Public Works and Government Services Canada

Travaux publics et Services gouvernementaux Canada

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Quebec
K1A 0S5
Bid Fax: (819) 997-9776

LETTER OF INTEREST
LETTRE D'INTÉRÊT

Comments - Commentaires

Title - Sujet		
Pro Services - AI Green-Informatics		

Solicitation No. - N° de l'invitation	**Date**
EN578-200703/B	2019-12-19

Client Reference No. - N° de référence du client	**GETS Ref. No. - N° de réf. de SEAG**
20200703	PW-$$EE-017-37123

File No. - N° de dossier	**CCC No./N° CCC - FMS No./N° VME**
017ee.EN578-200703	

Solicitation Closes - L'invitation prend fin	**Time Zone**
at - à **02:00 PM**	**Fuseau horaire**
on - le 2020-01-20	Eastern Standard Time EST

F.O.B. - F.A.B.

Plant-Usine: ☐   Destination: ☐   Other-Autre: ☐

Address Enquiries to: - Adresser toutes questions à:	**Buyer Id - Id de l'acheteur**
Lessard, Peter	017ee

Telephone No. - N° de téléphone	**FAX No. - N° de FAX**
(613) 850-7602 ( )	( ) -

Destination - of Goods, Services, and Construction:
Destination - des biens, services et construction:

DEPARTMENT OF PUBLIC WORKS AND GOVERNMENT SERVICES CANADA
PORTAGE III
11 LAURIER ST
Gatineau
Quebec
K1A0S5
Canada

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address
Raison sociale et adresse du
fournisseur/de l'entrepreneur

Delivery Required - Livraison exigée	**Delivery Offered - Livraison proposée**
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Vendor/Firm Name and Address
Raison sociale et adresse du fournisseur/de l'entrepreneur

Telephone No. - N°de téléphone
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Name and title of person authorized to sign on behalf of Vendor/Firm (type or print)
Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)

Signature   **Date**

Issuing Office - Bureau de distribution
Systems Software Procurement Division / Division des achats des logiciels d'exploitation
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Canada

PROCUREMENT ENVIRONMENTAL IMPACT CAPABILITY

The Acquisitions Program within PSPC is launching the Procurement Environmental Impact Capability (PEIC) project (Solicitation No. EN578-200703/A). In an effort to reduce environmental impact through its procurement, the project aims to inform future procurements and advance green practices.

Using Artificial Intelligence (AI) and web scraping techniques, the objective is to establish a database composed of environmental related information (data points) to capture the Government of Canada (GC)'s current state of procurement.

Acquisitions Program will be hosting an Industry engagement activity on December 18, 2019 to present the revised project requirements and seek Industry feedback on the draft Statement of Work (SoW) document associated with PEIC, which was revised to include feedback received on the initial Notice of Proposed Procurement (NPP) documents issued on October 2, 2019. The revised draft SoW is appended below in Section A.

In addition, during the engagement activity, Acquisitions Program will be posing a series of questions to industry to gain its input on certain aspects of the project. A list of sample questions that will be asked is also appended below in Section B. This list is not exhaustive and additional questions may be posed during the engagement activity. Following industry day all industry participants and suppliers on the AI source list will have the opportunity to answer questions raised in writing.

SECTION A

- Draft Statement of Work (SoW) -

PROCUREMENT ENVIRONMENTAL IMPACT CAPABILITY

1. PROJECT OBJECTIVES

Using Artificial Intelligence (AI) and web scraping techniques, establish a database composed of environmental related information (data points) to capture the Government of Canada (GC)'s current state of procurement with regard to:

1. Green requirements, processes and initiatives;
2. Environmental goods and services purchased by GC; and,
3. Vendors doing business with the GC.

2. BACKGROUND

Public Services and Procurement Canada (PSPC) procures goods and services on behalf of departments and agencies. The department's medium and long-term objectives include:

1. Support departments in decision-making and in "Greening the way we work; Changing the way we work; and, Changing the way we deliver service"; and,
2. Move towards advanced data analytics.

The Acquisitions Program within PSPC is launching the Procurement Environmental Impact Capability (PEIC) project. In an effort to reduce environmental impact through its procurement, the project aims to inform future procurements and advance green practices.

