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CAMSS Assessment EIF Scenario v5.1.0

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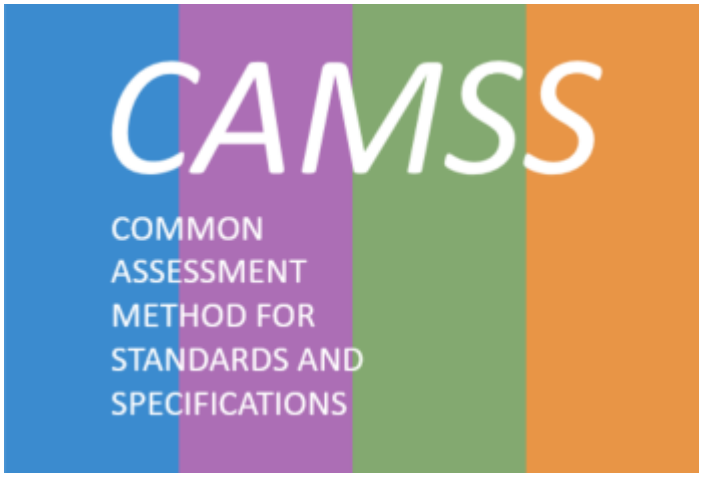
CAMSS Assessment EIF Scenario v5.1.0

Release Date: 18/07/2022

Scenario Version: 5.1.0

INTRODUCTION



EIF Scenario

The European Interoperability Framework (EIF) provides guidance to public administrations on how to improve governance of their interoperability activities, establish cross-organisational relationships, streamline processes supporting end-to-end digital services, and ensure that existing and new legislation do not compromise interoperability efforts.

This CAMSS Scenario allows to assess the compliance of **interoperability specifications** with the EIF. The objective of the obtained assessment is to determine the suitability of the assessed interoperability specification for the delivery of interoperable European public services.

Background

CAMSS is the European guide for assessing and selecting standards and specifications for an eGovernment project, a reference when building an architecture, and an enabler for justifying the choice of standards and specifications in terms of interoperability needs and requirements. It is fully aligned with the European Standardisation Regulation 1025/2012.
The main objective of CAMSS is achieving interoperability and avoiding vendor lock-in by establishing a neutral and unbiased method for the assessment of technical specifications and standards in the field of ICT. This method will be compliant with Regulation 1025/2012 on European Standardisation.
While ICT solutions have specific characteristics at the political, legal, and organisational levels; semantic and technical interoperability are based mostly on technical specifications or standards. Within the context of the elaboration of their National Interoperability Frameworks, Member States organise the assessment of technical specifications or standards, in order to establish their national recommendations. Deciding on the recommended technical specifications or standards often calls for a resource-intensive and time-consuming assessment. In order to tackle this, the Digital Europe Programme (DEP) defines an action focused on the development of a common assessment method for standards and specifications (CAMSS).

The purpose of CAMSS is:

- to ensure that assessments of technical ICT specifications or standards and interoperability profiles are performed according to high and consistent standards;

- to ensure that assessments will contribute significantly to the confidence in the interoperability of systems implementing these specifications and profiles;
- to enable the reuse, in whole or in part, of such assessments;
- to continuously improve the efficiency and effectiveness of the assessment process for ICT technical specifications, standards, and interoperability profiles.

The expected benefits of the CAMSS are:

- Ensuring greater transparency throughout the selection of standards in the context of ICT strategies, architectures, and interoperability frameworks. This will be achieved through the establishment of a commonly agreed assessment method, assessment process, and a list of assessment attributes.
- Reducing resource and time requirements and avoiding duplication of efforts. (Partial) sharing of finalised assessments of standards and specifications.
- Allowing easier and faster assessments, and reusing the ones already performed through the creation and maintenance of a library of standards.

Your compliance level of the specification assessed depends on the scores you achieved in each section of the survey. Please see below the survey score conversion table below for guidance.

			Compliance Level		
Section	**Ad-hoc**	**Opportunistic**	**Essential**	**Sustainable**	**Seamless**
Principles setting the context for EU Actions on Interoperability	20	40	60	80	100
EIF Core Interoperability Principles	0 to 440	441 to 880	881 to 1320	1321 to 1760	1761 to 2200
EIF Principles Related to generic user needs and expectations	0 to 100	101 to 200	201 to 300	301 to 400	401 to 500
EIF Foundation principles for cooperation among public	0 to 100	101 to 200	201 to 300	301 to 400	401 to 500

administrations					
EIF Interoperability Layers	0 to 220	221 to 440	441 to 660	661 to 880	881 to 1100

The following table shows the 'compliance levels' that a specification can reach depending on the assessment score.

Compliance Level	Description
Ad-hoc	Poor level of conformance with the EIF - The specification does not cover the requirements and recommendations set out by the EIF in this area.
Opportunistic	Fair level of conformance with the EIF - The specification barely covers the requirements and recommendations set out by the European Interoperability Framework in this area.
Essential	Essential level of conformance with the EIF - The specification covers the basic aspects set out in the requirements and recommendations from the European Interoperability Framework.
Sustainable	Good level of conformance with the EIF scenario - The specification covers all the requirements and recommendations set out by the European Interoperability Framework in this area.
Seamless	Leading practice of conformance level with the EIF - The specification fully covers the requirements and recommendations set out by the European Interoperability Framework in this area.

Contact: For any general or technical questions, please send an email to DIGIT-CAMSS@ec.europa.eu. Follow all activities related to the CAMSS on our CAMSS community page.

USER CONSENT

Disclaimer:

By no means will the Interoperability Specification assessment imply any endorsement of the EC to the assessed specification. Likewise, the use of CAMSS Assessment EIF Scenario implies that the user accepts that the EC is not liable on the assessment nor on any direct or indirect consequence/decision of such assesment.

The CAMSS Assessment EIF Scenario is based on EU Survey, by accepting the CAMSS Privacy Statement the user also accepts EU Survey Privacy Statement and the Terms of use.

* Please, fill in the mandatory* information to start the assessment

- [x] *I have read and agreed to the following CAMSS Privacy Statement: here
- [ ] I agree to be contacted for evaluation purposes, namely to share my feedback on specific DEP solutions and actions and on the DEP programme and the European Interoperability Framework in general.

IDENTIFICATION

Information on the information provider

Your Last name

CAMSS Team

Your First Name

Your Position / Role

* Your Organisation

European Commission DG-DIGIT

Your Contact phone number

* Would you like to be contacted for evaluation purposes in the context of your assessment? To see how your data is handled, please check again the Privacy statement here

In case you would like to be contacted, please select "yes" and provide your email.

- ( ) Yes
- (•) No

* Where did you learn about CAMSS?

- ( ) DEP Programme (DEP website, DEP social media)
- ( ) Joinup (e.g., CAMSS Collection, Joinup social media)
- (•) European Commission
- ( ) Public Administrations at national, regional or local level
- ( ) Standards Developing Organizations (SDOs)
- ( ) Other

If you answered "Other" in the previous question, please specify how:

Information on the specification

* Specificaton type

Specification: Set of agreed, descriptive, and normative statements about how a specification should be designed or made.

Standard: Specification that is largely adopted and possibly endorsed.

Application Profile: An application profile “customises one or more existing specifications potentially for a given use case or a policy domain adding an end to end narrative describing and ensuring the interoperability of its underlying specification(s)”.

Family: A family is a collection of interrelated and/or complementary specifications, standards, or application profiles and the explanation of how they are combined, used, or both.

- (●) Specification
- ( ) Standard
- ( ) Application Profile
- ( ) Family of Specification

* Title of the specification

Shape Expressions (ShEx)

* Version of the specification

2.1

* Description of the specification

Shape Expressions (ShEx) is a language for describing RDF graph structures. A ShEx schema prescribes conditions that RDF data graphs must meet to be considered "conformant": which subjects, predicates and objects may appear in a given graph, in what combinations and with what cardinalities and datatypes. In the ShEx model, an RDF graph is tested against a ShEx schema to yield a validation result that flags any parts of the data which do not conform.

