Project Report - “CAMSS”

Common Assessment Method for Standards and Specifications

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[2] A separate document: “CAMSS Proposal” details the CAMSS and its criteria.

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EXECUTIVE SUMMARY

The Member States who are currently organizing the assessment of standards and specifications, e.g. within the context of their national interoperability frameworks, agreed to collaborate at European level. Sharing information and knowledge about this standards and specifications assessment process, aligning the national processes and re-use of best practices could speed up the assessment processes and reduce their costs throughout European Administrations.

The support of interoperability for pan-European eGovernment services is a core task of the IDABC programme of the European Commission. "CAMSS" is an IDABC initiative which aims to initiate, support and coordinate this collaboration among volunteer Member States in the definition of a "Common Assessment Method for Standards and Specifications" and to share the assessment study results for the development of eGovernment services.

The CAMSS, currently in its first phase, defines a method for assessing standards and specifications. The CAMSS does not provide a general policy, and does not make recommendations at a European level. It provides a tool enabling structure and exchange of information on standards and specifications for software in the field of eGovernment. The second phase will provide a methodology for collaboration and exchange of assessment results among Member States, set up proposals for assessment studies to be carried out and subsequently shared, disseminate the assessment study results and conduct specific studies, if needed. It is left to the convenience of the Member States to decide on how to proceed with their own interpretations/ recommendations/regulations in using the assessment study results.

This document is the outcome of Phase 1: a proposal for a CAMSS - Common Assessment Method for Standards and Specifications elaborated in close collaboration with the Member States and based on a thorough analysis of existing best practices, initiatives and contributions regarding the assessment of standards and specifications. The concerned Commission services have also been consulted.

The four CAMSS criteria (Suitability, Potential, Openness, Market Conditions) figure as a list of qualitative aspects of a standard or specifications to be taken into account, rather than a quantitative evaluation. Each criterion is described with a series of questions and suggestions on how to implement the assessment. These elements will have to be adapted / interpreted according to the identified context and scope of the assessment.

The "Suitability" of a standard or specification can be defined as the extent to which the standard or specification responds to the identified need and promotes interoperability. The "Potential" criterion aims at identifying the indirect consequences linked to the choice of the standard or specification, whether it is in terms of assessing the impact of that choice, or evaluating the possible evolution of the standard or specification, i.e.: its scalability, extensibility, stability and maintenance. Assessing the "Openness" of a standard or specification and of standardisation includes assessing openness of deliverables (documentation, IPR, access, …) and of process (consensus, open change…). The criterion "Market Conditions" assesses the standard or specification in the scope of its market environment. It implies identifying to which extent the standard or specification benefits from market support and wide adoption, its level of maturity and its capacity of reusability.

1. INTRODUCTION

1.1 List of Acronyms

BELGIF	BELgian Governement Interoperability Framework
CAMSS	Common Assessment Method for Standards and Specifications
CEN	European Committee for Standardization
CENELEC	European Committee for Electrotechnical Standardization
DIN	German Institute for Standardization
EIF	European Interoperability Framework for pan-European eGovernment services
ETSI	European Telecommunications Standards Institute
EU	European Union
IDA-AG	Interchange of Data between Administrations - Architecture Guidelines
ICT	Information and Communication Technology
IDABC	Interoperable Delivery of pan European Services to Public Administrations, Businesses and Citizens
ICEG	Intergovernmental Committee e-Government (Belgium)
IETF	Internet Engineering Task Force
ISO	International Organization for Standardization
ITU	International Telecommunication Union
NORA	Dutch Government Reference Architecture
OASIS	Organization for the Advancement of Structured Information Standards
ODF	Open Document Format
OGC	Office of Government Commerce
OMA	Open Mobile Alliance
OOXML	Office Open Extensible Mark-up Language
RAND	Reasonable and Non Discriminatory Licence
RGI	Référentiel Général d'Interopérabilité (France)

SAGA	Standards and Architectures for E-Government Applications (Germany)
UNDP	United Nations Development Programme
WTO	World Trade Organisation
W3C	The World Wide Web Consortium

1.2 Definitions

RAND (Reasonable and Non Discriminatory Licence) is based on a "fairness" concept. Companies agree that if they receive any patents on technologies that become essential to the standard then they agree to allow other groups attempting to implement the standard to use these patents and they agree that the charges for the patents shall be reasonable.

"**RAND with limited availability**" is a version of RAND where the "reasonable charges" have an upper limit.

Definitions of standard and specification

Several definitions of standards and specification are commonly used. In this project, we refer to the definitions presented in Directive 2004/18/EC, which lays down procedures for public procurement.

A 'technical specification' (referred to as 'specification' in this project), means a specification in a document 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;

A 'standard' means a technical specification approved by a recognised standardising body for repeated or continuous application.

This distinction implies that "**Standard**" refers to a document, established by consensus and approved by a national, EU or International recognized body (CEN, CENELEC, ETSI, ISO,…) whereas a "**Specification**" refers to a set of requirements issued by fora and consortia such as W3C, IETF, … This approach is consistent with Directive 98/34/EC, which lays down a procedure for the provision of information in the field of technical standards and regulations.

1.3 Context

The support of interoperability for pan-European eGovernment services is a core task of the IDABC (Interoperable Delivery of pan European Services to Public Administrations, Businesses and Citizens) programme, explicitly requested in the Decision to implement the programme. Interoperability was already key to the IDABC predecessors IDA and IDA II, under which a series of measures were initiated under the work programme entry "Interoperability Guidelines".

As announced in the Europe 2005 Action Plan and foreseen in its own legal basis, the IDA II programme developed the European Interoperability Framework for pan-European eGovernment services (EIF V 1.0) in a close consultation process with the Member States. As a result, a draft version of the EIF was published on the IDA(BC) website in January 2004. The public request for comment was met by about 20 different contributions from Member States, EU institutions and industry. These comments were considered, and party integrated in the final version.

The official version of the EIF V1.0 was approved by the IDA II Management Committee TAC on October 19, 2004 and published in early November 2004. The document is supposed to model the organizational framework for the exchange of information between Members States and recommend technical policies and specifications for joining up public administration information systems across the EU. Decision makers in eGovernment are its main target group. It is the highest-ranking reference document for interoperability within the IDABC programme. This document is extremely well received in the world of public administrations in Europe (and elsewhere) and is often referenced as one of the basis documents when interoperability is discussed. Many Member States of the European Union have used the document as the basis for the definition of their national interoperability frameworks and to provide guidance to project managers and procurement officers.

The idea is to create now a federated set of coherent reference documents covering different aspects of interoperability and the different interoperability layers defined in the EIF. In 2005, IDABC published already a study on infrastructures for eGovernment services as well as two papers related to semantic interoperability. All of three studies fit in terminology and concepts to the EIF. The "Stakeholder Study" will provide information on stakeholders' priorities.

The "old" IDA Architecture Guidelines are a main building block of that set of documents, since they are directed to supplement the EIF at an operational level that is essential for the implementation of cross-border services. First published in 1999, the Architecture Guidelines are available on the IDA website in the 7th edition dating from 2004. The Architecture Guidelines describe concepts and provide recommendations for the organizational and technical prerequisites of data exchange between public administrations and with citizens and enterprises. They also contain detailed information on the parameters of IDA infrastructures and tools already in place. The IDA Architecture Guidelines address those responsible for planning, design and procurement tasks for trans-European horizontal actions and measures, in particular generic services and common tools. The IDA-Architecture Guidelines are also aimed at those who develop specific sectoral projects for interchanging data between administrations.

