# ASSESSMENT SUMMARY v1.0.0

**Code List Representation (genericode)**[1]

OASIS[2]

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[1] Code List Representation (genericode): https://docs.oasis-open.org/codelist/genericode/doc/oasis-code-list-representation-genericode.html

[2] OASIS: https://www.oasis-open.org/

# Change Control

| Modification | Details |
|---|---|
| **Version 1.0.0** | |
| **Initial version** | |

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# 1. INTRODUCTION

The present document is a summary of the assessment of the **Code List Representation (genericode)** carried out by CAMSS using the CAMSS Assessment EIF Scenario 6.0.0[3]. The purpose of this scenario is assessing the compliance of a standard or specification with the European Interoperability Framework (EIF)[4].

# 2. ASSESSMENT SUMMARY

The Code List Representation format, known as genericode, is a single semantic model of code lists and accompanying XML serialisation (supported by a W3C XML Schema) that can encode a broad range of code list information. The serialisation is designed to IT-enable the interchange or distribution of machine-readable code list information between systems. Examples of standardized code lists include country abbreviations, currency abbreviations, shipping container descriptors, and airport codes.

Genericode was developed for the first time in 2000 by the OASIS Code List Representation Technical Committee, and has been evolving until where it is now, in its 1.0 version.

### 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**

    Genericode is listed in the national catalogue of the Netherlands, Malta, Croatia and Sweden. The National Interoperability Framework (NIF) of these Member States is fully aligned with all the 3 sections of the European Interoperability Framework (EIF) according to the National Interoperability Framework Observatory (NIFO) factsheets[5].

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

- **Openness**

    Genericode defines a structured W3C XML Schema format for representing code lists. It is maintained by the OASIS Code List Representation Technical Commitee (TC)[6], which requires registration and membership approval.

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[3]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

[4] European Interoperability Framework (EIF): https://ec.europa.eu/isa2/eif_en

[5] 2023 NIFO factsheets: https://joinup.ec.europa.eu/collection/nifo-national-interoperability-framework-observatory/digital-public-administration-factsheets-2023

[6] OASIS Code list Representation TC: https://groups.oasis-open.org/communities/tc-community-home2?CommunityKey=7558fd85-f7ac-4dd7-b57b-018dc7d3f6f7

The Oasis Code List Representation TC is involved in the release lifecycle of the specification publicly and external contribution to this committee is possible through open channels like mailing lists. OASIS specifications operate under OASIS IPR Policy[7], which is aligned with F/RAND principles. While genericode's first committee specification was published on the 28th of December of 2000, genericode is currently on its 1.0 version, last revised on the 31th of January of 2023.

eCTD is the standard norm for industry submissions maintained by the ICH and genericode is included in the electronic Common Technical Document (eCTD) 4.0 Implementation package[8]. Comments may be submitted to the TC by any person through the use of the OASIS TC Comment Facility at any moment. In addition, both members and non-members of the Code List Representation TC are welcome to participate in the unmoderated Code List Representation Developer Mail List by subscribing at the OASIS mail list manager.

- **Transparency**

Genericode itself primarily focuses on providing a standardised format for representing code lists and controlled values, but it can indirectly contribute to the visibility of administrative procedures, rules data, and services and to the interoperability and integration of systems that provide access to public administration services by promoting consistency, compatibility, and semantic clarity in data exchange.

- **Reusability**

Genericode can be used in virtually any business domain. Genericode provides a standardised format for representing code lists and controlled values, making it applicable to a wide range of industries and applications. Genericode can be used to represent currency codes, country codes, medical diagnostic codes, procedure codes, area codes, government agency codes, regulatory classifications, etc.

- **Technological neutrality and data portability**

Genericode is designed to be technology and platform-agnostic. It is defined using XML, which can be processed and interpreted by any system that supports XML parsing. It allows for partial implementations, customisation and extensions based on specific use cases and requirements. For example, if an application only needs to represent simple code lists without metadata, it can choose to implement only the core elements of genericode without incorporating metadata-related features. Furthermore, the specification can contribute to data portability as European institutions can adopt genericode as part of a broader strategy for standardising data formats and structures.

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[7] OASIS Intellectual Property Rights (IPR) Policy: https://www.oasis-open.org/policies-guidelines/ipr/
[8] ICH eCTD v4.0: https://www.ich.org/page/ich-electronic-common-technical-document-ectd-v40

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

- **User-centricity**

    While genericode itself does not enforce the principle of providing information once-only and reusing it as needed, genericode can facilitate this principle by providing a standardised format for representing code lists. Furthermore, appendix E (non-normative) mentions considerations of life cycle metadata. Data life cycle management relies on having useful life cycle metadata with which to record properties of data and histories of changes in that data.

- **Inclusion and accessibility**

    The purpose of genericode is not related to e-accessibility. Therefore, this criterion is considered not applicable to this specification.

- **Privacy**

    The purpose of genericode is not related to any privacy aspect. Therefore, this criterion is considered not applicable to this specification.

