



RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:
Bid Receiving - PWGSC / Réception des
soumissions - TPSGC
11 Laurier St. / 11, rue Laurier
Place du Portage, Phase III
Core 0B2 / Noyau 0B2
Gatineau, Québec K1A 0S5
Bid Fax: (819) 997-9776

REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION

Proposal To: Public Works and Government Services Canada

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

Proposition aux: Travaux Publics et Services Gouvernementaux Canada

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments - Commentaires

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

Issuing Office - Bureau de distribution
Science Procurement Directorate/Direction
de l'acquisition
de travaux scientifiques
11C1, Phase III
Place du Portage
11 Laurier St. / 11, rue Laurier
Gatineau, Québec K1A 0S5

Title-Sujet COGNITIVE RADAR FOR ENHANCED PERFORMANCE	
Solicitation No. - N° de l'invitation W7714-176217/001/SV	Date 2017-01-10
Client Reference No. - N° de référence du client W7714-176217	
GETS Reference No. - N° de référence de SEAG PW-17-00763477	
File No. - N° de dossier 035sv W7714-176217	CCC No./N° CC - FMS NO. / N° VME
Solicitation Closes - L'invitation prend fin at - à 2:00 PM on - le 2017-02-20	Time Zone Fuseau horaire Eastern Standard Time (EST)
F.O.B. - F.A.B Plant-Usine : <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Joseph Hulse	Buyer Id - Id de l'acheteur 035SV
Telephone No. - N° de téléphone 873-469-4832	FAX No. - N° de FAX 819-957-2229
Destination of Goods, Services and Construction: Destinations des biens, services et construction : Specified Herein Précisé dans les présentes	

Instructions : See Herein

Instructions : voir aux présentes

Delivery Required - Livraison exigée See Herein	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de telephone Facsimile No. - N° de télécopieur	
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



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PART 1 - GENERAL INFORMATION

1. Introduction

The bid solicitation is divided into seven parts plus attachments and annexes, as follows:

- Part 1 General Information: provides a general description of the requirement;
- Part 2 Bidder Instructions: provides the instructions, clauses and conditions applicable to the bid solicitation;
- Part 3 Bid Preparation Instructions: provides bidders with instructions on how to prepare their bid;
- Part 4 Evaluation Procedures and Basis of Selection: indicates how the evaluation will be conducted, the evaluation criteria that must be addressed in the bid, and the basis of selection;
- Part 5 Certifications: includes the certifications to be provided;
- Part 6 Security, Financial and Other Requirements: includes specific requirements that must be addressed by bidders; and
- Part 7 Resulting Contract Clauses: includes the clauses and conditions that will apply to any resulting contract.

The Annexes include the Statement of Requirement, the Basis of Payment, and DND 626 Task Authorization form.

3. Summary

PWGSC intends to award a task authorization contract for the provision of cognitive radar research to enable the enhanced performance of naval phased array radars for Department of National Defence (DND). Services are to be performed at the Contractor's location.

The resulting contract is for a period of 3 years, with 2 additional, 1 year option periods.

There is no security requirement associated with this requirement.

Bidders must provide a list of names, or other related information as needed, pursuant to section 01 of Standard Instructions 2003.

For services requirements, Bidders in receipt of a pension or a lump sum payment must provide the required information as detailed in attachment 3 of Part 5 of the bid solicitation.

The requirement is limited to Canadian goods and/or services.

The Contractor will own the Intellectual Property Rights in the Foreground Information.

This procurement is subject to the Agreement on Internal Trade (AIT).

There is a Federal Contractors Program (FCP) for Employment Equity requirement associated with this procurement; see Part 5 - Certifications, Part 6 - Resulting Contract Clauses and the attachment named Federal Contractors Program for Employment Equity - Certification.



4. Debriefings

After contract award, bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days of receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

5. Communications

As a courtesy and in order to coordinate any public announcements pertaining to this contract, the Government of Canada requests that successful Bidders notify the Contracting Authority 5 days in advance of their intention to make public an announcement related to the recommendation of a contract award, or any information related to the contract. The Government of Canada retains the right to make primary contract announcements.

6. Conflict of Interest

The Work described herein and the deliverable items under any resulting Contract specifically exclude the development of any statement of work, evaluation criteria or any document related to a bid solicitation. The Contractor, its subcontractor(s) or any of their agent(s) directly or indirectly involved in the performance of the Work and/or in the production of the deliverables under any resulting Contract will not be precluded from bidding on any potential future bid solicitation related to the production or exploitation of any concept or prototype developed or delivered under any resulting Contract.



PART 2 - BIDDER INSTRUCTIONS

1. Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the [Standard Acquisition Clauses and Conditions Manual](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual)(<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada. Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The 2003 (~~2016-04-04~~) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

Subsection 5.4 of 2003, Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

Delete: 60 days
Insert: 120 days

2. Submission of Bids

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.

Due to the nature of the bid solicitation, bids transmitted by facsimile to PWGSC will not be accepted.

3. Former Public Servant

Contracts awarded to former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts awarded to FPSs, bidders must provide the information required in Attachment 3 before contract award. If the answer to the questions and, as applicable the information required have not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to comply with Canada's request and meet the requirement within the prescribed time frame will render the bid non-responsive.

4. Communications - Solicitation Period

All enquiries must be submitted in writing to the Contracting Authority no later than 10 calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the questions or may request that the Bidder do so, so that the proprietary nature of the question is eliminated, and the enquiry can be answered with copies



to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

5. Applicable Laws

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the bidders.

6. Improvement of Requirement during Solicitation Period

Should bidders consider that the specifications or Statement of Requirement contained in the bid solicitation could be improved technically or technologically, bidders are invited to make suggestions, in writing, to the Contracting Authority named in the bid solicitation. Bidders must clearly outline the suggested improvement as well as the reason for the suggestion. Suggestions that do not restrict the level of competition nor favour a particular bidder will be given consideration provided they are submitted to the Contracting Authority at least 5 days before the bid closing date. Canada will have the right to accept or reject any or all suggestions.



PART 3 - BID PREPARATION INSTRUCTIONS

1. Bid Preparation Instructions

Canada requests that bidders provide their bid in separately bound sections as follows:

- Section I: Technical Bid (4 hard copies and 1 soft copy on CD in .doc 2013, or earlier, format)
- Section II: Financial Bid (1 hard copy and 1 soft copy on CD in .doc 2013, or earlier, format)
- Section III: Certifications (1 hard copy)

If there is a discrepancy between the wording of the soft copy and the hard copy, the wording of the hard copy will have priority over the wording of the soft copy.

Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

Canada requests that bidders follow the format instructions described below in the preparation of their bid:

- (a) use 8.5 x 11 inch (216 mm x 279 mm) paper;
- (b) use a numbering system that corresponds to the bid solicitation.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process [Policy on Green Procurement](http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, bidders should:

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

Section I: Technical Bid

In their technical bid, bidders should demonstrate their understanding of the requirements contained in the bid solicitation and explain how they will meet these requirements. Bidders should demonstrate their capability in a thorough, concise and clear manner for carrying out the work.

The technical bid should address clearly and in sufficient depth the points that are subject to the evaluation criteria against which the bid will be evaluated. Simply repeating the statement contained in the bid solicitation is not sufficient. In order to facilitate the evaluation of the bid, Canada requests that bidders address and present topics in the order of the evaluation criteria under the same headings. To avoid duplication, bidders may refer to different sections of their bids by identifying the specific paragraph and page number where the subject topic has already been addressed.



Section II: Financial Bid

1. Bidders must submit their financial bid in accordance with the following:

- a) A firm all-inclusive hourly rate for each category of resources listed in Attachment 1 Financial Bid Presentation Sheet for each year of the contract period, for each option period and for the transition period.

