Draft National Procurement Strategy
Research & Development

March 2012

“Promoting R&D investment in Canada through procurement.”
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Executive Summary

Introduction
Public Works and Government Services Canada (PWGSC) has commenced a review of the procurement of research and development (R&D) by the Government of Canada (GC) in order to develop a national procurement strategy. PWGSC is solely responsible for the purchase of R&D for the GC, as mandated by Treasury Board’s (TB) Common Services Policy.

The purpose of this document is to develop the foundation for a uniform national procurement approach that, when implemented, will improve the ease and effectiveness of the activities and procurement process for all stakeholders and be better able to respond to their needs. The view of government departments and suppliers is a key component to determining this approach.

For greater clarity, Research and Development (R&D) work is procured by the GC to increase scientific knowledge; apply increased scientific knowledge or exploit the potential of scientific discoveries and improvements in technology to advance the state-of-the-art; and, systematically use increases in scientific knowledge and advances in state-of-the-art to design, develop, test or evaluate new goods or services prior to commercialization.

At the highest level, it is confirmed in the strategy that PWGSC will actively support the federal government’s overarching objectives of Investing in Innovation and economic development as defined in Budget 2011. In accordance with the innovative value proposition (VP) approach in the procurement of R&D, where feasible and appropriate, PWGSC will be able to include factors such as whether firms demonstrate the capability and capacity to commercialize in Canada as part of the evaluation.

In developing this draft national strategy, PWGSC reviewed the recommendations from:

- Special Report on Procurement
- feedback from industry, academia and governments from preliminary consultations

This draft National Procurement Strategy will address PWGSC’s endorsement of, and commitment to, leading an evolving culture change in stakeholder engagement during the preliminary planning stages of R&D procurement to further an environment of trust, flexibility and transparency with the GC, industry and academia. Through existing programs, PWGSC has demonstrated its commitment to bolster innovation, enhance competition, increase engagement and collaboration with industry and support small
and medium enterprises. PWGSC will continue to develop, refine, promote, and expand these programs, as feasible.

**The Government of Canada and R&D**
The GC is a major contributor to R&D activity in Canada, as described in the aforementioned Special Report on Procurement; however, R&D procurement represents only 1% of the $240 billion (*Canada First Defence Strategy*)\(^1\) that was identified to be expended in defence and security over a 20 year period initiated in 2007. The remaining budget is directed to other program areas such as Tax Credits, Grants and Contributions, and federally performed R&D. These other programs are not captured in this draft National Procurement Strategy as they are outside the mandate of PWGSC.

The analysis of GC spending on R&D through PWGSC identified that, over the fiscal year (FY) 05/06 to FY09/10 period, PWGSC’s total annual average value awarded for R&D work was approximately $300 million.

**Summary of the market analysis**
In 2009, both public and private funding for R&D in Canada amounted to $29.4 billion (Industry Canada, 2011). The federal government portion of R&D funding is relatively constant from year to year compared to private enterprise. Private and corporate businesses as well as government are important contributors to funding R&D. Government seeks primarily to create sustainable economic growth. Alternatively, private enterprise expects to reap the benefits of commercializing its development.

While Canada is considered to be one of the most generous member countries in the Organization for Economic Co-operation and Development (OECD) when it comes to fiscal incentives for R&D, business expenditures as a proportion of GDP are low (OECD, 2011). Recently, the Government of Canada has created a panel to review federal support for R&D with the objective of finding new ways to support Canadian businesses in creating jobs and commercializing innovations (Industry Canada, 2010).

**Findings**
The analysis undertaken by PWGSC clearly demonstrates that the current contracting out methodology utilized in the procurement of R&D is the most effective approach based on the following key elements:

- R&D procurement represents innovative, state-of-the-art work that is:
  - Generally unique, one time purchase,
  - Highly specialized within a very narrow marketplace,
  - Not fully defined or is evolutionary,
  - Involves the sharing or transfer of knowledge,
  - Exploits the potential of scientific discoveries,
  - Frequently specific to a single department, and

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\(^1\) [http://www.forces.gc.ca/site/pri/first-premier/defstra/summary-sommaire-eng.asp](http://www.forces.gc.ca/site/pri/first-premier/defstra/summary-sommaire-eng.asp)
Reflects little or no repetitive procurements;

- The supplier base is largely dominated by small to medium enterprises in niche markets, often representing non-profit organizations and universities; and
- Intellectual property rights are often a negotiated component of the procurement.

