



# ASSESSMENT SUMMARY v1.0.0

Cloud computing and distributed platforms – Data flow, data categories and data use — Part 1:  
Fundamentals (ISO/IEC 19944-1)<sup>1</sup>

ISO<sup>2</sup>

## Change Control

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<sup>1</sup> ISO/IEC 19944-1 specification: <https://www.iso.org/standard/79573.html>

<sup>2</sup> ISO website: <https://www.iso.org/home.html>

Modification		Details	
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TABLE OF CONTENT

1. INTRODUCTION ..... 4

2. ASSESSMENT SUMMARY ..... 4

2.1. EIF Interoperability Principles .....	4
2.2. EIF Interoperability Layers .....	7
<b>3. ASSESSMENT RESULTS.....</b>	<b>9</b>

## 1. INTRODUCTION

The present document is a summary of the assessment of **ISO/IEC 19944-1** carried out by CAMSS using the CAMSS Assessment EIF scenario<sup>3</sup>. The purpose of this scenario is to assess the compliance of a standard or specification with the European Interoperability Framework (EIF)<sup>4</sup>.

## 2. ASSESSMENT SUMMARY

The Cloud computing and distributed platforms – Data flow, data categories and data use — Part 1: Fundamentals (ISO/IEC19944-1) provides a description of the ecosystem of devices and cloud services and the related flows of data between cloud services, cloud service customers, cloud service users and their devices. It is important to note that the specification extends the content of the ISO standards ISO/IEC 1789 and ISO/IEC 1788.

ISO/IEC 19944-1 provides guidance about how data is used on the devices in the context of the cloud computing ecosystem and the associated location and identity issues that emerge from such use. It was first published in 2020 and supersedes and updates the previous standard ISO/IEC 19944:2017<sup>5</sup>. The International Organization for Standardization (ISO) along with the International Electrotechnical Commission (IEC<sup>6</sup>) are the standard development organisation in charge of developing and publishing the specification.

### 2.1. EIF 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**

ISO/IEC 19944 has not been found included in the National Catalogue of recommended specifications of any Member State<sup>7</sup>.

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<sup>3</sup> CAMSS Assessment EIF Scenario 6.0.0: <https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/solution/camss-assessment-eif-scenario/release/600>

<sup>4</sup> ISA<sup>2</sup> programme: [https://ec.europa.eu/isa2/eif\\_en](https://ec.europa.eu/isa2/eif_en)

<sup>5</sup> ISO/IEC 19944:2017: <https://www.iso.org/standard/66674.html>

<sup>6</sup> IEC: <https://iec.ch/homepage>

<sup>7</sup> CAMSS List of standards: <https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/camss-list-standards>

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

- **Openness**

Any ISO/IEC Publicly Available Standard (PAS), such as ISO 19944-1, goes through a systematic review process every three years, during which the members re-assess the standard and propose updates. The specification has been developed and is currently maintained by the Joint Technical Committee<sup>8</sup>, a working group in charge of proposing changes and reach out to stakeholders in order improve the specification, whenever there is a public review taking place.

The first version of ISO/IEC 19944-1 was first published on 2020. Since then, there has not been made a public review, and there can't either be found market uptake indicators. Nonetheless, it is an update of the standard ISO/IEC 19941 and builds upon ISO/IEC 17788:2014 and ISO/IEC 17789:2014 which are widely used standards for the development of cloud-computing environments. Since its first release, ISO/IEC 19944-1 has been adopted by major stakeholders and promoted by national SDO's such as UNE<sup>9</sup>.

- **Transparency**

Effective data management practices, as encouraged by ISO/IEC 19944-1, can contribute to an improved visibility and comprehensibility of administrative procedures, rules, data, and services within cloud computing environments. Moreover, it can indirectly contribute to the exposure of interfaces by promoting an effective management and governance of cloud services and enhance service management processes.

- **Reusability**

The classification scheme outlined in ISO/IEC 19944-1 can be applied to various types of data within cloud computing, regardless of the specific domain or industry. It provides a framework for categorizing data based on sensitivity, regulatory requirements, and business needs. It is important to note that ISO/IEC 19944-1 serves as a foundational standard for data classification within cloud computing, and organizations may need to consider additional domain-specific standards, regulations, or guidelines to address the specific requirements of their respective industries or sectors.

- **Technological neutrality and data portability**

ISO/IEC 19944-1 primarily provides a classification scheme for organizing and categorizing data within cloud computing environments, and it does not impose specific technology requirements or prescribe the use of particular technologies, allowing it to be as well applied across different cloud platforms and architectures. Moreover, its flexibility and adaptability provide means for partially implementing, extending and customising the specification, in order to align it with the

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<sup>8</sup> ISO/IEC 19944-1 JTC: <https://www.iso.org/committee/601355.html>

<sup>9</sup> UNE digitalisation report:  
[https://www.une.org/normalizacion\\_documentos/Informe%20Transformaci%C3%B3n%20Digital\\_20201127.pdf](https://www.une.org/normalizacion_documentos/Informe%20Transformaci%C3%B3n%20Digital_20201127.pdf)

specific needs and purposes of a given organisation. Data portability is also indirectly provided by ISO/IEC 19944-1, given that it promotes consistent data management practices and interoperability best practices within cloud-computing environments.

***The specification partially supports the principles related to generic user needs and expectations:***

- **User-centricity**

By implementing the ISO 19944-1 classification scheme consistently, organizations can establish a structured and standardized approach to data management. This can make it easier to identify, retrieve, and reuse relevant information when needed.

