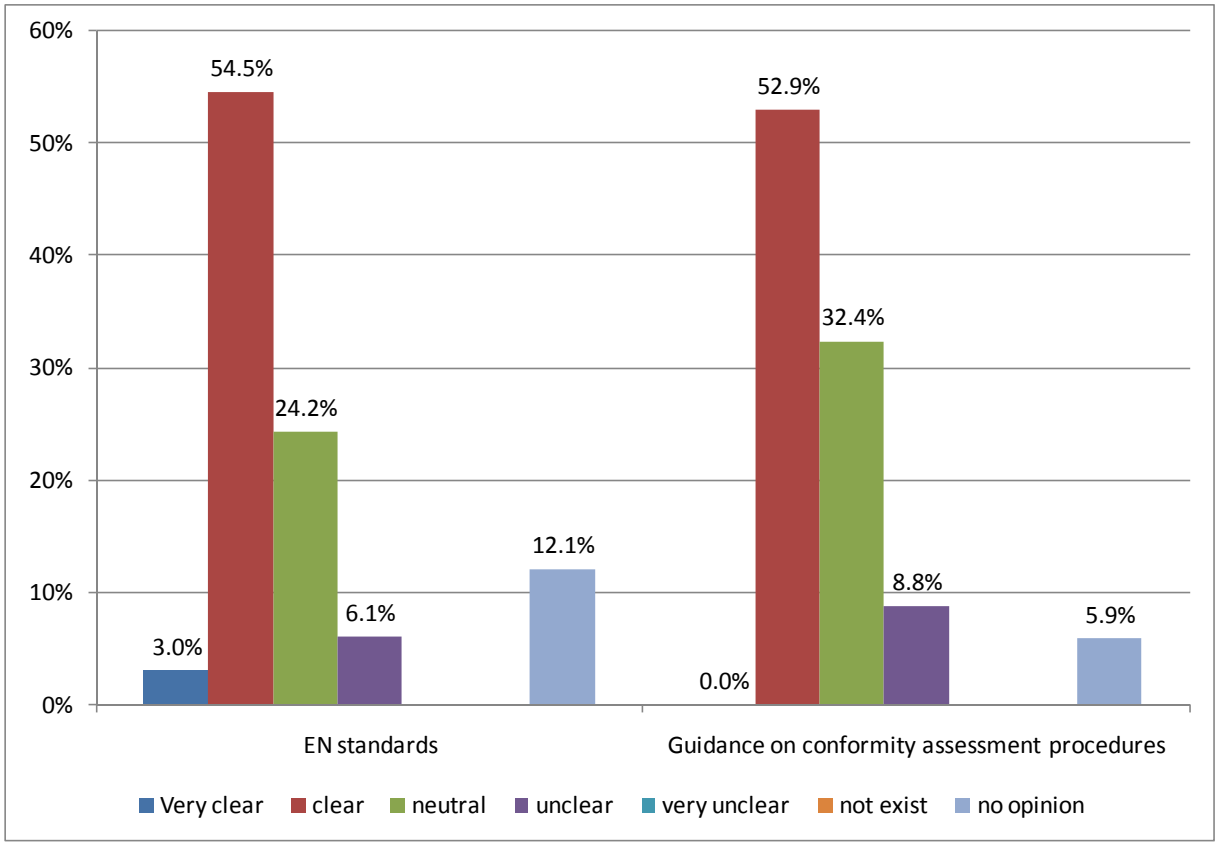
Source: CSES survey

The second relevant question concerned the application of the conformity assessment procedures and the role of the relevant documents (standards and WELMEC guidance). As it is shown in figure 5.1, the majority of the notified bodies (over 50%) considered that both the standards and the WELMEC documents were quite clear. Still around one third of NBs were rather sceptical of the contribution of EN-standards and over 40% of the WELMEC guidance documents.

[45] Two notified bodies did not state country of operation.

Survey analysis 5

Figure 5.1 - In relation to the application of the different conformity assessment procedures, how clear do you find the different MID documents (standards, guidance on conformity assessment procedures)? (% of notified bodies responding)



Source: CSES survey

The following text box presents the comments made by notified bodies. They include points referring to the need to have the OIML documents available in different languages to more specific and technical issues related to specific modules that are seen as inappropriate, unclear or missing.

Text box 5.1 – Comments of NBs on the clarity and usefulness of the documents of the MID (category of MIs covered by NB)

Some harmonised standards are declared as giving full presumption of conformity although it was not the case. The annexes are not enough clear and accurate. (MI-001-MI-010)

Our designation requires us to use standard forms that I have found unusable and inappropriate for certain verifications. (MI-005, MI-006, MI-008)

There is no harmonized documentation for module B for MI-005 and this has resulted in one notified body rejecting EC Type Examination Certificates from another. We still feel that Member States are more interested in keeping status quo and interpreting OIML R117-1 as the legal basis rather than the Directive itself. (MI-005)

One problem is from our opinion concerns issuing the certificate for module H1. There is no pattern in any guide how such a certificate should look like. (MI-003)

Survey analysis 5

Normative documents are not available in German language. There are no clear requirements for gas meters measuring volume under reference conditions and there are different interpretations from NAWI to MID (MI-006). (MI-001-MI-010)

In some cases the modules are not sufficiently defined and produce different interpretations among different Member States.(MI-001- MI-010)

It would be useful to have WELMEC guides translated into Italian in order to avoid conflicting advice.(MI-006, MI-008)

The module F concerning the application of statistical procedure described is inaccurate. There is currently no approved standard for the statistical method of module F. (MI-001-MI-004)

The drafting of the EC-type examination certificates with respect to scope and requirements for the tests varies widely. There are also problems with the language versions of the examination certificates (MI-001- MI-010)

There is not clarity in respect to the following question: Is a conformity assessment necessary when rebuilding an MID certified instrument? Furthermore, normative documents as well as harmonized standards should also be translated into German. (MI-005 – MI-010)

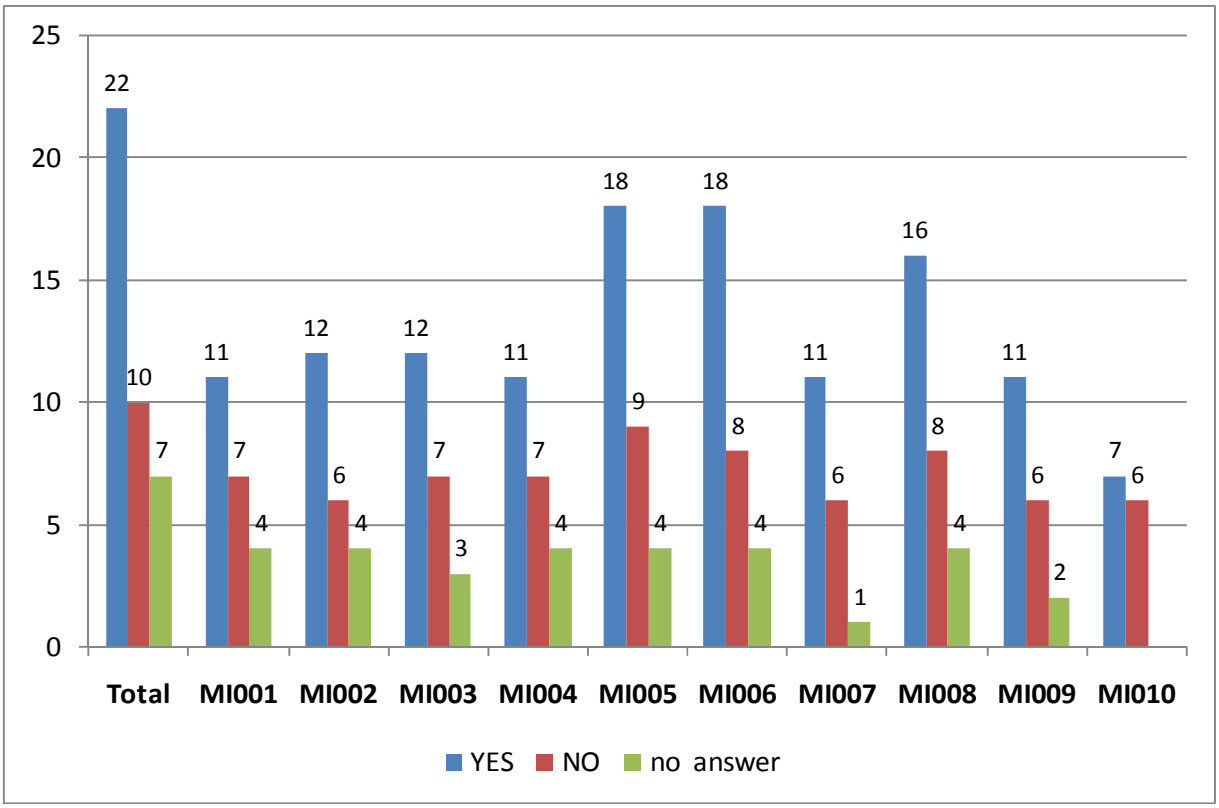
Technological innovation

Based on their direct involvement with the implementation of the Directive, NBs are also well positioned to assess the extent to which the Directive and the essential requirements support or create obstacles to innovation to manufacturers.

The responses of the 39 notified bodies indicate that the majority of notified bodies (56%) considered that the Directive is not an obstacle to innovation. Furthermore, there were no significant deviations depending on the category of instruments with the possible exception of gas analysers were close to a half of the 13 respondents were rather negative. The comparison among notified bodies operating in new and old members' states did not indicate differences in views although a high proportion of NBs – almost 50% - from new Member States did not express any view, most of them due to their limited experience.

Survey analysis 5

Figure 5.2 - Based on your experience so far, do you think that the essential requirements of the MID allow technological innovation by manufacturers? (Notified bodies – 39 responses in total)



Source: Notified bodies survey

In order to acquire more information on possible specific obstacles we also asked the notified bodies to explain their views. Among the responses provided (see text box) there is a variety of responses including those that consider a particularly positive and promoting role, to more balanced approach considering a rather technology neutral approach and those that consider that there are specific obstacles as a result of the requirements. Specific issues raised concern smart meters and the software issues that notified bodies consider as rather problematic. There was also reference to x-ray checkweighers that are not covered by MI-006 of automatic weighing instruments as an example of technologically advanced MIs that should also be included. The comments provided in Text box 5.2 illustrate the points raised by some notified bodies but are not necessarily representative.

Text box 5.2 – Comments of notified bodies on the role of the MID in technological innovation

To make products based on the requirements MID requires manufacturers to innovate technologically. (MI-006, MI-008)

The MID allows enough flexibility for the manufacturer to develop specific solutions and innovations. (MI-001-MI-004)

MID provides a framework and only very few restrictions. (MI-005)

The essential requirements are sufficiently independent from specific technologies to allow innovation. We have

never experienced a problem until now. (MI-001- MI-010)

The essential requirements are sufficient and allow manufacturers to develop the electronics of the meters. (MI-001-MI-006)

In general the essential requirements of the MID allow technological innovation by manufacturers. As an exception the case of smart meters should be pointed. Lack of definitions and requirements hinders the development of such instruments.(MI-001-MI-008)

In general yes with the exception of specific cases such as remote management in smart meters.(MI-001-MI-010)

No, because of the complexities of the requirements that are not particularly helped by the guidance/normative documents. We also do not think software issues have been well addressed. (MI-005, MI-006, MI-008)

The responses of the notified bodies seem to be in line with the views expressed by most competent authorities and manufacturers. The experience from the implementation of the Directive so far tends to be positive and the existing tools supporting the NBs and manufacturers in the implementation of the Directive (standards, guidance documents) are assessed positively although in specific categories of instruments there are possible problematic areas. In relation to the question of technological innovation, there is no evidence that the Directive poses important obstacles to innovation with the exception with the already documented issue of smart meters. Having said that, the survey suggests that there is still scope for clarifications of the relevant documents. The survey results also corroborate the suggestion by a number of manufacturers and competent authorities that there are problems of consistency in the interpretation by the notified bodies of the essential requirements and the conformity assessment procedures.

5.2 SME survey

The SMEs survey analysed in this section was carried out by the Commission services using an on line survey tool with a panel of SME companies. The survey was opened on 30 September 2009 and closed on 5 December 2009 and attracted 286 responses.

Characteristics of the respondents

The respondents of the survey were primarily small enterprises of less than 50 employees (over 80%) with over 50% being micro enterprises of less than 10 employees. In terms of sales, the majority (63%) stated total turnover of less than €10million although 34% did not provide any data.

Table 5.4 - What is your annual turnover

Distribution of respondents by turnover (€s)			Distribution of respondents by number of employees		
Options	**№**	**%**	**Options**	**№**	**%**
<100,000	32	11.9	<5	74	25.9
100,000-1,000,000	97	33.9	5 to 9	95	33.2
1,000,000-10,000,000	50	17.5	10 to 49	62	21.7
>10,000,000	10	2.5	50 to 249	10	3.5
No answer	98	34.3	Over 250	45	15.7
Total	286	100	Total	286	100

The participants in the survey were primarily manufacturers (27%) or users of MIs (44.8%). Installers, distributors and importers were also well represented in the survey.

Survey analysis 5

Table 5.5 -Type of activity in relation to measuring instruments

Number of companies that stated as:	№	%
User	127	44.4%
Manufacturer	77	26.9%
Installer	48	16.8%
Distributor	47	16.4%
Importer	37	12.9%
Other	17	4.5%
Manufacturer and other (importer, distributor, installer)	32	11.2%

In terms of the country of origin, the sample provided a wide coverage of EU countries (see Table 5.6) but there is a notable absence of Netherlands or the United Kingdom. The countries with the largest number of respondents were Italy, Poland and Hungary.

Table 5.6 - In which country are your headquarters located?

Country	№	%	Country	№	%
Austria	6	2.1	Luxembourg	4	1.4
Czech Republic	23	8.0	Poland	30	10.5
Estonia	2	0.7	Portugal	11	3.8
Finland	1	0.3	Romania	10	3.5
France	23	8.0	Slovakia	5	1.7
Germany	24	8.4	Slovenia	9	3.1
Hungary	27	9.4	Spain	20	7.0
Italy	35	12.2	Other/not stated	42	14.7
Lithuania	14	4.9	**Total**	**286**	**100.0**

In terms of the types of measuring instruments covered, all sectors of MIs were represented in the sample. Taximeters, capacity serving measures and exhaust gas analysers were represented by less than 6% of SMEs while, in contrast, SMEs related to utility meters, weighing instruments, length measure and dimensional measuring instrument were represented by over 15%.

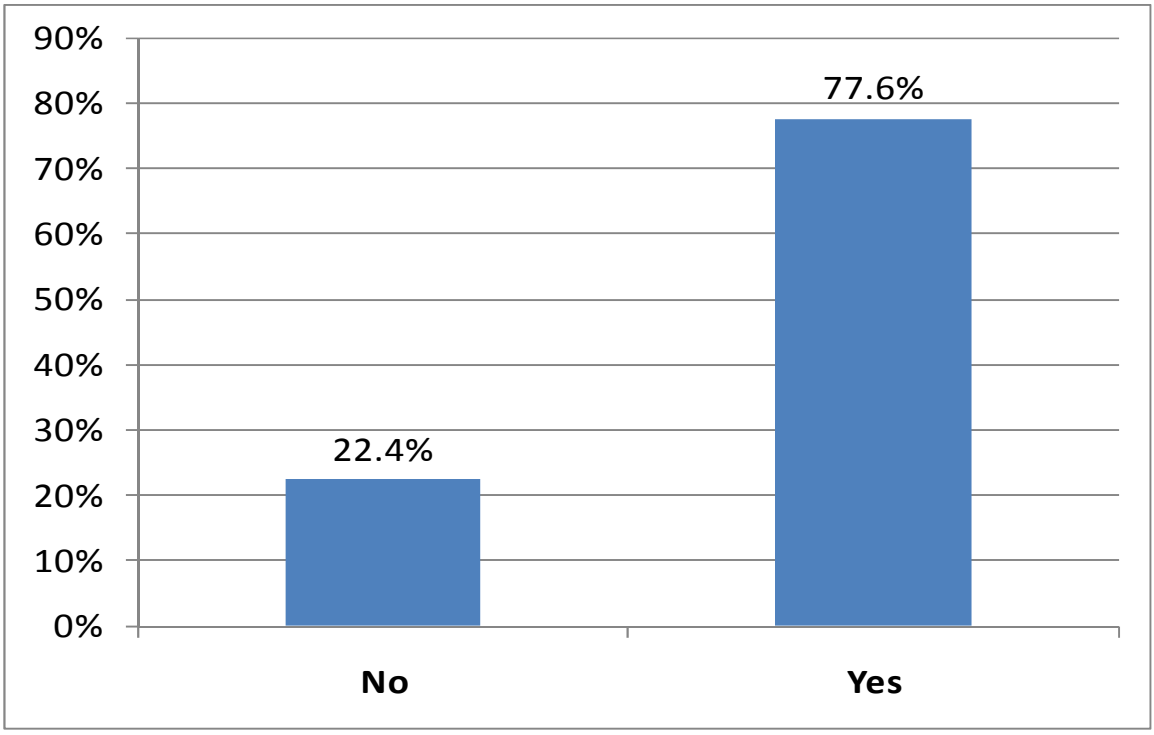
Table 5.7 - Instruments covered (more than one answer possible)

Category of MI	№	%
MI-001 Water meter	66	23.1
MI-002 Gas meter	45	15.7
Electricity meter	65	22.7
Heat meter	43	15.0
Petrol pump	27	9.4
Other non-water liquid measuring instrument	33	11.5
Automatic weighing instrument	58	20.3
Taximeter	12	4.2
Length measure (tape, dipstick)	53	18.5
Capacity serving measure	14	4.9
Dimensional measuring instrument	56	19.6
Exhaust gas analyser	17	5.9
Non-automatic weighing instrument	58	20.3

Survey analysis

Furthermore, for the great majority of the companies in the sample (around 78%), the measuring instrument they traded had a CE+M marking.

Figure 5.3 - Is the measuring instrument you refer to marked with the CE+M marking? (% out of total 286 survey participants)



Finally, in terms of the markets covered by the 286 SMEs in the sample all 27 EU Member States were stated with France, Germany and Spain stated by more than 1/5th of the respondents. Around 19% stated presence in more than five EU countries while, in contrast, 23% sold in only one – usually the domestic - market. In terms of exports outside EU, around 40% stated that they sold their products outside the internal market (against 42% that said no), primarily in other countries of South and Eastern Europe (56%) but also around 35% to non-EU Mediterranean countries , Africa, Asia and North America.

