CEN/BTWG 185 "eAccessibility"

CENELEC/BTWG 101-5 "Usability and safety of electrical products with reference to people with special needs"

The Final draft Report of the CEN/BT WG 185 & CLC/BT WG 101-5 Project Team on European accessibility requirements for public procurement of products and services in the ICT domain (European Commission Mandate M 376, Phase 1) is now available for a two month period of public comments. It can be downloaded from http://www.econformance.eu/euconformancereport.html

Any stakeholder is welcome to **send comments, contributions and questions to the project team** assigned to provide the analysis, by using the template for comments available at the website and to the e-mail address m376conformance@econformance.eu **by 2008-07-22 at the latest**.

CEN/BT WG 185 & CLC/BT WG 101-5

Project Team Final Draft Report

"Conformity assessment systems and schemes for accessibility requirements"

European accessibility requirements for public procurement of products and services in the ICT domain (European Commission Mandate M 376, Phase 1)

This document will be presented and discussed, in detail, together with the other deliverable and Phase II work plans, at an Open Meeting that will take place in Brussels, on June 3-4, 2008. Further details including the agenda, registration information and a channel for the submission of questions is available through http://www.ictsb.org/datscg_registration.htm.

Please feel free to forward this information to anyone you believe would be interested in knowing about the work and wishing to influence its outcome.

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CEN/BT WG 185 & CLC/BT WG 101-5
Project Team final draft report

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Introduction

Today it's getting clearer that accessibility is not just a new concept, a matter of solidarity or an unknown strange term. Accessibility, design for all and their related issues, have become more as rights than ever in the modern society. Every citizen should have the right to access the different services that their respective countries, through the correspondent bodies, are providing them.

The information and communication technology (ICT) sector plays a major role in these concepts because it is getting more important due to the big development of the communication technologies. The risk of excluding groups of users – in their roles as citizens and employees – on the understanding, the use and the access to the ICT based services is obvious, and that is why the different states are taking actions to get the more number of their citizens as possible involved in the use of the new ICT elements that the technology offers to a better quality of life. In addition, the accessibility of ICT is even more relevant for the employment of people with disabilities, as a major means of promoting social integration.

The Commission issued in December 2005 a mandate M/376 [EC, 2005b] to CEN, CENELEC and ETSI with the main objective

- To harmonise and facilitate the public procurement of accessible ICT products and services by identifying a set of functional European accessibility requirements for public procurement of products and services in the ICT domain, and
- To provide a mechanism through which the public procurers have access to an electronic toolkit, enabling them to make use of these harmonised requirements in the procurement process.

The mandate shall be carried out in two phases:

- Phase I – Inventory of European and international accessibility requirements and assessment of suitable testing and conformity schemes
- Phase II – Standardisation activities.

The reader is referred to the mandate text for further information on the rationale for and organisation of the work, time schedule, etc.

This Final Draft Report is produced by the project team assigned to carry out "an analysis of testing and conformity schemes of products and services meeting accessibility requirements", according to its terms of reference in response to Phase I of the mandate.

The scope of this Final Draft Report is to fulfil Task 9 of the Terms of Reference, i.e. to produce a "final draft based on feed-back of the BT/WGs and ETSI/TC HF".

The project team has decided to use the term "conformity assessment scheme" instead of "testing and conformity scheme" to comply with the terminology standard EN ISO/IEC 17000:2004 [ISO, 2004]. "Testing" is one of a set of assessment types defined in the standard; hence, "conformity assessment scheme" covers testing.

The project team has also decided to use the term "product" as defined in ISO 9000:2005 [ISO, 2005] (and also in EN ISO/IEC 17000:2004). The above international standard refers to four categories of products: service, software, hardware and processed material. Thus, in this report, the term "product" includes services.

In its interpretation of the words “of this nature”, the project team, encouraged by the Steering Committee, has taken the position of not restricting the analysis to accessibility schemes only. The team members have brought into the project working knowledge of conformity assessment schemes for other domains which may serve as models for accessibility schemes.

One of the tasks contracted by the project team is to maintain a public register of stakeholder issues. The purpose of the register is to provide a transparent qualitative view of the stakeholder commitment to the project team and project team performance in dealing with stakeholder issues. This task has been accomplished by setting up a website to publish comments and questions regarding the project team’s work and the project team’s responses. The following text was published on this website:

> “Any stakeholder is welcome to send comments, contributions and questions to the project team assigned to provide the analysis, by using the e-mail address m376conformance@econformance.eu. The project team will consider the submitted issue and decide how to deal with it. The response on how the issue will be dealt with, and the resulting impact on the output delivered from the team, will be published on this webpage together with the source and date of the issue. The webpage will be reviewed regularly by the BT WG who will be the final arbiter of any conflicts about the resolution of an issue or its entry into the register.”

The site’s address is: http://econformance.eu

The project members are:

- Loïc Martínez-Normand, Technical University of Madrid, Computer Science School, Madrid, Spain
- Clas Thorén, Swedish Administrative Development Agency, Stockholm, Sweden, project leader
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- Klaus-Peter Wegge, Siemens Accessibility Competence Center, Paderborn, Germany

An additional expert has joined the Project Team from March to May:

- Stephan Corvers, Corvers Procurement Services BV, ‘s Hertogenbosch, Netherlands

Another complementary report is being produced by ETSI STF 333, where STF means “specialist task force”. This second report is focused on functional accessibility requirements, standards, and current state of public procurement of accessible ICT [ETSI, 2008]. More information about this work can be found at the STF 333 webpage: http://portal.etsi.org/stfs/STF_HomePages/STF333/STF333.asp

1 Scope

The scope of this report has been defined in the Mandate M/376 as follows:

- The ESOs will prepare a report that will present an analysis on testing and conformity schemes of products and services meeting accessibility requirements. The analysis shall refer to existing schemes of this nature at European and international level. The analysis shall consider the full range of possible solutions, including supplier self-declaration, certification/ accreditation of suppliers, and third party certification schemes.
- The analysis shall also address existing or propose requirements for suppliers' technical capacities and abilities in the accessibility domain, which can be used for the selection of suppliers or in support of the conformity process.

For the concept of accessibility, the key stakeholder group is the users. For conformity assessment of accessibility within the framework of public procurement, which is the context of this report, there are two other major stakeholders: public procurers and suppliers.

2 Definitions and abbreviations

For the purposes of this document, the following terms and definitions apply.

2.1 accessible design

design focussed on principles of extending standard design to people with some type of performance limitation to maximize the number of potential customers who can readily use a product, building or service which may be achieved by

- designing products, services and environments that are readily usable by most users without any modification,
- by making products or services adaptable to different users (adapting user interfaces), and
- by having standardized interfaces to be compatible with special products for persons with disabilities

(ISO/IEC Guide 71 = CEN/CENELEC Guide 6)

NOTE: Terms such as design for all, barrier-free design, inclusive design and transgenerational design are used similarly but in different contexts.

NOTE: Accessible design is a subset of universal design where products and environments are usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.

2.2 assistive technology

piece of equipment, product system, hardware, software or service that is used to increase, maintain or improve functional capabilities of individuals with disabilities

(ISO/IEC Guide 71 = CEN/CENELEC Guide 6)

NOTE 1: This can be acquired commercially off-the-shelf, modified or customized. The term includes technical aids for persons with disabilities. Assistive devices do not eliminate an impairment but may lessen the difficulty an individual has in carrying out a task or activity in specific environments."

NOTE 2: The new terminology used in ISO 9999:2007 is “support technologies”. The PT has decided to keep using “assistive technology” as it is the term used in the referenced documents.

2.3 attestation

issue of a statement, based on a decision following the review that fulfilment of specified requirements has been demonstrated

(EN ISO/IEC 17000:2004)

2.4 conformity assessment

demonstration that specified requirements relating to a product, process, system, person or body are fulfilled

(EN ISO/IEC 17000:2004)

2.5 conformity assessment scheme

conformity assessment system related to specified objects of conformity assessment, to which the same specified requirements, specific rules and procedures apply

(EN ISO/IEC 17000:2004)

2.6 conformity assessment system

rules, procedures and management for carrying out conformity assessment

(EN ISO/IEC 17000:2004).

2.7 contracting authority

the state, regional or local authorities, bodies governed by public law, associations formed by one or several of such authorities or one or several of such bodies governed by public law

(Directive 2004/18/EC Article 1)

2.8 customer

person, company, or other entity which buys goods and services produced by another person, company, or other entity

(Source: Project Team)

2.9 product

result of a process

(ISO 9000:2005)

NOTE: Four generic product categories are noted in ISO 9000:2005: services (e.g. transport); software (e.g. computer program, dictionary); hardware (e.g. mechanical part); processed materials (e.g. lubricant). Many products comprise elements belonging to different generic product categories. Whether the product is then called service, software, hardware or processed material depends on the dominant element

2.10 public procurement

process starting with a decision by a contracting authority to acquire a product from an external supplier, ending with the signing of contract with the awarded supplier

(Source: Project Team)

2.11 user

person who interacts with the product, service or environment

(ISO/IEC Guide 71 = CEN/CENELEC Guide 6)

NOTE: Users may be customers, but often they are using products, services or environment purchased, provided or offered by customers. Employees are users using products and environments provided by their employer.

3 Approach and methodology

The approach taken by the project team consisted of the following seven steps:

1. Search for existing conformity assessment schemes in the field of accessibility of ICT products. The result of this step was described in the interim technical report, which was finished in March, 2008. The method used to identify schemes was twofold:
    a. On the one hand, we searched the web for accessibility schemes using keywords such as "certification", "declaration", “conformity assessment" in combination with "accessibility".
    b. On the other hand, we invited stakeholders to provide inputs on this matter.
2. Search for systems or schemes in other domains that could be applicable to the accessibility of ICT products. The result of this step was described in the interim technical report, which was finished in March, 2008.
3. Define a model to analyse the different properties of one conformity assessment system or scheme. These properties of the systems or schemes are called “dimensions” in this report. The result of this step is described in clause 5. The definition of this model is based on the study of the standards related to conformity assessments, which was first presented in the interim technical report and is also described in clause 4 of this pre final draft report.
4. Apply this model to describe the conformity assessment systems and schemes that have been found in steps 1 and 2. This step is described in clause 6.
5. Define a model to analyse the properties of one public procurement context. These properties are called “criteria” in this report, because they influence the type of conformity assessment scheme that best fits each situation. The criteria are described in clause 8. The definition of this model is based on the study of the current framework of public procurement in the European context. This study was first presented in the interim technical report and is also described in clause 7 of this pre final report.
6. Apply this model of public procurement analysis to describe a small set of scenarios. The influence of the criteria of the public procurement context on the dimensions of conformity assessment schemes will only be detailed in these scenarios (see clause 9) and not in a general way.
7. Finally, analyse existing models for stating the ability and capacity of suppliers, presented in clause 10. This is a fundamental issue to deal with when the public procurement is for products (including services) to be developed. In this case, the procurers need some tools to identify the suppliers with demonstrated capacity to develop accessible solutions.

During the process, the project team has produced (and will produce) several reports, in different stages of completion:

- December, 2007. An initial report is produced, with the initial results of the analysis of existing conformity schemes. This report was sent to the CEN/CENELEC BT/WGs and to ETSI TC HF, the bodies responsible of the

implementation of mandate M/376. The initial report described the results of steps 1 and 2 of the above approach, with the addition of general information about conformity assessment and public procurement, as described in steps 3 and 5.

- March, 2008. An interim technical report is produced, based on the initial report and on the comments received from the members of the CEN/CENELEC BT/WGs. This interim technical report has been sent to the relevant bodies and has also being made publicly available in the website of the project team.
- April, 2008. A pre final draft report is produced. It is the first version of the full report, with content related to all the steps of the above approach. This pre final report is sent to the relevant bodies for comment.
- May, 2008. A final draft report is produced (this document), taking into account the comments received from the members of the relevant bodies. This final draft report will be available for a public comment process via the website of the project team and with an open meeting to be held in June, 3rd and 4th in Brussels.
- September, 2008. A final report will be produced, taking into account the comments received from the members of the relevant bodies and, in addition, the comments received during the public period. This final report will be presented to the relevant bodies for a cross-approval process.

4 Conformity assessments

4.1 Standards

Conformity assessment generally is defined in a set of standards:

EN ISO/IEC 17000:2004, *Conformity assessment - Vocabulary and general principles* [ISO, 2004] specifies general terms and definitions relating to conformity assessment, including accreditation of conformity assessment bodies. It also describes, in an informative annex, a functional approach to conformity assessment to give a better understanding of the matter.

EN ISO/IEC 17020:1998, *General criteria for the operation of various types of bodies performing inspection* [ISO, 1998] specifies general criteria for the competence of impartial bodies performing inspection irrespective of the sector involved. It also specifies independence criteria.

EN ISO/IEC 17021:2006, *Conformity assessment -- Requirements for bodies providing audit and certification of management systems* [ISO, 2006] contains principles and requirements for the competence, consistency and impartiality of audit and certification of management systems of all types (e.g. quality management systems or environmental management systems) and for bodies providing these activities. Certification bodies operating to this international standard need not offer all types of management system certification.

EN ISO/IEC 17024:2003, *Conformity assessment -- General requirements for bodies operating certification of persons* [ISO, 2003] specifies requirements for a body certifying persons against specific requirements, including the development and maintenance of a certification scheme for personnel.

EN ISO/IEC 17025:2005, *General requirements for the competence of testing and calibration laboratories* [ISO, 2005b] specifies the general requirements for the competence of carrying out tests and/or calibrations, including sampling. It is applicable to all organizations performing tests and/or calibrations. These include, for example, first, second and third party laboratories, and laboratories where testing and/or calibration forms part of inspection and product certification.

EN ISO/IEC 17050-1:2004, *Conformity assessment - Supplier's declaration of conformity - Part 1: General requirements* [ISO, 2004b] specifies general requirements for a supplier's declaration of conformity in cases where it is desirable, or necessary, that conformity of an object to the specified requirements be attested, irrespective of the sector involved. For the purposes of this standard, the object of a declaration of conformity can be a product, process, management system, person or body.

EN ISO/IEC 17050-2:2004, *Conformity assessment - Supplier's declaration of conformity - Part 2: Supporting documentation* [ISO, 2004c] specifies general requirements for supporting documentation to substantiate a supplier's declaration of conformity, as described in ISO/IEC 17050-1.

EN 45011:1998, *General requirements for bodies operating product certification systems* [CEN, 1998] (ISO/IEC Guide 65:1996 [ISO, 1996]) specifies general requirements that a third party operating a product certification system shall have to meet if it is to be recognized as competent and reliable.

There are other international and European standards covering conformity assessment of specific issues, e.g. environmental management systems and information security.

For conformity assessment within the framework of the New Approach directive, the reader is referred, for example, to the Guide to the implementation of directives based on the New Approach and the Global Approach [EC, 2000].

4.2 Definition of Conformity assessment

For the purpose of this project, the terminology of the standards listed in clause 4.1 will be used. It is, however, recognized that some of the terms are used in everyday language in a broader sense and with a wider range of meanings. It is also assumed that Member States may implement conformity assessment standards in different ways.

4.2.1 Conformity assessment

The standard EN ISO/IEC 17000 defines conformity assessment as “a demonstration that specified requirements relating to a product, process, system, person or body are fulfilled”.

The expression “object of conformity assessment” or “object” is used throughout EN ISO/IEC 17000 to encompass any particular material, product (including service), installation, process, system, person or body to which conformity assessment is applied. In the context of this report an object of conformity assessment is typically a product.

Typically conformity assessment involves:

- A set of specified requirements
- A procedure for assessing the conformity of a product against the requirements
- A statement that fulfilment of the requirements has been demonstrated.

A conformity assessment system is a set of “rules, procedures and management for carrying out conformity assessment”. A conformity assessment scheme is a “conformity assessment system related to specified objects to which the same specified requirements, rules and procedures apply”. This means that a conformity assessment scheme is the application of a conformity assessment system to a specific situation in which the type of objects (products) and the requirements are always the same. For instance, an example of a conformity assessment system would be third party attestation (certification), whereas its application to web content, based on the web content accessibility guidelines, would be a conformity assessment scheme.

4.2.2 Functional model of conformity assessment

EN ISO/IEC 17000 uses a functional model to illustrate how conformity assessment systems may be set up. It is comprised of four functions: selection, determination, review and attestation, and surveillance (figure 1). Below is a short description of the four functions, based on the content of EN ISO/IEC 17000.

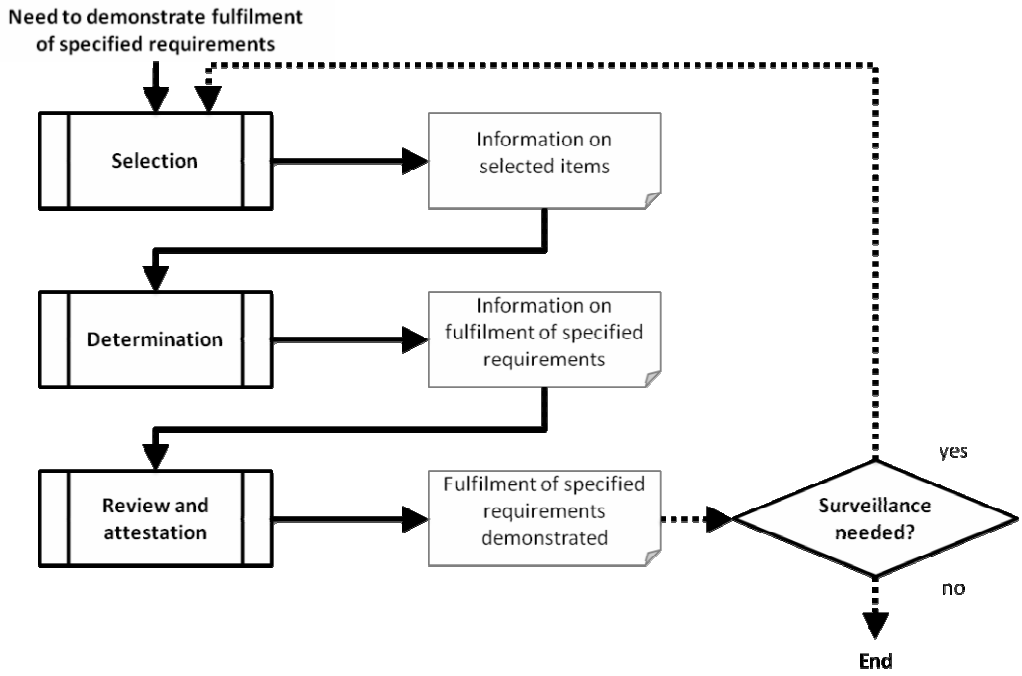

Figure 1. The functional model of conformity assessment (EN ISO/IEC 170000:2004)

The first function is *selection*, and it involves planning and preparation activities in order to collect or produce all the information and input needed for the subsequent determination function. This includes selection of the object of conformity assessment (sampling may be necessary to select a part of the entire object that is representative of the whole), consideration of the specified requirements and choice of the most appropriate procedures to be used for determination activities. In figure 1, all the information, samples (if sampling is used), decisions and other output from the selection function is represented as “information on selected items”.

The second function is *determination*, which includes the activities that are undertaken to develop complete information regarding fulfilment of the specified requirements by the object of conformity assessment or its sample. Some examples of determination activities are testing, inspection, audit and peer assessment. In figure 1, all the output from the determination function is represented as “information on fulfilment of specified requirements”. The output is a combination of all the information created through determination activity, as well as all the input to the determination function. The output is usually structured to facilitate review and attestation activities.

The third function is *review and attestation*. Review constitutes the final stage of checking before taking the important decision as to whether or not the object of conformity assessment has been reliably demonstrated to fulfil the specified requirements. Attestation is the conformity statement, usually presented in a form that most readily reaches all of the potential users. In figure 1, all the output from the review and attestation function is represented as “fulfilment of specified requirements demonstrated”.

The fourth function is *surveillance*. Conformity assessment can end when attestation is performed. However, in some cases systematic iteration of the assessment functions may be needed to maintain the validity of the statement resulting from attestation. The needs of users drive such activities. For example, an object of conformity assessment may change over time, which could affect its continuing fulfilment of specified requirements. The activities undertaken in surveillance are planned in order to satisfy

the need to maintain the validity of an existing statement resulting from attestation. A complete repeat of the initial assessment is usually not necessary in every iteration of surveillance to satisfy this need. Thus, the activities in each function in figure 1 during surveillance may be reduced, or different from, the activities undertaken in the initial assessment.