* URL from where the specification is distributed

http://shex.io/shex-primer/index.html

* Name and website of the standard developing/setting organisation (SDO/SSO) of the specification

- (●) W3C (https://www.w3.org)
- ( ) OASIS (https://www.oasis-open.org/)
- ( ) IEEE (https://standards.ieee.org/)
- ( ) ETSI (https://www.etsi.org/)
- ( ) GS1 (https://www.gs1.fr/)
- ( ) openEHR (https://www.openehr.org/)
- ( ) IETF (https://www.ietf.org/)
- ( ) Other (SDO/SSO)

Contact information/contact person of the SDO
a) for the organisation
b) for the specification submitted

Information on the assessment of the specification

Reason for the submission, the need and intended use for the specification.

ShEx schemas are intended for use in validating RDF data, communicating interface parameters and data structures, generating user interfaces and transforming RDF graphs into other data formats and structures.

If any other evaluation of this specification is known, e.g. by Member States or European Commission projects, provide a link to this evaluation.

Considerations

Is the functional area of application for the formal specification addressing interoperability and eGovernment?

- (●) YES
- ( ) NO

Additional Information

ShEx schemas are intended for use in validating RDF data, communicating interface parameters and data structures, generating user interfaces, and transforming RDF graphs into other data formats and structures.

EIF PRINCIPLES SETTING THE CONTEXT FOR EU ACTIONS ON INTEROPERABILITY

This category is related to the first underlying principle (UP) of the EIF Subsidiarity and Proportionality (UP1). The basis of this principle is to ensure that the EU Actions are taken or stated to improve national actions or decisions. Specifically, it aims to know if National Interoperability Frameworks are aligned with the EIF.

Please note that some of the questions have a prefilled answer depending on the SDO. To ensure it, please see that these questions include a help message that remarks it.

Subsidiarity and Proportionality

* **A1 - To what extent has the specification been included in a national catalogue from a Member State whose National Interoperability Framework has a high performance on interoperability according to National Interoperability Framework Observatory factsheets?**

EIF Recommendation 1: Ensure that national interoperability frameworks and interoperability strategies are aligned with the EIF and, if needed, tailor and extend them to address the national context and needs.

This criterion assesses if the specifications have been included within the National Catalogues of Specifications of the Member States that are highly aligned with the higher level of performance in terms of interoperability.

The Digital Public Administration Factsheets use three categories to evaluate the level of National Interoperability frameworks in accordance with the EIF. The three categories are 1. CONCEPTUAL MODEL FOR INTEGRATED PUBLIC SERVICES PROVISION; 2 INTEROPERABILITY LAYERS, and 3. INTEROPERABILITY PRINCIPLES. National Interoperability Frameworks reports can be found here: https://joinup.ec.europa.eu/collection/nifo-national-interoperability-framework-observatory/digital-public-administration-factsheets-2021

- ( ) Not Answered
- ( ) Not Applicable
- (•) The specification has not been included within the catalogue of any Member State.
- ( ) The specification has been included within the catalogue of a Member State with a lower performance than stated in the Digital Public Administration Factsheets from the NIFO.
- ( ) The specification has been included within the catalogue of a Member State with a middel-lower performance than stated in the Digital Public Administration Factsheets from the NIFO.
- ( ) The specification has been included within the catalogue of a Member State with a middle-upper performance than stated in the Digital Public Administration Factsheets from the NIFO.
- ( ) The specification has been included within the catalogue of a Member State with a higher performance than stated in the Digital Public Administration Factsheets from the NIFO.

* Justification

No Member State includes the ShEx in their national catalogue with Their National Interoperability Framework (NIF) in alignment with the three categories 1. Conceptual model for integrated public servicesprovision, 2. interoperability layers, and 3. interoperability principles.

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

EIF CORE INTEROPERABILITY PRINCIPLES

In this category, elements related to the core interoperability principles (UP) are encompassed, which are: openness (UP 2), transparency (UP3), reusability (UP4), technological neutrality and data portability (UP5).

Openness

*** A2 - Does the specification facilitate the publication of open data?**

EIF Recommendation 2: Publish the data you own as open data unless certain restrictions apply.

Relates to the ability of the specification to publish data as open data or not.

- ○ Not Answered
- ○ Not Applicable
- ○ NO
- ◉ YES

* Justification

Shape Expressions (ShEx) is a language for describing RDF graph structures. A ShEx schema prescribes conditions that RDF data graphs must meet in order to be considered "conformant". Given that RDF is a syntax that allows for the publication of structured data on the web, ShEx facilitates the publication of open data

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

A2(a) - To what extent does the specification facilitate the publication of public data as open data?

EIF Recommendation 2: Publish the data you own as open data unless certain restrictions apply.

Relates to what degree of open data can reach the specification according to the main principles of 'open data". These principles are stated by Tim Berners-Lee in the 5-Stars approach: https://5stardata.info/en/

- ○ Not Answered
- ○ Not Applicable
- ○ The specification does not support the publication of data on the web, or does so but with a non-open licence.
- ○ The specification supports publishing data on the web with an open licence and in a structured, machine-readable format.
- ○ In addition to the previous question, the specification does not require proprietary software for the processing of its related data.
- ○ In addition to the previous question, the specification is or incorporates open standards (e.g. W3C).
- ◉ In addition to the requirements stated in the previous answer, the specification supports published data as Linked Data.

* Justification

Since ShEx is a language for describing RDF graph structures, consequently, and according to the main principles of open data, it is a good enabler for the publishing of linked data, given that ShEx schemas are

intended for use in validating instance data, communicating interface parameters and data structures, generating user interfaces, and transforming RDF graphs into other data formats and structures, therefore, it makes sure data is well structured to be published as open data.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

Tim Berners-Lee 5-star schema for Open Data:
https://5stardata.info/en/

* **A3 - To what extent do stakeholders have the opportunity to contribute to the development of the specification?**

EIF Recommendation 3: Ensure a level playing field for open-source software and demonstrate active and fair consideration of using open source software, taking into account the total cost of ownership of the solution.

Relates to in which measure the different stakeholders that a specification can benefit have the opportunity to participate in the working groups focused on the development of certain specifications.

- ( ) Not Answered
- ( ) Not Applicable
- ( ) There is no information on the working group of the specification.
- ( ) The working group is open to participation by any stakeholder but requires registration, fees, and membership approval.
- ( ) The working group is open to participation by any stakeholder but requires fees and membership approval.
- ( ) The working group is open to participation following a registration process.
- (•) The working group is open to all without specific fees, registration, or other conditions.

Justification:
W3C has a defined and publicly available Process for the Development and approval process of the specification as a recommended standard. Also, a clear Release Notes tracking the changes of the different versions is archived.

W3C Process document:
https://www.w3.org/2018/Process-20180201/#Policies

Additional Information

In case you need to add further justification.

* **A4 - To what extent is a public review part of the release lifecycle?**

EIF Recommendation 3: Ensure a level playing field for open-source software and demonstrate active and fair consideration of using open source software, taking into account the total cost of ownership of the solution.

A public review consists of the public availability of the specification's draft for stakeholders to provide inputs for the improvement and fix of possible bugs.

- ○ Not Answered
- ○ Not Applicable
- ○ Specification releases do not foresee public reviews.
- ○ Public review is applied to certain releases depending on the involved changes.
- ○ All major releases foresee a public review.
- ○ All major and minor releases foresee a public review but, during which, collected feedback is not publicly visible.
- ◉ All major and minor releases foresee a public review during which collected feedback is publicly visible.

Justification:
W3C has a defined and publicly available Process for the Development and approval process of the specification as a recommended standard, including a public review.

W3C Process document:
https://www.w3.org/2018/Process-20180201/#Policies

Additional Information

In case you need to add further justification.

* **A5 - Is the specification available with any restrictions related to Fair, Reasonable, and Non-Discriminatory ((F)RAND)?**

EIF Recommendation 3: Ensure a level playing field for open-source software and demonstrate active and fair consideration of using open source software, taking into account the total cost of ownership of the solution.