Experience from the implementation of the Directive

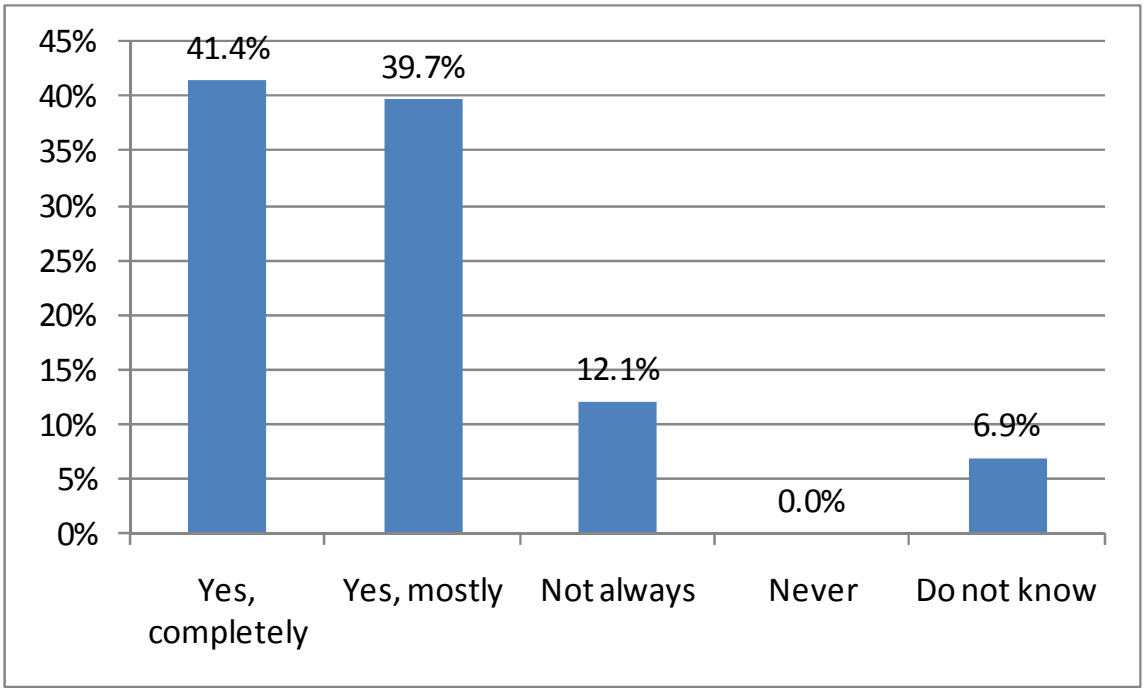
Manufacturers/importers

Turning into the experience from the implementation of the Directive, manufactures and/or importers of MIs were asked to indicate which conformity procedures they use and whether they thought that the conformity assessment procedures are adequate for their needs. While all modules were stated by the 80 SMEs that responded, modules B and D are the most commonly used (44% and 52% respectively) while modules A, G, F, and H were less often stated.

Survey analysis

More important, over 80% of the 118 manufactures and importers were positive or very positive concerning the adequacy of the modules and no SMEs stated they were never adequate for their needs.

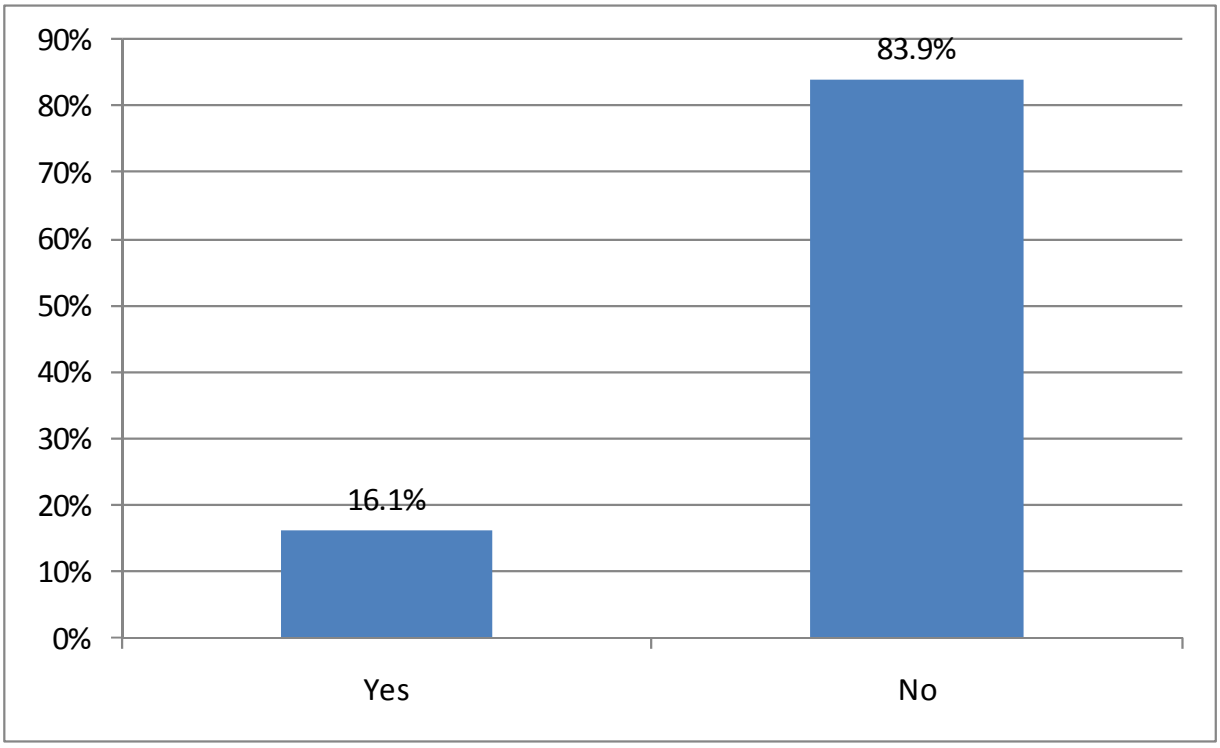
Figure 5.4 - Do you consider conformity assessment to be adequate for your needs? (Percentage responding out of 58 responses – 60 manufacturers/importers did not answer)



When asked for specific comments and suggestions for improving the conformity regulations SMEs referred to the need to relax the conformity assessment procedures for the inexpensive MIs and made suggestions in connection to the need to extent the use of the modular approach. In addition there were request for availability of information – including WELMEC documents – in other languages besides English.

A second issue examined was the extent to which manufacturers and importers experienced barriers to trade with regards to marketing and/or putting into use CE+M marked MIs on the internal EU market. The answers indicate that the great majority of SMEs do not experience any such barriers.

Figure 5.5 – Are you experiencing barriers to trade with regards to marketing and putting into use CE+M marked MIs (% of SMEs – manufacturers/importers stating – total 118 responses)



When asked to state specific problems in relation to barriers for trade, a small number of companies referred to barriers posed by national authorities that do not allow them to enter other markets. The complaints concerned mainly – but not exclusively - new Member States but there was no specific category of MI identified.

Users

The survey also asked SMEs users of MIs to assess whether the current legal metrology regime provides sufficient protection. The majority of the responses were positive (60%) with only a small share (20%) suggesting problems in terms of consumer protection.

Table 5.8 – Does the current legal metrology regime provide sufficient protection (users of MIs)

Answers	No	%
Yes	75	60.0
No	24	19.7
No answer	26	21.3
Total	**125**	**100**

Finally, all SMEs were asked whether they were aware of unmarked products competing with CE and M marked instruments. The answers suggest that there is indeed a significant presence of MI instruments circulating without CE+M marking as close to 60% of the total respondents made such reference. While

Survey analysis

20% did not consider that the products created unfair competition an important 40% thought otherwise. The differences between the responses of users and manufactures were rather small although a greater share of users thought that the non-CE+M marked products were competing unfairly. Other cross-tabulations (based on size of firms or category of instrument) did not indicate differences from the general picture.

Table 5.9 - Are you aware of unmarked products competing with CE+M marked instruments? (Number and percentage of manufacturers, users and total number of SMEs responding)

Awareness	Manufactures/importers		Users		Total SMEs	
	№	%	№	%	№	%
No	41	36.9%	35	41.2%	97	41.6%
Yes, but fair competition	27	24.3%	13	15.3%	45	19.3%
Yes, unfair competition	43	38.7%	37	43.5%	91	39.1%
No response	7		40		53	
Total	118		124		243	

The findings of the survey suggest that in their majority SMEs do not face particular problems different from those reported from large companies during the interviews. Barriers to trade due to protection from national authorities (real or perceived), costs for conformity assessment that are higher than what would be considered adequate are reported but only from a small number of SMEs. There are also no specific categories of MIs identified with particular issues/problems. From the user side, the survey suggests that consumer protection is adequate. The only issue raised by the SME survey concerns the unfair competition by non CE+M marked products. While this point should not be considered as an SME specific problem, it seems to be more prominent in comparison to the evidence provided during the interviews with trade associations and, mainly larger, companies.

Main findings of the evaluation 6

In this section we present the findings of the study in relation to the key evaluation questions. The effectiveness, impacts and implementation of the Directive are addressed on the basis of the findings presented in the previous sections.

6.1 Effectiveness of the Directive

Contribution to an efficiently operating internal market

The experience from almost all MI sectors and from the great majority of competent authorities suggests that MID has quite successfully provided the basis for the development of a more efficiently operating single internal market with the use of a single certificate for the placement of products in the European market. The majority of competent authorities refer to a clear contribution of the MID based on their own experience or, in fewer cases, the feedback they have received from industry. From the industry side, in most MIs' sectors clear benefits from the use of a single MID-certificate are recognised and, in a small number of cases, it has been indicated as the main driving force for the expansion of firms to other markets inside the EU. In the case of utility meters (MI-001-MI-004), they supported more competitive public procurement procedures with potential direct benefits in terms of quality and price to the utilities and the final consumer.

Having said that, specific problems and obstacles have been documented more or less directly linked with the implementation of the MID, being either crosscutting issues or sector-specific. They include:

- The barriers posed by some national and local authorities by setting additional requirements or, in some cases, regulations concerning functionality, marking or the use of instruments (e.g. additional/different seals for fuel dispensers in IT and ES or different tariff structure for taximeters in the UK). In the majority of the cases, these issues concern the use of MIs and they are not governed by the MID. According to manufacturers of fuel dispensers and taximeters, there are restrictions that create barriers to entry by increasing costs and obstructing the creation of smooth single market. The respective competent authorities questioned on this topic denied wrongdoing or appeared unaware of such issues. Use-related requirements are, rightly or not, seen as a prime responsibility of Member States or local/regional authorities and consumer protection or other concerns are considered of greater priority than any possible obstacles to the smooth operation of the single market in relation to legal metrology instruments.
- A few cases where national authorities (with examples given for Italy and Spain for fuel dispensers and France for taximeters) are reluctant to accept MID certificates from other countries without conducting their own additional controls. Although it is not always clear whether they concern in-use requirement, a number of interviewees from industry and competent authorities indicate that there is still a problem of understanding – or accepting - what the implementation of a new approach Directive entails.
- There appears to be limited information on the applicability and the requirements of the MID from important side of manufacturers and, even more so, importers of measuring instruments. Cases of products brought in the market without the necessary CE+M marking as a result of limited awareness of the requirement were reported by few competent authorities (e.g. SE, IR, MT). Industry associations also recognise this as a problem, particularly for small firms with limited

capacity and resources to follow the various regulations. Still, while it is an issue that merits attention, the existing evidence does not suggest that it is a particularly acute problem.

- A well-documented issue with impact on the market for fuel dispensers and other liquid dispensing systems concerns the "mix and match" issue and the capacity to combine new and old components for these categories of instruments. As already described in Section 4.5 existing petrol stations with "old" non-MID certified petrol dispensers and points of sale (POS)[46] may not be connected with new MID certified equipment to form a new system unless the whole system is re-certified under MID. Furthermore, existing fixed installations approved according to the old national legislation can be placed on the market and put into use during the transition period, but they cannot be altered. A system approved under old national legislation cannot be upgraded with an MID certified component without first seeking MID approval for the complete system. For users this means that they may not install new components of a system without first asking the manufacturer of the fuel dispenser to upgrade the system. Otherwise, they are required to buy complete systems. Furthermore, petrol stations' owners that want to revamp part of a system are forced either to repair old non-MID dispensers or points of sale stations or to buy complete new systems. Among the 30 countries, only UK and Netherlands authorities enforced this requirement[47] while the remaining have selected either not to require any certification for the points of sale in continuation to the pre-MID practice or to allow the mixing and matching.

  According to the data provided by industry the market implications of this appear to be significant in some countries as, at least in the UK, there is reported unwillingness of petrol stations owners to buy new MID certified dispensers. As a result old non-MID certified dispensers cover over 80% of the local market. Furthermore, small size producers of self-service devices or components are in an unfavourable position against large firms that develop and sell complete systems. In relation to the overall size of the market, the problem is still not sizeable due to various "legal fixes"[48] that most national governments have adopted during the transition period. Furthermore, by the end of the transition period great share of MIs and points of sale will have completed their life cycle[49]. Still, it is the opinion of most stakeholders involved (authorities and industry) that the current arrangement is not satisfactory. At the same time, the proposed solution to the problem based on the definition of self-service devices and components as sub-assemblies is supported by a large number of stakeholders, but it is not unanimously accepted by all Member States.

It can be claimed that, with the exception of the sub-assembly issue, most of the problems raised can be seen as symptoms of an initial "teething period" and indeed this is a view shared by a number of competent authorities (e.g. DE, NL, and PT). Over time, as experience builds up and information is further disseminated obstructing practices based on the old regime should be expected to diminish. Information exchange and targeted campaigns at the national level could help in this direction.

[46] A Point of Sale (POS) system is a system for managing the sales of goods. The term refers to the software and hardware associated with check-out stands, and all of the bundled features which are included.

[47] In both countries arrangements have still been made by national authorities allowing the combination of old and new components based on presence in the system of at least one MID certified dispenser or POS.

[48] Allowing the mixing of old and new or not having any regulation.

[49] This is a point that is still disputed by CECOD, arguing that since non-MID certified are still sold in some markets they will still be in operation long after the end of the transition period in 2016.

Furthermore, it is clear that the issue of use-related requirements in MIs posed by Member States and the limitations to the development of a single market cannot be solved in the context of the MID that concerns only the placing in the market of legal metrology instruments.

Role of the Directive in promoting or inhibiting technological innovation

The existing empirical evidence and the results of the notified bodies' survey indicate that in most categories of instruments the MID has not affected technological innovation to any material extent and it appears to be technologically neutral allowing for a level playing field. For most categories of MIs, the industry did not consider that the Directive posed particular obstacles to technological innovation even if, at the same time, it did also not consider that it had any supportive role. The economic incentive of easier access to a broader market was the only benefit explicitly stated but only in a few occasions. The notified bodies survey also seems to support a neutral, if not positive, role of the Directive.

Still, there a few areas where the implementation of the MID appears to create potential or real barriers:

- In a few categories of MIs (e.g. MI-005) the essential requirements of the Directive are seen as either restrictive or prescriptive. Industry and some competent authorities refer to limitations in terms of the classes and types of instruments allowed (e.g. exhaust gas analysers only for cars) and the capacity for the conduct of market trials in the case of fuel dispensers.
- A more important problem seems to be the apparent restrictive use by notified bodies of WELMEC guidelines and the constraints that they pose in accepting alternative approaches to conform to the essential requirements of the Directive. While WELMEC guidelines are not requirements, both industry and competent authorities agree that many notified bodies tend to use WELMEC guidance documents as if they were. As a result, they require extra testing or more time in the case that the proposed approaches deviate from WELMEC guidelines. A few cases of unwarranted rejections – from the point of view of the manufacturers - were also reported. The feedback of the notified bodies does not suggest particular problems in the interpretation of the relevant documents that could be the source of such an approach. A risk averse approach and the limited experience of some of them appear to be the most probable cause.
- A specific issue related to the utility sector concerns the use of smart meters. The dominant view is that the current provisions of the Directive do not provide an optimal solution especially in view of the technological and market developments that are already taking place. Most technologically advanced Measuring Instruments usually include a software system and a system allowing for remote reading (tele-metering) as well as more complex displays showing additional information such as different tariff periods and related costs. The MID provisions do not provide rules either on the software, display or on the remote sensor component of the meter. The Energy Performance of Buildings Directive and Energy Efficiency Directive require Member States to develop national plans to install smart meters. Stakeholders suggested problems in the development of a functioning single market for smart meters due to a continuing need for national certifications of the software or the tele-metering component, possibly in breach of the MID[50].

[50] The industry did not provide specific examples illustrating this more clearly.

There is no agreement as to what constitutes the most appropriate way forward. The adoption of a sub-assembly approach is favoured by a large number of stakeholders - but it is not universally accepted – while reliance on WELMEC documents is not considered as a sound basis for a coherent approach by itself.

Furthermore, smart meters are not only an MID issue. There are currently no standards for the inter-operability of the meters in smart gridding systems, allowing for a more complex management of energy sharing. It is thus clear that smart meters regulation has far further implications than a purely metrological one. Further experience and analysis appears to be necessary at this stage.

Evidence of the development of two tier market and unfair competition – role of optionality

The optionality clause of the MID has been used by a number of countries for a number of instruments (See Appendix F). In total, according to the most recent reports 15 EU and two EEA countries have opted out from the Directive for one or more instruments although still around 90% is covered[51]. Optionality has been used mainly by the UK (19 of the total of 36 sub-categories of MIs), Sweden (18), Ireland (12), Netherlands (11) and Cyprus (10). Poland (7), the Czech Republic (7) and Norway (9) have also used it in a number of occasions. Material measures (MI-008), dimensional measuring instruments (MI-009) and heat meters (MI-004) are the instruments for which optionality has been mainly applied. The main underlying reasons tend to be the absence of specific instruments in the market or the view of a number of countries that regulation would not provide additional consumer protection while at the same time it would pose additional and unnecessary legislative burdens.

While a number of stakeholders have expressed their disagreement with the concept there have were no problems reported as a result of optionality. Unfair competition was only rarely mentioned and it was not, in most cases, linked with the absence of regulation in the specific sector or country. The only area where optionality is reported to create unfair competition concerns taximeters. Industry reported that in the two countries that opted out of the MID (Norway and Switzerland), cheaper non-MID certified taximeters tend to be the norm and compete unfairly. However, Member States' authorities did not consider that the overall costs of regulation supported the development of regulation.

Furthermore, two tier markets – wherever present – are not linked with optionality. Two tier markets are present for instruments that may also be used for non-legal metrology purposes (weighing instruments, material measures, dimensional measuring) from companies in their production process or for domestic purposes. Such non-legal metrology instruments may be identical to instruments covered by the MID, but their placement in the market is, according to article 2 of the MID, not controlled by national regulation as far as metrological issues are concerned. Accordingly, these parallel markets will continue in the future irrespective of any possible changes to the MID, including any changes to the optionality clause. A few manufacturers mentioned that in some cases competitors claim that their products are not used for legal metrology purposes in order to avoid complying with the Directive. However, this is primarily an issue of inappropriate market surveillance and not linked with optionality.

[51] 857 of the total of 972 (27 Member States multiplied by 36 categories or subcategories of instruments).