The total amount of Applicable Taxes are to be shown separately, if applicable.

No travel and living expenses will be paid for services provided within the National Capital Region (NCR). Further, Canada will not accept any travel and living expenses for travel between the contractor's place of business and the NCR. All of these costs are to be included in the firm all inclusive labour rates requested above.

The information must be provided in accordance with the Financial Bid Presentation Sheet in Attachment 1.

- b) For Canadian-based bidders, prices must be in Canadian funds, Canadian customs duties and excise taxes included, and Applicable Taxes excluded.

For the purpose of the bid solicitation, bidders with an address in Canada are considered Canadian-based bidders and bidders with an address outside of Canada are considered foreign-based bidders.

1.2 Exchange Rate Fluctuation

C3011T (2013-11-06), Exchange Rate Fluctuation

Section III: Certifications

Bidders must submit the certifications required under Part 5.



PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

1. Evaluation Procedures

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

1.1 Technical Evaluation

1.1.1 Bidder Experience

Except where expressly provided otherwise, the experience described in the bid must be the experience of one or more of the following:

- 1. The Bidder itself (which includes the experience of any companies that formed the Bidder by way of a merger but does not include any experience acquired through a purchase of assets or an assignment of contract); or
- 2. The Bidder's affiliates (i.e. parent, subsidiary or sister corporations, maximum of 2), provided the Bidder identifies and demonstrates the transfer of know-how, the use of toolsets and the use of key personnel from the affiliate for the applicable criteria; or
- 3. The Bidder's subcontractors (maximum of 2), provided the Bidder includes a copy of the teaming agreements and identifies the roles and responsibilities of all parties under the agreement and how their work will be integrated.

The experience of the Bidder's suppliers will not be considered.

1.1.2 Supporting Information

In the event that the Bidder fails to submit any supporting information pursuant to the technical or financial criteria the Contracting Authority may, but has no obligation to, request it thereafter in writing, including after the closing date of the bid solicitation. It is mandatory that the Bidder provide the supporting information within three business days of the written request or within such period as specified or agreed to by the Contracting Authority in the written notice to the Bidder.

1.2 Mandatory and Point Rated Criteria

Mandatory and Point Rated Technical evaluation criteria are included in Attachment 2.

1.3 Financial Evaluation

1.3.1 Evaluation of Price

The price of the bid will be evaluated in Canadian dollars, Applicable Taxes excluded, Canadian customs duties and excise taxes included.

For evaluation purposes only, the price of the bid will be determined as detailed in Attachment 1, Financial Bid Presentation Sheet.



2. Basis of Selection

2.1 Basis of Selection - Highest Combined Rating of Technical Merit and Price

In this clause, Technical Merit refers to the Technical Evaluation Score

1. To be declared responsive, a bid must:
 - (a) comply with all the requirements of the bid solicitation;
 - (b) meet all mandatory criteria; and,
 - (c) obtain the required minimum of 40% percent overall score, calculated to 2 decimal points, for the technical evaluation criteria which are subject to point rating.
2. Bids not meeting (a) or (b) or (c) will be declared non-responsive.
3. The selection will be based on the highest responsive combined rating of technical merit and price. The ratio will be 60 % for the technical merit and 40 % for the price.
4. To establish the technical merit score, the overall technical score for each responsive bid will be determined as follows:
 - $(\text{total number of points obtained}) / (\text{maximum number of points available}) \times (\text{by the ratio of } 60 \%)$.
5. To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 40 %.
6. For each responsive bid, the technical merit score and the pricing score will be added to determine its combined rating, calculated to 2 decimal points.
7. Neither the responsive bid obtaining the highest technical score nor the one with the lowest evaluated price will necessarily be accepted. The responsive bid with the highest combined rating of technical merit and price will be recommended for award of a contract. In the event that two or more responsive bids have the same combined rating of technical merit and price, the responsive bid with the lowest evaluated price will be recommended for award of a contract.

The table below illustrates an example where all three bids are responsive and the selection of the contractor is determined by a 60/40 ratio of technical merit and price, respectively. The total available points equals 135 and the lowest evaluated price is \$45,000 (45).

Basis of Selection - Highest Combined Rating Technical Merit (60%) and Price (40%)

	Bidder		
	Bidder 1	Bidder 2	Bidder 3
Overall Technical Score	120/135	102/135	115/135
Bid Evaluated Price	\$55,000.00	\$50,000.00	\$45,000.00
	Calculations		
Technical Merit Score	$120/135 \times 60 = 53.33$	$102/135 \times 60 = 45.33$	$115/135 \times 60 = 51.11$



Pricing Score	45/55 x 40 = 32.73	45/50 x 40 = 36.00	45/45 x 40 = 40.00
Combined Rating	86.06	81.33	91.11
Overall Rating	2nd	3rd	1st



ATTACHMENT 1 FINANCIAL BID PRESENTATION SHEET

For evaluation purposes only, the price of the bid will be determined as follows:

1. The estimated level of effort per year specified is only an approximation of requirements.
2. The Bidder must complete the following table identifying price information for year one through year five. Bidder must indicate a firm all inclusive hourly rate.
3. Total Bid Price for Evaluation Purposes = Cumulative Total for all work categories. Each work category total will be calculated as follows: $g = (a \times b) + (a \times c) + (a \times d) + (a \times e) + (a \times f)$

Quantity	Labour Category		Initial Period			Option Period 1	Option Period 2	
			Year 1 (b)	Year 2 (c)	Year 3 (d)	Year 4 (e)	Year 5 (f)	
		Firm All Inclusive Hourly Rate Per Resource						
		Estimated total level of effort per year (a)	Year 1 (b)	Year 2 (c)	Year 3 (d)	Year 4 (e)	Year 5 (f)	Total (g) = (a x b) + (a x c) + (a x d) + (a x e) + (a x f)
1	Technical Resource	1850 hours	\$	\$	\$	\$	\$	
1	Project Manager	100 hours	\$	\$	\$	\$	\$	
Total Evaluated Bid Price								:



Attachment 2 Mandatory and Point Rated Technical Criteria

In their proposals, bidders must demonstrate they meet the following mandatory criteria. Failure to meet any of the mandatory criteria will render the bid non-compliant and it will be given no further consideration.

Information Delineation

- a) The Bidder must submit supporting information of each proposed resource for each labour category to demonstrate the resources experience in response to the mandatory and point rated technical criteria.
- b) The Bidder must demonstrate its experience and each proposed resource's experience in terms of months. Unless otherwise specified, 1 year of experience is equivalent to 1200 hours. For the purpose of calculating months and years of experience, overlapping experience will only be counted once (e.g. Project #1 time frame is July 2016 to December 2016; Project #2 time frame is October 2016 to January 2017; the total experience for these two project references is seven months).
- c) Demonstrated concurrent experience will be accepted for evaluation purposes, but only counted once.
- d) University degree requirements specified under the labour categories must be from a recognized Canadian university, or the equivalent, as established by a recognized Canadian academic credentials assessment service*, if obtained outside Canada.

* The list of recognized organizations can be found under the Canadian Information Centre for International Credentials website, at the following Internet link:
<http://www.cicic.ca/indexe.stm>

- e) Where the post-secondary degree or diploma was completed and obtained outside of Canada, Canada reserves the right to request a Canadian equivalency document to be provided by the Bidder and issued by a recognized academic credentials assessment organization showing the academic level obtained.
- f) In evaluating resource past performance experience, compliance must be demonstrated through a well written, coherent, brief (if possible), past project description containing the following as a minimum:
 - Name of the project.
 - Resource's position.
 - Resource's work start date.
 - Resource's work completion date.
 - Duration of the experience in months.
 - Description of the project and other relevant details that document how this experience has been acquired by the Bidder (for organizational level criteria) and proposed resources (for proposed resource criteria).
 - An explanation how this experience meets the specific criteria of this solicitation.
- g) For each resource category, if the Bidder submits more than 1 resource, Canada will evaluate only the first named resource presented in the proposal.



