AENOR Asociación Española de Normalización y Certificación

Date	Reference
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CEN/BT/WG 185

Title

"eAccessibility"

Secretariat	AENOR
Responsible	Ms Tania MARCOS e-mail: accessibility@aenor.es
Assistant	Ms Sara CANO Tel: +34 91 432 60 56 Fax: +34 91 310 45 96 e-mail: accessibility@aenor.es

Requested action

- ☐ For information only
- ☒ For discussion at 2008-04-15
- ☒ For comments (Deadline:2008-04-15)
- ☐ For voting (Deadline:)
- ☐ Other action

CEN/BT WG 185 Project Team Pre-final Technical Report

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

CEN/BT WG 185 Project Team pre-final report

Table of contents

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 is not excluded from these concepts; moreover, it is getting more importance due to the big development of the communication technologies. The risk of excluding groups of citizens 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.

Public procurement then, is a good tool to carry out a non-excluding policy; moreover: it might be a good way to get the people using the more accessible ICT based services the industry is able to produce, to get the industry aware of the e-exclusion importance and to take into consideration the real needs of different groups of potential users of these technologies.

But procurers need a set of tools to inform them about the level of accessibility the things they procure have.

In the EC, the Commission has carried out the mission of making ICT based services accessible for all the population. Some of the issues that the Commission has considered relevant to carry out this e-Inclusion task are:

- Improve the consistency of accessibility requirements in Public Procurement
- Explore the possible benefits of certification schemes and standardisation for accessible products
- Make better use of the "accessibility potential" of existing legislation

Thus, this Pre Final 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 1 of EU Mandate M/376.

The scope of this Pre Final Report is to fulfil Task 6 of the Terms of Reference, i.e. to produce a "pre-final draft of the conformance analysis report for submission to BT/WGs and ETSI/TC HF. This draft also takes into account any findings of the ETSI/STF's activity in relation to the scope of ICT products and services to be addressed in this".

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, the term "product" includes services, and this report will not use "product and 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
- Enrique Varela, Fundación ONCE and freelance consultant, Madrid, Spain
- Eric Velleman, Bartiméus Accessibility Foundation, Utrecht, Netherlands
- Klaus-Peter Wegge, Siemens Accessibility Competence Center, Paderborn, Germany

An additional expert has joined the Project Team during March and April:

- 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.

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: 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."

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

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

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 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 (this document). 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 will be produced, 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 celebrated 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 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 section 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

Conformity assessment is defined in EN ISO/IEC 17000 by a functional model, 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.

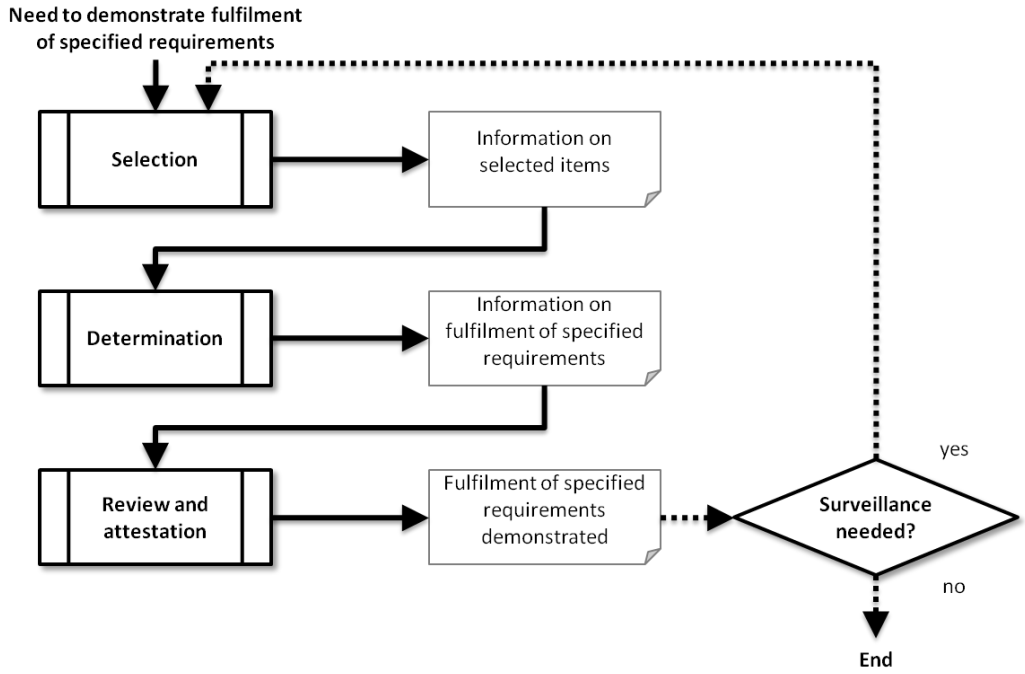

Figure 1. The functional model of conformity assessment (EN ISO/IEC 170000:2004)