EIF and IDA-AG both share common principles and goals: they are based on the principle of subsidiarity, specifying only the pan-European aspects of eGovernment technologies. Their recommendations rely on the use of Open Standards, and there is the common understanding that the future architecture of pan-European eGovernment services will be based on XML-technologies. Furthermore, both documents will have to adapt continuously to the requirements of emerging trans-border-services in the future, in order to become useful reference documents for the IDABC community.

However, due to their different history and date of origin (the concept of the IDA-AG dates back in the 90s!), there is an obvious gap between the content of the two documents. Whereas the generic outlines of the EIF already depict adequate policies for a state-of-the-art architecture, the Architecture Guidelines 7.1 do not yet provide the adequate technical concepts and operational guidance towards an architecture for cross-border services.

There is also some doubt, whether the architecture guidelines should be continued as one document or rather should be split up in several documents, for example security and authentication might deserve their own guidelines. Member states have volunteered to

contribute their experience in terms of architecture and standards. Also, consideration should be given to the possibility to manage the future IDABC-Architecture Guidelines as an online service.

In the meanwhile, the high visibility of the EIF V1.0 and the international reactions it has received (mainly on Open Standards definition and the use of Open Source Software), have led to the decision to convert its next version into an official Commission document.

The action was first announced in the Communication on interoperability that was published in early 2006. It is also mentioned in the i2010 eGovernment Action Plan that sets policy goals for the coming years and generally states the importance of guidance on interoperability: "interoperability is a generic key enabler".

The EIF v2.0 will represent an official Commission position with the publication of a Communication from the Commission to the Council and to the Parliament early 2008.

In this context, IDABC decided to initiate a preparatory study for the revision of both, the EIF V1.0 (to become EIF V2.0) and the IDA-AG (to become IDABC-AG).

The Commission asked Gartner Inc. to make a study, situating the European Interoperability Framework in relation to the current practices in the Member States and elsewhere and to give an independent view on the revision process and on its desired outcome. The preparatory study was carried out from August 2006 to May 2007 and has provided a final report proposing recommendations and views from the contractor (Gartner Group). The content of the document is discussed within the Commission and with the Member States but it has not been endorsed, neither by the Commission nor by the Member States. This study is not the second version of the European interoperability Framework but will be one of the many inputs for the revision work among other inputs as studies carried out at the same moment (the Modinis Study , the EU Study on the specific policy needs for ICT Standardisation, …). The second version of the European interoperability Framework will take into account the national interoperability frameworks and related activities that today either already exist in the Member States or are being prepared.

Taking into account the progress made in this area, the rapid evolution of the technology and the wish to come to a document that will no longer be limited to the IDABC context, the process to prepare a second version of the EIF document has started. This second version will be written in close collaboration with the relevant Commission services and with the Member States. Other, indirect, stakeholders will be given the opportunity to provide their input. This second EIF version is expected to be ready in 2008. The AG v8.0 will be prepared in parallel in the first half of 2008.

1.4 The CAMSS Project

1.4.1 Scope

In parallel with the revision of both the EIF and the AG, the Member States who are currently organizing the assessment of standards and specifications, e.g. within the context of their national interoperability frameworks, agreed to work together at European level on this topic.

Sharing information and knowledge about this standards and specifications assessment process, aligning the national processes and re-use of best practices could speed up the assessment processes and reduce their costs throughout European Administrations.

Therefore some volunteer Member States decided to propose a definition of a "Common Assessment Method for Standards and Specifications" ("CAMSS") and to share the related assessment study workload and results in the framework of the development of eGovernment services.

The CAMSS project is divided in two phases and is currently in its first phase.

The CAMSS, in its first phase, defines a **method** for assessing standards and specifications. The second phase will aim at sharing the assessment study workload and results. It is left to the convenience of the **Member States** to decide on how to proceed with their own interpretations/ recommendations/regulations in using the assessment study results for selecting the standards and specifications.

1.4.2 CAMSS Project – Phase 1 description

The objective of this Phase 1 is to initiate, support and coordinate this collaboration between the volunteer Member States. The scope of this activity is to define a common set of guidelines for the assessment of standards and specifications based on national best practices. The IDABC Programme facilitates the common assessment guidelines definition and the sharing of experience by providing a discussion and exchange platform via a dedicated expert group. The CAMSS Phase 1 project is implemented according to the following 3 tasks:

- **Task 1: Preparation and animation of collaboration activities**

  Objective: In order to ensure a living work and dialogue between the experts, this tasks aims at animating exchanges between the experts during meetings and using a collaborative tool (wiki like). This tool is used to exchange points of view on different topics and to collaborate/contribute on draft documents. The main sub-tasks are:

  - ***Sub-task 1.1:*** Preparation of collaboration activities. This preparation sub-task aims at setting the most optimum collaboration environment at an early stage of the project.

    Deliverable 1.1: Structure of the collaboration environment.

    Timeline: Month 1 : T0 + 3 weeks
  - ***Sub-task 1.2:*** Animation of collaboration activities. The aim of this subtask is to promote, enable and structure collaboration from Member States, the Commission and STRATEQO in order to foster proposals for a CAMSS.

    Deliverable 1.2: Content of the collaboration exchanges and documents used.

    Timeline: From Month 2 to Month 5 (collaboration ongoing); From Month 6 to Month 12 (read-only mode).

- **Task 2: Collection and analysis of existing assessment contributions**

  Objective: The aim of this task is to research, collect and analyse the existing initiatives and contributions regarding the assessment of standards and specifications within the Member States, as well as within non EU countries. The main sub-tasks included in task 2 are:

  - ***Sub-task 2.1:*** Collect the existing initiatives and contributions regarding the assessment of standards and specifications within a series of Member States
  - ***Sub-task 2.2:*** Search for a series of Best Practices in the field of Standard and Specification Assessment - Identify similar works done in the standardization area at the EU level and outside the EU;
  - ***Sub-task 2.3:*** Prepare working versions of documents (Summary in English of the relevant documents identified; classification the relevant documents' content according to a structure allowing identification and comparison of elements in the scope of the CAMSS);

– ***Sub-task 2.4:*** Analyse the collected assessment methods in order to identify common elements among the Member States;

Deliverable 2.1: Preliminary Report: "Assessment Methods for Standards and Specifications: State-of-Play in the Member States". This document aims at describing the State-of-Play in the Member States as well as Best Practices identified outside the EU or at international level, and the identified communalities.

Timeline: Month 3.

- **Task 3 : Proposal for a Common Assessment Method for Standards and Specifications**

  This task aims at elaborating in close collaboration with the Member States some proposals for the definition of a common set of guidelines for the assessment of standards and specifications. The concerned Commission services are also to be consulted.

  Deliverable 3.1: Final Report: "Proposal for a Common Assessment Method for Standards and Specifications".

  Timeline: Month 6.

1.4.3 CAMSS Project – Phase 2 overview

The second phase will provide a methodology for collaboration and exchange of assessment results among Member States, set up proposals for assessment studies to be carried out and subsequently shared, disseminate the assessment study results and conduct specific studies, if needed. The anticipated outcome is an **IDABC registry**, containing methods and aspects used as a reference by Member States and the Commission, either in whole or in part, with the goal of creating re-usable and comparable interoperability ICT investigations, with **improved** quality and reduced time and resources.

1.5 Aim of this document

This document is the first part of deliverable 3.1 "Final Report: Proposal for a Common Assessment Method for Standards and Specifications". It is issued in the scope of Task 3 "Proposal for a Common Assessment Method for Standards and Specifications**"** of the "CAMSS Phase 1" project. This task aims at elaborating in close collaboration with the Member States a proposal for the definition of a common set of guidelines for the assessment of standards and specifications. These guidelines have been discussed within the Member State Expert Working Group Meetings and through the collaborative tool. The concerned Commission services have also been consulted especially regarding standardization matters.