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Contribution to the protection of consumers and users – role of optionality and other factors

The evidence indicates that the Directive has not led to significant changes to the level of consumer protection and has not jeopardized consumer protection. The modifications to the essential requirements in comparison to the pre-existing regime were rather small and, in many cases, they were already integrated in the OIML standards or European standards that the industry had already adopted. Still, for some countries, especially in the new Member States, competent authorities considered that the implementation of the Directive did help increase the standards applicable to some MIs. The benefits to consumers are expected to materialise only gradually as more MID-certified instruments enter the market.

In relation to the role of optionality, some industry representatives and competent authorities did not consider it fitting with EU-wide consumer protection but there has been no evidence provided of any problems to consumer protection in the countries and for the MIs used.

Specific issues are raised by some stakeholders (CAs and industry) concerning a few categories of MIs and relevant provisions of the MID. They included the absence of legal certainty concerning the existing requirements in Annex I for the display of legally important results, the need to cover additional classes for some categories of utility meters that used by consumers or the requirements on clock and multiple registers in utility meters. Such concerns have already been documented in the context of WELMEC and alternative solutions are examined.

However, at this point more important problems concerning consumer protection are linked with what is broadly considered as a problematic market surveillance (examined further bellow) in some countries and sectors that allows the entry and circulation of non-certified products. Specific examples provided concerned taximeters in the UK or fuel dispensers and weighing instruments in Greece, some new Member States, mainly Bulgaria and Romania and, less so, Italy. The interviews with competent authorities in at least one of the countries certified the existence of the problems reported.

Effective representation in the Measuring instruments decision making procedures

The general picture is that the MID decision-making procedures are open for input, commenting and contribution of all interested stakeholders. There is no evidence that interested parties have been excluded or that they did not have the opportunity to raise issues properly.

Among the manufacturers of the ten categories of instruments, six (MI-001-MI-006) are almost constantly represented in the working group meetings with rather frequent participation of the MI-008 (material measures of length and dimensional measuring instruments) by the European Hand Tools Association. Representative of stakeholders from the remaining categories have not participated in the meetings either because they do not exist (Taximeters), no information on the applicability of the Directive (FEVE concerning capacity serving measures) or no interest (EGEA for exhaust gas analyzers).

Among the actively involved almost all representatives considered that their participation and input in the working group meetings of the MID is open and satisfactory, despite not having voting rights. Among the sectors that are not directly involved (mainly MI-007-MI-010) the companies did not consider this as problematic. The main reason for not being present was the limited interest.

Rather less satisfactory appeared to be for some trade associations (i.e. MI-005 and MI-006) the participation in WELMEC working groups and in the writing of the guidance documents. They are seen as

rather key for the implementation of the Directive and industry representatives proposed that the current level of involvement and the observer status they enjoy is inadequate. However, this was not a view shared by utility meters representatives while, according to WELMEC direction, industry experience and expertise always represents a very important input in the process.

As far as representation of consumers, the discussion with the main representatives (ANEC/BEUC and NORMAPME) at the European level indicated that the monitoring of the MID is low in their priority list given the limited the resources. Concerning SMEs, the representatives consider that the SMEs active in the sector are a very share of the 11 million SMEs in Europe and that they are better represented by the respective sectoral associations.

6.2 Impacts

Impacts in terms of costs or administrative burdens and tangible benefits

It is generally accepted by almost all interviewees that the implementation of the Directive has provided opportunities for cost cuttings as a result of the use of a single certificate to enter the single market. In some cases, the establishment of quality systems have also brought financial benefits on a medium to long-term horizon.

Nevertheless, the introduction of the Directive has in general led to increases in the fees charged by most notified bodies due to more thorough tests and it has in general extended the length of the certification procedure creating additional red tape. In addition, national requirements come on top of the MID which has not led to any simplification. Furthermore, additional costs arise in the case of the necessary revisions or updates of certificates even for what companies consider as minor changes in the MIs.

Competition among notified bodies has taken place at a very limited scale and, according to most discussions, it has not yet led to any significant reduction of fees. Based on the information provided the fees charged by notified bodies for a single certificate have increased in some countries (e.g. 20% in DE, 10-15% in NL) while in others remained more or less the same (e.g. SL, AU). However, as the tests required are , in general, more demanding some notified bodies (e.g. PTB) suggest that competition has helped keep prices down.

Brought together, the extent to which these benefits of a single certificate outweigh the increased administration costs related to the certification process varied. Firms with greater presence in international markets have, as expected, seen greater benefits while some of the firms with presence in a single or few markets suggested that in some cases they experienced small increase in the total costs.

Concerning the costs to authorities, most have seen a substantial decrease of their workload in terms of dealing with applications for national certification that are no longer necessary. This reduction is significant in the countries with small or no manufacturers where most MIs are imported (e.g. small ones like CY. MT, LU, AU, IE, SL) and certification has already been taken elsewhere. In other countries with greater manufacturing base (e.g. DE, ES, NL but also PT), there has been no change of the total workload. According to most competent authorities, the reduction in the workload has not so far led to a greater focus towards market surveillance activities as the focus of surveillance remains on the use of MIs that is controlled by national legislation and not the MID.

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Overall, the introduction of the MID seems to have created some cost savings in relation to the previous situation. However, these savings appear rather moderate and tend to be unevenly distributed favouring firms with higher level of exports and presence in multiple markets. Firms that are only active in the respective domestic markets may experience higher administrative costs depending on the type of instrument and the conformity assessment procedures used.

Impact on SMEs

The evidence provided concerning the impact on SMEs indicates that, overall, small firms are not particularly affected – positively or negatively- as a result of the MID. However, in two sectors (MI-005 and MI-006)) the industry representatives argue that the absence of a modular approach (certification of components or sub-assemblies) may operate against SMEs that focus on the development of only parts/components which cannot be certified. The industry suggests that the Directive favours producers that sell the complete integrated systems that can be MID certified but the evidence provided so far supporting such conclusions has been rather scarce. However, the SME survey did not provide evidence of widespread problem as only one out of 286 respondents made reference to such a problem.

More generally, the results of the SMEs survey do not indicate that SMEs experience barriers to entry in the market for SMEs (less than 15% of responding SMEs stated so) and did not provide evidence that the introduced conformity assessment procedures are particularly burdensome (85% of SMEs responding stated that the procedures are adequate).

Finally, the increase of the charges and time reported for the majority of certification procedures, SMEs that focus on domestic market experience increased administrative costs without the respective benefits of the use of a single certificate. However, this is an issue resulting from the export orientation of firms and not their size.

6.3 Application and implementation

Parameters and barriers that affect the effective implementation of the Directive

A number of parameters have been identified that appear to have an impact on the implementation of the Directive. Some of them have already been raised in the paragraphs above.

From the negative side**, the poor quality of market surveillance** is one of the important concerns of industry and it is an area where most authorities recognise that their effort until recently has been partial. Most authorities concentrate on checking whether the CE+M mark is properly affixed and that the necessary paperwork is conducted while in some countries even these typical tests are not properly conducted on a periodical basis. Only in few countries have there been actual tests of the conformity of the products placed in the market usually on the basis of annual surveillance programmes focusing on specific categories of MIs.

The absence of proper surveillance appears to be the main reason for almost all occasions of unfair competition reported during the fieldwork. In the case of taximeters (MI-007), even the requirement for CE+M marking is not properly monitored, arguably favouring local producers whose products do not fulfil the essential requirements. Similar claims of a low level of surveillance are made concerning Greece, Bulgaria, Romania and Italy in a wide range of sectors. From their side, the authorities in most of the countries refer to limited human resources as the underlying reason for the ineffective control of

the market. Still, even under this problematic situation there is no evidence of a particularly problematic situation either in terms of consumer protection or in terms of the gradual development of a single market.

A second rather problematic area concerns the operation of the **notified bodies in the assessment of conformity and the overall certification procedure.** On the one hand, important parts of the industry and the national authorities claim that notified bodies tend to use WELMEC guidance documents as if they represent regulations providing the only possible path for establishing conformity. Industry representatives referred to occasions when alternative approaches were rejected or considered unfavourably. This is seen as having a negative role in the development of technological innovation although there are only a few specific examples provided. On the other hand, notified bodies appear rather inconsistent in their operation with important variations in their capacity to carry the necessary tests, especially those in the new Member States. They are also inconsistent in terms of the content of certificates issued and the use of evaluation certificates[52].

The notified bodies' survey suggests that the guidelines and other MID documents are in most respect quite clear and cannot be the main source of inconsistencies and variation. However, according to WELMEC wg11, the MID itself seems to be unclear concerning the functions of a MI that need to be assessed by a notified body and a few notified bodies referred to unclear elements in the provisions related to some of the Modules. Furthermore, the provision of WELMEC documents only in English language, contributes according to some NBs to inconsistencies in their interpretation.

Finally, most industry representatives indicated that the costs and time involved in the certification process have increased, an element representing the main cost parameter in the administrative costs of the Directive. While there have been also cases of overall reduction of costs and/or time, the majority suggested that a 15-30% increase in charges is typical. Clearly, the expected benefits from competition among notified bodies have not yet materialised.

A third problematic point concerns the **unclear definition of what level of modification of a MI constitutes only a repair and what a new instrument** that would require a new certificate. Manufacturers and some notified bodies state that the regulation is rather unclear. As a result, there is a tendency to reapply for certification for even minor, according to their view, changes that increase the administrative costs of the Directive. This is a case reported primarily in relation to changes to software in the taximeters, material and dimensional measurement instruments categories. This issue arises despite the presence of a number of WELMEC guidance documents that address in detail this for each category of instrument.

On the positive side, **the use of normative documents** developed on the basis of OIML recommendations to provide presumption of conformity appears to have **a positive contribution to the Directive**. Only in one sector (MI-005) was there questioning on the appropriateness of the use of

[52] Evaluation certificates concerning components of MIs (the so-called modular approach) are outside of the Directive (so cannot be issued with NB numbers) and are issued by some labs to show that a specific part is compatible with the MID requirement and WELMEC has issued relevant guides (which are not referred to from the Commission website). However some countries (e.g. DE) and the notified bodies do not accept their use on the grounds that they are not described in the Directive. Companies suggest that this creates additional complications when moving from one NB to another.

normative documents primarily due to the limited role of industry in their development of international standards by OIML which is a Treaty Organisation between governments with no formal role for other stakeholders (check with OIML). In all other areas, their use was welcomed because they were already extensively used by manufacturers prior to the MID but also because they help keep Europe in line with the rest of the world. The integration helps international trade and avoids the development of trade barriers. Still, problematic areas do exist and the level of harmonization does not seem to be complete. The essential requirements are not fully compatible with the OIML recommendations and this means that there are differences between the normative documents and the relevant European Standards for utility meters (e.g. MI-002). According to OIML, WELMEC contribution through the issuing of correspondence tables is positive and it is an ongoing process.

More generally, despite the problems related to the use of its guidance documents by notified bodies, **WELMEC has a positive contribution towards a more effective implementation of the Directive**. The guidance documents issued by WELMEC - currently close to 60[53]- cover the full range of activities and addressing the different stakeholders involved. They serve for the application of conformity assessment procedures by manufacturers and notified bodies and provide guidance for the various tests. A few industry stakeholders consider that the number of guidance documents issued has been rather excessive making difficult to follow and possibly confusing. This reflects the broad range of instruments and conformity assessment procedures to be covered and it should be expected to slow down in the coming years. Furthermore, WELMEC working groups bring together in a coordinated structure experts representing competent authorities, notified bodies and industry stakeholders. During the four years of the implementation of the MID, they have supported the identification of issues and problems – technical or not - related to the implementation of the MID. It has led to a number of proposals based on the broader possible consensus.

Finally, the adoption of a 10-year **transition period** is considered adequate and appropriate by most industry representatives and authorities as it allowed sufficient time for adjustment. However, there is some evidence supporting the fears expressed by some authorities that the long transition period would lead manufacturers to rush to certify instruments based on national certificates. The analysis of the data for the period 2003-2009 from 6 countries (including the three most active- DE, NL and FR) indicate a clear increase in the pre- MID period up to 2006 followed by a rather important decrease in the 2007-2009 when the MID was in force (see figure 5.1). The change was more evident in the case of Netherlands[54] but it did not apply at all in the case of Germany. In terms of specific categories of instruments the pattern applied in almost all categories but it was particularly evident for MI-006 (260 certificates pre-MID against 39 after MID), MI-002 (61 against 2), MI-003 (326 against 199) and MI-004 (101 against 4). Only dimensional measuring instruments saw an increase (38 against 44). Such a strategy was not brought up in any of the interviews with manufacturers in the 10 sectors. However such a behaviour could partly be a result of the increased costs of certification and the fact the some manufacturers had not been prepared before the entry of the MID into force. Definite conclusions are premature at this stage but it is a point that needs to be monitored further.

[53] http://www.welmec.org/latest/guides.html

[54] Data for 2009 are not available for the Netherlands but, unless there was a sudden increase from the year before, the overall pattern is not very different.

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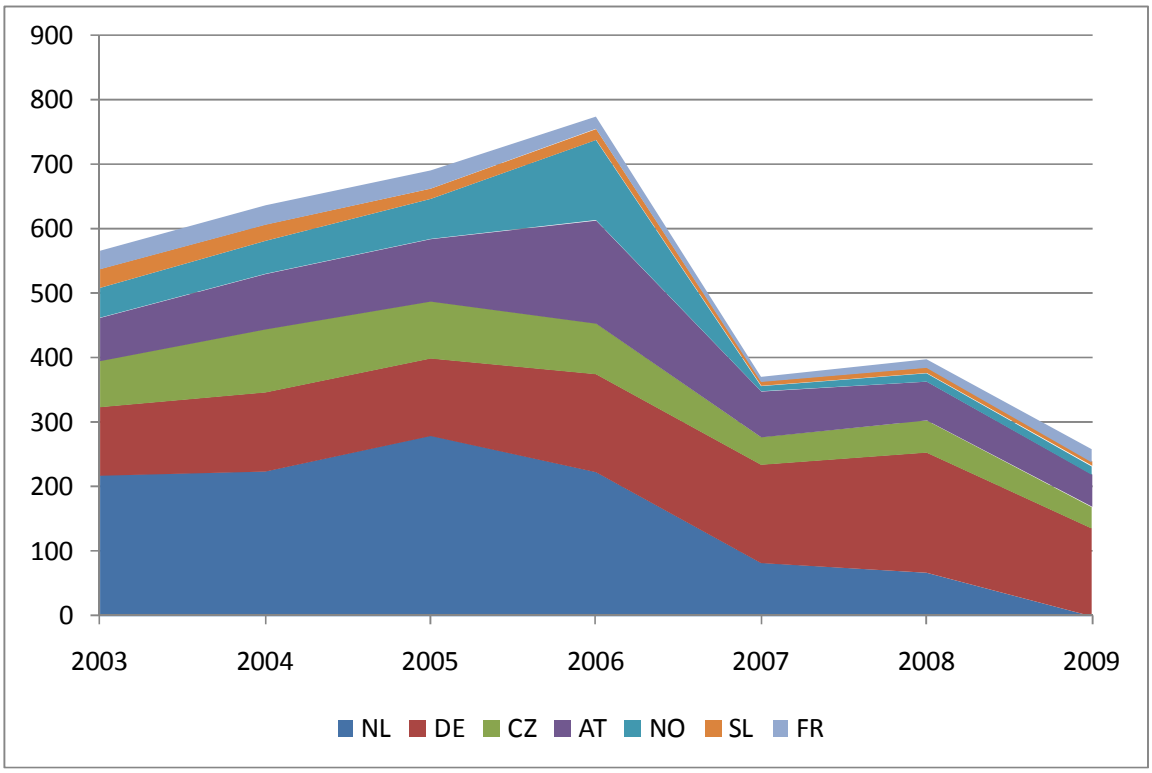
Figure 6.1 – Number of type certificates issued before (national and EEC non-MID) and after (MID) the entry of MID into force (data from seven countries)



Source: Data from national authorities

Expected role of the adaptation of the new approach (New Legal Framework - NLF) to the implementation of the MID

The adaptation of the new approach (New Legal Framework) is expected to result in a number of changes in the implementation of the Directive.

On the positive side, competent authorities expect that the NLF will bring **improvements in the market surveillance**, which, as pointed earlier, is one of the problematic features of the implementation of the Directive. The requirement for the development of a surveillance plan by each Member State is seen by most as a mechanism to ensure a minimum level of market surveillance across the EU. It remains however unclear how this will be implemented given that many competent authorities referred to limited resources as the main underlying issue.

The new information exchange obligations posed by the NLF to notified bodies, the national authorities and the Commission should have a positive role in **addressing the inconsistencies among the 140 notified bodies** described earlier. Although WELMEC working groups and the working group meetings already represent a forum for exchange of information there is clear luck of information exchange among notified bodies, especially in relation to new and rather small bodies, a number of which do not

consider that they have appropriate guidance. The working groups shall provide the opportunity to increase exchange of information and practices and help address probably the most problematic area of the Directive.

On a possibly more negative side, **changes in the language requirements as a result of the NLF may create additional costs to manufacturers**. The NLF introduces to possibility – although not requirement - that Member State authorities may require full documentation in their own language. Such a requirement is seen by industry as potentially posing important additional costs to companies – particularly to SMEs. Data concerning the costs of translation were limited but companies – primarily in AWI sector - indicated that when only few instruments are sold in a single country they could possibly decide not to enter the specific market at all. Were this to be the case it could create an effective barrier to the operation of the single market, diluting the benefits of the use of a single certificate. Still, it should be noted that such comments came from only a small number of interviewees and the majority of stakeholders did not consider this as particularly problematic area.

6.4 Strengths and weaknesses of the Directive

Based on the analysis presented, we can summarise the main strengths and weaknesses of the Directive as it has been implemented so far.

Strengths

- The introduction of the MID has successfully provided the basis for the development of a more efficiently operating single internal market on the basis of the use of a single certificate. While this benefit is not equally experienced across all sectors and countries due to various obstacles posed – in most cases not linked with the implementation of the MID – the majority of companies with presence in more than one country indicate benefits that outweigh any additional administrative costs.
- Overall, the MID has proven a technologically neutral directive and, with few rather minor exceptions, has not created obstacles to technological innovation. There are some issues related to the use of software in some categories of instruments and of smart meters in utilities, but these are well documented through WELMEC working groups and efforts to identify the appropriate solution – through guidance documents, standards or amendments are examined.
- The optionality principle, used by around 10% of the total categories of instruments, appears to be a strong point of the Directive. There is, at least up to now, no evidence that its use by Member States has led to unfair competition of a two-tier market in the area legal metrology instruments. At the same time, the flexibility provided to Member States appears to be an important factor in achieving agreement in key areas.
- The level of representation of the most affected stakeholders appears appropriate and, while industry does not have voting rights, WELMEC working groups and the MID working group meetings are sufficiently open and provide the opportunity for the issues to be properly raised and argued. All main issues raised by industry during the evaluation are well documented in WELMEC and many appear high in the priority list of issues to be examined for possible changes and amendments.