1. Mandatory Criteria

- 1.1 At bid closing time, the Bidder must comply with the following mandatory criteria and provide the necessary documentation to support compliance. Any bid which fails to meet the following mandatory criteria will be declared non-responsive and given no further consideration. Each criterion should be addressed separately.
- 1.2 The following criteria will be applied to the evaluation. This table should be completed and submitted by the Bidder, in addition to, the supporting information in the proposal.

	CRITERIA	Proposal Page Reference	Supporting Comments (if any)
M1	The Bidder's organization must have a minimum of 24 months of experience within the last 48 months, from date of bid solicitation closing, in conducting R&D in radar systems and/or radar signal processing.		
M2	The Bidder's organization must have published a minimum of 2 peer-reviewed scientific publications within the last 48 months, from date of bid solicitation closing, in radar systems and/or radar signal processing.		
M3	The Bidder's organization must have a minimum of 12 months of experience within the last 36 months, from date of bid solicitation closing, in conducting R&D in cognitive radar.		
M4	The Bidder's organization must have published a minimum of 1 peer-reviewed scientific publication within the last 36 months, from date of bid solicitation closing, in cognitive radar.		
M5	The technical resource must have a Bachelor's degree, as a minimum, from an accredited post-secondary institution, or equivalent as established by a recognized U.S. or Canadian academic credential assessment service, in any one or more of the following disciplines: engineering, mathematics or physics.		
M6	The technical resource must have a minimum of 12 months of experience within the last 36 months, from date of bid solicitation closing, with programming and/or analysis using either Matlab or Simulink or both.		
M7	The Bidder's technical proposal must include a project management plan that addresses Tasks 5.1 and 5.2 in the Statement of Work and that		



	includes work breakdown elements.		
M8	The project manager must have a minimum of 24 months of experience within the last 48 months, from date of bid solicitation closing, in managing R&D projects.		

2. POINT-RATED EVALUATION CRITERIA

- 2.1 At bid closing time, the Bidder should comply with the following point rated criteria and provide the necessary documentation to support compliance. Any bid which fails to meet and achieve the minimal pass score will be declared non-responsive and given no further consideration. Each criterion should be addressed separately.
- 2.2 The following criteria will be applied to the evaluation. This table should be completed and submitted by the Bidder, in addition to, the supporting information in the proposal.

	POINT-RATED EVALUATION CRITERIA	Proposal Page Reference	Supporting Comments (if any)
P1	In addition to M1, the Bidder's organization should have experience in conducting R&D in radar systems and/or radar signal processing. 25 to 35 months = 2 points 36 to 47 months = 4 points 48 months or more = 6 points		
P2	In addition to M2, the Bidder's organization should have published peer-reviewed scientific publications in radar systems and/or radar signal processing. 3 to 5 publications = 2 points 6 to 8 publications = 4 points 9 publications or more = 6 points		
P3	In addition to M3, the Bidder's organization should have experience in conducting R&D in cognitive radar. 13 to 23 months = 2 points 24 to 35 months = 4 points 36 months or more = 6 points		
P4	In addition to M4, the Bidder's organization should have published peer-reviewed scientific publications in cognitive radar. 2 to 3 publications = 2 points		



	<p>4 publications = 4 points 5 publications or more = 6 points</p>		
P5	<p>The Bidder's organization should have an experimental radar testbed in its facility that is suitable for the evaluation of cognitive radar algorithms.</p> <p>The Bidder's organization does not have a cognitive experimental radar testbed = 0 points The Bidder's organization has a cognitive experimental radar testbed = 6 points</p>		
P6	<p>In addition to M6, the technical resource should have experience with programming and/or analysis in either Matlab or Simulink or both.</p> <p>13 to 23 months = 2 points 24 to 35 months = 4 points 36 months or more = 6 points</p>		
P7	<p>In addition to M8, the project manager should have experience in managing R&D projects.</p> <p>25 to 35 months = 2 points 36 to 47 months = 4 points 48 months or more = 6 points</p>		

GRAND TOTAL	Total points available = 42 points
Minimal total score = 18 points (43%) (Rounded to 2 decimal pts.)	



PART 5 - CERTIFICATIONS

Bidders must provide the required certifications and documentation to be awarded a contract.

The certifications provided by bidders to Canada are subject to verification by Canada at all times. Canada will declare a bid non-responsive, or will declare a contractor in default, if any certification made by the Bidder is found to be untrue, whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority may render the bid non-complaint or constitute a default under the Contract.

1.0 Certifications Required Precedent to Contract Award

1.1 Integrity Provisions – Required Documentation

In accordance with the Ineligibility and Suspension Policy (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide the required documentation, as applicable, to be given further consideration in the procurement process.

1.2 FEDERAL CONTRACTORS PROGRAM FOR EMPLOYMENT EQUITY CERTIFICATION

I, the Bidder, by submitting the present information to the Contracting Authority, certify that the information provided is true as of the date indicated below. The certifications provided to Canada are subject to verification at all times. I understand that Canada will declare a bid non-responsive, or will declare a contractor in default, if a certification is found to be untrue, whether during the bid evaluation period or during the contract period. Canada will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply with any request or requirement imposed by Canada may render the bid non-responsive or constitute a default under the Contract.

For further information on the Federal Contractors Program for Employment Equity visit [Employment and Social Development Canada \(ESDC\)-Labour's](#) website.

Date: _____ (YYYY/MM/DD) (If left blank, the date will be deemed to be the bid solicitation closing date.)

Complete both A and B.

A. Check only one of the following:

() A1. The Bidder certifies having no work force in Canada.

() A2. The Bidder certifies being a public sector employer.

() A3. The Bidder certifies being a federally regulated employer being subject to the Employment Equity Act.

() A4. The Bidder certifies having a combined work force in Canada of less than 100 employees (combined work force includes: permanent full-time, permanent part-time and temporary employees [temporary employees only includes those who have worked 12 weeks or more during a calendar year and who are not full-time students]).

A5. The Bidder has a combined workforce in Canada of 100 or more employees; and



() A5.1. The Bidder certifies already having a valid and current Agreement to Implement Employment Equity (AIEE) in place with ESDC-Labour.

OR

() A5.2. The Bidder certifies having submitted the Agreement to Implement Employment Equity (LAB1168) to ESDC-Labour. As this is a condition to contract award, proceed to completing the form Agreement to Implement Employment Equity (LAB1168), duly signing it, and transmit it to ESDC-Labour.

B. Check only one of the following:

() B1. The Bidder is not a Joint Venture.

OR

() B2. The Bidder is a Joint venture and each member of the Joint Venture must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification. (Refer to the Joint Venture section of the Standard Instructions)

2.0 Certifications Required with the bid

2.1 Former Public Servant - Competitive Requirements

Contracts with former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts with FPS, bidders must provide the information required below.

Definitions

For the purposes of this clause, "former public servant" is any former member of a department as defined in the Financial Administration Act, R.S., 1985, c. F-11, a former member of the Canadian Armed Forces or a former member of the Royal Canadian Mounted Police. A former public servant may be:

- a. an individual;
- b. an individual who has incorporated;
- c. a partnership made of former public servants; or
- d. a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.

"lump sum payment period" means the period measured in weeks of salary, for which payment has been made to facilitate the transition to retirement or to other employment as a result of the implementation of various programs to reduce the size of the Public Service. The lump sum payment period does not include the period of severance pay, which is measured in a like manner.

