



# OGC 3D IoT Platform for Smart Cities Pilot *Call for Participation (CFP)*

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# Table of Contents

<b>1. Overview</b>	<b>1</b>
1.1. Introduction	1
1.2. Background	1
1.3. OGC Innovation Program Initiative	2
1.4. Benefits of Participation	2
1.5. Master Schedule	2
<b>2. Technical Architecture</b>	<b>4</b>
2.1. Requirements	4
2.2. Deliverables and Reporting	5
2.2.1. D1: CityGML model dataset	5
2.2.2. D2: IndoorGML model dataset	5
2.2.3. D3: SensorThings server with synthetic occupancy sensor dataset	6
2.2.4. D4: SensorThings server with synthetic air quality dataset	6
2.2.5. D5: WPS property estimation processor	6
2.2.6. D6: WFS model server	6
2.2.7. D7: 3D geo-portal	6
2.2.8. D8: Initiative Engineering Report	7
2.3. D9: Management Reporting	7
2.3.1. Kickoff Status Report	7
2.3.2. Monthly Progress Reports	7
2.3.3. Final Summary Report	8
2.4. General Expectations about Deliverables	8
<b>Appendix A: Pilot Organization and Execution</b>	<b>9</b>
A.1. Initiative Policies and Procedures	9
A.2. Initiative Roles	9
A.3. Types of Deliverables	9
A.3.1. Documents	9
A.3.2. Implementations	10
A.4. Proposals & Proposal Evaluation	10
A.4.1. Evaluation Process	10
A.4.2. Management Criteria	10
A.4.3. Technical Criteria	11
A.4.4. Cost Criteria	11
<b>Appendix B: Proposal Submission Guidelines</b>	<b>12</b>
B.1. General Requirements	12
B.2. How to Respond	13
B.3. Questions and Clarifications	13
B.4. Tips for new bidders	14
<b>Appendix C: Abbreviations</b>	<b>17</b>
<b>Appendix D: Corrigenda &amp; Clarifications</b>	<b>18</b>

# Chapter 1. Overview

## 1.1. Introduction

The Open Geospatial Consortium (OGC®) is releasing this ***Call for Participation*** ("CFP") to solicit proposals for the **3D IoT Platform for Smart Cities Pilot** (also called "Initiative" or just "Pilot"). The goal of the pilot is to advance the use of open standards for integrating environmental, building, and internet of things (IoT) data in Smart Cities. The CFP consists of sponsor requirements, an initiative architecture, expected deliverables, a master schedule, proposal submission instructions, evaluation criteria, and other project management artifacts.

Under this initiative a proof of concept (PoC) will be conducted to better understand the capabilities to be supported by a 3D IoT Smart City Platform under the following standards:

- Outdoor 3D City Model: CityGML
- Indoor: IndoorGML
- Geo-IoT: SensorThings API

The scenarios selected to demonstrate this concept include:

- Real-time monitoring on indoor occupancy (IndoorGML + SensorThings)
- Real-time monitoring on micro-dust (CityGML + SensorThings)

## 1.2. Background

Smart cities are communities where information technology and data are used to address social, economic, and environmental challenges. Smart Cities solutions are both popular for improving city livability, and necessary for responding to trends such as climate change and increasing urbanization.

Sejong City, founded in 2007 is the new administrative city of South Korea. Sejong 5-1 (A District) is the site of a wide-ranging **Smart City Initiative**, led by the Korea Land and Housing (LH) Corporation. Projects under this initiative include the following:

- AR/VR Service (Smart City Experience Zone)
- Smart Street
- Smart Park
- Smart Facilities



The Korea Land and Housing (LH) Corporation is sponsoring this OGC pilot that will complement the work being advance in the Sejong Smart City Initiative.

### 1.3. 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 120 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.

### 1.4. Benefits of Participation

Pilot participants will have the opportunity to work with stakeholders in the City that is in path of advancing smart cities solutions. Participants will connect their technology and expertise with real city needs in collaboration with other participants to advance open standards in Smart Cities.

The outcomes are expected to shape the landscape of Smart Cities developed to facilitate and standardize the access to internet of things, environmental and building data. The sponsorship supports this vision with funds to partially offset the costs associated with development, engineering, and demonstration activities that are part of this pilot.