- **Inclusion and accessibility**

The purpose of ISO/IEC 19944-1 is not related to e-accessibility. Therefore, this criterion is not applicable to this specification.

- **Privacy**

Through the ISO/IEC 19944-1 classification scheme organisations can identify and categorize data based on its sensitivity, including confidential information. This way, organisations can apply appropriate confidentiality mechanisms based on the data's classification. Public Administrations can use the specification as a basis for implementing security controls to protect personal data. This may include measures such as encryption, access controls, data anonymization, and data breach response procedures. An example of a project using the ISO/IEC 19944-1 along with its companion documents is the European Cybersecurity Certification Scheme for Cloud Services (EUCS) project<sup>10</sup>.

- **Security**

ISO/IEC 19944-1 supports the implementation of secure exchange and processing of data through its emphasis on security controls, data classification, and data governance. ISO/IEC 19944-1 promotes the use of security controls (such as authentication mechanisms) and data governance best practices, such as documentation and labelling, to ensure the authenticity and integrity of data by maintaining audit trails, version controls, and metadata. Access control mechanisms, data integrity and data accuracy are also encouraged by recommending compliance with relevant security standards and regulations.

- **Multilingualism**

ISO/IEC 19944 does not explicitly support multilingualism, nonetheless, its implementation could incorporate multilingual support based on the user's needs of a given organisation.

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<sup>10</sup> EUCS project: <https://www.enisa.europa.eu/publications/eucs-cloud-service-scheme>

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

- **Administrative Simplification**  
ISO/IEC 19944-1 provides guidelines for effective cloud service management, allowing public administrations offer a more streamlined and efficient delivery of public services. Likewise, the specification can enable digital service delivery channels by leveraging cloud computing technologies. It provides guidelines for scalable and available services, promotes integration and interoperability, supports rapid deployment, and enhances the accessibility of digital services.
- **Preservation of information**  
Some provisions on data storage are depicted in ISO/IEC 19944-1, nonetheless, specific guidelines to enable the long-term preservation of data are not in the specification's scope.
- **Assessment of effectiveness and efficiency**  
There has not been found any article or study assessing the effectiveness or efficiency of the ISO/IEC 19944-1.

## **2.2. EIF 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 partially supports the implementation of digital public services complying with the EIF interoperability model:***

- **Interoperability governance**  
ISO/IEC 19944-1 is associated with EIRA<sup>11</sup> ABBs in the EIRA Library of Specifications (ELIS)<sup>12</sup>. More specifically, it is associated with the "Semantic Agreement" and the "Semantic Interoperability Agreement" from the EIRA semantic view. Conformance to ISO/IEC 19944-1 is only achieved if the clauses and vocabulary definitions are followed. Although it has not been found available in any

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<sup>11</sup> EIRA: <https://joinup.ec.europa.eu/collection/european-interoperability-reference-architecture-eira/solution/eira/release/v500>

<sup>12</sup> ELIS: <https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/solution/elis/elis-dashboard>

repository/catalogue at European Level, the specification has been found recommended by the national standards development organisations from Spain<sup>13</sup> and Luxembourg<sup>14</sup>.

- **Legal Interoperability**

Given that it has been developed by the International Organization for Standardization (ISO), ISO/IEC19944-1 is not considered to be a European standard.

- **Organisational interoperability**

The normative nature of the specification emphasizes the need for defined requirements and standardized approaches in cloud-service management. This way organisations can align their business processes with cloud service management outlined in the specification. Moreover, the specifications guidelines and recommendations can enhance organisations interoperability with other systems and foster data exchanges.

- **Semantic Interoperability**

There has not been found any community sharing their data and knowledge of ISO19944-1 in national nor in European platforms.

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<sup>13</sup> UNE digitalisation report:

[https://www.une.org/normalizacion\\_documentos/Informe%20Transformaci%C3%B3n%20Digital\\_20201127.pdf](https://www.une.org/normalizacion_documentos/Informe%20Transformaci%C3%B3n%20Digital_20201127.pdf)

<sup>14</sup> ILNAS Technical standardization report:

<https://portail-qualite.public.lu/dam-assets/publications/normalisation/2022/report-technical-standardizationcloud-computing.pdf>



### 3. ASSESSMENT RESULTS

This section presents an overview of the results of the CAMSS assessments for **ISO/IEC 19944-1**. 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 is used to calculate the “Automated Score” per category and an “Overall Score”.

Category	Automated Score	Assessment Strength	Compliance Level
Principle setting the context for EU actions on interoperability	20/100 (20%)	100%	Ad-hoc
Core interoperability principles	1520/1700 (92%)	94%	Seamless
Principles related to generic user needs and expectations	1020/1200 (88%)	91%	Seamless
Foundation principles for cooperation among public administrations	300/500 (88%)	100%	Essential
Interoperability layers*	740/1000 (67%)	90%	Sustainable
Overall Score	3300/4200 (79%) <sup>15</sup>	93%	

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

With an 93% of assessment strength, this assessment can be considered representative of the specification compliance with the EIF principles and recommendations.

The Overall Automated Score of 79% (3300/4200) demonstrates that the specification supports the European Interoperability Framework in the domains where it applies.

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<sup>15</sup> See the “results interpretation” section of the CAMSS Assessment EIF Scenario Quick User Guide:

<https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/solution/camss-assessment-eif-scenario/results-visualisation-and-interpretation>