"pension" means, a pension or annual allowance paid under the Public Service Superannuation Act (PSSA), R.S., 1985, c.P-36, and any increases paid pursuant to the Supplementary Retirement Benefits Act, R.S., 1985, c.S-24 as it affects the PSSA. It does not include pensions payable pursuant to the Canadian Forces Superannuation Act, R.S., 1985, c.C-17, the Defence Services Pension Continuation Act, 1970, c.D-3, the Royal Canadian Mounted Police Pension Continuation Act, 1970, c.R-10, and the Royal Canadian Mounted Police Superannuation Act, R.S., 1985, c.R-11, the Members of



Parliament Retiring Allowances Act , R.S., 1985, c.M-5, and that portion of pension payable to the Canada Pension Plan Act, R.S., 1985, c.C-8.

Former Public Servant in Receipt of a Pension

As per the above definitions, is the Bidder a FPS in receipt of a pension? Yes () No ()

If so, the Bidder must provide the following information, for all FPS in receipt of a pension, as applicable:

- a. name of former public servant;
- b. date of termination of employment or retirement from the Public Service.

By providing this information, Bidders agree that the successful Bidder's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with Contracting Policy Notice: 2012-2 and the Guidelines on the Proactive Disclosure of Contracts.

Work Force Reduction Program

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of a work force reduction program? Yes () No ()

If so, the Bidder must provide the following information:

- a. name of former public servant;
- b. conditions of the lump sum payment incentive;
- c. date of termination of employment;
- d. amount of lump sum payment;
- e. rate of pay on which lump sum payment is based;
- f. period of lump sum payment including start date, end date and number of weeks;
- g. number and amount (professional fees) of other contracts subject to the restrictions of a work force reduction program.

For all contracts awarded during the lump sum payment period, the total amount of fees that may be paid to a FPS who received a lump sum payment is \$5,000, including the Goods and Services Tax or Harmonized Sales Tax.

2.2 Status and Availability of Resources

The Bidder certifies that, should it be awarded a contract as a result of the bid solicitation, every individual proposed in its bid will be available to perform the Work as required by Canada's representatives and at the time specified in the bid solicitation or agreed to with Canada's representatives. If for reasons beyond its control, the Bidder is unable to provide the services of an individual named in its bid, the Bidder may propose a substitute with similar qualifications and experience (technical evaluation must be equal or higher). The Bidder must advise the Contracting Authority of the reason for the substitution and provide the name, qualifications and experience of the proposed replacement. For the purposes of this clause, only the following reasons will be considered as beyond the control of the Bidder: death, sickness, maternity and parental leave, retirement, resignation, dismissal for cause or termination of an agreement for default.

If the Bidder has proposed any individual who is not an employee of the Bidder, the Bidder certifies that it has the permission from that individual to propose his/her services in relation to the Work to be performed and to submit his/her résumé to Canada. The Bidder must, upon request from the Contracting Authority, provide a written confirmation,



signed by the individual, of the permission given to the Bidder and of his/her availability. Failure to comply with the request may result in the bid being declared non-responsive.

2.3 Education and Experience

The Bidder certifies that all the information provided in the résumés and supporting material submitted with its bid, particularly the information pertaining to education, achievements, experience and work history, has been verified by the Bidder to be true and accurate. Furthermore, the Bidder warrants that every individual proposed by the Bidder for the requirement is capable of performing the Work described in the resulting contract.

2.4 Canadian Content Certification

This procurement is limited to Canadian services.

The Bidder certifies that:

() the service(s) offered is (are) a Canadian service as defined in paragraph 2 of clause A3050T.

2.5 SACC Manual clause A3050T (2014-11-27), Canadian Content Definition

3. Acknowledgment:

By submitting a bid, the Bidder certifies that the information submitted by the Bidder in response to the above requirements is accurate and complete.

The bid must contain no condition. Any condition, whatsoever, will render the bid non-responsive.

Name: _____ Signature: _____ Date: _____



PART 6 - RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

1.0 Statement of Requirement

The Contractor must perform the work in accordance with the Statement of Requirement at Annex A.

1.1 Task Authorization

The Work to be performed under the Contract will be on an "as and when requested basis" using a Task Authorization (TA). The Work described in the TA must be in accordance with the scope of the Contract.

1.1.1 Task Authorization Process

- a) The Technical Authority will provide the Contractor with a description of the task using the DND 626, Task Authorization Form specified in Annex D.
- b) The Task Authorization (TA) will contain the details of the activities to be performed, a description of the deliverables, and a schedule indicating completion dates for the major activities or submission dates for the deliverables. The TA will also include the applicable basis (bases) and methods of payment as specified in the Contract.
- c) The Contractor must provide the Technical Authority and the Contracting Authority, within 14 calendar days of its receipt, the proposed total estimated cost for performing the task and a breakdown of that cost, established in accordance with the Basis of Payment specified in the Contract.
- d) The Contractor must not commence work until a TA authorized by the Technical Authority or Contracting Authority (whichever is applicable) has been received by the Contractor. The Contractor acknowledges that any work performed before a TA has been received will be done at the Contractor's own risk.

1.1.2 Task Authorization Limit

The Technical Authority may authorize individual task authorizations up to a limit of **\$150,000.00**, Applicable Taxes included, inclusive of any revisions.

Any task authorization to be issued in excess of that limit must be authorized by the Contracting Authority before issuance.

1.1.3 Minimum Work Guarantee - All the Work - Task Authorizations

1. In this clause,

"Maximum Contract Value" means the amount specified in the "Limitation of Expenditure – Cumulative Total of all Task Authorizations" clause set out in the Contract; and

"Minimum Contract Value" means 10%.



2. Canada's obligation under the Contract is to request Work in the amount of the Minimum Contract Value or, at Canada's option, to pay the Contractor at the end of the Contract in accordance with paragraph 3. In consideration of such obligation, the Contractor agrees to stand in readiness throughout the Contract period to perform the Work described in the Contract. Canada's maximum liability for work performed under the Contract must not exceed the Maximum Contract Value, unless an increase is authorized in writing by the Contracting Authority.
3. In the event that Canada does not request work in the amount of the Minimum Contract Value during the period of the Contract, Canada must pay the Contractor the difference between the Minimum Contract Value and the total cost of the Work requested.
4. Canada will have no obligation to the Contractor under this clause if Canada terminates the Contract in whole or in part for default.

1.1.4 Periodic Usage Reports - Contracts with Task Authorizations

The Contractor must compile and maintain records on its provision of services to the federal government under authorized Task Authorizations issued under the Contract.

The Contractor must provide this data in accordance with the reporting requirements detailed below. If some data is not available, the reason must be indicated. If services are not provided during a given period, the Contractor must still provide a "nil" report.

The data must be submitted on a quarterly basis period to the Contracting Authority.

The quarterly periods are defined as follows:

- 1st quarter: April 1 to June 30;
- 2nd quarter: July 1 to September 30;
- 3rd quarter: October 1 to December 31; and
- 4th quarter: January 1 to March 31.

The data must be submitted to the Contracting Authority no later than 15 calendar days after the end of the reporting period.

Reporting Requirement- Details

A detailed and current record of all authorized tasks must be kept for each contract with a task authorization process. This record must contain:

For each authorized task:

- i. the authorized task number or task revision number(s);
- ii. a title or a brief description of each authorized task;
- iii. the total estimated cost specified in the authorized Task Authorization (TA) of each task, exclusive of Applicable Taxes;
- iv. the total amount, exclusive of Applicable Taxes, expended to date against each authorized task;
- v. the start and completion date for each authorized task; and
- vi. the active status of each authorized task, as applicable.

For all authorized tasks:

- i. the amount (exclusive of Applicable Taxes) specified in the contract (as last amended, as applicable) as Canada's total liability to the Contractor for all authorized TAs; and



- ii. the total amount, exclusive of Applicable Taxes, expended to date against all authorized TAs.