The FRAND basis relates to fair, reasonable, and non-discriminatory IPR disclosures.

- ○ Not Answered
- ○ Not Applicable
- ○ NO
- ◉ YES

* Justification

ShEx is open to any interested party who has agreed to the W3C Community Contributor License Agreement (CLA). The CLA provisions refer to the W3C Patent Policy, which covers the availability of ShEx with any restrictions related to fair, reasonable and non-discriminatory ((F)RAND) rights.

W3C Patent Policy reference:
https://www.w3.org/TR/patent-practice#ref-AC

* **A6 - Is the specification licensed on a royalty-free basis?**

EIF Recommendation 3: Ensure a level playing field for open-source software and demonstrate active and fair consideration of using open source software, taking into account the total cost of ownership of the solution.

Additionally to the EIF's recommendation that refers to open-source software it applies to a specification in itself at any interoperability level (legal, organisational, semantic, or technical)

- ○ Not Answered
- ○ Not Applicable
- ○ NO
- ◉ YES

Justification:
The W3C Royalty-Free IPR licenses granted under the W3C Patent Policy apply to all W3C specifications, including this specification.

W3C Patent practice:
https://www.w3.org/TR/patent-practice#ref-AC

Additional Information

In case you need to add further justification.

ShEx is open to any interested party who has agreed to the W3C Community Contributor License Agreement (CLA). The CLA provisions refer to the W3C Patent Policy, which covers the availability of ShEx with any restrictions related to fair, reasonable and non-discriminatory ((F)RAND) rights.

W3C Patent Policy reference:
https://www.w3.org/TR/patent-practice#ref-AC

* **A7 - To what extent is the specification sufficiently mature for its use in the development of digital solutions/services?**

EIF Recommendation 4: Give preference to open specifications, taking due account of the coverage of functional needs, maturity and market support, and innovation.

Maturity related to the stability of the specification, meaning that it has been evolved enough and mechanisms for its development have been put in place (Change Management processes, monitoring, etc.)

- ○ Not Answered
- ○ Not Applicable
- ○ The specification has no published releases and no publicly accessible information on its development state.
- ○ The specification is under development without published releases.
- ○ The specification is under development with published preview releases.
- ○ The specification has published major releases but without public documentation on its supporting processes (e.g. change management and release management).
- ◉ The specification, in addition to having major releases available, has published documentation on its supporting processes (e.g. change management and release management).

* Justification

ShEx community group has already published two major releases of the ShEx specification, and as it is stated in the latest editors' draft, the language expressed by ShEx is already stable. In addition, there is public documentation on its supporting processes on Github, and the ShEx Community Group webpage.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

* **A8 - To what extent has the specification sufficient market acceptance for its use in the development of digital solutions/services?**

EIF Recommendation 4: Give preference to open specifications, taking due account of the coverage of functional needs, maturity and market support, and innovation.

Relates to how the specification is supported by the market, taking as a reference whether or not the specifications are widely used or implemented. There is an exception, and it is when the specification is used to implement innovative solutions, then, the specification should not be considered as failing to meet the requirements of the criterion.

- ( ) Not Answered
- ( ) Not Applicable
- ( ) There is no information about the specification's market uptake.
- (•) The specification has known implementations but not enough to indicate market acceptance.
- ( ) The specification has widespread use indicating market acceptance.
- ( ) The specification has widespread use and relevant independent reports proving its market acceptance.
- ( ) The specification does not have market acceptance because it is directly used to create innovative solutions.

* Justification

Functionalities of ShEx are well stated in its primer document, and there are known implementations, such as for the sharing of RDF data models and to guide its curation with rigorous validation, although, being a validator for RDF graphs, there haven't been found many market uptake indicators.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

Using Shape Expressions (ShEx) to Share RDF Data Models and to Guide Curation with Rigorous Validation:
https://link.springer.com/chapter/10.1007/978-3-030-21348-0_39

* **A9 - To what extent has the specification support from at least one community?**

EIF Recommendation 3: Ensure a level playing field for open-source software and demonstrate active and fair consideration of using open source software, taking into account the total cost of ownership of the solution.

Related to whether or not communities exist around the specification at any level legal, organisational, semantic, or technical contributions to its enhancement and development.

- ○ Not Answered
- ○ Not Applicable
- ○ There is no community linked to the specification.
- ○ Specification support is available but as part of a closed community requiring registration and possibly fees.
- ○ There is no specific community to support the specification but there are public channels for the exchange of help and knowledge among its users.
- ○ There is a community providing public support linked to the specification but in a best-effort manner.
- ◉ There is a community tasked to provide public support linked to the specification and manage its maintenance.

* Justification

The ShEx Community Group is a group of developers tasked around the maitenance and evolution of the ShEx specification. This group also operates via Github, where anyone interested can raise issues and pull requests about its implementation.

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https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

Transparency

* **A10 - To what extent does the specification enable the visibility of administrative procedures, rules data, and services?**

EIF Recommendation 5: Ensure internal visibility and provide external interfaces for European public services.

- ○ Not Answered
- ◉ Not Applicable
- ○ The specification hinders visibility.
- ○ The specification neither promotes nor hinders visibility.
- ○ The specification can contribute and promote the visibility of administrations, but it is not its main purpose.
- ○ The specification can enable the visibility of administrations if combined with other specifications.
- ○ The specification actively promotes and supports visibility.

* Justification

The purpose of ShEx is not related to the visibility of administrative procedures; therefore, this criterion is not applicable to the specification.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

* **A11 - To what extent does the specification scope comprehensibly administrative procedures, rules data, and services?**

EIF Recommendation 5: Ensure internal visibility and provide external interfaces for European public services.

- ○ Not Answered
- ○ Not Applicable
- ○ The specification hinders comprehensibility.
- ○ The specification neither promotes nor hinders comprehensibility.
- ○ The specification can contribute and promote the comprehensibility of administrations, but it is not its main purpose.
- ○ The specification can scope the comprehensibility of administrations if combined with other specifications.
- ◉ The specification actively promotes and supports comprehensibility.

* Justification

ShEx can be used to validate the data of a public administration while published as RDF. Therefore it could foster its comprehensibility.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

* **A12 - To what extent does the specification enable the exposure of interfaces to access the public administration's services?**

EIF Recommendation 5: Ensure internal visibility and provide external interfaces for European public services.

Relates to ensuring availability of interfaces with internal information systems. As the EIF defines: *Public administrations operate a large number of what are often heterogeneous and disparate information systems in support of their internal processes. Interoperability depends on ensuring the availability of interfaces to these systems and the data they handle. In turn, interoperability facilitates the reuse of systems and data and enables these to be integrated into larger systems.*

- ○ Not Answered
- ○ Not Applicable
- ○ The specification prevents the exposure of such interfaces.

- The specification neither promotes nor hinders the exposure of such interfaces.
- The specification can contribute to the exposure of interfaces, but it is not its main purpose.
- The specification can enable the exposure of interfaces if combined with other specifications.
- (●) The specification enables exposure of such interfaces.

* Justification

The Shape Expressions (ShEx) language provides a structural schema for RDF data. This can be used to document APIs or datasets, aid in development of API-conformant messages, minimize defensive programming, guide user interfaces, or anything else that involves a machine-readable description of data organization and typing requirements.

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ShEx Github:
https://github.com/shexSpec/spec/issues

* **A13 - To what extent does the specification ensure the protection of personal data managed by Public Administrations?**

EIF Recommendation 5: Ensure internal visibility and provide external interfaces for European public services.

Securing the right to the protection of personal data, by respecting the applicable legal framework for the large volumes of personal data of citizens, held and managed by Public administrations.

- The specification neither promotes nor hinders the exposure of such interfaces.
- The specification can contribute to the exposure of interfaces, but it is not its main purpose.
- The specification can enable the exposure of interfaces if combined with other specifications.
- (●) The specification enables exposure of such interfaces.