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 results in a statement 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". Requirements for testing laboratories are given in EN ISO/IEC 17025.

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". Requirements for bodies carrying out inspections are stated in EN ISO/IEC 17020.

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. The inspection body may have to demonstrate that it has the necessary competence to perform the task (from the guidance on EN ISO/IEC 17020 by the International Accreditation Forum [IAF, 2004]).

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.

It should be noted that it is inherent in the concepts of declaration, inspection and certification that the requesting procurer is expected to trust the attestation; if not, he should not request them. 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 conformance, this is up to the supplier. For inspections and certifications, this is up to the inspection body and the certification body.

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. The best approach to conformity assessment is to use a combined approach encompassing all evaluation methods: automatic, expert evaluation and user testing [WAB Cluster, 2007].

The standards EN ISO/IEC 17000, EN ISO/IEC 17020, EN ISO/IEC 17021, EN ISO/IEC 17024, EN ISO/IEC 17025 and EN ISO/IEC 17050 specify the status and content of assessments. These assessments are 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. The supplier is entirely responsible for the assessment.

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

Keyword of a third party assessment in the standards is "independent". EN 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". 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 section 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. 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.

The standards EN ISO/IEC 17000, EN ISO/IEC 17020, EN ISO/IEC 17021, EN ISO/IEC 17024, EN ISO/IEC 17025 and EN ISO/IEC 17050 specify the status and content of a set of attestations. 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.

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 section 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, which are barriers to the requested 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.

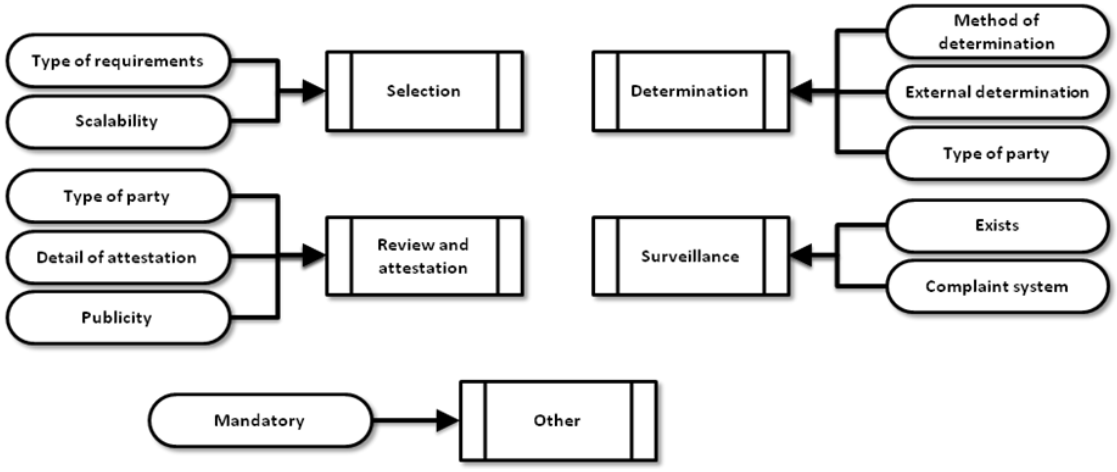

Figure 2. The dimensions defined to describe conformity assessment systems and schemes

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 official standards, on national official 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.)
    - Source: EN ISO/IEC 17000:2004 and project team.
    - Values: other, de facto standard, national 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 can be applied to products of various degrees of complexity. Scalable schemes include selection techniques (such as scope definition and sampling) that enable them to be applied to large and complex products.
    - Source: EN ISO/IEC 17000:2004 and project team.
    - Values: no, yes
    - Note 1: 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.
    - Note 2: another example of non-scalability is when products are assessed against a restricted set of predefined assistive technology. That means that, for instance, assessment is done against only one or two screen readers and so general accessibility cannot be guaranteed.

