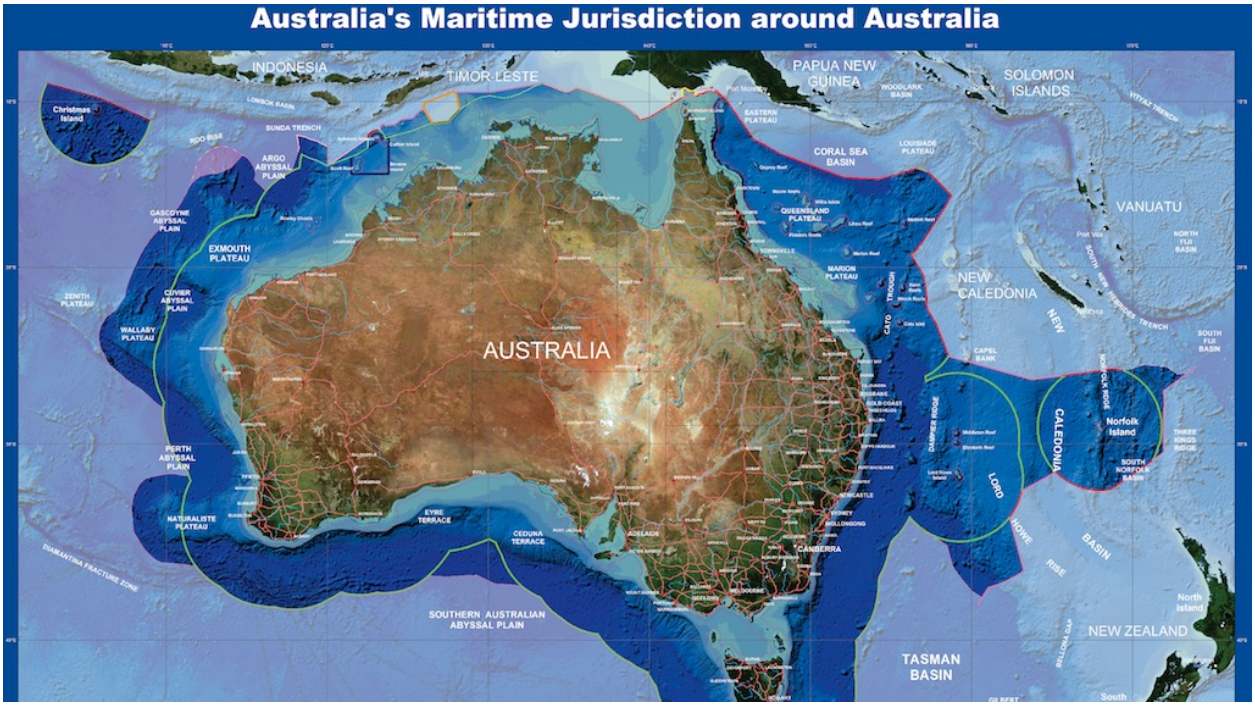


OGC Maritime Limits and Boundaries Pilot

Call for Participation (CFP)

2019-03-14 - version 1.2

Table of Contents

1. Introduction . . . **5**
1.1. Background . . . 6
1.1.1. Purpose of Maritime Limits and Boundaries . . . 6
1.1.2. Legal References . . . 7
1.1.3. Government Needs . . . 9
1.2. OGC Innovation Program Initiative . . . 9
1.3. Benefits of Participation . . . 9
2. Initiative Organization and Execution . . . **10**
2.1. Initiative Policies and Procedures . . . 10
2.2. Initiative Roles . . . 10
2.3. Types of Deliverables . . . 10
2.3.1. Documents . . . 10
2.3.2. Implementations . . . 11
2.4. Proposals & Proposal Evaluation . . . 11
2.4.1. Evaluation Process . . . 11
2.4.2. Management Criteria . . . 12
2.4.3. Technical Criteria . . . 12
2.4.4. Cost Criteria . . . 12
2.5. Reporting . . . 12
2.6. Master Schedule . . . 13
2.7. Miscellaneous . . . 13
3. Deliverables . . . **15**
Appendix A: Proposal Submission Guidelines . . . **16**
A.1. General Requirements . . . 16
A.2. What to Submit . . . 17
A.3. How to Transmit the Response . . . 18
A.4. Questions and Clarifications . . . 18
Appendix B: Technical Architecture . . . **19**
B.1. Baseline Architecture . . . 19
B.1.1. OGC Reference Model . . . 19
B.1.2. OGC Standards Baseline . . . 20
B.1.3. OGC Best Practices and Discussion Papers . . . 21
B.2. Requirements . . . 21
B.3. Pilot Architecture and Deliverables . . . 22
B.3.1. D1:Client SDI . . . 25
B.3.2. D2:GIS Application . . . 25
B.3.3. D3:S-121 GML Application Schema . . . 25
B.3.4. D4:WMS/WFS MLB . . . 26
B.3.5. D5:Validator Script . . . 26
B.3.6. D8:Metadata . . . 26
B.3.7. D9:Catalog SDI . . . 26
B.3.8. D11:Script and XSLT GML to Human Readable . . . 27

B.3.9. D12:S-121 GML Application Schema Extension . . . 27
B.3.10. D15: Engineering Report . . . 27
B.4. Summary Deliverables . . . 27
B.5. Data . . . 28
Appendix C: Tips for new bidders . . . 29

Corrigenda

The following table identifies all corrections that have been applied to this CFP compared to the original release. Minor editorial changes (spelling, grammar, etc.) are not included.

Date	Section	Description
2019-03-13	B.3	Added complete reference to all requirements.
2019-03-13	Corrigenda	Added changes based on 2019-03-12 Webinar.
2019-03-13	B.5 Data	Added links to concrete examples.

Clarifications

The following table identifies all clarifications that have been provided in response to questions received from organizations interested in this CFP.

Date	Question	Clarification
2018-03-12	The over-arching objective of the project team is to make the requirement less State oriented and be kept generic enough so the outcome can be to the benefit of all later on.	Yes. This is correct. Even though the CFP seems to be focussed on Canadian requirements, the needs are similar to all states. The pilot mentions some data that must be used, but during the execution other data can be added as well from other states.
2018-03-12	Several requirements do not seem to be linked to any Deliverable (i.e. GovCan-R1, GovCan-R2, GovCan-R3-b, GovCan-R5a, GovCan-R6, GovCan-R7)?	The deliverables have been linked to all related requirements (see 2019-03-13 - version 1.2)
2018-03-12	D5 Validator task is included in both phase 1 & 2 in different parts of the CFP. Which phase is it actually in?	The D5 Validator task is part of Phase 1.
2018-03-12	If we want to put proposals in for multiple deliverables do we submit as a single doc or separately?	A single document, per participant, can capture proposals for one or multiple deliverables.
2018-03-12	Could you please clarify/explain the Deliverables with Components table on page 13?	The Summary-Deliverables table provides the phase (one or two) and the number of components expected to be funded in the initiative.
2018-03-12	Are there any source datasets that we can look at before we submit our response?	Examples of data are provided in section B5. Example shapefiles (polygons and lines) of the Canada's Atlantic ECS, as available from the UNEP website, can be downloaded from the OGC portal.

Date	Question	Clarification
2018-03-12	Can you walk through an example of cost-sharing vs in-kind contributions?	In-kind contributions are contributions that do not require funding. Cost-sharing contributions are contributions that require funding. The initiatives calls for cost-share funds implying that participants will also collaborate "sharing" the costs of implementing the deliverables. For example, if one deliverable is estimated in $10,000 by a proponent, the proponent can ask for partial funding (e.g. 50%, which will be equivalent to $5,000).
2018-03-12	S-121 is an IHO standard. Should we be referring to IHO S-100 as much as possible in order to ensure interoperability.	
2018-03-12	Are there any specific licensing requirements for the GIS applications?	There are no licensing requirements. See more on Implementations Section.
2018-03-12	Which events are required for attendance in person?	The kickoff Event will be on May 14-15 in Ottawa, Canada.
2018-03-12	What do you think are some of the biggest challenges associated with developing a GML implementation for this particular schema?	This is one of the empirical questions to be examined as part of the initiative.
2018-03-12	What are the most complex geometry types required?	This is one of the empirical questions to be examined as part of the initiative.
2018-03-12	Is S-121 an extension of the S-100 app schema? maybe s102?	IHO S-121 is an extension of IHO S-100. S-121 is a conceptual model. The application schema will be generated as part of the project. Feature catalogue schemas are available for IHO S-100 at IHO S-100 WG Github repository. A S-121 Feature catalogue is being completed by members of the International hydrographic Organisation's S-121 Project Team and will be made available to the OGC pilot project. Once this component is available, production of a GML Application Schema by the participants will be facilitated.
2018-03-12	Do you have some example S-100 gml datasets?	Examples can be found in the ISO S-100 WG meeting of September 2017

Date	Question	Clarification
2018-03-14	With regards to the “What to Submit”, “Cost Proposal” do we have to follow this template or can it be modified (i.e. Travel costs be allocated to Cost-Sharing Funds Request Form, rather than In-kind)?	The submission requires to follow the cost proposal template. The cost proposal template provides 2 sheets: 1) cost sharing used to detail the funding requested (for labor only), and 2) in-kind contributions, used to detail the contributions (shared costs) provided by the participant. The in-kind contributions include deliverables that do not require funding and other non-labor categories (e.g, Travel, software and hardware).
2018-03-14	Will attendance to the Demonstrations in March 2020 be mandatory for all Limits and Boundaries Pilot participants? Will it take place within Canada (similar to the Kickoff Phase 1)?	Attendance to the demonstration is not mandatory. It it will probably take place in Ottawa, Canada.

