ASSESSMENT SUMMARY

XML Schema Definition Language (XSD 1.1)[1]

World Wide Web Consortium (W3C)[2]

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[1] https://www.w3.org/TR/2006/REC-xml11-20060816/

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

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1. INTRODUCTION

The present document is a summary of the assessment of XSD 1.1 carried out by the CAMSS Team using the CAMSS EIF assessment scenario. The purpose of this scenario is assessing the compliance of a standard or specification with the European Interoperability Framework (EIF)[3].

2. ASSESSMENT SUMMARY

XML Schema Definition Language, herby **XSD 1.1**, used to describe the structure of XML document content, including XML Namespace facility. The schema language, which is itself represented in an XML vocabulary and uses namespaces, substantially reconstructs and considerably extends the capabilities found in XML document type definitions.

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**
  XSD 1.1 is included in 2 national catalogues of recommended specifications. They belong to the Netherlands 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)[4] according to the National Interoperability Framework Observatory (NIFO) factsheets.

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

- **Openness**
  XSD 1.1 is an open specification publicly available for study or use. In W3C, all the stakeholders have the opportunity to contribute to the development of XSD 1.1 and the decision making process includes a public review. Additionally, XSD 1.1 is available for study, has strong support from the development community and is licensed on a (F)RAND. It is a royalty-free specification and has a significant market acceptance that demonstrates that it is mature enough for the development of products and services, including for the creation of innovative solutions.

- **Transparency**

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

[4] https://ec.europa.eu/isa2/sites/isa/files/eif_brochure_final.pdf

XSD 1.1 fosters the visibility and comprehensibility of administrative rules, processes, data, services and decision-making of a public administration. In addition, it helps ensuring the availability of interfaces with internal information systems of a public administration.

- **Reusability**
XSD 1.1 has been made available for its reuse by the by W3C and is a business domain agnostic specification.

- **Technological neutrality and data portability**
XSD 1.1 is independent from any specific technology and platform and is designed to foster data portability between systems and applications. Moreover, the specification allows to define schemas according with specific needs, which allow citizens, businesses or administrations to create schemas.

The Technical Specification partially supports the principles related to generic user needs and expectations:

- **User-centricity**
XSD 1.1 eases the implementation of the once-only principle by allowing the exchange and reuse of data by public administrations across borders.

- **Inclusion and accessibility**
XSD 1.1 does not foster e-accessibility. The purpose of the specification is not related e-accessibility.

- **Security and privacy**
By establishing constraints on the creation and exchange of XML documents XSD fosters the trustworthy data exchange between administrations and stakeholders.

- **Multilingualism**
XSD 1.1 does not foster the delivery of multilingual European public services. The purpose of the specification is not related multilingualism.

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

- **Administrative Simplification**
By ensuring that XML files are well formed and valid, XSD 1.1 fosters the digital exchange of information between administrations and stakeholders.

- **Preservation of information**
XSD 1.1 does not foster the long-term preservation of electronic records and other kinds of information. The purpose of the specification is not related the preservation of information.

- **Assessment of effectiveness and efficiency**
  There are a variety of studies and documentation assessing the specification in terms of effectiveness and efficiency.

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

- **Interoperability governance**
  XSD 1.1 is already associated to the European Interoperability Reference Architecture (EIRA) ABBs in the European Library of Specifications (ELIS). There are existing mechanisms for assessing the conformity of the specification implementations. The XSD 1.1 is recommended by a EU Member State, EU cross-border project and national level. However, it is not included in a catalogue of standards at EU level.

- **Integrated public service governance & Legal interoperability**
  The specification is included within the European Single Procurement Document (ESPD) initiative, which is a cross border initiative that aims to simplify the steps when procuring public contracts. Nevertheless, no evidence has been found regarding XSD 1.1 compliance with the European Regulation on Standardisation.

- **Organisational interoperability**
  XSD 1.1 is not a business process modelling standard or specification and does not define organisational interoperability aspects. Moreover, the purpose of the specification is not related to organisational Interoperability.

- **Semantic interoperability**
  XSD 1.1 defines a cross-sector reusable data model, fosters the publication of data as Linked Open Data and it is available for free on at least one national or European platform.

- **Technical interoperability**
  XSD 1.1 is an open specification that is widely used for the exchange of data.