1.1.5 Task Authorization - Department of National Defence (DND)

The administration of the Task Authorization process will be carried out by DND. This process includes monitoring, controlling and reporting on expenditures of the contract with task authorizations to the Contracting Authority.

2. Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the [Standard Acquisition Clauses and Conditions Manual](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) (https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) issued by Public Works and Government Services Canada.

2.1 General Conditions

2040 (2016-04-04), General Conditions - Research & Development, apply to and form part of the Contract.

3. Security Requirement

There is no security requirement applicable to the Contract.

4. Term of Contract

4.1 Period of the Contract

The Contract is for a 3 year period from date of contract award.

4.2 Option to Extend the Contract

The Contractor grants to Canada the irrevocable option to extend the term of the Contract by up to 2 additional 1 year periods under the same conditions. The Contractor agrees that, during the extended period of the Contract, it will be paid in accordance with the applicable provisions as set out in the Basis of Payment.

Canada may exercise this option at any time by sending a written notice to the Contractor at least 1 calendar day prior to the Contract expiry date. The option may only be exercised by the Contracting Authority, and will be evidenced for administrative purposes only, through a contract amendment.

5. Authorities

5.1 Contracting Authority

The Contracting Authority for the Contract is:

Joseph Hulse
Public Works and Government Services Canada
Acquisitions Branch



Science Procurement Directorate
Place du Portage, Phase III, 11C1
11 Laurier Street
Gatineau, Quebec
K1A 0S5
11 Laurier Street
Gatineau, Quebec
K1A 0S5

Telephone: (873) 469-4832
Facsimile: (819) 997-2229
E-mail address: Joseph.Hulse@pwgsc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

5.2 Technical Authority

The Technical Authority for the Contract is:

(To be entered at contract award)

Name: _____
Title: _____
Organization: _____
Address: _____

Telephone: ____ - ____ - ____
Facsimile: ____ - ____ - ____
E-mail address: _____

The Technical Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Technical Authority; however, the Technical Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

5.3 Procurement Authority

The Procurement Authority for the Contract is:

(To be entered at contract award)

The Procurement Authority is the representative of the department or agency for whom the Work is being carried out under the Contract. The Procurement Authority is responsible for the implementation of tools and processes required for the administration of the Contract. The Contractor may discuss administrative matters identified in the Contract with the Procurement Authority however the Procurement Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of Work can only be made through a contract amendment issued by the Contracting Authority.



5.4 Contractor's Representative

(To be entered at contract award)

6. Proactive Disclosure of Contracts with Former Public Servants

SACC Manual Clause A3025C (2013-03-21)

7. Payment

7.1 Basis of Payment

One of the following types of basis (bases) of payment will form part of the approved Task Authorization (TA). The task price must be determined in accordance with the Basis of Payment at Annex B.

(a) Firm Lot Price TA

The Contractor will be paid the firm lot price(s) in accordance with the Basis of Payment as specified in the authorized Task Authorization (TA) and In consideration of the Contractor satisfactorily completing all of its obligations under the authorized TA. Customs duties are included and Applicable Taxes are extra.

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work, unless they have been authorized, in writing, by the Contracting Authority before their incorporation into the Work.

(b) Ceiling Price TA

The Contractor will be reimbursed its costs reasonably and properly incurred in the performance of the Work, as determined in accordance with the Basis of Payment, to the ceiling price specified in the authorized TA. Customs duties are included and Applicable Taxes are extra.

The ceiling price is subject to downward adjustment so as not to exceed the actual costs reasonably incurred in the performance of the Work and computed in accordance with the Basis of Payment.

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work unless they have been approved, in writing, by the Technical Authority before their incorporation into the Work.

(c) TA subject to a Limitation of Expenditure

The Contractor will be reimbursed for the costs reasonably and properly incurred in the performance of the Work specified in the authorized Task Authorization (TA), as determined in accordance with the Basis of Payment, to the limitation of expenditure specified in the authorized TA.

Canada's liability to the Contractor under the authorized TA must not exceed the limitation of expenditure specified in the authorized TA. Customs duties are included and Applicable Tax are extra.

No increase in the liability of Canada or in the price of the Work specified in the authorized TA resulting from any design changes, modifications or interpretations of the Work will be authorized



or paid to the Contractor unless these design changes, modifications or interpretations have been authorized, in writing, by the Technical Authority or Contracting Authority (whichever is applicable) before their incorporation into the Work.

7.2 Limitation of Expenditure – Cumulative Total of all Task Authorizations.

1. Canada's total liability to the Contractor under the Contract for all authorized Task Authorizations (TAs), inclusive of any revisions, must not exceed the sum of \$ _____ (amount to be inserted at contract award) . Customs duties are included and Applicable Taxes are extra.
2. No increase in the total liability of Canada will be authorized or paid to the Contractor unless an increase has been approved, in writing, by the Contracting Authority.
3. The Contractor must notify the Contracting Authority in writing as to the adequacy of this sum:
 - (a) when it is 75 percent committed, or
 - (b) four (4) months before the Contract expiry date, or
 - (c) as soon as the Contractor considers that the contract funds provided are inadequate for the completion of the Work, inclusive of any revisions,whichever comes first.
3. If the notification is for inadequate contract funds, the Contractor must provide to the Contracting Authority a written estimate for the additional funds required. Provision of such information by the Contractor does not increase Canada's liability.

7.3 Method of Payment

7.3.1 Payments will be made not more frequently than once a month.

7.3.2 Depending on the method of payment specified in the applicable TA, one of the following method of payment clauses will apply.

7.3.2.1 Single Payment (For a TA subject to a Limitation of Expenditure or a Ceiling Price or a Firm Price)

Canada will pay the Contractor upon completion and delivery of the Work in accordance with the payment provisions of the Task Authorization and the Contract if:

- (a) an accurate and complete claim for payment using PWGSC-TPSGC 1111, and any other documents required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- (b) all such documents have been verified by Canada;
- (c) the Work delivered has been accepted by Canada.

7.3.2.2 Milestone Payments (For a Firm Price TA)

Canada will make milestone payments in accordance with the Schedule of Milestones detailed in the Task Authorization and the payment provisions of the Contract if:



- (a) an accurate and complete claim for payment using PWGSC-TPSGC 1111, Claim for Progress Payment, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- (b) all the certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives;
- (b) all work associated with the milestone and as applicable any deliverable required has been completed and accepted by Canada.

7.3.2.2.1 Schedule of Milestones

The schedule of milestones for which payments will be made in accordance with the Contract is as follows:

Milestone No.	Description OR Deliverable	Firm Amount	Due Date OR Delivery Date

7.3.2.3 Progress Payments (For a TA subject to a Limitation of Expenditure or a Ceiling Price)

- (a) Canada will make progress payments in accordance with the payment provisions of the Task Authorization and the Contract for cost incurred in the performance of the Work if:
 - (i) an accurate and complete claim for payment using PWGSC-TPSGC 1111, Claim for Progress Payment, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
 - (ii) the amount claimed is in accordance with the Basis of payment and the Task Authorization;
 - (iii) all the certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives;
- (b) Progress payments are interim payments only. Canada may conduct a government audit and interim time and cost verifications and reserves the right to make adjustments to the Contract from time to time during the performance of the Work. Any overpayment resulting from progress payments or otherwise must be refunded promptly to Canada.