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 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 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 3: 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

Since the PT assumed the task of making the previous drafts and this report, all members agreed that this section was probably the key of all the rest or, at least, an important part of the final report.

The main goal is to summarise in a table, as easy to use as possible, the results of the research carried out not just by the PT members but also the inputs from the stakeholders.

The sections below shows the current existing schemes classified and briefly defined.

6.1 General

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

NOTE: Introductory text will be produced for each of these in the final report, similar to the content found in section 6.2. This introductory text will include information of organisation, country, reference, object of assessment, description and implementation, when applicable.

6.1.1 Generic first party assessment

Details:

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
Review and Attestation	
Type of party	first
Detail of attestation	no detail, detailed human, detailed machine
Publicity	private, public
Surveillance	
Exists	no, yes
Complaint system	no, yes
Other	
Mandatory	no, yes

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

Details:

Selection	
Requirements	company standards, other, de facto standard, national standard, international standard
Scalability	no, yes
Determination	
Method of determination	quality assurance during product development (direct and immediate impact), quality assurance by construction, testing, inspection, mixed
External	no, yes
Type of party	first
Review and Attestation	
Type of party	first
Detail of attestation	detailed human, detailed machine
Publicity	private, public
Surveillance	
Exists	no, yes
Complaint system	no, yes
Other	

Mandatory	no, yes

6.1.3 Generic second party assessment

Details:

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	second
Review and Attestation	
Type of party	second
Detail of attestation	no detail, detailed human, detailed machine
Publicity	private, public
Surveillance	
Exists	no, yes
Complaint system	no, yes
Other	
Mandatory	no, yes

6.1.4 Generic third party assessment

Details:

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	third / C, B, A / accredited
Review and Attestation	
Type of party	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

6.1.5 Inspection (EN ISO/IEC 17020:1998)

NOTE: content to be provided in the final draft

6.1.6 Product certification (EN 45011:1998)

NOTE: content to be provided in the final draft

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. More where found during our work, as can be seen in the previous report (interim technical report).

6.2.1 AENOR

Organisation: AENOR, the Spanish Standardization and Certification 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. The determination stage is performed by external organisations (The CTIC foundation and the European Software Institute), but it is AENOR who provides the final attestation. The certification is based on the Spanish standard UNE 139803:2004, which is based on and compatible with WCAG 1.0.

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

Details:

Selection	
Requirements	National standard (UNE 1390803:2004, based on WCAG 1.0)
Scalability	Yes (sampling is made)
Determination	
Method of determination	Inspection
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 section 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.

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

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	Non applicable
Review and Attestation	
Type of party	Third (type A) – for private subjects First of 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.

Details:

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	Non 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.

Details:

Selection	
Requirements	ISO and IEC standards
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 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	Undefined
Type of party	Undefined
Review and Attestation	
Type of party	Undefined
Detail of attestation	Detailed human?
Publicity	Undefined
Surveillance	
Existence	Undefined
Complaint system	Undefined
Other	
Mandatory	No

6.2.7 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. It is a document generated by the supplier (or manufacturer) to disclose to what extent the product addresses requirements, but a VPAT does not provide a clear yes/no answer for each requirement and for global product accessibility. Public procurers mainly use VPATs to guide them in learning what there is on the market.

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

Details:

Selection	
Requirements	Other (508 standards)
Scalability	?
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
Other	
Mandatory	No

6.3 In other domains

NOTE: This section will describe conformity assessment systems or schemes existing in other domains and that could be applied to the context of public procurement of accessible ICT products. For this draft a general short description is given, based on the content available in the interim technical report. In the final draft the details will be provided using the same model as above.

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 6.3.2 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 Keymark

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

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 (March 2007).

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.

The Keymark should not be confused with CE marking [CEN, 2008].

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.

6.3.3 Cencer

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 consumers confidence that a product complies with the requirements of approved documents [CEN, 2008b].

6.3.4 Common criteria

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

Common Criteria is an international method and standard defining requirements on and evaluating the security of ICT products and systems. It can be used by both purchasers (customers, users) and suppliers. It assists the purchaser in formulating functional requirements derived from identified security needs. Suppliers and developers can use Common Criteria as a way of showing that a product complies with a defined evaluation level. This can be verified by a third party, and result in a certificate.

