

ASSESSMENT SUMMARY v1.0.0

Joint Photographic Experts Group (JPEG)¹

International Organization for Standardization (ISO)²

¹ <https://www.iso.org/standard/38920.html>

² <https://www.iso.org/home.html>

Change Control

Modification	Details
Version 1.0.0	
Initial version	

TABLE OF CONTENT

1. INTRODUCTION	4
2. ASSESSMENT SUMMARY	4
2.1. Interoperability Principles.....	4
2.2. Interoperability Layers.....	6
3. ASSESSMENT RESULTS	7

TABLE OF FIGURES

Figure 1. Interoperability principles Results	7
Figure 2. Interoperability layers Results	8

1. INTRODUCTION

The present document is a summary of the assessment of the **Joint Photographic Experts Group (JPEG)** carried out by CAMSS 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

JPEG is a commonly used method of lossy compression for digital images, particularly for those images produced by digital photography. The term "JPEG" is an initialism/acronym for the Joint Photographic Experts Group, which created the standard in 1992. The basis for JPEG is the discrete cosine transform (DCT), a lossy image compression technique that was first proposed by Nasir Ahmed in 1972. JPEG was largely responsible for the proliferation of digital images and digital photos across the Internet, and later social media.

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**

JPEG is included in 2 national catalogues of recommended specifications with the National Interoperability Framework (NIF) 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**

The ISO 10918-1:1994 which refers to JPEG is not available for free for everyone to study. Payment is needed to reach access to the standard. In ISO, all the stakeholders have the opportunity to contribute to the development of JPEG and the decision making process includes a public review. It has a significant market acceptance that demonstrates that it is mature enough for the development of products and services. However, it does not foster the creation of innovative solutions. Moreover, there are no disclosures of ISO IPR Database to identify the licensing under the specification. The specification cannot be considered as an asset to foster data as open data.

³ https://ec.europa.eu/isa2/eif_en

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

- **Transparency**
JPEG is a valuable image format for sharing information through the internet. Allowing to share data and information the standard foster the visibility of administration data and services. However, JPEG is not related to the availability of interfaces with internal information systems.
- **Reusability**
JPEG is a business agnostic document format that can be reused in a cross-domain way. However, it is not available for free. It needs to be paid to get access to the specification's text.
- **Technological neutrality and data portability**
JPEG is independent from any software, hardware, or operating system. Moreover, the adoption of JPEG as an image format for exchanging multimedia data helps citizens, business and administrations to share information. Furthermore, JPEG supports data portability between systems.

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

- **User-centricity**
The purpose of JPEG is not related to the implementation of the once-only principle. Therefore, this criterion does not apply to this specification.
- **Inclusion and accessibility**
The purpose of JPEG is not related to e-accessibility. Therefore, this criterion is considered not applicable to this specification.
- **Security and privacy**
JPEG is an image extension which allows visualizing and storing images. However, as they cannot be protected with a password or something, everyone who has access to a JPEG file can visualize it.
- **Multilingualism**
The purpose of JPEG is not related to the delivery of multilingual public services. Therefore, this criterion is not applicable to this specification.

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

- **Administrative Simplification**
By allowing the exchange of digital documents, JPEG avoids to share non-digital documents and then helps to the reduction of administrative burden.
- **Preservation of information**
The purpose of JPEG 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**

There are many documents and studies around the JPEG, functionalities, and 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 Specification supports the implementation of digital public services complying with the EIF interoperability model:

- **Interoperability governance**

JPEG is already associated to an EIRA ABB in the European Library Of Specifications (ELIS). Specifically, JPEG can define the interoperability aspects of the "Representation" ABB from the EIRA Semantic view. 8 Member States are recommending JPEG in their ICT National Catalogues. After searching in the different official European websites, there is no evidence of any cross-border project that use JPEG nor explicit agreements involving the usage of the specification. After checking the different standard catalogues at supra-national level, there is no evidence of the inclusion of JPEG within any European catalogue of standards.

- **Integrated public service governance & Legal Interoperability**

No evidences have been found of the specification being included in a formal interoperability agreement between organisations involved in the European public services provision. After checking the assessments performed by CAMSS and the list of specifications identified by the MSP Multi-stakeholder-platform, no assessment verifying the compliance of the specification with the European standardisation regulation has been found.

- **Organisational interoperability**

The purpose of JPEG is not related to the modelling of business processes. Moreover, JPEG is not related to organisational interoperability. Therefore, these criteria is not applicable to the specification.