* Justification

The purpose of ShEx is not related to the protection of personal data; therefore, this criterion is not applicable to the specification.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

Reusability

* **A14 - To what extent is the specification usable beyond the business-specific domain, allowing its usage across business domains?**

EIF Recommendation 6: Reuse and share solutions, and cooperate in the development of joint solutions when implementing European public services.

Relates to the use of the specification beyond a specific business domain. E.g. a specification developed under the eHealth domain that can be used in other domains or not.

- ( ) Not Answered
- ( ) Not Applicable
- ( ) The specification is tied to a specific domain and is restricted from being used in other domains.
- ( ) The specification is associated with a specific domain but its use in other domains is difficult.
- ( ) The specification is associated with a specific domain but could be partially used in other domains.
- ( ) The specification is associated with a specific domain but could be used 'as-is' to other domains.
- (•) The specification is domain-agnostic, designed to be used in any domain.

* Justification

ShEx is built around RDF and is highly dependent from it since its purpose is to validate RDF graphs. Nonetheless, it has many known implementations that range through a variety of business domains allowing for RDF graphs validation across business domains.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

* **A15 - To what extent is the specification usable beyond the business-specific domain, allowing its implementation across business domains?**

EIF Recommendation 6: Reuse and share solutions, and cooperate in the development of joint solutions when implementing European public services.

Relates to the use of the specification beyond a specific business domain. E.g. a specification developed under the eHealth domain that can be used in other domains or not.

- ( ) Not Answered
- ( ) Not Applicable
- ( ) The specification is tied to a specific domain and is restricted from being implemented in other domains.
- ( ) The specification is associated with a specific domain but its implementation in other domains is difficult.
- ( ) The specification is associated with a specific domain but could be partially implemented in other domains.
- ( ) The specification is associated with a specific domain but could be implemented 'as-is' to other domains.
- (•)

The specification is domain-agnostic, designed to be implemented in any domain.

* Justification

ShEx is built around RDF and is highly dependent from it since its purpose is to validate RDF graphs. Nonetheless, it has many known implementations that range through a variety of business domains allowing for RDF graphs validation across business domains.

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ShEx Github:
https://github.com/shexSpec/spec/issues

Technological Neutrality and Data Portability

* **A16 - Is the specification technology agnostic?**

EIF Recommendation 8: Do not impose any technological solutions on citizens, businesses, and other administrations that are technology-specific or disproportionate to their real needs.

Technology-neutrality relates to not being dependent on any other ("sister") specifications, and platform-neutrality, not being dependent on any specific environment, web platform, operating system.

- ○ Not Answered
- ○ Not Applicable
- ○ NO
- ◉ YES

* Justification

ShEx is independent of any specification and can be implemented without relying on other technologies.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

* **A17 - Is the specification platform agnostic?**

EIF Recommendation 8: Do not impose any technological solutions on citizens, businesses, and other administrations that are technology-specific or disproportionate to their real needs.

Technology-neutrality relates to not being dependent on any other ("sister") specifications, and platform-neutrality, not being dependent on any specific environment, web platform, operating system.

- ○ Not Answered
- ○ Not Applicable
- ○ NO
- ◉ YES

* Justification

DPV is independent of any specification and can be implemented without any dependency on platforms.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

*** A18 - To what extent does the specification allow for partial implementations?**

EIF Recommendation 8: Do not impose any technological solutions on citizens, businesses, and other administrations that are technology-specific or disproportionate to their real needs.

Partial implementations refer to the application of specifications, not in their whole, but part of the requirements or features defined in the documentation.

It can also be understood as the implementation of different profiles, which is also related to a certain set of requirements depending on the context of implementation.

- ○ Not Answered
- ○ Not Applicable
- ○ The specification is only meant to be used as a whole.
- ○ The specification could be partially implemented but does not make specific provisions towards this.
- ○ The specification could be partially implemented but includes only guidelines towards this rather than sets of requirements.
- ○ The specification explicitly foresees sets of requirements that can be implemented incrementally.
- ◉ The specification explicitly foresees sets of requirements that can be implemented incrementally or separately.

* Justification

ShEx allows for partial implementations in the sense that its functionalities can be invoked separately. For instance, it can be only used for serializing RDF data into JSON format, or into a concise human-readable compact syntax (ShExC), or it can only be used to validate RDF graphs.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:

https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

*** A19 - Does the specification allow customisation?**

EIF Recommendation 8: Do not impose any technological solutions on citizens, businesses, and other administrations that are technology-specific or disproportionate to their real needs.

A clear example of customizations is Core Vocabularies, which define a set of general requirements that could fit in any context and allow for the customization to fit specific business requirements in the implementation.

- ○ Not Answered
- ○ Not Applicable
- ○ NO
- ◉ YES

* Justification

The addition of external shapes to support specific operations one may want to hold against big RDF datasets can be considered as a way to customize ShEx.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

*** A20 - Does the specification allow extension?**

EIF Recommendation 8: Do not impose any technological solutions on citizens, businesses, and other administrations that are technology-specific or disproportionate to their real needs.

A clear example of extension is Core Vocabularies, which are a set of general requirements fitting in different contexts that can complement each other in a sort of extensibility practice to fit specific business requirements in any implementation.

- ○ Not Answered
- ○ Not Applicable
- ○ NO
- ◉ YES

* Justification

In ShEx, external shapes are an extension mechanisms to externally define shapes. This is useful when we want to describe functional shapes or very large value sets. Usually, external shapes are resolved using REST APIs. In addition, ShEx can also read extensions for validation schemas.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

* **A21 - To what extent does the specification enable data portability between systems/applications supporting the implementation of European public services?**

EIF Recommendation 9: Ensure data portability, namely that data is easily transferable between systems and applications supporting the implementation and evolution of European public services without unjustified restrictions, if legally possible.

- ○ Not Answered
- ○ Not Applicable
- ○ The specification prevents or does not support data portability.
- ○ The specification neither addresses data portability nor prevents it.
- ○ The specification addresses data portability but without specific provisions to enable it.
- ○ The specification introduces certain aspects that can contribute to enabling data portability.
- ◉ The specification explicitly addresses and enables data portability.

* Justification

ShEx can be very useful for data portability as it is a tool that allows for the communication of data structures associated with some process or interface. Moreover, ShEx also allows for the serialization in different human and machine-readable formats, use cases that ease the transfer of data between systems, at the same time it eases comprehensibility for humans. An example of the ShEx implementation would be the Hercules ASIO project, whose objective is to create a Research Management System (RMS) based on semantic open data that offers a global view of the research data of the Spanish University System (SUE), to improve management, analysis and possible synergies between universities and the general public. Therefore, supporting the implementation of European public services.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

Hercules ASIO project:
https://github.com/HerculesCRUE/ib-shex-lite

* **A22 - To what extent does the specification enable data portability between systems/applications supporting the evolution of European public services?**

EIF Recommendation 9: Ensure data portability, namely that data is easily transferable between systems and applications supporting the implementation and evolution of European public services without unjustified restrictions, if legally possible.

- ( ) Not Answered
- ( ) Not Applicable
- ( ) The specification prevents or does not support data portability.
- ( ) The specification neither addresses data portability nor prevents it.
- ( ) The specification addresses data portability but without specific provisions to enable it.
- ( ) The specification introduces certain aspects that can contribute to enabling data portability.
- (•) The specification explicitly addresses and enables data portability.

* Justification

ShEx can be very useful for data portability as it is a tool that allows for the communication of data structures associated with some process or interface. Moreover, ShEx also allows for the serialization in different human and machine-readable formats, use cases that ease the transfer of data between systems, at the same time it eases comprehenisbility for humans. An example of the ShEx implementation would be the Hercules ASIO project, whose objective is to create a Research Management System (RMS) based on semantic open data that offers a global view of the research data of the Spanish University System (SUE), to improve management, analysis and possible synergies between universities and the general public.
 therefore, ShEx supports the evolution of European public services.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

Hercules ASIO project:
https://github.com/HerculesCRUE/ib-shex-lite

EIF PRINCIPLES RELATED TO GENERIC USER NEEDS AND EXPECTATIONS

This category includes all underlying principles from the EIF which are related to user needs. Principles included here are user-centricity (UP6), inclusion and accessibility (UP7), security and privacy (UP8), and multilingualism (UP9).

