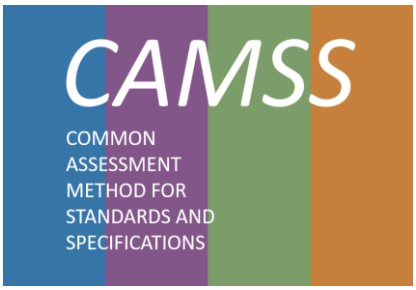

ASSESSMENT SUMMARY v1.0.0

Extensible HyperText Markup Language 1.0 (XHTML)[1]

World Wide Web Consortium (W3C)[2]

[1] https://www.w3.org/TR/xhtml1/

[2] https://www.w3.org/

Change Control

Modification	Details
Version 1.0.0	
Initial version	

TABLE OF CONTENT

TABLE OF FIGURES

1. INTRODUCTION

The present document is a summary of the assessment of XHTML carried out by CAMSS using the CAMSS EIF assessment scenario. The purpose of this scenario is to assess the compliance of a standard or specification with the European Interoperability Framework (EIF)[3].

2. ASSESSMENT SUMMARY

The **Extensible HyperText Markup Language 1.0 (XHTML)** is part of the family of XML markup languages. Its main purpose is to develop web resources. XHTML was developed to make HTML more extensible and increase interoperability with other data formats.

XHTML 1.0 became a World Wide Web Consortium (W3C) recommendation on 26 January 2000. There have been multiple updates with new versions of XHTML, for example in XHTML 1.1 became a W3C recommendation on 31 May 2001.

2.1. Interoperability Principles

Interoperability principles are fundamental behavioural aspects that drive interoperability actions. They are relevant to the process of establishing interoperable European public services. They describe the context in which European public services are designed and implemented.

***The specification fully supports the principles setting context for EU actions on interoperability*:**

- **Subsidiarity and proportionality**
  XHTML is included in 2 national catalogues of recommended specifications. They belong to Estonia and Spain. The National Interoperability Framework (NIF) of these Member States is fully aligned with at least 4 out of 5 sections of the European Interoperability Framework (EIF) according to the National Interoperability Framework Observatory (NIFO)[4] factsheets.

The specification partially supports the principles setting context for EU actions on interoperability:

- **Openness**
  XHTML is an open specification publicly available for study or use. It is aligned with 3 out of 5 levels of maturity of Tim Berners-Lee's 5-star. In W3C, all the stakeholders have the opportunity for the development and approval process of the specification as a recommended standard. The specification is licensed on (F)RAND and royalty-free basis. Moreover, it is fully supported by one developer community, W3C which is an international community developing open standards.

  Although XHTML is mature enough for the development of products and services, it does not have sufficient market acceptance because there is a better specification in the field that applies XHTML which is HTML5. So, it is not considered a specification for the creation of innovative solutions.

[3] https://ec.europa.eu/isa2/eif_en

[4] https://joinup.ec.europa.eu/collection/national-interoperability-framework-observatory-nifo/nifo-factsheets

- **Transparency**
  The purpose of XHTML is to publish administrative data in the web. By allowing to publish custom data in an understandable format, it fosters the visibility and comprehensibility of administrative data. Moreover, it also is easing the decision-making process by ensuring the data exchange and reuse.

  However, the purpose of XHTML is not related to the availability of interfaces with internal information systems.

- **Reusability**
  XHTML is a business domain agnostic specification that can be reused in a cross-domain way.
  The specification is publicly available for implementation and use for free on W3C's webpage. Moreover, XHTML can be found for free along within the European Collaborative Platform, Joinup.

- **Technological neutrality and data portability**
  Although XHTML is a reformulation of HTML 4 using XML, it is not dependant of any version of the two standards. XHTML is a full programming environment for cross-platform applications, it is proportionate to the needs of its users and it fosters data portability between systems and applications supporting the implementation and evolution of European public services.