The second part of the Deliverable D 3.1 is a separate document : "Proposal for a CAMSS".

2. SUMMARY OF EXISTING ASSESSMENT METHODS

This section describes the methods used for collecting and identifying best practices, initiatives and contributions regarding the assessment of standards and specifications.

2.1 Existing initiatives and contributions within Member States

2.1.1 Method for collecting and identifying existing initiatives within Member States

Method for collecting and identifying the existing initiatives and contributions regarding the assessment of standards and specifications within a series of Member States is done through different methods:

- **In collaboration with the MS Experts through the indication of relevant documentation:**

  (Belgium): The "Belgian Government Interoperability Framework" (BELGIF[3]) and the qualification process[4] followed to qualify a standard in BELGIF, which covers two aspects: the introduction of a new standard in the list and the evolution of an existing standard.

  (Germany): Within SAGA[5] there are some chapters which describe requirements to be met by architecture models and standards to be taken into SAGA, particularly chapter 1.3 with the major "Aims" of SAGA, chapter 1.5 with the basic principles for eGovernment applications and chapter 2.2 with the minimum requirements with regard to openness of standards.

  (Denmark): The "why", "what"and "how" of Danish Assessment[6] (in Danish); the "why" and "what" Danish Assessment (in English)[7]. Preferences and categories on standards and specifications: the Danish IOP framework[8and9].

  (France): The General Interoperability Framework of Reference (RGI)[10] is a part of the French e-government strategy, which was set up to improve and simplify relations between the administrations and the citizens, also it has a strong impact on the modernization of administrations' internal working processes.

[3] http://www.belgif.be/index.php/Main_Page

[4] http://www.belgif.be/index.php/Qualification_Process

[5] http://www.kbst.bund.de/cln_012/nn_836960/Content/Standards/Saga/saga__node.html__nnn=true

[6] "Anvendelses af abne standarder for software I det offentlige" http://itst.dk/static/nyhed/aabne%20standarder.pdf

[7] "Use of Open Standards for Software in the Public Sector" http://itst.dk/static/nyhed/English%20summary.pdf

[8] http://standarder.oio.dk/English/

[9] OIO – Kataloget over offentlige it-standarder http://standarder.oio.dk/

[10] http://synergies.modernisation.gouv.fr/rubrique.php?id_rubrique=71

- **In collaboration with the MS Experts through a series of interviews:**

  Three interviews of MS experts from Denmark, France and the Netherlands allow collecting further existing initiatives, specific data regarding standards assessment and main guidelines for the CAMSS.

  Results of these interviews are fed into the CAMSS wiki to adjust existing criteria and overall structure of the CAMSS.

- **In collaboration with the MS Experts using the wiki collaboration tool**

- **Through desk research**

  Further research/identification of existing initiatives is done through desk search, analysing existing EU MS Government Interoperability Frameworks. Interoperability Frameworks or other eGovernment policies documentation have been identified for the following EU countries:

  – Austria : Administration on the Net[11]
  – Estonia : Interoperability Framework[12]
  – The Netherlands[13]: NORA[14] (Nederlands Overheid Referentie Architectuur) and CANOSS (Nederlandse Catalogus van Open Standaarden). The standardization forum[15] supports the Dutch government in the use, development and establishment of open standards for electronic exchange.
  – UK eGIF[16]

  Further research is also done regarding standards assessment in the results of various EC funded projects:

  – the MODINIS Study and the report "Study on the Interoperability at Local and Regional Level[17]"
  – from the CORDIS website

[11] http://www.cio.gv.at/egovernment/umbrella/

[12] http://www.riso.ee/en/files/framework_2005.pdf

[13] http://e-overheid.nl/data/files/architectuur/E-government_in_the_Netherlands.pdf

[14] http://www.e-overheid.nl/atlas/referentiearchitectuur

[15] http://www.forumstandaardisatie.nl/english/

[16] http://www.govtalk.gov.uk/schemasstandards/egif.asp

[17] http://www.epractice.eu/document/3652

- **Results**

The above described methods allowed to **identify** *explicitly - and sometimes briefly - described* **Assessment Methods for Standards and Specifications** for the following **EU countries**:

– Belgium,

– Denmark,

– France,

– Netherlands.

Germany identifies minimum requirements with regard to the openness of standards.

Denmark provides a comprehensive document and method for the evaluation of the openness of standards.

2.1.2 Summary of existing assessment methods within Member States

The following section details the elements regarding standards assessment explicitly stated in the collected documentation and during the interviews.

It is important to explain that implicit criteria have not been presented here. This does not mean that the choice of standards by Member States does not follow equal or similar criteria than those identified in other Member States.

2.1.2.1 Belgium

- The qualification process followed to qualify a standard in BELGIF covers two aspects:
  - the introduction of a new standard in the list
  - the evolution of an existing standard.
- It is based on three status assignable to the standards :
  - The status **proposed** is the weakest in terms of obligation. It is meant to provide awareness to the community about a new or emerging standard.
  - The status **recommended** implies that the standard should be used in all cases except from those for which it is definitely impossible to conform.
  - The status **mandatory** implies that the standard has to be used in all cases without exceptions.
- The qualification process is then defined by a three-step status change :
  - a new standard is proposed in the list.
  - the ICEG Technical Working Group decides to change the standard to the recommended status, after public consultation.
  - the ICEG Technical Working Group decides to change this recommended standard to the mandatory status, when conformance is no more an issue.

Step 1: Status proposed

To be accepted in the proposed status, a standard has to fulfill some basic criteria: to be an **open-standard** according to the IDABC definition.

Currently, BELGIF considers that the **support by one of the organisms listed below** is a condition to be considered as a proposed BELGIF standard. It should be pointed out that it is a necessary condition, not a sufficient one.

ISO - IETF - ETSI - ITU - CEN - W3C - OASIS - OMA - OGC

Step 2: Status recommended

To be accepted in the recommended status, a standard needs :

- to be previously accepted in the proposed status;
- to have a specific **impact study**;
- to be approved by ICEG.

An impact study is necessary in order to have a clear idea of the impacts of the use of that standard.

This means defining :

- scope of the standard : when and where should I use the standard? And where not?
- availability of conformity tests and tools : how can I check if an organisation complies or not with the standard?
- availability of a migration methodology : what steps are required in order to become compliant? Are there any migration tools available?
- high-level impact : how can I assess the organisational and financial impacts of such a migration?

The impact study will be used by decision makers in order to set-up an interoperability action plan.

Step 3: Status mandatory

The ICEG Technical Working Group decides to change this recommended standard to the mandatory status, when **conformance** is no more an issue. The ICEG working group will soon document the methodology that will be followed in order to approve a BELGIF mandatory standard.

2.1.2.2 Denmark

- **Proposal for the CAMSS structure**

  The proposed set of evaluation criteria is divided into three main groups:

  - Those with Public Administration value: The standards answer **eGovernment needs**. All standards used in public administration should be of a high degree of administrative value, such as suitability and potential.
  - **Open Standardization**: All standards used in public administration should be of a high degree of open standardization, such as open deliverables and open process.
  - **Market Support**: All standards used in public administration should be highly supported by the market with regard to maturity and penetration.

- **Openness criteria - Definition of Open Standards** [18]

The Openness criteria has been defined extensively by Denmark and is a contribution to the CAMSS:

- The standard is fully documented and accessible by public:
  - Open Documentation
- The standard should be free to implement without economical, political or legal restictions - now as well as in the future
  - Open Intellectual Property Right
  - Open Access
  - Open Interoperability
- The standard is managed and maintained in an open forum through an open process:
  - Open Meeting
  - Consensus
  - Due Process
  - Open Change
  - Ongoing Support

2.1.2.3 France

The following section is based on an interview with the French Expert.