4.2.3 Selection: requirements

A specified requirement is defined in EN ISO/IEC 17000 as a "need or expectation that is stated". Specified requirements may be stated in normative documents such as regulations, standards and technical specifications.

Several normative documents exist for ICT product accessibility, stating various accessibility requirements: formal standards, informal standards, guidelines, informative documents. Some are national, some are international. Well-known examples are WCAG 1.0 for websites, the upcoming EN ISO 9241-171 [ISO, 2007] for software, and the so-called section 508 standards for electronic and information technology. A detailed description of these accessibility requirements for ICT is presented in the complementary ETSI report, ETSI TR 102 612 [ETSI, 2008].

4.2.4 Determination: assessments

The determination or assessment can be carried out in many ways. ISO/IEC 17000 defines two types of activities aimed at developing full information regarding the fulfilment of the specified requirements by the object concerned: testing and inspection.

Testing is defined as "determination of one or more characteristics of an object of conformity assessment, according to a procedure". The requirements given in EN ISO/IEC 17025 are applicable to testing laboratories. When testing laboratories have (or need) to demonstrate their competence to conduct specific tests and choose a third party accreditation body, the requirements of EN ISO/IEC 17025 apply.

Inspection is defined as the "examination of a product design, product, process or installation and determination of its conformity to specific requirements or, on the basis of professional judgement, general requirements". The requirements given in EN ISO/IEC 17020 are applicable to inspection bodies. When inspection bodies have (or need) to demonstrate their competence to conduct inspections and choose a third party accreditation body, the requirements of EN ISO/IEC 17020 apply.

The definitions of inspection, testing and product certification overlap where these activities have common characteristics. However, an important difference is that many types of inspection involve professional judgement to determine acceptability against general requirements.

It should be noted that an inherent element in the concepts of declaration, inspection and certification is that the requesting procurer is expected to trust the attestation; if not, he should not request it. This implies that the procurer should not state any requirements on how the determination that a product conforms to accessibility requirements shall be carried out. For suppliers' declaration of conformity, this is up to the supplier. For inspections and certifications, this is up to the inspection body and the certification body.

One or more of the many existing methods for accessibility evaluation can be used to assess the design and development of accessibility features in ICT products. These methods, aimed at providing feedback to a design team during product development and

design, are called formative methods. Such methods are used to detect accessibility problems or improve accessibility. Formative methods can, of course, be applied by the manufacturer during the development phase in order to ensure that the specified requirements will be met.

To assess ICT product conformity to accessibility requirements, other methods, called summative methods, are designed to determine if a product meets a set of specified requirements. A summative method should be used for a product pass or fail assessment, which is typically the objective of a conformity assessment of a product placed onto the market.

The assessment process may be done via automatic, expert and user testing. The different types of evaluation methods have a number of strengths and weaknesses. Tools may support the assessment process. Examples of tools for the web can be found at [W3C, 2006].

Automatic evaluation can only test for conformity to the requirements that are fully automatable. In most cases, coverage of automatic conformity assessment as an overall indicator of accessibility is mostly low but may be applied efficiently to test very large numbers of resources. Some tools can also act as support systems in an expert conformity assessment process. The tools provide reliable results for a subset of tests and can not only speed up the process by performing some tasks automatically, but also, by providing hints about barrier locations, indicate areas the expert evaluators should focus on. User testing is able to identify barriers that are not caught by other testing means. However, user testing is quite specialised. [WAB Cluster, 2007] states that "The best approach to conformity assessment is to use a combined approach encompassing all evaluation methods: automatic, expert evaluation and user testing".

These assessments may be performed by different parties, as described in the following.

4.2.4.1 First party assessment

A first party assessment is a done by a supplier or manufacturer to assess the fulfilment of specific requirements. The assessment is made by the supplier or manufacturer.

4.2.4.2 Second party assessment

A second party assessment is done by a second party, usually the buyer or user of the product. Mostly, this term applies to a company controlling its subcontractors.

4.2.4.3 Third party assessment

ISO/IEC 17000 defines "third party conformity assessment activity" as "performed by a person or body that is independent of the person or organization that provides the object and of user interests in that object". The key concept of a third party assessment in the standards is "independent". Relevant standards are EN 45011 specifying general requirements for bodies operating product certification systems and ISO/IEC 17020 specifying general criteria for bodies performing inspection. The difference between inspection and certification is explained in clause 4.2.5.5.

4.2.4.4 Assessment by accredited bodies

A conformity assessment body of any type (first, second and third) can apply for accreditation. Accreditation is the procedure by which an authoritative body gives formal recognition that a body or person is competent to carry out a specific conformity assessment. Conformity assessment bodies seek accreditation when they need an independent third party to assess and declare their competence. However,

conformityassessment bodies may comply with the relevent requirements without the benefit of accreditation. Requirements on bodies to become accredited are stated in the relevant standards EN ISO/IEC 17020, EN ISO/IEC 17025 and EN 45011. These requirements are very detailed and concern organisation, competence, independence, impartiality and general principles for how to carry out conformity assessments.

4.2.5 Review and attestation: statements

After an assessment is finished, a review shall be carried out to check that all the activities involved are suitable, adequate and effective. EN ISO/IEC 17050 recommends and EN 45011 obliges (clause 4.2(f)) the review to be carried out by person(s) other than those who made the determination. Based on a decision following the review, a statement of assurance can be issued that fulfilment of the specified requirements has been demonstrated. In EN ISO/IEC 17000 this issued statement is called an attestation.

The attestation can be made by the supplier. In the context of conformity assessments, the stakeholder that places the product onto the market is called the first party. Therefore, this is a first party attestation, also called declaration. A customer or user, the second party, can also issue an attestation. When an attesting person or organisation is independent of both the supplier and the customer, this person or organisation is referred to as a third party.

These attestations are described in the following.

4.2.5.1 First party attestation

A first party attestation is a statement issued by a supplier or manufacturer, based on a decision following review, that fulfilment of specific requirements has been demonstrated. The decision and the review are made by the supplier or manufacturer. The supplier may refer to assessments, if any, made by other first, second or third parties, but the supplier is entirely responsible for the attestation.

4.2.5.2 Supplier's declaration of conformity

A supplier's declaration of conformity is a first party attestation that may be compliant with the standard EN ISO/IEC 17050. Part 1 of EN ISO/IEC 17050 contains general requirements. Part 2 specifies supporting documentation, i.e. information on how the attestation is carried out. Anyone should be able to repeat the attestation and arrive at the same result using this information.

4.2.5.3 Second party declaration

A second party declaration is an attestation of conformity issued by a second party, usually the buyer or user of the product. Mostly, this term applies to a company controlling its subcontractors or a large buyer or government agency carrying out the assessment itself.

4.2.5.4 Third party declaration

EN ISO/IEC 17000 defines certification as "third party attestation related to products, processes, systems or persons". A keyword here is "independent". The standard defines "third party conformity assessment activity" as "performed by a person or body that is independent of the person or organization that provides the object and of user interests in that object". Relevant standards include EN 45011 for certification and ISO/IEC17020 for inspection. The difference between both is explained in clause 4.2.5.5.

4.2.5.4.1 Certification

The standard EN 45011 specifies general requirements for bodies operating product certification systems. Paragraph 4 (o) of EN 45011 states that a certification body shall not supply or design products of the type it certifies, and not give advice or provide consultancy services to the applicant (the party applying for a certificate) as to methods of dealing with matters. These practices are contrary to the requirements of independence and would be barriers to obtaining certification.

A commonly used term is "third party certification". According to EN ISO/IEC 17000 this is a tautology since certification is, by definition, a third party activity. Both terms will be used in this report.

4.2.5.4.2 Inspection

The standard ISO/IEC 17020 specifies general criteria for the operation of various types of bodies performing inspection. The standard specifies general criteria for the competence of impartial bodies performing inspection irrespective of the sector involved. It also specifies independence criteria.

4.2.5.5 Difference between inspection and certification

Generally, inspection involves direct determination of the conformity with specific or general requirements of unique —often complex or critical— products or of small series of products, whereas product certification primarily involves indirect determination of the conformance of products manufactured in long series to specific requirements. While the inspection of products in use (in-service inspection) is a well-established discipline, there is no such thing as certification (ISO/IEC Guide 65) of products in use (from [IAF, 2004]). "Products in use" means individual instances of a product, purchased and used by a customer.

The IAF/ILAC *Guidance on the Application of ISO/IEC 17020* provides a clear description of the differences between inspection (ISO/IEC 17020) and product certification (ISO/IEC Guide 65), as shown in Table 1.

Activity	**Inspection**	**Product Certification**
Nature of operation	Inspection of individual products, and not necessarily by third party (direct determination of conformance)	Certification of series of products and always by third party (indirect determination of conformance)
Conformity	Examined against standards or other normative documents and/or general requirements	Assessed against standards or other normative documents
Assurance	Report provides condition at the time of inspection	Certification normally provides continuing assurance of compliance
Decisions	No need for separation of those taking inspection decisions from those performing inspection	Certification decisions taken by a different person(s) from those who have carried out evaluation
Issuing of licences	No licences issued	Grants licence to suppliers to issue certificate
Marking of products	Marks put only on products covered by inspection	Marks may be put on a certified product under licence
Surveillance	Only where required in order to support inspection	Normally necessary to provide continuing assurance of compliance
In-service inspection of products	Always by inspection	Not by product certification

Table 1. Difference between inspection (ISO/IEC 17020) and product certification (ISO/IEC Guide 65) [IAF, 2004]

4.2.5.6 Accredited attestation

A conformity assessment body can apply for accreditation (as described in 4.2.4.4) and thus produce accredited attestations.

5 An analysis model for conformity assessment systems and schemes

The initial goal of the analysis of conformity assessment systems and schemes for public procurement of accessible ICT products was to generate a matrix similar to the one offered by the IDC report [IDC, 2007]. That report applied several criteria to only two types of conformity assessment: mandatory third-party certification vs. voluntary self declaration of conformity.

This was considered to be a limited approach given the diversity of conformity assessment systems that can be applied. For instance, it is necessary to make a distinction between the involved parties (first, third) and whether the assessment is mandatory or voluntary.

After an in-depth study of the components of conformity assessment systems and schemes, the project team has decided to further decompose conformity assessment systems into several dimensions. Figure 2 provides an overview of these dimensions, which will be detailed in the following clauses.

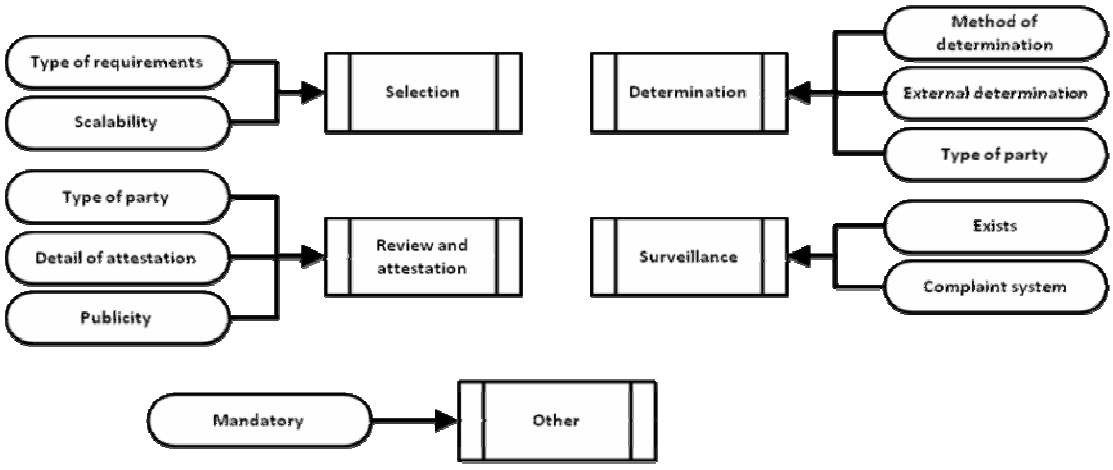

Figure 2. The dimensions defined to describe conformity assessment systems and schemes

This decomposition has been made based on the functional approach for conformity assessments presented in clause 4.2.2. For each of the four functions there is a set of dimensions that define a conformity assessment scheme, with the addition of a final category for other dimensions that don't fall in any of the conformity assessment functions. For each dimension below the following items will be given: name, description, source and possible values (listed from the less restrictive values to the most restrictive ones). In addition some notes may be added.

5.1 Dimensions for selection

The following dimensions can be defined for the selection function:

- **Type of requirements**: the type of requirements that will be used in the assessment. The requirements can be based on international standards, on European standards, on national standards, on de facto standards (recommendations produced by non-official standard bodies such as the W3C) or on other sources (like organisations of people with disabilities, etc.). For the definition of standard, see annex VI of the 2004/18/EC Directive.

- Source: EN ISO/IEC 17000:2004 and project team.
- Values: other, de facto standard, national standard, European standard, international standard
- Note 1: the full reference to the source of requirements can be added in brackets. For instance a value for this dimension could be "international standard (ISO 9241-171)".
- Note 2: if the requirements have several levels of conformity, the value of this dimension can specify which levels of conformity are covered. For instance a value for this dimension could be "de facto standards (WCAG 1.0, level AA)".

- **Scalability**: whether the conformity assessment scheme is scalable. Scalability is a capability of a scheme to enable its application to products of various degrees of complexity. Scalability depends on the selection of the object of assessment (or parts or functions of it) and on the selection of the determination methods to be used. A scalable scheme can be applied to very complex products with reasonable efforts.
  - Source: EN ISO/IEC 17000:2004 and project team.
  - Values: no, yes
  - Note 1: from the viewpoint of selection of the object of assessment, scalable schemes include techniques (such as scope definition and sampling) that enable them to be applied to large and complex products.
  - Note 2: another example of scalability is when products are assessed against a small set of predefined assistive technology. This selection should take into account the current state of technology and the market share. For instance a good selection of screen readers could be to choose the up to date versions of the two screen readers that, together, cover the majority of the market.

    Note 3: non-scalable conformity assessment schemes can only be applied to small products with a limited set of features or components. If a non-scalable scheme is applied to a complex product then the assessment will require large amounts of budget and resources.

5.2 Dimensions for determination

The following dimensions can be defined for the selection function:

- **Method of determination**: the method that is used to determine the resulting value for each requirement. Some types of determination activities defined in EN ISO/IEC 17000:2004 are *testing* (determination of one or more characteristics of an object of conformity assessment, according to a procedure), *inspection* (examination of a product design, product, process or installation and determination of its conformity with specific requirements or, on the basis of professional judgement, with general requirements), *audit* (systematic, independent, documented process for obtaining records, statements of fact or other relevant information and assessing them objectively to determine the extent to which specified requirements are fulfilled) and, *peer assessment* (assessment of a body against specified requirements by representatives of other bodies in, or candidates for, an agreement group). In the case of ICT products,

only testing and inspection are applicable. The other two types of determination activities (audit and peer assessment) are best suited for assessing management systems or organisations.

- Source: EN ISO/IEC 17000:2004 and project team.
- Values: testing, inspection, mixed
- Note 1: the value "mixed" implies that some requirements are evaluated using testing and others using inspection.

- **External determination**: whether the determination activities are done by the same organisation that will provide the attestation (external=no) or by an external entity (like a laboratory) that is contracted by the organisation providing the attestation (external=yes).
  - Source: EN ISO/IEC 17000:2004 and project team.
  - Values: no, yes.
- **Type of party** doing the determination. It can be a *first party* (the person or organization that provides the object), a *second party* (person or organization that has a user interest in the object, like purchasers, users of products, potential customers…) and *third party* (person or body that is independent of the person or organization that provides the object and of user interests in that object). For third parties, their independence will be measured using the types of inspection bodies identified in EN ISO/IEC 17020: *type A* (a fully independent body, which is not linked to a party directly involved in design, manufacture, supply, installation, purchase, ownership, use or maintenance of the items inspected or similar competitive items), *type B* (either (1) a demonstrably separate and identifiable part of an organisation that is involved in the design, manufacture, supply, installation, use or maintenance of items that they inspect; or (2) a body supplying inspection services only to their parent organisation) and *type C* (anybody that is involved in the design, manufacture, supply, installation, use or maintenance of items that they inspect). In addition, it can be noted if the party is accredited, according to clause 4.2.5.6.
  - Source: EN ISO/IEC 17000:2004, EN ISO/IEC 17020:1998
  - Values: first, second, third;
    - If third, it can be combined with C,B,A independence
    - It also can be combined with "accredited"
  - Note 1: this dimension is only applicable if the determination is being done externally. In any other case the value for this dimension should be "non applicable".
  - Note 2: Some examples of values follow:
    - Accredited third (A): this is a fully independent body that has been accredited.
    - Third (B): this is a third party that is not totally independent.
    - First: a first party.
  - Note 3: As this dimension describes who is performing the determination and its relationship with the organisation providing the attestation, it

should typically be a third party, with variability in the independence and accreditation.

5.3 Dimensions for review and attestation

The following dimensions can be defined for the review and attestation function:

- **Type of party** responsible for the attestation. The values are the same as described above for determination: first party, second party and third party, combined with the types of independence (A, B, C) and the accreditation of the organisation.
    - Source: EN ISO/IEC 17000:2004, EN ISO/IEC 17020:1998
    - Values: first, second, third;
        - If third, it can be combined with C,B,A independence
        - It also can be combined with “accredited”
    - Note 1: Some examples of values follow:
        - Accredited third (A): this is a fully independent body that has been accredited.
        - Third (B): this is a third party that is not totally independent.
        - First: a first party.
    - Note 2: As this dimension describes who is responsible for the attestation, all the range of values is permitted.
- **Detail of attestation**. This dimension represents the level of detail of the attestation that is generated as the result of the conformity assessment process. Three values are considered. Firstly, the attestation can answer only the question of the conformity of the product, without further details of the requirements fulfilled or not fulfilled. Secondly, the attestation can provide detailed information about the fulfilment of each requirement and the procedure that has been followed to reach the final decision. Thirdly, the attestation can provide the same level of detail but in a machine readable format (like EARL [W3C, 2007]) that can then used by software to compare the results obtained by different products or generated by different evaluators.
    - Source: Project team.
    - Values: no detail, detailed human, detailed machine.
    - Note 1: for the detailed machine-readable attestations a common language is needed for specifying conformity with respect to a given set of requirements. The development of such type of languages could be done in phase 2 of the Mandate.
- **Publicity**. This dimension indicates whether the resulting attestation is made publicly available to external bodies (such as, for example, the public procurers or users).
    - Source: Project team.
    - Values: private, public

- Note 1: in the context of public procurement, this dimension is especially relevant when the attestation is detailed.

5.4 Dimensions for surveillance

The following dimensions can be defined for the surveillance function:

- **Existence**. This dimension indicates whether the conformity assessment scheme includes surveillance or not.
  - Source: EN ISO/IEC 17000:2004 and project team.
  - Values: no, yes
  - Note 1: this dimension depends generally on the type of product under assessment, although there can be some variation. For instance, in web accessibility all the conformity assessment schemes should include surveillance, due to the high rate of changes of websites. However there are conformity assessment schemes for websites that do not include surveillance.
- **Complaint system**. This dimension indicates whether the conformity assessment scheme includes a complain system that is maintained by the customer (the contracting authority), by the provider of the attestation or by a mediation party (like a disability right office).
  - Source: project team.
  - Values: no, yes
  - Note 1: further detail can be provided when there is a complaint system. In those cases it is relevant to know if the responsible of the complaint system is the customer, the provider of the attestation or a mediation party.

5.5 Other dimensions

The following dimensions don't belong to any of the functions of conformity assessment, but are nonetheless relevant for the completeness of the analysis of conformity schemes:

- **Mandatory**. This dimension indicates whether the conformity assessment scheme is mandatory or not. Mandatory systems are the ones regulated by national laws.
  - Source: project team.
  - Values: no, yes

6 Analysis of existing conformity assessment systems and schemes

This clause contains a detailed description of existing conformity assessment systems and schemes in the domain of ICT accessibility and outside this domain. This detailed description is made using the dimensions described in Clause 5, using a tabular format.