### 1.5. Master Schedule

The following table details the major Initiative milestones and events.

Milestone	Activity	Date
Call for Participation	Call for Participation (CfP) release	02-Aug-2019

Milestone	Activity	Date
Proposals due Call for Participation	CfP responses due	02-Sep-2019
Selection of Participants and Bidder Notifications		04-Sep-2019
Participation Agreements		18-Sep-2019
Kickoff	Virtual	02-Oct-2019
Prototype Development		02-Oct-2019 to 28-Feb-2020
Initial Test and Integration Testing		01-Dec-2019
Engineering Report Draft		31-Jan-2020
Demonstration	OGC Technical Meeting in Asia	March 2020
Final Engineering Report		13-Mar-2020

*Table 1. Master schedule*

**Kick-off** The Kickoff is a face-to-face or virtual 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.

**Demonstration** The demonstration in Asia will likely occur in Cyberport in Hong Kong from 2-6 March 2020.



# Chapter 2. Technical Architecture

This section provides the technical architecture and identifies all requirements and corresponding work items. It references the OGC standards baseline, i.e. the complete set of member approved **Abstract Specifications**, **Standards** including **Profiles** and **Extensions**, and **Community Standards** where necessary. Further information on the OGC standards baseline can be found [online](#).

## 2.1. Requirements

The pilot will focus on these scenarios:

- 1) **Real-time monitoring of indoor occupancy.** This scenario will demonstrate the integration of indoor location models with sensed occupancy data. Standards to be exercised are IndoorGML for indoor location and SensorThings API for real-time access to sensor datastreams.
- 2) **Real-time monitoring of air quality (micro-dust).** This scenario will demonstrate the integration of 3D City location models with sensed air quality data. Standards to be exercised are CityGML for 3D City objects and SensorThings API for real-time access to sensor datastreams.

The important aspects to be demonstrated are summarized in the following requirements table.

Req Id	Description	
R1	Interactively visualize indoor occupancy as both sensor readings and as properties of IndoorGML feature elements	
R2	Interactively visualize air quality (micro-dust / PM2.5 concentration) as both sensor readings and as properties of air volumes surrounding / between / within 3D CityGML structures	
R4	Provide access to (synthetic) sensor data through SensorThings API services	
R5	Process (point) sensor measurements in order to estimate properties of city features of interest	
R6	Implement application workflow to monitor and analyze indoor occupancy	
R7	Implement application workflow to monitor and analyze air quality	
R9	Provide interim report of initiative activities and results by end of November, 2019	
R10	Provide guidance and standards change requests that support development of 3D Geo-Portals based on open standards that translate IoT sensor readings into smart city capabilities	
R11	Provide technical and administrative support for carrying out the initiative	

Table 2. Requirements

## 2.2. Deliverables and Reporting

The initial architecture for the pilot is summarized in the Figure [3D IoT Platform Architecture].