Procurement information is stored in different accessible locations:

The data related to procurement and its strategy (such as sourcing, resulting contracts terms and conditions, vendor selection methodology, etc.) can be found in the following databases:

1. BuyandSell (https://buyandsell.gc.ca/procurement-data/tenders)
2. Open Canada (https://open.canada.ca/data/en/dataset/ffd38960-1853-4c19-ba26-e50bea2cb2d5)

The data related to purchases and buys (such as spend on specific goods and services) resulting from a procurement and its strategy can be found in the following databases:

1. Acquisition Information System (AIS) reports on contract award activities. The database includes the names, location, industry sectors, and sizes of the firms that are awarded, the dates and dollar values of the contracts, as well as the department on whose behalf each contract was awarded.
2. Proactive Disclosure (https://open.canada.ca/en/proactive-disclosure)
3. Financial data system
4. Contract and Call-up clause and conditions (hard copy)

3. SCOPE OF WORK AND DELIVERABLES

The work to be performed by the Contractor in the core work of the project is broken into two (2) stages and corresponding deliverable(s).

3.1 Green Procurement Application and Database

Deliverable 1:   **Proof of Concept**

For the abovementioned deliverables 1, the activities to be performed by the Contractor include, but are not limited to:

3.1.1   Develop and deliver Proof of Concept documentation that must include the following details:
   3.1.1.1 The proposed methodology and schedule (work breakdown, and associated resources and timelines).
   3.1.1.2 Data strategy including data structure, housing (staging server/Canada's server), etc.
   3.1.1.3 Validation approach including potential challenges (ex. scalability) and mitigation approach.
   3.1.1.4 Resources that form the team, their roles and level of effort required for each stage of the project.

3.1.2   Using AI techniques, a sample size of documents and content found on Open Canada and BuyandSell tender website, identified by the PA to both inform and validate the methodology and approach defined within the work plan (e.g., 600 web pages and 500 PDF documents).

3.1.3   Based on the outcome of the sample analysis, revising the methodology and approach, as requested by the PA. The Contractor will be required to consult with and obtain approval from the PA on the final work plan prior to carrying out further analysis.

3.1.4   Providing iterations of the Proof of Concept after final acceptance, as requested by PA.

Deliverable 2:   Green Procurement Application & Source Codes
Deliverable 3:   Green Procurement Database (GPD)

The focus of the deliverables 2 and 3 is to capture environmental data related to goods and service requirements, procurement processes, initiatives and end products currently purchased by the GC, as well as vendors from whom the GC purchases.

Using AI and web scraping techniques, the Contractor must deliver an application and a database with functions and capabilities further detailed in this section. This database must contain all the results of the analysis performed by the Contractor and a clear definition of each variable. g

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CIEA Capacité d'impact environnemental de l'approvisionnement

PEIC Procurement Environmental Impact Capability

Deliverable 4: Draft Integrated Report
Deliverable 5*:* Final Integrated Report

Both reports must contain a general analysis of the data obtained, including the identification of their main categories and relevant variables such as goods and services, source databases, and environment-related data points. Both reports must also include an analysis of the costs of the various actions to carry out this project.

The focus of these deliverables is to combine and consider the work of the application development into a single coherent and consolidated report. This report must be written in a way that ensures that it can be easily shared with and understood by a wide variety of stakeholders and must include, but is not limited, to the following information:

1. Executive summary
2. Introduction
3. Description of the project and objectives
4. Summary of project plan and timelines
5. Description of methodology and limitations
6. Findings, conclusions and recommendations
7. Lessons learned
8. Appendices
9. List of documents reviewed
10. Footnotes
11. List of sources

Government Data Sources

Two (2) main data sources (unstructured) that are to be used to build the GPD with be BuyandSell and Open Canada. However, the GPD may be expanded to capture additional data points mentioned in Section 2 – Background as required by GC.

3.2 Application Capabilities

3.2.1 The application must have the following capabilities and functions during the structuring of the different government databases provided by Canada:

3.2.1.1 Generate outputs sourcing from content found on BuyandSell and Open Canada. The outputs will appear on up two (2) front end web interface(s) (HTML): one for general queries and another for advanced users to generate in-depth queries. The users will have the option to trigger all outputs into a clean, extractable/exportable and sharable format (e.g. in Excel or other agreed upon format) that allows PA to conduct further research and analysis.

3.2.1.2 Analyze content in both Canadian official languages (English and French).

3.2.1.3 Trace the content back to its origins, based on different variables such as process number, amendments, location within the RFx document or statement of work, etc.

3.2.1.4 Associate the content to an array of procurement variables such as type of goods and services, suppliers, process number, amendment number, contract values, contract

period, client department, regions, part numbers, etc.

3.2.1.5 Analyze the level of consistency, similarity and standardization between the samples containing green components, as well as their frequency of usage.