In addition to the dimension values, each system or scheme has introductory text providing information about its organisation, country, reference, object of assessment, description, implementation and similar schemes, where applicable.

The existing conformity assessment systems and schemes have been classified into three groups in the below clauses: general systems as described by standards, existing schemes for ICT accessibility and, finally, systems or schemes outside the ICT domain that may be of interest.

In the tables below the value “Not specified” is used for dimensions that have no specified value in the given conformity assessment system or scheme.

6.1 General

Below are conformity assessment systems as defined by international and European standards.

6.1.1 Generic first party assessment

Details: First party assessments are done by a supplier or manufacturer to assess the fulfilment of specific requirements. The supplier is entirely responsible for the assessment.

Selection	
Requirements	Not specified
Scalability	Not specified
Determination	
Method of determination	Not specified
External	Not specified
Type of party	Not specified
Review and Attestation	
Type of party	First
Detail of attestation	Not specified
Publicity	Not specified
Surveillance	
Exists	Not specified
Complaint system	Not specified
Other	
Mandatory	Not specified

6.1.2 Supplier’s declaration of conformity (EN ISO/IEC 17050-1:2004)

Details: Supplier’s declaration of conformity is a form of first party assessment. ISO/IEC 17050 specifies requirements applicable when the individual or organization responsible for fulfilment of specified requirements (supplier) provides a declaration that a product (including service), process, management system, person or body is in

conformity with specified requirements, which can include normative documents such as standards, guides, technical specifications, laws and regulations. A supplier's declaration of conformity can be substantiated by supporting documentation under the responsibility of the supplier.

Selection	
Requirements	Not specified
Scalability	Not specified
Determination	
Method of determination	quality assurance during product development (direct and immediate impact), quality assurance by construction, testing, inspection, mixed
External	Not specified
Type of party	Not specified
Review and Attestation	
Type of party	First
Detail of attestation	detailed human, detailed machine
Publicity	Not specified
Surveillance	
Exists	Not specified
Complaint system	Not specified
Other	
Mandatory	Not specified

6.1.3 Generic second party assessment

Details: A second party assessment is done usually by the buyer or user of the product. Mostly, this term applies to a company controlling its subcontractors or a large buyer or government agency carrying out the assessment itself.

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Selection	
Requirements	Not specified
Scalability	Not specified
Determination	
Method of determination	Not specified
External	Not specified
Type of party	Not specified
Review and Attestation	
Type of party	Second
Detail of attestation	Not specified
Publicity	Not specified
Surveillance	
Exists	Not specified
Complaint system	Not specified
Other	
Mandatory	Not specified

6.1.4 Generic third party assessment

Details: A third party assessment is performed by a person or body that is independent of the person or organization that provides the product. Relevant standards include EN 45011 and ISO/IEC 17020.

Selection	
Requirements	Not specified
Scalability	Not specified
Determination	
Method of determination	Not specified
External	Not specified
Type of party	third / C, B, A / accredited
Review and Attestation	
Type of party	third / C, B, A / accredited
Detail of attestation	detailed human, detailed machine
Publicity	Not specified
Surveillance	
Exists	Not specified
Complaint system	Not specified
Other	
Mandatory	Not specified

6.1.5 Inspection (EN ISO/IEC 17020:1998)

Details: ISO/IEC 17020 specifies general criteria for the operation of various types of bodies performing inspection. The standard specifies criteria for the competence and independence. Generally, inspection involves direct determination of the conformity with specific or general requirements of unique —often complex or critical— products or of small series of products.

Selection	
Requirements	other, de facto standard, national standard, international standard
Scalability	no, yes
Determination	
Method of determination	testing, inspection, mixed
External	no, yes
Type of party	First, Second, Third / C, B, A / accredited
Review and Attestation	
Type of party	First, Second, Third / C, B, A / accredited
Detail of attestation	detailed human, detailed machine
Publicity	private, public
Surveillance	
Exists	no, yes
Complaint system	no, yes
Other	
Mandatory	no, yes

6.1.6 Product certification (EN 45011:1998)

Details: EN 45011 specifies general requirements for bodies operating product certification systems. Certification primarily involves indirect determination of the conformance of products manufactured in long series to specific requirements.

Selection	
Requirements	other, de facto standard, national standard, international standard
Scalability	no, yes

Determination	
Method of determination	testing, inspection, mixed
External	yes
Type of party	third / accredited
Review and Attestation	
Type of party	third / accredited
Detail of attestation	detailed human, detailed machine
Publicity	private, public
Surveillance	
Exists	no, yes
Complaint system	no, yes
Other	
Mandatory	no, yes

6.1.7 UWEM

Organisation: WAB Cluster. A cluster of three European projects: Support EAM, EIAO, BenToWeb

Country: non defined, but European context.

Object of assessment: websites.

Description: UWEM is the definition of a complete conformity assessment scheme (a methodology) for evaluating the accessibility of websites. It provides guidance on all the functions of conformity assessment: selection (including sampling), determination (including completely defined test cases for each checkpoint), review and attestation (including aggregation of results and templates for accessibility reports) and surveillance. Some dimensions below have undefined values because they depend on the implementation of UWEM in concrete situations.

Implementation: UWEM has been applied, for instance, as part of the drempelvrij quality mark (see 6.2.2).

Details:

Selection	
Requirements	De facto standard (WCAG 1.0)
Scalability	Yes
Determination	
Method of determination	Mixed
External	Not specified
Type of party	Not specified
Review and Attestation	
Type of party	Not specified
Detail of attestation	Detailed (human)
Publicity	Not specified
Surveillance	
Existence	Not specified
Complaint system	Not specified
Other	
Mandatory	No

6.2 Existing schemes specific on the accessibility of ICT

The Project team has selected relevant examples of accessibility conformity assessment schemes for ICT products. They are described below in alphabetical order.

More where found during our work, as can be seen in the previous report (interim technical report). For each example below a reference will be given to other similar conformity assessment schemes.

6.2.1 AENOR

Organisation: AENOR, the Spanish Standards Body.

Country: Spain.

Reference: http://www.accesible.aenor.es/ (in Spanish)

Object of assessment: websites.

Description: AENOR offers a certification scheme for the accessibility of websites, which conforms to EN 45011:1998 and ISO/IEC Guide 65. The determination stage is performed by external organisations (The CTIC foundation and the European Software Institute) that are not fully independent, as the offer other services such as consulting, but it is AENOR who provides the final attestation, and AENOR is a fully independent body. The certification is based on the Spanish standard UNE 139803:2004, which is based on and compatible with WCAG 1.0. AENOR certifies the website accessibility through the inspection of the web pages (both automatically and manually), and also conducts an audit of the processes put in practice to ensure the maintenance and improvement of accessibility (a web accessibility management system). This certification scheme has been referred to by Spanish legislation (Royal Decree 1494/2007 on basic accessibility conditions for the information society, and Law 56/2007 on the impulse of the information society), but it is not mandatory.

Implementation: this certificate has been issued for several websites, both public and private.

Similar schemes: none found. It is the only official accessibility certification of products that has been found in the ICT domain.

Details:

Selection	
Requirements	National standard (UNE 1390803:2004, based on WCAG 1.0)
Scalability	Yes (sampling is made)
Determination	
Method of determination	Inspection and audit
External	Yes
Type of party	Third (type C)
Review and Attestation	
Type of party	Accredited Third (type A)
Detail of attestation	No detail
Publicity	Public
Surveillance	
Existence	Yes
Complaint system	Yes (double: website owner + AENOR)
Other	
Mandatory	No

6.2.2 Drempelvrij

Organisation: Foundation Quality Mark drempelvrij.nl

Country: Netherlands

Reference:

- http://www.drempelvrij.nl/waarmerk (in Dutch)
- http://www.accessibility.nl/toetsing/waarmerkdrempelvrij?languageId=2 (in English)

Object of assessment: websites.

Description: It is a Quality Mark for the accessibility of websites, based on WCAG 1.0, in particular with the 16 checkpoints of priority one. The Quality Mark drempelvrij.nl has been set up at the request of and in cooperation with the Dutch government and all stakeholders involved. The Bartiméus Accessibility Foundation led the project, but transferred it to the foundation Quality Mark drempelvrij.nl in 2005. The latter was responsible from that moment on for the quality guarantee of the agreement. Fifteen organizations have contributed to the creation of the Quality Mark drempelvrij.nl. The Quality Mark includes an inspection service offered by accredited third parties and a resulting logo specifying the reached accessibility level. This Quality Mark uses UWEM as the evaluation methodology (see clause 6.2.6).

Implementation: More than 180 websites participate in the drempelvrij mark. Details can be found in http://www.accessibility.nl/toetsing/deelnemers/sites?languageId=2.

Similar schemes:

- Accessibility Foundation, Netherlands. This Foundation also uses UWEM to provide a service of web accessibility inspection.

Details:

Selection	
Requirements	De facto standard (WCAG 1.0)
Scalability	Yes
Determination	
Method of determination	Inspection
External	No
Type of party	Non applicable
Review and Attestation	
Type of party	Accredited Third (type A)
Detail of attestation	No
Publicity	Yes
Surveillance	
Existence	Yes
Complaint system	Yes
Other	
Mandatory	No

6.2.3 PubliAccesso

Organisation: Several organisations recognised by the Italian government and listed by the National Centre for Informatics in Public Administration (CNIPA). The full list can be found at (in Italian):

http://www.cnipa.gov.it/site/it-IT/Attivit%c3%a0/Elenco_valutatori_accessibilit%c3%a0/

Country: Italy

Reference: http://www.pubbliaccesso.gov.it/english/index.htm

Object of assessment: websites, hardware and software

Description: In Italy there is a set of legislation pieces that establish accessibility of ICT in the public administration:

- Law n. 4, January 9, 2004. “Provisions to support the access of the disabled to information technologies”, specifies the general requirement of accessibility of ICT in the public administration and private entities that manage public information or services, such as transport and telecommunications.
- Decree of the President of the Republic, March 1st 2005, No. 75. “Enforcement Regulations for Law 4/2004 to promote the access of the disabled to information technologies”, establishes a third party conformity assessment system where the evaluators have to be recognised by the Italian government. Private subjects must use this system, whereas public subjects may opt for doing internal assessments.
- Ministerial Decree, July 8 2005. “Technical Rules of Law 4/2004”, contains the technical Web accessibility requirements, the methodology for the evaluation of Web sites and the requirements for accessible hardware and software.

Implementation: today CNIPA has 139 sites/portals in its list:

http://www.pubbliaccesso.gov.it/logo/elenco.php

Similar schemes: none found. It is the only example of a conformity assessment scheme that is mandatory by law.

Details:

Selection	
Requirements	Other (national legislation. Requirements are based on WCAG 1.0 for websites and Section 508 for hardware and software)
Scalability	No (no complexity management is specified)
Determination	
Method of determination	Mixed
External	No
Type of party	Not applicable
Review and Attestation	
Type of party	Third (type A) – for private subjects First or Second – for public subjects
Detail of attestation	Detailed human
Publicity	Yes
Surveillance	
Existence	Not specified
Complaint system	Not specified
Other	
Mandatory	Yes, for private subjects

6.2.4 Segala

Organisation: Segala

Country: Ireland

Reference: http://segala.com

Object of assessment: websites.

Description: Segala is an Irish company that offers a service of accessibility conformity assessment for websites. It may use different requirements depending on the needs of the customer (WCAG, 508, UK's DDA). The result of the process is a mark on the customer's website, which links to a detailed report that is stored in the Segala servers. In addition they use semantic data (content labels) so that software can detect the declared accessibility level.

Implementation: Several websites have been found with the Segala mark.

Similar schemes: across Europe there are many private organisations offering accessibility conformity assessment for websites. Segala differentiates itself by managing the certificates and by the details offered in the attestation. Some similar examples follow, listed in alphabetical order:

- Access for All Foundation, Switzerland
- AccessibilitéWeb, Canada
- Euracert, European consortium: Accessiweb (France), Anysurfer (Belgium), Technosite (Spain)
- Funka nu, Sweden
- RampWEB, USA
- Sidar Foundation, Spain
- SIUG, Switzerland
- SJA, Iceland

WebAIM, USADetails:

Selection	
Requirements	Variable (depending on the customer's needs): • De facto standard (WCAG 1.0) • Other (Section 508 or UK's Disability Discrimination Act 1995 (c. 50))
Scalability	Yes
Determination	
Method of determination	Mixed
External	No
Type of party	Not applicable
Review and Attestation	
Type of party	Third (type B)
Detail of attestation	Detailed machine
Publicity	Yes
Surveillance	
Existence	Yes
Complaint system	Yes
Other	
Mandatory	No

6.2.5 TCO Development

Organisation: TCO Development

Country: Sweden

Reference: http://www.tcodevelopment.com/

Object of assessment: displays, printers, mobile phones.

Description: TCO Development is a subsidiary to a Swedish Union of office workers. It is active in the field of work environments and environmental issues with regard to the effects of technological developments within the IT sector, primarily computer displays. It issues quality and environmental labelling of office equipment. “Quality” encompasses ergonomics including accessibility to some extent.

Implementation: The TCO label is worldwide recognised and widely used amongst computer displays.

Similar schemes: there are other conformity assessment schemes that apply outside of the website domain, but without the international acceptance and history of the TCO label. Some examples follow, listed in alphabetical order:

- Applus+, Spain
- ITS logo scheme, Netherlands
- Software in Zicht, Netherlands
- SSB Bart, USA
- U mark, Japan
- UsersAward, Sweden

Details:

Selection	
Requirements	International standards (ISO and IEC)
Scalability	No
Determination	
Method of determination	Testing
External	Yes
Type of party	test laboratory accepted by TCO
Review and Attestation	
Type of party	test laboratory accepted by TCO
Detail of attestation	detailed human
Publicity	Public
Surveillance	
Exists	Yes
Complaint system	?
Other	
Mandatory	No

6.2.6 VPAT

Organisation: any supplier or manufacturer of ICT products

Country: USA

Object of assessment: software applications and operating systems, web-based intranet and internet information and applications, telecommunication products, video and multimedia products, self contained and closed products, desktop and portable computers.

Description: The Voluntary Product Accessibility Template (VPAT) was developed by the industry in USA to deal with Section 508. The US Government uses it in its federal procurement process to assist agencies in complying with Section 508 requirements. It provides information in a uniform manner so that government buyers can determine (1) the level of conformance to the standards for a given product and (2) how different products compare to one another. It is a document generated by the supplier (or manufacturer) to disclose to what extent the product addresses requirements. A VPAT does not provide a clear yes/no answer for each requirement and for product accessibility. Public procurers mainly use VPATs to guide them in learning what there is on the market during market research and often as required documentation to support Section 508 compliancy assertions made in proposals submitted in response to a government procurement opportunity.

Implementation: VPATs are commonly used by the suppliers of manufactures that want to sell products to the US federal agencies.

Similar schemes: none found.

Details:

Selection	
Requirements	Other (508 standards)
Scalability	Not specified
Determination	
Method of determination	Mixed
External	Variable, depends on the suppliers needs
Type of party	Variable
Review and Attestation	
Type of party	First
Detail of attestation	Detailed human (although there is not a clear conformity statement)
Publicity	Yes
Surveillance	
Existence	No
Complaint system	No (yes, we need clarification)
Other	
Mandatory	No

6.3 In other domains

This clause describes conformity assessment systems or schemes existing in other domains that could be applied to the context of public procurement of accessible ICT products. The examples below are of very different nature and characteristics, and they are grouped here only because they are not applied in the ICT domain.

The first subclause shows the results of a survey of existing models for quality marks performed by the Support-EAM European project. Then some relevant conformity assessment systems or schemes are described in alphabetical order

6.3.1 Quality labels

Support-EAM [Support-EAM, 2007], a Specific Support Action under the 6th Framework Programme, made a survey of existing models for quality marks, as an input to the creation of a web accessibility mark (Deliverable 3.1, State-of-the-art of Certification Scheme in Europe). Some of these models are a potential basis for conformity assessment schemes in the framework of this project.

It described the following models:

- The European Ecological Label (environmental efficiency)
- TickIT (quality system for software suppliers)
- European Computer Driving License (basic computer knowledge)
- Blue Flag (eco-label for beaches and recreational ports)
- IQNet (a network with a wide variety of certifications)
- Q*For Certification (assesses customer satisfaction to suppliers of training)
- Social Accountability 8000 (social and ethical aspects of company activities)
- Keymark (see 6.3.5 below)
- CENCER (see 6.3.3 below)
- eHealth code of Ethics (code of conduct for a number of business areas)
- Health on-the-Net and ICRA (code of conduct for content providers on the Internet)
- MedCIRCLE (health information on the Internet)

6.3.2 CE marking

Organisation: suppliers or manufacturers

Country: Europe (where the product is sold, not manufactured)

Reference: http://www.berr.gov.uk/dius/innovation/regulations/cemark/page11646.html

Object of assessment: products under harmonised European standards (i.e., standards that are mandatory in Europe).

Description: CE marking symbolises conformity to all the legal and regulatory obligations incumbent on manufacturers for the product by virtue of the Community directives providing for its affixing [EC, 2000]. The CE mark is not a third party certification mark. When affixed to products it is a declaration by the natural or legal person having affixed or been responsible for the affixing of CE marking that the product conforms to all applicable provisions, and that it has been subject to the appropriate conformity assessment procedures. Hence, Member States are not allowed to restrict the placing on the market and putting into service of CE marked products, unless such measures can be justified on the basis of evidence of the noncompliance of the product.

The directives providing for the affixing of the CE marking mostly follow the principles of the New Approach and the Global Approach, but this is in itself irrelevant for the application of the CE marking. In fact, CE marking can be introduced in Community legislation as legal conformity marking if:

- the method of total harmonisation is used, which means that diverging national regulations that cover the same public interests as the directive are prohibited; and
- the directive contains conformity assessment procedures according to Decision 93/465/EEC

As a general rule, all New Approach directives provide for the affixing of the CE marking. In duly justified cases a total harmonisation directive that follows Decision 93/465/EEC may provide for a different marking instead of the CE marking.

The CE marking is mandatory and must be affixed before any product subject to it is placed on the market and put into service, save where specific directives require otherwise. Where products are subject to several directives, which all provide for the affixing of the CE marking, the marking indicates that the products are presumed to conform to the provisions of all these directives. A product may not be CE marked, unless it is covered by a directive providing for its affixing.

Implementation: it is being applied to a large number of products, but not in the field of accessibility of ICT.

Details:

Selection	
Requirements	European harmonised standards
Scalability	Not specified
Determination	
Method of determination	Not specified
External	Not specified
Type of party	Not specified
Review and Attestation	
Type of party	First
Detail of attestation	Not detailed
Publicity	Yes (it is a visible mark on the product)
Surveillance	
Existence	Yes (market surveillance)
Complaint system	Yes
Other	
Mandatory	Yes

6.3.3 Cencer

Organisation: CEN

Country: Europe countries members of CEN (some of them do not belong to the European Union).

Reference: http://www.cen.eu/cenorm/conformityassessment/cen+mark+/index.asp

Object of assessment: several types of products, none of them ICT-related.

Description: The CENCER Mark is a certification mark for demonstrating conformity of products to European standards or other specifications approved by CEN. The mark is owned by CEN. Like the Keymark, the other European system for assessing conformity to European standards, the CENCER Mark is a voluntary third party

certification mark, giving users confidence that a product complies with the requirements of approved documents [CEN, 2008b].

As stated in the CEN strategy 2010 [CEN, 2007], CEN will improve its visibility and activities in the area of Conformity Assessment by developing the Keymark as the preferred mark of conformity to European Standards and by replacing gradually the CENCER Mark by the Keymark in order to strengthen the Keymark.

Implementation: there are many Cencer-marked products (see [CEN, 2008b].

Details:

Selection	
Requirements	European standards and specifications
Scalability	Not specified
Determination	
Method of determination	Not specified
External	Not specified
Type of party	Not specified
Review and Attestation	
Type of party	Third (A)
Detail of attestation	Not detailed
Publicity	Yes (it is a visible mark on the product)
Surveillance	
Existence	No
Complaint system	No
Other	
Mandatory	No

6.3.4 Common criteria

Organisation: several, both suppliers and purchasers

Country: international

Reference: http://www.commoncriteriaportal.org/

Object of assessment: ICT products and systems (only security-related requirements)

Description: One interesting scheme, (parts of) which might be used as a model for conformity assessment of accessibility requirements, is based on the requirements of standard *ISO/IEC 15408:2005* [ISO, 2005c], also known as *Common Criteria*.