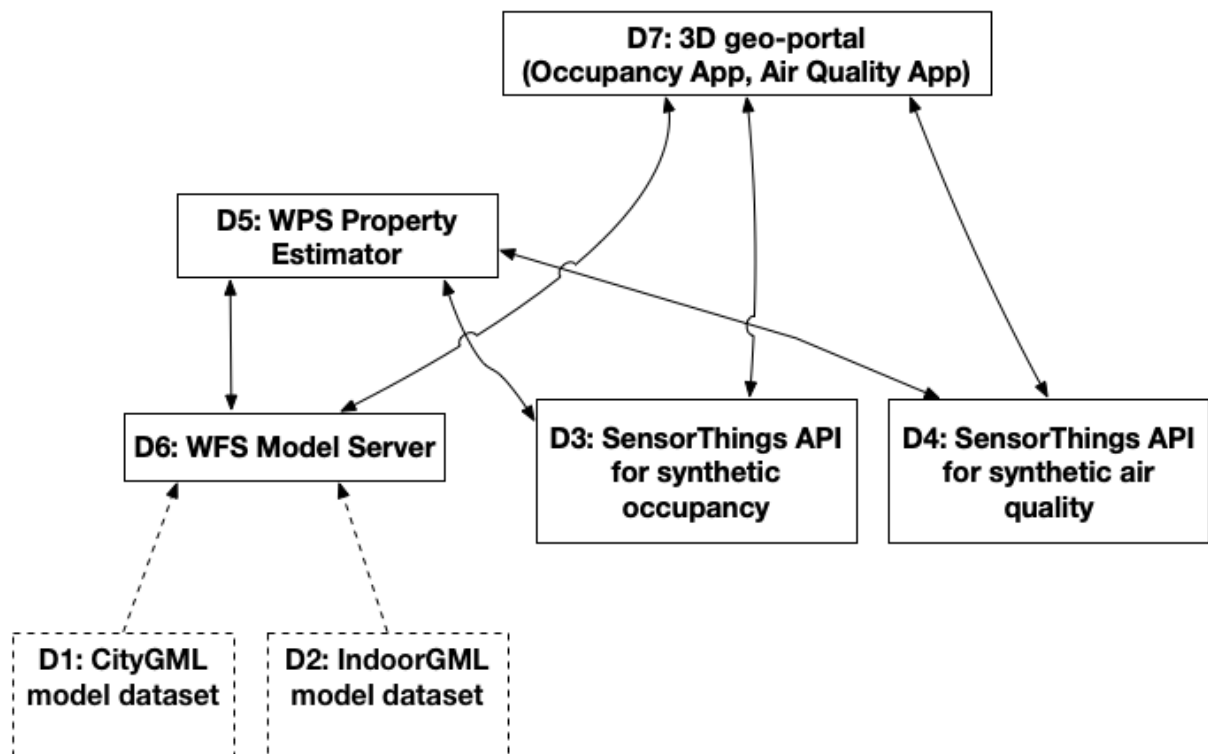


Figure 1. 3D IoT Platform Architecture

The components in the diagram above are detailed in the next sections.

### 2.2.1. D1: CityGML model dataset

CityGML model dataset of Sejong with air quality sensor locations.

Related Requirement(s):

- [R2] Interactively visualize air quality

### 2.2.2. D2: IndoorGML model dataset

IndoorGML model dataset of one or more buildings in Sejong with occupancy sensor locations.

Related Requirement(s):

- [R1] Interactively visualize occupancy

### 2.2.3. D3: SensorThings server with synthetic occupancy sensor dataset

SensorThings server providing distributed access to synthesized datastream of occupancy sensor readings corresponding spatially to the IndoorGML dataset.

Related Requirement(s):

- [R1] Interactively visualize occupancy
- [R3] Provide access to (synthetic) sensor data through SensorThings API

### 2.2.4. D4: SensorThings server with synthetic air quality dataset

SensorThings server providing distributed access to synthesized datastream of air quality sensor readings corresponding spatially to the CityGML dataset

Related Requirement(s):

- [R2] Interactively visualize air quality
- [R3] Provide access to (synthetic) sensor data through SensorThings API

### 2.2.5. D5: WPS property estimation processor

Web processing service that estimates CityGML, IndoorGML, or MUDDI observed properties from relevant sensor datastreams. May be operated interactively to provision the Geo-Portal or in batch mode to populate each SensorThings API server with features of interest and (derived) linked datastreams.

Related Requirement(s):

- [R4]

### 2.2.6. D6: WFS model server

WFS to provision CityGML / IndoorGML / MUDDI-CityGML features / tiles to the Geo-Portal and/or WPS Property Estimator. Should support GLTF / 3d-tiles formats.

Related Requirement(s):

- [R1], [R2], [R5], [R6]

### 2.2.7. D7: 3D geo-portal

Geo-portal client supporting STAPI, WFS, WPS, and scenario-specific applications for occupancy, air quality, and water supply.



Related Requirement(s):

- [R1], [R2], [R5], [R6]

## **2.2.8. D8: Initiative Engineering Report**

Engineering Report addressing topics as needed by an initiative including:

- Description of the work performed
- Testing approach and results of the experimentation
- Best practices in the deployment of OGC standards and open architectures
- Change Requests to OGC Standards
- Next steps and lessons learned

The Engineering Report will be reviewed by at least one working group at OGC. After the working group approves it, the OGC Technical Committee will review it and will vote to release the document to the public.