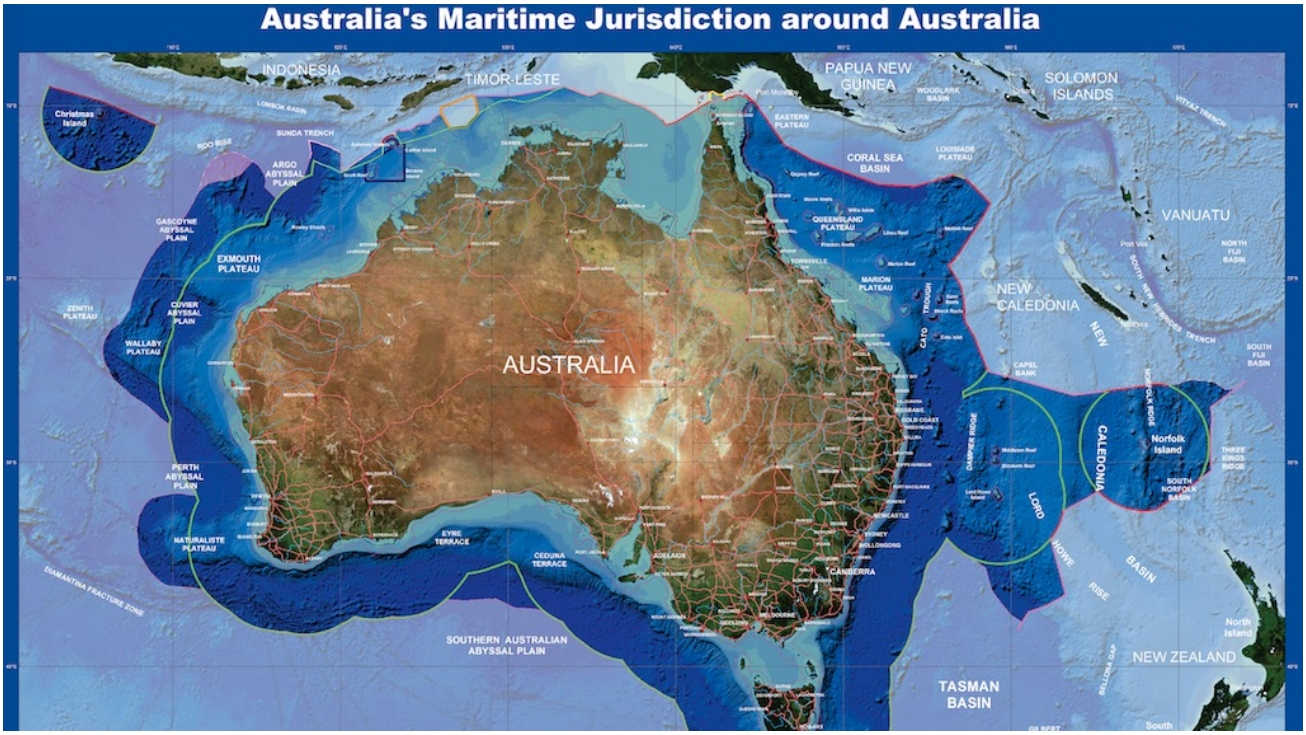
Abbreviations

The following table lists all abbreviations used in this CFP.

CFP	Call for Participation
CR	Change Request
DER	Draft Engineering Report
DWG	Domain Working Group
ER	Engineering Report
GPKG	GeoPackage
IP	Innovation Program
OGC	Open Geospatial Consortium
ORM	OGC Reference Model
OWS	OGC Web Services
PA	Participation Agreement
POC	Point of Contact
Q&A	Questions and Answers
RM-ODP	Reference Model for Open Distributed Processing
SOW	Statement of Work
SWG	Standards Working Group
TBD	To Be Determined
TC	OGC Technical Committee
TEM	Technical Evaluation Meeting
TIE	Technology Integration / Technical Interoperability Experiment
URL	Uniform Resource Locator
WFS	Web Feature Service
WPS	Web Processing Service
WG	Working Group (SWG or DWG)

Chapter 1. Introduction

The Open Geospatial Consortium (OGC®) is releasing this ***Call for Participation*** ("CFP") to solicit proposals for the **Maritime Limit and Boundary Pilot** Initiative ("Initiative"). The goal is to advance the implementation of the data model, architecture, and prototypes for use with the creation, management, integration, dissemination and onward use of official data for maritime baselines, limits, zones and boundaries.



This OGC Pilot will further advance an implementation model, architecture, and prototypes for sharing Maritime Limits and Boundaries (MLBs) while adhering to the requirements of the United Nations Convention of the Law of the Sea (UNCLOS).

Our planet's oceans are subdivided by international and national laws into many areas and zones. Specific rights, restrictions and responsibilities apply within each of these areas and zones aimed at facilitating the development of the world's ocean resources while providing for the protection of the marine environment and safety of navigation.

States that adhere to UNCLOS are required to communicate officially the representation of their maritime limits and boundaries. To support the dissemination of this information, the International Hydrographic Organisation (IHO) developed the S-121 Maritime Limits and Boundaries standard. The S-121 standard supports the digital data structure and exchange formats for maritime limits and boundaries.

This OGC interoperability pilot initiative, sponsored by Geoscience Australia, the Canadian Hydrographic Service, Natural Resources Canada and the United Kingdom Hydrographic Office, will help to progress the implementation of the S-121 standard. The pilot will advance the implementation of the S-121 data model and architecture, and will implement operational prototypes to support the creation, management, integration, dissemination and onward use of official data for maritime baselines, limits, zones and boundaries. Specifically, the prototypes

implemented as part of this pilot will demonstrate the ability to support:

- Country level publication, as a national obligation, of their maritime baselines, limits and boundaries
- Standards-based geospatial interoperability between supplier, user and partners, within and across governments, public and commercial users
- Facilitating strategic awareness and operational decision making in the maritime environment supporting good governance and effective and efficient operations

1.1. Background

1.1.1. Purpose of Maritime Limits and Boundaries

Our planet's oceans are subdivided by international and national laws into many areas and zones. Certainty over the locations of these zones and the rights, restrictions and responsibilities that apply to them facilitates the development of the world's ocean resources while providing for the protection of the marine environment and safety of navigation.

Maritime Limits and Boundaries (MLBs) are the constructs used to delineate maritime zones and form the legal foundation of the marine domain. These maritime zones are established in national legislation according to their geographic limits. Where such limit is delimiting two neighbouring States, this limit is described as a maritime boundary, hence the term Maritime Limits and Boundaries (MLBs). To effectively distribute MLBs for the due publicity obligations under the United Nations Convention on the Law of the Sea and for operational purposes, there needs to be a standard framework which ensures compatibility between users of the MLBs.

In January 2010, by adopting the S-100 Universal Hydrographic Data Model, the International Hydrographic Organisation (IHO) embarked on the development of a versatile standard framework aligned with the International Organization for Standardization (ISO) 19100 Geographic Information / Geomatics series of standards. The IHO S-100 supports a wide range of users by developing digital products and transfer standards for the marine community beyond the core hydrographic applications of the IHO. The standard opens the possibility of better marine administration by facilitating the integration of Hydrographic, Scientific and Legislative information.

The Maritime Limits and Boundaries standard S-121 represents an essential extension of S-100 for the administration of the marine domain. It enables MLBs to be described in terms of what they are, what they embody and what they are used for. S-121 establishes a framework for communicating in a digital form the geographic extents of marine areas and the associated rights, responsibilities and restrictions that apply to them. The framework has been developed in line with applicable provisions of the United Nations Convention of the Law of the Sea.

The primary purpose of S-121 is to allow States to communicate official digital representations of their maritime limits and boundaries to the public and international community. S-121 is established to enable users to depict, describe and communicate national maritime limit or

boundary information. The S-121 secondary purpose is to provide a flexible and expandable framework able to support other maritime delimitation requirements such as defining areas of overlapping jurisdiction and Joint Development Areas, or any other management areas.

The current vision for this standard is to leverage the capabilities of the ISO-19152 Land Administration Domain Model. ISO-19152 supports the legal description of associated rights, restriction and responsibilities along with providing proper referencing through sourcing and versioning. This additional capability aligns the standard with legal practices of trace-ability. The use of the ISO-19152 standard leverages the significant community investment made in land administration, with which the management of maritime boundaries and limits has much in common. The use of ISO-19152 provides a foundation to extend S-121 into the management of other regulated boundaries, such as marine reserves and fisheries. Alignment with the land domain model will facilitate consistent administration of the littoral zone for those states that adopt S-121 for their marine spaces and ISO-19152 for their land jurisdiction.