The Common Criteria for Information Technology Security Evaluation (CC), and the companion Common Methodology for Information Technology Security Evaluation (CEM) are the technical basis for an international agreement, the Common Criteria Recognition Agreement (CCRA), which ensures that:

- Products can be evaluated by competent and independent licensed laboratories so as to determine the fulfilment of particular security properties, to a certain extent or assurance;
- Supporting documents, are used within the Common Criteria certification process to define how the criteria and evaluation methods are applied when certifying specific technologies;

- The certification of the security properties of an evaluated product can be issued by a number of Certificate Authorizing Schemes, with this certification being based on the result of their evaluation;
- These certificates are recognized by all the signatories of the CCRA.

Common Criteria is a framework with:

- A method specifying how to define functional security requirements on classes of products with reference to specified environments. This may result in sets of requirements called Protection Profiles, which can be registered and published in a catalogue for reuse. Protection Profiles are the purchaser's document.
- A method specifying how to define the security characteristics of a product, the Security Target. This is the supplier's document, which expresses the characteristics that the supplier (manufacturer) decides that the product shall have.
- Methods specifying how to evaluate products against requirements specified in Protection Profiles and Security Targets.
- Two organisational third party roles: the Evaluation organisation (laboratories), which evaluates a product or system against specified requirements; and the Certification body (or validation body), which issues a certificate verifying that a specified product complies with specified requirements.

Implementation: there are many examples of the application of the common criteria:

- A list of certified products can be found at:

  http://www.commoncriteriaportal.org/products.html

- A list of national certificate authorizing schemes can be found at:

  http://www.commoncriteriaportal.org/schemes.html

- A list of licensed laboratories can be found at:

  http://www.commoncriteriaportal.org/labs.html

Details:

Selection	
Requirements	Other (defined in Protection Profiles and Security Targets)
Scalability	Not specified
Determination	
Method of determination	Not specified
External	Not specified
Type of party	Not specified
Review and Attestation	
Type of party	Third
Detail of attestation	Not detailed
Publicity	Yes
Surveillance	
Existence	Undefined
Complaint system	Undefined
Other	
Mandatory	No

6.3.5 Keymark

Organisation: CEN

Country: Europe countries members of CEN (some of them do not belong to the European Union).

Reference: http://www.cen.eu/cenorm/conformityassessment/keymark+/index.asp

Object of assessment: several products, but no ICT as yet.

Description: Keymark is the pan-European voluntary third party certification mark, demonstrating to users and users that a product is in conformity with the applicable European standard. Keymark can also be used for services [CEN, 2008].

At the moment 25 certification bodies located in 15 different European countries already operate Keymark schemes on the basis of almost 150 European standards for 28 product groups. No ICT product has been awarded the Keymark as yet (May 2008).

The Keymark can only be granted by certification bodies that have been 'empowered' by the CEN Certification Board. Such an empowerment is granted for a specific European standard, or group of European standards. These bodies shall follow rules, procedures and management for certifying products on the basis of European standards adopted by CEN or CENELEC. These rules, called the Keymark System, are defined in CEN/CENELEC Internal Regulations – Part 4, and in the annexes A and B of the CEN Internal Regulations – Part 3.

The Keymark should not be confused with CE marking, described in 6.3.2.

Implementation: Keymark is applied to almost 150 European standards for 28 product groups.

Details:

Selection	
Requirements	European standards
Scalability	Not specified
Determination	
Method of determination	Not specified
External	Not specified
Type of party	Not specified
Review and Attestation	
Type of party	Third (A)
Detail of attestation	Not detailed
Publicity	Yes
Surveillance	
Existence	Undefined
Complaint system	Undefined
Other	
Mandatory	No

7 Framework for public procurement as regards conformity assessment

In this chapter we describe the legal framework for public procurement which facilitates the use of e-accessibility and relevant conformity assessment criteria. The first clauses (7.1, 7.2 and 7.3) delineate the general rules applicable to all public procurements. The following sections (7.4, 7.5) describe the possibilities to include e-accessibility and conformity assessment criteria in compliance with the Treaty and the new Procurement Directives, at different stages of the procurement procedure.

7.1 General legal principles for all public procurements

The purpose of the EU procurement rules is to open up the public procurement market and to ensure the free movements of goods and services within the EU.

With respect to all procurement contracts, public procurers in the EU Member States must comply with the following principles of the EC Treaty:

- The principle of *equal treatment* implies that all suppliers shall be given equal opportunities and conditions. For example, accessibility requirements shall be formulated and verified in a way that all products and all tenderers are treated equally.
- The principle of *non-discrimination* prohibits all discrimination based on locality. No contracting authority may, for example, give preference to a local company simply because it is located in the city where the authority is based. However, if local companies comply with the accessibility requirements to a larger extent than foreign companies, this would not necessarily equal discrimination.
- The principle of *mutual recognition* means that products lawfully produced and marketed in one Member State should generally be admitted into circulation in other Member States. Its meaning in relation to e-accessibility criteria limits to the 'mutual recognition' of national standards (see discussion in clause 7.4.2).
- The principle of *proportionality* means that the contracting authority must not set out more far-reaching requirements than necessary with respect to the needs in the actual procurement in question. In relation to the requirements on conformity assessment, this principle means that a balance must be struck between the importance of verifying accessibility and the resources (personnel, financial resources and administrative burdens) needed for verification.
- The principle of *transparency* concerns the obligation of the contracting authority to provide information on the procurement and on how it is going to be carried out, and convey that information to all potential tenderers. Regarding the assessment of how a requirement is complied with, transparency is ensured through reference to/use of predictable and repeatable assessment procedures, such that anyone carrying out verification would most likely get the same result.

7.2 EU rules and the (new) Procurement Directives

In addition to the Treaty itself, the EU Procurement Directives (Public Sector Directive 2004/18/EC and Utilities Directive 2004/17/EC) set out the legal framework for public procurement. They apply when public authorities (and utilities) seek to acquire goods,

services, or works. The directives set out detailed procedures and criteria for specifications, selection and award which must be followed before awarding a contract when its value exceeds the European thresholds, unless a specific exception is allowed. The Member States have implemented the Directive in different ways. National legislations concerning procurements below the threshold are different. Most national legislations though apply to these contracts the Directive's provisions to various extents.

7.3 Electronic procurement

Non-mandatory recommendations of the European Commission add to the existent mandatory rules (referred to above). Relevant to this report is the Commission's recent eGovernment Action Plan, which stresses the importance of extending the use of electronic procurement. The Plan remarks that "electronic procurement and invoicing could result in savings in total procurement costs of around 5% and reductions in transaction costs of 10% or more, leading to savings of tens of billions of euros annually. In particular, SMEs can benefit from easier access to public procurement markets and increasing their ICT-capabilities and thereby competitiveness. The Action Plan concludes that a high level of take-up of eProcurement is therefore highly desirable. Following these recommendations, the Member States have committed themselves to giving all public administrations across Europe the capability of carrying out 100% of their procurement electronically (where legally permissible) and to ensuring that at least 50% of public procurement above the EC threshold is carried out electronically by 2010."

The extended use of electronic procurement means that conformity attestations (primarily pre-market attestations), including attestations on accessibility, should be able to be stored and submitted electronically. An Action Plan for e-procurement is established under the IDABC programme. Work is in progress for designing approaches for how to handle certificates, declarations of conformity and other documents electronically.

The work in Phase 2 as regards attestations on accessibility will be influenced by the outcome of the Action Plan on electronic procurement.

7.4 E-accessibility in public procurement

When contracting authorities decide to purchase accessible ICT (whether the procurement contract falls within or outside the scope of application of the Procurement Directives), they also need to consider at what stage in the procurement procedure the 'accessibility demand' could most effectively and legally be included:

- at the contract documentation stage (during the formulation of the technical or functional specifications);

- at the selection stage (during the formulation of the selection criteria);

- at the award stage (during the formulation of the award sub-criteria);

- at the contract management stage (during the implementation of the awarded contract).

In the following sub-clauses we will mainly focus on the integration of accessible ICT requirements through specifications (including in relation to the use of standards) and on the use of accessibility at the award stage (as a sub-criteria for identifying the most economically advantageous tender).

7.4.1 Specifications - background

The restrictions on trade resulting from different product specifications/standards is one of the most significant problems that the EC has been facing in creating a single European market. In response to this problem, the Community adopted initially the practice of including detailed standards in directives. Mid 1980s the Community switched to an alternative strategy, called the 'new approach', which meant that the European directives only set out broad performance requirements instead of detailed requirements regarding subjects such as health, environment, consumers protection etc. The directives further mandated the adoption of European standards on the basis of these 'essential requirements'. For public procurers this meant that they could only buy products complying with these mandatory requirements. In the context of the old public procurement directives, the contracting authorities were mandated to require the European standards when purchasing these products (this has changed within the new Procurement Directives; see clause 7.4.3).

This strategy was complemented in regard of products and services not covered by either detailed directives or 'new approach' directives, by the strategy of 'mutual recognition'(formulated in Cassis de Dijon (C-120/78)). This principle impedes member states to refuse products or services lawfully produced and marketed in another member state.

7.4.2 The impact of the Treaty on e-accessibility specifications in public procurement

The impact of the treaty on public procurement derives from the rules on free movement. The treaty has a significant impact in the field of public procurement, as it applies to all procurement contracts, whether covered or not by the Procurement Directives. Moreover, the decision of the EC Court in the Unix-case, C-359/93,, suggested that the use of one specification in one contract may violate the Treaty (thus it applied the Treaty to isolated acts, contrary to the previous practice of the Court to use a quantitative test for evaluating hindrances to the internal market).

What is, therefore, the impact of the above observations on the use of e-accessibility requirements in procurement procedures?

If a CA is buying a product for which e-accessibility requirements have been mandated within a 'new approach' directives, the CA may not request more stringent requirements than the directive, although they are not obliged to use the standard mandated by the respective directive. If the 'new approach' directive does not impose e-accessibility requirements**,** the CA is free to add its own e-accessibility specifications.

If there are no harmonized requirements on e-accessibility through detailed or 'new approach' directives, the general rule, as results from the case-law of the ECJ (Unix, Dundalk), is that e-accessibility requirements should not be formulated such as to exclude products that meet a CA's *exact* functional/performance requirements. More recently, in Medipac-Kazantzidis AE the ECJ indicated that member states are obliged to admit into circulation on their markets products and services complying with other (National) standards that are equivalent to the one required in the tender documents (Court of Justice, C-06/05 Medipac-Kazantzidis AE). **Thus, for example, a CA may not reject national conformity assessment schemes complying with its specified functional or performance requirements.**

The Treaty does not require that specifications be formulated in performance or functional requirements (unlike the new Procurement Directives). Thus, in principle, the

CA may formulate its e-accessibility specification in detailed requirements. The CA must nevertheless specify in the tender that it accepts equivalent solutions, which comply with its performance or functional requirements but not with the detailed requirements.

It is not clear though whether a CA may reject products that are slightly different from those specified. In this context the question arises whether the mutual recognition principle applies, and if so, how. A first option would be that the principle is not suitable to apply to individual specifications, as it would give rise to unreasonable situations. It would mean that each specification (even a non-discriminatory one) providing for higher standards than in the product's state of origin would have to be justified (under the 'public interest' exception of art.30 EC Treaty). For example, a CA would be forced to justify requiring ICT accessible for disabled persons, even if not discriminatory. An alternative would be to justify the use of non-discriminatory specifications only when they constitute considerable barriers to trade, but this has not yet been confirmed in jurisprudence. According to another view - which we endorse-, it could be argued that the formulation of specifications (such as those regarding e-accessibility) during the procurement procedure, if not adopted for protectionist reasons, does not have a hindering effect, and thus, needs not be justified.

7.4.3 Specifications in the Procurement Directives

The European Commission included express reference within the Directive to the desirability for public procurers to use accessibility criteria when defining the technical specifications of a desired product/service (art.23 Public Sector Directive, art.34 Utilities Directive). Furthermore, both Procurement Directives specify general rules on technical specifications and on the acceptance of proof that tenders satisfy the requirements set out in the technical specifications. Due to their similar wording, we only illustrate below the relevant provisions of the Public Sector Directive.

Clause 29 of the preamble gives the justification for these rules:

> 'The technical specifications drawn up by public purchasers need to allow public procurement to be opened up to competition. To this end, it must be possible to submit tenders which reflect the diversity of technical solutions. Accordingly, it must be possible to draw up the technical specifications in terms of functional performance and requirements, and, where reference is made to the European standard or, in the absence thereof, to the national standard, tenders based on equivalent arrangements must be considered by contracting authorities.'
>
> "To demonstrate equivalence, tenderers should be permitted to use any form of evidence. Contracting authorities must be able to provide a reason for any decision that equivalence does not exist in a given case."
>
> "The technical specifications should be clearly indicated, so that all tenderers know what the requirements established by the contracting authority cover."

"*Technical specification*" is defined in Annex VI of the Directive. Paragraph 1b is applicable for ICT products. It defines technical specification as:

> "the required characteristics of a product or a service, such as quality levels, environmental performance levels, design for all requirements (including accessibility for disabled persons) and conformity assessment, performance, use of the product, safety or dimensions, including requirements relevant to the product as regards the name under which the product is sold, terminology, symbols, testing and test methods, packaging, marking and labelling, user instructions, production processes and methods and conformity assessment procedures;"

The rules on technical specifications and acceptance of proofs are stated in Article 23 of the Directive. Paragraph 1 of Article 23 specifies that technical specifications shall be set out in the contract documentation, and that:

> "whenever possible these technical specifications should be defined so as to take into account accessibility criteria for people with disabilities or design for all users".

(The Directive contains no equivalent to the concept of undue burden, which is one of the key concepts in the US 508 legislation. Undue burden means significant difficulty or expense which would exempt the contracting authority from pursuing such a procurement. In determining whether an action would result in an undue burden, an agency shall consider all agency resources available to the program or component for which the product is being developed, procured, maintained, or used. Nevertheless, the words *'whenever possible'* suggest that contracting authorities have broad discretion in balancing costs and the accessibility considerations)

Paragraph 3 specifies that technical specifications shall be formulated either by reference to standards, or in terms of functional or performance requirements. In addition, certain characteristics can be specified by standards and others in terms of functions and performance. Where referring to standards, each reference shall be followed by the words "or equivalent".

Paragraph 4 specifies that, where a contracting authority refers to standards, it:

> "cannot reject a tender on the grounds that the products and services tendered for do not comply with the specifications to which it has referred, once the tenderer proves in his tender to the satisfaction of the contracting authority, by whatever appropriate means, that the solutions which he proposes satisfy in an equivalent manner the requirements defined by the technical specifications".

In paragraph 5, the inverse situation is specified. Where a contracting authority refers to functional and performance requirements, it cannot reject a tender for products which comply with standards addressing these requirements: "In his tender, the tenderer must prove to the satisfaction of the contracting authority and by any appropriate means that the work, product or service in compliance with the standard meets the performance or functional requirements of the contracting authority".

Both paragraphs 4 and 5 specify that "an appropriate means might be constituted by a technical dossier of the manufacturer or a test report from a recognised body". In paragraph 7, recognised bodies are defined as "test and calibration laboratories and certification and inspection bodies which comply with applicable European standards". In addition, paragraph 7 specifies that "contracting authorities shall accept certificates from recognised bodies established in other Member States."

7.4.4 E-accessibility specifications under the Procurement Directives

The Directives leave the CAs unrestricted freedom to formulate e-accessibility specification by reference to either national standards implementing European standards (when they exist) or international standards, or performance/functional specifications (art.23(3) of the Public Sector Directive; art.34(3) of the Utilities Directive). When European or international standards do not exist, CAs *must* formulate the e-accessibility specifications in performance or functional terms.

In case of reference to standards, the CA must accept functionally equivalent alternatives to those mentioned in the listed standards. This provision re-iterates the obligation established by the Treaty for purchasers to accept products/services which fulfil the *exact* functional or performance requested by the procurer. Thus, unlike required in the old Procurement Directives, the CA may not insist on the tenderers to

provide the European standard, but must accept equivalent proof of compliance with the functional requirements.

In case of e-accessibility requirements stemming out of 'new approach' directives, the CA, although not mandated to use the European standard, cannot set more stringent requirements than provided for in the directive. The CA has the freedom to use in alternative to the European standard an international standard or functional/performance requirements as long as they are not more stringent than the product/service requirements of the respective directive.

If there are no e-accessibility mandatory requirements stemming out of 'new approach' directives, the CA is free to formulate e-accessibility requirements, as stringent as it sees fit, even when non-mandatory standards are in place.

In both cases, the CA may use additional product requirements which are not referred to in standards (whether mandated by 'new approach' directives or voluntary). Thus, if no mandatory or non-mandatory product requirements exist, the CA is free to include its own specifications on e-accessibility.

7.4.5 The means of 'proof' (conformity assessment criteria)

From the Public Sector Directive's definition of technical specification it appears that a contracting authority may, but *does not have to*, include requirements on conformity assessments (i.e. that a conformity assessment procedure should be used in the tender to verify compliance with requirements set out in the technical specification). However, a few decisions of the EC Court (eg, Unix-case, C-359/93) lay down that "in order for the criterion to be acceptable, it should be controllable, which would imply that the contracting authority requires –through the submission of certificates for example– elements enabling it to control the information forwarded by the bidder in relation to the criteria."

According to the definitions of conformity assessment in the standard EN ISO/IEC 17000, an assessment can be performed either by the supplier (the first party), the customer (the second party) or someone else (a third party).

Therefore, the contracting authority may choose to verify itself whether the tender conforms to the stated requirements, provided that it has the necessary knowledge and equipment to carry out such verification in a way that treats the tenders equally. Where the authority does not have the adequate knowledge and equipment, it can use a consultancy service to carry out the verification.

If the contracting authority does not want to carry out the verification during the evaluation of the tenders (e.g. because it would be too time-consuming), the authority, in the call for tender, may ask the supplier to provide proof (i.e. a conformity assessment), that a certain requirement is complied with. In the sense of EN ISO/IEC 17000, the authority may require either a first party attestation, a supplier's declaration of conformity or a third party certification.

Where requirements on conformity assessments are specified, the CA need to respect the same obligations stemming from the Directives, to refer to standards "or equivalent", or to formulate this criteria in terms of functions and performance.

It follows from Article 23, paragraph 4, that a specific conformity assessment scheme, even if it is a formal standard, cannot be specified as mandatory. The tenderer has the option to use another method for proof, provided this party can prove to the satisfaction of the contracting authority that it yields equivalent results.

It follows from paragraphs 4 and 5 that a test report from a recognised body is an admissible but not mandatory way of proving compliance with the requirements set out in the technical specification. The term *"test report"* is not defined in the Directive.

The Directive does not specify what kind of proof a contracting authority may require. A contracting authority is allowed to ask for verification by a third party as long as equivalent verifications made by bodies in other Member States are accepted. Since the Directive gives no guidance on what "equivalent verification" should mean, each contracting authority must detail its own interpretation in order to ensure that the principle of equal treatment is applied.

7.5 E-accessibility at the award stage

Article 53 of the Directive 2004/18/EC lays down that the criteria on which the contracting authorities shall base the award of public contracts shall be either:

> (a) when the award is made to the tender most economically advantageous from the point of view of the contracting authority, various criteria linked to the subject-matter of the public contract in question, for example, quality, price, technical merit, aesthetic and functional characteristics, environmental characteristics, running costs, cost-effectiveness, after-sales service and technical assistance, delivery date and delivery period or period of completion, or
>
> (b) the lowest price only.

The list of criteria in alternativ (a) is not exhaustive. Thus, accessibility can be used as an award criterion provided that it is linked to the subject-matter of the contract. The purpose of the award stage on the procurement process is to allow the CA to compare the tenders and assess which tender best meets its needs. The award criteria chosen should help the CA to do this. They should relate to the intrinsic qualities of each of the bids.

Example:

When a CA procures a service concerning the building of a website, he can ask for award criteria related to **accessible ICT;**

When a CA procures a service concerning the cleaning of an office, he cannot ask for award criteria related to **accessible ICT!** This is because accessibility has nothing to do with the subject-matter of the procurement.