3. ASSESSMENT RESULTS

This section presents an overview of the results of the CAMSS assessments for XSD 1.1. 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".

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

Category	Automated Score	CAMSS Strength	Favourable	Unfavourable	Not Applicable
Principle setting the context for EU actions on interoperability	100%	100%	1	0	0
Core Interoperability principles	100%	100%	16	0	0
Principles related to generic user needs and expectations	100%	50%	2	0	2
Foundation principles for cooperation among public administrations	100%	67%	2	0	1
Interoperability layers	90%	91%	18*	2	2
Overall Score	**94%**	**86%**	**30**	**2**	**5**

With 86% of assessment strength, this assessment can be considered representative of the specification compliance with the EIF principles and recommendations.

The Overall Automated Score of 94% demonstrates that XSD 1.1 highly supports the European Interoperability Framework in the domains where it applies.

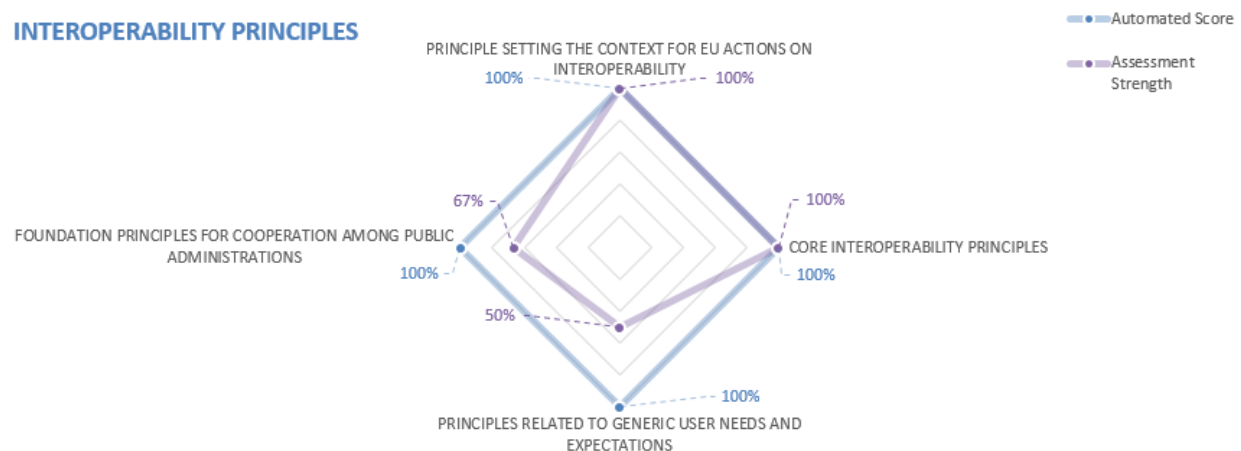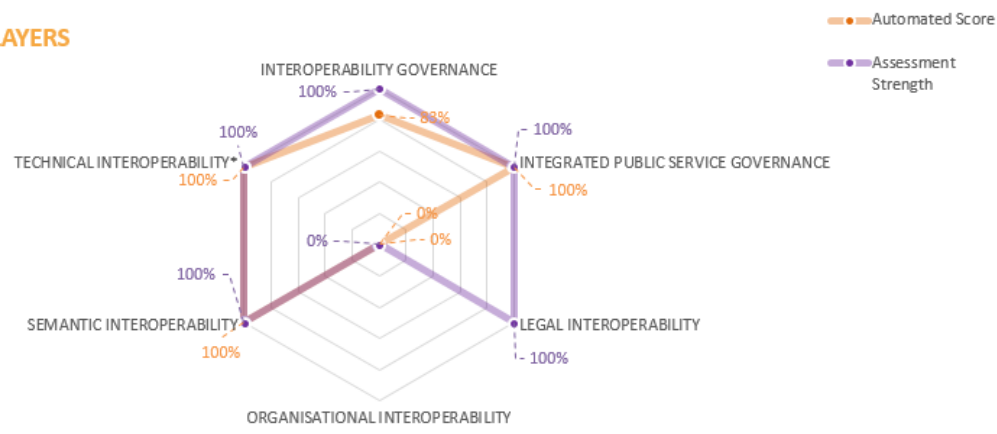**Figure 1 Assessment Results - Interoperability Principles**

INTEROPERABILITY LAYERS

Figure 2 Assessment Results - Interoperability Layers