User-Centricity

* **A23 - To what extent does the specification allow relevant information to be reused when needed?**

EIF Recommendation 13: As far as possible under the legislation in force, ask users of European public services once-only and relevant-only information.

The Once-Only Principle is related to making the operations or transactions between administrations and stakeholders more efficient. It implies avoiding the provision of certain data or information twice or more when this information is already available for public administrations.
First European Data Space, Once Only Technical System (OOTS):
https://ec.europa.eu/digital-building-blocks/wikis/display/DIGITAL/Once+Only+Technical+System
Additional and relevant information can be found here: https://ec.europa.eu/cefdigital/wiki/display/CEFDIGITAL/Once+Only+Principle

- ○ Not Answered
- ○ Not Applicable
- ○ Information needs to be provided whenever this is needed.
- ○ There is limited reuse of provided information.
- ◉ Provided information is reused, but this is not consistently done.
- ○ Provided information is reused, but not in all scenarios.
- ○ Information is provided once-only and reused as needed.

* Justification

The application of the once-only principle in all EU Member States public administrations aims at reducing the administrative burden. To achieve this, interoperability between public administrations is a sine qua non condition. In this sense, ShEx addresses and facilitates interoperability between public administrations, and cross border services and impacts positively the development of eGovernment. This is because of the fact that it has been designed to enhance the semantic and technical interoperability layers of ontologies expressed as RDF graphs, and RDF is a European Standard used by public administrations in projects for sharing Linked Data.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

Inclusion and Accessibility

* **A24 - To what extent does the specification enable the e-accessibility?**

EIF Recommendation 14: Ensure that all European public services are accessible to all citizens, including persons with disabilities, the elderly, and other disadvantaged groups. For digital public services, public administrations should comply with e-accessibility specifications that are widely recognised at the European or international level.

Examples of specifications addressing e-accessibility are, for instance, WAI-ARIA (https://www.w3.org/WAI/standards-guidelines/aria/) included within Web Content Accessibility Guidelines (WCAG) Overview (https://www.w3.org/WAI/standards-guidelines/wcag/).

- ○ Not Answered
- ◉ Not Applicable
- ○ The specification prevents or does not support e-accessibility.
- ○ The specification neither addresses e-accessibility nor prevents it.
- ○ The specification can contribute and promote e-accessibility, but it is not its main purpose.
- ○ The specification can enable e-accessibility if combined with other specifications.
- ○ The specification explicitly addresses and enables e-accessibility.

* Justification

The purpose of ShEx is not related to e-accessibility; therefore this criterion does not apply to the specification.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

Security and Privacy

*** A25 - To what extent does the specification enable the secure exchange of data?**

EIF Recommendation 15: Define common security and privacy framework and establish processes for public services to ensure secure and trustworthy data exchange between public administrations and in interactions with citizens and businesses.

Relates to the actions that Public Administrations establish concerning sensitive information for the proper delivery of public services. The different actions imply the reception, classification, and exchange of such information.

- ○ Not Answered
- ○ Not Applicable
- ○ The specification prevents or does not support the secure and trustworthy exchange of data.
- ○ The specification introduces certain aspects that can contribute to enabling the secure exchange of data.
- ○ The specification addresses data security and trustworthy data exchange but does not foresee specific provisions to enable them.
- ◉ The specification addresses data security and trustworthy data exchange but specific provisions to enable them are limited.
- ○ The specification explicitly addresses and enables the secure and trustworthy exchange of data.

* Justification

Understanding data exchange as the publication by the administration of data for its later consumption by citizens, the specification facilitates the trustworthy data exchange in RDF format by providing the means to validate RDF data graphs.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

* **A26 - To what extent does the specification enable the secure processing of data?**

EIF Recommendation 15: Define common security and privacy framework and establish processes for public services to ensure secure and trustworthy data exchange between public administrations and in interactions with citizens and businesses.

Relates to the actions that Public Administrations establish concerning sensitive information for the proper delivery of public services. The different actions imply the reception, classification, and exchange of such information.

- ○ Not Answered
- ○ Not Applicable
- ○ The specification prevents or does not support the secure and trustworthy processing of data.
- ○ The specification introduces certain aspects that can contribute to enabling the secure processing of data.
- ○ The specification addresses data security and trustworthy data processing but does not foresee specific provisions to enable them.
- ◉ The specification addresses data security and trustworthy data processing but specific provisions to enable them are limited.
- ○ The specification explicitly addresses and enables the secure and trustworthy processing of data.

* Justification

Understanding data exchange as the publication by the administration of data for its later consumption by citizens, the specification facilitates the trustworthy data exhange in RDF format by providing the means to validate RDF data graphs.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

Multilingualism

* **A27 - To what extent could the specification be used in a multilingual context?**

EIF Recommendation 16: Use information systems and technical architectures that cater to multilingualism when establishing a European public service. Decide on the level of multilingualism support based on the needs of the expected users.

- ○ Not Answered
- ◉ Not Applicable
- ○ The specification cannot be used in a multilingual context.
- ○ The specification could be used in a multilingual context but has no specific provisions to facilitate this.
- ○ The specification foresees limited support for multilingualism.
- ○ The specification foresees support for multilingualism but this is not complete.
- ○ The specification is designed to fully support multilingualism.

* Justification

The purpose of ShEx is not related to multilingualism; therefore, this criterion does not apply to the specification.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

EIF FOUNDATION PRINCIPLES FOR COOPERATION AMONG PUBLIC ADMINISTRATIONS

This category includes the criteria aiming to evaluate principles related to collaboration amongst public organisations, business, and citizens. This is related to the underlying principles of administrative simplification (UP10), preservation of information (UP11), and assessment of effectiveness and efficiency (UP12).

Administrative Simplification

* **A28 - Does the specification simplify the delivery of European public services?**

EIF Recommendation 17: Simplify processes and use digital channels whenever appropriate for the delivery of European public services, to respond promptly and with high quality to users' requests and reduce the administrative burden on public administrations, businesses and citizens.

A positive answer would cover every specification easing digitalisation and administratice simplification by for example helping an Identification service access a Digital Portfolo with citizens information.

- ○ Not Answered
- ○ Not Applicable

- NO
- YES

* Justification

ShEx can simplify the delivery of those European public services related to the semantic web. While RDF data graphs can be validated more easily with the specification's functionality, interoperability is triggered given that ShEx reduces possible syntax errors, and thus, simplifies the delivery of European public services.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

* **A29 - Does the specification enable digital service delivery channels?**

EIF Recommendation 17: Simplify processes and use digital channels whenever appropriate for the delivery of European public services, to respond promptly and with high quality to users' requests and reduce the administrative burden on public administrations, businesses and citizens.

A positive answer would cover that a specification eases or provides better means of delivering public services as a good asset for digitalisation and administrative simplification. For instance, a specification directly related to API performance easing and improving the delivery of a Digital Public Service through an API.

- Not Answered
- Not Applicable
- NO
- YES

* Justification

Digital service delivery channels like those requiring Linked data, or semantic technologies may be enhanced by the use of ShEx, given that it allows for the validation and modelling of RDF structures as well as the better understanding of data representation details, as is the case of the Yosemite project (see article below), which aims to create an interoperable model for the exchange of clinical data.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

Using Shape Expressions (ShEx) to Share RDF Data Models and to Guide Curation with Rigorous Validation:
https://link.springer.com/chapter/10.1007/978-3-030-21348-0_39

Preservation of Information

* **A30 - To what extent does the specification enable the long-term preservation of data/information /knowledge (electronic records included)?**

EIF Recommendation 18: Formulate a long-term preservation policy for information related to European public services and especially for information that is exchanged across borders.

Relates to the capacity of the specification to contribute to the long-term preservation of information.