The S-121 standard is designed to provide a flexible management and communication solution that can support any type of MLBs for the broadest range of users including the Owner State, other States, the international community, government organizations, private industry, academic institutions, and the general public. The standard also remains compatible with S-101 (Electronic Nautical Chart Product Specification) to allow for the depiction of the MLBs information encoded by the standard to be displayed in electronic navigation charts.

The S-121 takes a practical step toward achieving the vision of S-100 as it was established to expand the user base and better accommodate the requirements of our digital world. By building on ISO-19152, the S-121 framework provides the capacity to more efficiently and consistently support administration across the land and maritime domains. It is essential that current best practices are evolved to provide a foundation for sustainable administration of the world's blue economy. Use of the S-121 standard will reduce costs of enforcement and compliance, and will support the extension of the digital economy into the offshore environment.

1.1.2. Legal References

Coastal States, under articles 16, 47, 75, 76 and 84 of the United Nations Convention on the Law of the Sea, are required to deposit with the Secretary-General of the United Nations charts showing: straight baselines, including closing lines of mouths of rivers and bays, and archipelagic baselines; the outer limits, as well as lines of delimitation between States with adjacent or opposite coasts, of the territorial sea (including roadsteads, article 12); the contiguous zone; the exclusive economic zone and the continental shelf. Alternatively, the lists of geographical coordinates of points, specifying the geodetic datum, may be substituted.

In its resolutions 49/28 of 6 December 1994 and 52/26 of 26 November 1997, the General Assembly requested the Secretary-General to establish appropriate facilities, as required by the Convention, for the deposit by States of maps, charts and geographic coordinates concerning national maritime zones and establish a system for their recording and publicity and to develop and maintain [such] facilities for the deposit by States of charts and geographical coordinates concerning maritime zones, including lines of delimitation, and to give due publicity thereto, as required by article 16, paragraph 2, article 47, paragraph 9, article 75, paragraph 2, article 76,

paragraph 9 and article 84, paragraph 2, of the Convention. The Division for Ocean Affairs and the Law of the Sea (the Division), Office of Legal Affairs of the United Nations is the unit which performs these depositary functions on behalf of the Secretary- General, as part of an integrated program on the law of the sea and ocean affairs, distinct from the usual depositary functions of the Secretary-General in respect to multilateral treaties.

Subsequently, in its resolution 59/24 of 17 November 2004, the General Assembly requested the Secretary- General to improve the existing geographic information system for the deposit by States of charts and geographical coordinates concerning maritime zones, including lines of delimitation in particular by implementing, in cooperation with relevant international organizations technical standards for the collection, storage and dissemination of the information deposited, in order to ensure compatibility among the Geographic Information System, electronic nautical charts, and other systems developed by these organizations. Recent General Assembly resolutions have noted ongoing efforts in this regard.

In addition, the General Assembly, in its annual resolutions on Oceans and the law of the sea, calls upon States Parties to the Convention to fulfill their deposit obligations. Most recently, General Assembly resolution 71/257 calls upon States Parties to the Convention that have not yet done so to deposit with the Secretary-General charts or lists of geographical coordinates, as provided for in the Convention, preferably using the generally accepted and most recent geodetic datums (para. 6).

To facilitate the implementation of the Secretary-General's depositary functions, coastal States are encouraged to deposit the following information, as a minimum:

1. Geographic coordinates of points in decimal degrees on the straight baselines and archipelagic baselines in common global geodetic datum such as WGS 84, accompanied, as appropriate, by the relevant national legislation;
2. Geographic coordinates of points in decimal degrees on the outer limits as well as lines of delimitation between States with adjacent or opposite coasts for the following maritime zones: territorial sea (including roadsteads); contiguous zone; exclusive economic zone and continental shelf, in common global geodetic datum such as WGS 84, accompanied, as appropriate, by the relevant national legislation. Ideally the points defining the outer limits should be close enough to each other to ensure that the line formed by connecting the points with geodesic lines accurately reflects the outer limit of the maritime zone(s). States Parties are also encouraged to identify in the deposit the points that are part of an international boundary. States Parties are further encouraged to accompany such deposits with the relevant national legislation and/or with references to relevant international treaties.

Accordingly, the Division approached the International Hydrographic Organization with a request to identifying appropriate technical standards. After consultations, the S-121 project team was formed by Member States of the International Hydrographic Organization.

1.1.3. Government Needs

As discussed in the previous section, the Coastal States are required to properly deposit with the United Nations their information about the maritime limits and boundaries. Some countries are building the technical capacity to support managing and disseminating maritime limits and boundaries using a more modern infrastructure. An example of the approach taken by Canada is summarized as follows.

The Government of Canada as represented by Fisheries and Oceans Canada (DFO)/Canadian Hydrographic Service (CHS) in collaboration with Natural Resource Canada/GeoConnections has a requirement to advance the Canadian Geospatial Data Infrastructure (CGDI), including the Marine Spatial Data Infrastructure (MSDI), by developing an implementation model, architecture, and prototypes for sharing Maritime Limits and Boundaries (MLBs) while adhering to the requirements of the United Nations Convention on the Law of the Sea (UNCLOS). In accordance with UNCLOS Article 76, Canada is delineating the outer limit of its Extended Continental Shelf, and this model would help Canada meet its due deposit requirements of Canadian Maritime Limits and Boundaries (MLBs) to the United Nations (UN).

Fisheries and Oceans Canada (DFO)'s Canadian Hydrographic Service (CHS) is the official custodian of the MLBs of Canada in accordance with the Oceans Act. It is responsible at a technical level for maritime territorial delineation and management of those maritime limits and boundaries under the oversight of Global Affairs Canada.

1.2. OGC Innovation Program Initiative

This Initiative is being conducted under the OGC Innovation Program. The OGC Innovation Program provides a collaborative agile process for solving geospatial challenges. Organizations (sponsors and technology implementers) come together to solve problems, produce prototypes, develop demonstrations, provide best practices, and advance the future of standards. Since 1999 more than 110 initiatives have been successfully completed. Initiatives range from in-kind interoperability experiments, run by members as part of a working group, to multi-million dollar testbeds with hundreds of participants. Innovation Program initiatives include interoperability testbeds, experiments, pilots, concept development studies, hackathons and plugfests.

1.3. Benefits of Participation

This Initiative provides a unique opportunity to influence the implementation of the S-121 data model and based on this model build an open standards based architecture as an underpinning for Marine Spatial Data Infrastructures. It provides an opportunity to have an open dialogue with maritime, geospatial and IT technology providers, policy makers and users from around the globe. The ideas will improve the understanding of the requirements and help advance functionality of software implementations.

Chapter 2. Initiative Organization and Execution

2.1. Initiative Policies and Procedures

This initiative will be conduced under the following OGC Policies and Procedures:

- This Initiative will be conducted in accordance with OGC Innovation Program Policies and Procedures.
- OGC Principles of Conduct will govern all personal and public Initiative interactions.
- Participants drafting documents for the Initiative are required to allow OGC to copyright and publish documents following the OGC Intellectual Property Rights Policy.

2.2. Initiative Roles

The roles generally played in any OGC Innovation Program initiative include Sponsors, Bidders, Participants, Observers, and the Innovation Program Team ("IP Team"). Explanations of the roles are provided in Annex: Tips for New Bidders.

The IP Team for this Initiative will include an Initiative Director and an Initiative Architect. Unless otherwise stated, the Initiative Director will serve as the primary point of contact (POC) for the OGC.

The Initiative Architect will work with Participants and Sponsors to ensure that Initiative activities and deliverables are properly assigned and accomplished. They are responsible for scope and schedule control, and will provide timely escalation to the Initiative Director regarding any severe issues or risks that happen to arise.

2.3. Types of Deliverables

All activities in this pilot will result in a Deliverable. These Deliverables can take the form of Documents or Implementations.

2.3.1. Documents

Engineering Reports (ER) and **Change Requests** (CR) will be prepared in accordance with OGC published templates. Engineering Reports will be delivered by posting on the (members-only) OGC Pending directory when complete and the document has achieved a satisfactory level of consensus among interested participants, contributors and editors. Engineering Reports are the formal mechanism used to deliver results of the Innovation Program to Sponsors and to the OGC Standards Program for consideration by way of Standards Working Groups and Domain Working Groups. NOTE: Participants delivering Engineering Reports should also deliver Change Requests that arise from the documented work.

2.3.2. Implementations

Services, Clients, Datasets and Tools will be provided by methods suitable to its type and stated requirements. For example, services and components (e.g. a Web Processing Service or WPS instance) are delivered by deployment of the service or component for use in the Initiative via an accessible URL. A Client software application or component may be used during the Initiative to exercise services and components to test and demonstrate interoperability; however, it is most often not delivered as a license for follow-on usage. Implementations of services, clients and data instances will be developed and deployed in all threads for integration and interoperability testing in support of the agreed-up thread scenario(s) and technical architecture. The services, clients, and tools may be invoked for cross-thread scenarios in demonstration events.