The evaluation criteria for standards is not explicitly stated in the RGI. However, the RGI is based on the "Cadre Commun d'Interopérabilité" which based its choice of standards on the "state-of-the-art" identified in specific sectors and on analysis of good practices.

A dominant criterion for choosing a standard is its level of "**industrialisation**": ***expertise on the field and maturity***. The RGI does not apply innovation, the standards should initially be industrialised. However, the standard / specification should not be at the end of its life cycle, in order to avoid using an obsolete one.

The idea is that a standard is useful if it is used in a specific context. It is therefore **identified for a sector specific practice**.

However, in order to enable interoperability, good practices and their communalities are identified among/across different sectors.

Another dominant criterion for choosing a standard is its **openness**, non proprietary aspect - as is recommended in the EIF. The choice of the standards/specification in the RGI were then published for a call for comments on the RGI wiki, enabling an open validation process.

The criteria terms "Reusability" and "Market Support" are strongly linked with the first mentioned criterion: a standard is strongly reusable if it is identified as a good practice in its sector and if it is industrialised (has strong market support).

The **Market Support** criteria should focus primarily on a national level, not on a global level.

[18] Extracts from IDC document: Evaluation of Ten Standard Setting Organizations with Regard to Open Standards, Prepared for IT - og Telestyrelsen - Per Andersen http://www.itst.dk/arkitektur-og-standarder/Standardisering/Aabnestandarder/baggrundsrapporter/Evaluation%20of%20Ten%20Standard%20Setting%20Organizations.pdf

It is suggested to add a criterion linked to the "Strategic Potential" mentioned. This criterion would assess the **Impact** of choosing a standard or a specification, on three levels:

- Financial (hardware / software investment...)
- Strategic (Regional, National or Global approach...)
- Change Management (training...) implications.

2.1.2.4 Germany

SAGA pursues the following aims:

- **Interoperability –** Warranting a media-consistent flow of information between citizens, business, the Federal Government and its partners
- **Reusability** – Establishing process and data models for similar procedures when providing services and defining data structures
- **Openness** – Integrating open standards into applications.
- **Reduction of costs and risks** – Considering investment-safe developments on the market and in the field of standardization.
- **Scalability –** Ensuring the usability of applications as requirements change in terms of volume and transaction frequency

Germany identifies minimum requirements with regard to the openness of standards.

One aim of SAGA is to promote the use of open standards in eGovernment applications, and this section refers to section 1.3 "Aims" on page 12. There are currently many different definitions for an "open standard", however, there is no one generally valid definition accepted by all. Various standardisation committees have issued definitions which are essentially the same in terms of how a standard emerges, its documentation and application. However, opinions do differ when it comes to the type of standardisation organization and the license cost system of a standard. These issues are rated differently by the various committees (e.g. IDABC, ETSI, DIN, CEN, ISO).

SAGA is not designed as a forum for these discussions, instead it is to remain a practice-based recommendation. This is why "minimum requirements" were defined for the openness of standards which will also serve as an evaluation basis for accepting or rejecting a standard in SAGA.

The minimum requirements for the openness of standards for acceptance in SAGA are defined as follows:

- The standard has been published and the standard specification document is available either freely or at a nominal charge.
- The intellectual property (for instance, in the form of patents) of a standard or of parts of a standard must, if possible, be accessible without being contingent upon the payment of a license fee.
- The federal administration and the users of its services must be able to use the standard without restriction.
- The standard must remain published and freely usable in the future.

2.1.2.5 Netherlands

- **Overview of criteria**

The following section is the result of an interview with the Dutch Expert.

The criteria for initiating the assessment is the **business need / value** – this criteria has to be evaluated internally (each Member State). It refers to the "suitability" criteria mentioned by Denmark.

The only objectively – measurable criteria is **openness** (they refer to the **IDABC definition**, and in addition, the Dutch government uses two additional definitions in elaborating the action plans: An **open specification** is one that is published and whose specification document is freely available. Alternatively, it may be available for a nominal contribution. It must be possible for everyone to copy it, make it available and use it, free or for a nominal price. A **free specification** is an open specification that is free of legal restrictions making its use and distribution difficult. The intellectual property – regarding any patents that may be present – of the standard or parts thereof is irrevocably made available on a royalty-free basis).

A standard should be **future-proof**: this includes its **stability**, its **scalability** and its **maintenance.**

Impact assessment should also be completed by a **maturity** assessment of the standard.

Wide adoption should be assessed as well.

Reusability is about identifying **best practices** in the use of the standard, but should also assess the **flexibility to extend it** to another area (i.e.: if the standards contains a methodology – ex: taxonomy, then it has added value). This can be assessed mostly for semantic standards.

- **Criteria for selecting standards**[19]

This section presents extracts from section 3 "Criteria for selecting standards" from the Dutch assessment process "Open Standards, the process of reaching a list of open standards", recently elaborated and approved.

1 Applying criteria

Before dealing with the criteria it is necessary to make some comments on how the criteria should be used and seen.

1.1 Evaluation within the context of the standard

The assessment of proposed standards using the criteria must take place in the context of the standard. This means that when evaluating a standard it is not possible just to look at the standard itself; attention must also be paid to the proposed area of application and its organisational operating field. After all, the goal of the list is not to impose dry standards, but to designate the standards for specific applications used inside a demarcated organisational operating field. This may appear obvious, but it is impossible to assess the added value of the standard's obligations correctly in particular without this proviso. As such, an instrument can only be assessed for its qualities when what it is used for is known.

1.2 Making criteria operational and weighing them

A large number of the criteria described below cannot be made operational on a generic basis due to the wide variety of standards, applications and fields of work involved. The method for testing a standard against the criteria will vary by standard. This applies to the requirements that a standard must meet to be able to satisfy a specific criterion, but also the method used and the required depth during testing.

[19] Extracted from "Open Standards, the process of reaching a list of open standards" - Piet Hein Minnecré and Lucas Korsten - 23 April 2008 - Verdonck, Klooster & Associates B.V.

Moreover, it is not possible to determine which weight should be assigned to the different criteria in advance. This will also vary by standard, area of application and organisational operating field.

In principle, only two criteria can be tested on a hard basis. Firstly, the standard must contribute to the goals of the list, and secondly the standard must meet the requirements for openness. Both criteria are explored further below. Standards that do not satisfy one of the two criteria are not included in the list of standards.

The other criteria described below are softer in nature. This means that how important it is to fulfil a criterion must be assessed for each standard. In this case a high score for a certain criterion may compensate for a low score on a different criterion.

As little can be said about making the criteria operational and weighing them in advance, the Committee is assigned the task of determining a precise testing method and weighting. All of the criteria must be addressed and the choices made (with respect to both the testing method and the mutual weighing of criteria) must be reproduced transparently. A final evaluation of whether the criteria testing and weighting was performed correctly occurs during the Standardisation Council's decision-making.

2 Criteria

A number of criteria are described and explored further on the basis of the above information. The following criteria are concerned:

- Openness
- Usability
- Potential, and
- Impact

3 Openness

In compliance with the definition in the action plan, standards that are included in the list of standards must fulfil the requirements below concerning openness:

- The standard is approved and will be used by a non-profit organisation . The current development is taking place on the basis of an open decision-making procedure which is accessible to all of the stakeholder parties (consensus or majority arrangement, etc.);
- The standard is published and the specification document for the standard is available for free or can be obtained for a nominal sum. It must be possible for everyone to copy, make available and use the standard at no cost or for a nominal price;
- The intellectual property (relating to possible patents present) for (parts of) the standard has been made available irrevocably on a 'royalty free' basis;
- There are no limits on reuse of the standard.