3.2.1.6 Be scalable and remain performant through large set of data.

3.2.1.7 Allow for a search function. This search function should make have an instant autocomplete recommendation possible results.

3.2.1.8 Apply continuous machine language training, ingest training data and fixed data set to ensure evolving model.

3.2.2 For structuring the databases, the activities to be performed by the Contractor include, but are not limited to:

3.2.2.1 Identifying text patterns and analyzing the unstructured content of web pages and embedded procurement documents presented on Open Canada and the BuyandSell tender website for information related to any environmental considerations (on an annual basis, approximately 25,000 procurement tenders issued by the Acquisitions Program (AP) within PSPC). These considerations include any element that may directly or indirectly pertain to certifications, plastic, greenhouse gas emission, post-recycled content, water, recycling or any information that Canada determines as a potential green priority.

3.2.2.2 Structuring all information related to procurement and any environmental considerations, and cleaning the database for PSPC to generate reports.

3.2.2.3 Design a highly scalable database architecture.

3.2.2.4 Documenting the analysis performed to obtain the results. The PA will provide input to guide accuracy and precision of the information.

3.2.2.5 Documenting the source code of the project.

3.2.2.6 Providing a staging server and access to GC users during the development and testing of the application. The final delivered application must be functional and configured to run on Canada's server.

3.2.2.7 Ensuring interoperability with multiple commercially available business intelligence tools (such as, but not limited to, IBM Cognos Analytics, Oracle Business Intelligence Suite Enterprise Edition, SAP BI).

3.2.2.8 Using Python or another actively supported open source programming language.

3.2.2.9 Providing deliverables via encrypted portable external hard drive

3.2.3 The application must have the following capabilities and functions in order to enhance the GPD with relevant and publically available information as follows:

3.2.3.1 Through web scraping, search for environmental attributes and certifications related to environmental data points identified in the GPD.

3.2.3.2 Link open information and environmental attributes to the variables identified in the GPD. This information may pertain to certifications, plastic, greenhouse gas emission, post-recycled content, water, recycling or any other data points Canada identifies as points of interest.

3.2.3.3 Disable the web scraping function to limit the search function to content strictly found on provided government databases.

3.2.4 For enhancing the GPD, the activities to be performed by the Contractor include, but are not limited to:

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3.2.4.1 Refine the GPD's structure to include the data obtained through web scraping.

3.2.4.2 Generate an updated database periodically or on an as-and-when-requested basis

3.2.4.3 Providing deliverables in a usable format (e.g. HTML, Excel), sharable with and extractable by GC.

3.3 Option & As-and-When-Requested Task Authorized Work

3.3.1   Support Services (Option)

The Contractor must provide support and maintenance of application and resolution of any technical issues. In terms of activities, this includes fixing "bugs" found in the application, adding required features in order to meet the requirement, etc.

The option periods are detailed in section _____ of the contract.

3.3.2   Training sessions (Option)

The Contractor will train in support of a train-the-trainer approach for designated users (up to 20 users per session). The Contractor will also prepare a user's guide (in English) with comprehensive instructions on how the application is structured and how to use and test it. The Project Authority will provide translation services where required.

3.3.3   Task Authorized Work (As-and-When-Requested)

Work may be required on an as-and-when-requested basis to complete Canada's objectives. This work, either solution-based or task-based, and its deliverables will be carried out through pre-determined conditions in accordance with the Task Authorization (TA) process described in this contract.

4.   REPORTING REQUIREMENTS

The Contractor must provide weekly status reports to the PA in English in MS Word outlining progress for the given period and include any issues or considerations on upcoming milestones.

FORMAT. All reports and documents that are produced and submitted to the PA for approval and deliverable completion must in an electronic file. Any electronic files that cannot be read or require major formatting changes when opened will not be accepted and will be returned to the Contractor for correction. This may result in a deliverable being considered incomplete until corrections by the Contractor are made.

5.   ACCEPTANCE PROCEDURE

All deliverables and services rendered under the contract are subject to inspection by the PA. Review and feedback will be provided in writing by the PA within ten (10) business days. The PA will have the right to

reject any deliverables that are not considered satisfactory or require correction, prior to authorizing payment.

6. PROJECT SUPPORT

The PA will provide relevant documentation and information where necessary and be responsible for supporting the coordination of the overall project, providing as-required direction and guidance to the Contractor, and approving deliverables.

The PA will ensure that appropriate subject matter experts are available as required to enable the Contractor to proceed on schedule with the completion of all deliverables (ex: provide input, answer questions, support in the evaluation of deliverables for acceptance).

