

Appendix A - Standards Assessment - template

The "Standards Assessment" template is a shell created to guide the discovery work of a project team that is involved in performing a Standards Assessment activity. The template is aligned with the content represented in the Guidance sections of the Standards Selection process and it is meant to collect the necessary information to inform and reach an agreement on the appropriate standards choice for the project. This document will likely represent an internal project artifact - not publicly shared. The public part will build on the learnings of this report and is built using the template contained in Appendix B.



Download a copy of the template for internal project work and use it to collect relevant information.

Standards Assessment and Selection Template

Project	
Name:	No.
Assessment Prepared By:	
Name:	Title:
Organization:	

email:	Phone:
--------	--------

About this document

This template, along with the accompanying Standards Assessment and Selection Guide, is intended for use in the conceptual design or planning phase of a project which aims to design or deploy a digital health solution with data sharing or workflow integration requirements. Together, the Guide and Template provide a project team with:

- ☐ A process and line of inquiry to work from when identifying, assessing and selecting available interoperability specifications or standards to address project requirements; and
- ☐ A document template to use to capture and communicate the rationale for a selection decision including information about the decision making process and stakeholders who contributed to the decision.

The selection process is often iterative. Capturing information in this template early in the process and revising with subsequent iterations is an effective way to capture information about the path that led to

D
o
c
u

me

1.1 Revision History:

Identify the nature of any significant content change with rationale.

File name (and Version)	Date	Change and Rationale	Primary Author

1.2 Key Contributor(s):

Identify project team members or stakeholders whose contributions or support is significant to the assessment, recommendation or decision.

Name	Position Title	Organization	Contact Information

1.3 Approvers:

Identify the individuals who formally reviewed and approved the content of the *current document version* on behalf of a stakeholder group, organization or business unit.

Name	Title	Organization / Business Area

Table of Contents

Document Tracking

Table of Contents

I.	Purpose
II.	Business Context
III.	Interoperability Point
IV.	Standards Assessment
V.	Recommendation
VI.	Stakeholders and Governance

1 Purpose

The purpose of this document is to provide an overview of the key inputs, analysis and considerations that led to the standards recommendation of the above referenced project. It includes:

- A description of the business context for the interoperability, need for standardization and key actors.
- An overview of the data exchange transactions or content requiring standardization.
- A list of candidate standards identified in the environment scan.
- A comparative analysis of standards short listed for review.
- Recommendations for the standard(s) to be used within the solution with rationale.
- A description of the stakeholders and process employed to review and approve the recommendation.

2 Business Context

Provide a concise business level description of the business need or scenario, interoperability points requiring standardization and key actors (both humans and systems). Documentation of business context may identify individuals or groups (system owners, users, etc) who should participate in the standards assessment and selection process.

3 Interoperability Scenario

3.1.1 Data Exchange Transactions

Use this section to explain and illustrate the data exchange transactions

Sent By	Received By	Transaction

3.1.2 Data Description

Use this section to show the scope of the data that will be exchanged, including any data which will be the focus of a terminology standards assessment.

4 Standards Assessment

Provide an overview of the environmental scan performed to identify the candidate standards.

4.1 Candidate Standards Identified

List the candidate standards identified. Use the notes field to provide a rationale for excluding a standard from evaluation and/or to provide additional context for the decision to include.

#	Name of Standard	Excluded	Rationale for Inclusion or Exclusion
1			
2			
3			
4			

4.2 Comparative Analysis

Candidate standard included for evaluation have been rated against the assessment criteria identified in Standards Selection Guide. For each criteria standards are rated on a scale of 1 – 5 where 1 is very undesirable and 5 is very desirable. Column 1-4 in the following table relates to the name of the standard given in the table 4.1.