- ○ Not Answered
- ◉ Not Applicable
- ○ The specification prevents or does not support long-term preservation.
- ○ The specification neither addresses the long-term preservation nor prevents it.
- ○ The specification addresses the long-term preservation of electronic resources (information, data, etc) in a limited manner.
- ○ The specification addresses long-term preservation of electronic resources (information, data, etc), but not in a complete manner.
- ○ The specification explicitly addresses and enables long-term preservation.

* Justification

The purpose of ShEx is not related to the long-term preservation of information; therefore, this criterion does not apply to this specification.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

Assessment of Effectiveness and Efficiency

* **A31 - To what extent are there assessments of the specification's effectiveness?**

EIF Recommendation 19: Evaluate the effectiveness and efficiency of different interoperability solutions and technological options considering user needs, proportionality, and balance between costs and benefits.

Related to the degree to which the specification is effective while using it. There are indirect methods to determine that the specification is effective, for instance when a solution that has an effective performance and uses the specification to deliver the expected service.

Effectiveness: *the extent to which the specifications reach the expected action according to its purpose.*

- ○

Not Answered

- ○ Not Applicable
- ○ There are no such assessments.
- ○ There are such assessments that indirectly address the specification.
- ○ There are such assessments evaluating digital solutions' effectiveness that involve the specification.
- ○ There are such assessments addressing the specification and its effectiveness together with other specifications.
- ◉ There are such assessments directly addressing the specification.

* Justification

There are several studies assessing ShEx effectiveness when it comes to modelling and validating RDF graphs. An interesting study assesses the effectivenes of ShEx when describing and validating FHIR (Fast Healthcare Interoperability Resources) RDF data; pointing out the benefits of using ShEx RDF validator.

Modeling and validating HL7 FHIR profiles using semantic web Shape Expressions (ShEx): https://www.sciencedirect.com/science/article/pii/S1532046417300345

Using Shape Expressions (ShEx) to Share RDF Data Models and to Guide Curation with Rigorous Validation: https://link.springer.com/chapter/10.1007/978-3-030-21348-0_39

* **A32 - To what extent are there assessments of the specification's efficiency?**

EIF Recommendation 19: Evaluate the effectiveness and efficiency of different interoperability solutions and technological options considering user needs, proportionality, and balance between costs and benefits.

Related to the good use of time and resources not wasted unnecessarily by a specification being used. There are indirect methods to determine that the specification is efficient, for instance, a solution delivering a service with an efficient performance that uses the specification.

Efficiency: times and means needed to achieve the results using the specification.

- ○ Not Answered
- ○ Not Applicable
- ○ There are no such assessments.
- ○ There are such assessments that indirectly address the specification.
- ○ There are assessments evaluating digital solutions' efficiency that involve the specification.
- ○ There are such assessments addressing the specification and its efficiency together with other specifications.
- ◉ There are such assessments directly addressing the specification.

* Justification

There are several studies assessing ShEx efficiency when it comes to modelling and validating RDF graphs. For example, there has been found an interesting study assessing the efficiency of ShEx when it comes to create subsets of knowledge graphs.

Creating Knowledge Graphs Subsets using Shape Expressions: https://arxiv.org/abs/2110.11709

Using Shape Expressions (ShEx) to Share RDF Data Models and to Guide Curation with Rigorous

Validation:
https://link.springer.com/chapter/10.1007/978-3-030-21348-0_39

EIF INTEROPERABILITY LAYERS

This category is aligned with the related interoperability models described in the EIF and apply to all the public services. It includes six layers: interoperability governance, integrated public service governance, legal interoperability, organisational interoperability, semantic interoperability, and technical interoperability covered by criteria A2 to A10 under the Openness category.

Interoperability Governance

* **A33 - Is the (or could it be) specification mapped to the European Interoperability Architecture (EIRA)?**

EIF Recommendation 20: Ensure holistic governance of interoperability activities across administrative levels and sectors.

The EIRA defines the required capabilities for promoting interoperability as a set of Architecture Building Blocks (ABBs). The association of specification to these ABBs means the capacity to enable Legal, Organisational, Semantic, or Technical aspects needed for the development of interoperable public services. This association can be taken from ELIS the EIRA Library of Interoperability Specifications (ELIS) but also can be established ad-hoc.

- ( ) Not Answered
- ( ) Not Applicable
- ( ) NO
- (•) YES

* Justification

ShEx can be mapped into the EIRA Library of Interoperability Specifications (ELIS) Technical Application view, as part of the Data Quality Component, Data Quality Service, and Machine to Machine ABBs, and in the Semantic View, as part of the Semantic Interoperability Agreement ABB.

ELIS referenece:
https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/solution/elis/release/v500

* **A34 - To what extent can the conformance of the specification's implementations be assessed?**

EIF Recommendation 21: Put in place processes to select relevant standards and specifications, evaluate them, monitor their implementation, check compliance and test their interoperability.

Relates to the implementation of the specification being conformant with the requirements established in the text of the specification. There are different methods to ensure the conformance of an implementation: check manually if the implementation meets the requirements in the specification text (if any), use additional methods or resources provided to this purpose or use specific tools provided by the SDO developing the specification.

- ( ) Not Answered

- ○ Not Applicable
- ○ The specification does not include a definition of conformance.
- ○ The specification defines conformance but not as a set of measurable requirements.
- ○ The specification defines conformance as requirements that can be measured manually.
- ○ The specification defines conformance as requirements with resources to enable automated measurement.
- ◉ The specification is complemented by a conformance testing platform to allow testing of implementations.

* Justification

ShEx is itself a tool to assess the conformity of RDF data graphs against correspondent schemas. Moreover, W3C provides the ShEx Simple Online Validator, an online tool that allows performing RDF data validation using Shape Expressions.

ShEx Simple Online Validator:
https://rawgit.com/shexSpec/shex.js/master/packages/shex-webapp/doc/shex-simple.html

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

*** A35 - Is the specification recommended by a European Member State?**

EIF Recommendation 23: Consult relevant catalogues of standards, specifications, and guidelines at the national and EU level, in accordance with your NIF and relevant DIFs, when procuring and developing ICT solutions.

Recommended specifications are these specifications that the Member States provide as examples for the implementation of certain digital public services or for being used when procuring these digital public services or solutions.

- ○ Not Answered
- ○ Not Applicable
- ◉ NO
- ○ YES

* Justification

At the time of the assessment, ShEx is not recommended by any European Member State.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

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

* **A36 - Is the specification selected for its use in a European Cross-border project/initiative?**

EIF Recommendation 23: Consult relevant catalogues of standards, specifications, and guidelines at national and EU level, in accordance with your NIF and relevant DIFs, when procuring and developing ICT solutions.

The European Commission set up a process for the identification and assessment of specifications for its use in the development of IT solutions and also when procuring them. Find here the commission implementing decisions that include the specifications identified by the European Commission: https://ec.europa.eu/growth/single-market/european-standards/ict-standardisation/ict-technical-specifications_en

Additionally, there could be other situations where a specification can be selected for European projects or initiatives out of the scope of the above-mentioned context. These specifications can be considered positively in this assessment.

- ( ) Not Answered
- ( ) Not Applicable
- ( ) NO
- (•) YES

* Justification

ShEx is used in the European Union Knowledge Graph cross-border project. This project aims to generate a graph with a query service that contains structured information about the European Union, in particular information about European Institutions, capitals of European countries, beneficiaries of European projects amongst other information domains.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

EU knowledge Graph:
https://linkedopendata.eu/wiki/The_EU_Knowledge_Graph

* **A37 - Is the specification included in an open repository/catalogue of standards at national level?**

EIF Recommendation 23: Consult relevant catalogues of standards, specifications, and guidelines at the national and EU level, in accordance with your NIF and relevant DIFs, when procuring and developing ICT solutions.

EIF Recommendation 6: Reuse and share solutions, and cooperate in the development of joint solutions when implementing European public services.

- ( ) Not Answered
- ( ) Not Applicable

- (●) NO
- ( ) YES

* Justification

ShEx is not included in any open repository/catalogue of standards at national level.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

* **A38 - Is the specification included in an open repository/catalogue of standards at European level?**

EIF Recommendation 23: Consult relevant catalogues of standards, specifications, and guidelines at the national and EU level, in accordance with your NIF and relevant DIFs, when procuring and developing ICT solutions.