Although generally effective, there are opportunities for improvement from both a strategic and operational perspective, such as enhancing communication and harmonizing terms and conditions.

**Recommendations**

PWGSC is proposing the following recommendations:

- Establish a Community of Practice to facilitate engagement and knowledge exchange which may be complemented, as appropriate, with industry, academia, other levels of government and international partners; and will lead to greater efficiency, by decreasing the learning curve of new employees, responding more rapidly to client needs, reducing rework and preventing "reinvention of the wheel".

- Create an R&D Contracting Body of Knowledge containing reference material identifying scenario-based options to address common challenges identified in the R&D contracting issues. The Contracting Body of Knowledge will be an evolving tool that will initially include information on cost sharing; Canadian Content and an illustrative example of Technology Readiness Levels (see Appendix C).

**Next Steps**

This draft National Procurement Strategy will incorporate consultation feedback as appropriate, be finalized and then be approved. Suppliers and government departments should anticipate that PWGSC will begin implementing the recommendations contained in this draft National Strategy during FY 2012-2013.
1 Purpose
Public Works and Government Services Canada (PWGSC) has engaged stakeholder groups including federal government departments and suppliers during preliminary consultations on how it procures Research & Development (R&D) on behalf of the Government of Canada (GC) in October 2010. The comments received identified strengths of the current process as well as areas of improvement that, if leveraged, could benefit the GC, existing and potential suppliers, and Canadians. These comments are identified in section 3.6.

Government departments and suppliers are encouraged to review this document and provide comments. All comments will be taken into consideration when finalizing the National Procurement Strategy for Research and Development.

2 Scope
This review examined the procurement of R&D on a national level.

2.1 Definition
R&D services are procured by the federal government to increase scientific knowledge; apply increased scientific knowledge or exploit the potential of scientific discoveries and improvements in technology to advance the state-of-the-art; and, systematically use increases in scientific knowledge and advances in state-of-the-art to design, develop, test or evaluate new goods or services prior to commercialization.

Projects in the applied R&D category are highly innovative, generating new, world-class knowledge and science and technology capabilities. They are high risk, but with the potential to provide high payback and impact to end-users.

2.2 Trade Agreements
North American Free Trade Agreement (NAFTA)
Research and Development services all classes are excluded from NAFTA as per Annex 1001.1b-2 Services.

World Trade Organization - Agreement on Government Procurement (WTO-AGP)
Research and Development services are excluded as per Annex 4 of the WTO-AGP.

Agreement on Internal Trade (AIT)
Research and Development services are subject to the provisions of this agreement.

3 Background
PWGSC has implemented a new process of procurement planning, including a consistent industry and client consultation process. These plans, known as National Procurement Strategies, set out publicly the proposed direction as to how PWGSC will fulfil its role as a common service procurement provider. These strategies, such as this one, improve the alignment of government demand and industry capacity, while meeting multiple government objectives. The publication of these strategies also
supports reduced barriers for industry, through improved transparency and communication.

To govern the creation of this draft National Procurement Strategy; seven overarching principles guide the process:

- Government Department Operational Requirements;
- Competitive Procurement;
- Access for Businesses;
- Accountability;
- National Objectives;
- Standardized and Simplified Procurement; and
- Reasoned and Rational (Justifiable / Defensible).

### 3.1 Market Influences

Government and business are important contributors to funding R&D, although their focus is not the same. While governments have a mandate towards ensuring sustainable economic growth, private investment is more concerned about the commercialization of R&D. As a result, government and other public funds have been devoted in part to basic research. This type of research can result in major breakthroughs, but can often result in no practical outcome (Organization for Economic Co-operation and Development (OECD, 2008)).