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, which evaluates a product or system against specified requirements; and the Certification body, which issues a certificate verifying that a specified product complies with specified requirements.

There are two types of requirements, which can be defined and stored in a catalogue for reuse:

- Security functions, such as identification, protection of user data, encryption, user integrity, etc.
- Assurance requirements, i.e. how accurately the security functions shall be verified. This may involve evaluation of the supplier's design process, delivery procedure, user documentation, testing, etc. There are seven Evaluation Assurance Levels, reflecting an increasing need for evaluation accuracy.

6.3.5 CE marking

CE marking symbolises conformity to all the obligations incumbent on manufacturers for the product by virtue of the Community directives providing for its affixing [EC, 2000]. 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.

7 Framework for public procurement as regards conformity assessment

7.1 General legal principles for all public procurements

All public procurements in the EU Member States must comply with the principles of the EC Treaty. These principles are mentioned in Directive 2004/18/EC on the coordination of procedures for the award of contracts on public works, supply and services [EC, 2004]. Clause 2 of the Preamble of the Directive lays down that:

> "The award of contracts concluded in the Member States on behalf of the State, regional or local authorities and other bodies governed by public law entities, is subject to the respect of the principles of the Treaty and in particular to the principle of freedom of movement of goods, the principle of freedom of establishment and the principle of freedom to provide services and to the principles deriving therefrom, such as the principle of equal treatment, the principle of non-discrimination, the principle of mutual recognition, the principle of proportionality and the principle of transparency."

- 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.
- The principle of *mutual recognition* means that conformity assessment results (declarations, certificates, test reports, etc.) issued by a body recognised in a Member State shall be recognised in the other Member States. That is, a contracting authority must accept equivalent proofs of compliance issued by recognised non-national bodies.
- 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. This principle is applicable to requirements on conformity assessments. Some procedures for verification of compliance may be more costly and time-consuming than others. Proportionality plays an essential role in selecting accessibility conformity assessment schemes for ICT products. A balance must be struck between the importance of verifying accessibility and the resources (personnel, financial resources and administrative burdens) needed for verification. When it is very important for the purchased product to be accessible, there is a stronger motive for requiring more demanding schemes (i.e., some kind of third party intervention). Thus, it would be very appropriate to set up a levelled scheme requiring different forms of conformity assessment depending on the product. Note however that a product with a third party certification is not necessarily more accessible than a product

with a first party attestation from a supplier. A third party certification only makes the contracting authority more confident that the product really does have the accessibility that the supplier claims it to have.

- The principle of *transparency* concerns the obligation of the contracting authority to provide information on the procurement and how it is going to be carried out, and convey that information to all potential tenderers. The assessment of how a requirement is complied with must be predictable and repeatable to ensure that anyone carrying out verification will most likely get the same result.

7.2 The directive 2004/18/EC

Directive 2004/18/EC applies to contracts with a value above an amount specified in Article 7 of the Directive. This value (in fact three different values depending on contract type) is known as the threshold. The Member States have implemented the Directive in different ways. National legislations concerning procurements below the threshold are different, and include Directive clauses to various extents.

The Directive specifies rules on technical specifications and acceptance of proofs that tenders satisfy requirements set out in the technical specifications. 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

> "defining 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. 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.)

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."

7.3 Implications in procurement of accessible ICT

The Directive does not specify what requirements the contracting authority may set. Rather, it specifies how the requirements should be formulated and what the authority must accept from the tenderer. It follows from the definition that a technical specification may, but not must, 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.

The Directive does not clearly state that the fulfilment of a requirement must be verified. However, a decision by the EC Court (Case C-448/01 Wienstrom) lays 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 award 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).

The contracting authority itself can always verify that the tender conforms to the stated requirements itself, 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 may ask the supplier to provide proof, i.e. a conformity assessment, that a certain requirement is complied with in the call for tender. 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, they shall refer to standards "or equivalent", or be 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 can 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.

(Note: there are regulatory frameworks in other countries, e.g. USA, which may be relevant to the upcoming analysis in this project.)

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.

8.1 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

For each of these elements there is a set of criteria that define the public procurement process. For each criterion below the following items will be given: name, description, source and possible values. In addition some notes may be added.