These wider costs and benefits should be considered much earlier, as previously explained.

Moreover, there must be a link between the requirements in the technical specifications and the award criteria. The technical specifications could be all translated into award criteria, but a contracting authority could not introduce award sub-criteria on e-accessibility if not already referred to as technical specification (otherwise it would conflict with the transparency principle). The CA may decide that any product/service/work performing better than the minimum level can be granted extra points at the award stage, provided that the tenderers have already received this information in the contract documentation.

8 An analysis model for public procurement

This section defines a model to analyse the properties of one public procurement context. These properties are called "criteria" in this report, because they influence the type of conformity assessment scheme that best fits each situation. The definition of this model is based on the study of the current framework of public procurement in the European context. Before dealing with the analysis model a distinction should be made between acquisition and procurement.

8.1 Acquisition vs procurement

The acquisition process starts with a decision that a problem shall be solved or a need fulfilled by acquiring a product and ends with taking the product into use. The product can be acquired by means of a procurement, or be developed in-house, or by some other way. The procurement process starts with a decision to acquire the product from the market and ends with the signing of a contract with a supplier.

Table 2 shows various steps in the acquisition process, with indications on where specification of requirements, evaluation of accessibility and attestation of conformity may take place. The procurement process is the activities in rows 6 to 15.

	Purchaser activities	**Supplier activities**	**Specified accessibility requirements**	**Evaluation process on accessibility**	**Attestation of conformity**
1		Development, design, manufacturing, assembling, system integration, …	May have been adopted in corporate policy or other document	Assessment of conformity to specifications may take place	Where the market demands, a supplier's declaration of conformity or a third party certification may be set up.
2	A need or a problem is detected. A manager decides to undertake measures.				
3	Feasibility study. Business needs, user needs are identified. Some technical requirements may be identified.		Some accessibility requirements identified		
4	A concept or solution is determined. Functions, performance and technical requirements are identified.		Some accessibility requirements identified		

5	Depending on what is available on the market, the purchaser decides to carry out a procurement of products and services or development, or to develop in-house. If in-house, leave this table.				
6	Elaborate call-for-tender, including technical specifications. Send to suppliers.		Accessibility requirements are specified. May refer to standards.		
7		Planning of tender.			
8		Potential tenderer sends specification to subcontractor.	Specified accessibility requirements. Not necessarily the same as in the call-for-tender. The tenderer may need supplementary equipment.		
9		Subcontractors select products and services and offer to tenderer			Subcontractor submits declarations or certificates
10		Tenderer selects components to offer			
11		Tenderer integrates products and services to a package		Control of the entirety of the offer against accessibility requirements specified in the call-for-tender	Tender include declarations or certificates in the tender
12		Tenderer sends tender to the purchaser			
13	Evaluation of tenders			Verification that the specified requirements are fulfilled	
14	Negotiation	Negotiation			
15	Awarding of contract, Contract signing	Contract signing			
16		Delivery			
17		Customisation, development, where applicable		Verification that the specified requirements are fulfilled	
18	Acceptance test			Verification that the specified requirements are fulfilled	A statement can be used to trigger the payment

Table 2. Steps in the acquisition process

8.2 Elements defining the context of public procurement

The context of a public procurement process can be divided into several elements:

- The product to be procured (product includes service, according to ISO 9000);
- The market the product belongs to;
- The public administration procuring the product;

- The users that will be using the product;
- The public procurement characteristics;

In the following section, a set of criteria is identified for each of these elements. Moreover, for each criterion, the following items will be detailed: name, description, source and possible values. In addition to these items, some notes may be added.

8.3 Criteria dependent on the product

The product to be procured defines the following set of criteria:

- **Type of product**: the type of product, as defined in ISO 9000, combined with the applicable CPV codes (Common Procurement Vocabulary [EC, 2002], amended by [EC, 2003])
    - Source: ISO 9000:2000, Regulation 2151/2003 16th December 2003.
    - Values: service, software, hardware, processed materials; combined with CPV code(s) in brackets
    - Note 1: In case of procurement of a combination of products within one procedure, a list of values needs to be put together , with a category and a CPV code for each individual element.
    - Example 1: The value for one personal desktop computer should be "Hardware (30213000)"
    - Note 2: The products in Example 2 below can be sold and purchased as a service, i.e. the supplier owns all the hardware and software and manages all updating and maintenance.
    - Example 2: When procuring several personal computers, plus their operating systems and office applications, several printers and the service of installation and maintenance, the value of this criterion should be: "Hardware (30213000), Software (30241400, 30241200), Service (50961100, 72254000)".
- **State of technology**: describes the state of the product's technology on the market. It may be an existing technology, an existing technology applied to a new domain or a completely new technology.
    - Source: project team
    - Values: existing technology, new technology, existing technology applied to a new domain
- **Time to market**: the time that a new product is under development before it reaches the market.
    - Source: project team.
    - Values: short (less than six months), medium (between six and twenty four months), long (more than twenty four months).
    - Note 1: this criterion is applicable to all product types
    - Note 2: this criterion is not applicable for procuring products under development (service, software …)

- **Life span**: the time that a product remains in the market before being replaced. Several reasons may affect the life span: legislation, security, user requirements, etc.
    - Source: project team.
    - Values: short (less than six months), medium (between six and twenty four months), long (more than twenty four months).
    - Note 1: this criterion is closely related to "time to market" (for instance, if time to market is long then the life span cannot be short, it wouldn't make sense). Not all combinations of time to market and life span are possible.
- **Rate of changes**: how often the product can change (e.g. new features added) during its use
    - Source: project team
    - Values: none, low (less than ten changes per year), medium (between ten and fifty changes per year), high (more than fifty changes per year)
    - Note 1: this criterion is not usually applicable to hardware
    - Note 2: this criterion is only applicable when "adaptability" is "yes".
- **Adaptability**: whether the product can be adapted to better suit the needs of its users. Adaptations can be simple to made (like user preferences) or be complex (like strong changes in the behaviour of the user interface).
    - Source: project team
    - Values: no, yes
    - Note 1: Adaptability cannot happen in closed products, i.e. systems that do not allow user to modify it or connect a peripheral. A closed product maybe so because of technical reasons (i.e., a mobile phone), intellectual property rights (i.e., patents, closed-source software) or policies (i.e., a computer in a public library that is closed to the installation of software components).
- **Interoperability with assistive technologies**: whether the product can be connected to assistive technologies
    - Source: project team
    - Values: no, only hardware, only software, both hardware and software
    - Note 1: this criterion is applicable to all product types
    - Note 2: for the "only hardware" case, the product should provide standardised means of communication and control by assistive technologies (including connectors, protocols and so on).
    - Note 3: for the "only software" case, the product should be able to provide multimodal communication (for instance, both visual and audible output).
- **Total cost of ownership**: the addition of direct and indirect costs related to the product. It not only reflects the cost of purchase but all aspects in the further use and maintenance of the equipment, device, or system considered.

- Source: project team
- Values: amount in Euros
- Note 1: this criterion is applicable to any product type

8.4 Criteria dependent on the market

- **Competition**: the degree of competitiveness of the market of the product.
  - Source: IDC white paper
  - Values: none (only one supplier), low (short number of available suppliers, below five), normal (more than 5).
  - Note 1: this criterion is applicable to any product type
- **Market awareness**: level of awareness of accessibility issues among companies , customers and users.
  - Source: IDC white paper
  - Values: none, low, intermediate, high
  - Note 1: this criterion is applicable to any product type
- **Market surveillance**: existence of verification of the conformity of products after the product goes to the market (see 11.2 for details). This criterion also covers who is responsible for the market surveillance.
  - Source: IDC white paper
  - Values: none, third-party assessors, consumer organisations, government
  - Note 1: this criterion is not applicable when procuring products to be developed
  - Note 2: currently market surveillance is made at a national level. See clause 11 for details.
- **Competitor's surveillance**: existence of surveillance of conformity performed by the competitors
  - Source: project team
  - Values: no, yes
  - Note 1: this criterion is applicable to any product type
  - Note 2: See clause 11 for details.
- **Barriers to trade**: whether the assessment of accessibility could generate barriers to trade by promoting local suppliers.
  - Source: IDC white paper
  - Values: no, yes
  - Note 1: this criterion is applicable to any product type
- **Independent Expertise on accessibility**: whether there is available expertise on accessibility of the product and on the conformity assessment of accessibility. This expertise has to be independent of suppliers and manufacturers in order to enable the definition of accessibility requirements in public procurement.

  - Source: project team
  - Values: no, yes
  - Note 1: this criterion is applicable to any product type

- **Size of suppliers of the product**: the dominant type of enterprises in the market, according to their size. SMEs and big worldwide companies have different resources for different kinds of conformity assessments. It should be remembered that at least 95 percent of the enterprises in EU are SME's.
  - Source: project team
  - Values: Micro enterprises (less than 10 employees), Small enterprises (less than 50 employees), Medium enterprises (51 – 250 employees), Big enterprises (251 employees or more), Mixed (variability of sizes).
  - Note 1: this criterion is applicable to any product type

8.5 Criteria dependent on the public administration (Contracting authority)

- **Public task**: the tasks of the public administration. They can be policy, execution or control oriented.
  - Source: project team
  - Values: policy, execution, control
- **Geographical focus**: the level of geographical competences of the contracting authority: local, regional, member state or European.
  - Source: project team
  - Values: local, regional, member state, European
- **In-house expertise on accessibility**: whether there is available expertise in-house, so that the procurer can evaluate the accessibility claims of the suppliers.
  - Source: project team
  - Values: no/yes
  - Note 1: this criterion is related to "independent expertise on accessibility" under "market". If there is no expertise in the market then it is unlikely to have in-house expertise in the contracting authority.
- **Legal requirements**: whether the public administration has to comply with accessibility-related legal requirements
  - Source: project team
  - Values: no/yes
  - Note 1: not all the public administrations have to comply with accessibility requirements (for instance it may be the case that small local authorities don't have to procure accessible ICT products).
  - Note 2: this criterion depends on the type of product. Legal requirements are different for different products.
  - Note 3: the value can also describe which are the legal requirements.

8.6 Criteria dependent on the users

- **Risk of harm**: level of potential risk to produce adverse effects on users. In this report the 'risk of harm' criteria is only related to accessibility-based adverse effects, and not to safety regulations.
    - Source: IDC white paper
    - Values: low, intermediate, high
    - Note 1: in the accessibility context and for ICT products the risk of physical harm is generally low, except the case of photosensitive epilepsy.
    - Note 2: on the contrary, the risk of economical harm can be high. For instance, one person with disabilities could lose his or her job due to the implementation of non-accessible new tools.
- **Risk of social exclusion**: the risk that a non-accessible ICT product may produce social exclusion of users with disabilities, because the lack of alternatives
    - Source: ANEC, CEAPAT, project team
    - Values: low, intermediate, high
    - Note 1: the value of this criterion depends on the existence of alternatives for the users and on the accessibility of these alternatives.
- **Confidence**: the level of confidence of the users on attestations of accessibility
    - Source: project team
    - Values: low, intermediate, high
    - Note 1: this criterion indicates if the users are confident about declarations of accessibility (for instance, for web sites the confidence is low).

8.7 Criteria dependent on the public procurement characteristics

- **Type of procurement**, according to Hommen's matrix [Hommen]: direct procurement (based on needs intrinsic to the procuring organisation , e.g. e-government services), cooperative procurement (based on shared needs, congeneric to multiple users e.g. energy efficient lighting or buildings), catalytic procurement (based on needs extrinsic to the procuring organisation, i.e. needs of other users e.g. new sustainable technologies).
    - Source: project team
    - Values: direct, cooperative, catalytic
- **Type of procedure**: the type of public procurement process, from direct purchase to fully fledged procurement
    - Source: project team
    - Values:

        - When the procurement is above the threshold amount, as defined by the directives: open procedure, restricted procedure, negotiated procedure, contract following a framework agreement, competitive dialogue, dynamic purchasing system.
        - When the procurement is below the threshold amount: direct (small procurements without call-for-tender or tender from one supplier), limited number of invited suppliers, call-for-tender open to any supplier.
    - Note 1: the typical values for procurement above the threshold are open and restricted procedure. The other values are exceptional processes to be used in specific situations.
    - Note 2: the values for procurement below the threshold are extremely difficult to generalise because they depend on national legislation. The above values are an initial suggestion.

- **Electronic procurement**: whether the procurement is electronic or not. Electronic procurements have specific characteristics and should be analysed separately. They can occur both below and above the threshold amount.
    - Source: project team
    - Values: no, yes
- **Prior existence of the product**: whether the product to be procured exists in the market or has to be developed.
    - Source: project team
    - Values: no, yes
    - NOTE 1: if the product has to be developed (value “no”), then the procurement is for the service of development of the product. In this case, the values for the criteria of the “product” group will be related to the result instead of the development service.
- **Amount of units**: the amount of units (or licences) of the product to be procured. This information is part of the needs analysis performed in preparation of the public procurement.
    - Source: project team
    - Values: low, medium, high
    - Note 1: quantitative values (i.e. number of units) can be used instead of the qualitative values.
    - Note 2: if the product has to be developed then the amount of units is typically one (qualitative value “low”).
- **Budget**: the amount of money that the procurer is expecting to invest
    - Source: project team
    - Value: budget in Euros
    - Note 1: qualitative values can be used, based on the thresholds defined by the European Union (see art. 7, Directive 2004/18/EC and art. 16, Directive 2004/17/EC for the latest values) or by member states

- Note 2: the budget is related to the type of procurement, depending on the thresholds.
- Note 3: the relevance of this criterion is that the cost of the procurement, including – where applicable – the customer's cost for conformity assessment, should not exceed some percentage of the purchase sum. For example, if the cost of a software package is 100 000 Euro, it is not reasonable to spend 30 000 Euro on conformity assessment activities

- **Liability and accountability**: whether the supplier is liable for not providing an accessible product (risk mitigation procedure….)
  - Source: IDC white paper, project team
  - Values: no, yes
  - Note 1: It is presumed that liability on accessibility issues does not exist for all the cases.
  - Note 2: It could be relevant to note the cost of sanctions.

9 Scenarios

The intention of this clause is to apply the model for analysis of the procurement contexts (the criteria). The influence of the criteria of the public procurement contexts on the dimensions of conformity assessment systems are detailed in these scenarios. The scenarios are selected to cover four different procurement cases:

- A set of units of desktop laser printers, which is a procurement of off-the-shelf products
- A frame contract for mobile communication, including a set of units of mobile phones, which is a procurement of a service including off-the-shelf products and
- Development of a website, which is a common procurement case
- A road traffic management system, which is a complex object of procurement.

In all four cases, accessibility requirements need to be stated and conformity assessment carried out.

The descriptions below are focused on accessibility-related issues, without entering into details about other technical details that should be defined for a complete description of the scenarios.

9.1 Procurement of a set of units of desktop laser printers

9.1.1 Description

This scenario consists of the procurement of 50 desktop laser printers by a Spanish regional parliament. The laser printers will be used by the employees of the contracting authority. Maintenance-related activities (like changing the toner) will be done by the IT people of the contracting authority.

The laser printers will be monochrome printers with capacity to print double-sided and without network connection (that means that they have to be directly connected to computers).

Among the employees of the regional authority there is a limited percentage of people with disabilities but this number can change in the future, due to legal obligation of the local authority of having a percentage of employees with disabilities.

The contracting authority has no legal requirement of procuring accessible desktop laser printers. But these devices will have to be used by all the employees. For this reason the contracting authority has established conformity with the Spanish hardware accessibility standard (UNE 139801:2003) as part of the technical specification.

9.1.2 Values assigned to the criteria of public procurement

Product		
Type of product	Hardware (30213000)	This is the CPV code for printers
State of technology	Existing technology	The technology used in the system already exists
Time to market	Medium	Laser printers usually take more than 6 months to market
Life span	Long	Laser printers are used for a long time.

Rate of changes	None	Laser printers don't change during their life time
Adaptability	No	Laser printers cannot be adapted
Interoperability with AT	Only software	The laser printer driver software should be interoperable with AT
Total cost of ownership	2.000 € per unit	The cost includes the price of the printer and an estimate of the toner needed during the printer's lifetime. This cost may be bigger if the printer has intensive use.
Market		
Competition	Normal	There are more than 5 laser printer suppliers
Market awareness	Manufacturers: Low Suppliers: none	There is low level of awareness of accessibility issues by the manufacturers, mostly related to the 508 requirements in the United States. On the other hand, the local suppliers have no awareness on accessibility.
Market surveillance	None	There is no market surveillance for accessibility-related requirements.
Competitor's surveillance	No	Competitors don't perform surveillance on accessibility requirement.
Barriers to trade	Yes	Given that the contracting authority is using national requirements there is a risk of market fragmentation.
Independent expertise	Yes	There is independent expertise on accessibility issues of laser printers.
Size of suppliers	Mixed	Suppliers of laser printers can be of various sizes
Contracting authority		
Public task	Policy	It is the regional parliament
Geographical focus	Regional	See above
In house expertise	No	There is no in-house expertise on accessibility
Legal requirements	No	There are no legal requirement for procuring accessible ICT, but the contracting authority has to provide support to its employees.
Users		
Risk of harm	Low	Risk of harm using a laser printer is very low
Risk of social exclusion	Low	There is almost no risk of social exclusion in the workplace due to limitations in the use of the printer.
Confidence	Low	There is lack of knowledge of accessibility of peripherals and thus the confidence level on accessibility attestations is low.
Public procurement		
Type of procurement	Direct	It is direct procurement
Type of procedure	Limited number of invited suppliers	It is a procurement below the threshold. In Spain, for this amount of money, only three competitors' offers are required.
Electronic procurement	No	It is not an electronic procurement
Prior existence of the product	Yes	The laser printers exists prior to the procurement
Amount of units	Medium	It is the procurement of 50 units

Budget	12.000 € total	It is an estimate given current prices of laser printers
Liability and accountability	No	…

9.1.3 Recommended values for the dimensions of conformity assessment

Selection		
Requirements	National standard (UNE 139801:2003)	It is part of the technical specification of this procurement Criteria that influence this dimension: • Type of product • State of technology • In house expertise
Scalability	No	Desktop laser printers are simple devices from the point of view of user interaction. Criteria that influence this dimension: • Type of product
Determination		
Method of determination	Mixed	A combination of inspection and testing is required Criteria that influence this dimension: • Type of product • Rate of changes • Adaptability • Interoperability with AT • Independent expertise • In house expertise • Prior existence of the product
External	Yes	There is low confidence on attestations and thus an external determination could raise this confidence. It has to be noted that the determination is a responsibility for the manufacturer instead of the supplier. Criteria that influence this dimension: • Confidence • Independent expertise
Type of party	Third (C)	See above: Criteria that influence this dimension: • Confidence • Independent expertise
Review and attestation		
Type of party	First (manufacturer)	An attestation provided by the manufacturer is enough for the case. Criteria that influence this dimension: • Type of product • State of technology • Time to market • Life span • Rate of changes • Independent expertise • Confidence • Prior existence of the product
Detail of attestation	Detailed (human)	The attestations have to be detailed for comparisons by the procurers.

		Criteria that influence this dimension: • Type of product • Independent expertise • In house expertise • Confidence
Publicity	Yes	The attestations of accessibility have to be public to the procurers. Criteria that influence this dimension: • Type of product • Rate of changes • Independent expertise • Confidence
Surveillance		
Existence	No	Laser printers don't change and thus surveillance is not required Criteria that influence this dimension: • Type of product • Time to market • Life span • Rate of changes • Adaptability • Interoperability with AT
Complaint system	No	A complaint system is not needed in this case. Criteria that influence this dimension: • Type of product • Competition • Market surveillance • Competitor's surveillance • Legal requirements • Risk of harm • Risk of social exclusion
Other		
Mandatory	No	The conformity assessment system doesn't have to be mandatory. Criteria that influence this dimension: • Legal requirements • Risk of harm • Risk of social exclusion

9.1.4 Recommended conformity assessment system

Given the above values for the dimensions of conformity assessment system, a Supplier's declaration of conformity (based on ISO/IEC 17050) with the addition of third party determination by laboratories is enough.