## **2.3. D9: Management Reporting**

Initiative participant business/contract representatives are required (per the terms in 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 following reports are required:

### **2.3.1. Kickoff Status Report**

Selected Participants must provide a one-time Kickoff Status Report that includes a list of personnel assigned to support the initiative and assurance that the Participants understand the schedule for all of its deliverables. This report should be submitted in electronic form to a designated email address no later than the last day of the Kickoff event.

### **2.3.2. Monthly Progress Reports**

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.

### **2.3.3. Final Summary Report**

Participants must provide a Final Summary Report near the end of initiative execution. These report will provide the following information:

- Summary of Participant's overall contribution to the project
- Description of the work completed that fulfilled the PA SOW items
- Recommendations for future OGC Innovation Program initiatives and Standards Program efforts

## **2.4. General Expectations about Deliverables**

### **Documentation and Videos**

Participants are expected to provide information about the development of the deliverable to collaborative spaces (e.g. the project wiki) and to provide text or diagrams, as needed. All Participants will be responsible for contributing content to the Engineering Reports, but the report editor will assume the duty of being the primary report author. Participants are also expected to provide canned videos for demonstration purposes, if appropriate.

### **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.

### **Outreach**

During the initiative, and with agreement by sponsors and other participants, a participant or OGC staff might promote the work. It is expected that the participants support the development of this outreach material. Examples are: blog posts and slides.

# Appendix A: Pilot Organization and Execution

## A.1. Initiative Policies and Procedures

This initiative will be conducted 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](#).

## A.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 performed. 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.

## A.3. Types of Deliverables

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

### A.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](#).

### A.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 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.

## A.4. Proposals & Proposal Evaluation

Proposals are expected to be short and precisely addressing 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 B](#). Details on the proposal submission process are provided in [Appendix B: Proposal Submission Guidelines](#). The proposal evaluation process and criteria are described below.

### A.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** (PA) and a **Statement of Work** (SOW).

### A.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

#### **A.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

#### **A.4.4. Cost Criteria**

- Cost-share is referred to the compensation provided to participants.
- 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.

# Appendix B: Proposal Submission Guidelines

## B.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](mailto: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 other purposes, 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 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 may still be able to participate by addressing the stated CFP requirements on a purely in-kind basis.
- 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.

## B.2. How to Respond

The response form is available [on line](#).

Bidders are encouraged to use this workbook (<http://bit.ly/workbook-orc-fcp>) to calculate the cost share and in-kind contributions.

Bidders are required to provide:

- Contact information: General information of the company, business contact and two technical contacts.
- Funding request and in-kind contributions for each deliverable.

Proposals must be submitted before the appropriate response due date indicated in the [Master Schedule](#).

## B.3. 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 ([techdesk@opengeospatial.org](mailto:techdesk@opengeospatial.org)). 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.

## B.4. Tips for new bidders

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

- 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.
  - 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).
  - 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 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.

# Appendix C: Abbreviations

The following table lists all abbreviations used in this CFP.

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

# Appendix D: Corrigenda & Clarifications

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.

Section	Description
<i>How to Respond</i>	Added link to the cost workbook.
<i>Questions and Clarifications</i>	Added email to the tech desk: <a href="mailto:techdesk@opengeospatial.org">techdesk@opengeospatial.org</a>

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

Question	Clarification
<i>What is the process for submission?</i>	The submission process has been simplified. Bidders need to respond following this form: <a href="https://forms.gle/GfvwD2fyhg42nxuv9">https://forms.gle/GfvwD2fyhg42nxuv9</a> . Bidders are encouraged to use this workbook ( <a href="http://bit.ly/workbook-orc-fcp">http://bit.ly/workbook-orc-fcp</a> ) to calculate the cost share and in-kind contributions.
<i>Who to contact for questions?</i>	Bidders should send any question to the OGC Technology Desk ( <a href="mailto:techdesk@opengeospatial.org">techdesk@opengeospatial.org</a> ).