The Project Authority or delegated authority will provide ongoing timely support to the Contractor.

7. MEETINGS

A kick-off meeting (in person or via teleconference) will be held prior to commencing the project.

Weekly meetings (in-person or via teleconference) will be held between the Project Authority, Project team and the Contractor.

In addition to the weekly meetings with the Project Authority or delegated representative(s), the Contractor must be available to meet with other stakeholders upon request, via teleconference, if the need arises to discuss any issues.

The Contractor must provide written summary of the decisions made during each meeting.

8. LOCATION OF WORK

All work will be completed at the Contractor's location. Project review meetings may be conducted by teleconference. PSPC will not provide office space nor government furnished equipment.

9. LANGUAGE REQUIREMENTS

The primary language of work will be in English and project updates must be provided in English. All documentations must be provided in English and French, unless otherwise specified by the PA.

10. TRAVEL AND LIVING

Travel is not mandatory for this work. Therefore, travel and living expenses will not be reimbursed under any resulting Contract.

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Appendix A: Relevant Terms and Acronyms

AI: Artificial Intelligence
AP: Acquisition Program
GPD: Green Procurement Database
GC: Government of Canada
PA: Project Authority
PEIC: Procurement Environmental Impact Capability
PSPC: Public Service Procurement Canada

SECTION B

- Questions to Industry -

1. Based on the information provided, do you think:
   a. The project objective should be easily achieved and the approach described in the SOW is clear;
   b. GC should redefine its requirements and reduce the objective/scope (e.g. only focus on a clean database creation, or on part of the GC or other Open data);
   c. GC should redefine their requirements and expand the objective/scope (e.g. AI technique to be applied should be able to classify all GC procurements).
   d. Other

2. Is the information in the SOW sufficient? Please elaborate on any other information that would be useful.
   a. Server specs;
   b. GC database specs;
   c. GC level of green definition;
   d. Other. Vendor will provide information.

3. What other information is required if the GC wants the application to differentiate between environmental attributes in commodities within the marketplace?
   a. Canada must define green environmental data points including attributes;
   b. Commodities details;
   c. All of the above.
   d. Other

4. Do you foresee any of the following as potential challenges?
   a. Scope (broad/narrow) vs timing;
   b. Missing definitions vs (green) objectives;
   c. With search function and environmental attribute;
   d. Goods vs services;
   e. Other, vendor will provide information.

5. Based on the information provided in the SOW and based on the details provided in the presentation, do you believe that you have sufficient information and understanding of the current databases (i.e. Buy and Sell, Proactive Disclosure on Open Data) to undertake this project.
   a. Sufficiently;
   b. Moderately;
   c. Minimally;
   d. Not at all;
   e. Uncertain, more information is required. Vendor will provide information.

6. Based on the information provided in the SOW and based on the details provided in the presentation, do you believe that you have sufficient information and understanding of the additional databases (i.e. Acquisitions Information Services, Sigma, PDF contracts,) to undertake this project.
    a. Sufficiently;
    b. Moderately;
    c. Minimally;
    d. Not at all;
    e. Uncertain, more information is required. Vendor will provide information.

7. Based on our SOW, do you foresee any challenges in merging multiple data sources (e.g. Buy and Sell, Proactive Disclosure on Open Data)?
    a. Easily;
    b. Difficult;
    c. Uncertain, more information is required. Vendor will provide information.

8. Based on our SOW, do you foresee any challenges in amalgamating quantitative and qualitative data together (e.g. Excel databases, PDF contracts):
    a. Easily
    b. Difficult
    c. Uncertain, more information is required. Vendor will provide information.

9. Based on the information provided in the SOW, do you believe that the application will be able to help identify the various environmental attributes within various GC procurement documents and tools (e.g. contracts, Standing Offers/Supply Arrangements), and what GC specifically purchases from the procurement tools.
    a. Yes, to all procurement tools;
    b. Yes, to all green commodities;
    c. Yes, to help all;
    d. No, this is not within AI capability;
    e. Maybe, more information is required. Vendor will email a request for more specifics.

10. Do you expect the application to be reliable enough to provide the GC with a high-confidence level in terms of (environmental?) data points?
    a. Yes;
    b. No;
    c. I, as a Contractor, could propose more performance measurements.

11. Based on experience, how should intellectual property be managed within this project/contract?
    a. Vendor will provide information.

12. Should the application be open source?
    a. Yes;
    b. No.
    c. other

13. Do you know what the requirements will be in terms of server capacity?
    a. Need more information;
    b. Depends on requirement;
    c. Vendor will provide information.