Developed implementations during the initiative might be closed source or open source. They will all be documented in the final initiative report. Open Source implementations should additionally be documented with:

- Public link to the source code repository
- Public link to the documentation

2.4. Proposals & Proposal Evaluation

Proposals are expected to be short and precisely address the work items a bidder is interested in. A proposal template will be made available. The proposal, including technical and financial details, has a page limit as defined in Appendix A. Details on the proposal submission process are provided in Appendix A: Proposal Submission Guidelines. The proposal evaluation process and criteria are described below.

2.4.1. Evaluation Process

Proposals will be evaluated according to criteria based on three areas: Technical, management, and cost. Each review will commence by analyzing the proposed deliverables in the context of the Sponsor priorities, examining viability in light of the requirements and assessing feasibility against the use cases.

The review team will then create a draft Initiative System Architecture from tentatively selected proposals. This architecture will include the proposed components and relate them to available hardware, software, and data. Any candidate interface and protocol specification received from a Bidder will be included.

At the Technical Evaluation Meeting (TEM), the IP Team will present Sponsors with draft versions of the initiative system architecture and program management approach. The team will also present draft recommendations regarding which parts of which proposals should be offered cost-sharing funding (and at what level). Sponsors will decide whether and how draft recommendations in all these areas should be modified.

Immediately following TEM, the IP Team will begin to notify Bidders of their selection to enter

negotiations for potentially becoming initiative Participants. The IP Team will develop for each selected bidder a **Participant Agreement** and a **Statement of Work** (SOW). The IP Team will also notify bidders of unsuccessful proposals.

2.4.2. Management Criteria

- Adequate, concise descriptions of all proposed activities, including how each activity contributes to achievement of particular requirements and deliverables. To the extent possible, it is recommended that Bidders utilize the language from the CFP itself to help trace these descriptions back to requirements and deliverables.
- Willingness to share information and work in a collaborative environment.
- Contribution toward Sponsor goals of enhancing availability of standards-based offerings in the marketplace.

2.4.3. Technical Criteria

- How well applicable requirements in this CFP are addressed by the proposed solution
- Proposed solutions can be executed within available resources
- Proposed solutions support and promote the initiative system architecture and demonstration concept
- Where applicable, proposed solutions are OGC-compliant

2.4.4. Cost Criteria

- Cost-share compensation request is reasonable for proposed effort.
- All Participants are required to provide at least some level of in-kind contribution (i.e., activities or deliverables offered that do not request cost-share compensation). As a rough guideline, a proposal should include at least one dollar of in-kind contribution for every dollar of cost-sharing compensation requested. All else being equal, higher levels of in-kind contributions will be considered more favorably during evaluation. Participation may be fully in-kind.

2.5. Reporting

Initiative participant business/contract representatives are required (per the terms of the Participation Agreement contract) to report the progress and status of the participant's work. Detailed requirements for this reporting will be provided during contract negotiation. Initiative accounting requirements (e.g., invoicing) will also be described in the contract.

The IP Team will provide monthly progress reports to Sponsors. Ad hoc notifications may also occasionally be provided for urgent matters. To support this reporting, each Pilot participant must submit (1) a Monthly Technical Progress Report and (2) a Monthly Business Progress Report by the first working day on or after the 10th of each month. Templates for both of these report

types will be provided and must be followed.

The purpose of the Monthly Business Progress Report is to provide initiative management with a quick indicator of project health from the perspective of each Pilot participant. The IP Team will review action item status on a weekly basis with the Initiative participants assigned to complete those actions. Initiative participants must be available for these contacts to be made.

2.6. Master Schedule

Date	Event
Feb 25 2019	Call for Participation
March 12 2019	Clarifications Webinar
Mar 19 2019	Response due Call for Participation Pilot
Mar 23 2019	Selection of Participants and Bidder Notifications
Mar 28 2019	Participation Agreements
May 14-15 2019 (To be confirmed)	Kickoff Phase I
Sep 26 2019	End Prototype Development Phase 1
Sep 26 2019	Draft Report Phase 1
October 2019 (To be confirmed)	Virtual Kickoff Meeting Phase 2
Feb 21 2020	Engineering Report
Mar 18 2020	Demonstration
Mar 31 2020	End Prototype Development Phase 2

Table 1. Schedule

2.7. Miscellaneous

Call for Participation

The CFP consists of stakeholder role descriptions, proposal submission instructions and evaluation criteria, a master schedule and other project management artifacts, sponsor requirements, and an initiative architecture. Responses should include the proposing organization's technical solution, its cost-sharing requests for funding, and its proposed in-kind contributions to the initiative.

Once the original CFP has been published, ongoing authoritative updates and answers to questions can be tracked by monitoring the CFP Corrigenda Table and the CFP Clarifications Table.

Participant Selection and Agreements:

Bidders may submit questions via timely submission of email(s) to the OGC Technology Desk (techdesk@opengeospatial.org). Question submitters will remain anonymous, and answers will be regularly compiled and published in the CFP Clarifications page.

OGC may also choose to conduct a Bidder's question-and-answer webinar to review the clarifications and invite follow-on questions.

Following the closing date for submission of proposals, OGC will evaluate received proposals, review recommendations with the Sponsor, and negotiate Participation Agreement (PA) contracts, including statements of work (SOWs), with selected Bidders. Participant selection will be complete once PA contracts have been signed with all Participants.

Kick-off: The Kickoff is a face-to-face meeting where Participants, guided by the Initiative Architect, will refine the Initiative architecture and settle upon specific use cases and interface models to be used as a baseline for prototype component interoperability. Participants will be required to attend the Kickoff, including breakout sessions, and will be expected to use these breakouts to collaborate with other Participants and confirm intended Component Interface Designs.

Regular Teleconference and Interim Meetings After the Kickoff, participants will meet on a frequent basis remotely via web meetings and teleconferences.

Development of Engineering Reports, Change Requests, and Other Document Deliverables: Development of Engineering Reports (ERs), Change Requests (CRs) and other document deliverables will commence during or immediately after Kickoff.

Under the Participation Agreement (PA) contracts to be formed with selected Bidders, ALL Participants will be responsible for contributing content to the ERs. But the ER Editor role will assume the duty of being the primary ER author.

Final Summary Reports, Demonstration Event and Other Stakeholder Meetings: Participant Final Summary Reports will constitute the close of funded activity. Further development work might take place to prepare and refine assets to be shown at the Demonstration Event and other stakeholder meetings.

Assurance of Service Availability: Participants selected to implement service components must maintain availability for a period of no less than six months after the Participant Final Summary Reports milestone. OGC might be willing to entertain exceptions to this requirement on a case-by-case basis.

Chapter 3. Deliverables

The following table summarizes the full set of Initiative deliverables. Technical details can be found in the Appendix B: Technical Architecture.

Name	Phase	Expected Number of Components
D1: Client SDI	Phase 1 and 2	2
D2: GIS Application	Phase 1	4
D3: S-121 GML Application Schema	Phase 1	1
D4: WMS/WFS MLB	Phase 1 and 2	1
D5: Validator Script	Phase 1	1
D8: Metadata	Phase 2	1
D9: Catalog SDI	Phase 2	1
D11: Script and XSLT GML to Human Readable	Phase 2	1
D12: S-121 GML Application Schema Extension	Phase 2	1
D15: Engineering Report	Phase 1 and 2	1

Table 2. Summary-Deliverables

Note: Phase 2 is pending for funding.

Appendix A: Proposal Submission Guidelines

A.1. General Requirements

The following requirements apply to the proposal development process and activities.

- Proposals must be submitted before the appropriate response due date indicated in the Master Schedule.
- Proposing organizations must be an OGC member and familiar with the OGC Mission, Vision, and Goals. Proposals from non-members will be considered, if a completed application for OGC membership or a letter of intent to become a member if selected for funding is submitted prior to or along with the proposal. If you are in doubt about membership, please contact OGC at techdesk@opengeospatial.org.
- Proposals may address selected portions of the initiative requirements as long as the solution ultimately fits into the overall initiative architecture. A single proposal may address multiple requirements and deliverables. To ensure that Sponsor priorities are met, the OGC may negotiate with individual Bidders to drop, add, or change some of the proposed work.
- Participants selected to implement component deliverables will be expected to participate in the full course of interface and component development, Technical Interoperability Experiments, and demonstration support activities throughout Initiative execution.
- In general, a proposed component deliverable based on a product that has earned OGC Certification will be evaluated more favorably than one which has not.
- Participants selected as Editors will also be expected to participate in the full course of activities throughout the Initiative, documenting implementation findings and recommendations and ensuring document delivery.
- Participants should remain aware of the fact that the Initiative components will be developed across many organizations. To maintain interoperability, each Participant should diligently adhere to the latest technical specifications so that other Participants may rely on the anticipated interfaces during the TIEs.
- All Selected Participants (both cost-share and pure in-kind) must attend with at least one technical representative to the Kickoff. Participants are also encouraged to attend at least with one technical representative the Demonstration Event.
- No work facilities will be provided by OGC. Each Participant will be required to perform its PA obligations at its own provided facilities and to interact remotely with other Initiative stakeholders.
- Information submitted in response to this CFP will be accessible to OGC staff members and to Sponsor representatives. This information will remain in the control of these stakeholders and will not be used for any other purpose without prior written consent of the Bidder. Once a Bidder has agreed to become an Initiative Participant, it will be required to release proposal content (excluding financial information) to all Initiative stakeholders. Commercial

confidential information should not be submitted in any proposal (and, in general, should not be disclosed during Initiative execution).