- **Semantic Interoperability**

JPEG does not define a reusable cross-sector data model, but it defines a standardised manner to deal with images while sharing, creating, or editing. Although JPEG is supporting the first level of maturity from the Tim Berners-Lee 5-star schema for the Open data, it is not supporting the main principles for the publication of data as Linked Open Data.

- **Technical interoperability**

This technical interoperability layer is covered by the core interoperability principle "Openness".

3. ASSESSMENT RESULTS

This section presents an overview of the results of the CAMSS assessments for **Joint Photographic Experts Group (JPEG)**. 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%	0%	1	0	0
Core interoperability principles	56%	95%	10	7	1
Principles related to generic user needs and expectations	0%	25%	0	1	3
Foundation principles for cooperation among public administrations	100%	67%	2	0	1
Interoperability layers*	35%	91%	7	13	2
Overall Score	50%	82%	16	16	7

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

With an 82% of assessment strength, this assessment can be considered representative of the specification compliance with the EIF principles and recommendations.

The Overall Automated Score of 50% demonstrates that the specification barely supports the European Interoperability Framework in the domains where it applies.

INTEROPERABILITY PRINCIPLES

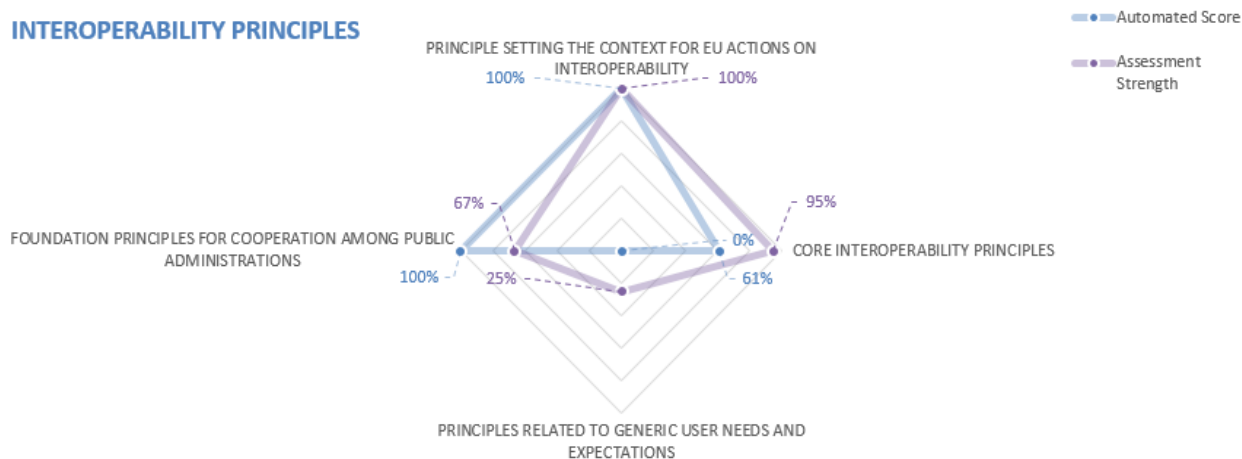


Figure 1. Interoperability principles Results

INTEROPERABILITY LAYERS

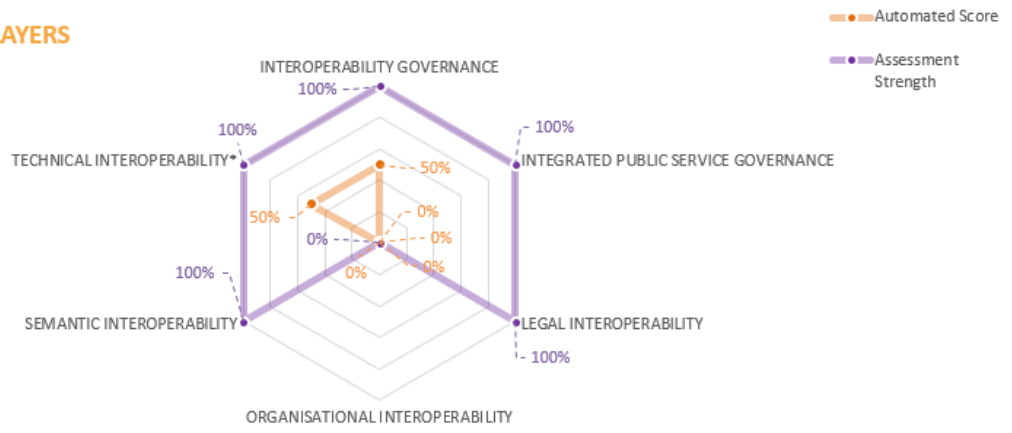


Figure 2. Interoperability layers Results