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- The involvement of WELMEC and the creation of the various working groups represent also strong point in the implementation of the Directive. It provides a forum for identifying and discussing the various technical issues and other problems while the guidance documents issued are considered, albeit not unanimously, useful for the interpretation of the essential requirements and the conformity assessment procedures by manufacturers and notified bodies.

Weaknesses

- The market surveillance is one of the key weaknesses of the implementation of the MID to this point and it appears to be the main reason for the development of two tier markets and unfair competition in some sectors and in some Member States. Possibly due to the transition period but also the limited resources the authorities in the Member States have not given priority to the surveillance of the market.
- The inconsistency of notified bodies in the interpretation of essential requirements and the use of WELMEC guidance documents represent also weakness of the implementation of the Directive. As it appears, the 140 bodies notified have varying level of capacity and follow different approaches creating great variation in the experience of manufacturers during the certification process. This inconsistency applies also to the costs and time for certifications process that seems to vary across sectors and Member States.
- The level of information concerning the Measuring Instruments Directive appears also relatively limited. The interview programme indicates that a number of companies – manufacturers and more often importers – are not properly informed of the applicability and requirements of the Directive. While the respective associations in the main sectors affected (utility meters, fuel dispensers, automatic weighing instruments) are heavily involved and their respective members informed this does not apply for all 10 sectors covered. However, this absence of information should be seen in the context of a perceived limited impact and relevance of the Directive in these sectors (e.g. capacity serving measures) and the low priority attached by the respective trade associations.
- Information exchange among competent authorities and notified bodies in relation to instruments certified or rejected is also a rather weak point of the implementation of the Directive that, according to most stakeholders, should be improved as it could contribute to more effective market surveillance.

Conclusions and recommendations 7

In this section we present the main conclusions of the interim evaluation and the respective recommendations to improve the utility and effectiveness of the Directive.

7.1 Overall conclusions

Overall, the study has found that MID is operating rather effectively and it **has rather successfully provided the basis for the development of a more efficiently operating single internal market** through the use of single certificate. In that respect **changes to the main provisions of the MID are not necessary**.

However, a number of **barriers and inefficiencies are present** at this point as a combination of poor level of market surveillance, requirements linked to the use of measuring instruments in different countries and the operation of the notified bodies. **Some of these problems can be seen as transitional problems** characterising the first period of the implementation of the Directive that should be resolved over time. However, supportive actions, linked also with the implementation of the New Legislative Framework, should be considered and are discussed bellow.

The effectiveness of the Directive is also limited by a few technical issues (e.g. difference of heavy and light industry, what constitutes a modifications that requires new certification, definition of hard copy) that create confusion and, while not critical, pose problems to notified bodies or increase costs for manufacturers. These issues are already well documented through WELMEC working groups that provide the most appropriate forum to identify solutions based either on specific amendments of the text of the Directive or the issuing of WELMEC guidance documents.

Rather more important for the effectiveness of the Directive is the issue of the adoption of a sub-assembly approach for fuel dispensers (MI-005) which appears to have negative effects that may extend beyond the transition period and **should, thus, be addressed**. It is outside the scope of this evaluation to propose a specific solution given the technical character of the issue. WELMEC provides the appropriate forum for discussing and addressing the issue and this process is already ongoing. Similarly, in the case of smart meters there is no apparent and broadly accepted solution and a delay of any decision until further information is collected appears to be the most appropriate action.

In relation to the main issues raised by the European Parliament the analysis indicates that:

- **In relation to the optionality principle, there is no evidence that its use has distorted competition or created two-tier markets of legal metrology instruments**. Parallel markets do exist in some sectors as measuring instruments may also be used for non-legal metrology (and thus fall within the scope of the MID) purposes and their placement in the market is not controlled by national regulation as far as metrological issues are concerned. Accordingly, parallel markets should be expected to exist and shall continue in the future but this is not a result of the optionality principle. but
- Concerning the role of the Directive in technological innovation, the evaluation did not identify significant **problems concerning the essential requirements of the Directive, which, in most respects, are technologically neutral.** Specific issues do exist concerning a number of more or less technical issues in different sectors (e.g. value of maximum permissible errors, temperature limits in MI-006, operating conditions in water meters, the coverage of smart meters) which have all been

well documented by WELMEC working groups and have been raised in the MID working groups. Discussions on the appropriate solution on these issues are ongoing in the context of WELMEC.

- **The MID decision-making procedures are open for input, commenting and contribution of all interested stakeholders**. There is no evidence that interested parties have been excluded or that they did not have the opportunity to raise issues properly. However, not all categories of instruments have been represented and at least two cases of associations were identified which indicated no information concerning the working groups.

7.2 Recommendations

On the basis of the above conclusions, the evaluators propose a number of possible actions that can be implemented by the European Commission in cooperation with the Member States and WELMEC in order to improve the effectiveness and utility of the Directive.

- **Enhance the consistency and quality of notified bodies -** Notified bodies play a key role in the implementation of the Directive. There are a few large and experienced NBs but a large number of them have limited resources and experience and this is one of the reasons for inconsistencies and problems of clarity that are transferred to manufacturers. WELMEC guides play a supportive role but their interpretation by the notified bodies varies greatly. Thus, **greater sharing of information and experience, including training on the application of conformity tests** and clarification of issues such as what levels of modification require additional approval should be used to address these issues. In that respect, the New Legislative Framework is expected to provide the legal context for this type of information and experience exchange. However, the Commission should aim to **promote such activities even before the NLF regulation is actually put in force**. In this direction, the provision of translated versions of the various WELMEC documents should also be examined. WELMEC most probably does not have the necessary resources for such a task which should be undertaken at a Member State level.

- **Strengthen market surveillance** - A problematic area of the implementation of the Directive is the level of market surveillance. Lack of market surveillance can allow non CE+M marked products to trade and protect domestic producers. Again, the New Legislative Framework regulations are expected to provide the basis for a more coordinated and planned action by obliging countries to develop plans. In that respect, it probably provides the context for appropriate response to most of the problems. However, the limited resources and the low priority by national authorities suggest that the results of the regulation may take time to materialise. The Commissions' role **should be to ensure that surveillance plans are developed and implemented by all Member States**, that the necessary resources to implement these plans are earmarked. In this direction, Member States authorities can make use of the existing guidance document on market surveillance developed by WELMEC. Furthermore, it should **help in the sharing of the results and of experience among the relevant bodies through discussion groups or an online forum**. In this regard, it could also be helpful if **Competent Authorities agree to prepare annual plans** including their objectives and the resources to be used, and agree to share these plans with each other and the Commission.

- **Increase accessibility of information concerning EC type certificates** - Market surveillance requires also increased **information exchange** among authorities and notified bodies concerning instruments certified or rejected. The certificates database – currently provided by 13 Member States -

represents one of the tools to facilitate exchange of information. The development of a single database bringing together all information could provide a more effective solution in this respect. However, an initial effort was not supported by Member States and, in some respects, is not necessary. What is important is that **all Member States publicise the EC type certificates issued and facilitate access to this information.** Furthermore, a more consistent approach in presenting this information through the national databases could be agreed to enhance further the access to information.

- **Promote a common certificate format** - The evaluation finding suggest an important variation among notified bodies in the format of the certificate issued by notified bodies for similar categories of instruments. The Commission should consider, in the context of the dialogue and exchange of experience, the **promotion of a common certificate format** to be used by all notified bodies for each category. WELMEC can be the forum for defining a prototype format and its contents.
- **Enhance information on the applicability of the MID** – One of the findings of the evaluation is that manufacturers and – even more so – importers in a number of countries are not familiar with the Directive and its requirements. Member states are primarily responsible for further dissemination of information through targeted national information campaigns but this has not been widely applied. **Renewed efforts by Member States** authorities through contacts with key national partners (sector associations) should be promoted. In parallel, at the European level the Commission could **initiate a targeted pan-European information campaign with the cooperation of key stakeholders** (European or national industry/trade associations) and articles in the relevant technical press.
- **Invite additional stakeholders in working group meetings –** The evaluation identified two industry stakeholders (FEVE and EGEA) whose members are affected by the implementation of the Directive that were either not informed of its presence or that had not been previously invited in the respective working group meetings. The Commission should **extent its invitations** to these members and make an additional effort to identify any other stakeholders at the EU level that may be directly affected by the Directive.

Interview programme A

Trade associations and manufacturers/distributers/users

Organisation	Type	Status
M-001 water meters		
AQUA, European Association of water and heat meters manufacturers	Industry Association	Completed
European Smart Metering Industry Group	Industry Association	Completed
Bruno Janz (PT)	Manufacturer	Completed
Kamstrup (DK)	Manufacturer	Completed
Sappel (FR)	Manufacturer	Contacted
EUREAU, European union of national associations of water suppliers and waste water services	Industry Association	Contacted
Apator Powogaz S.A (POL)	Manufacturer	Contacted
E. Wehrle GmbH (DE)	Manufacturer	Contacted
Elster Metering limited (DE)	Manufacturer	Completed
Aquametro (CH)	Manufacturer	Contacted
Nostrom	Manufacturer	Contacted
MOM (HU)	Manufacturer	Contacted
Baylan (TK)	Manufacturer	Contacted
Sensus (US)	Manufacturer	Contacted
IWA, International Water Association	Industry Association	Contacted
M-002 gas meters		
FACOGAZ, Association of European Gas Meters Manufacturers	Industry Association	Completed
ORES	Users Association	Completed
Landis+Gyr (CH)	Manufacturer	Completed
Elster Metering limited (DE)	Manufacturer	Completed
Sensus (US)	Manufacturer	Contacted
Itron France	Manufacturer / importer	Contacted
ELGAS s.r.o.	Manufacturer	Contacted
M-002 active electricity meters		
EURELECTRIC/UNIPEDE, Union of the Electricity Industry	Industry Association	Completed
Bruno Janz (PT)	Manufacturer	Completed
Elster group (DE)	Manufacturer / importer	Completed
Landis+Gyr (CH)	Manufacturer	Completed
CITEF, Association of European Electricity Meters Manufacturers	Industry Association	Contacted
FIEEC	Manufacturer	Contacted
Hager Electro GmbH & Co. KG (DE)	Manufacturer	Contacted
Itron France	Manufacturer / importer	Contacted
Metrima (SW)	Manufacturer /	Contacted

Interview programme A

Organisation	Type	Status
	importer	
M-004 heat meters		
AQUA, European Association of water and heat meters manufacturers	Trade Association	Completed
Lanis+Gyr (CH)	Manufacturer	Completed
European Smart Metering Industry Group	Industry Association	Completed
Kamstrup (DK)	Manufacturer	Completed
Allmess GmbH (DE)	Manufacturer	Completed
EUROHEAT	Industry Association	Contacted
Sontex (UK)	Manufacturer	Contacted
M-005 petrol pumps		
CECOD, European Committee of Manufacturers of Petrol Measuring Systems	Industry Association	Completed
Petrol Pump Manufacturing Association	Industry Association	Completed
Petrotec (PT)	Manufacturer	Completed
Tokheim (FR)	Manufacturer	Completed
Scheidt& Bachman (DE)	Manufacturer	Completed
Hectronics (SE)	Manufacturer	Completed
Petroleum Equipment Installers and Maintainance Federation (UK + Ireland)	Users	Completed
Gilbarco (iternational - UK)	Manufacturer	Completed
Dezidata (DE)	Manufacturer	Contacted
Hermann-Lummen (DE)	Manufacturer	Contacted
Sam System (DK)	Manufacturer	Contacted
K+S (DE)	Manufacturer	Contacted
Pumptronics (UK)	Manufacturer	Contacted
M-005 other liquid non-water		
Isoil Impianti (IT)	Manufacturer	Completed
Flaco (DE)	Manufacturer	Completed
Acram (IT)	Manufacturer	Completed
Gea Diesel (DE)	Manufacturer	Contacted
Flow instruments (DE)	Manufacturer	Contacted
Dezidata (DE)	Manufacturer	Contacted
Schwarte Milfor (PL)	Manufacturer	Contacted
Alma (FR)	Manufacturer	Contacted
Bohlen Doyen (DE)	Manufacturer	Contacted
Alfons-haar (DE)	Manufacturer	Contacted
Janksy	Manufacturer	Contacted
Tasca Tankers (UK)	Manufacturer	Contacted
SATAM (FR)	Manufacturer	Contacted
MECI Ltd (UK)	Manufacturer	Contacted
ENGVA, European Natural Gas Vehicle Association	Industry Association	Contacted
Bartec (UK)	Manufacturer	Contacted
M-006 AWI		

Interview programme A

Organisation	Type	Status
CECIP, European Committee of Weighing Instruments Manufacturers	Industry Association	Completed
Penko (NL)	Manufacturer	Completed
Welvaarts weighing systems(NL)	Manufacturer	Completed
Mettler Toledo (CH)	Manufactrurer	Completed
Aanderaa Data Instruments AS (NO)	Manufacturer	Contacted
Teltek (SE)	Manufacturer	Contacted
Fawag (PL)	Manufacturer	Contacted
Technipes (IT)	Manufacturer	Contacted
Mesomatic (DE)	Manufacturer	Contacted
Feige (DE)	Manufacturer	Contacted
Bizerba (DE)	Manufacturer	Contacted
Presia sa (FR)	Manufacturer	Contacted
Bilansiai (IT)	Manufacturer	Contacted
Weighwell (UK)	Manufactrurer	Contacted
MI-007 - Taximeters		
Aquila electronics (UK)	Manufacturer	Completed
Digitax (IT)	manufacturer	Completed
Hale Electronics Gmbh (AT)	Manufacturer	Completed
Semel (FI)	Manufacturer	Completed
Cygnus automotive	manufacturer	Contacted
Structab (SE)	Manufacturer	Contacted
M-008 tapes		
CEO (European Hand Tools Association)	Industry association	Arranged
Fischer-Darex Outillage (FR)	Manufacturer	Completed
Toolvizion International (NL)	Manufacturer	Completed
ENRAF B.V. (NL)	Manufacturer	Completed
Stanley works (UK)	Manufacturer	Contacted
STABILA Messgeräte GmbH (DE)	Manufacturer	Contacted
Bayerische Maßindustrie (DE)	Manufacturer	Contacted
Top Long industrial Co ltd. (China)	Manufacturer	Contacted
Lufkin Europe (NL)	Manufacturer	Contacted
G Borgquist & Co I/S (USA)	Manufacturer	Contacted
TOVARNA MERIL KOVINE d.d.(SL)	Manufacturer	Contacted
M-008 capacity serving measures		
FEVE – European Container Glass Association	Industry association	Completed
Rona (SK)	Manufacturer	Contacted
TAJIMA AG (CH)	Manufacturer / importer	Contacted
Mitchell & Cooper (Multinational)	Manufacturer / importer	Completed
Invicta Plastics Ltd (UK)	Manufacturer / importer	Completed
M-009 dimensional measure		

Interview programme A

Organisation	Type	Status
Fischer Instruments (UK)	Manufacturer	Completed
Vitronic (DE)	Manufacturer	Completed
Metrie (CZ)	Manufacturer	Completed
Kabelmat GmbH (DE)	Manufacturer	Completed
KFM Müller GmbH (DE)	Manufacturer	Contacted
FARO Techonologies (USA)	Manufacturer	Contacted
Stanley tools (international)	Manufacturer	Contacted
Mettler-Toledo Cargoscan AS (Norway)	Manufacturer	Contacted
Schuller GmbH (DE)	Manufacturer	Contacted
ALEX Italiana S.r.l. (IT)	Manufacturer	Contacted
Innovalia (multinational)	Manufacturer	Contacted
Trumeter (UK)	Manufacturer	Contacted
SICK (DE)	Manufacturer	Contacted
Accu-Sort Systems (USA)	Manufacturer	Contacted
Beta LaserMike Ltd (UK)	Manufacturer	Contacted
M-010 exhaust gas analyser		
EGEA - European Garage Equipment Association	Industry Association	Written response
Texa (IT)	Manufacturer	Completed
Robert Bosch (FR)	Manufacturer	Contacted
Crypton UK)	Manufacturer	Contacted
Seltec S.rL (IT)	Manufacturer	Contacted
Tecnotest (IT)	Manufacturer	Contacted
Brainbee (UK)	Manufacturer	Contacted
SPX Service Solutions (US)	Manufacturer	Contacted
DiTEST Fahrzeugdiagnose GMBH (DE)	Manufacturer	contacted
AVL	Manufacturer	contacted
Capelec (FR)	Manufacturer	contacted
FFB Automotive (FR)	Manufacturer	contacted
Test equipment (NL)	Manufacturer	contacted
Omitec (UK)	Manufacturer	contacted
Gunson (UK)	Manufacturer	contacted

Standard bodies

Organisation	Position	Status
CEN	Standards department – Responsible for metrology	Completed
CEN	Chairman of Smart Meters Coordination Group	Completed
CENELEC	Chairman of Technical committee 13 responsible for European standards related to smart meters	Contacted
OIML	Assistant director of the OIML secretariat	Completed

Competent authorities

Country	AUTHORITY	Status
AU	BEV	Completed
BE	Ministry of Economics	Completed
BG	State Agency for Metrology and Technical Supervision (SAMTS)	Completed

Interview programme A

Country	AUTHORITY	Status
CY	Ministry of Commerce, Industry and Tourism	Completed
CZ	UNMZ	Completed
DK	DFM	Completed
EE	MKM	Declined
FI	TUKES	Completed
FR	Bureau de la métrologie , Ministrere de l'Industrie	Completed
DE	PTB	Completed
GR	EIM	Completed
HU	Mkeh	Completed
IR	NSAI	Completed
IT	Ministero dello Sviluppo Economico	Written comments
LV	LNMC	Completed
LT	LVMT	Completed
LU	ILNAS	Completed
MT	MSA	Completed
NL	Minez	Completed
PL	GUM	Declined
PT	IPQ	Completed
RO	BRML	Declined
SK	Normoff	Completed
SL	MIRS	Completed
ES	CEM	Completed
SE	Swedac	Written comments
UK	NMO	Completed
UK	Department for transport	Completed
UK	Department for transport	Completed
CH	Federal office of Metrology	Completed
NO	Norwegian Metrology Service	Completed
IC	Metrology Department	Declined

WELMEC working groups

WG	Area of responsibility	status
WG2	Directive implementation	Completed
WG5	Metrological supervision	Completed
WG7	Software	Completed
WG8	General application of MID	Completed
WG10	MIs for liquids other than water	Completed
WG11	Utility meters	Completed
Ad-Hoc WG	Information exchange	Completed
WELMEC Secretariat	Director of WELMEC	Completed

Other

Name of association	status
NORMAPME – European Office of Crafts, Trades and Small and Medium Enterprises for	Completed

Interview programme A

Standardization	
BEUC – European Consumers Association /ANEC – European Consumer Voice in Standardization	Declined on the grounds of no input