- Bidders will be selected to receive cost sharing funds on the basis of adherence to the requirements (as stated in in the CFP Appendix B Technical Architecture) and the overall quality of their proposal. The general Initiative objective is for the work to inform future OGC standards development with findings and recommendations surrounding potential new specifications. Bidders are asked to formulate a path for producing executable interoperable prototype implementations that meet the stated CFP requirements, and for documenting the findings and recommendations arising from those implementations. Bidders not selected for cost sharing funds are welcome to participate on a purely in-kind bases to address the stated CFP requirements .
- Bidders are advised to avoid attempts to use the Initiative as a platform for introducing new requirements not included in the Appendix B Technical Architecture. Any additional in-kind scope should be offered outside the formal bidding process, where an independent determination can be made as to whether it should be included in Initiative scope or not. Items deemed out-of-scope might still be appropriate for inclusion in a later OGC Innovation Program initiative.
- Each Participant (including pure in-kind Participants) that is assigned to make a deliverable will be required to enter into a Participation Agreement contract ("PA") with the OGC. The reason this requirement applies to pure in-kind Participants is that other Participants will be relying upon their delivery to show component interoperability. Each PA will include a statement of work ("SOW") identifying Participant roles and responsibilities.

A.2. What to Submit

The two documents that shall be submitted, with their respective templates are as follows: 1. Technical Proposal: https://portal.opengeospatial.org/files/?artifact_id=82493 2. Cost Proposal: https://portal.opengeospatial.org/files/?artifact_id=82494

A **Technical Proposal** should be based on the Response Template and must include the following:

- Cover page
- Overview (Not to exceed one page)
- Proposed contribution (Basis for Technical Evaluation; not to exceed 1 page per work item)
- Understanding of interoperability issues, understanding of technical requirements and architecture, and potential enhancements to OGC and related industry architectures and standards
- Recommendations to enhance Information Interoperability through industry-proven best practices, or modifications to the software architecture defined in Appendix B: Technical Architecture
- If applicable, knowledge of and access to geospatial data sets by providing references to

data sets or data services

The Cost Proposal should be based on the two worksheets contained in the Cost Proposal Template and must include the following:

- Completed Pilot Cost-Sharing Funds Request Form
- Completed Pilot In-Kind Contribution Declaration Form

Additional instructions are contained in the templates themselves.

A.3. How to Transmit the Response

Guidelines:

- Proposals shall be submitted to the OGC Technology Desk (techdesk@opengeospatial.org).
- The format of the technical proposal shall be Microsoft Word or Portable Document Format (PDF).
- The format of the cost proposal is a Microsoft Excel Spreadsheet.
- Proposals must be submitted before the appropriate response due date indicated in the Master Schedule.

A.4. Questions and Clarifications

Once the original CFP has been published, ongoing authoritative updates and answers to questions can be tracked by monitoring this CFP.

Bidders may submit questions via timely submission of email(s) to the OGC Technology Desk. Question submitters will remain anonymous, and answers will be regularly compiled and published in the CFP clarifications table.

OGC may also choose to conduct a Bidder's question-and-answer webinar to review the clarifications and invite follow-on questions.

Update to this CFP including questions and clarifications will be posted to the original URL of this CFP.

Appendix B: Technical Architecture

This appendix provides the technical architecture, which includes descriptions of the OGC baseline and identifies all requirements and corresponding work items.

B.1. Baseline Architecture

B.1.1. OGC Reference Model

The OGC Reference Model (ORM) version 2.1, provides an architecture framework for the ongoing work of the OGC. Further, the ORM provides a framework for the OGC Standards Baseline. The OGC Standards Baseline consists of the member-approved Implementation/Abstract Specifications as well as for a number of candidate specifications that are currently in progress.

The structure of the ORM is based on the Reference Model for Open Distributed Processing (RM-ODP), also identified as ISO 10746. This is a multi-dimensional approach well suited to describing complex information systems.

The ORM is a living document that is revised on a regular basis to continually and accurately reflect the ongoing work of the Consortium. Bidders are encouraged to learn and understand the concepts that are presented in the ORM.

This appendix refers to the RM-ODP approach and will provide information on some of the viewpoints, in particular the Enterprise Viewpoint, which is used here to provide the general characterization of work items in the context of the OGC Standards portfolio and standardization process, i.e. the enterprise perspective from an OGC insider.

The Information Viewpoint considers the information models and encodings that will make up the content of the services and exchanges to be extended or developed to support this initiative. Here, we mainly refer to the OGC Standards Baseline, see section Standards Baseline.

The Computational Viewpoint is concerned with the functional decomposition of the system into a set of objects that interact at interfaces – enabling system distribution. It captures component and interface details without regard to distribution and describes an interaction framework including application objects, service support objects and infrastructure objects. The development of the computational viewpoint models is one of the first tasks of the Pilot, usually addressed at the Kickoff.

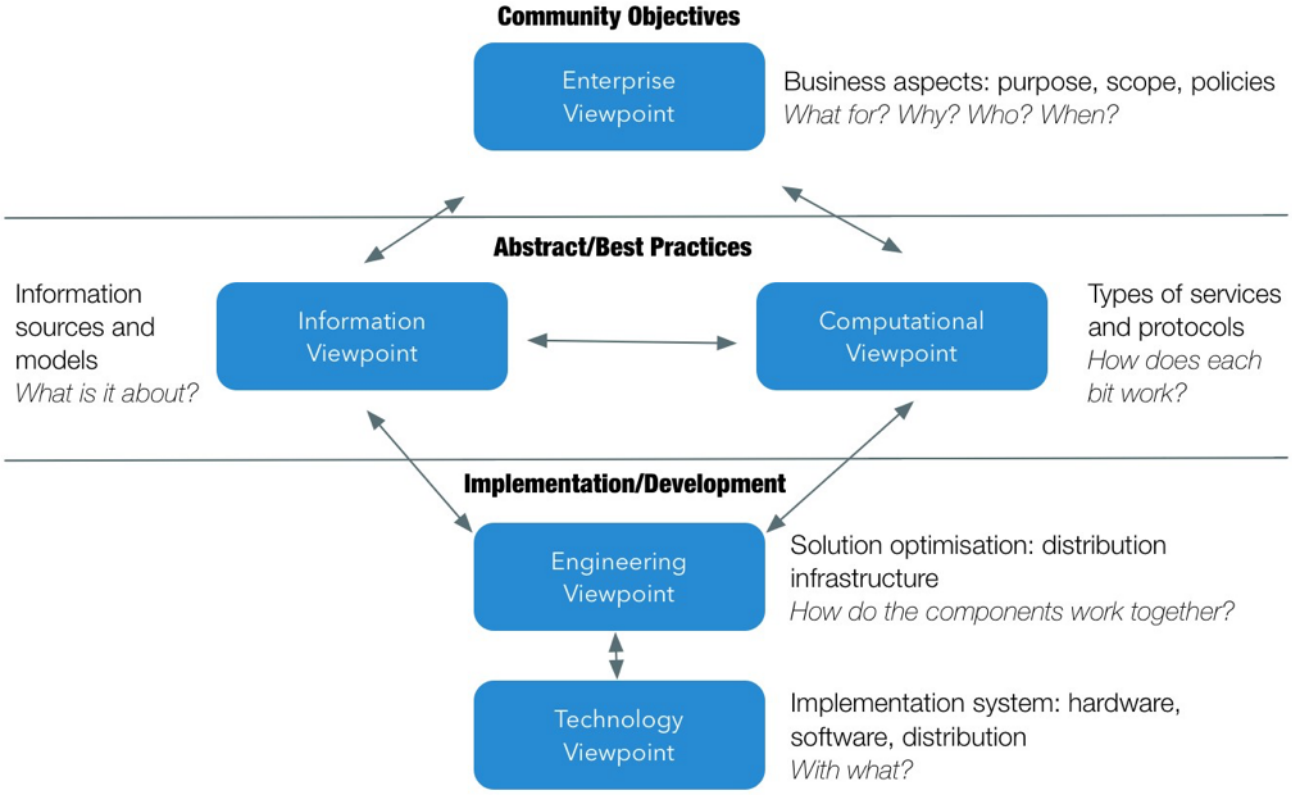


Figure 1. Reference Model for Open Distributed Computing

The Engineering Viewpoint is concerned with the infrastructure required to support system distribution. It focuses on the mechanisms and functions required to:

a. support distributed interaction between objects in the system, and

b. hides the complexities of those interactions.