- **Security**

    While genericode itself does not provide mechanisms for protecting information against unauthorised changes. Genericode supports the inclusion of metadata alongside code values, providing additional context and information to enhance semantic clarity of codes and ensure data integrity. Furthermore, standardisation helps reduce inconsistencies and errors in data processing by ensuring that data is represented consistently across different systems and applications.

- **Multilingualism**

    Genericode can be used effectively in a multilingual context due to its flexibility in representing code lists and controlled values. The "Language" tag support allows for the inclusion of metadata alongside code values, which can include language tags to specify the language of the metadata. This means that descriptions, labels, or other textual information associated with code values can be provided in multiple languages within the same genericode file.

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

- **Administrative Simplification**

    The use of genericode, a standardised format for representing code lists and controlled values, can contribute to simplifying the delivery of European public services by providing a common format for representing code lists, which improves standardisation so that public administrations can establish clear data governance policies and procedures.

- **Preservation of information**

    While genericode is primarily focused on providing a standardized format for representing code lists and controlled values, organisations can take steps to ensure the long-term preservation of data represented in genericode format by implementing appropriate data management and archiving practices. For instance, the specification allows for the inclusion of metadata alongside code values, providing additional context and information.

- **Assessment of effectiveness and efficiency**

    The effectiveness and efficiency of genericode is often evaluated through various means, including practical implementations, pilot projects, and community feedback. For instance, a 2018-paper[9] related to quantitative finance and economics mentions genericode as one of the standards to follow when researching on big data in finance, which demonstrates the effectiveness of the specification. In addition, a 2017-paper[10] mentions that genericode is one of the 5 aggregated standards chosen by the Frankfurt Group Technical Workshop (FGTW) on Data Standards Interoperability in financial data.

## 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**

    Code List Representation (genericode) is associated with EIRA ABB's in the EIRA Library of Interoperability Specifications (ELIS). More specifically, genericode is associated with the "Reference Data" ABB from the Semantic view.

    Section 4 of genericode defines that an XML instance conforms to the OASIS Code List Representation genericode document model if it does not violate any constraints expressed in the genericode.xsd schema associated with this version of the specification, including auxiliary rules marked as "document" rules. Genericode is recommended by four different European Member States. For instance, it is included in the Dutch ICT National Catalogue[11] as a useful standard for defining code lists.

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[9] Complexity, big data and financial stability: https://www.aimspress.com/fileOther/PDF/QFE/QFE-02-03-637.pdf
[10] Overview of international experiences with data standards and identifiers applicable for big data analysis: https://files.stample.com/stample-1587417530204-ifcb44c.pdf
[11] Netherlands Open Standards Catalogue: https://www.forumstandaardisatie.nl/open-standaarden/aanbevolen

The specification is also part of eSumbission[12], a public European initiative created to facilitate the submission of regulatory information concerning marketing authorisations application for medicinal products to National Competent Authorities and EMA (European Medicines Agency). Finally, the eProcurement Business Collection[13] by the Publications Office of the EU has been restructured using UBL and the associated genericode files.

- **Legal interoperability**

  Genericode is developed by OASIS, a standard development organisation based in the US. Moreover, the specification does not appear in any of the main European standard development bodies, therefore, the specification is not a European standard.

- **Organisational interoperability**

  While genericode itself is not a dedicated business process modelling tool, its standardised representation of code lists and controlled values can support and enhance the modelling of business processes within organisations. Furthermore, its standardised representation of code lists and controlled values can provide a foundation for interoperability discussions. By adopting genericode-compliant formats and structures, organisations can establish common ground for data exchange, facilitate communication, and support interoperability efforts.

- **Semantic Interoperability**

  Genericode encourages collaboration as it was created by OASIS, a non-profit and open consortium dedicated to standardisation. Both members and non-members of the Code List Representation TC are welcome to participate in the unmoderated Code List Representation Developer Mail List by subscribing at the OASIS mail list manager if any discussion about genericode arises. Furthermore, there is a public GitHub[14] with the development and maintenance of the documentation and artefacts associated with OASIS genericode.

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[12] eSubmission: https://esubmission.ema.europa.eu/
[13] eProcurement Business Collection: https://op.europa.eu/en/web/eu-vocabularies/e-procurement
[14] Code List genericode GitHub: https://github.com/oasis-tcs/codelist-genericode

## 3. ASSESSMENT RESULTS

This section presents an overview of the results of the CAMSS assessments for **Code List Representation (genericode)**. 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 |
|---|---|---|---|
| Principles setting the context for EU actions on interoperability | 100/100 (100%) | 100% | Ad-hoc |
| Core interoperability principles | 1580/1700 (93%) | 100% | Seamless |
| Principles related to generic user needs and expectations | 1040/1200 (87%) | 42% | Seamless |
| Foundation principles for cooperation among public administrations | 480/500 (96%) | 80% | Seamless |
| Interoperability layers* | 860/1000 (86%) | 100% | Seamless |
| Overall Score | 3260/3700 (88%)[15] | 82% | |

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

With a 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 88% (3260/3700) demonstrates that the specification supports the European Interoperability Framework in the domains where it applies.

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[15] 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