It is also possible to include specifications in the list, which is also in keeping with the action plan. Specifications must also satisfy openness related criteria. Only open or free specifications are eligible for inclusion in the list. The definitions for these specifications are as follows:

- Open Specification: an open specification is a specification that has been published. The document on this specification is available for free or can be obtained for a nominal sum. It must be possible for everyone to copy, make available and use it at no cost or for a nominal fee.
- Free Specification: a free specification is an open specification that is free of legal restrictions which make use and dissemination more difficult. The intellectual property (relating to possible existing patents) for (parts of) the standard has been made available irrevocably to everyone on a 'royalty free' basis.

The 'as open as possible' principle is taken as a starting point when evaluating the openness criterion. This means that an open standard is preferred to a free specification. A free specification, in turn, is preferred to an open specification.

4 Usability

The usability criterion for a standard concerns the degree to which a standard can actually be applied effectively. It involves the standard's characteristics and how these characteristics fit in with the proposed area of application. Usability can be divided into the points of attention below.

4.1 Maturity

Two aspects of maturity are looked at under the criterion of maturity. Firstly, this covers the maturity of the standard itself. The following questions must always be answered here:

- Is the standard sufficiently crystallised?
- Are further development and maintenance of the standard assured?
- Is there a method with which compliance with the standard can be determined?

Then, the actual use of the standard has to be examined. The following questions must always be answered here:

- Has sufficient practical experience of using the standard been acquired?
- Does sufficient support exist now and in the future among (several) parties in the market for the standard?
- What is the expectation relating to future use of the standard?

4.2 Functionality

An analysis then has to be performed of how the standard fulfils the functional requirements set in the proposed area of application for the standard. The following questions always have to be answered here:

- What are the functional requirements set for the operation of the standard in the proposed area of application?
- How far does the standard meet these requirements?
- How does it relate to competing standards?

4.3 Competing standards

Following the last point in the previous topic, the following questions also have to be included in the analysis:

- Do competing standards exist?
- If so, which ones and who are they used by?
- What are the advantages and disadvantages of this standard relative to competing standards?

5 Potential

Standards included in the list have to contribute to achieving the list's objectives. The above criteria contain important framework conditions for this but do not provide any guarantee that the inclusion of the proposed standards will also actually produce a concomitant positive effect. This is why the effect of including the standard on the list's goals has to be examined separately when evaluating the standards:

- How far does including the standard in the list contribute to increasing independence from suppliers?
- How far does inclusion of the standard in the list contribute to increasing interoperability?

The impact of including a standard in the list will not always have the same effect with respect to both goals. A good evaluation of this criterion therefore incorporates both aspects and if necessary a weighing up of the evaluation in terms of its impact on both aspects.

Standards that do not have a positive effect with respect to the goals on the list are not included in the list.

6 Impact

The impact criterion refers to the consequences of including the standard in the list for the parties in the proposed organisational operating field and the other parties affected as a result. The negative aspects (risks) and the positive aspects (opportunities) of including the standard have to be determined here. The fields where an analysis of the risks and opportunities has to be performed may vary for each standard, but these fields can be considered:

- Operating field(s);
- Continuity of the business process;
- Financial aspects (costs and benefits);
- Organisational aspects;
- Migration aspects;
- Security aspects;
- Privacy aspects;
- Administrative burdens;
- Interoperability (with other processes, organisations);
- Dependency on suppliers.

It is important to note here that a number of the named areas (e.g. costs and benefits and migration aspects) can be used as justification by users who invoke the 'explain' section of the 'comply or explain' principle. In this sense, the areas summarised here are indicative and cannot have an impeding effect on the generic main thrust during the evaluation process, i.e. if an open standard is available it must be used.

- **Example of the assessment of the ODF standard for the Dutch government[20]:**

  Criteria used to evaluate the ODF standard for the government are its **usability** and degree of **maturity**. A series of properties of ODF are highlighted:
  - Openness – according to the definition of the Dutch government
  - Offering the advantages of being based on XML:
    - Platform independent
    - Durability: the content of xml files can always be imported in an xml viewer
  - Changes are feasible on an ODF file (which can be loaded in several office environments)
  - Maintenance: ODF is maintained and supported by several suppliers
  - Widening adoption: internationally, ODF is acquiring more users in the government domain.

[20] Extracted/ summarized from: "ODF Policy Options for the Dutch Government" An exploratory study – R Van den Assem, W Enserink, W Lockefeer, R Montenarie, J Schalken – 27 February 2007 – Verdonck, Klooster & Associates B.V.

The requirements ODF satisfies to make it a **usable** standard for the Dutch government are linked to available **functionalities meeting the needs** in several areas of application:

- Cooperation: ODF can be used by several people working together on the same document.
- Exchange: ODF enables efficient exchange of documents (except for spreadsheet formats). This property is linked to the tools used for importing office files (document management tools, …). Interoperability depends on the use of plug-ins for file conversion – several initiatives exist, but improvement is needed.
- Publication: ODF is suitable for publishing files which may be edited. ODF does not include any options for protecting files with confidential content (published for a limited group). Files should be protected at another level.
- Archiving: the main criteria to assess here is **durability**. Durability combines:
  - **Neutrality** (openness, non binary, platform independent),
  - **Technical ingenuity** (display, capacity to edit, functionality, future), and
  - Broad acceptance.

  ➔ Advantages for ODF for archiving are:
    - openness,
    - import of the ODF xml file into a viewer regardless of the OS,
    - a realistic display of ODF files is possible,
    - and one can separate the form, structure and content of documents.

  ➔ Disadvantages of ODF for archiving exist when a macro is used in a file. A reference is created in ODF, therefore the file is not fully self-maintaining.

The report assesses how ODF satisfies the **maturity** criteria by:

- Analysing the attitude of the manufacturers of office software:
  - Assessing the existence of plug-ins from various parties
  - Analysing the attitude of Microsoft who supports the financing of a plug-in built by third parties in an open source project, but who also develops its own OOXML standard.
  - Analysing the OpenOffice.org applications and how they will support the OOXML standard, as well as StarOffice, WordPerfect Office, …
- Analysing to which degree the document management systems enable of constraint the use of ODF: The major systems support ODF, but if a function in one of those systems is not supported, the open specification of ODF makes it very easy to adapt.
- Analysing the degree of use of ODF, even though there are no known market figures. The market penetration of ODF format can be linked to the distribution of office applications that support ODF. Microsoft had a market share in 2006 of 95%. Estimates for the future market share of OpenOffice.org vary between 2% and 10%.

  The low market share of ODF is a breeding ground for interoperability problems, but there is a lot of “momentum” today for the introduction of the ODF format. A further section in the study analyses ODF in the public sector.

2.2 Best practices and standardization initiatives in the field of standard and specification assessment

The following section details the elements regarding standards assessment extracted from identified best practices and standardisation initiatives.

2.2.1 Method for collecting and identifying best practices and similar works done in the standardization area

- Identifying a series of Best Practices in the field of standard and specification assessment is done by desk search and by attending various seminars and workshops.
- Interoperability Frameworks or other eGovernment policies documentation have been identified for the following non EU countries:
  - Switzerland [21]: eCH.ch
  - Australia: Technical Interoperability Framework.[22]
  - Canada [23]: The Treasury Board
  - HongKong[24] : Within the HKSARG some chapters mention several criteria used for determining and reviewing standards and specifications.
  - USA: The NIST (National Institute of Standards and Technology) provides an Analysis Model[25] for Selection of Private Sector Consensus Standards to be E-Gov Standards.
  - NewZealand eGIF[26] standards.

> ***Explicitly described*** **Assessment Methods for Standards and Specifications** have been identified in the above mentioned documents for the following **non EU countries**:
> - Canada,
> - Hong Kong,
> - USA,
> - New Zealand.