7.4 SACC Manual Clauses

- A9117C (2007-11-30), T1204 - Direct Request by Customer Department
- C0711C (2008-05-12), Time Verification
- C0305C (2014-06-26), Cost Submission
- C2000C (2007-11-30), Taxes - Foreign-based Contractor
- C2605C (2008-05-12), Canadian Customs Duties and Sales Tax - Foreign-based Contractor

7.5 Discretionary Audit

- C0705C (2010-01-10), Discretionary Audit



8. Invoicing Instructions

1. The Contractor must submit a claim for payment using form PWGSC-TPSGC 1111, Claim for Progress Payment.
Each claim must show (if applicable from the resulting TA):
 - a. all information required on form PWGSC-TPSGC 1111;
 - b. all applicable information detailed under the section entitled "Invoice Submission" of the general conditions;
 - c. for T.A.s subject to Progress Payments, a copy of time sheets to support the time claimed;
 - d. a copy of the invoices, receipts, vouchers for all direct expenses, and all travel and living expenses;
 - e. a copy of the monthly progress report,
 - f. for milestone payments, the description and value of the milestone claimed as detailed in the Contract.
2. The Contractor must prepare and certify an original claim on Form PWGSC-TPSGC 1111, and forward it to the Contracting Authority for certification in an electronic format to the electronic mail address identified under section entitled "Authorities" of the Contract. Portable Document Format (.pdf) format is acceptable. The Contracting Authority will then forward the certified claim, in an electronic format, to the Technical Authority for appropriate certification after inspection and acceptance of the Work takes place, and onward submission to the Payment Office for the remaining certification and payment.
3. The Contractor must not submit claims until all work identified in the claim is completed.

9. Certifications

9.1 Compliance

Compliance with the certifications and related documentation provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the entire contract period. If the Contractor does not comply with any certification, provide the related documentation or if it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

9.2 Federal Contractors Program for Employment Equity - Default by the Contractor

The Contractor understands and agrees that, when an Agreement to Implement Employment Equity (AIEE) exists between the Contractor and Employment and Social Development Canada (ESDC)-Labour, the AIEE must remain valid during the entire period of the Contract. If the AIEE becomes invalid, the name of the Contractor will be added to the "FCP Limited Eligibility to Bid" list. The imposition of such a sanction by ESDC will constitute the Contractor in default as per the terms of the Contract.

9.3 SACC Manual Clause

A3060C (2008-05-12) Canadian Content Certification



10. Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in _____ (to be inserted at contract award).

11. Priority of Documents

If there is a discrepancy between the wordings of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

- (1) the Articles of Agreement;
- (2) the general conditions 2040 (2016-04-04), General Conditions - Research & Development;
- (3) Annex A, Statement of Requirement;
- (4) Annex B, Basis of Payment;
- (5) Annex C, DND 626 Task Authorization Form ; and,
- (6) the Contractor's bid dated _____.

12. Insurance

SACC Manual clause G1005C (2008-05-12), Insurance

13. Foreign Nationals (Canadian Contractor)

SACC Manual clause A2000C (2006-06-16), Foreign Nationals (Canadian Contractor)

14. Canadian Forces Site Regulations

The Contractor must comply with all standing orders or other regulations, instructions and directives in force on the site where the Work is performed.

15. Publication of Findings

1. In accordance with DRDC's policy regarding publication of information (DRDC Publication Reference Manual - September 2014), the Contractor or the author must not publish or have published any results and findings, relating to the Work, during the performance of the Contract or for a period of 2 years after without obtaining prior the written consent of Canada.
2. Any work published by or on behalf of the Contractor or the author must acknowledge that the Work was performed under the Contract with Canada and the resulting publication must be co-authored by Canada, unless specified otherwise by Canada.
3. Canada will reimburse the Contractor for its labor costs (Technical Resource and Project Manager) incurred regarding the publication of information during the Contract period, only.
4. The contractor must correspond with the Technical Authority as Canada's representative.



ANNEX A

Statement of Requirement

1. TITLE

COGNITIVE RADAR FOR ENHANCED PERFORMANCE OF NAVAL PHASED ARRAY RADARS

2. BACKGROUND and SCOPE

The Radar Sensing and Exploitation (RSE) Section at Defence Research and Development Canada (DRDC) is engaged in research and development in naval phased array radar. Shipborne phased array radars are the primary sensor for naval vessels, which operate in difficult interference and target environments. Furthermore, these environments change over time and vary with geographical location.

Research at DRDC in naval phased array radar is focused on signal processing algorithms for the detection and tracking of targets within the radar's field of regard. Effective algorithms for the detection and tracking of individual targets are required [AD1, AD2]. In addition, radar resource management (RRM) algorithms are required to simultaneously schedule the detection and tracking tasks associated with multiple targets that may be present in the radar's field of regard [AD3].

A key challenge for naval phased array radars is to maintain effective detection, tracking and RRM in difficult and varying environments. Adaptive radar techniques have been developed which allow the radar to adapt its behavior based on the current interference environment and any changes to the environment that occur over time [AD4, AD5]. Recent work has indicated that radar performance can be further optimized by incorporating cognition, which includes perception, action and memory [AD6]. However, specific cognitive techniques have not been formulated for naval phased array radar. It is desired to develop naval phased array radar algorithms for detection, tracking and RRM that incorporate cognitive aspects in algorithm design and execution.

Scope

Along with the Contractor cognitive radar background, this requirement will utilize the skills of 2 resources:

1. Technical Resource
2. Project Manager

This team will be assigned tasks relating to cognitive radar algorithm development, implementation, and, evaluation. The overall objective of this Contract is to provide the Canadian Navy with information on how cognitive radar can be utilized and integrated.



3. **ACRONYMS**

DRDC	Defence Research and Development Canada
R&D	Research and Development
RRM	Radar Resource Management
RSE	Radar Sensing and Exploitation
SOW	Statement of Work
TA	Technical Authority

4. **APPLICABLE DOCUMENTS & REFERENCES**

AD1: van Rossum, W.L., Huizing, A.G., Comparison of MIMO radar concepts: detection performance, Proceedings of the IET International Conference on Radar Systems, October 2007, pp. 1–5.

AD2: Barton, D.K., Radar System Analysis and Modeling. Artech House, 2004.

AD3: Ding, Z., A survey of radar resource management algorithms, Proceedings of the 11th Canadian Conference on Electrical and Computer Engineering, May 2008, pp. 1559-1564.

AD4: Ding, Z., Moo, P.W., DiFilippo, D., An Optimal Assignment Scheduler for Multifunction Phased Array Radar, Proceedings of the 2012 IET Radar Conference, Glasgow, UK, Oct. 2012.

AD5: Moo, P.W., Ding, Z., Coordinated radar resource management for networked phased array radars, IET Radar, Sonar & Navigation, October 2015, pp. 1021-1029.

AD6: Geurci, J.R., Geurci, R.M., Ranagaswamy, M., Bergin, J.S., Wicks, M., Cognitive Fully Adaptive Radar, Proceedings of the 2014 IEEE Radar Conference, May 2014.

5. **TASKS**

The Contractor may be required to perform the following tasks, on an “as and when required” basis. This is not an exhaustive list, with specific details, work, timeline, and deliverables to be identified in each individual Task Authorization by the TA.

5.1 Algorithm development and implementation

Naval phased array radars aim to detect and track difficult targets in challenging interference. To enhance detection, tracking and RRM performance, cognition is required so that a radar can adapt to its changing environment and exploit past information. The Contractor must:

5.1.1. Implement a model of naval phased array radar and its operating scenarios, and implement modules that compute radar metrics. The operating scenarios will include littoral environments and will be provided by the TA within a resulting Task Authorization. Radar metrics will include, but not be limited to:



- i. for target detection: probability of detection, probability of false alarm, estimation accuracy;
- ii. for target tracking: target indication accuracy, track completeness, track continuity; and
- iii. for RRM: track occupancy, frame time.

5.1.2 Propose, develop and implement cognitive algorithms in Matlab that carry out the following for a naval radar:

- i. target detection: indication of the presence of a target; and/or
- ii. target tracking: estimation of the trajectory of a target; and/or
- iii. RRM: efficient radar scheduling and waveform selection for multiple target scenarios.