EIF Recommendation 6: Reuse and share solutions, and cooperate in the development of joint solutions when implementing European public services.

- ( ) Not Answered
- ( ) Not Applicable
- (●) NO
- ( ) YES

* Justification

ShEx has not been found to be included in any open repository or catalogue of standards at European level.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

Legal Interoperability

* **A39 - Is the specification a European Standard?**

EIF Recommendation 27: Ensure that legislation is screened by means of 'interoperability checks', to identify any barriers to interoperability. When drafting legislation to establish a European public service, seek to make it consistent with relevant legislation, perform a 'digital check', and consider data protection requirements.

European Standards are those standards developed by certain organisations dedicated to this purpose. CEN, CENELEC, and ETSI are the principal organisations and all of them are developing their standards under the basis of meeting the requirements established within the European Standardisation Regulation. CEN-CENELEC homepage: https://www.cencenelec.eu/

- ( ) Not Answered
- ( ) Not Applicable
- (•) NO
- ( ) YES

* Justification

ShEx is not a European standard, and nor is yet a W3C standard (the SDO developing the specification).

ICT technical specifications:
https://ec.europa.eu/growth/single-market/european-standards/ict-standardisation/ict-technical-specifications_en

EUOS repository of standards:
https://www.standict.eu/standards-repository

CENELEC and CEN search tool catalogue:
https://standards.cencenelec.eu/dyn/www/f?p=CEN:105::RESET::::

CENELEC and CEN search tool catalogue:
https://standards.cencenelec.eu/dyn/www/f?p=CEN:105::RESET::::

CENELEC and CEN website:
https://www.cencenelec.eu/

Organisational Interoperability

* **A40 - Does the specification facilitate the modelling of business processes?**

EIF Recommendation 28: Document your business processes using commonly accepted modelling techniques and agree on how these processes should be aligned to deliver a European public service.

- ( ) Not Answered
- ( ) Not Applicable
- ( ) NO
- (•) YES

* Justification

ShEx can be used in model development, both for creating new models as well as for revising existing ones. ShEx is helpful for legacy review, where punch lists can be created for existing data issues that need to be fixed. ShEx is useful as documentation of models because it has a terse, human-readable representation that helps contributors and maintainers quickly grasp the model and its semantics.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

* **A41 - To what extent does the specification facilitate organisational interoperability agreements?**

EIF Recommendation 29: Clarify and formalise your organisational relationships for establishing and operating European public services.

Relates to specifications' capacities to help and ease the creation and formalisation of Interoperability agreements. E.g. Memorandums of Understanding (MoUs), Services Level Agreements (SLAs).

- ○ Not Answered
- ○ Not Applicable
- ○ The specification's definition hinders the drafting of such agreements.
- ○ The specification makes no provisions that would facilitate the drafting of such agreements.
- ◉ The specification defines certain elements to facilitate such agreements.
- ○ The specification defines most elements to facilitate such agreements.
- ○ The specification explicitly identifies all elements to be used in drafting such agreements.

* Justification

ShEx is being used in the Hercules ASIO project, which has developed a lite version of ShEx. The lite version helps to facilitate such organisational interoperability agreements, insofar the project outcome enhances interoperabiltiy bteween university knowledge technologies.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
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ShEx Github:
https://github.com/shexSpec/spec/issues

Semantic Interoperability

* **A42 - Does the specification encourage the creation of communities along with the sharing of their data and results on national platforms?**

EIF Recommendation 32: Support the establishment of sector-specific and cross-sectoral communities that aim to create open information specifications and encourage relevant communities to share their results on national and European platforms.

Relates to specifications that are narrowly related to the data/information being exchanged, its format, and structure. It would allow a common method/mechanism to improve its reuse and exchange removing possible limitations. An example of it could be RDF, which is used to describe information and its metadata using specific syntax and serialisation.

- ○ Not Answered
- ○ Not Applicable
- ○ NO
- ◉ YES

* Justification

ShEx specification and schemas is publicly available for implementation and use on Github. The Github repository hosts a community of developers involved with ShEx, where they can share information, raise issues and propose solutions for the ShEx development.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

* **A43 - Does the specification encourage the creation of communities along with the sharing of their data and results on European platforms?**

EIF Recommendation 32: Support the establishment of sector-specific and cross-sectoral communities that aim to create open information specifications and encourage relevant communities to share their results on national and European platforms.

Relates to specifications that are narrowly related to the data/information being exchanged, its format, and structure. It would allow a common method/mechanism to improve its reuse and exchange removing possible limitations. An example of it could be RDF, which is used to describe information and its metadata using specific syntax and serialisation.

- ○ Not Answered
- ○ Not Applicable
- ◉ NO
- ○ YES

* Justification

At the time of the assessment, there has not been found any European platform hosting a community tasked around the ShEx specification.

ShEx primer document:
https://shexspec.github.io/primer/

ShEx Community Group:
https://www.w3.org/community/shex/

ShEx Github:
https://github.com/shexSpec/spec/issues

Useful links

CAMSS Joinup Page (https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss)

CAMSS Library of Assessments (https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/camss-assessments-library)

CAMSS Assessment EIF Scenario - User Guide (https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/solution/camss-assessment-eif-scenario/camss-assessment-eif-scenario-quick-user-guide)

Contact

Contact Form

CAMSS Assessment EIF Scenario v5.1.0 - Results

CAMSS Assessment Result

Thank you for your contribution.

The score of the specification related to the scenario under which it is being evaluated depends on the scores achieved in each section of the survey. Please see the example below for guidance.

The following table shows the 'compliance levels' that a specification can reach depending on the assessment score.

EIF Scenario Compliance Level Conversion Table

Section	Ad-hoc	Opportunistic	Compliance Level Essential	Sustainable	Seamless
Principles setting the context for EU Actions on Interoperability	20	40	50	80	90
EIF Core Interoperability Principles	0 to 440	441 to 880	881 to 1320	1321 to 1760	1761 to 2200
EIF Principles Related to generic user needs and expectations	0 to 100	101 to 200	201 to 300	301 to 400	401 to 500

EIF Foundation principles for cooperation among public administrations	0 to 100	101 to 200	201 to 300	301 to 400	401 to 500
EIF Interoperability Layers	0 to 220	221 to 440	441 to 660	661 to 880	881 to 1100

The table below expresses the range of the score per section. When used in combination with the table above, the total score can be interpreted. See the example below for guidance.

Section Compliance Conversion Table

Compliance Level	Description
Ad-hoc	Poor level of conformance with the EIF - The specification does not cover the requirements and recommendations set out by the EIF in this area.
Opportunistic	Fair level of conformance with the EIF - The specification barely covers the requirements and recommendations set out by the European Interoperability Framework in this area.
Essential	Essential level of conformance with the EIF - The specification covers the basic aspects set out in the requirement and recommendations from the European Interoperability Framework.
Sustainable	Good level of conformance with the EIF scenario - The specification covers all the requirements and recommendations set out by the European Interoperability Framework in this area.
Seamless	Leading practice of conformance level with the EIF - The specification fully covers the requirements and recommendations set out by the European Interoperability Framework in this area.

Example – How to find the final Compliance Level

Using the score reached after the initial assessment, the interpretation can be made as follows.

1. In the summary table, observe the score for each section, e.g. EIF Core Interoperability Principles has 2200 points.

2. In the middle table – the Section Compliance Conversion Table – see that this number correlates to a column. In our example, the 2200 points of Core Interoperability Principles fall in the EIF Core Interoperability Principles row, and ‘1761 to 2200’ point range, placing it in the column 'Compliance **Seamless**'.

3. Next, in the top table – the EIF Scenario Compliance Level Conversion Table – we see Compliance Level "**Seamless**", and from its description that the specification for the EIF Core Interoperability Principles 'fully covers the requirements and recommendations set out by the European Interoperability Framework in this area.'.