***The specification does not support the principles related to generic user needs and expectations*:**

- **User-centricity**
  By helping administrations to access and reuse information across borders, the implementation of XHTML and other standards from HTML family can help to foster and ease the Once-Only Principle.

- **Inclusion and accessibility**
  XHTML fosters e-accessibility helping people with disabilities to understand and navigate through web and mobile web applications with friendly tools and proper information formats.

- **Security and privacy**
  XHTML has some features to prevent possible security vulnerabilities. Moreover, by allowing to exchange data via online websites, XHTML fosters the secure and trustworthy data exchange between administrations and stakeholders.

- **Multilingualism**
  Although XHTML's purpose is not to foster the delivery of multilingual European public services, several websites contain multilingual parallel texts and are developed in XHTML.

The specification partially supports the foundation principles for cooperation among public administrations:

- **Administrative Simplification**
  By allowing public administration to have an online domain where they can publish all types of administrative data, documents, videos, etc. The specification reduces the administrative burden.

- **Preservation of information**
  The purpose of XHTML is not related to long term preservation of electronic records. Therefore, this criterion is considered not applicable to this specification.

- **Assessment of effectiveness and efficiency**
  After carrying out information retrieval, no document or study has been found assessing the XHTML in terms of efficiency or effectiveness.

2.2. Interoperability Layers

The interoperability model which is applicable to all digital public services includes:
- Four layers of interoperability: legal, organisational, semantic and technical;
- A cross-cutting component of the four layers, 'integrated public service governance';
- A background layer, 'interoperability governance'.

The Specification supports the implementation of digital public services complying with the EIF interoperability model:

- **Interoperability governance**
  8 Member States are recommending XHTML in their ICT National Catalogues. Additionally, XHTML is already associated with European Interoperability Reference Architecture (EIRA) ABBs in the European Library of Specifications (ELIS). More specifically, it can define the interoperability aspects of the "Representation" ABB of the EIRA Semantic View.
  The specification is included within catalogues of standards at the national level but not at the EU level. Moreover, W3C provides a Markup Validation Service for free to validate Web documents including XHTML implementations. Some cross-border projects use XHTML. For example, Eur-lex used XHTML to publish a proposal for a regulation on a mechanism to resolve legal and administrative obstacles in a cross-border context.

- **Integrated public service governance & Legal Interoperability**
  XHTML has been assessed by the CAMSS Team under the MSP scenario, which is fully compliant with the European Standardisation Regulation 1025/2012. However, no evidence has been found of the specification being included in a formal interoperability agreement between organisations involved in the European public services provision.

- **Organisational interoperability**
  The purpose of XHTML is not related to the modelling of business processes nor related to organisational interoperability. Therefore, these criteria do not apply to the specification.

- **Semantic Interoperability**
  XHTML is an application of XML, it is based on HTML 4, but it uses XML syntax which defines a well-formed and more restrictive data model. It can be used for exchanging data across sectors. However, it does not support the different principles of Linked Open Data.

- **Technical interoperability**
  XHTML is one of the main markup languages to develop web resources.

3. ASSESSMENT RESULTS

This section presents an overview of the results of the CAMSS assessments for **Extensible HyperText Markup Language 1.0 (XHTML)**. The CAMSS "Strength" indicator measures the reliability of the assessment by calculating the number of answered (applicable) criteria. On the other hand, the number of favourable answers and the number of unfavourable ones are used to calculate the "Automated Score" per category and an "Overall Score".

Category	Automated Score	Assessment Strength	# Favourable	# Unfavourable	# Not Applicable
Principle setting the context for EU actions on interoperability	100%	100%	1	0	0
Core interoperability principles	89%	95%	15	2	1
Principles related to generic user needs and expectations	100%	100%	4	0	1
Foundation principles for cooperation among public administrations	50%	67%	1	1	1
Interoperability layers*	75%	91%	15	5	2
Overall Score	83%	90%	29	6	4

**The technical interoperability layer is covered by the criteria corresponding to the core interoperability principle "Openness".*

With 90% of assessment strength, this assessment can be considered representative of the specification in compliance with the EIF principles and recommendations.