Several factors can influence the demand for R&D activity, including the economic cycle (which goes hand-in-hand with R&D growth), the international political climate (such as wars and environmental issues), the arrival of new technology, the number of incentives to private sector (e.g. grants, loans and policies) and the labour market (such as the workforce, the materials, the facilities, etc.).

R&D work is usually conducted over a long time frame, insulating research enterprises from normal economic cycles and fluctuations in research investment. Government’s understanding of the value of R&D ensures that spending remains somewhat steady across the economic cycle.

### 3.2 Canadian Market Analysis

In 2009, $29.4 billion was spent on R&D activities in Canada. With $5.7 billion spent on R&D programs, the federal government is the second largest contributor (19%) behind Canadian business with $14 billion (48%). Combined, higher education institutions, provincial governments, private not-for-profit and foreign businesses accounted for the remaining 33% of expenditures.

With respect to R&D performed, federal government programs funded $2.6 billion or 9% of total R&D activities in Canada. As such, the federal government is also an important R&D performer behind businesses and higher education institutions (Industry Canada, 2011).
Canadian gross domestic expenditures on R&D have been growing at a constant rate of 4% from 2000 to 2009 (Statistics Canada, 2009). In 2007, 26% of R&D was performed by small research organizations (less than 100 employees), 19% by medium-sized enterprises (100-499 employees), and 54% by larger research institutions (500+ employees) (Statistics Canada, 2009). R&D expenditures by businesses within Canada are highly concentrated, with approximately one-third of business enterprise expenditures on R&D performed by 25 firms between 2004 and 2009. Ontario and Quebec accounted for 77% of business enterprise expenditures on R&D in Canada (Industry Canada, 2011).

Higher education institutions represent the second largest performer of R&D in Canada, accounting for 38% of R&D performed (Industry Canada, 2011). In addition to being a major performer of R&D, higher education institutions are the key players responsible in developing highly-skilled workers in Canada (Industry Canada, 2011). Status in the academic arena is an important factor that could be perceived as a major advantage in the R&D market in terms of securing funding as financing innovation continues to be a challenge for many firms (OECD, 2008).

3.3 Government of Canada Contracting Out

The GC does invest significantly in R&D through Tax Credit Support Programs, Grant and Contribution Agreements or through Collaborative Arrangements with private industry and academia. This information is not captured in this draft National Procurement Strategy as it is outside the mandate of PWGSC.

The analysis of GC spending on R&D through PWGSC identified that, over the FY05/06 to FY09/10 period, PWGSC’s total annual average value awarded for R&D was approximately $300 million.

Innovation Canada: A Call to Action, a Review of Federal Support to Research and Development an Expert Panel Report, and the subsequent Special Report on Procurement identified a budget of $240 billion (Canada First Defence Strategy) to be expended on defence and security over a 20 year period, which was initiated in 2007. When reviewed in conjunction with the total direct federal support by program area in fiscal year 2009 – 2010, procurement represents approximately 1% of that figure, with the remaining directed to tax-credit support (70%), non-repayable grant and contribution programs (18%), repayable contribution programs (5%), and federally performed R&D expenditure (6%).

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2 Note: Non-commercial enterprises account for the remaining 1% of R&D expenditures.
3 http://www.forces.gc.ca/site/de/nfr/1st-premier/first-premier/defstra/summary-sommaire-eng.asp
2009–2010 Total Direct Federal Support to Defence and Security by Program Area

![Pie chart showing distribution of support by program area. The chart indicates 70% Fed. Performed R&D, 18% Repayable Contribution, 5% Grants & Contributions, 7% Procurement, and 1% Tax Credit Support.]


3.4 **PVGSC Contract Activity for Research and Development**

Over a five-year period (FY05/06 to FY09/10), the average value awarded annually by PVGSC for R&D was approximately $300 million, while the average number of contracts and amendments awarded was 1,559 annually.