For additional calculation of the assessment strength, please follow the instruction provided in the User Guide, found here.

Summary

Your Score 3740

Maximum Score 4400

Section	Score for this Section	
EIF PRINCIPLES SETTING THE CONTEXT FOR EU ACTIONS ON INTEROPERABILITY	20/100	
EIF CORE INTEROPERABILITY PRINCIPLES	2140 /2200	
EIF PRINCIPLES RELATED TO GENERIC USER NEEDS AND EXPECTATIONS	420 /500	
EIF FOUNDATION PRINCIPLES FOR COOPERATION AMONG PUBLIC ADMINISTRATIONS	500 /500	
EIF INTEROPERABILITY LAYERS	660 /1100	

Scores by Question

EIF PRINCIPLES SETTING THE CONTEXT FOR EU ACTIONS ON INTEROPERABILITY

Score for this Section: 20/100

A1 - To what extent has the specification been included in a national catalogue from a Member State whose National Interoperability Framework has a high performance on interoperability according to National Interoperability Framework Observatory factsheets?

Your answer	✖ The specification has not been included within the catalogue of any Member State.	20 out of 100 points	

EIF CORE INTEROPERABILITY PRINCIPLES

Score for this Section: 2140/2200

A2 - Does the specification facilitate the publication of open data?

Your answer	✔ YES	100 out of 100 points	

A2(a) - To what extent does the specification facilitate the publication of public data as open data?

Your answer	✔ In addition to the requirements stated in the previous answer, the specification supports published data as Linked Data.	100 out of 100 points	

A3 - To what extent do stakeholders have the opportunity to contribute to the development of the specification?

Your answer	✔ The working group is open to all without specific fees, registration, or other conditions.	100 out of 100 points	

A4 - To what extent is a public review part of the release lifecycle?

Your answer	✔ All major and minor releases foresee a public review during which collected feedback is publicly visible.	100 out of 100 points	

A5 - Is the specification available with any restrictions related to Fair, Reasonable, and Non-Discriminatory ((F)RAND)?

Your answer	✔ YES	100 out of 100 points

A6 - Is the specification licensed on a royalty-free basis?

Your answer	✔ YES	100 out of 100 points

A7 - To what extent is the specification sufficiently mature for its use in the development of digital solutions/services?

Your answer	✔ The specification, in addition to having major releases available, has published documentation on its supporting processes (e.g. change management and release management).	100 out of 100 points

A8 - To what extent has the specification sufficient market acceptance for its use in the development of digital solutions/services?

Your answer	✔ The specification has known implementations but not enough to indicate market acceptance.	40 out of 100 points

A9 - To what extent has the specification support from at least one community?

Your answer	✔ There is a community tasked to provide public support linked to the specification and manage its maintenance.	100 out of 100 points

A10 - To what extent does the specification enable the visibility of administrative procedures, rules data, and services?

Your answer	✔ Not Applicable	100 out of 100 points

A11 - To what extent does the specification scope comprehensibly administrative procedures, rules data, and services?

Your answer	✔ The specification actively promotes and supports comprehensibility.	100 out of 100 points	

A12 - To what extent does the specification enable the exposure of interfaces to access the public administration's services?

Your answer	✔ The specification enables exposure of such interfaces.	100 out of 100 points	

A13 - To what extent does the specification ensure the protection of personal data managed by Public Administrations?

Your answer	✔ Not Applicable	100 out of 100 points	

A14 - To what extent is the specification usable beyond the business-specific domain, allowing its usage across business domains?

Your answer	✔ The specification is domain-agnostic, designed to be used in any domain.	100 out of 100 points	

A15 - To what extent is the specification usable beyond the business-specific domain, allowing its implementation across business domains?

Your answer	✔ The specification is domain-agnostic, designed to be implemented in any domain.	100 out of 100 points	

A16 - Is the specification technology agnostic?

Your answer	✔ YES	100 out of 100 points	

A17 - Is the specification platform agnostic?

Your answer	✔ YES	100 out of 100 points	

A18 - To what extent does the specification allow for partial implementations?

Your answer	✔ The specification explicitly foresees sets of requirements that can be implemented incrementally or separately.	100 out of 100 points

A19 - Does the specification allow customisation?

Your answer	✔ YES	100 out of 100 points

A20 - Does the specification allow extension?

Your answer	✔ YES	100 out of 100 points

A21 - To what extent does the specification enable data portability between systems/applications supporting the implementation of European public services?

Your answer	✔ The specification explicitly addresses and enables data portability.	100 out of 100 points

A22 - To what extent does the specification enable data portability between systems/applications supporting the evolution of European public services?

Your answer	✔ The specification explicitly addresses and enables data portability.	100 out of 100 points

EIF PRINCIPLES RELATED TO GENERIC USER NEEDS AND EXPECTATIONS

Score for this Section: 420/500

A23 - To what extent does the specification allow relevant information to be reused when needed?

Your answer	✔ Provided information is reused, but this is not consistently done.	60 out of 100 points

A24 - To what extent does the specification enable the e-accessibility?

Your answer	✔ Not Applicable	100 out of 100 points

A25 - To what extent does the specification enable the secure exchange of data?

Your answer	✔ The specification addresses data security and trustworthy data exchange but specific provisions to enable them are limited.	80 out of 100 points

A26 - To what extent does the specification enable the secure processing of data?

Your answer	✔ The specification addresses data security and trustworthy data processing but specific provisions to enable them are limited.	80 out of 100 points

A27 - To what extent could the specification be used in a multilingual context?

Your answer	✔ Not Applicable	100 out of 100 points

EIF FOUNDATION PRINCIPLES FOR COOPERATION AMONG PUBLIC ADMINISTRATIONS

Score for this Section: 500/500

A28 - Does the specification simplify the delivery of European public services?

Your answer	✔ YES	100 out of 100 points

A29 - Does the specification enable digital service delivery channels?

Your answer	✔ YES	100 out of 100 points

A30 - To what extent does the specification enable the long-term preservation of data/information /knowledge (electronic records included)?

Your answer	✔ Not Applicable	100 out of 100 points

A31 - To what extent are there assessments of the specification's effectiveness?

Your answer	✔ There are such assessments directly addressing the specification.	100 out of 100 points

A32 - To what extent are there assessments of the specification's efficiency?

Your answer	✔ There are such assessments directly addressing the specification.	100 out of 100 points

EIF INTEROPERABILITY LAYERS

Score for this Section: 660/1100

A33 - Is the (or could it be) specification mapped to the European Interoperability Architecture (EIRA)?

Your answer	✔ YES	100 out of 100 points

A34 - To what extent can the conformance of the specification's implementations be assessed?

Your answer	✔ The specification is complemented by a conformance testing platform to allow testing of implementations.	100 out of 100 points

A35 - Is the specification recommended by a European Member State?

Your answer	✖ NO	20 out of 100 points

A36 - Is the specification selected for its use in a European Cross-border project/initiative?

Your answer	✔ YES	100 out of 100 points

A37 - Is the specification included in an open repository/catalogue of standards at national level?

Your answer ✖ NO

20 out of 100 points

A38 - Is the specification included in an open repository/catalogue of standards at European level?

Your answer ✖ NO

20 out of 100 points

A39 - Is the specification a European Standard?

Your answer ✖ NO

20 out of 100 points

A40 - Does the specification facilitate the modelling of business processes?

Your answer ✔ YES

100 out of 100 points

A41 - To what extent does the specification facilitate organisational interoperability agreements?

Your answer ✔ The specification defines certain elements to facilitate such agreements.

60 out of 100 points

A42 - Does the specification encourage the creation of communities along with the sharing of their data and results on national platforms?

Your answer ✔ YES

100 out of 100 points

A43 - Does the specification encourage the creation of communities along with the sharing of their data and results on European platforms?

Your answer ✖ NO

20 out of 100 points

Contact	Contact Form
	CAMSS Joinup Page
Useful links	CAMSS Library of Assessments
	CAMSS Assessment EIF Scenario - User Guide
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