References – sources used B

Reference documents

- Response of Member States to the Commission letter to competent authorities of 10/07/2009 (CIRCA)
- Position papers of trade associations (CECIP, CEDOC, Eurelectric, Aqua, Facogaz, Marcogaz) on MID evaluation (CIRCA)
- WELMEC working group proposals for the revision of the MID
- WELMEC guides on MID, accessible from http://www.welmec.org/latest/guides.html

Market research documents

- Multi Utility Meter Report Ed 7 2009 – *ABS Research*
- European Garage Equipment market study 2008 – Leo-Impact Consulting GMBH

Internet and other sources

- Eurostat, Statistics in focus, Transport, 9/2006 Passenger transport in the European Union, http://europa.eu/rapid/pressReleasesAction.do?reference=STAT/06/125
- Strategic Analysis of the European Diagnostic Instrumentation Markets, http://www.researchandmarkets.com/reports/603619/strategic_analysis_of_the_european_diagnostic
- European Weighing Industry: http://www.cecip.eu/industry.php
- European Glass Containers Association : www.feve.org
- European Hand Tools Association : www.ceo-tools.com
- European Garage Equipment Association: http://www.egea-association.eu/objectives.html
- PRODCOM database - http://epp.eurostat.ec.europa.eu/portal/page/portal/prodcom/introduction

MID – PRODCOM correspondence table

C

Type of MI (main groups and subgroups of MI)	Preliminary CN code	Preliminary PRODCOM code
MI-001: Water Meters	902820	26516350
A. Cold Water Meters:		
residential use		
commercial & light industrial use		
B. Warm Water Meters:		
residential use		
commercial & light industrial use		
MI-002: Gas Meters & Conversion Devices		
Gas Meters:	902810	26536330
residential, commerc. & light ind. use		
Volume conversion devices:		33205283
residential use		
commercial & light industrial use		
MI-003: Active Electricity Energy Meters	902830	26516370
Residential		
commercial & light industry use		
MI-004: Heat Meters	902680	26515283
residential use		
commercial & light industry use		
MI-005: Measuring Systems for Liquids other than Water		
Fuel dispensers:	84131100	28131105
Liquids		
Liquefied gases		
Systems on (un)loading ships:		
Systems on (un)loading rail:		
Systems on (un)loading road tankers:		
Systems for refuelling aircraft:		
Systems for cryogenic liquids:		
Systems for milk:		
Systems for liquids:	8471800	269900Z0
Systems for liquefied gases:		
MI-006: Automatic Weighing Instr.	8423	
Automatic catchweighers:	8423 20 00	29242310
Automatic checkweighers:	84238110 8423 82 10	 28293910
Weight labellers:	n.a.	n.a.
Weight/price labellers:	n.a.	n.a.
Automatic gravim. filling instruments:	8423 30 00	28293180
Discontinuous totalisers:	8423 89 00	28293180
Continuous totalisers:	8423 30 00	28293180
Rail-weighbridges:		

MID – PRODCOM correspondence table

C

Type of MI (main groups and subgroups of MI)	Preliminary CN code	Preliminary PRODCOM code
MI-007: Taximeters	9029 10 00	26516430
MI-008: Material Measures		
Material measure of length:	9017 80 10	28293975/28293979
Capacity serving measures:		23131220
	7013 22/7013 28/7013 33/7013 37	23131240
	3924 10 00	23131260
	7013 10 00	23131280
Serving measures:		
Transfer measures:		
MI-009:Dimensional Measuring Instr.	9031 80 91/9031 80 34/9031 80 38	26516650/26516670
Length measuring instruments:		
Area measuring instruments:		
Multi-dimensional measuring instr.:		
MI-010: Exhaust Gas Analysers	n.a.	n.a.

Notified bodies questionnaire D

Survey questionnaire – MID accredited notified bodies

The Centre for Strategy and Evaluation Services carries out on behalf of DG Enterprise and Industry of the European Commission an independent interim evaluation of the Measuring Instruments Directive (2004/22/EC).

The evaluation is expected to:

- Assess the utility and effectiveness of the implementation of the Measuring Instruments Directive (MID);
- Analyse the impacts of the MID on companies and users in the European Union, including trade barriers that limit the free movement of goods and possibly create obstacles to technological innovation;
- Assess whether measuring instruments are fit for purpose from the perspective of public interest, public health, public safety, public order, environmental protection, consumer protection, levying of taxes and duties and fair trading, where they are legally required by the Member States;
- Compile and assess information on the effective implementation and functioning of the Directive in terms of its impacts and application; and
- Draw conclusions and recommendations with regard to the scope for the potential improvement of MID.

The assignment commenced in November 2009 and is due to be completed by June 2010.

Questions

1. Is your organisation:
    a. public
    b. private body
    c. other, please specify : .....
2. For which legal metrology instruments covered by the MID is your organisation designated for? Please indicate main categories and/or subcategories if applicable.

MI-001: **Water Meters**	☐
MI-002: Gas Meters & Conversion Devices	☐
MI-003: Active Electricity Energy Meters	☐
MI-004: Heat Meters	☐
MI-005: Measuring Systems for Liquids other than Water	☐
MI-006: Automatic Weighing Instr.	☐
MI-007: Taximeters	☐
MI-008: Material Measures	☐
MI-009:Dimensional Measuring Instr.	☐

Notified bodies questionnaire D

MI-010: Exhaust Gas Analysers	☐

3. Which conformity assessment procedures are you designated for? (please check all applicable)

a.	A1	☐
b.	B	☐
c.	C	☐
d.	C1	☐
e.	D	☐
f.	D1	☐
g.	E	☐
h.	E1	☐
i.	F	☐
j.	F1	☐
k.	G	☐
l.	H	☐
m.	H1	☐

4. In relation to the testing of conformity of measuring instruments, how clear do you find the different MID documents available (standards, the guidance on the normative documents and guidance documents on the essential requirements)?

	EN- Standards	**OIML normative documents**	**MID Guidance on OIML normative documents**	**MID Guidance on essential requirements**
Very clear	☐	☐	☐	☐
Clear	☐	☐	☐	☐
Rather clear	☐	☐	☐	☐
Unclear	☐	☐	☐	☐
Very unclear	☐	☐	☐	☐
Don't use	☐	☐	☐	☐
Don't exist	☐	☐	☐	☐
No opinion	☐	☐	☐	☐

5. In relation to the application of the different conformity assessment procedures, how clear do you find the different MID documents (standards, the guidance on the normative documents and guidance documents on the essential requirements) to be?

	EN-Standards on conformity assessment	**MID Guidance on conformity assessment procedures**
Very clear	☐	☐
Clear	☐	☐
Rather clear	☐	☐
Unclear	☐	☐
Very unclear	☐	☐
Don't use	☐	☐
No opinion	☐	☐

Notified bodies questionnaire D

6. Based on your experience so far, do you think that the essential requirements of the MID allow technological innovation by manufacturers? (YES/NO, please explain- text box).
7. Please, refer to any advantages/problems you have experienced in relation to the implementation of the Directive. (text box)
8. What has been the total number of type examinations, quality system approvals and verifications you have performed in the last 3 years? If possible, indicate by each type of measuring instrument. If possible, please indicate also the average cost for each category of instrument.

	EC type examinations	Quality system approvals	Verifications	Average cost
MI-001: Water Meters				
MI-002: Gas Meters & Conversion Devices				
MI-003: Active Electricity Energy Meters				
MI-004: Heat Meters				
MI-005: Measuring Systems for Liquids other than Water				
MI-006: Automatic Weighing Instr.				
MI-007: Taximeters				
MI-008: Material Measures				
MI-009:Dimensional Measuring Instr.				
MI-010: Exhaust Gas Analysers				

9. Would you willing to be contacted by CSES for a brief further discussion on the above issues? (YES/NO) If yes, please provide contact details.

Thank you very much for your cooperation.

Measuring Instruments analysis tables

E

MI-001 – Water meters[55]

Issues	Findings	Evidence/data/ examples
Overall experience from the implementation of the Directive	Overall, both AQUA and the individual manufactures suggested a positive experience from the implementation of the MID until now. The Directive has been built on Directive 75/33/EEC, which already included a number of legal metrology aspects and, as a result, similar types of approvals had to be made prior to the MID. The new Directive did not bring major changes. On top of that, the industry considered that the participation in the working group of MIs (extended sharing of experience and real "management" of MID) was a positive improvement. The only negative point came from the Danish CA which suggested that MID is in contradiction with the Directive on energy end-use efficiency and that there is poor quality of the of class A meters covered by the MID.	Annex MI-001 of the MID states that a reading is necessary in the instruments. In order to ensure consumer protection, and because of the growing complexity of water pricing, the Danish CA believes that information such as volume, price, time of use etc should also be displayed.
Development of an efficient operating single market	One large manufacturer and the trade association (AQUA) accepted that the MID has helped develop a more effective single market than under the previous regime. They mentioned that there have been clear benefits from the necessity for type approval in only one country.	
Technological innovation - supporting/hampering	The manufacturers and trade association do not believe that the MID hampers innovation with the notable exception of the issue of smart metering (address later).	
Optionality - Is it used in the sector (how many MS and why) - Is there evidence of two-tier market - Is there evidence of unfair competition	2 countries use it for residential – 4 for light industry. Reasons stated was the absence from the market and lack of public policy problem According to ACQUA, professionals in the sector are not very familiar with the optionality principle. A two-tier market, of trade barriers and unfair competition could be a result but AQUA does not have any data or evidence to support this. Manufacturers point also to the fact that over 2/3rds of water meters purchased in the EU are purchased by professionals or directly by the water distributors. They have a vested interest in having reliable metering systems based on MID certification.	

[55] Based on interview with a representative of the two trade associations ACQUA and ESMIG, and three large manufacturers Elster (DE), Bruno Janz (PT), Kamstrup (DK).

Measuring Instruments analysis tables

E

Issues	Findings	Evidence/data/ examples
Consumer protection due to optionality and any other factor	There is no concern about consumer protection issues based on optionality. Consumers do not generally purchase the meters themselves. Those are installed by the distributors and they have a vested interest in having reliable metering systems based on MID certification.	
How have administrative and other costs increased /reduced for firms and for administrations	Overall, manufacturers believe that the implementation of the Directive has not changed the costs and administrative burdens. The Directive does not radically change the previous regime, it adapts and harmonises it based on existing rules However, according to one CA, there was an effort by some companies to have products that had already been approved under the old Directive approved under the MID, which might have increased costs a little.	A CA that did not want to be disclosed referred to an anecdotal evidence of meters approved under the old regime being submitted again for approval under the MID.
Representation in the Measuring instruments committee	Very satisfactory, the wgMI has been one of the most welcome aspects of MID. Two manufacturers and a trade association underline the importance of the working groups to reduce the time between the implementation of the Directive and the smooth understanding and running of the operations.	
Impact/issues for SMEs (refer to the extent that SMEs may face particular problems in comparison to large firms)	Given the dominance of large size firms in the sector this is seen as a minor issue, if it applies at all. The SMEs survey (including 91 SMEs activity in the sector) did not indicate problems related to the conformity procedures and less than 20% referred to the presence of any barriers to trade	
Parameters that affect the implementation of the Directive		
• Role of standards and guidance documents (incl. role of WELMEC)	WELMEC is seen as by all interviewees as extremely useful for the coordination between Notified Bodies and National Organisations. WELMEC guidelines have been useful for harmonisation and for the common interpretation of the MID. The level of standards issuing has been of higher level since the introduction of the MID.	
• Implementation by notified bodies	Manufacturers did not have anything to comment – either positive or negative - on the implementation by notified bodies.	
• Market surveillance by authorities	It is the main aspect that all interviewees considered as missing from the MID. They expect that some very light market surveillance will be introduced by the New Legislative Framework (NLF).	
• Transition period (stated benefits/issues)	All manufacturers agreed that 10 years is an appropriate transition period.	
Other	According to ACQUA, there should be changes in the essential requirements rated	

Measuring Instruments analysis tables

E

Issues	Findings	Evidence/data/ examples
	operating condition should be improved. The concern is that the current level allowed by the MID is not stringent enough and potentially allows lower quality meters on the market. (Currently a ratio of 10 between Q3/Q1 is allowed. ACQUA would like to see a ratio of at least 40 come into force and impose a far lower Q1)	

MI-002 – Gas meters[56]

Issues	Findings (so far)	Evidence/data/other info/ examples
Experience from the implementation of the Directive	Overall, the industry considered that MID's main strengths have been the reduction of restrictions to free trade, the space allowing for technological innovation and the optionality clause.	
Development of an efficient operating single market	Overall, all manufacturers stated satisfaction that the MID has helped develop an efficient single market. One barrier to trade stated by WELMEC wg10 was the absence of a common definition of light and heavy industry. In the case of gas meters, in DE the threshold is 9,000 times higher than in NL The Hungarian notified body expressed the same concern.	According to Marcogaz, An important benefit for users in the utility sector is the opportunity to conduct public procurement with reference to MID requirements and not for separate national certificates. This increases choice and has the potential to reduce price due to increased competition.
Technological innovation - supporting/hampering	There is no common view on the role of the MID on this aspect. Two manufacturers believe that details in the MID hamper innovation as the fundamental philosophy of the Directive to be "technologically independent" has not been followed throughout. One problem identified is the display on instruments, with only the volume or mass of gas displayed. However, Marcogaz considered that the Directive is technology neutral. One manufacturer also supported this view suggesting that there are allowed to introduce innovative solutions without need to modify the MID. The same manufacturer also mentioned the fact that as there is no obligation to standards,	According to one company the MID only allows for meters displaying the volume or the mass of gas; it does not allow for the meters displaying energy or monetary metering. If such a solution is ever to be invented, it will not fall under the MID.

[56] Based on interviews with representatives of three trade associations (FACOGAZ,Marcogaz, ORES) and three manufacturers, Landis+Gyr (CH), Elster (DE), Kamstrup (DK).

Measuring Instruments analysis tables

E

	there is greater freedom in the development of future technologies. However, it is also suggested by all interviewees that the MID does not cater for possible future innovation that would fall outside of the Directive. A documented issue concerns smart meters. Smart meters are expected to increase in the future because of environmental and energy efficiency regulation. A number of CAs proposed changes to the Directive to take into consideration smart meters. However, the industry – through Marcogaz - is not in favour of any changes of the Directive at this point as there is need to build experience and the technical issues related to remote reading and two-way communication that are still unclear.	
Optionality - Is it used in the sector? - Is there evidence of two-tier market - Is there evidence of unfair competition	Optionality not used in gas meters (2 countries) and no issues in relation to any of the questions were reported.	
Consumer protection due to optionality and any other factor	No evidence of the role of optionality identified. More general MARCOGAZ suggests that there has been improvement as in some countries with lower standards the MID did push standards up and benefited consumers/users. Two manufacturers emphasised that as for other utility meters, this is not seen as a problem as meters are generally purchased in bulk by the gas suppliers that have an interest in having efficient meters.	
Administrative burdens created/reduced	No significant change mentioned since the introduction of the MID.	One large national company stated that the main administrative costs come from the periodic audits that the NB is carrying out for module D assessment, which did not exist in the previous legal context. They do underline that they could change the module needed for Type Approval in which case they would not have to be audited and the cost of conformity would drop below the levels of the previous regime.
Representation in the	It is considered important that the industry is represented and involved in the	

Measuring Instruments analysis tables

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Measuring instruments committee	wgMI meetings. Marcogaz considers itself extensively involved with no problems. One large manufacturer also underlined the importance of the working groups to reduce the time between the implementation of the Directive and the smooth understanding and running of the operations.	
Impact on SMEs	Manufacturer stated that SMEs were not present on the market and as a result, they are not particularly affected. (They were not before the introduction of the MID either). The SME survey results indicate that less that 25% of the firms in sector experienced barriers to trade and only one that conformity assessment procedures are problematic.	
Parameters that affect the implementation of the Directive		
• Role of standards and guidance documents (incl. role of WELMEC)	The issuing of standards is seen as one of the key positive aspects of the new approach. The guidelines issued by WELMEC are considered important regarding the long-term experiences of metrological authorities. However, Marcogaz proposed that the operation and consistency of the notified bodies is not satisfactory. Marcogaz suggested also that the use of OIML normative docs is still not 100% satisfactory as there areas where there is no harmonization with European standards.	
• Implementation by notified bodies	Two large manufacturers underlined that the MID's main weakness is the varying level of quality of the notified bodies, in terms of experience, knowledge and customer orientation and Marcogaz was also sceptical of the quality of the tests by some NBs. One manufacturer referred to a problem that still has not been resolved regarding different interpretations of the essential requirements and conformity procedures by the Notified Bodies.	One company reported a problem with a German notified body not accepting one of their products that had been accepted by METAS in 2008. The issue was regarding the maximum permissible error. The issue has been taken by METAS to WELMEC and has still not been resolved.
• Market surveillance by authorities	All the manufacturers we have spoken to stated that there is a clear need for further action in terms of market surveillance. Marcogaz considers that surveillance is rather limited although gradually increasing. Regulation 2007/29 (NLF) that came into force in January 2010 is expected to have positive impacts on market surveillance.	
• Transition period (benefits/issues)	10 years was considered an appropriate transition period and none of the manufacturers expressed any problems/concerns with the transition period.	

Measuring Instruments analysis tables

E

MI-003 – Electricity meters[57]

Issues	Findings	Evidence/data/other info/ examples
Experience from the implementation of the Directive	Manufacturers and trade association are pleased with the MID and see it as an improvement on the previous regime. However, manufacturers still refer to the fact that many of the benefits of the MID are not evident as there are many national specifications still covering functionality and national approvals that are required. As a result that 'Old and new' systems are running in parallel therefore increase workload. Another issue referred to by a trade association is the fact that the MID allows Member States to impose metrological control of measurement using different Classes of meter for residential and commercial / light industrial use. It does not however define boundaries between the two types of meters. One large manufacturer stated that the MID's conformity assessment and verification procedures were helpful in stepping up the quality assurance of their products	Slovenian Competent Authority stated that manufacturers of electricity meters are in general pleased.
Development of an efficient operating single market	An efficient single market is still not present according to all interviewees. They referred to trade barriers by the different treatment of active reactive measurement. As the two instruments perform metering tasks, only including one in the MID does not help in the development on an efficient single market. There are different severity levels of the tests used by the notified bodies that are country-dependent leading to different quality levels. Furthermore, active electricity meters often include components that are not covered by the MID and are subject to national approvals.	
Technological innovation - supporting/hampering	According to some CAs (NL, AT) the MID only covers a minimal part of modern electricity meter. Any "innovative" feature is beyond scope of MID and the Directive has no influence on this. Another issue stated (by whom?) concerned the smart meters– this hampers innovation.	