4.2.1 Fit for Purpose Criteria

Criteria	Assessment Questions	1	2	3	4
Aligns to the Digital Health Blueprint	Has the proposed standard already been deployed in Canada to support substantially similar use cases?				
	Is the standard currently in use in Canada across a range of use cases and care settings?				
Reuses an Existing, Shared Standard	Was the proposed Interoperability Specification or Subset adopted/adapted from a widely used standard?				
	Was the proposed Interoperability Specification or Subset developed for use in Canada?				
	Is the base standard widely used in Canada?				
Supports Business Requirements	Does the proposed interoperability specification have all the messages to support the required functions for data exchange?				

	Do the messages have the appropriate fields to express the information required for the business functions?				
	Does the document standard have all the sections to express the required business information?				
	Does the terminology subset contain all of the concepts that need to be captured?				
	If bi-lingual information needs to be exchanged, does the standard allow for English and French terms to be mapped to common codes?				
	Are there user interface data collection/display requirements that should be considered when choosing the interoperability standard?				
Supports Technical Requirements	Can the standard be implemented in the proposed architecture?				
	Does the conceptual architecture make any assumptions about synchronous or asynchronous communication?				
	Does the architecture support HTTP and/or MLLP?				
	Are there any interdependencies with other aspects of the architecture that would make it difficult to implement the standard (e.g. there are no places to express SAML bindings in HTTP without SOAP, making it difficult to integrate RESTful interfaces with the existing security system and therefore difficult to implement HL7 FHIR)?				
Adoption and Vendor Support	Have vendors already implemented this standard? How many?				
	What is the expected return on the standards investment for a software vendor?				
	Do vendors have the necessary expertise to implement the standard? If not, is it realistic that they can gain or acquire that expertise in time to implement?				
	Will vendors provide support for sustained use and maintenance?				
Appropriately supports coded, structured and free text content	Does the project implementing the standard expect to support automated processing such as: data aggregation comparison within decision support or analytics applications, standardization of data used to trigger process flows (i.e. presence or absence of terms), etc.				
	Do clinicians require assistance to exchange data/information for human readability?				
	Are there other forms of non-textual data/information (i.e. audio, video, images) that need to be exchanged?				
	Are there privacy concerns with exchanging free text?				

4.2.2 Stewardship Criteria

Criteria	Assessment Questions	1	2	3	4
Costs and Benefits of Implementation	What is the cost of required tooling?				
	Will project implementation timelines be increased due to additional complexity introduced by the standard?				
	Will the standards investment help reduce the cost or risk of subsequent system implementations?				

	What is the number of people required for implementation?				
	Is there any existing commercial off the shelf software vs. custom software?				
	If properly implemented, would the standard enable downstream system or societal benefits such as improved decision support, clinical research or other data reuse?				
Governance Structure	Are defined processes in place to facilitate decision making and issue resolution related to both standards content and processes?				
	Are the different communities who are responsible for and effected by the standard represented in the governance process? Is it well balanced?				
	Are processes to add and remove members from the governance committees documented and compatible with project needs?				
Intellectual Property and Licensing	Does the standard have licensing costs that are significant enough to inhibit uptake of the standard?				
	Is it likely the standard licensing costs will increase over time?				
	If a standard is currently free, are there other hidden conditions?				
	Do existing implementations provide network benefits which justify costs?				
	Does use of the standard offset other costs (such as maintenance)?				
Maintenance Process	Are there defined processes in place to effectively manage changes to the standard?				
	Are there processes in place to manage and resolve stakeholder conflicts related to change processes?				
	Are the change processes responsive to stakeholder needs and feedback?				
	Is the frequency of updates sufficiently short to accommodate the addition of new codes and repairs quickly?				
	Is the versioning process clearly defined, documented and compatible with business requirements?				
	Is the maintenance body responsive to requests for assistance, maintenance, etc.?				