Original contracts accounted for 30% of the number of documents awarded and 64% of the value awarded. Amendments used to modify contracts including exercising options, accounted for a large proportion (70%) of the annual business volume as would be expected with an R&D project.

**Table #1. Number of Documents and Value Awarded by Document Type**

<table>
<thead>
<tr>
<th>Document Type</th>
<th>Value Awarded</th>
<th>% of total value awarded</th>
<th># of documents</th>
<th>% of total documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract</td>
<td>$191,778,888</td>
<td>64%</td>
<td>469</td>
<td>30%</td>
</tr>
<tr>
<td>Amendments</td>
<td>$106,920,717</td>
<td>36%</td>
<td>1,090</td>
<td>70%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$298,699,605</strong></td>
<td><strong>100%</strong></td>
<td><strong>1,559</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Source: AIS based on 5-year average. AIS Data: FY05/06 to FY09/10.

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4 Source: Acquisitions Information System (AIS) based on 5-year average FY05/06 to FY09/10. AIS contains contractual data for contracts and standing offers awarded by PVGSC only. Contractual data for contracts and standing offers awarded by government departments directly is not included.

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On average, between FY05-06 and FY09-10, HQ accounted for 37% of the number of documents awarded and 58% of the value awarded. Quebec, on the other hand, handled 30% of the number of documents and accounted for 25% of the average value awarded.

Table #2.

<table>
<thead>
<tr>
<th>Region/Sector</th>
<th>Value Awarded</th>
<th>% of the total value awarded</th>
<th># of documents</th>
<th>% of total documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>HQ</td>
<td>$174,377,703</td>
<td>58%</td>
<td>584</td>
<td>37%</td>
</tr>
<tr>
<td>QUEBEC</td>
<td>$75,002,601</td>
<td>25%</td>
<td>473</td>
<td>30%</td>
</tr>
<tr>
<td>ONTARIO</td>
<td>$18,866,421</td>
<td>6%</td>
<td>98</td>
<td>6%</td>
</tr>
<tr>
<td>ATLANTIC</td>
<td>$18,329,822</td>
<td>6%</td>
<td>227</td>
<td>15%</td>
</tr>
<tr>
<td>WESTERN</td>
<td>$10,710,328</td>
<td>4%</td>
<td>147</td>
<td>9%</td>
</tr>
<tr>
<td>PACIFIC</td>
<td>$1,412,730</td>
<td>0.5%</td>
<td>28</td>
<td>2%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$298,699,605</td>
<td>100%</td>
<td>$1,559</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: AIS based on 5-year average. AIS Data: FY05/06 to FY09/10.

Notes:
- HQ = Commercial Acquisition and Supply Management Sector (CASMS), Defence and Major Project Sector (DMPS), Service and Specialized Acquisitions Management Sector (SSAMS) and Service and Technology Acquisitions Management Sector (STAMS)
- Western also includes: Nunavut, Yukon, and Northwest Territories.
PWGSC has contracted R&D on behalf of 25 government departments over the last five years. Table #3 identifies the 10 main government departments. Combined, the top three government departments (Canadian Space Agency, Department of National Defence and Canadian Commercial Corporation) account for 88% of the average annual value awarded.