- The United Nations Development Program publishes a series of studies on eGovernment Interoperability. The study: "eGov Interoperability: A review of Government interoperability frameworks in selected countries"[27] provides a comparative analysis of eight existing GIFs of Australia, Brazil, Denmark, the European Union, Germany, Malaysia, New Zealand and the United Kingdom. The eGovernment Interoperability Guide – UNDP[28] is a comprehensive guide giving details on the approaches and principles of a GIF, and the standards categories and selection processes.

[21] http://www.isb.admin.ch/themen/egovernment/00069/index.html?lang=en

[22] http://www.agimo.gov.au/publications/2005/04/agtifv2/policies

[23] http://www.tbs-sct.gc.ca/its-nit/about/abu-ans_e.asp

[24] http://www.ogcio.gov.hk/eng/infra/download/s18.pdf

[25] http://ts.nist.gov/Standards/E-Gov/Analysis-Model-for-Stds-Selection.cfm

[26] http://www.e.govt.nz/standards/e-gif/egif-cabinet-paper.pdf

[27] http://www.apdip.net/projects/gif/GIF-Review.pdf

[28] http://www.apdip.net/projects/gif/GIF-Guide.pdf

- The paper "Policy and Practice in Standards Selection for eGovernment Interoperability Frameworks"[29] identifies and compares the policies of the main e-government agencies in the definition of Criteria for selection and inclusion of standards in an interoperability framework and it checks the policies against the practice that they exhibit in the actual interoperability frameworks.

Identifying similar works in the standardization area at the EU level is done through different methods:

- **Attendance to the Open Meeting[30] organised by CEN/ISSS Focus Group on eGovernment**

  A project team reporting to the CEN/ISSS Focus Group on e-Government has produced a report on e-Government standards. The report determines the role that standards should play in e-Government, produces an overview of standards and specifications available and based on this overview, prepares proposals and/or recommendations to CEN and other standardization bodies, the European Commission and its agencies, national administrations and industry and other market players concerning standardisation issues in the field of e-Government.

  The report provides a **description of criteria** applied when harvesting the eGovernment standards. The study also provides an eGovernment standards **ontology**, which could be re-used in the scope of the CAMSS.

- **Attendance to the Open meeting[31] on European standardisation policy**

  The European Commission would like to extend the use of standards in support of legislation and policies in the ICT domain, but they may need to be revised to better respond to all stakeholders' needs.

  The discussion document "European ICT standardisation policy at a crossroads: A new direction for global success - The Way Forward" explains that in a first step, it is important to describe and confirm the "qualities" or characteristics needed by standards in order to be considered to be eligible for use in association with legal frameworks and policies. The Commission, therefore, proposes to make use of the **WTO criteria for global standard setting** organisations with particular emphasis on the ICT domain, since this form the basis for the European standardisation policy.

- **Interview of CEN management Centre staff**

  The following points were mentioned during the interview:

  – The CAMSS focuses on providing assessment criteria for choosing standards, whereas standardization bodies such as CEN act at a previous stage and elaborate the standards. The main criterion for deciding on creating a standard is consensus. There are at present no formal European Standards specific to eGovernment.

  – Informal standardization (i.e.: the CEN/ISSS Workshops[32]) is very useful in responding to stakeholders' concerns and allows market driven initiatives.

[29] Luis Guijarro - Communications Department, Polytechnic University of Valencia, Camino de Vera, s/n, 46022 Valencia, Spain .

[30] 19 February 2008 (Brussels)

[31] European Commission – 12 February 2008 (Brussels)

[32] An example is the CEN/ISSS Workshop on "Business Interoperability Interfaces for Public Procurement in Europe".

- Defining an "open standard" is not obvious because of the different points of views of different stakeholders on the criteria regarding IPR (royalty free…) and some other issues.
- CEN is listed as meeting the WTO criteria for standard setting.
- The COPRAS project[33] (Cooperation Platform for Research and Standards – IST Project from FP6) did not provide results reusable in the scope of the CAMSS.
- Some Europe-innova standards related projects[34] were mentioned as possible source of information, for example the "BioHealth" project which deals with security related standardisation in eHealth.; not much has been published yet about the detailed assessments but some sort of repository of information in envisaged. STEPPIN - STandards in European Public Procurement lead to INnovation - explores how referencing open standards in European public procurement processes can foster innovative business solutions amongst bidding companies. This project is theoretically of some interest also for the CAMSS but nothing much is published yet (a CEN Workshop is proposed).
- The most relevant work at the CEN regarding the CAMSS was done in the above-mentioned CEN/ISSS Focus Group on eGovernment. Extended work is now under way in a CEN Workshop "Discovery of and Access to eGovernment Resources (WS/eGov Share).

- **Review of CENELEC and ETSI websites**

  The CAMSS focuses on providing assessment criteria for choosing standards, whereas standardization bodies such as CENELEC and ETSI act at a previous stage and elaborate the standards. However, how a standard is made is good to understand in general when elaborating criteria to evaluate them in a specific context (i.e.: eGovernment).

- **Consultation of the concerned services at European Commission.**

2.2.2 Summary of best practices and similar works done in the standardization area

2.2.2.1 CEN/ISSS Focus Group on e-Government report

The report provides a **description of criteria** applied when harvesting the eGovernment standards.

- **Wide adoption**, **across domains** (e.g. public and private usage) and across national borders: this would help both interoperability and economies of scale. This aspect will be measured with three criteria:
  - the standard is mentioned on Wikipedia (yes/no)
  - number of hits in Google on reverse lookup of the official or main specification of the standard (numerical scale)
  - number of hits in citeseer as a measure for research touching on this standard (numerical scale).

[33] http://www.w3.org/2004/copras/

[34] http://standards.eu-innova.org/.

- Expected **stability** and professional **maintenance**: this would manage the longer-term risk of having to change systems if standards change. This aspect will be measured with one criterion:
  - there is a stable maintenance process for the standard (yes/no).
- Openness **of process** and possibility to influence development: this would enable influence of the eGovernment sector to get specific requirements included in the standards. This aspect is measured by three criteria:
  - Participation is free for everybody who wants to be involved (yes/no)
  - Participation is limited to geographically determined representation (yes/no)
  - Participation is limited to a closed user group (yes/no).

Rather than using these criteria to rank standards that are found in the harvesting activity in this project as "good" or "bad", or even worse, have a global ranking list, these data is provided for guidance only. The focus group strongly underlines that it is up to the user to prioritize these criteria in front of their specific requirements matrix.

2.2.2.2 WTO criteria for global standard setting

The Commission proposes to make use of the WTO criteria for global standard setting organisations with particular emphasis on the ICT domain, since this form the basis for the European standardisation policy. A standard may be used in association with EU legislation and policies when the following attributes have been taken into account during the technical consensus-building phase as well as in the subsequent formal acceptance process:

- **Openness:** Standards will be developed and maintained by a non-profit making organisation. Ongoing development will occur on the basis of an open decision making process accessible to all interested parties. An open standardisation process will be driven by the relevant categories of stakeholders and reflect user requirements;
- **Consensus:** The standard making process is a collaborative and consensus based activity. The process will not favour any particular category of stakeholder;
- **Balance:** The standardisation process should be accessible, at any stage of the development and decision making process, on a non discriminatory basis to relevant stakeholders and the participation of all interested categories of stakeholders will be sought with a view to achieving balance;
- **Transparency:** The process is accessible to all interested parties and all information concerning technical discussions and the decision making process is archived and identified. Information on (new) standardisation activities is widely announced through suitable and accessible means. Consideration and response will be given to comments by interested parties;
- **Maintenance:** Ongoing support and maintenance over a long period is guaranteed;
- **Availability:** Standards are publicly available for implementation and use at reasonable terms (including for reasonable fee or free of charge);
- **Intellectual Property Rights:** IPRs essential to the implementation of standards will be licensed to applicants on a (fair) reasonable and nondiscriminatory basis (F)RAND, which may permit, at the discretion of the IPR holder, licensing essential IPR without compensation. However, free IPR cannot be imposed;
- **Relevance:** The standard shall be effective and relevant: standards need to respond to market needs and regulatory requirements, especially when these requirements are expressed in mandates;

- **Neutrality and stability:** Standards should whenever possible, be performance-oriented rather than based on design or descriptive characteristics. They should not distort the (global) market, and should maintain the capacity for implementers to develop competition and innovation based upon them. Additionally and in order to enhance their stability, standards should be based on advanced scientific and technological developments;
- **Quality:** The quality and level of detail are sufficient to permit the development of a variety of competing implementations of interoperable products and services. Standardised interfaces are not hidden or controlled by anyone other than the standards setting organisation.