[57] Based on interviews with representatives of two trade association (Eurelectric, ESMIG) and three manufacturers : Bruno Janz (PT), Landis +Gyr (CH), Elster(DE)

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Issues	Findings	Evidence/data/other info/ examples
Optionality - Is it used in the sector - Is there evidence of two-tier market - Is there evidence of unfair competition	Optionality is not used in the sector (the only exception is Malta as there are no electricity meters in the country) There were no concerns raised by manufacturers concerning unfair competition and due to optionality and none of the companies interviewed were aware of any occurrence of a two-tier market.	
Consumer protection due to optionality and any other factor	All interviewees suggested that the protection was already guaranteed in previous context by national metrological bodies. One large company emphasised that as the MID is much clearer than the previous legislative context, the consumers are better protected. Furthermore, as distributors install the meters they have an incentive to ensure quality of the instruments.	
Administrative burdens created/reduced	One large manufacturer stated that because of the additional national specifications for use the 'Old and new' systems are running in parallel and this increases workload; due to the new terminology in the MID (new class A, old class 1) the harmonised EU standards are in conflict with the IEC standards creating a completely unnecessary complication. Two manufacturers stated that there was no noticeable change overall as a decrease in burdens for industrial commercial uses has been compensated by a substantial increase of the administrative burden for residential meters due to the remaining national approvals for aspects of the meters. Simplifications are expected if reactive measurement is also included. However, one company suggested that there was a significant increase of the periodic audit costs for the module D (quality system) assessment that did not exist in the previous context.	
Representation in the Measuring instruments committee	Eurelectric stated that there is no real representation of industry. While they had consulting role finally all decision concerning MID was taken by the regulatory bodies.	
Impact on SMEs	According to one large manufacturer, SMEs have very limited presence in the market. The MID is not expected to have had any particular effect on them. In addition, one SME involved in the Iberian peninsula market, did not feel the Directive had any negative impact	

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Issues	Findings	Evidence/data/other info/ examples
• Role of standards and guidance documents (incl. role of WELMEC)	According to Eurelectric in the new terminology of the MID, the harmonised EU standards are in conflict with the IEC standards and this is an unnecessary complication. WELMEC's guidance is partly unclear. This was confirmed by one manufacturer. Another manufacturer was not aware of this issue.	
• Implementation by notified bodies	Overall, companies are generally happy with the implementation by notified bodies; there was no negative comments One large company was particularly happy with the working relationship developed with the notified bodies.	
• Market surveillance by authorities	One trade association mentioned that market surveillance is missing from the MID	
• Transition period (stated benefits/issues)	The 10 years period was seen as appropriate. None of the manufacturers we have spoken to identified any problems.	
Other		

MI-004 – Heat meters[58]

Issues	Findings	Evidence/data/other info/ examples
Experience from the implementation of the Directive	There is an overall positive view of the implementation of the Directive. According to the trade association (ACQUA), the experience is overall positive, especially the following aspects: • participation in the wgMIs allows exchange of point of views • WELMEC's guidelines • Simplification of the market	
Development of an efficient operating single market	According to the trade association, the MID has gone quite a long way in setting-up a single market for 30 countries. One company stressed that the market for heat meters is traditionally relatively limited geographically but the MID might allow heat meters to expand in new markets, although no specific data or	

[58] Based on interview with the representative of two trade associations (AQUA, ESMIG) and three large multinational manufacturers Landis + Gyr (CH), Kamstrup(DK), Allmess (DE).

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Issues	Findings	Evidence/data/other info/ examples
	evidence was available.	
Technological innovation - supporting/hampering	Apart from the 'usual;' concern on smart meters, none of the people we have spoken to see the MID as hampering innovation	
Optionality - Is it used in the sector (how many MS and why) - Is there evidence of two-tier market - Is there evidence of unfair competition	There is an important number (5 for residential and 6 for commercial& light industry) of countries that have opted out of the MID. This can be a risk, but according to AQUA, for the moment there is no evidence to prove or disprove this claim. One large manufacturer also stressed that some countries did not feel the political need to opt in the legislation since heat meters are virtually non-existent in their countries.	
Consumer protection due to optionality and any other factor	According to one manufacturer, the heat meter market is so concentrated in Europe that it would not make sense for manufacturers to develop two types of meters for MID and non-MID markets.	
Administrative burdens created/reduced	None of the companies we have spoken referred to additional administrative burden. There is a general sense that the benefits of having EU-wide certificates outstrip the administrative burdens of the MID. However, no one could provide hard data on this aspect.	
Representation in the Measuring instruments committee	All the manufacturers we spoke were pleased with their representation in the Measuring instrument committee through AQUA, which is seen as very active, it gathers manufacturers' views, and keep them up-to-date. There were no issues/complaints of under-representation.	
Impact on SMEs	There were no issues on SMEs pointed, the main reason being the dominant role of large companies. The SME survey indicated no problems with the conformity assessment procedures for the SMEs and the majority (>80%) did not indicate any barriers to trade.	
Parameters/factors affecting implementation		
• Role of standards and guidance documents (incl. role of WELMEC)	According to AQUA, the new guidance documents by WELMEC helped harmonisation within the framework of the MID. It was considered as useful towards harmonising views on the MID and develop a common interpretation.	
• Implementation by notified bodies	AQUA stated that the implementation by notified bodies was rather satisfactory and that WELMEC guidelines were considered as helping notified bodies.	

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Issues	Findings	Evidence/data/other info/ examples
• Market surveillance by authorities	AQUA underlined the lack of market surveillance in the MID as the main shortcomings. The introduction of the NLF and the requirement it introduced is considered as a positive step by AQUA although it is not clear if it will be sufficient. The companies did not seem to think this was a problem as they have their trusted customers in different national markets.	
• Transition period (stated benefits/issues)	No interviewee considered the 10 year transition period as an issue	
Other		

MI-005a – Fuel Dispensers[59]

Issues	Findings	Evidence/data/other info/ examples
Experience from the implementation of the Directive (overall)	The experience is that despite general improvements in comparison to the past and the clear benefits of the use of a single certification there are a number of issues that appear to cause problems to manufacturers and to CAs. The main issues (discussed below) are: • The problematic situation that creates obstacles to the market concerning self serving devices and the opportunity to mix and connect old self-serving devices with MID certified fuel dispensers in petrol stations (and the reverse) and the differences in the situation among Member States • The different approaches followed by authorities in some MSs in regards to additional requirements and checks even if they fall outside MID	
Development of an efficient operating single market	CECOD and a number of manufacturers stated that there are improvements in comparison to the past based on the use of single certificate but an efficient single market is still not operating due to the additional requirement in some countries for additional checks on issues like CE+M mark seals. However, other manufacturers	CECOD reports that in some Member states (reference made to Spain, Italy) there are additional requirements (e.g. size

[59] Based on interviews with the representative of the trade association, one independent expert (Terry Rogers), PEIMF (UK+IE) and 3 large or very large manufacturers (PETROTEC-PT, GILBARCO- UK, SCHEIDT and BACHMAN-DE).

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Issues	Findings	Evidence/data/other info/ examples
	(Petrotec, S&B) were more positive stating that the access to a bigger market is indeed the case and did not report similar problems. The problem appears to be limited to only some countries. Another important problem which, according to the industry (including CECOD and firms), affects the operation of the market and the adoption of MID instruments concerns the inability to mix older national certified equipment with MID certified ones. It concerns systems for unmanned stations (self-service and payment in one system) or stations with self-service devices with paying at the kiosk and stacking of the consumers transaction (mix and match problem). According to CECOD, they represent 30% of the market with increasing trends. Following the MID, existing systems that are approved according to national legislation can be placed on the market and put into use during the transition period, but they are not allowed to be altered. This means that a system approved under old national legislation cannot be upgraded with an "MID" component (POS or dispenser without seeking MID approval for the complete system. As some companies are producers of only the POS this may include them getting approval from the manufacturers of the different dispensers to include their POS in the MID certificate of the dispenser. Currently, during the transition period, there are different regimes among countries in relation to the acceptance of combining new (MID certified) and old (nationally certified) dispensers and point of sales (POS) in petrol stations. (UK and NL not allowing mixing of old and new until recently and currently allowing only if they are also connected to other pre-MID systems). It is suggested as representing barriers to trade but also a disincentive to renew equipment (unless the decision is made to renew both equipments at the same time). Industry and user representatives suggest that this clearly limits the operation of the market in those countries that have impose this requirement – in the UK only 10% has switched to MID dispensers - and it is expected to do that even after the	of CE mark or additional seals in Italy and similar types of checks in Spain) which are not legal according to the Directive but add costs and are time-consuming when they end up challenged in courts[60]

[60] The Spanish CA strongly challenged that and suggested that while CECOD has been invited in a number of occasions to report and provide evidence this has not taken place.

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Issues	Findings	Evidence/data/other info/ examples
	transition period since the lifetime of dispensers is up to 20 years. It is also seen as forcing users to either change both instruments or only make repairs without making full use of the equipment. The proposal of CECOD is to adopt a sub-assembly for points of sale. On this issue, a big number of CAs also agrees that the situation is problematic while the CAs in the countries that have adopted a more strict approach during the transition period (UK and NL) considers that it is appropriate for consumer protection. The issue has been raised and well documented in the context of WELMEC and a large number of CAs support a sub-assembly approach but this is not unanimous.	
Technological innovation - supporting/hampering	There were both positive and negative views in relation to the role of the MID in technological innovation: One manufacturer suggested that the greater markets and the creation of single set of requirements is positive as it provides incentive for develop markets for larger markets (no example mentioned though). On the other hand, CECOD suggested that the Directive is rather prescriptive and the essential requirements are rather limiting creating limitations to manufacturers in terms of innovation (although no specific examples were given). It is agreed by almost all in the industry (CECOD, firms and users) that the absence of some provision for testing systems (including fuel dispensers and self-service machines/POS) on petrol station sites poses difficulties to innovation. Manufacturers are not allowed to conduct proper market tests for new products and services that would require installed units without first going through the MID certification procedures. According to one company they can only do some tests in their home country. Either way this is seen as a representing a limitation to the development of new products.	A company stated that they can only do tests in their home country using MID certified instruments but could not possibly test in other countries.
Optionality - Is it used in the sector - Is there evidence of two-tier market - Is there evidence of unfair competition	Optionality is not used in the case of MI-005a. (only one country - MT) CECOD considers optionality as unfair but there was no evidence provided (by CECOD or any company) of a two tier market or unfair competition due to it.	

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Issues	Findings	Evidence/data/other info/ examples
Consumer protection due to optionality and any other factor	In the UK, users of fuel dispenser systems (PEIML) suggested that the introduction of the MID brought greater level of protection through the introduction of the essential requirements and their application across the EU.	
Administrative burdens created/reduced	There is at this point no clear view of the change in administrative cost with conflicting information from the different interviews. It seems that while charges of notified bodies in general increased -due to more thorough tests and longer time to issue a certificate - the overall costs have decreased – particularly for those with presence in multiple markets. CECOD suggested that administrative burdens have not been reduced as much as it was expected due to the use of single EU-wide certificate as in many MSs there are additional requirements posed which, according to CECOD, are illegal. One manufacturer stated also a cost reduction for users (petrol stations) as there is no need for initial verification	One company stated that Notified Bodies tend to charge more than in the past for the certification (up to 50% from the previous procedures) and take more time because the procedures are more thorough. Another company stated that the overall administrative costs have marginally decreased and that the required time is not very different (no estimate provided). However, two more firms with presence in over 10 EU countries stated that they had experienced a reduction of around 80% in costs and that the certification process has become faster (3-4 months in comparison to up to a year)
Representation in the Measuring instruments committee	The participation in the wgMIs and the opportunity to express views is welcomed by CECOD. The main issue raised is the representation and influence in WELMEC, which, in the absence of European standards, is seen as having increased role through the issuing of guidance documents. In this area, CECOD considers that their role as observers - is not adequate.	
Impact on SMEs	CECOD suggested that under the current limitations for combining old and new equipment, small manufacturers that usually produce and sell individual parts of the total unit (POS or dispenser) cannot have their products CE certified and are in a disadvantaged position against large manufactures. Consumers buying integrated	.

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Issues	Findings	Evidence/data/other info/ examples
	systems are expected to favour large manufacturers that have the whole system certified. However, no real life examples were provided. The SME survey (based on responses of 24 firms) did not indicate that SMEs face any barriers to trade and the conformity assessment procedures did not also appear to pose problems (all respondents consider them adequate).	
Parameters/factors affecting implementation		
• Role of standards and guidance documents (incl. role of WELMEC)	There are no European standards issued as far as no formal request has been placed. OIML normative documents are not considered satisfactory by CECOD and some companies. They are considered rather strict and prescriptive and the industry has no role in their drafting. Similarly WELMEC document are seen as being too prescriptive and, according to CECOD and almost all manufacturers, the notified bodies tend to use them as if they are standards and are reluctant to accept other approaches.	
• Implementation by notified bodies	As above, CECOD and companies reported that notified bodies tend to use WELMEC guidelines rather strictly and be less open to other approaches posing limitations or delays in certification procedure. Furthermore, CECOD reports that NB reports/certificates are varying in content.	
• Market surveillance by authorities	Industry (CECOD and some manufacturers) reported that market surveillance is in many countries limited or absent. One manufacturer suggested that in Greece there is complete absence of any surveillance with no testing of CE+ M marking and free circulation of all types of dispensers. AS suggested above, there are also problems due to the additional requirements posed by some authorities (IT, ES) that go beyond MID requirements.	
• Transition period	The transition period is considered rather long by CECOD and some manufacturers. CECOD considered that more clear guidelines from the Commission would help solve this problem.	

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MI-005b – Other liquid dispensing systems [61]

Issues	Findings	Evidence/data/other info/ examples
Experience from the implementation of the Directive	As in the case of fuel dispensers the view were rather mixed. CECOD recognised the benefit from accessing a wider market one company added the clear benefit from the opportunity for in-house verification. The main problems/issues concerned the need for many certifications for every combination of different components but also the unclear situation in relation to the combination of new and old equipment. In respect to the second at least two companies stated that under the MID manufacturers could only sell complete systems. Separate equipment cannot be sold with an MID certificate as only complete systems can be certified and this is seen as limiting the access of some companies to the market. However, WELMEC suggested that this is not a big change from the previous scheme as already most countries had moved towards the full system approach.	As suggested by one manufacturer customers tend to ask for separate parts/components to be MID-certified bit this cannot take place.
Development of an efficient operating single market	The interviewees recognised a clear (or potential benefit) from the use of a single certificate. However, interviews with WELMEC referred to the practice of some MS to ask for national certification/verification for the use of instruments just 2 months after their placing in market. These are based on different national regulations (not harmonised) and effectively create market barriers that effectively do not allow making full use of the MID benefits. At least one company agreed and stated that this is a disincentive for entering other markets. As in the case of fuel dispensers, CECOD refers to barrier to free circulation in relation to the process of renewing existing instruments in fixed installations (truck loading measuring system or a measuring system on pipeline or for loading ships, etc.). Under the MID, the upgrade of an existing old system with a change of a component – and not a new one – can only be done by replacing an equipment with that of the same manufacturer or buying a new MID system. This, according to CECOD, means additional overall costs for the market of up to €23million and important limitations for companies that only manufacture components for MIs. CECOD suggests again that an introduction of sub-assemblies under MI-005 and definition of the compatibility requirements should solve the problem. Again, this is well	

[61] CECOD, Isoil Impianti(IT) , Flaco (DE), Acram (IT)

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Issues	Findings	Evidence/data/other info/ examples
	documented through WELMEC procedures but there is no unanimity as a number of countries still consider that a sub-assembly is not appropriate.	
Technological innovation - supporting/hampering	Overall, the companies do not see any impact of the Directive as the main driver for most of them is the competition. In the case of software related to the equipment they produce, they suggested that the MID requirements are too restrictive for innovation (e.g. the need to separate clearly metrological and non-metrological part that did not exist in the past).	
Optionality - Is it used in the sector - Is there evidence of two-tier market - Is there evidence of unfair competition	Optionality has been used in this category by a number of countries (4-5) mainly concerning cryogenic and liquefied gas and milk dispensers. The basis is other the absence from the market or that it was seen as necessary to have mandatory regulation to protect customers. No such evidence provided by companies of two tier markets in the sectors covered and of unfair competition.	
Consumer protection due to optionality and any other factor	No issues raised by any interviewee on issues of consumer protection.	
Administrative burdens created/reduced	There is no clear view concerning the changes in the administrative costs because of the MID. The focus is on the certification costs where fees of NBs reported vary by up to 30%. One company stated that individual certificates have become much more expensive while another company in DE did not see any change in the price or time. According to one manufacturer, additional costs are incurred when there is a request for a change in only one component of the system as there is still a requirement for new certification. This means many more certificates that in the past and increased costs for each new product.	Manufacturers stated that in the past they would not spend more than €5,000 for a system, currently in some notified bodies in some countries over €25,000. For modifications, the time spent could reach 60 days with 2 people occupied full time that was a significant administrative burden.
Representation in the Measuring instruments	The participation and the opportunity to express views are welcomed. The main issue raised is the representation and influence in WELMEC, which, in the absence of European	

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Issues	Findings	Evidence/data/other info/ examples
committee	standards, is seen as having increased role through the issuing of guidance documents. In this area, CECOD considers that their role as observers - is not considered adequate.	
Impact on SMEs	CECOD and some firms suggest that SMEs that produce components cannot get MID certification and this puts them in disadvantage. Another problem particularly for small companies with limited distribution networks concerned instruments that need to be certified on site which are bought through distributors. Manufacturers are responsible but usually do not know where they are installed. There is a problem of managing time and resources if they do not have local representatives and the costs were transferred to the consumer.	
Parameters/factors affecting implementation		
• Role of standards and guidance documents (incl. role of WELMEC)	The companies suggested that OIML standards are widely recognised and they considered that as beneficial for international trade. They did not see a need for CEN/CENELEC standards. WELMEC contribution was also positively assessed although the continuous issuing of guidance documents overwhelms them – difficult to follow	
• Implementation by notified bodies	There were no particular problems raised by the interviewees in terms of the operation of the NBs. Most agreed that the prices charged by NBs vary greatly but this was not seen necessarily as a negative issue. On specific issues, one company reported that notified bodies have different interpretations as to which tests can be done in manufacturers' laboratories. –	
• Market surveillance by authorities	Overall, the variation in the level of market surveillance among MSs is seen as the main problem concerning the implementation of the Directive and one company referred to a number of countries (IT, ES, GR, new Member States) where they know that there is no check at all in the case of milk dispensers. This is suggested as allowing unfair competition. Furthermore, WELMEC referred to the practice of some MS to ask for national certification/verification for the use of instruments just 2 months after their placing in market based on different national regulations (not harmonised). This is seen as effectively creating market barriers. At least one company agreed and stated that this is a disincentive for entering other markets. WELMEC convenors suggested that some action to harmonize approach among MSs is necessary	
• Transition period	According to WELMEC WG10 the transition period was necessary as only few large	

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Issues	Findings	Evidence/data/other info/ examples
	companies where prepared for the MID. Most companies are (still) not properly informed even if mechanisms do exist (including the NBs that are providing this info) For at least one company the problem of the transition period is that it prolongs the confusion concerning issues related to the combination of old and new instruments and the different interpretations from notified bodies According to another company the transition period leads to a delay in the use of MID certified instruments – for the time being many companies and users focus on the use of pre-MID instruments	

MI-006 – Automatic weighing instruments[62]

Issues	Findings	Evidence/data/other info/ examples
Experience from the implementation of the Directive	For both trade association and for the individual manufacturers the adoption of uniform international standards and single certificate represent a very important contribution of the Directive that has led to important cost savings. However, they state that the practical experience concerning the implementation of the MID that include the operation of the notified bodies, the market surveillance and some of the administrative work required are still problematic.	SLO CA stated that manufacturers of AWI have given positive comments.
Development of an efficient operating single market	The view of CECIP is that so far the market is still not operating in a efficient way as a result of the optionality (see below), the restrictive way notified bodies use WELMEC guidance documents (see below) and the fact that some surveillance authorities tend to create minor issues problems/obstacles by being particularly strict in various administrative/bureaucratic requirements. However, at least one manufacturer expected that over time things should improve as	

[62] Based on interview with the main industry association (CECIP), manufacturers (PENKO – SME (NL), WELWAARTS- SME (NL), Mettler Toledo- Large multinational (CH),...).