It exposes the distributed nature of the system, describing the infrastructure, mechanisms and functions for object distribution, distribution transparency and constraints, bindings and interactions. The engineering viewpoint will be developed during the Initiative, usually in the form of TIEs, where Participants define the communication infrastructure and assign elements from the computational viewpoint to physical machines used for demonstrating Initiative results.

B.1.2. OGC Standards Baseline

The OCG Standards Baseline is the complete set of member approved Abstract Specifications, Standards including Profiles and Extensions, and Community Standards.

OGC standards are technical documents that detail interfaces or encodings. Software developers use these documents to build open interfaces and encodings into their products and services. These standards are the main "products" of the Open Geospatial Consortium and have been developed by the membership to address specific interoperability challenges. Ideally, when OGC standards are implemented in products or online services by two different software engineers working independently, the resulting components plug and play, that is, they work together without further debugging. OGC standards and supporting documents are available to the public at no cost. OGC Web Services (OWS) are OGC standards created for use in World Wide Web

applications. For this Initiative, it is emphasized that all participants have access to the latest versions of all standards and related engineering reports.

Any Schemas (xsd, xslt, etc.) that support an approved OGC standard can be found in the official OGC Schema Repository.

The OGC Testing Facility Web page provides online executable tests for some OGC standards. The facility helps organizations to better implement service interfaces, encodings and clients that adhere to OGC standards.

B.1.3. OGC Best Practices and Discussion Papers

OGC also maintains other documents relevant to Innovation Program initiatives, including Engineering Reports, Best Practice Documents, Discussion Papers, and White Papers.

B.2. Requirements

Req Id	GeoConnections/CHS
GovCan-R1	To design an end-to-end operational scenario on how MLBs can be encoded as per S-121, how the encoding can be validated, how an exchange format can be produced and ingested by CGDI/MSDI, how the exchange format can be used to produce a human and machine readable output, and how the toolset described in GovCan-R3 below can be extended.
GovCan-R2	A communication plan that describes potential beneficiaries, and identifies communication activities and communication materials output (such as videos) will need to be developed during the early project planning phase. The intent of the planned communication is to increase the awareness and implementation of S-121.
GovCan-R3	To develop a set of public domain tools (hereafter referred to as “the toolset”) that enable the end-to-end operation scenario. The toolset will include various tools that address S-121 schema creation and relationship linking, MLBs encoding as per S-121 specifications, S-121 compliance verification and validation, production of metadata, exchange of MLBs via standard geospatial object exchange format, and the transfer of the exchange format into human and machine consumable format. OGC members participating in the pilot project may address one or more of these tools. The output produced under this requirement must be public domain, but participants are free to produce parallel proprietary software integrated into proprietary environment. Tools made for the public domain using open source software (for example QGIS) will remain in the public domain.
GovCan-R3-a	To encode in the S-121 format Canada’s Extended Continental Shelf as described in the executive summary of Canada’s 2013 Atlantic submission to the United Nations’ Commission on the Limits of the Continental Shelf. The encoding must support multi-lingual text and at a minimum both official languages of Canada: English and French.
GovCan-R3-b	To deliver a generic GML format version of the zone and limits defined in GovCan-R3-a in accordance with the S-121 standard that is demonstrated to be importable from different software solutions. This GML file must also support multi-lingual text and at a minimum both official languages of Canada: English and French.

Req Id	GeoConnections/CHS
GovCan-R3-c	Delivery of GML-type conversion files (XSLT) that allow production of a human readable output of a document that would prototype a legal document (e.g., an order in council like the “Territorial Sea Geographical Coordinates Order http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,_c._1550/index.html)) The conversion files must support multi-lingual outputs and at a minimum both official languages of Canada: English and French. Examples and sample data will be provided as needed by CHS/DFO and by SGB.
GovCan-R3-d	Delivery of metadata in XML format that describes the S-121 data from GovCan-R3-a in compliance with the Harmonised North American Profile of ISO 19115 which is in use in Canada’s CGDI, Federal Geospatial Platform (FGP) and soon in MSDI. The metadata must support multi-lingual outputs and at a minimum both official languages of Canada: English and French.
GovCan-R4	To demonstrate the toolset’s interoperability with Canada’s SDI, including the FGP, Canadian Surveyor General, Marine Spatial Data Infrastructure based on FGP requirements (Fisheries and Oceans Canada, Canadian Hydrographic Service) and with the Arctic SDI. Canadian Surveyor General can provide sample data from the International Boundary Commission (IBC) and data related to the Canada Oil and Gas Land Regulations (C.R.C., c. 1518, section 4) and help test and validate the toolset. DFO/CHS will also provide sample datasets as required to support this effort. This will require provision of demonstration packages that are open and reusable by the Government of Canada.
GovCan-R5a	To demonstrate the toolset extendibility to its potential application in land domain and for the potential development of Canadian-specific objects for UNCLOS reporting purposes and eventual deposit of an extended continental shelf outer limit. Canadian Surveyor General can provide data related to the Canada Oil and Gas Land Regulations (C.R.C., c. 1518, section 4) and help test and validate the toolset.
GovCan-R5b	To demonstrate and report on how the toolset is extendable to its potential application to the marine cadastre and fisheries domain. DFO/CHS can provide data relating to fisheries and help test and evaluate the toolset and Canadian Surveyor General can provide data related to the marine cadastre.
GovCan-R6	Communication activity report describing the execution of the communication plan and deliver communication materials to the Government of Canada to be shared within CGDI, FGP and MSDI stakeholders.
GovCan-R7	To document in an Engineering Report (ER) how an end to end operation scenario is enabled by the toolset, and how such a toolset is interoperable to CGDI and MSDI. This report should be written and presented in such a way as to be accessible to maritime limits and boundaries domain experts and general public alike. The toolset extendibility should also be documented. Any particular aspect that relates only to Canada’s specific requirements concerning the interoperability to CGDI and MSDI would be an addition to the public engineering report. This portion of the report may not necessarily be made public. This report must be available in an English and a French version.

Table 3. Requirements

B.3. Pilot Architecture and Deliverables

The main architecture, components (toolsets) and documents as a result of the prototyping activities are summarized in the following section.

The prototyping activity will be split in 2 phases.

- Phase 1: May 1, 2019 - September 26, 2019
- Phase 2: October 1, 2019 - March 31, 2020 (Pending Funding)

Phase 1

The components developed in Phase 1 are as follows:

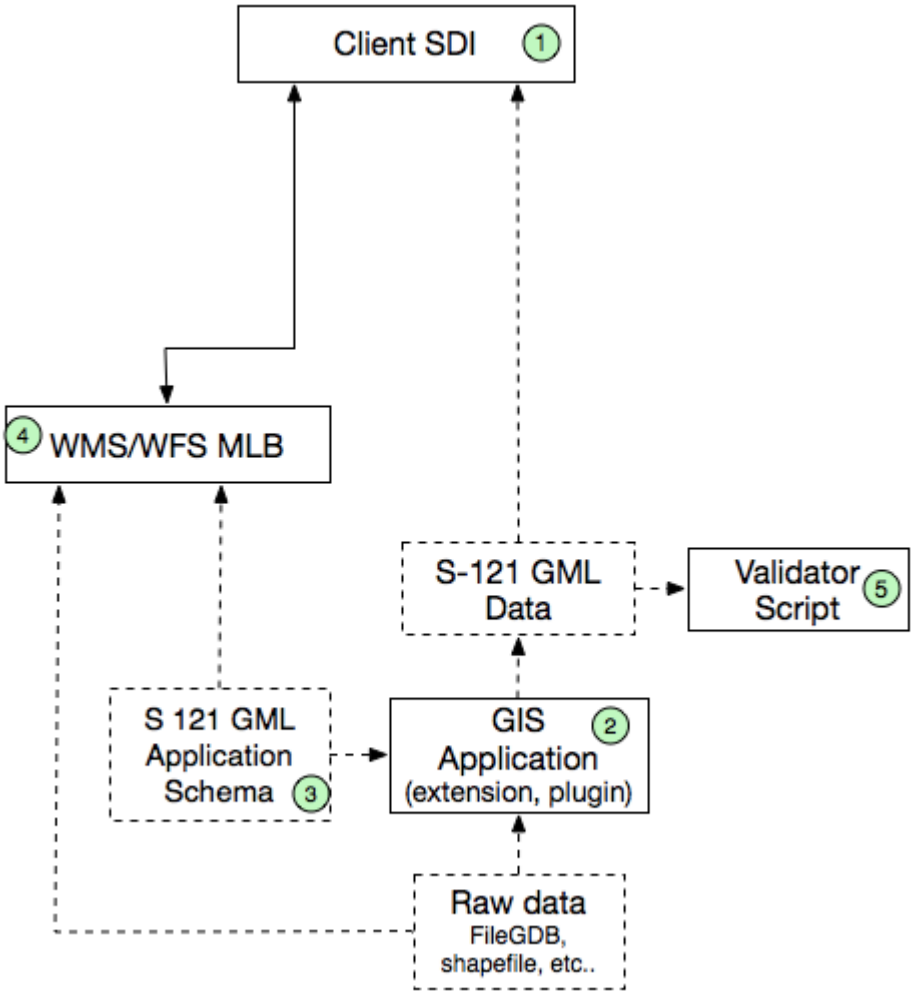


Figure 2. Phase 1 - Prototyping

Phase 1 will focus on advancing GIS Applications to implement the S-121 Data Model. The primary task is to develop a GML Application Schema that properly represents the data model. GIS Applications, based on the GML Application Schema, will read raw data and convert it to S-121. The applications shall also be able to display S-121 data. A validator script will be made available to check that GML instances are properly structured based on the schema. A WFS service will also be developed to guarantee that the GML data, based on the Application Schema, can be provide via standardized web services.