The Overall Automated Score of 83% demonstrates that the specification highly supports the European Interoperability Framework in the domains where it applies.

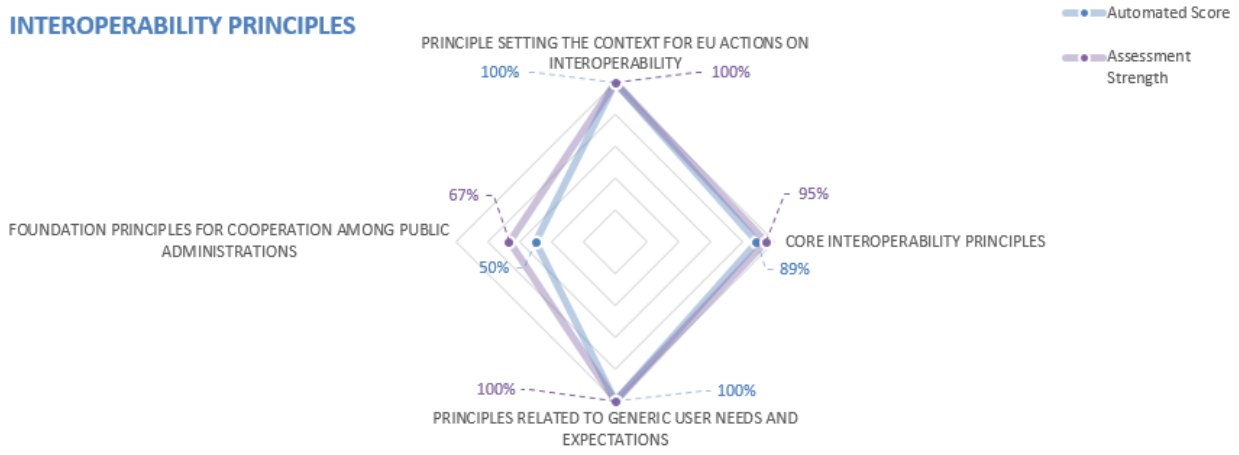

Figure 1. Interoperability principles Results

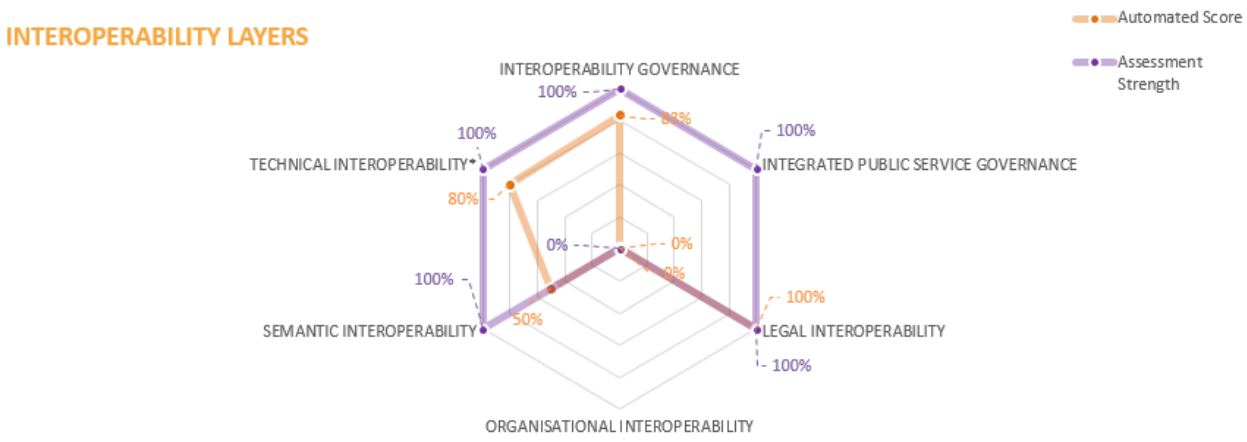

Figure 2. Interoperability layers Results