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Issues	Findings	Evidence/data/other info/ examples
	experience builds up.	
Technological innovation - supporting/hampering	CECIP and companies agree that the MID provides ample space for technological innovation based on the essential requirements. However, CECIP and individual manufacturers reported that in practice notified bodies tend to use WELMEC guidance documents "as if they were law" , i.e. as representing the only way of conforming to the requirements. As a result, manufacturers that do not follow them are asked to justify the reasons for not doing that and consider this as a restriction to their capacity to develop innovative solutions. At least one company suggested that in relation to the software for AWIs WELMEC documents were long, very restrictive and prescriptive.	One company referred to specific cases when the notified body rejected a specific configuration/approach that did not follow the WELMEC approach CECIP referred also to examples concerning software in AWI where alternatives to that proposed by WELMEC under module B have been rejected by notified bodies.
Optionality - Is it used in the sector - Is there evidence of two-tier market - Is there evidence of unfair competition	Optionality has not been used extensively in the sector. In three countries (CY, MT, IE) there is no coverage of rail weighbridges that are not present in the domestic market. However, CECIP refers to a case where the price of non-conforming MIs was lower than for the conforming MIs. It also referred to a specific country (without providing name[63]) where local manufacturers have supported opting out in order to maintain competitive advantage. Still, the companies did not seem to be particularly troubled with problems of unfair competition or two tier markets.	CECIP referred to a case of a manufacturer of automatic instruments that has been unable to compete in an unregulated market because of the price of its products which are in compliance with the MID were too expensive when competing with products not in compliance due to the optionality.
Consumer protection due to optionality and any other factor	All interviewees agreed that consumer protection has improved because of the essential requirements of the MID. There was no evidence of lower quality being a problem to consumer protection. As reported by two companies, due to problematic market surveillance, some competitors produce golden prototypes to get the certification and then bring to the	

[63] Based on the data for the use of optionality these countries can be Switzerland (automatic gravimetric filling instruments) or UK (automatic catchweighers)

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Issues	Findings	Evidence/data/other info/ examples
	market lower quality products	
Administrative burdens created/reduced	Overall a reduction in the total costs for firms due to the MID is recorded although with great variation. Larger firms with presence in many markets benefit more. CECIP estimated that overall administrative burdens have been reduced given the validity of certificates around Europe even if administration costs are still a significant burden. However, CECIP suggested that the overall benefits are limited concerning a number of modules as there are now much more expensive because of the stricter requirements for the use of specific modules (D, F) or because of WELMEC guidelines for marking. Another issue raised concerned translation requirements under the NLF that are seen as possibly excessive. One company estimated that costs for translation per country exceeded €5,000. Two companies stated that in the case of countries where they did not expect to sell more than 2-3 instruments annually, they decided not to enter at all.	One company with presence in 6 countries reported total reduction of costs of €20,000-30,000/year. Another company with presence in all 27 countries referred to a reduction of close to 80%. However, they also stated that there is a need for more certificates for each product following minor changes that can mean €3,000-4000 extra costs for a new system.
Representation in the Measuring instruments committee	Overall, industry stakeholders consider that they are adequately represented and included in the procedures. However, there is a concern that it is not possible to follow all relevant working groups in WELMEC and to monitor all documents produced. One company active in WELMEC groups felt that their participation is adequate but their inputs are almost never taken into account.	
Impact on SMEs	CECIP proposed that SMEs that focus on assembling certified equipment/components bought from other manufacturers and have to get additional certificates for the final MI assembled will face additional costs. Furthermore, according to CECIP the additional translation costs under the NFL can be a disproportionate burden for SMEs if authorities require all relevant documentation. The SME survey (based on 43 responses) did not indicate the presence of problems with conformity assessment and no barriers to trade created.	
Parameters/factors affecting implementation		
• Role of standards and guidance documents (incl. role of WELMEC)	CECIP and companies consider that the use of OIML normative documents is adequate as they help keep Europe in line with the rest of the world and help exports. The absence of European standards does not pose any problem There is a problem however – according to CECIP – concerning WELMEC guidelines that are seen as too many and becoming a burden.	

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Issues	Findings	Evidence/data/other info/ examples
• Implementation by notified bodies	According to one company there is significant problem linked to the NBs using WELMEC documents are if they are law while for another the NBs tend to apply conformity assessment modules in an inconsistent way with varying tests.	At least two companies mentioned examples of NBs using
• Market surveillance by authorities	Industry experience that the market surveillance is limited and unsatisfactory as in almost all cases authorities are limited reduced to labels and administrative requirements, seldom to the quality of the instrument. The important problem – as reported by two companies - is that some competitors produce golden samples/prototypes to get the certification and then bring to the market lower quality products with implication for fair competition and customer protection. The SMEs survey also supported the view that market surveillance is problematic. Around 40% referred to the presence of non-CE+M marked products considered presenting unfair competition.	One company reported that in the UK checkweighers that are not MID-certified are in circulation and are around 15% cheaper.
• Transition period	Most companies considered the transition period adequate to allow selling the pre-existing stock.	

MI-007 - Taximeters[64]

Issues	Findings	Evidence/data/other info/ examples
Experience from the implementation of the Directive (overall)	Three of four manufacturers stated that MID has so far offered less than what they hoped for in terms of access to markets and reduction of the administrative work. However, this is primarily linked with the role of national/regional tariff regulations that are not controlled by MID (see below)	
Development of an efficient operating single market	One large and two SMEs manufacturers suggested that a single market is still not in place due to the differences in the national or regional regulations concerning tariffs (not controlled by MID) and tariff structures in many MS. This means different requirements for the software that needs to be integrated in the taximeter and get an MID certificate. This is seen particularly problematic in the UK where over 400 local authorities responsible.	The manufacturer state that in some countries (e.g. UK, Portugal) national or and regional requirements tend to operate as protection for local producers that in some cases have pressed local

[64] Based on interviews with representatives of four manufacturers. (HALE- SME(AU), AQUILA- SME (UK), DIGITAX-Large(UK), SEMEL- SME(FI)

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Issues	Findings	Evidence/data/other info/ examples
	Manufacturers stated that if they want to access more than one market need to integrate all tariff requirements (which are not MID regulated) to the taximeter' software from the beginning (one company saw that as a positive incentive) or get additional certificates for every change made. One company reported that it was essentially not allowed to enter another market due to this protection although another SME did consider that as an issue.	authorities for introducing new requirements.
Technological innovation - supporting/hampering	Neither for most firms MID has created obstacles nor has it played a strong role in supporting innovation. However, one company stated that the use of a single EU certificate was actually a positive incentive for developing a new EU wide type taximeter and another that the requirement of software separation (legal and non-legal part) is positive in the sense that is created an incentive for innovation. In contrast, the main issues/obstacles for the development of new taximeters come from the national tariff regulations. More specifically the requirements concerning taximeter displays or the multiple and different tariff structures were seen as restrictive.	
Optionality - Is it used in the sector - Is there evidence of two-tier market - Is there evidence of unfair competition	Optionality has been used in only two countries (NO, CH) where there is a two tier market reported by manufacturers based on the import of cheap old taximeters from other countries. The CA of Norway did not consider that the benefits to consumers justified the costs of imposing regulation. The focus of authorities is on regulating and checking the tariffs as this is seen as the important issue for consumers.	
Consumer protection due to optionality and any other factor	Consumer protection is , according to industry, sub-optimal as market surveillance in some MS is partial or even non-existent (see below) allowing for all types of non-conforming taximeters produced by local producers with no MID certificate to enter the market. Again, CAs do not consider that consumer protection is linked with the MID requirements concerning taximeters as tariff structures and other issues concerning taxi drivers and consumers are regulated at the national or local level.	
Administrative burdens created/reduced	Companies state that there are greater costs related to the use of some of the modules for conformity assessment. Time required was over a year although expect this to be less in the future.	One company mentioned the certification is 4-5 times more expensive in total in comparison

Measuring Instruments analysis tables

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Issues	Findings	Evidence/data/other info/ examples
	Still, both the large and medium size firms suggested that the advantage derived from the capacity to access more than one market with one certificate outweighs the costs.	with previous period – including longer waiting period and associated costs.
Representation in the Measuring instruments committee	There is no body (association) representing taximeters' manufacturers. Individual manufacturers are in general unable to communicate their concerns and problems. Still, the interviewed companies did not seem to consider it as a particularly important problem	
Impact on SMEs	No specific issues were raised during the interviews while the SME survey indicated that there are no barriers to trade because of the MID. In the UK and some other countries, local manufacturers compete in local markets based on national/regional requirements and absence of market surveillance. At least in the UK, the certification costs are seen as particularly high for SMEs.	A UK company stated £30,000 (€35,000) in total for initial certification following modules B+D and £6,000 (€7,000) for annual review of module D (quality control system).
Parameters/factors affecting implementation		
• Role of standards and guidance documents (incl. role of WELMEC)	According to the interviews there are no agreed standards used (although there are OIML recommendations and respective WELMEC guidance documents). The Latvian CA stated that there are no standards and this is seen as a problem for manufacturers. One company considered that WELMEC docs are helpful	
• Implementation by notified bodies	Manufacturers reported inconsistencies among notified bodies in relation to the interpretation of the essential requirements and the testing methods. One company was afraid that the strict interpretation in Nordic countries is not followed in others. Furthermore, manufacturers report that tests by notified bodies tend to take a very long time (more than 1 year). (experience suggests that private ones are faster but less thorough, public ones are extremely thorough but slow and in some cases indecisive) Another company (SME) suggested that the costs of certification are rather high and create disincentive for introducing frequent changes. However, this was not a common view. Furthermore, one SME reported that the main notified body in France checked for additional issues related to the national regulation and effectively created barrier to enter the specific market.	

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Issues	Findings	Evidence/data/other info/ examples
• Market surveillance by authorities	All companies stated that market surveillance is problematic and that it varies greatly. In the UK and FI it is reported that there is almost no surveillance. The SMEs survey from Portugal and Spain indicated the presence of unmarked taximeters that compete in the domestic market.	One manufacturer suggested that despite continuous requests to the authorities, in essence there is no surveillance of the market in the UK and that taximeters produced by local manufacturers with no certification and no CE marking are circulated in the market[65].
• Transition period	The companies considered that the transition period could be shorter but this did not appear to play a particular positive or negative role.	
Other	Some taximeter producers proposed that MID essential requirements should be extended to cover more tariffs and to be more specific in terms of the types of tariffs allowed in order to address the problems of additional national/regional regulation. In the context of WELMEC working groups the issue of the inclusion of distance signal generators as sub-assemblies has been raised but it is not supported by all CAs. It is also proposed that more detailed specifications of the maximum permissible error for the real time clock of taximeters are necessary.	

MI-008a – Tapes/Dipsticks[66]

Issues	Findings	Evidence/data/other info/examples
Experience from the	The companies interviewed suggested that there have not been any particular changes or	

[65] THe UK CA acknowledge this problem and state that the main reason is the absence of internal expertise, resources and capacity in the Department of Transport. They are intending to address it but could not indicate a timetable.

[66] Based on interview with the representative of manufacturers:ENRAF- Honeywell (FR). Fischer-Darex Outillage (importer from Taiwan to France), Toolvizion International (NL) and comments from European Hand Tools association (CEO).

Measuring Instruments analysis tables

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implementation of the Directive	benefits with the new regime and that it is very much business as usual with only changes in names. Still according to CEO the main and real benefit for its members has been the actual reduction of barriers by the use of a single certificate across EU. Main benefits concerned the quality seal that the CE mark provides while minor issues concern the longer time for the certification process and need for frequent upgrade of certificate for software.	
Development of an efficient operating single market	Two low-tech companies stated did not consider MID was not as important for their products given their focus on the domestic market. However a higher-technology company suggested that it helped enter new EU markets and the CEO stated that all its members considered that the MID did indeed help create a single market that is operating quite effectively.	
Technological innovation - supporting/hampering	Two companies interviewed suggested not real effect of the MID as their products are rather standard and low tech. For the one company producing more advanced technology instruments with software, the main problem is that even small software changes need to be approved. This was seen as time consuming and costly.	
Optionality - Is it used in the sector - Is there evidence of two-tier market - Is there evidence of unfair competition	Optionality was used in 5 countries because they were not regulated before and that there was not perceived need. One manufacturer suggested that they were aware of some small firms that do not have the CE mark and sold at lower prices. Still, they did not see them as competing in the same market– they mainly sell on large scale to hypermarkets.	
Consumer protection due to optionality and any other factor	Manufacturers did not consider that there was major/important issue with these products	
Administrative burdens created/reduced	The companies did not indicate important changes and higher costs in comparison to the pre-MID regime and given their presence in only one market they did not experience significant differences. One company (ENRAF) stated though that certification tends to take a bit – but not critically - longer than in the past.	According to one company costs for the process ranged between €3-5k.
Representation in the Measuring instruments committee	Most companies were not aware of the presence of the working group but did not seem to consider their absence an issue.	
Impact on SMEs	There was no evidence provided from any source that SMEs experienced additional impacts due to the MID. The SME survey indicated that conformity assessment procedures were adequate for over 75% of the firms active in the sector and only 15% of the companies	

Measuring Instruments analysis tables

	referred to presence of barriers to trade.
Parameters/factors affecting implementation	
• Role of standards and guidance documents (incl. role of WELMEC)	The use of OIML standards in the case of high-tech products is seen as adequate and does not create any problems. There is no added value assigned to WELMEC from the manufactures side.
• Implementation by notified bodies	Companies did not indicate changes in comparison to the past and did not refer to any problems.
• Market surveillance by authorities	The companies did not indicate any problems in relation to market surveillance and at least one of them was positive that products without CE+M mark are not allowed in the market, which was considered sufficient. However, the SME survey responses indicated that the presence of non-CE marked length measuring instruments that, according to the majority constituted unfair competition. However ,it is not clear whether reference was made only to MIs used for legal metrology purposes
• Transition period	It was not considered as either too long or too short two companies but useful for a more high-tech company.

MI-008b – Capacity serving measures[67]

Issues	Findings	Evidence/data/other info/examples
Experience from the implementation of the Directive (overall)	The companies suggested that there were no significant differences with the pre-MID situation and that they could not report particular problems or issues from the implementation of the Directive. Perceived quality from the CE-mark was seen as a benefit but otherwise there were not major issues.	
Development of an efficient operating single market	MID introduction is not seen as having played any important role for the companies that have limited exports and where already using quality systems.	
Technological innovation - supporting/hampering	All companies interviewed suggested that there is no role on technological innovation as the industry is low tech.	
Optionality - Is it used in the	Optionality has been used in a number of countries (5) as capacity serving measures were not seen as a problem area that had to be regulated.	

[67] Based on interview with the representative of three manufacturers: Mitchel & Cooper (Multinational), Invicta Plastics (UK), Fischer-Darex-Outilage (import from Taiwan to France) and one trade FEVE (European Glass Containers Association).

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sector (how many MS and why) - Is there evidence of two-tier market - Is there evidence of unfair competition	Two tier markets do exist but CAs did not see that as a problem. Companies did not have experience of problems.
Consumer protection due to optionality and any other factor	No major issues reported in relation to the optionality. One issue stated from one company in the UK is that the under MID plastic glasses that are usually cheaper can still be MID certified despite that fact that they may not be as accurate because they can be bent during the serving.
Administrative burdens created/reduced	Two companies did not consider that there were substantial changes and given that they were focusing on domestic market there were also limited benefits. The third referred to the need for change of the year in the stamping tool as the only marginal increase in the administrative costs. FEVE – based on comments from manufacturers - also reported these costs are relatively important but also mentioned an increase in overall costs for documentation.
Representation in the Measuring instruments committee	Manufacturers were not familiar with the working group and the other representation mechanisms but did not identify particular reasons for being actively engaged.
Impact on SMEs	No specific differences between SMEs and large companies were identified. The small number of firms in the SME survey active in the sector (6) indicated no barriers to trade and no problems with conformity assessment. Two of the 6 stated however the presence of unfair competition.
Parameters/factors affecting implementation	
• Role of standards and guidance documents (incl. role of WELMEC)	No issue reported. The companies suggested that they are easy to meet and not very different from the past.
• Implementation by notified bodies	No issue/problems were reported by any of the interviewees in their relation with the notified bodies.
• Market surveillance by authorities	No issue reported. At least in relation to the UK, companies suggested that surveillance was adequate and non-marked products are not allowed to circulate.
• Transition period	The transition period was considered appropriate although none of the companies suggested any real need of it.