2.2.2.3 Canada

All information and technology standards that applies to federal participation in all national and international information technology standards activities is presented on the site of the Treasury Board of Canada.

A Treasury Board information or technology standard is one that has been approved by the Treasury Board for mandatory use throughout the federal government. Treasury Board approval will usually be based on the following grounds:

- the standard represents a **strategic** direction that is in line with national and international trends and government policies and objectives, such as industrial development; or
- implementation of the standard will result in a significant **benefit to the government** by promoting compatibility, competition and optimization in its information technology.

2.2.2.4 Hong Kong

The Hong Kong Interoperability Framework sets the Principals for Selecting Technical Standards under the Interoperabiltiy Framework. A summary of a series of the principals, mainly focusing on criteria, are presented here:

- The specifications adopted should be either internationally recognised or *de facto* standards that are **mature** and are **widely used** in the industry;
- Mature and widely adopted **open standards** should be considered in favour of their proprietary alternatives;
- The specifications adopted should be **vendor and product neutral** as far as possible;
- The specifications should be **well aligned with Internet** (e.g. W3C and IETF) **standards** as the Internet is a major channel for delivering e-Government services;
- The **industry should be involved** when determining the specifications or schemas to be adopted for a vertical sector;
- Local, regional and international developments should be taken into consideration and, in particular, the development of standards in the wider Chinese community. The specifications adopted should take account of similar foreign government initiatives elsewhere demonstrating **best practice**;
- Consideration should also be given to the **likely evolution of the mature specification**, in the light of emerging standards and technologies, to minimise the likelihood of obsolescence of the mature standard;
- Prevailing IF standards that, regardless of versions, are no longer widely used in the open environment should be removed from the IF;

- When there is a new replacement to serve the same function, an old standard should be removed from the IF, unless :
  - the old standard is still widely used in an open environment; or
  - there is concern requesting existing users of the old standard to adopt a new standard (e.g. additional resources will be required from them) and compatibility between the old and new standards can be managed.
- In selecting versions of standards, the implications on the user community are always considered. Specifying a recent version of a standard may require the Government, its agencies, and/or the public (citizens and businesses) to upgrade their technical environments and may cause expense to be incurred;

Note 1: **Internationally recognised** (e.g. ISO, IETF, W3C) or *de facto* standards **relevant to an interoperability area** would be included as candidate standards for consideration.

Note 2: While only **mature** standards will be adopted, prominent emerging standards should be closely monitored for potential future adoption.

[…]

Note 4: When multiple implementation choices or standards are recommended for an interoperability area, remarks should be provided on how the interacting parties may choose among the multiple standards, where necessary.

Note 5: When multiple standards are recommended for an interoperability area, the IF should recommend best practices for addressing interoperability among the different standards as necessary.

2.2.2.5 New Zealand

Recommended standards in the Interoperability Framework are generally more recent, founded upon newer technologies or standards. Recommended-level standards are:

- open
- scaleable
- not overruled by an existing international standard
- not clashing with or rival to a standard already listed
- complete and published
- showing clear indication of market support
- likely to be required for interoperability of IT systems in the public sector.

Adopted standards are mandatory and normally upgraded from Recommended status (only in exceptional circumstances can a standard enter the e-GIF as Adopted without first completing a successful period as Recommended). Adopted-level standards are:

- required for interoperability of IT systems in the public sector
- meeting or surpassing all criteria from the previous status levels
- well established in public sector ICT systems
- having complete supporting **documentation and processes** for implementation
- proven effective for interoperability.

Note: The main difference between Recommended and Adopted is the maturity, which can be equated with well-understood software version models.

2.2.2.6 USA

An analysis model for selection of private sector consensus standards to be eGovernment standards describes the following:

- Applicability of standard
  - Is it clear who should use the standard and for what applications?
  - How does the standard fit into the Federal Enterprise Architecture (FEA)?
  - What was done to investigate viable alternative standards (i.e., due diligence) before selecting this standard?
- Availability of standard
  - Is the standard published and publicly available?
  - Is a copy of the standard free or must it be purchased?
  - Are there any licensing requirements for using the standard?
- Completeness of standard
  - To what degree does the candidate standard define and cover the key features necessary to support the specific E-Gov functional area or service?
  -
- Implementations to standard
  - Does the standard have strong support in the commercial marketplace?
  - What commercial products exist for this standard?
  - Are there products from different vendors in the market to implement this standard?
  - If the standard is proprietary, are there nevertheless many products readily available from a variety of vendors?
  - Are there any existing or planned mechanisms to assess conformity of implementations to the standard?
- Interoperability of standard
  - How does this standard provide users the ability to access applications and services through Web services?
  - What are the existing or planned mechanisms to assess the interoperability of different vendors? implementations?
- Legal considerations
  - Are there any patent assertions made to this standard?
  - Are there any IPR assertions that will hinder USG distribution of the standard?
- Maturity of standard
  - How technically mature is the standard?
  - Is the underlying technology of the standard well-understood (e.g., a reference model is well-defined, appropriate concepts of the technology are in widespread use, the technology may have been in use for many years, a formal mathematical model is defined, etc.)?
  - Is the standard based upon technology that has not been well-defined and may be relatively new?
- Source of standard

  - What standards body developed and now maintains this standard?
  - Is this standard a de jure or de facto national or international standard?
  - Is there an open process for revising or amending this standard?
- Stability of standard
  - How long as this standard been used?
  - Is the standard stable (e.g., its technical content is mature)?
  - Are major revisions or amendments in progress that will affect backward compatibility with the approved standard?
  - When is the estimated completion date for the next version?

2.2.2.7 Study on eGovernment Interoperability - United Nations Development Programme

The study: "e-Government Interoperability: A Review of Government Interoperability Frameworks in Selected Countries"[35] presents common characteristics among these Interoperability Frameworks:

- **Interoperability** - guaranteeing a media-consistent flow of information between citizens, business, the Federal Government and its partners (Germany) and selecting only those specifications that are relevant to systems' interconnectivity, data integration, e-services access and content (UK).
- **Scalability** - ensuring the usability, adaptability and responsiveness of applications as requirements change and demands fluctuate (Australia, Brazil, Germany,UK).
- **Reusability** - establishing processes and standards for similar procedures when providing services and defining data structures (Germany) and that consider the solutions of exchange partners that one has to communicate with, leading to bilateral solutions and agreements (EU).
- **Openness** - focusing on open standards; that is, all standards and guidelines must conform to open standards principles (Australia). Wherever possible, open standards will be adopted while establishing technical specifications (Brazil), and standards that are vendor and product neutral should be considered in favour of their proprietary alternatives (Malaysia).
- **Market Support** - drawing on established standards and recognizing opportunities provided by ICT industry trends (Australia).
- **Security** - ensuring reliable exchange of information that can take place in conformity with an established security policy (EU).
- **Privacy** - guaranteeing the privacy of information in regard to citizens, business and government organizations, and to respect and enforce the legally-defined restrictions on access to and dissemination of information (Brazil) and ensuring that services need to endure uniform levels of personal data protection (EU).