4.2.3 Quality Criteria

Criteria	Assessment Questions	1	2	3	4
Implementation Support and Education	Does the standard's custodian provide direct support to implementers? Do others? At what cost?				
	Is it easy to obtain education and/or training on the standard and supporting tools?				
	Is the education or training offered in multiple formats (online training modules, books, in person, etc.)?				
Enables Interoperability	Is the standard backwards compatible? (E.g. can implementers of previous versions keep their applications in tact in order to be compatible with a newer version?)				

	Does the standard have the ability to map to other terminology and classification standards?				
Implementation and Maintenance Tools	Are there any existing code libraries and examples available to support implementers or would it be necessary to write all base level code from scratch?				
	Are there standard design tools to help implementers extend or constrain the standard? Are the standard design tools stable and usable?				
	Do the tools run on different operating systems?				
	Are there tools that help implementers easily recognize differences between versions of the standard and/or localizations?				
	Are there any application program interfaces or development sandboxes for implementers?				
Conformance Testing Methodologies and Tools	Are there conformance testing tools that first time implementers can easily access?				
	Can implementers re-use their conformance testing environments and processes?				
	Is there a vendor certification process in place?				
Stability	Has the standard been implemented and tested previously?				
	Has the standard already been implemented by the project's implementers?				
	Is the standard stable or is it in a draft status and subject to change?				
Adaptability	Is the standard highly flexible with lots of optionality and minimal cardinality constraints?				
	Is the standard very strict with little to no optionality and strict cardinality constraints?				
	Does the standard custodian have defined processes and tools for registering local extensions?				

4.2.4 Standard Specific Evaluation Criteria

Criteria	Assessment Questions	1	2	3	4
Concept Orientation	Is each coded term within the standard conceptually unique?				
Unambiguous concept meanings	Are the descriptions or labels used to distinguish coded terms specific enough to consistently infer the intended underlying concept or could they be interpreted in different ways within the intended scope of use? (These labels are often referred to as fully specified names.)				
Concept permanence	Does the standard maintenance processes ensure that the meaning of a coded term or concept doesn't change over time?				
	Are retired codes ever deleted or reused?				
Meaningless identifiers	Can the meaning of a coded term or concept be inferred (partially or fully) when looking only at the code?				
	Is there any representation of hierarchy in the codes?				

Explicit version identifiers	Does the standard's versioning mechanism provide a way to readily check for the presence of a term or concept within a version as well as its status? Is there a straightforward way to see what has changed between two versions?				
Multi-Hierarchical	Are terms organized in flat lists, a strict hierarchy (taxonomy) or in a structure which allows multiple definitional relationships?				
Consistent Model of Meaning (Ontology)	Are the meanings of coded terms and concepts explicitly expressed in a model that can be cross referenced with descriptive terms?				
	Is the model consistent throughout the standard and machine readable?				
	Is the model extendable through a localization mechanism?				
	Is the model extendable at the time of use?				
Use of Synonyms	Can multiple different descriptions be related to a single coded term or concept?				
	Is there a notion of preferred terms vs synonyms? Can the designation of a term as preferred vs synonym vary based on the context of use?				

4.2.5 Messaging Standards

Criteria	Assessment Questions	1	2	3	4
Implementation Completeness	Do schemas and implementation guides exist?				
	Does the localization/implementation documentation have all the standards artefacts (e.g. well written implementation guide, terminology specification, XML schemas and message instances, Visio diagrams, Model Interchange Format (MIF) 1 and 2 files, etc.)?				
	Are there existing code libraries and off the shelf products to support the use of artefacts?				
	Is custom code required?				
Flexibility	Does the standard support different message formats?				
	Does the standard work well in terms of plug and play, or is it tied to some other part of architecture?				
	Can any security scheme be layered or is the security format and policy dictated?				
	Can any terminology standard be used with the standard or is it limited to one specific standard?				

5 Recommendation

Identify the recommended standards. Qualify the recommendation by identifying the factors that significantly influenced the scoring and/or recommendation including stakeholder input.

6 Stakeholders and Governance

Describe the process used to identify and engage stakeholders in the standards assessment and selection process.