These algorithms must adapt to the sensing environment encountered by the radar and must use cognition in their design and execution.

5.2 Algorithm evaluation

To determine their effectiveness for naval phased array radar, the algorithms developed in Task 5.1 need to be evaluated. The Contractor must:

5.2.1 Evaluate the detection, tracking and/or RRM performance of the proposed algorithms in modelling and simulation. This evaluation must be carried out using the operating scenarios and radar metrics provided by the Technical Authority within a resulting Task Authorization.

5.2.2 Implement the proposed algorithms in an experimental testbed and conduct trials to evaluate the detection and/or tracking performance of the proposed algorithms. This evaluation must be carried out using the radar metrics provided by the Technical Authority within a resulting Task Authorization.

6. TASK AUTHORIZATION DELIVERABLES AND REPORTING REQUIREMENTS

Each Task authorization will have the following deliverables and reporting requirements. Actual technical / coding requirements will be specified on each task authorization. All deliverables and reports are subject to reviewed and approved by the Technical Authority before acceptance and payment.

Number	Task Reference	Description of the Deliverables	Quantity and Format	Delivery Date
6.1	5.1-5.2	Quarterly progress reports, including as a minimum the following information: <ul style="list-style-type: none"> i. work accomplished during the past reporting period, with a brief summary of results; ii. changes to team personnel; and iii. work planned for the 	One soft copy of each quarterly progress report, in Contractor format as a Word or PDF document.	Within 90 days of contract award (and every 3 months after that until contract is completed)



		upcoming reporting period.		
6.2	5.1-5.2	Open literature (journal or conference) publications: as per Section 15. Publication of Findings of the Contract.	One soft copy of each paper (draft publication and final copy), in the format required by the open literature publisher.	As required.
6.3	5.1-5.2	Final Report that describes the results of Tasks 5.1 and 5.2, including as a minimum: <ul style="list-style-type: none"> i. detailed description of each algorithm; ii. the mathematical equations implemented in each algorithm; iii. results obtained from the performance evaluation; and iv. conclusions and recommendations for future work. The Contractor must submit an initial draft of the final report to the Technical Authority for review at least 30 days prior to the end of the Contract, to allow sufficient time for revisions to be implemented if necessary.	One soft copy of the draft report, in Contractor format as a Word or PDF document. One soft copy of the final report, in Contractor format as a Word or PDF document.	Draft report – 30 days before the end date of the Contract. Final report - On or before the end date of the Contract.
6.4	5.1-5.2	Progress review meeting agenda and minutes for each progress review meeting.	One soft copy of each document, in Contractor format as a Word or PDF document.	On or before 30 days after each progress review meeting.

7. LANGUAGE OF WORK

English.

8. LOCATION OF WORK

The work must be performed on Contractor’s site.



9. TRAVEL

The Contractor may be required to travel. Travel may include :

- Conferences in US/Canada/international locations (1 or 2 per year) of estimated 1-5 days in duration.
- Attendance at collaborative research group meetings (as required, up to 2 per year) of estimated 1-2 days in duration.
- Travel for joint research trials (as required).

The National Joint Council Travel Directive will apply for any travel, accommodation and living expenses. Specific travel requirements will be specified in individual task authorizations.

10. MEETINGS

As per resulting task authorizations, progress review meetings may be required during the Contract period, and will be agreed upon between the Technical Authority and the Contractor. These meetings will be to discuss progress of the work. These meetings will be held via teleconference or at the Contractor's facilities. See section 6.1 for more details.

The Contractor must prepare and deliver meeting agenda and minute. See section 6.4 for more details.

11. GOVERNMENT SUPPLIED MATERIAL (GSM)

GSM 1: Document describing radar operating scenarios and radar metrics.

12. PROPOSED RESOURCE REPLACEMENT

If the Technical Resource and/or Project Manager needs to be replaced for any reason, the Contractors proposed replacement resource must meet all of the following merits:

- i. Similar qualifications (education, work experience, years of experience) to resource being replaced; and,
- ii. Achieve an equal or greater score, when evaluated using the same mandatory and point rated criteria, as well as the certifications requirements, in solicitation W7714-176217/001/sv.

The proposed replacement resource is subject to review and approval by the Technical Authority.



**ANNEX B
BASIS OF PAYMENT**

1. LABOUR:

The Contractor will be paid firm all-inclusive hourly rates for work performed in accordance with the Contract. Customs duties are included and Applicable Taxes are extra, if applicable.

Labour Category	Contract Period			Option Period 1	Option Period 2
	Year 1	Year 2	Year 3	Year 4	Year 5
Technical Resource	\$	\$	\$	\$	\$
Project Manager	\$	\$	\$	\$	\$

TOTAL ESTIMATED LABOUR (Contract Period): \$ _____
(Applicable Taxes extra)

2. TRAVEL AND LIVING EXPENSES:

- (a) Canada will not accept any travel and living expenses incurred by the Contractor in the performance of the Work, for:
 - (i) services provided within the National Capital Region (NCR). The National Capital Region (NCR) is defined in the *National Capital Act*, R.S.C. 1985, c.N-4, S.2. The *National Capital Act* is available on the Justice Website: <http://laws.justice.gc.ca/eng/N-4/20100210/> and
- (b) For services to be provided outside the NCR, The Contractor will be reimbursed its authorized travel and living expenses reasonably and properly incurred in the performance of the Work, at cost, without any allowance for profit and/or administrative overhead, in accordance with the meal, private vehicle and incidental expenses provided in Appendices B, C and D of the National Joint Council Travel Directive and with the other provisions of the directive referring to "travellers", rather than those referring to "employees".
- (c) All travel must have prior authorization of the Technical Authority as evidenced through an authorized Task Authorization. All payments are subject to government audit.

Est.: \$ 5,000.00
(Applicable Taxes extra)

ESTIMATED COST TO A LIMITATION OF EXPENDITURE CUMULATIVE TOTAL OF ALL TASK AUTHORIZATIONS:

\$ _____
(Applicable Taxes extra)

With the exception of the firm rate(s), the amounts shown in the various items specified above are estimates only. Minor changes to these estimates will be accepted for billing purposes as the Work proceeds, provided that these changes have the prior approval of the Technical Authority, and provided that the estimated cost does not exceed the aforementioned Limitation of Expenditure.



ANNEX C
DND 626 Task Authorization form

DEPARTMENT OF NATIONAL DEFENCE
TASK AUTHORIZATION

MINISTÈRE DE LA DÉFENSE NATIONALE
AUTORISATION DES TÂCHES

ALL INVOICES, SHIPPING BILLS, AND PACKING SLIPS MUST SHOW THE FOLLOWING AGREEMENT, REFERENCE NUMBERS						*Agreement/Contract No.
TOUTES LES FACTURES, TOUTS LES CONNAISSEMENTS ET BORDEREUX D'EMBALLAGE DOIVENT INDIQUER LES NUMEROS SUIVANTS RELATIFS AU CONTRAT.						**No de la convention ou du contrat
Cost Centre	Organisation Code Code d'organisation	COM/FEM/ FMAS	S.A. Sous Rep	WBS/Internal Order	G/L Account	Amount Montant
9-15	22-27	28-34	35-36	37-41	42-46	47-56
						Reqn. No. - No de la demande
						TASK No.
						\$ (Including GST)

TO - A
Company Name and Address:

ATTN: Company Contract Manager
Name

TO THE CONTRACTOR
You are requested to supply the following materiel/services in accordance with the terms of the above reference contract. Only materiel/services included in the contract shall be supplied against this task.
Each delivery shall be accompanied by a packing note or delivery slip.
Please advise the undersigned if the delivery date cannot be met. Invoices shall be prepared in accordance with the instructions set out in the contract.