Three other unique but noteworthy principles are: Accessibility and Multilingualism in the EU's EIF, and Transparency in Brazil's e-PING. Accessibility is defined in the EIF as ensuring that e-government creates equal opportunities for all through open, inclusive e-services that are publicly accessible without discrimination.

[35] http://www.apdip.net/projects/gif/GIF-Review.pdf

2.3 Analysis of communalities and description of the main criteria used in assessing standards and specifications

2.3.1 Comparison of Member States assessment criteria

The table below shows a comparison of explicitly stated/identified criteria by Member States, and proposes a classification according to the CAMSS criteria. These criteria were initially proposed by Denmark (Suitability, Potential, Openness, Market Support) and Market Support was then changed to Market Conditions as it covers a larger aspect than suggested by Denmark (i.e: including reusability).

The results show a general harmony exists in the approach for assessing standards among Member States.

- **Suitability criterion**

  Answering a public administration "business" need is one of the main criteria for assessing and validating a standard.

  Interoperability-enabling criteria for assessing standards are not explicitly mentioned.

- **Potential criterion**

  Assessment of standards with regard to scalability, maturity, stability and maintenance is also done. Durability is mentioned in the scope of archiving. Impact analysis is often done when assessing the use of a standard.

- **Openness criterion**

  Openness is assessed in every case, but sometimes at different levels. While 3 member states use the IDABC definition of openness, one member state defines in an extensive way assessment criteria for open process and open documentation evaluation. Another member state proposes minimal requirements.

- **Market conditions criterion**

  Market conditions also play a major role in assessing standards for eGovernment. For one Member State, industrialization of a standard is the main reason for adopting it at the administration's level. Mainly, identification of best practices, reusability of standards, wide adoption and market support are to be assessed.

It has been decided with the Member States that assessing the Maturity of a standard or specification should be included in the "Market Conditions" criterion of the CAMSS, rather than in the Potential criterion, as it is referenced in this section of the document.

CAMSS	France	Netherlands	Belgium	Denmark	Germany
Suitability					Interoperability
		Answers a business need / Usability	Conformance	Answers a business need	
Potential	Impact : Financial Strategic	Impact	Impact: Scope, Compliance -testing tools, Organisational, Financial		Reduction of costs and risks
		Scalability			Scalability
		Stability/Durability Neutrality, Technical ingenuity, Broad acceptance			
		Maintenance			
	Maturity	Maturity	Maturity		
Openness	Openness IDABC	Openness IDABC	Openness IDABC	Open deliverables Open process	Openness: Minimum requirements
Market Conditions	Market Support: should focus on a national level	Market Support		Market Support	
	Reusability Best Practices	Reusability Best Practices + flexibility			Reusability
	Wide adoption In a specific field	Wide adoption / Market Share			

2.3.2 Comparison of other assessment criteria

The following section compares the criteria identified in the research of non EU state best practices and initiatives at standardization levels. This table enables a global understanding of the assessment of standards in eGovernment, and provides a reference for proposing elements for completing the CAMSS.

- **Suitability criterion**

  Meeting the **eGovernment needs** is a strong factor for adopting standards, identified criteria are: relevance, applicability, how the standard benefits the government, completeness functionality-wise.

  Another capital element for suitability, less highlighted in the identified Member States Assessment methods, is criteria regarding interoperability, such as: "Well aligned with the Internet standards"; "relevant to an interoperability area", "proven effective for interoperability", "Is there a planned mechanism to assess the interoperability of different vendors and implementations of the standards?"

- **Potential criterion**

  Stability, maturity, maintenance and scalability are the most often cited criteria.

  Assessment of impact or other strategic criteria are much less cited than in the Member States.

- **Openness criterion**

  While openness is also addressed thoroughly in the different assessment methods, definitions should be further analysed and compared.

- **Market conditions criterion**

  "Wide adoption" is cited in general, with variations (wide adoption in open environments, wide adoption across domains, implementations to standards…).

  The "quality" criteria used by the WTO guarantees that quality and level of detail of a standard are sufficient to permit the development of a variety of competing implementations of interoperable products and services.

  Assessing best practices of use are less used for evaluating a standard than among the Member States.

CAMSS	UNDP	WTO	CEN/ISSS	USA – NIST	Hong Kong	Canada	New Zealand
Suitability	**Accessibility** **Privacy** **Security** **Interoperability**	Relevance		Applicability		Benefits the government	Well established in public sector
				Completeness (functionality)	Relevant to an interoperability area		
				Interoperability			Proven effective for interoperability
Potential		Stability	Stability	Stability			Scalability
	Scalability	Maintenance	Maintenance				Completeness
				Maturity	Maturity		Maturity
					Avoid obsolescence		
					Financial impact	Strategic direction	
Openness	**Openness**	Availability		Availability	Open standard		Open Standard
	Market Support	(F)RAND IPR		Legal considerations			
	Reusability	Openness of process, consensus based, balance, transparency	Openness of process	Source	Involve industry		Published, Supporting documentation and processes
Market Conditions		Quality				Strategic direction	
		Neutrality	Wide adoption across domains (public & private)	Implementations to standards	Wide adoption, in open environment		Market support
					Best Practices		

2.3.3 Conclusions of the analysis

The above analysis of the communalities and description of the main criteria used, allowed the identification of common, missing, complete or incomplete elements. This analysis helped to identify the issues to be discussed improvements to bring in order to elaborate a common guideline for the CAMSS at the EU level.

The main findings are that:

- Most Member States do not have a clearly identifiable AMSS (Assessment Method for Standards and Specifications).
- Most of the identified AMSS have in common the "Suitability" criteria regarding "How the Standard meets the **eGovernment needs**". Terms such as **"**relevance", "applicability", "how the standard benefits the government", "completeness functionality-wise" may be used.
- Most of the identified AMSS have in common the "Potential" criteria with regard to "**scalability**", "**maturity**", and "**stability**" assessment. The **impact analysis** is also widely used.
- Other "Potential" criteria - not commonly identified but which could be suggested as needed in the CAMSS - is one regarding the assessment of "**maintenance**" of the standard.
- All the identified AMSS have the "Openness" criteria.
- Almost all the identified AMSS have two Market Conditions related criteria which are the **reusability** of standards (through the identification of best practices) and the **market support**.
- "**Wide adoption**" – another Market Conditions criteria – is not frequently used, but it is recommended to integrate this criteria in the CAMSS.

This first phase of the CAMSS Project allowed establishing a series of guidelines named "CAMSS" and detailed in the document "CAMSS proposal".

2.4 Identification of areas of customization of the "CAMSS"

The CAMSS guidelines and organisation of sharing of assessment can be customized in Phase 2 of the project in order to enable re-use of the work and the results of the assessment.

Some criteria of the CAMSS can be further identified as specifically linked to the context of the evaluation, as for other criteria (or sections of a criterion) can be context-independent. This leads to a more efficient organisation of the share of the workload: a standard's or specification's evaluation according to the non contextual criteria has very high chances of reusability.

The "non contextual" criteria can further be identified as divided into two sections: one referring to the process of the elaboration of the standard or specification (i.e.: linked to the standardization organization), the other referring to its content.

The results of the evaluation of a standard or specification according to the "contextual" criteria can also be classified into two sections, enabling re-use: by domain or by project.