9.2 Procurement of a frame contract for mobile communication, including a set of units of mobile phones

9.2.1 Description

This scenario consists of the procurement of a frame contract for mobile communication for 200 to 250 employees of a local authority (one big municipality). The mobile phones

will be used by the employees of the contracting authority as substitutes of the existing fixed phones, for phone and e-mail services. The procurement includes a set of mobile phones where each employee is allowed to select a phone from a given set of devices.

Among the employees of the local authority there are people with disabilities (visually impaired, blind, hearing impaired and persons with dexterity limitations). This number can change in the future, due to legal obligation of the local authority of having a percentage of employees with disabilities. The type and degree of impairment of the new employees is, of course, completely unknown.

The contracting authority has no legal requirement of procuring accessible mobile phones. But these devices will substitute the traditional fixed phones and will have to be used by all the employees. For this reason the contracting authority has established a set of accessibility requirements supporting the different types of impairment. For example:

- Voice-based control of the main functionalities, especially for making calls.
- Speech output of on-screen relevant information and the menus.
- Speech output of the content of SMS, MMS and other types of messages.
- Capacity to connect auxiliary equipment such as headphones, inductive amplifiers, external screens or external keyboards.
- High-contrast screen with the possibility of displaying large fonts and with user preferences on colours and font sizes.
- Itemized bill in accessible electronic format.

9.2.2 Values assigned to the criteria of public procurement

Product		
Type of product	Service + Hardware (mobile-telephone service: 64212000-5) (mobile telephones: 32250000-0)	It is a customized service including different types of off-the-shelf mobile communication devices.
State of technology	Existing technology	The technology used in the system already exists and is widely spread.
Time to market	Short	Time to market is very shot: it's a pre configured system which is customized in a few hours.
Life span	Medium	The contract will be re-negotiated every two years.
Rate of changes	Low	No changes in the service expected within two years, but probably major changes in the availability of mobile devices.
Adaptability	Yes	Of course employees may change the profiles of the mobile devices in accordance to their individual preferences.
Interoperability with AT	Both hardware and software	Training of persons with disabilities for using AT (EG-Screen-Reader) will be required.
Total cost of ownership	100.000 € total	Approximately 100.000 € including devices, phone calls, etc.

Market		
Competition	Normal	About 15 competitors are able to provide the service.
Market awareness	High	Telecommunication providers are pretty well aware of accessibility issues
Market surveillance	Consumer organisations	Accessibility requirements are well developed and are tested in practice for all telecommunication devices and disability types.
Competitor's surveillance	Yes	The network-providers are highly dependent of the engagement of the manufactures of mainstream devices and existing technology and, in specials cases, on specialized developments (SMEs).
Barriers to trade	Yes	Accessibility regulations of communication devices are different in European countries.
Independent expertise	Yes	Accessibility requirements are completely known by network-providers and manufactures.
Size of suppliers	Big	Only the well known network-providers will be able to offer the requested services.
Contracting authority		
Public task	Execution and control	A local authority (one big municipality)
Geographical focus	Local	See above
In house expertise	Yes	In house expertise by employees with impairments (at least private expertise).
Legal requirements	No	The contracting authority has no legal obligation of procure accessible mobile phone services
Users		
Risk of harm	Low	Non successful operations do not rise significant risk.
Risk of social exclusion	High	If the system is not accessible employees cannot work efficiently.
Confidence	High	The end-users have a high confidence on declarations of accessibility in this domain (due to own experience).
Public procurement		
Type of procurement	Direct	It is direct procurement
Type of procedure	Open procedure	It is a simple customized out-of-the-box service.
Electronic procurement	Yes	The procurement can be done electronically
Prior existence of the product	Yes	
Amount of units	Medium	It is a simple system (with 200 mainstream-devices from a set of five).
Budget	100.000 € total	Contract time two years
Liability and accountability	Yes	Helpdesk required

9.2.3 Recommended values for the dimensions of conformity assessment

Selection		
Requirements	International standards (ISO 9241-20, ISO 9241-	Lot of guidelines and individual test reports are available, most of them focusing on a certain type of disabilities. Most companies

	171) , de facto standards (Adobe blank PDF), national regulations (EG Sec. 255 Standards) and other (the requirements defined by the contracting authority	have developed internal accessibility guidelines.
Scalability	Yes	Scalability is needed. Criteria that influence this dimension: • Universal design • Adaptive design • Interoperability with AT • Special solutions
Determination		
Method of determination	Mixed	Testing is the most relevant method in this case, but some inspection is also useful. Criteria that influence this dimension: • Type of product • Rate of changes • Adaptability • Interoperability with AT • Independent expertise • In house expertise • Risk of harm • Risk of social exclusion • Prior existence of the product
External	Not specified	The determination can be provided by the manufacturer instead of the network-provider. It can also be provided by external organisations such as consumer organisations.
Type of party	Not specified	See above
Review and attestation		
Type of party	First	Given the low complexity, small size and small budget, third party certification of the accessibility of the components of the system is not affordable and economically not reasonable. Criteria that influence this dimension: • Type of product • State of technology • Time to market • Life span • Rate of changes • Total cost of ownership • Market awareness • Independent expertise • Size of suppliers • In house expertise • Legal requirements

		• Risk of harm • Risk of social exclusion • Confidence • Prior existence of the product • Budget
Detail of attestation	Detailed (human)	Given the complexity of the systems the competing proposals will be different and machine-readable attestations are not useful for comparison of the proposals. Criteria that influence this dimension: • Type of product • Market awareness • Independent expertise • Legal requirements • Risk of harm • Risk of social exclusion • Confidence
Publicity	Yes	For most communication devices there are evaluation-reports available published by user-organisations (type of impairment or consumer-organisations (e.g. Stiftung-Warentest, German)). Criteria that influence this dimension: • Type of product • Rate of changes • Market surveillance • Competitor`s sureveillance • Independent expertise • Public task • Legal requirements • Risk of harm • Risk of social exclusion • Confidence
Surveillance		
Existence	No	Expected lifetime of the system is two years. Virtual placement of devices is not expected during this period. Criteria that influence this dimension: • Type of product • Time to market • Life span • Rate of changes • Adaptability • Interoperability with AT • Total cost of ownership • Size of suppliers • In house expertise • Legal requirements • Risk of harm • Risk of social exclusion • Confidence • Prior existence of the product • Budget

Complaint system	No	The requested Helpdesk will cover this task. Criteria that influence this dimension: • Type of product • Time to market • Life span • Rate of changes • Adaptability • Interoperability with AT • Total cost of ownership • Market surveillance • Competitor's surveillance • Size of suppliers • In house expertise • Legal requirements • Risk of harm • Risk of social exclusion • Confidence • Prior existence of the product • Budget
Other		
Mandatory	No	

9.2.4 Recommended conformity assessment system

Given the above values for the dimensions of conformity assessment system, a Supplier's declaration of conformity (based on ISO/IEC 17050) is enough.

9.3 Procurement of a web site development for a ministry

9.3.1 Description

This scenario consists of the procurement of the development of the new version of the official website of a national ministry. The previous version of that website was developed several years ago, it is technologically obsolete and, in addition, does not conform with accessibility guidelines.

The website to be developed is the public website of the ministry, which offers information about the subjects the ministry is responsible for and, in addition, will offer some services for the general public. The website is not the only source for either the information and the services: the general public can use the phone or the offices of the ministry to obtain information or use the services. But there are no relay services for phone access of people with hearing impairments and the ministry offices are not completely accessible for people using wheelchairs.

Once the development is finished, the website will be maintained by the ministry, both technically and for content: people from the computing department will be responsible for the technical maintenance and administrative personnel from different departments will update the contents of the website.

The website has to be developed in a one year time frame and has to conform to level AA of the web content accessibility guidelines. The ministry has a legal obligation to provide an accessible website but there is no in-house expertise of web accessibility and

its evaluation. For this reason the website has to include a content management system that supports and promotes the accessibility of the end result.

9.3.2 Values assigned to the criteria of public procurement

Product		
Type of product	Procurement phase: Service (development of the websiteCMS + technical manual) Contract phase: Software	It is a website with Content Management System. The system should support easy adding of modules for new services. After implementation, the modules will then be maintained by the Ministry. Information, training and components for technical maintenance by Ministry should also be included.
State of technology	Existing technology	The technology used in the system already exists.
Time to market	Medium	It is a based on available CMS systems
Life span	Long	Once finished, the system will be in use for several years
Rate of changes	High, Medium	High: Many content changes and addition of new content. Medium: Modules with new services to the public and the employees can be added. This changes the maintenance package of the Ministry.
Adaptability	Yes	End-users (the public) can only make changes on the presentation layer. Employees (i.e. content providers from Ministry) can have the possibility to make limited adaptations to other layers of the system. For the computing department, adaptation mechanisms are available.
Interoperability with AT	Both hardware and software	All products are accessible for people with disabilities using screen readers and related hardware.
Total cost of ownership	< 150.000 Euro	Production: < 150.000 Maintenance: depends on internal accounting
Market		
Competition	Normal	Many competitors are able to develop the system although the technical capacities and abilities are not evident
Market awareness	High	Awareness is high in the website domain, although there is low level of awareness of accessibility issues in CMS systems
Market surveillance	None	Consumer organisations can provide surveillance of end-user requirements, but not specifically on accessibility of the CMS and the adaptations of the product because they can be behind login etc.
Competitor's surveillance	No	It can be expected that competitors are interested in the results, but not in the process
Barriers to trade	No	This is a product that will be adapted to fit the accessibility and Ministry services requirement. There is no foreseen barrier to

		trade, due to the use of internationally agreed accessibility requirements
Independent expertise	Yes	There is independent expertise on accessibility issues of most of the components of the system as concerning conformity assessment
Size of suppliers	Big	The possible suppliers of a CMS with this scale and these possibilities are mostly big enterprises.
Contracting authority		
Public task	Execution (Control)	It is the Ministry. First execution, after that , the control
Geographical focus	Member State	See above
In house expertise	Website: Yes CMS: No	There is in-house expertise on accessibility, but not on accessibility of CMS
Legal requirements	Yes	The Ministry has legal requirements on website accessibility
Users		
Risk of harm	Low	Misinformation provided through the system can cause problems to the government. The accessibility does not seem to pose risks
Risk of social exclusion	High	If the system is not accessible most users will not be able to reach or input information. There are alternatives to the website, but they are not accessible for everyone.
Confidence	Low	The end-users have a low confidence on declarations of accessibility in this domain. This is dependent on the organisation.
Public procurement		
Type of procurement	Direct	It is direct procurement
Type of procedure	Open procedure	Other procedures are possible here
Electronic procurement	No	It is not an electronic procurement
Prior existence of the product	No	The system has to be developed, but based on existing CMS base system, although many components already exist, special adaptations to fit the maintenance and services have to be tailored. This is normal when implementing CMS systems
Amount of units	Low	It is only one system (although with many components)
Budget	150.000 Euro	Total budget for external work. Also internal work is necessary i.e. in the pre-procurement, the selection and the following stages.
Liability and accountability	Yes	Yes, it is required in the contract phase

9.3.3 Recommended values for the dimensions of conformity assessment

Selection		
Requirements	De Facto standards (WCAG 10; ATAG; UAAG)	There are W3C standards covering the system and the output of the system: WCAG for the content, ATAG for the CMS and UAAG for the CMS if it includes its own user agent. There is limited knowledge about

		the de-facto guidelines on CMS systems. Criteria that influence this dimension: • Type of product • Adaptability • Interoperability with AT • State of technology • Public task • Risk of social exclusion • Prior existence of the product • Legal requirements
Scalability	Yes	The CMS and the online end result in the browser are two different products to test. There is a need to set the scope and the minimal contents of a sample for these products. Criteria that influence this dimension: • Type of product • Time to market • Life span • Total cost of ownership
Determination		
Method of determination	Mixed	A combination of inspection (for the website) and testing (for the CMS user interface) is required.. Criteria that influence this dimension: • Type of product • Life span • Rate of changes • Interoperability with AT • Risk of social exclusion • Legal requirements • Confidence • Budget
External	Not specified	This is not relevant
Type of party	Not applicable	• See above
Review and attestation		
Type of party	Accredited Third (A)	This has to do with confidence. And risk management of the Ministry. A continuous monitoring should be setup after delivery. Criteria that influence this dimension: • Type of product • Time to market • Life span • Rate of changes • Adaptability • Interoperability with AT • In house expertise • Public task • Total cost of ownership • Risk of social exclusion • Legal requirements • Confidence • Budget

Detail of attestation	Detailed (machine)	EARL can be used to provide details of the attestation. Criteria that influence this dimension: • Type of product • In house expertise • Budget
Publicity	Yes	Given the impact of the system, the accessibility attestations of its components should be public on demand. Criteria that influence this dimension: • Life span • Market awareness • Market surveillance • Risk of social exclusion • Legal requirements • Confidence
Surveillance		
Existence	Yes	It is a complex system that will be used during several years and some of its components may be replaced over time. Because many people provide input, constant (or yearly) monitoring is necessary. Criteria that influence this dimension: • Type of product • Market awareness • Rate of changes • Adaptability • Market surveillance • Total cost of ownership • Competitors' surveillance • Risk of social exclusion • Legal requirements • Confidence • Budget
Complaint system	Yes	It is a complex system that will be used during several years and will have some system of market surveillance made by customer's organizations. Thus it a complaint system could be set in place. Criteria that influence this dimension: • Type of product • Market awareness • Rate of changes • Market surveillance • Competitors' surveillance • Public task • Total cost of ownership • Risk of social exclusion • Legal requirements • Confidence • Budget
Other		
Mandatory	Yes	In this member state an accessibility conformity assessment is mandatory.

		Depending on the country. Criteria that influence this dimension: • Type of product • Legal requirements • Budget

9.3.4 Recommended conformity assessment system

Given the above values for the dimensions of conformity assessment, the recommended system is inspection of products, according to ISO/IEC 17020.

9.4 Procurement of a road traffic information management system

9.4.1 Description

This scenario consists of the public procurement of a complex project for the management of region-wide information about road traffic. The contracting authority is the regional agency of transports.

The system will manage information about several issues:

- The traffic intensity of all the roads of the region
- Incidences occurring in the roads, such as accidents, works, especial weather conditions, etc.
- Hints and advises based on the state of the road. (known points of high risk etc.)
- Payments made in the toll-based highways on the region

This information will be used by employees of the transports agency and will also be made available to the general public through several channels:

- Information displays placed on the roads
- Web-based traffic information system
- Mobile devices access (voice interface)
- RDSI (or other systems based on the equipment of the vehicle)

The system also includes the toll-payment automatic machines that will be used by the highway drivers and the user interface of the toll-payment system to be used by the highway employees.

The contracting authority wants to provide an accessible services in all the areas that interact with employees or with the general public, as described above. Given the complexity of the planned system, it does not exist a detailed list of accessibility requirements and tenderers are referred to the more general international standards on accessibility: ISO 9241-20 on ICT accessibility and ISO/IEC TR 29138.

9.4.2 Values assigned to the criteria of public procurement

Product		
Type of product	Service + software + hardware + processed materials	It is a complex system that includes a range of different elements of the four types defined in ISO 9000.
State of technology	Existing technology	The technology used in the system already

		exists
Time to market	Long	It is a complex system to be developed in a long period of time
Life span	Long	Once finished, the system will be in use for several years
Rate of changes	Low	Very few changes are expected during the lifetime of the finished system
Adaptability	End-users: No Employees: Yes	For end-users there is no possible adaptation offered by the system. For employees there can be adaptation mechanisms implemented
Interoperability with AT	End-users: only hardware Employees: both hardware and software	Again, the user interface is more flexible for employees. For the end-users the system will be able to connect to assistive hardware through standard wireless protocols.
Total cost of ownership	> 1 M Euros	It is a very complex system with a high total cost of ownership, bigger than 1 M Euros
Market		
Competition	Low	Only 3 or 4 competitors are able to develop the system
Market awareness	Low	There is low level of awareness of accessibility issues
Market surveillance	Consumer organisations	Consumer organisations can provide surveillance of end-user requirements, but not specifically on acessibility
Competitor's surveillance	Yes	Given the limited number of competitors, they perform surveillance of each other
Barriers to trade	No (Yes)	This is not an off-the-shelf product, but a complex system with many components. There is no foreseen barriers to trade. (Klaus: typically this is a toolkit-based development. If there are local specific accessibility requirements it may create market fragmentation).
Independent expertise	Yes	There is independent expertise on accessibility issues of most of the components of the system
Size of suppliers	Big	The only possible suppliers are all of them big enterprises.
Contracting authority		
Public task	Execution	It is the regional traffic agency
Geographical focus	Regional	See above
In house expertise	No	There is no in-house expertise on accessibility
Legal requirements	Yes (partially)	For some parts of the system (i.e. the web-based access to the traffic information) there are legal requirements of accessibility.
Users		
Risk of harm	End-users: High Employees: Low	Misinformation provided through the system can cause accidents (we need to be more specific in relation to accessibility).
Risk of social exclusion	End-users: Intermediate Employees: high	If the system is not accessible most users will still be able to use the roads, albeit with less information about the traffic state.

Confidence	Intermediate	The end-users have an intermediate confidence on declarations of accessibility in this domain
Public procurement		
Type of procurement	Direct	It is direct procurement
Type of procedure	Competitive dialog	As it is a particularly complex system (according to the definition given by the Directive) the procedures is a competitive dialog aimed at developing technical alternatives capable of meeting the requirements.
Electronic procurement	No	It is not an electronic procurement
Prior existence of the product	No	The system has to be developed, although many components already exist in the market
Amount of units	Low	It is only one system which has few but complex components and that incorporates many devices
Budget	Above threshold	The budget for this system is high and well above the thresholds defined in the public procurement Directive.
Liability and accountability	Yes	Yes, it is required in the contract phase

9.4.3 Recommended values for the dimensions of conformity assessment

Selection		
Requirements	International standards (ISO 9241-20, ISO/IEC TR 29138, ISO 9241-171, ISO TR 22411) and de Facto standards (WCAG 10)	Although there are no detailed accessibility standards covering all the system, there are relevant standards. Some are generic and some others are for specific components of the system. Criteria that influence this dimension: • Type of product • State of technology • In house expertise
Scalability	Yes	Scalability is needed. Criteria that influence this dimension: • Type of product • Time to market • Life span • Total cost of ownership
Determination		
Method of determination	Mixed	A combination of inspection and testing is required Criteria that influence this dimension: • Type of product • Rate of changes • Adaptability • Interoperability with AT • Independent expertise • In house expertise • Risk of harm • Risk of social exclusion • Prior existence of the product

External	Not relevant	It is not relevant for the public procurement whether the determination is external or not. Criteria that influence this dimension: • Confidence
Type of party	Not relevant	See above: Criteria that influence this dimension: • Confidence
Review and attestation		
Type of party	Accredited Third (A)	Given the complexity, size and budget, third party certification of the accessibility of the components of the system is affordable. Criteria that influence this dimension: • Type of product • State of technology • Time to market • Life span • Rate of changes • Total cost of ownership • Market awareness • Independent expertise • Size of suppliers • In house expertise • Legal requirements • Risk of harm • Risk of social exclusion • Confidence • Prior existence of the product • Budget
Detail of attestation	Detailed (human)	Given the complexity of the systems the competing proposals will be different and machine-readable attestations are not useful for comparison of the proposals. Criteria that influence this dimension: • Type of product • Market awareness • Independent expertise • Legal requirements • Risk of harm • Risk of social exclusion • Confidence
Publicity	Yes	Given the impact of the system, the accessibility attestations of its components should be public on demand. Criteria that influence this dimension: • Type of product • Rate of changes • Market surveillance • Competitor`s sureveillance • Independent expertise • Public task • Legal requirements • Risk of harm • Risk of social exclusion

		• Confidence
Surveillance		
Existence	Yes	It is a complex system that will be used during several years and some of its components may be replaced over time. (Clarify: re-assessment is not always needed) Criteria that influence this dimension: • Type of product • Time to market • Life span • Rate of changes • Adaptability • Interoperability with AT • Total cost of ownership • Size of suppliers • In house expertise • Legal requirements • Risk of harm • Risk of social exclusion • Confidence • Prior existence of the product • Budget
Complaint system	Yes	It is a complex system that will be used during several years and will have some system of market surveillance made by customer's organizations. Thus it need a complaint system Criteria that influence this dimension: • Type of product • Time to market • Life span • Rate of changes • Adaptability • Interoperability with AT • Total cost of ownership • Market surveillance • Competitor's surveillance • Size of suppliers • In house expertise • Legal requirements • Risk of harm • Risk of social exclusion • Confidence • Prior existence of the product • Budget
Other		
Mandatory	Yes	Given mainly the high risk of harm related to traffic information, the conformity assessment scheme should be mandatory. Criteria that influence this dimension: • Legal requirements • Risk of harm

		• Risk of social exclusion

9.4.4 Recommended conformity assessment system

Given the values assigned to “attestation - type of party” and “surveillance - existence”, the recommended conformity assessment system for this scenario is certification, as defined in EN 45011:1998.