Phase 2

The components developed in Phase 2 are summarized in the following two diagrams:

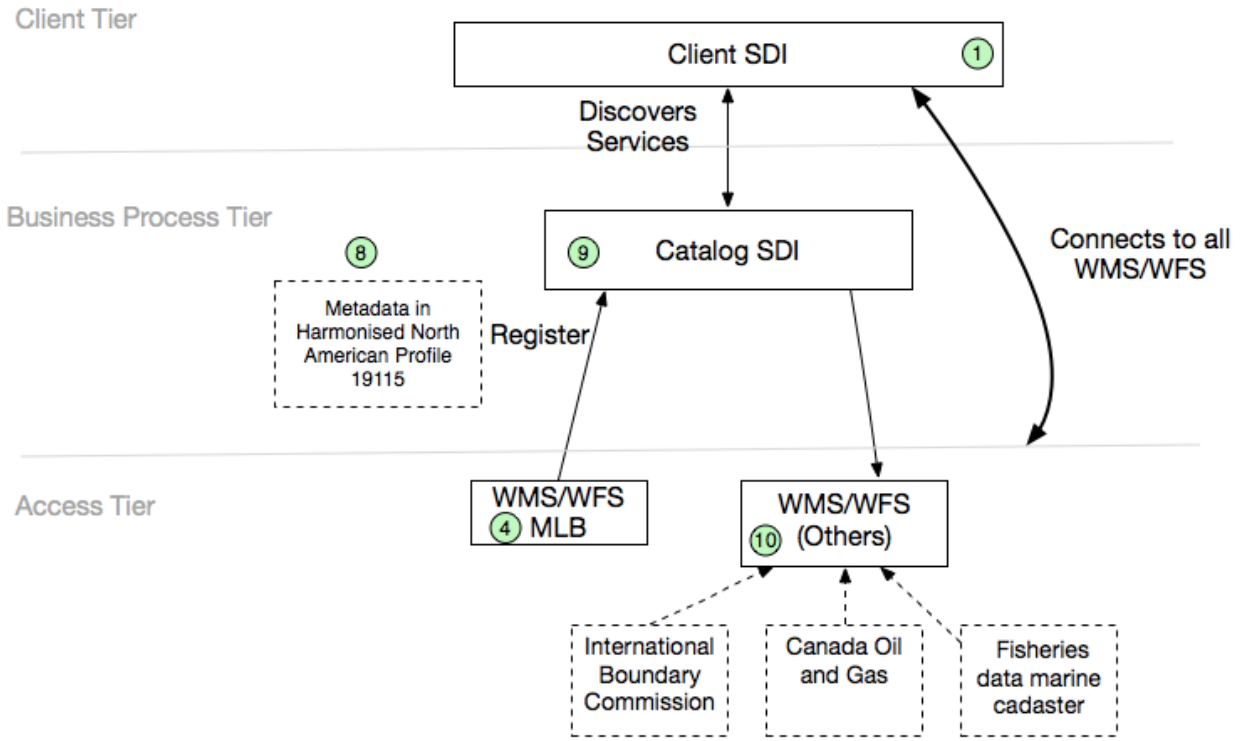


Figure 3. Phase 2 - Prototyping CGDI

Phase 2 will advance components to build Marine Spatial Data Infrastructures. These include, developing metadata profiles, providing a catalog, as well as demonstrating the toolset interoperability with other types of data (e.g. International Boundary Commission, Canada Oil and Gas, and Fisheries Data Marine Cadaster).

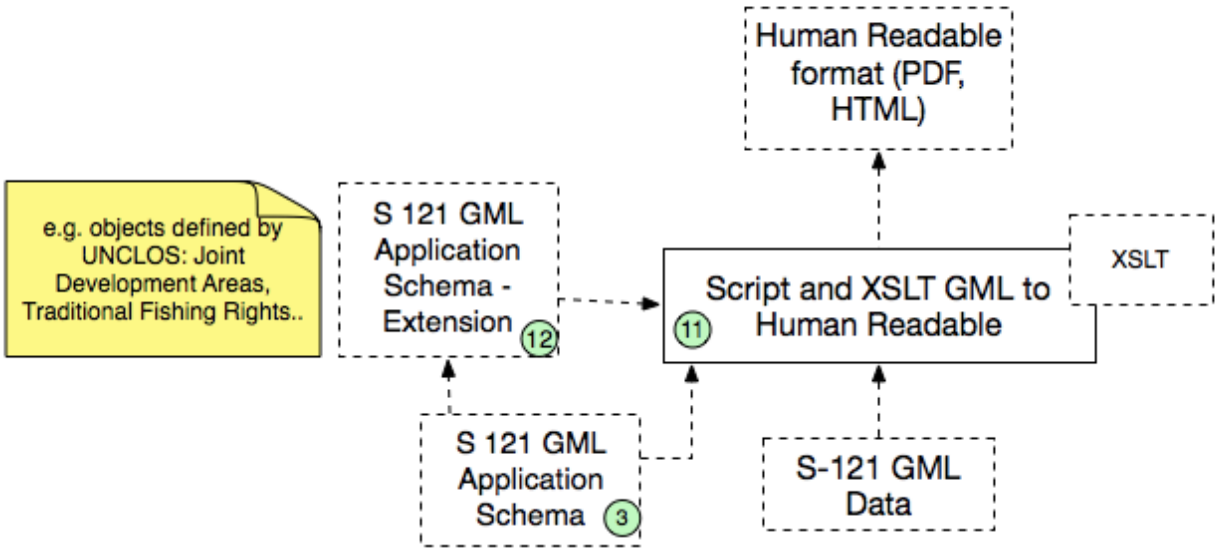


Figure 4. Phase 2 - DOALOS / UNCLOS

Phase 2 will also advance tools to convert S-121 data from GML to human readable format. The human readable format will allow the deposit of Maritime Limits and Boundaries to UNCLOS.

The next sections, provide further details of each component.

B.3.1. D1:Client SDI

Client that is able to:

- consume S-121 data from a WFS following the S-121 GML Application Schema.
- consume data created by GIS Applications that follow the S-121 GML Application Schema.
- demonstrate integrating data from different sources in Phase 2 available form the Catalog

Related Requirement(s):

- [GovCan-R1], [GovCan-R3], [GovCan-R4], [GovCan-R5a]: The Client SDI is part of the toolkits mentioned in the requirements. It will help demonstrate the end-to-end scenario and toolset interoperability with Canada's SDI, including the FGP, Canadian Surveyor General, Marine Spatial Data Infrastructure based on FGP requirements (Fisheries and Oceans Canada, Canadian Hydrographic Service) and with the Arctic SDI.

B.3.2. D2:GIS Application

Open, create, and edit S-121 data including all of the direct attributes and information objects (Rights, Restrictions, Responsibilities, Parties, and Governance) and associated S-100 defined metadata. The implementation must support all of the capabilities of the standard, including display, editing, export, import, and conversion of the data between formats.

The GIS Applications will read raw data and convert it to S-121 in GML, based on the GML Application Schema.

Related Requirement(s):

- [GovCan-R3]: The applications delivered are part of the toolkits mentioned in the requirements. See note about Implementations.
- [GovCan-R3-a] and [GovCan-R3-b]: The application via a generic GML will provide {sponsor} zone and limits data available as summarized in the Data section. The example to be used in the pilot is Canada's Extended Continental Shelf.

B.3.3. D3:S-121 GML Application Schema

A GML Application Schema will provide the rules for proper encoding of S-121 data in GML. The GML will serve as the common exchange format to allow for the complete exchange of S-121 data within nations and between nations including all of the S-121 model elements. It should use an appropriate GML profile and should consider use of the IHO S-100 GML profile (GML 3.2.1). The Universal Exchange Format developed needs to fully implement the S-121 schema.

B.3.4. D4:WMS/WFS MLB

A server that provides S-121 Data conforming to OGC Web Feature Service (WFS) and Web Map Service (WMS). The data should follow the agreed S-121 GML Application Schema.

Related Requirement(s):

- [GovCan-R3]: The applications delivered are part of the toolkits mentioned in the requirements. The participant providing the WFS/WMS server will create the GML Application schema following S-121. The WFS will allow the exchange of MLBs via standard geospatial object exchange format (i.e. GML), enabling the data to be machine consumable. See note about Implementations.
- [GovCan-R3-a] and [GovCan-R3-b]: The WFS server via a generic GML will provide {sponsor} zone and limits data available as summarized in the Data section. The example to be used in the pilot is Canada's Extended Continental Shelf.