DELIVER TO - EXPEDIEZ A

DELIVERY DATE - DATE DE LIVRAISON

A L'ENTREPRENEUR
Vous êtes prié de fournir le matériel ou les services suivants en conformité des termes du contrat mentionné ci-dessus. Seuls le matériel ou les services mentionnés dans le contrat doivent être fournis à l'appui de cette demande.
Chaque livraison doit être accompagnée d'un bordereau d'emballage ou de livraison. Prière d'aviser le signataire si la livraison ne peut se faire dans les délais prescrits. Les factures doivent être établies selon les instructions énoncées dans le contrat.

Date _____ for Department of National Defence
Pour le Ministère de la Défense Nationale

Date _____ for DRDC Procurement Authority
Pour l'autorité d'approvisionnement du RDDC

Contract Item No. No d'article du contrat	Materiel/Services Matériel/Services	Cost Prix
		GST/HST TPS/TVH
		Total

APPLICABLE ONLY TO PWGSC CONTRACTS: The Contract Authority signature is required when the total value of the DND 626 exceeds the threshold specified in the contract.

NE S'APPLIQUE QU' AUX CONTRATS DE TP&GC : La signature de l'autorité contractante est requise lorsque la valeur totale du formulaire DND 626 est supérieure au seuil précisé dans le contrat.

for the Department of Public Works and Government Services
pour le ministère des Travaux publics et services gouvernementaux



Instructions for completing DND 626 - Task Authorization	Instructions pour compléter le formulaire DND 626 - Autorisation des tâches
<p>Contract no. Enter the PWGSC contract number in full.</p>	<p>N° du contrat Inscrivez le numéro du contrat de TPSGC en entier.</p>
<p>Task no. Enter the sequential Task number.</p>	<p>N° de la tâche Inscrivez le numéro de tâche séquentiel.</p>
<p>Amendment no. Enter the amendment number when the original Task is amended to change the scope or the value.</p>	<p>N° de la modification Inscrivez le numéro de modification lorsque la tâche originale est modifiée pour en changer la portée.</p>
<p>Increase/Decrease Enter the Increase or decrease total dollar amount including taxes.</p>	<p>Augmentation/Réduction Inscrivez le montant total de l'augmentation ou de la diminution, y compris les taxes.</p>
<p>Previous value Enter the previous total dollar amount including taxes.</p>	<p>Valeur précédente Inscrivez le montant total précédent, y compris les taxes.</p>
<p>To Name of the contractor.</p>	<p>A Nom de l'entrepreneur.</p>
<p>Delivery location Location where the work will be completed, if other than the contractor's location.</p>	<p>Expédiez à Endroit où le travail sera effectué, si celui-ci diffère du lieu d'affaires de l'entrepreneur.</p>
<p>Delivery/Completion date Completion date for the task.</p>	<p>Date de livraison/d'achèvement Date d'achèvement de la tâche.</p>
<p>for the Department of National Defence Signature of the DND person who has delegated Authority for signing DND 626 (level of authority based on the dollar value of the task and the equivalent signing authority in the delegation of financial authorities). Note: the person signing in this block ensures that the work is within the scope of the contract, that sufficient funds remain in the contract to cover this task and that the task is affordable within the Project/Unit budget.</p>	<p>pour le ministère de la Défense nationale Signature du représentant du MDN auquel on a délégué le pouvoir d'approbation en ce qui a trait à la signature du formulaire DND 626 (niveau d'autorité basé sur la valeur de la tâche et le signataire autorisé équivalent mentionné dans les délégations des pouvoirs financiers). Nota : la personne qui signe cette attache de signature confirme que les travaux respectent la portée du contrat, que suffisamment de fonds sont prévus au contrat pour couvrir cette tâche et que le budget alloué à l'unité ou pour le projet le permet.</p>
<p>Matériel/Services Define the requirement briefly (attach the SOW) and identify the cost of the task using the contractor's quote on the level of effort. The Task must use the basis of payment stipulated in the contract. If there are several basis of payment then list here the one(s) that will apply to the task quote (e.g. milestone payments; per diem rates/labour category hourly rates; travel and living rates; firm price/celling price, etc.). All the terms and conditions of the contract apply to this Task Authorization and cannot be ignored or amended for this task. Therefore it is not necessary to restate these general contract terms and conditions on the DND 626 Task form.</p>	<p>Matériel/Services Définissez brièvement le besoin (joignez l'ET) et établissez le coût de la tâche à l'aide de la soumission de l'entrepreneur selon le niveau de difficulté de celle-ci. Les modalités de paiement stipulées dans le contrat s'appliquent à la tâche. Si plusieurs d'entre elles sont prévues, énumérez ici celle/celles qui s'appliquera/ront à la soumission pour la tâche à accomplir (p.ex. acompte fondé sur les étapes franchies; taux quotidien ou taux horaire établi selon la catégorie de main-d'oeuvre; frais de déplacement et de séjour; prix fixe ou prix plafond; etc.). Toutes les modalités du contrat s'appliquent à cette autorisation de tâche et ne peuvent être négligées ou modifiées quant à la tâche en question. Il n'est donc pas nécessaire de répéter ces modalités générales afférentes au contrat sur le formulaire DND 626.</p>
<p>Cost The cost of the Task broken out into the individual costed Items in Services.</p>	<p>Prix Mentionnez le coût de la tâche en le répartissant selon les frais afférents à chaque item mentionné dans la rubrique Services.</p>
<p>GST/HST The GST/HST cost as appropriate.</p>	<p>TPS/TVH Mentionnez le montant de la TPS/TVH, s'il y a lieu.</p>
<p>Total The total cost of the task. The contractor may not exceed this amount without the approval of DND indicated on an amended DND 626. The amendment value may not exceed 50% (or the percentage for amendments established in the contract) of the original value of the task authorization. The total cost of a DND 626, including all amendments, may not exceed the funding limit identified in the contract.</p>	<p>Total Mentionnez le coût total de la tâche. L'entrepreneur ne peut dépasser ce montant sans l'approbation du MDN, formulaire DND 626 modifié à l'appui. Le coût de la modification ne peut pas être supérieur à 50 p. 100 du montant initial prévu dans l'autorisation de tâche (ou au pourcentage prévu dans le contrat pour les modifications). Le coût total spécifié dans le formulaire DND 626, y compris toutes les modifications, ne peut dépasser le plafond de financement mentionné dans le contrat.</p>
<p>Applicable only to PWGSC contracts This block only applies to those Task Authorization contracts awarded by PWGSC. The contract will include a specified threshold for DND sole approval of the DND 626 and a percentage for DND to approve amendments to the original DND 626. Tasks that will exceed these thresholds must be passed to the PWGSC Contracting Authority for review and signature prior to authorizing the contractor to begin work.</p>	<p>Ne s'applique qu'aux contrats de TPSGC Le présent paragraphe s'applique uniquement aux autorisations de tâche accordées par TPSGC. On inscrira dans le formulaire DND 626 un plafond précis qui ne pourra être approuvé que par le MDN et un pourcentage selon lequel le MDN pourra approuver des modifications au formulaire DND 626 original. Les tâches dont le coût dépasse ces plafonds doivent être soumises à l'autorité contractante de TPSGC pour examen et signature avant qu'on autorise l'entrepreneur à débiter les travaux.</p>
<p>Note: Work on the task may not commence prior to the date this form is signed by the DA Authority - for tasks within the DND threshold, and by both DND and PWGSC for those tasks over the DND threshold.</p>	<p>Nota : Les travaux ne peuvent commencer avant la date de signature de ce formulaire par le responsable du MDN, pour les tâches dont le coût est inférieur au plafond établi par le MDN, et par le MDN et TPSGC pour les tâches dont le coût dépasse le plafond établi par le MDN.</p>