At the time of writing, there is no existing scheme that applies to all of the components and devices of this system, and that conforms to EN 45011:1998. If such a scheme is to be defined, it should incorporate the values given to the other dimensions, especially on requirements, scalability, complaint system and mandatory.

10 Ability and Capacity of Suppliers

Accessibility is one of the issues that the supplier and the customer need to tackle during the life cycle of an ICT system or application. Problems may occur both at the general and the individual level. However the knowledge of and ability to deal with accessibility as a generally desirable characteristic of ICT systems is limited at present, both on the side of the supplier and the purchaser. Due to US legislation on accessibility, many global ICT companies that do business with the US government have an organisation unit or staff assigned to accessibility issues. Consequently, European subsidiaries of such companies, selling to the public sector in EU Member States, have access to expertise on accessibility.

In order to use public procurement as a means of developing an inclusive information society, it is essential that the procurers:

- reward those suppliers who have a record of achievements on accessibility,
- encourage suppliers without a record to put accessibility on their agenda, and
- attempt to assess the accessibility knowledge and capabilities of the potential suppliers.

These issues may appear both in the selection of tenderers, prior to the invitation to tender (where applicable), in the elaboration of the call-for tender, and the evaluation of the received tenders.

In general, assessing the capabilities of the supplier should be regarded as complementary to, not a substitution for, evaluating products and services with respect to accessibility. However, where such evaluations are not possible or feasible, for example due to lack of time or other resources, assessment of the supplier's capability in accessibility should be carried out. A product from a supplier with accessibility capability is more likely to be accessible than product from suppliers without such capability.

10.1 Legal framework

10.1.1 The Procurement Directive 2004/18/EC

For procurements below the threshold, Chapter VII regulates criteria for choice of participants and awarding of contract. Paragraph 2 of Article 44 states that "the contracting authorities may require candidates and tenderers to meet minimum capacity levels in accordance with Articles 47 and 48". (Article 47 concerns the economical and financial standing of the candidate or tenderer.) Article 48 regulates how the technical and/or professional abilities of the economic operators shall be assessed and examined. It is applicable both in restricted procedures where the contracting authority wants to limit the number of suitable candidates they will invite to tender, and open procedures where all tenders are evaluated.

Paragraph 2 of Article 48 stipulates that "evidence of the economic operators' technical abilities may be furnished by one or more of the following means according to the nature, quantity or importance, and use of the works, supplies or services:". The rest of the paragraph is an exhaustive list of these means, briefly described below. The reader is referred to the Directive for the complete text.

a) Track record:

- A list of works carried out over the past five years, accompanied by certificates of satisfactory execution for the most important works;
- A list of the principal deliveries effected or the main services provided in the past three years;

b) An indication of the technicians or technical bodies involved, especially those responsible for quality control;

c) A description of the technical facilities and measures used by the supplier or service provider for ensuring quality and the undertaking's study and research facilities;

d) Where the products or services to be supplied are complex, a check carried out by the contracting authority or a competent body, on the production capacities of the supplier or the technical capacity of the service provider;

e) The educational and professional qualifications of the person or persons responsible for providing the services or managing the work;

f) Where appropriate, an indication of the environmental management measures that the economic operator will be able to apply when performing the contract;

g) A statement of the average annual manpower of the supplier and the number of managerial staff for the last three years;

h) A statement of the tools, plant or technical equipment available to the supplier for carrying out the contract;

i) With regards to the product to be supplied:

- samples, descriptions and/or photos, with certified authenticity;
- certificates drawn up by official quality control bodies of recognised competence attesting the conformity of products clearly identified by references to specifications or standards.

Paragraph 6 requires the contracting authority to "specify, in the notice or in the invitation to tender, which references under paragraph 2 it wishes to receive".

Paragraph 5 says: "In procedures for awarding contracts having as their object supplies requiring siting or installation work, the provision of services and/or the execution of works, the ability of economic operators to provide the service or to execute the installation or work may be evaluated in particular with regard to their skills, efficiency, experience and reliability."

(Note: the Directive uses the term "certificate" in the same sense as "attestation" in ISO/IEC 17000).

10.1.2 Procurements below the threshold

As pointed out in clause 7, procurements below the threshold amount must comply to the general principles of the Treaty. Assessment and examination of suppliers' technical abilities and capacities can then be carried out in different ways, as long as they comply with the Treaty principles and, of course, the legislation of procurements below the threshold in the Member State.

Other approaches for assessment of abilities and capacities may be possible, depending on the legislation, for example

- An agreed set of requirements

- Assessment against a maturity scale
- Requiring an accessibility management system

Some examples on such approaches are given in clause 10.2 below.

10.2 Existing approaches

10.2.1 The ACCENT project

The ACCENT Project [ACCENT, 1998] suggests a maturity scale for a supplier's capacity and ability in accessibility. The scale is presented below in clause 10.3.1. ACCENT recommends the procurer to include the following requirement as mandatory:

> The supplier shall assess himself with respect to the /levels in the maturity scale/ and provide the basis for his assessment by describing, where applicable, the approach taken, the policy or commitment, the organisation, partners and external experts.

ACCENT recommends the procurers to include the following requirements as desirable:

- The supplier should satisfy /level 3 of the maturity scale/ as a minimum, or, for procurements where the supplier is to be contracted on services comprising accessibility expertise, /level 4/ as a minimum.
- The supplier should have adopted a corporate policy which includes statements on usability and accessibility. These statements should be submitted. If the supplier has not adopted such a policy, he should outline his plans for elaborating such a policy.
- The supplier should have adopted a quality system complying to a standard, preferably ISO 9000.
- The supplier should give one or more references to sites where the product on offer is installed and where accessibility is considered to be an important feature.

Note: The ACCENT project (ACCessibility in ICT procuremENT) was part-funded under the EU's SPRITE-S2 programme and by the Nordic Development Centre for Rehabilitation Technology. The objective of ACCENT was to provide public procuring entities with tools to procure accessible ICT products, services and systems.

10.2.2 Verva

One of the tasks of Verva, the Swedish Administrative Development Agency, is to carry out procurements resulting in framework agreements on ICT products and services. Other agencies can utilise these framework agreements according to Article 32 in the Procurement Directive. A set of usability and accessibility requirements has been established for use in Verva's procurements. (In Verva, the concept of accessibility is regarded as included in the concept of usability.) For the invitation to candidate for submission of tenders, the following requirements are available. They are developed in collaboration with the former Center for Interactive ICT Design at the Royal Institute of Technology in Stockholm.

- Provide a statement on how you have acquired knowledge and insight on those activities of the public sector, which your portfolio of products and services are intended to support.
- Provide a statement on to which extent and in which way you evaluate usability and accessibility of the products that you include in your portfolio.
- Provide a statement on how you measure or otherwise follow up the end-users' satisfaction with the products and services you have delivered.

- Provide a statement on how you continuously manage and implement the end-users' requirements on improvements in the products and services that you supply.

10.2.3 Buying Green

"Buying Green" is a handbook on environmental public procurement, published by the European Commission and designed to help public authorities to successfully, and in accordance with the Directives on public procurement, launch a green purchasing policy. In this handbook, the contracting authorities are suggested to require answers to questions such as

- Does the tendering company employ or have access to technicians with the required knowledge and experience to deal with the environmental issues of the contract?
- Does the tendering company own or have access to the necessary technical equipment for environmental protection?
- Does the tendering company have the relevant research and technical facilities available to cover the environmental aspects?

Of the criteria listed in Article 48 of the Directive, "Buying Green" recommends criteria (a) and (e), i.e. track record and educational and professional qualifications as the main instruments.

This approach is applicable also for accessibility. In fact, a similar handbook "Buying Accessible" where "environment" is replaced by "accessibility" could be envisaged. However, "Buying Green" reflects the fact that the Directive 2004/18/EC specifically addresses environment issues (recital 5 and Article 50).

10.2.4 Accessibility Management System

In his paper [Yamada, 2007], Prof. Yamada suggests that a standard on accessibility management should be developed. Such a standard could request a company do the following:

1. The company shall have an information accessibility policy. The company shall ensure that the policy is followed in the plan, design, development and evaluation of ICT equipment and services.
2. The company shall specify user requirements for accessibility and produce design solutions.
3. The company shall evaluate accessibility design solutions of ICT products and services with users. Evaluation of accessibility design solutions includes user test results and other available forms of user feedback.
4. The company shall have a transparent way of receiving and handling user complaints.
5. The company shall keep records of their activities.
6. The company shall disclose information how accessibility is improving in their products.

   A third party could investigate whether the accessibility management system in the company is working or not an issue certification to the company. Governments might give priority to certified companies for public procurement.

10.2.5 Section 508

The current guidance associated to the US legislation (Section 508) on ICT accessibility, Electronic and Information Accessibility Standards of 21 December 2000, does not address the issue of assessing the technical abilites and capacities of suppliers as regards accessibility.

10.2.6 ISO 15504

Often software is the carrier of the functions which are intended to be used by end-users and therefore should be accessible.. For example, services provided on the web are basically software. In the context of supplier capabilities, the technical report *ISO/IEC TR 15504 Information technology – Software process assessment* is therefore of interest. Below is an overview of ISO/IEC TR 15504.

10.2.6.1 Uses of ISO/IEC 15504

ISO/IEC 15504 can be used in two contexts:

- Process improvement, and
- Capability determination (= evaluation of supplier's process capability).

10.2.6.1.1 Process improvement

ISO/IEC 15504 can be used to perform process improvement within a technology organization. Process improvement is always difficult, and initiatives often fail, so it is important to understand the initial baseline level, and to assess the situation after an improvement project. ISO/IEC 15504 provides a standard for assessing the organization's capacity to deliver at each of these stages.

In particular, the reference framework of ISO/IEC 15504 provides a structure for defining objectives, which facilitates specific programs to achieve these objectives

10.2.6.1.2 Capability determination

An organization considering outsourcing software development needs to have a good understanding of the capability of potential suppliers to deliver.

ISO/IEC 15504 can also be used to inform supplier selection decisions. The ISO/IEC 15504 framework provides a framework for assessing proposed suppliers, as assessed either by the organization itself, or by an independent assessor.

The organization can determine a target capability for suppliers, based on the organization's needs, and then assess suppliers against this profile. This is particularly important in contexts where the organization (for example, a government department) is required to accept the cheapest qualifying tender. This also enables suppliers to identify gaps between their current capability and the level required by a potential customer, and to undertake improvement to make the contract. Work on extending the value of capability determination includes a method called Practical Process Profiles - which uses risk as the determining factor in setting target profiles. Combining risk and processes promotes improvement with active risk reduction, hence reducing the likelihood of problems occurring.

10.2.6.2 Reference model

ISO/IEC 15504 contains a reference model. The reference model defines a process dimension and a capability dimension.

The *process dimension* defines processes divided into the five process categories of:

- Customer-supplier
- Engineering
- Supporting

- Management
- Organization

For each process, ISO/IEC 15504 defines a *capability level* on a scale shown in table 2.

Level	Name
5	Optimizing process
4	Predictable process
3	Established process
2	Managed process
1	Performed process
0	Incomplete process

Table 2. Scale for capability levels, according to ISO /IEC 15504.

The capability of processes is measured using process attributes. The international standard defines nine process attributes:

- 1.1 Process Performance
- 2.1 Performance Management
- 2.2 Work Product Management
- 3.1 Process Definition
- 3.2 Process Deployment
- 4.1 Process Measurement
- 4.2 Process Control
- 5.1 Process Innovation
- 5.2 Process Optimization

Each process attribute is assessed on a four-point (N-P-L-F) rating scale:

- Not achieved (0 - 15%)
- Partially achieved (>15% - 50%)
- Largely achieved (>50%- 85%)
- Fully achieved (>85% - 100%).

10.2.6.3 Assessments

ISO/IEC 15504 provides a guide for performing an assessment. This includes:

- the assessment process
- the model for the assessment
- any tools used in the assessment
- success factors

10.2.6.3.1 Assessment model

The assessment model is the detailed model that is used for an actual assessment. This is an elaboration of the reference model.

10.2.6.3.2 Assessors

For a successful assessment, the assessor must have a suitable level of the relevant skills. These skills include:

- personal qualities such as communication skills.
- relevant education and training and experience
- specific skills for particular categories, e.g. management skills for the management category.
- training and experience in software capability assessments.

10.2.7 ISO/IEC TR 18529

ISO/IEC TR 18529:2000(E) Ergonomics – Ergonomics of human-systems interaction – Human-centred lifecycle process descriptions contains a formalised model based on the ISO 13407, Human-centred design processes for interactive systems. It is intended as guidance for those who wish to make their system development process and its associated support processes more human-centred, and to include knowledge from the human sciences in system design. The processes in the model of TR 18529 are described in the format defined in ISO/IEC TR 15504 (see 10.2.6 above). It could be envisaged that ISO/IEC TR 18259 could serve as a model for assessment of a supplier's capability to take accessibility into account in software development.

10.3 Maturity scales

10.3.1 ACCENT

In [ACCENT 1998] it is suggested that in procurements above and below the thresholds, the procurer may request the supplier to assess himself using take-up of accessibility against a performance scale, for example the one shown in table 3, based on a study of how usability methods are used by Swedish IT system development companies [Katzeff-Svärd 1995].

1)	The supplier has not come across accessibility issues and has no particular knowledge of accessibility issues.
2)	The supplier is aware of the need for accessibility, but the issue is not on the agenda. The supplier has not found sufficient customer demand to establish a readiness for action. If an accessibility problem arises, it will be solved from scratch.
3)	The supplier is aware of the accessibility issue at large and is to some extent prepared for action. The actions will, however, be taken on an *ad hoc* basis. The supplier may know of or have contact with accessibility expertise externally or upstream in the company.
4)	The supplier has competence and an organisation unit at its disposal, either internally or externally. There is a commitment by the top management level to promote accessibility. One or more staff members may be assigned to monitor the field of accessibility and have basic knowledge of the field. Access to further expertise may exist upstream in the company, or the supplier may have an agreement with an external expert who can act as a subcontractor.
5)	Accessibility is one of the activities of the supplier. A corporate policy on accessibility is established, enforced and well-known by the staff. A competent organisation unit is established in-house.

Table 3. Alternatives for supplier approaches to accessibility.

It is added that

> "For levels 3, 4 and 5, the supplier should be required to provide evidence for his assessment by describing, where applicable, the approach taken, the policy or commitment, the organisation, partners and external experts.
>
> For procurements of systems where a significant number of end-users can be expected to be dependent on a high accessibility standard of the system, a supplier with an accessibility approach of level 3 should be a minimum requirement.
>
> Outsourcing of an ICT-based activity to a third party supplier normally means that the responsibility for the accessibility of the system and the services provided by the system stays with the organisation, but the methods of how to provide accessibility is to be decided by the supplier. This requires that the supplier has an approach to accessibility corresponding to at least level 4."

10.3.2 Usability Maturity Models

(This clause is based on [Jokela, 2005]).

A usability maturity model (UMM) is a method for evaluating the level of user-centeredness of a software or product development organisation. Usability maturity assessment can be conducted in order to know whether a supplier is capable of designing usable software. A UMM includes three main elements:

- A user-centred design reference model, defining elements that can be included in an assessment, such as user-centred design in quality system, usability skills, management system, etc.
- A performance scale, for example from 1 to 5, to rate how well an organisation performs in the elements that are included in the assessment.
- Practical guidelines for how to carry out an assessment.

The referred paper lists 13 different Usability Maturity Models, with different features.

The paper discusses the possibility to certify the user-centredness of a development organisation. The conclusion is that many UMM's may provide a technical basis for such certifications, but some questions need to be answered before such certifications:

- Which UMM model should be used?
- Should only development processes be examined, or also issues such as usability skills and usability in quality systems?
- Which level of the performance scale should be reached for issuing a certification?

10.4 Accessibility as an element of quality assurance systems

"Quality control" is mentioned as an element in some of the means of assessing a supplier's technical ability, listed in Article 48 of the Procurement Directive. In addition Article 49 states that:

> "should they require the production of certificates drawn up by independent bodies attesting the compliance of the economic operator with certain quality assurance standards, contracting authorities shall refer to quality assurance systems based on the relevant European standards series certified by bodies conforming to the European standards series concerning certification. They shall recognise equivalent certificates from bodies established in other Member States. They shall also accept other evidence of equivalent quality assurance measures from economic operators."

Many suppliers have adopted a quality management system. Some are certified according to a standard, e.g. ISO 9001. A quality management system is used to

describe all the planning, preparation, work, checking and recording actions that are necessary to achieve the standard of product or service that the customer needs. These actions are largely common-sense and good business and management practice.

Software developers in particular are often required to have a quality assurance system, to ensure that the final product meets the specified requirements. A number of methods exist for quality management and quality assurance of the different phases of software development. The ISO/IEC 15504 described above is one example.

A quality system enables, in principle, a supplier to include accessibility considerations in his production process. The mere existence of a quality system does not, however, ensure that the offered products really are accessible.

10.5 Conclusions on ability and capacity of suppliers

As pointed out in the beginning of clause 10, in order to use public procurement as a means of developing an inclusive information society, it is essential that the procurer:

- rewards those suppliers who have a record of achievements on accessibility,
- encourages suppliers without a record to put accessibility on their agenda, and
- attempts to assess the accessibility knowledge and capabilities of the potential suppliers.

A first goal should be to specify what capacities are required in a supplier to become an “accessible supplier”. Suggestions for such a specification exist; see for example clauses 10.2.1 (ACCENT), 10.2.3 (Buying Green) and 10.2.4 (Prof Yamada’s idea of an accessibility management system). A specification has to comply with the Article 48 of the Procurement Directive 2004/18/EC, if it shall be used in procurements above the threshold amount. Both ACCENT and Prof. Yamada mention accessibility policy as an element of an ”accessible supplier”. However, a policy is not a listed evidence means in paragraph 2 of Article 48. The list in Article 48 focuses on the supplier’s resources, in terms of skill, staff and equipment, which of course also are important criteria for having accessibility capacity and ability. Paragraph 5, which addresses procurement of services, could be interpreted as opening for a more flexible approach. It remains to be clarified whether requirement of an accessibility policy, with reference to paragraph 5, is allowed.

In the short term, the approach of Buying Green, transformed to accessibility, seems to be the most appropriate approach compliant to the Procurement Directive.

The approaches referred in clause 10.2 focus on requirements on and assessment of the supplier at the organisational level. However, one of the means of proof of technical ability and capacity listed in clause 10.1.1 is “the educational and professional qualifications of the person or persons responsible for providing the services or managing the work”. This suggests that employing or having access to certified people with the required knowledge and experience to deal with accessibility issues could be a way for a supplier to show ability and capacity in accessibility. This requires a specification on qualifications and the establishment of corresponding training courses in accessibility. A standard for certifying personnel exist (EN ISO/IEC 17024:2003), but the requiirements are missing.

It must be taken into account that there are different kinds of suppliers in the ICT domain: for example manufacturers of hardware and software, service providers, system integrators, retailers and consultants. The abilities and capacities required to be an

"accessible supplier" are different for different suppliers. The abilities and capacities of an "accessible manufacturer" are related to the development and production processes, while those of an "accessible retailer" are related to the inclusion of accessible products in the product portfolio and the ability to serve users with disabilities.

A procurer cannot completely predict, and should not specify in too much detail, which kinds of suppliers that will respond to the invitation to tender. Therefore, it would be an advantage if a specification of abilities and capacities as regards accessibility could be generic and cover all kinds of suppliers without being vague and superficial. This is, however, a challenge. The examples of ACCENT and Verva are of a generic kind, while the approaches of Buying Green and Prof. Yamada seem to have manufacturers in focus.