8.2 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: there can be combinations of products for one public procurement instance. In these cases the value of this criterion would be a list of values for each individual element, giving category and CPV code for each of them.
    - Example 1: The value for one personal desktop computer should be "Hardware (30213000)"
    - Example 2: For instance, 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 regarding 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 eighteen months), long (more than eighteen 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 eighteen months), long (more than eighteen months).
    - Note 1: this criterion is not applicable for procuring products under development. Not sure about this.
    - Note 2: 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 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 connection or installation of assistive technology that would have programmatic access to the full user interface. 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

8.3 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 and 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 represents who is responsible for the market surveillance.
  - Source: IDC white paper
  - Values: none, third-party assessors, consumer groups, 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 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

8.4 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 almost impossible 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 could also describe which are the legal requirements.

8.5 Criteria dependent on the users

- **Risk of harm**: level of potential risk to produce adverse effects on users. In this report this 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.
- **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).

8.6 Criteria dependent on the public procurement characteristics

- **Type of procurement**, according to Hommen's matrix: 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 many other criteria (especially in the "product" group) have no interest.
- **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: we can use quantitative or qualitative values for this criterion
  - Note 2: if the product has to be developed then the amount of units is typically one.
- **Budget**: the amount of money that the procurer is expecting to invest
  - Source: project team
  - Value: budget in Euros
  - Note 1: qualitative values could be used, based on the thresholds defined by the European Union (see [1] 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 X percent 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: I presume that liability does not exist for all the cases. Am I right?
- Note 2: It could be relevant to note the cost of sanctions.

9 Scenarios

NOTE: The final draft report will provide a restricted but significant set of scenarios of public procurement of accessible ICT products. The model for analysing procurement contexts (the criteria) will be applied in these scenarios. The influence of the criteria of the public procurement context on the dimensions of conformity assessment schemes will also be detailed in these scenarios and not in a general way.

Below is a list of candidate scenarios

9.1 Procurement of a web site development for a ministry

9.2 Procurement of a set of licences of an operating system

9.3 Procurement of a road traffic management system

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. Yet, some Europe-based companies addresses accessibility issues in an organised way. Due to US legislation on accessibility, some US-based world-wide companies have an organisation unit or staff assigned to accessibility issues. Consequently, European subsidiaries of these companies 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 section 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 section 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 section 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.

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

The carriers of those functions which are intended to be used by end-users and therefore should be accessible are often software. 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 section 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 assurance system. Some are certified according to a standard, e.g. ISO 9000. A quality assurance system is used to decribe 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. Examples are:

- ISO/IEC 9000-3:1997 Quality management and quality assurance standards - Part 3: Guidelines for the application of ISO9001:1994 to the design, development, supply, installation and maintenance of computer software.
- ISO/IEC TR 15504: 1998 Information Technology - Software Process Assessment, a standard which provides customers and suppliers with a single source for process definition and assessment.
- TickIT, a quality management system based on ISO9000-3. TickIT is the basis for certification of software producers, and is implemented in the UK, Sweden and Norway among other countries.
- SPICE, a project which resulted in a standard (ISO/IEC TR 15504) for software process evaluation and improvement, including a method for evaluating the capability of potential suppliers against contract requirements to identify risks associated with the supplier.

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 section 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 sections 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.

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 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).

Some examples of activities follow:

- 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 9000, 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 on environment protection and ISO 27000 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

Market surveillance is an essential tool for the enforcement of New and Old Approach directives. 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.

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.

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

NOTE. Below are preliminary conclusions that will be updated in the final draft report, taking into account the comments received during the BTWG meeting of April, 15th.

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.

One of the differences that can be found between public procurement contexts is the difference between purchasing of-the-shelf products (that have already being

manufactured and exist in the market) and procuring the development of an ICT project (typically involving the development of a tailor-made product such as a web site, bespoke software application, etc.).

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 if 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 chose 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 official standards, to guaranty the maximum harmonisation between countries. National standards should be avoided because they can fragment the market creating trade barriers.

- *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, that require the participation of human expertise during the assessment.

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

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

NOTE: Content for this section will be provided for the final draft report, based on the discussions of the April, 15th meeting.

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Annexes

NOTE: no annexes are defined for the time being.