B.3.5. D5:Validator Script

A script that validates the GML created against the application schema. This is a help script that will help participant and the community in general to validate the GML instances.

- [GovCan-R3]: The applications delivered are part of the toolkits mentioned in the requirements. See note about Implementations.

B.3.6. D8:Metadata

Metadata in XML format that describes the S-121 data from [GovCan-R3-a] in compliance with the Harmonised North American Profile of ISO 19115 which is in use in Canada's CGDI, FGP and soon in MSDI. The metadata must support multi-lingual outputs and at a minimum both official languages of Canada: English and French.

Related Requirement(s):

- [GovCan-R3-a]
- [GovCan-R3-d]

B.3.7. D9:Catalog SDI

Catalog that support discovery of data in a Marine SDI context.

Related Requirement(s):

- [GovCan-R3]: The applications delivered are part of the toolkits mentioned in the requirements. See note about Implementations.

- [GovCan-R4]

B.3.8. D11:Script and XSLT GML to Human Readable

Implement an XSLT that converts data following S-121 specification to a human readable format suitable for deposit to DOALOS satisfying the deposit requirement for Maritime Limits and Boundaries. This output format should encode features and attributes already defined within the S-121 feature model.

Related Requirement(s):

- [GovCan-R3]: The applications delivered are part of the toolkits mentioned in the requirements. See note about Implementations.
- [GovCan-R3-c]: The application will demonstrate the conversion to human readable format of the data described in the Data section.

B.3.9. D12:S-121 GML Application Schema Extension

Schema Extension to accommodate selected state specific objects and extension objects such as UNCLOS Article 74.3 (Joint Development Areas), UNCLOS Article 51 (Traditional Fishing Rights) and UNCLOS Article 76 (Extended Continental Shelf). Examples of these state specific objects and attributes can be found in section 3.6 of the S-121 Feature Model.

Related Requirement(s):

- [GovCan-R5-b]

B.3.10. D15: Engineering Report

The Engineering Report will capture all results and experiences from this initiative. The editor will coordinate with other participants to get proper feedback on implementation details, lessons leaned and future work.

- [GovCan-R7]

B.4. Summary Deliverables

Name	Phase	Expected Number of Components
D1: Client SDI	Phase 1 and 2	2
D2: GIS Application	Phase 1	4
D3: S-121 GML Application Schema	Phase 1	1
D4: WMS/WFS MLB	Phase 1 and 2	1
D5: Validator Script	Phase 1	1

Name	Phase	Expected Number of Components
D8: Metadata	Phase 2	1
D9: Catalog SDI	Phase 2	1
D11: Script and XSLT GML to Human Readable	Phase 2	1
D12: S-121 GML Application Schema Extension	Phase 2	1
D15: Engineering Report	Phase 1 and 2	1

Table 4. Summary-Deliverables

Note: Phase 2 is pending for funding.

B.5. Data

The data required for execution and demonstration of the Pilot will be provided by the sponsors. The data may be served by the {sponsor} using OGC Web Services or as files. Files might also be provided to the Initiative participants so that the participants can serve the data via OGC Web Services.

The participants shall use following datasets:

- The Canada's 2013 Atlantic submission to the UN' Commission on the Limits of the Continental Shelf. Encoding of the files must support multi-lingual outputs and at a minimum both official languages of Canada (English and French). Data is available at the UNEP GRID-Arendal (Continental Shelf Program) website (see entry #70).
- Example shapefiles (polygons and lines) of the Canada's Atlantic ECS, as available from the UNEP website, can be downloaded from the OGC portal.
- Territorial Sea Geographical Coordinates Order - C.R.C., c. 1550. The conversion files must support multi-lingual outputs and at a minimum both official languages of Canada (English and French).

Appendix C: Tips for new bidders

Bidders who are new to OGC initiatives are encouraged to review the following tips:

- Bidders are organizations who submit proposals in response to this CFP. A Bidder selected to participate will become a Participant through the execution of a Participation Agreement contract with OGC.
- Most Bidders are expected to propose a combination of cost-sharing request and in-kind contribution (though solely in-kind contributions are also welcomed).
- Funding of components for this pilot is in the order of 5,000 - 15,000 USD per component. Some of the components have partially been implemented by vendors. This pilot will help provide funding for participants to participate in the discussion while advancing their existing tools. It is expected a big portion to be in-kind contribution.
- In general, the term "activity" is used as a verb describing work to be performed in an initiative, and the term "deliverable" is used as a noun describing artifacts to be developed and delivered for inspection and use.
- The roles generally played in any OGC Innovation Program initiative are defined in the OGC Innovation Program Policies and Procedures, from which the following definitions are derived and extended:
    - Sponsors are OGC member organizations that contribute financial resources to steer Initiative requirements toward rapid development and delivery of proven candidate specifications to the OGC Standards Program. These requirements take the form of the deliverables described herein. Sponsors representatives help serve as "customers" during Initiative execution, helping ensure that requirements are being addressed and broader OGC interests are being served.
    - Participants are selected OGC member organizations that generate empirical information through the definition of interfaces, implementation of prototype components, and documentation of all related findings and recommendations in Engineering Reports, Change Requests and other artifacts. They might be receiving cost-share funding, but they can also make purely in-kind contributions. Participants assign business and technical representatives to represent their interests throughout Initiative execution.
    - Observers are individuals from OGC member organizations that have agreed to OGC intellectual property requirements in exchange for the privilege to access Initiative communications and intermediate work products. They may contribute recommendations and comments, but the IP Team has the authority to table any of these contributions if there’s a risk of interfering with any primary Initiative activities.
    - The Innovation Program Team (IP Team) is the management team that will oversee and coordinate the Initiative. This team is comprised of OGC staff, representatives from member organizations, and OGC consultants. The IP Team communicates with Participants and other stakeholders during Initiative execution, provides Initiative scope and schedule control, and assists stakeholders in understanding OGC policies and procedures.

    - The term Stakeholders is a generic label that encompasses all Initiative actors, including representatives of Sponsors, Participants, and Observers, as well as the IP Team. Initiative-wide email broadcasts will often be addressed to "Stakeholders".
    - Suppliers are organizations (not necessarily OGC members) who have offered to supply specialized resources such as capital or cloud credits. OGCs role is to assist in identifying an initial alignment of interests and performing introductions of potential consumers to these suppliers. Subsequent discussions would then take place directly between the parties.
- Non-OGC member organizations must become members in order to be selected as Participants. Non-members are welcomed to submit proposals as long as the proposal is complemented by a letter of intent to become a member if selected for.
- Any individual wishing to gain access to the Initiative's intermediate work products in the restricted area of the Portal (or attend private working meetings / telecons) must be a member-approved user of the OGC Portal system. Intermediate work products that are intended to be shared publicly will be made available as draft ER content in a public GitHub repository.
- Individuals from any OGC member organization that does not become an Initiative Sponsor or Participant may still (as a benefit of membership) quietly observe all Initiative activities by registering as an Initiative Observer.
- Prior initiative participation is not a direct bid evaluation criterion. However, prior participation could accelerate and deepen a Bidder's understanding of the information presented in the CFP.
- All else being equal, preference will be given to proposals that include a larger proportion of in-kind contribution.
- All else being equal, preference will be given to proposed components that are certified OGC-compliant.
- All else being equal, a proposal addressing all of a deliverable's requirements will be favored over one addressing only a subset. Each Bidder is at liberty to control its own proposal, of course. But if it does choose to propose only a subset for any particular deliverable, it might help if the Bidder prominently and unambiguously states precisely what subset of the deliverable requirements are being proposed.
- The Sponsor(s) will be given an opportunity to review selection results and offer advice, but ultimately the Participation Agreement (PA) contracts will be formed bilaterally between OGC and each Participant organization. No multilateral contracts will be formed. Beyond this, there are no restrictions regarding how a Participant chooses to accomplish its deliverable obligations so long as the Participant's obligations are met in a timely manner (e.g., with or without contributions from third party subcontractors).
- In general, only one organization will be selected to receive cost-share funding per deliverable, and that organization will become the Assigned Participant upon which other Participants will rely for delivery. Optional in-kind contributions may be made provided that they don't disrupt delivery of the required, reliable contributions from Assigned Participants.

- A Bidder may propose against any or all deliverables. Participants in past initiatives have often been assigned to make only a single deliverable. At the other extreme, it's theoretically possible that a single organization could be selected to make all available deliverables.
- In general, the Participant Agreements will not require delivery any component source code to OGC.
    - What is delivered instead is the behavior of the component installed on the Participant's machine, and the corresponding documentation of findings, recommendations, and technical artifacts as contributions to the initiative's Engineering Report(s).
    - In some instances, a Sponsor might expressly require a component to be developed under open-source licensing, in which case the source code would become publicly accessible outside the Initiative as a by-product of implementation.
- Results of other recent OGC initiatives can be found in the OGC Public Engineering Report Repository.
- A Bidders Q&A Webinar will likely be conducted soon after CFP issuance. The webinar will be open to the public, but prior registration will be required.