A second goal should be mainstreaming of accessibility issues in development approaches methods and models (for example ISO 13407, commercially available methods such as RUP and DSDM) , in existing standards on quality management (for example ISO 9001, ISO/IEC 15504, the ISO 27000 series or even non standard schemes such as CMMI (Capability Maturity Model Integration, from the SEI – Carnegie Mellon University) and in standards for ICT operations (for example ISO/IEC 20000). Mainstreaming implies that already existing and widely used standards, methods and approaches, should be extended by incorporating or adding accessibility-related processes, tasks, etc. For example, in the ISO/IEC 15504 model (see 10.2.6) the idea would be to add some accessibility-related activities in each of the process categories (customer-supplier, engineering, supporting, management, organization), for example:

- User-centred requirement specification
- User-based usability and accessibility tests of the product
- Expert-based accessibility test of the resulting product (based on sampling if the product is too complex to perform a complete assessment)
- Accessibility-related support activities (to deal with accessibility issues and how to solve them)

The main problem with this second goal is its applicability in short term, because there is a need to completely define the required extensions to ISO 9001, ISO/IEC 15504 or other similar schemes. In addition there is a lack of knowledge on the issue of accessibility management systems so the time to develop those extensions could be relatively long.

A third goal would be to enable the certification of suppliers with respect to accessibility capabilities. Also here mainstreaming is possible. It could be envisaged that an accessibility management system with an associated conformity assessment system could be developed, in analogy with ISO 14000 series on environment management systems and ISO 27000 series on information security. To quote [Yamada 2007], "one of the benefits of an accessibility management standard scheme is the improved perception of the key accessibility issues by employees and the public. The other is that certificates can improve the ability to meet compliance with accessibility policy measures."

11 Complementary approaches to conformity assessments

11.1 Market surveillance

The complementary approach shown here, has been found after searching for definitions, conferences, events and other items related to the topic. The Experts Group decided to highlight here some of the results they found in the url http://ec.europa.eu/enterprise/newapproach/market_surveillance.htm that contains the information related to the ***European Market Surveillance Programming Conference***, held in Brussels from the 10th to the 11th of March 2005.

This conference is not just a very interesting approach but it also a set of definitions, criteria and policies in the EC environment that could be considered as a guidance for those who are interested in the subject.

The definition for market surveillance they provide is as follows:

> "Market surveillance is an essential tool for the enforcement of New and Old Approach It needs to function effectively in order to provide the following guarantees:
>
> - Uniform application of Community law
> - Equal protection for all citizens
> - Maintenance of a level playing field for enterprises
>
> It involves two main stages:
>
> - National surveillance authorities monitor that products placed on the market comply with the provisions of the applicable national legislation transposing the Community law.
> - When necessary, they then take action to establish conformity."

The following is a summary of other information extracted from this website:

> In addition to the implicit obligations contained in the EC Treaty, the Community law contain an explicit requirement for Member States to carry out market surveillance activities. The principle of subsidiarity applies, and it is for Member States to determine the administrative structures used to fulfil their obligations in this field.
>
> Effective cross-border co-operation between market surveillance authorities is essential if products are to be subject to the same high level of surveillance throughout the Union. However, experience of market surveillance in practice indicates that levels of surveillance currently vary significantly throughout the Union, and that uneven enforcement at national level presents a barrier to a fully effective system of cross-border co-operation.
>
> The Commission is actively encouraging this co-operation in several ways:
>
> *Administrative Co-operation (AdCo) Groups*. DG Enterprise encourages the activities of Directive-specific Administrative Co-operation (AdCo) Groups of Market surveillance experts and, where appropriate, promotes their creation. These groups are forums that enable national market surveillance experts to meet and cooperate on practical matters. They have a fundamental role as a network for practical-cooperation: experts can identify and share views on problems with implementation of a Directive (for example, low voltage, electromagnetic compatibility, machinery, personal protective equipment, recreational craft, lifts, toys, radio and telecommunications terminal equipment and construction products), exchange information and improve co-operation in a very practical way.
>
> *SOGS (Senior Officials Group on Standardisation and Conformity Assessment Policy).* DG Enterprise also facilitates cross-sectoral Administrative Co-operation on

issues where this is appropriate. In order to help enforcement authorities make best use of resources and to encourage a consistent approach on cross-cutting issues, market surveillance issues may be discussed in meetings of SOGS.

Cross-border market surveillance. A grant programme has been established to support cross-border market surveillance projects which promote co-operation between national authorities of Member States. The funding is used to promote contacts and practical cooperation, and to spread best practices in the medium term. Between 1999 and 2002 it provided finance for market surveillance projects involving at least two Member States and/or EU candidate countries. Activities that have been eligible for support include: joint inspections, development of control methodologies and risk analysis, sharing of test results, information exchange, joint events and cooperation through telematics.

Six projects - each of a different nature - have been carried out under this Programme. Their main objectives are: comparison of tests for dangerous machinery, data-bases for unsafe products and public events.

The Commission should develop, together with the parties concerned, an overall common European market surveillance programme.

On 7 May 2003, the Commission adopted a Communication to Council and the European Parliament on enhancing the implementation of the New Approach Directives (COM(2003)240). This Communication contains recommendations aimed at further improving the operational efficiency of the Internal Market. In it the Commission presents proposals for additional measures to achieve a common level of market surveillance in the EU.

For more information, please visit:

http://ec.europa.eu/enterprise/newapproach/market_surveillance.htm

11.2 Competitors' surveillance

In his paper "ICT accessibility standardization and its use in policy measures" [Yamada, 2007], Prof Hajime Yamada of Toyo University, Japan, describes complementary approach to conformity assessment. One of these is competitors' surveillance:

"The first company tests accessibility of its product by itself and discloses the test results to the public procurement agency, e.g., by creating a VPAT. The second company monitors the first company's self declaration and challenges to them when it feels they are not correct. If challenged, the first company may be asked by the government agency to provide its test results or some other form of validation. And if it fails to prove conformance, the first company is required to correct the situation or may be prevented from bidding or selling the product to the government. This dynamic happens now with Section 508 and VPATs in the United States."

12 Conclusions

12.1 Stakeholders' preferences

In the context of this project there are three major stakeholder groups: suppliers, users and procurers. Their preferences as regards systems for assessment of conformity of ICT products and services differ substantially.

Associations of ICT suppliers have expressed their preferences in two White Papers, [EICTA, 2005] and [IDC, 2007]. Their view can be summarized as follows: ICT industry prefer supplier's declaration of conformance combined with market surveillance. Third party certification is mainly considered as a system which adds no value but incurs costs and delay.

As regards users, there are two roles: employees and citizens. The users of those ICT products and services that are procured by public entities are to a considerable extent used for internal purposes and therefore operated by employees. However, an increasing number of e-government services are used by citizens in two roles: as exerting their civic rights and obligations and as users of public electronic services. ANEC and EDF, both user associations, have in their Joint Position Paper [ANEC, 2007] not expressed any preference for a certain conformity assessment system. However, the Position Paper states that it is important that the user is informed of whether the assessment behind an attestation of conformity to accessibility requirements is made by an external party or not.

The project team has not found any corresponding statement from associations of employees.

The third major stakeholder, procurers, does not have a European umbrella organisation such as EICTA, ANEC and EDF, which could express opinions. However, in a consultation among key stakeholders, carried out by the Commission before issuing the 2005 Communication on eAccessibility, public agencies show a clear preference for mandatory schemes before voluntary. There is only a minor difference in the preferences for supplier's declaration of conformity versus third party certifications.

12.2 Conformity assessment of different types of ICT products

The applicability of different conformity assessment systems in the domain of ICT accessibility depends on many variables, as is explained in clause 8 of this report. One is the type of product/service.

12.2.1 Off-the-shelf products

For off-the-shelf products (”commodities”) in general (i.e. any domain) there are methods and best practices in use since long ago. Supplier's declaration of conformity is an established system and is used for example within the framework of the New Approach. Also third party assessments are used where there are requirements for an accredited body, e.g. for products with a high risk factor or that are required to comply with statutory requirements.

The question on whether an off-the-shelf ICT product can be declared to comply with a given set of accessibility requirements does not have an unambiguous answer. ”Monolithic” products which are manufactured for keeping in stock and go unchanged

from the factory to the user (e.g. displays, desktop laser printer) would be possible to declare with respect to accessibility before they are placed onto the market. Other products are manufactured following an order and thus are configured and/or customised before they reach the user. Sometimes the final customisation takes place in dialogue with individual users. In this case, the accessibility sets in, not in the factory, but after delivery. A pre-market declaration of conformity can then only cover generic basic accessibility requirements. Instead, an inspection before the acceptance test would be an appropriate measure.

12.2.2 Services

Although the standards on conformity assessment cover services, conformity assessment of services is a more complex issue than assessment of products in a strict sense, as is the issue of accessibility requirements on services. The carrier of the service can be technical equipment (for example an interactive voice response system for train schedules) or people (for example consultancy services) or a combination of both (for example a call-centre). Sometimes, the production and the consumption of the service take place simultaneously. Hence, the complete accessibility of a service can in many cases be assessed only when it is used. This means that assessment of conformity to accessibility requirements on services should be carried out against specifications set out in the contract (for example in a Service Level Agreement, SLA). A list from December 2007 of projects under way in CASCO, the ISO Committee on conformity assessment, shows no project specifically dealing with services.

Article 26 of the Directive 2006/123/EC on services in the internal market, which however does not cover every ICT service, stipulates that

> "Member States shall, in cooperation with the Commission, take accompanying measures to encourage providers to take action on a voluntary basis in order to ensure the quality of service provision, in particular through use of one of the following methods:
>
> (a) certification or assessment of their activities by independent or accredited bodies;
>
> (b) drawing up their own quality charter or participation in quality charters or labels drawn up by professional bodies at Community level."

12.2.3 Websites

For websites there are building blocks which could build up a complete conformity assessment scheme. Examples of building blocks that could be used are WCAG, ATAG, UAAG, WAI ARIA, UWEM and CWA 15554. CWA 15554 contains a complete description of the setup of a conformity assessment method including first, second and third party conformity assessment and depending on the method chosen, the standards ISO/IEC 17020, ISO/IEC 17024 and/or ISO/IEC 17050. UWEM describes a Uniform Web Evaluation Methodology using WCAG. Clause six gives a more in depth description of some implemented examples of schemes that make use of the different existing building blocks. Further harmonization involving stakeholders like started in the WAB Cluster would however be desirable.

Challenges to the conformity assessment are raised by the introduction of new and/or innovative techniques that are not yet included in the techniques for WCAG. How will W3C cope with the requests for adding techniques to WCAG. Also the semantic web and the much discussed Web2.0 provide challenges for accessibility assessment. In Web2.0 the content is provided by the public, this could cause a lesser degree of control

over the accessibility. Also web applications replacing the desktop pose new challenges to conformity assessment of the web.

Although complete conformity assessment schemes can be built based on the above mentioned building blocks, the evolution of the web opens new issues. The web is changing towards an increased interactivity (with Rich Internet Applications, using technologies such as AJAX), an increased participation of users as content providers (the new social websites that are the core of what is commonly called "Web 2.0"), an increased capacity to deal with the complexity and diversity of the existing information (based on the concept of the Semantic Web), and an increased mobility of the devices used to access the web (the mobile web). All of these trends open new accessibility-related problems that have to be solved, which means that accessibility requirements (both from the point of view of users and of developers) are still to be defined and agreed upon. Some work has started on the subject (such as the Accessible Rich Internet Applications Suite – WAI-ARIA – by the W3C) but it is still in its initial stages.

12.2.4 Development of bespoke applications

For procurement of development (which is a service) of bespoke applications, the conformity assessment, for obvious reasons, takes place during and after the development, which is outside the procurement process and thus not covered by the procurement Directives. Assessment of conformity to accessibility requirements on the product to be developed is a contractual issue. Standards related to certification of persons and assessment of processes, referred or described in this report, can be referred to in contract clauses. On the other hand, requirements on the supplier's technical ability and capacity concerning accessibility can be stated in the call-for tender and the tenders be evaluated. The procurement Directive strictly regulates which means of proof the procurer is allowed to request for. It could be noted that the standards ISO/IEC 17050 on supplier's declaration of conformity and EN 45011 on product certification do not cover certification of organisations.

12.3 Conclusions from the analysis

This report has presented an analysis of conformity assessment systems and schemes that could be applied in the domain of the public procurement of accessible ICT products. Some conclusions can be drawn.

It has first to be noted that there is a **high degree of complexity and variability** in the procurement of ICT products. Due to that complexity and variability it is not likely that only one conformity assessment system (and more so a scheme) could be applied to the diversity of situations where public procurement of accessible ICT products is present. This fact has lead us to develop an analysis model of conformity assessment schemes (the "dimensions") and an analysis model of public procurement contexts (the "criteria"), which, when used together, can enable the public procurer to chose the conformity assessment system that is best suited for a given situation.

A second relevant concept is the **lack of freedom** that the contracting authority are given by the public procurement directives when choosing the ways that the suppliers can use to demonstrate the accessibility of the offered products. This fact is more relevant in commercial procurement: the contracting authority has to accept **equivalent means of proof** of conformity with the technical requirements.

What can really been done is to use a diversity of conformity assessment schemes during the "acceptance" step of the execution of the awarded contracts. In this specific

context (the **acceptance test**) the contracting authority has freedom to choose the methods of assessing that the products are accessible (as defined by the corresponding accessibility requirements that were technically specified. When the re-assessment fails, the contracting authority can then take actions (liability, contract cancelation, etc.) to ensure that the future product is as accessible as possible.

A third extremely important concept is that the contracting authority has to be able to analyse the different offers and then decide the one that best complies with the accessibility requirements. This means that **the contracting authority is responsible for the veracity of the declarations of accessibility** and, in fact, should be able to evaluate the accessibility of the products behind the tenders. Contracting authorities need to find people with that required knowledge or they need to create formation courses on the subject of accessibility.

Concerning the dimensions that have been created to analyse conformity assessment schemes, **some dimensions have preferred values**, independently of the characteristics of one concrete public procurement context:

- *Type of requirements*. It should be always international or European standards, to guaranty the maximum harmonisation between countries. National standards should be avoided because they can fragment the market, which can create trade barriers and is disadvantageous also for users.

- *Scalability*. All the methods should provide techniques to deal with complex evaluations, such as sampling and scope definition.

- *Method of determination*. It should be mixed, given the nature of accessibility requirements, which require the participation of human expertise during the assessment.

- *Detail of attestation*. It should be "detailed" to help the public procurers to choose the best offer.

- *Publicity*: it should be "yes". The publication of the results of the assessment will again help the public procurers to choose the best offer.

  The last conclusion concerns the abilities and capacities of the suppliers. This issue is extremely relevant for the procurement of projects under development, given that the contracting authority has to choose the best supplier without looking at a product that is typically nonexistent.

13 Future work in Phase 2 concerning conformity assessments

13.1 Deliverable II.1, the EN standard

From the viewpoint of conformity assessment, the development of deliverable II.1 of Phase 2, the European Standard specifying requirements for accessibility, should take into account ISO Guide 7 [ISO, 1994].. The scope of ISO Guide 7 is to set out "guidelines to assist technical committees in drafting standards suitable for use for conformity assessment of products". They may also be used "as appropriate for the drafting of standards intended for conformity assessment of processes and services". Clause 5, Specification of requirements, states that

> "- Standards should always be written in such a way that they facilitate and do not retard the development of technology. Usually, this is accomplished by specifying performance requirements rather than product design requirements.
>
> - The requirements should be clearly specified, together with the required limiting values and tolerances, and the test methods to verify the specified characteristics. The requirements should be free from subjective elements; the use of such phrases as "sufficiently strong to" or "of adequate strength" should be avoided".

Guide 7 will eventually be replaced by the standard ISO/IEC 17007. The elaboration of this standard is a project under way in CASCO, the ISO Committee dealing with standards on conformity assessment.

The TEITAC report [TEITAC, 2008] discusses the problem of conformity assessment under the term "testability". Section 5.2 says, inter alia:

> "As we considered each provision, we tried to find a balance between generality and precision that is:
>
> Precise and unambiguous enough to easily determine if a product meets the requirements of the provision.
>
> Open enough, avoiding overly prescriptive language, so that the provision does not stifle innovation.
>
> The Committee did not create any specific test methods for the provisions in the recommendations. While there was discussion on what type of test might be needed for each provision, no consensus was reached. Including this section in the report was also a concern as this is not a formal recommendation for test methods, but a statement of how a test might be developed.
>
> We used the terminology of 'inspection', 'measure (formal test)', and 'expert review', and included a reference to one of them in the information that accompanies each provision."

Further for deliverable II.1, it could be expected that attestations conformant to the deliverables of this mandate create expectations on the level of accessibility of products and services claiming conformity with the standard. Users may consider an attestation to be equivalent to a quality mark. Therefore, deliverable II.1 should include a clause on conformity to the standard, where it is important that this clause does not specify the conformity at too low level.

13.2 Standard for conformity assessment of accessibility

As pointed out in clause 12, due to the complexity and variability of ICT procurement it is not likely that only one conformity assessment system (and more so a scheme) could be applied. Both the demand side (procurers, users) and the supply side should have opportunities to choose the appropriate conformity assessment tools depending on the situation (the product, context of use, the user group, life expectancy of the product on the market, change frequency of the product etc.) In addition, the most crucial element in a conformity assessment scheme is the normative document specifying the requirements. It is the requirements that determine the accessibility of the product, not the procedure for demonstrating that the requirements are fulfilled. Standards with rules, procedures and management of the main options – supplier's declaration of conformity and third party certification – exist and can be used for accessibility assessment.

It could be worth to consider a feasibility study on whether ISO/IEC 15408:2005, Common Criteria, (see 6.3.4), although it is complex, could be a model for conformity assessment of accessibility.

13.3 Deliverable II.4, Guidance and support material

There is a need for a Guide or Technical Report targeted to suppliers, notably small and medium size enterprises, with guidance on how a conformity assessment scheme on accessibility for a supplier's declaration of conformity should be designed in order that procurers and users should be confident and satisfied. For the selection phase, guidance could be provided on how to apply the EN standard (Deliverable II.1) and, for example, the standards on human-centred design and process reference models and methods in the ISO 9241 series. For the determination phase, guidance could be provided on how to apply, for example, the standards in the ISO 20282 series on methods for test of ease of operation and the standards in the ISO 9241 series on ergonomics testing.

Procurers need guidance on

- how to apply the EN standard with respect to the operations that the object of the procurement is intended to carry out and to the user group, which always should be expected to include people with a wide range of abilities.
- how to formulate appropriate requirements on a supplier's declaration of conformity, such as compliance to ISO/IEC 17050 and inclusion of evidence that the supplier has applied the abovementioned Guide.
- how to determine, within the legislative framework, which type of conformity assessment system or scheme to be required from the tenderer or applied by the procurer. The analysis in clause 8 and sceanrios in clause 9 provide a basis for such guidance.
- validation of a supplier's declaration of conformity may be needed, i.e. to check for example that the person who has signed the attestation is authorised to do so, that the declaration complies with ISO/IEC 17050, and that the offered product is identical to the declared product.

13.4 Supplier's technical capacities and abilities

According to the mandate, Phase I shall address existing or propose requirements for supplier's technical capacities and abilities in the accessibility domain, which can be used for selection of suppliers or in support of the conformity process. This is addressed in clause 10 of this report.

Since the procurement Directive strictly regulates the means of evidence that a procurer can require, there is little or no room for proposing new requirements for procurements above the threshold. The procurers' options are limited to specify which means of evidence he wishes to receive.

The procurer's freedom of action is greater below the threshold. However, the limited or non-existing experiences of the few approaches that the project has identified do not make it feasible to propose a set of requirements for technical capacities and abilities on accessibility. Instead, the approaches listed in clause 10.1.1 could be used as a basis for a specification of what constitutes a supplier with appropriate capacities and abilities in the accessibility domain. Access to experts who are certified in accessibility could be an item in that specification. The Mandate does not specify what should be done in the capacity/ability area, but such a specification could possibly be included in the toolkit. A more long-term task would be to develop a standard on accessibility management, by using for example ISO 14000 on environment protection or ISO 27000 on information security as models.

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