Measuring Instruments analysis tables

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MI-009 – Dimensional measuring instruments[68]

Issues	Findings	Evidence/data/other info/ examples
Experience from the implementation of the Directive	No significant issues/problems were reported by manufacturers that stated limited changes from the previous regime but recognised the positive role of a single certificate. From the negative side, for more complicated/hi-tech MIs that include software there are additional costs as every time there is new version there is need for updating the certificate.	
Development of an efficient operating single market	According to all companies, the implementation of the Directive has helped eliminate some national barriers that existed before. All companies consider the single certificate as supporting entry in other markets and referred to actual benefits in terms of sales.	No specific examples of benefits given
Technological innovation - supporting/hampering	For lower tech products, the Directive has a neutral effect. In the case of more complicated products - especially when there is software involved - there is a problem since they need to go through the certification process when a change is made or new functions are added. This, according to one company, delays innovation cycle. One manufacturer referred also to the case of instruments that combine distance and weight for which they felt they were not covered by the MID and that they needed to separate certification. This was seen as inhibiting their integration into a single measuring instrument	
Optionality - Is it used in the sector - Is there evidence of two-tier market - Is there evidence of unfair competition	Optionality has been widely used (9 countries) as MS did not consider necessary to regulate to ensure consumer protection and enforcement and compliance costs would outweigh any benefits. From the side of the manufacturers it was suggested that either they were not aware of unmarked products competing or they were not concerned by this competition as they were in different market segments.	
Consumer protection due to optionality and any other factor	No issues/experiences reported.	
Administrative burdens created/reduced	All manufacturers suggested that there is more administrative workload, paperwork involved, and that the process of certification tends to take longer. Still, overall they also agreed that the benefits of improved market access outweighed the costs	One company estimated that following an initial investment for equipment

[68] Based on interview with the representative of four manufacturers: Vitronic (DE), Metrie (CZ), Kabelmat (DE), FISCO (UK)

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Issues	Findings	Evidence/data/other info/ examples
		and training of around €11m it would save around €11m annually. Another referred to a total duration of the process of up to 9 months in total, more that in the past.
Representation in the Measuring instruments committee	Firms were unaware of the Committee but did not indicate a need to be represented.	
Impact on SMEs	The interviews did not indicate the presence of specific impacts to SMEs because of the MID. The SME survey results – including 40 firms active in the sector – indicate the presence of limited market surveillance that is seen as causing unfair completion (32% of firms) but, in general, no barriers to trade (around 73% stated) and only one referred to problems with conformity assessment procedures.	
Parameters/factors affecting implementation		
• Role of standards and guidance documents	There are no issues raised by the interviewees in relation to the use of standards. Two low-tech companies were unaware of WELMEC while the more high-tech indicated that WELMEC documents were useful.	
• Implementation by notified bodies	There are no issues or problems reported and the firms suggested that they have overall been very helpful in getting certification without major issues. However, one UK company stated that there is a shortage of verification/testing laboratories and of appropriately skilled labs. This holds back the approval process.	
• Market surveillance by authorities	All companies considered that there were no issues or problems concerning market surveillance.	
• Transition period	Companies suggested that it was appropriate and one of them thought it was necessary to plan production changes.	
Other	One company stated that it is rather costly to put CE in each individual MI as they are usually sold wholesale. Currently CE mark is placed by batch with the wholesaler holding the certificate but they were unclear whether this followed MID requirements.	

Measuring Instruments analysis tables

E

MI-010 – Exhaust gas analyzers[69]

Issues	Findings	Evidence/data/other info/ examples
Experience from the implementation of the Directive	According to EGEA the industry is positive from the implementation of the Directive as it has made much easier, less cost intensive and less bureaucratic the placing of EGAs in the Member States market. In the UK, there is limited experience. The UK garage equipment association with reference to only 6 units approved during the last 4 years. So far, products developed before the entry of the MID into force are sold in the market.	
Development of an efficient operating single market	According to one manufacturer the main barrier to the development of an efficient single market is the fact that inspection centres (the only buyers for EGAs) require buying both EGAs and smoke-meters together. As smoke-meters are not included in the MID and still require national approval the MID has still no effect in this respect. This is supported by EGEA that suggest that the non-coverage	
Technological innovation - supporting/hampering	EGEA considers that the current legislation on test procedures limit innovation for manufacturers According to GEA the Directive did not introduce changes in the essential requirements as it adopted the OIML requirements. The only difference concerned the stricter requirements for the sealing of software against tampering which has not brought important changes. The MID does not cover the process nor the software necessary for EGA but only the measuring instrument itself. Manufacturers thus still need to receive national approval for their instruments.	
Optionality - Is it used in the sector - Is there evidence of two-tier market - Is there evidence of unfair competition	According to EGEA optionality has not been used in the specific sector. However, data from WELMEC indicate three countries (DK, MT and Austria).	
Consumer protection due to	End-users are the MOT centres rather than consumers. They are not affected since	

[69] Based on interview with two trade associations, EGEA (representing gas analyzers manufacturers, the UK Garage Equipment Association - GEA (representing users of gas analyzers) and one manufacturer.

Measuring Instruments analysis tables

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Issues	Findings	Evidence/data/other info/ examples
optionality and any other factor	optionality has not been used in this sector. MID, in combination with Directive 2009/40 EC, has set quality level and standards for gas-testers and raised the quality level in the market.	
Evidence of two-tier market and unfair competition due to optionality and other factors	According to GEA gas analysers for MOTs[70] in the UK have to be certified and approved and represent 80% of the UK market. For the remaining 20% used in garages there are no similar tests but there is no experience as to whether there is unfair competition.	
Administrative burdens created/reduced	According to EGEA while the initial administrative investment has increased, the effort for most companies due the use of single certificate. In the UK, the national association suggests there is additional red tape for analysers to be used at MOTs (80% of the market) as instead of replacing the MID certification added one more step. Additional tests by separate laboratories are still required. From the production side one manufacturer stated that the introduction of Module D and subsequent surveillance audits increased costs but could not assess if the benefit from a single certificate was greater or not.	The UK impact assessment estimates administrative burdens at around £ 5,000 (€6,000) per annum for manufacturers.
Representation of stakeholders in the Measuring instruments committee and WELMEC	The industry has not been represented in the measuring instruments committee or in WELMEC. EGEA expressed willingness to be more actively involved and expressed concern that it has not received such invitation in the past.	
Impact on SMEs	According to EGEA the effect of cutting red tape and reducing administrative burden is important for our companies, who are typically Small and Medium sized Enterprises (SMEs). According to one large manufacturer the burden on small businesses is not proportionately greater than for large businesses after an initial period of familiarisation. The SME survey including 17 firms active in the sector indicated that there are not problems with the conformity assessment (no firm stated problems) and only one referred to the presence of barriers to trade. The majority stated that there are non CE+M marked products in the market – mainly among new Member States – but only 2 thought that they constituted unfair competition.	
• Role of standards and	The use of the OIML normative documents has been in line with the standards used by	

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Measuring Instruments analysis tables

E

Issues	Findings	Evidence/data/other info/ examples
guidance documents	MOTs for approval of analysers and there have been no problems to this point. One manufacturer underlined the usefulness of WELMEC;'s documentation, especially regarding the transmission between instruments and software	
• Implementation by notified bodies	One company in Italy is using PTB for Module B because they have a long experience with it. Module D has been done with NMi Netherlands because they have the Italian branch which avoided a lot of document translation. EGA is a new business and approvals are still relatively recent. There is no experience to compare with from previous experiences.	This company has only entered the EGs market in 2000 nationally and in 2005 in another country.
• Market surveillance by authorities	According to GEA there has been limited market surveillance from the national authorities in the UK concerning gas analysers. However, in the case of MOT testing facilities that represent around 80% of the total market MID certificate is a requirement in addition to other requirements set.	
• Transition period	The transition period does not seem to pose any problems.	
Other	There are questions raised by EGEA, a manufacturer and at least on CA (DE) as to the limited coverage of gas analysers by the MID. According to EGEA It is inconsistent, that the petrol part of an analyzer is covered by the MID, whereas the diesel smoke part is not requiring a separate national certification. This fact has limited the acceptance of the MID, because manufacturers have to get national approvals for the diesel part. Thus a the inclusion of a 'diesel' related requirement is seen as necessary.	

Optionality use by Member States

F

State	AU	BE	BG	CY	CZ	DK	EE	ES	FI	FR	DE	GR	HU	IR	IT	LV	LT	LU	MT	NL	PL	PT	RO	SK	SL	SE	UK	Total EC27	IC	CH	TU	NO	Total EEA
MI-001: Water Meters																																	
Cold Water Meters:									no																								
residential use	1 +	1 =	1 +	1	1 +	1	1 =	1	final	1 +	1 +	1	1 =	1 =	1	1 =	1 =	1 +	1 =	0	1 +	1 =	1 +	1 +	1 +	1 +	1 +	1 +	**1**	1 +	0	1	1	**2**
commercial & light industrial use	1 +	1 =	1 +	1	1 +	1	1 =	1	legal	1 +	1 +	1	1 =	1 =	1	1 =	1 =	1 +	1 =	0	1 +	1 =	1 +	1 +	1 +	1 +	0	0	**3**	1 +	0	1	1	**4**
Warm Water Meters:									regu-																								
residential use	1 +	1 =	1 +	1	1 +	1	1 =	1	lations	1 +	1 +	1	1 =	0	1	1 =	1 =	1 +	0	0	1 +	1 =	1 +	1 +	1 +	1 +	0	0	**4**	1 +	1 +	1	1	**4**
commercial & light industrial use	1 +	1 =	1 +	1	1 +	1	1 =	1	until	1 +	1 +	1	1 =	0	1	1 =	1 =	1 +	0	0	1 +	1 =	1 +	1 +	1 +	1 +	0	0	**5**	1 +	1 +	1	1	**5**
MI-002: Gas Meters & Convers. Dev.									now																								
Gas Meters:																																	
residential, commerc. & light ind. use	1 +	1 +	1 =	0	1 =	1 +	1 +	1		1 +	1 +	1	1 =	1 =	1	1 =	1 =	1 =	1 =	1 +	1 +	1 +	1 =	1 +	1 +	1 +	1 =	**1**	1 +	1 +	1	0	**2**
Volume conversion devices:																																	
residential use	1 +	1	1 =	0	1 =	1 +	1 =	1		1 +	1 +	1	1 =	1 =	1 =	1 =	1 =	1 =	0	1 +	0	1 =	1 +	1 +	1 +	1 +	0	**4**	1 +	1 +	1	0	**5**
commercial & light industrial use	1 +	1	1 =	0	1 =	1 +	1 =	1		1 +	1 +	1	1 =	1 =	1 =	1 =	1 =	1 =	0	1 +	0	1 =	1 +	1 +	1 +	1 +	0	**4**	1 +	1 +	1	0	**5**
MI-003: Active Elektr. Energy Meters																																	
residential	1 +	1 +	1 =	1	1 =	1 +	1 +	1 +		1	1 +	1	1 =	1 =	1	1 =	1 =	1 =	0	1 +	1 =	1 =	1 +	1 +	1 +	1 +	1 =	**1**	1 +	1 =	1	1 =	**1**
commerc. & light ind. use	1 +	1 +	1 =	1	1 =	1 +	1 =	1 +		1	1 +	1	1 =	1 =	1	1 =	1 =	1 =	0	1 +	1 =	1 =	1 +	1 +	1 +	1 +	1 =	**1**	1 +		1	1 +	**1**
MI-004: Heat Meters																																	
residential use	1 +	1	1 =	0	1 =	1 +	1 =	1		1 +	1 +	1	1 =	0	1	1 +	1 =	1 =	0	0	1 =	1	1 +	1 +	1 +	1 +	0	0	**5**	1 +	1 +	n.i.	1	**5**
commercial & light industry use	1 +	1	1 =	0	1 =	1 +	1 =	1		1 +	1 +	1	1 =	0	1	1 +	1 =	1 =	0	0	1 =	1	1 +	1 +	1 +	1 +	0	0	**6**	1 +	1 +	n.i.	1	**6**
MI-005: Measuring Systems for Liquids																																	
Fuel dispensers:																																	
Liquids	1 +	1 =	1 =	1	1 =	1 +	1 =	1 =		1 =	1 =	1	1 =	1 +	1 =	1 =	1 =	1 =	0	1 =	1 =	1 =	1 =	1 +	1 +	1 +	1 +	**1**	1 +	1 +	1	1 =	**1**
Liquefied gases	1 =	1 =	1 =	1	1 =	1 +	1 =	1		1 =	1 =	1	1 =	0	1 =	1 =	1 =	1 =	0	1 =	1 =	1 =	1 =	1 +	1 +	1 +	1 =	0	**3**	1 +	1 +	1	1 =	**3**
Systems on (un)loading ships:	1 +	1 =	1 =	1	1 =	1 +	1 =	1		1 =	1 =	1	1 =	0	1	1 =	1 =	1 =	0	1 =	1 =	1 =	1 =	1 +	1 +	1 +	0	0	**4**	1 +	1 +	1	1 =	**4**
Systems on (un)loading rail:	1 +	1 =	1 =	1	1 =	1 +	1 =	1		1 =	1 =	1	1 =	0	1	1 =	1 =	1 =	0	1 =	1 =	1 =	1 =	1 +	1 +	1 +	0	0	**4**	1 +	1 +	1	1 =	**4**
Systems on (un)loading road tankers:	1 +	1 =	1 =	1	1 =	1 +	1 =	1 =		1 =	1 =	1	1 =	1 =	1	1 =	1 =	1 =	0	1 =	1 =	1 =	1 =	1 +	1 +	1 +	0	1 =	**2**	1 +	1 +	1	1 =	**2**
Systems for refuelling aircraft:	1 +	1 =	1 =	1	1 =	1 +	1 =	1		1 =	1 =	1	1 =	0	1	1 =	1 =	1 =	0	1 =	1 =	1 =	1 =	1 +	1 +	1 +	0	0	**4**	1 +	1 +	1	1 =	**4**
Systems for cryogenic liquids:	1 =	1 =	1 =	1	1 =	1 +	0	1		1 =	1 =	1	1 =	0	1	1 =	1 =	1 =	0	1 =	1 =	1 =	1	1 +	1 +	1 +	0	0	**5**	1 +	1 +	1	1 =	**5**
Systems for milk:	1 +	1 =	1 =	1	1 =	1 +	1 =	1		1 =	1 =	1	1 =	1 =	1 =	1 =	1 =	1 =	0	1 =	1 =	1 =	1 =	1 +	1 +	1 +	0	0	**3**	1 +	1 +	1	1 +	**3**
Systems for liquids:	1 +	1 =	1 =	1	1 =	1 +	1 =	1		1 =	1 =	1	1 =	0	1 =	1 =	1 =	1 =	0	1 =	1 =	1 =	1 =	1 +	1 +	1 +	0	0	**4**	1 +	1 +	1	1 =	**4**
Systems for liquefied gases:	1 =	1 =	1 =	1	1 =	1 +	1 =	1		1 =	1 =	1	1 =	0	1 =	1 =	1 =	1 =	0	1 =	1 =	1 =	1	1 +	1 +	1 +	0	0	**4**	1 +	1 +	1	1 =	**4**
MI-006: Automatic Weighing Instr.																																	
Automatic catchweighers:																																	
Automatic checkweighers:	1 +	1 +	1 =	1	1 =	1 +	1 =	1		1 +	1 +	1	1 =	1 +	1	1 +	1 =	1 =	1 +	1 =	1 +	1 +	1 +	1 +	1 +	1 =	0		**1**	1 +	1 +	1	1 +	**1**
Weight labellers:	1 +	1 +	1 =	1	1 =	1 +	1 =	1		1 +	1 +	1	1 =	1 +	1 =	1 +	1 =	1 +	1 =	1 +	1 +	1 +	1 +	1 +	1 =	1 +		**0**	1 +	1 +	1 +	1 +	**1**
Weight/price labellers:	1 +	1 +	1 =	1	1 =	1 +	1 =	1		1 +	1 +	1	1 =	1 +	1 =	1 +	1 =	1 +	1 =	1 +	1 +	1 +		1 +	1 +	1 =	1 +		**0**	1 +	1 +	1 +	1 +	**1**
Automatic gravim. filling instruments:	1 +	1 +	1 =	1	1 =	1 +	1 =	1		1 +	1 +	1	1 =	1 +	1 =	1 +	1 =	1 +	1 =	1 +	1 +	1 +	1 +	1 +	1 +	1 =	1 +		**0**	1 +	0	1	1 +	**2**
Discontinuous totalisers:	1 +	1 +	1 =	1	1 =	1 +	1 =	1		1 +	1 +	1	1 =	1 +	1 =	1 +	1 =	1 +	1 =	1 +	1 +	1 =	1	1 +	1 +	1 =	1 +	1 +	**0**	1 +	1 +	1 +	1	1 +	**1**
Continuous totalisers:	1 +	1 +	1 =	1	1 =	1 +	1 =	1		1 +	1 +	1	1 =	1 +	1 =	1 +	1 =	1 +	1 =	1 +	1 +	1 =	1 +	1 +	1 +	1 =	1 +	1 =	**0**	1 +		+	1	1 +	**1**
Rail-weighbridges:	1 +	1 +	1 =	0	1 =	1 +	1 =	1		1 +	1 +	1	1 =	0	1	1 +	1 =	1 +	0	1 +	1 +	1 =	1	1 +	1 +	0	1 +	1 +	**4**	1 +		+	1	1 +	**4**
MI-007: Taximeters	1 +	1 +	1 +	1	1 +	1	1 =	1 +		1 +	1 +	1	1 =	1 =	1	1 +	1 =	1 =	1 =	1 +	1 +	1 =	1 +	1 +	1 +	1 =	1 =	**0**	1 +	0		0	**3**
MI-008: Material Measures																																	
Material measure of length:	1 +	1	1 +	0	1 =	0	1 =	1		1	1 +	1	1 =	1 +	1	1 +	1 =	1 =	1 =	0	0	1 +	1 +	1 +	1 +	1 +	0	1 +	**5**	1 +	1	1 =	1	1 =	**5**
Capacity serving measures:																																	
Serving measures:	1 =	1	1	1	1	0	1 =	1		0	1 +	1	1 =	1 =	1	1 =	1 =	1 =	1 =	0	0	1	1 +	1 +	1 +	1 =	0	1 =	**5**	1 +	1	1	0	**6**
Transfer measures:	1 =	1	1	1	1	0	1 =	1		1	1 +	1	1 =	1 =	1	1 =	1 =	1 =	1 =	0	0	1	1 +	1 +	1 +	1 =	0	1 =	**4**	1 +	1	1	0	**5**
MI-009:Dimensional Measuring Instr.																																	
Length measuring instruments:	1 +	1	0	0	1 =	0	1 =	1		0	1 +	1	1 =	1 +	1	1 +	1 =	1 =	0	0	0	1 =	1 +	1 +	1 +	1 +	0	0	**9**	1 +	1	1 =	1	1 =	**9**
Area measuring instruments:	1 +	1	0	0	1 =	0	1 =	1		1 =	1 +	1	1 =	1 +	1	1 +	1 =	1 =	0	0	1 =	1 =	1 +	1 +	0	0	0	0	**8**	1 +	1 =	1	0	**9**
Multi-dimensional measuring instr.:	1 +	1	0	0	1 =	1 +	1 =	1		1	1 +	1	1 =	1 +	1	1 =	1 =	1 =	0	1 =	0	1	1 +	1 +	0	0	0	0	**7**	1 +	1 =	1	1 =	**7**
MI-010: Exhaust Gas Analysers	0	1	1 =	1	1 =	0	1 =	1 =		1 +	1 +	1	1 =	1 =	1	1 =	1 =	1 =	0	1 =	1 =	1 =	1 =	1 +	1 +	1 =	1	1 +	**3**	1 +	1 =	n.i.	1	**3**
Total Mis with no regulation	**1**	**0**	**3**	**10**	**0**	**6**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**23**	**11**	**7**	**0**	**0**	**0**	**2**	**18**	**19**		**0**	**4**	**0**	**7**	

States with legal regulations for putting into use of measuring instruments, covered by the MID (16.09.2009)

1 = regulated, 0 = not regulated, allowed errors in service are equal (=) MPE of MID or larger (+)