Table #3. Top 10 Government Departments

<table>
<thead>
<tr>
<th>Client Department</th>
<th>Value Awarded</th>
<th>% of the total value awarded</th>
<th># of documents</th>
<th>% of the total documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canadian Space Agency</td>
<td>$120,993,596</td>
<td>40.5%</td>
<td>316</td>
<td>20%</td>
</tr>
<tr>
<td>Department of National Defence</td>
<td>$94,642,056</td>
<td>31.7%</td>
<td>800</td>
<td>51%</td>
</tr>
<tr>
<td>Canadian Commercial Corporation</td>
<td>$47,746,523</td>
<td>16.0%</td>
<td>49</td>
<td>3%</td>
</tr>
<tr>
<td>Natural Resources Canada</td>
<td>$13,898,089</td>
<td>4.7%</td>
<td>134</td>
<td>9%</td>
</tr>
<tr>
<td>Transport Canada</td>
<td>$6,163,018</td>
<td>2.1%</td>
<td>118</td>
<td>8%</td>
</tr>
<tr>
<td>Health Canada</td>
<td>$2,630,589</td>
<td>0.9%</td>
<td>29</td>
<td>2%</td>
</tr>
<tr>
<td>Public Health Agency of Canada</td>
<td>$2,450,814</td>
<td>0.8%</td>
<td>10</td>
<td>1%</td>
</tr>
<tr>
<td>Department of Fisheries and Oceans Canada</td>
<td>$2,176,543</td>
<td>0.7%</td>
<td>25</td>
<td>2%</td>
</tr>
<tr>
<td>Royal Canadian Mounted Police</td>
<td>$2,055,605</td>
<td>0.7%</td>
<td>5</td>
<td>0.3%</td>
</tr>
<tr>
<td>Environment Canada</td>
<td>$1,647,563</td>
<td>0.6%</td>
<td>18</td>
<td>1%</td>
</tr>
<tr>
<td>Other (15)</td>
<td>$4,295,209</td>
<td>1%</td>
<td>54</td>
<td>3%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$298,699,605</strong></td>
<td><strong>100%</strong></td>
<td><strong>1,559</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Source: AIS based on 5-year average. AIS Data: FY05/06 to FY09/10.
3.5 Benefits of R&D Contracting Out by the GC

There is strong and continuing support in government for contracting out R&D. The benefits of R&D contracting out are:

- Can benefit by having the best outside expertise selected through a competitive process.
- Can receive best value through the competitive process.

Industry can benefit from the spin offs of contracting with the government such as:

- Being able to retain and/or support technical staff;
- Obtaining revenue to support their operations;
- Obtaining scientific feedback from government to integrate improvements into their goods and/or services being developed;
- Giving firms business experience (acumen) with a sophisticated, demanding (but friendly) client;
- Maintaining credibility when dealing with other clients; and,
- Testimonials from respected government scientists when selling to other clients.
3.6 Results of Preliminary Consultation

Preliminary consultations with both suppliers and government clients occurred in October of 2010. Comments received follow.

3.6.1 Suppliers

From the supplier perspective, the following works well:

- Individual contracts ensure work is well-detailed;
- Procurement officers are knowledgeable; and
- Contracts provide opportunities for SMEs.

Suppliers indicated that the following can be improved:

- Competing for contracts (developing a bid) can be expensive;
- More emphasis in the evaluation criteria on quality rather than price;
- With respect to Request for Proposals (RFPs):
  - Statements of work are complicated and unclear,
  - Evaluation places too much emphasis on past experience, and
  - There is a perception that some requirements are tailored towards specific suppliers.

3.6.2 Government Departments

Overall, Government departments were satisfied with respect to the following:

- The level of PWGSC procurement expertise;
- The use of RFPs as the main method of supply for R&D; and
- Inclusion of green strategies, such as receiving electronic documentation from suppliers to assist in meeting the Policy on Green Procurement.

Government departments expressed concerns with respect to the following:

- The procurement process is too long:
  - Pre-planning stage is lengthy, the approval stage is cumbersome, and results in changes to what was accomplished during the pre-planning stage, resulting in a negative impact on timelines;
- The procurement process lacks flexibility:
  - There exists a level of uncertainty that accompanies R&D which requires a more flexible approach, and
  - Statements of work can change during the contract to address research results which can affect the end good/service;
- PWGSC is too risk averse:
  - Risk is inherent in R&D contracts, but the terms and conditions utilized by PWGSC do not consistently address this,
  - High level of risk aversion is counter-productive – it prolongs/prohibits moving forward with the R&D project, and
Lack of thorough understanding at all levels of PWGSC – contracting officer, quality control, legal, regional offices – has a serious impact on quality of service and creates obstacles to the procurement process;

**Better communication and application of basic principles:**
- Regular, more frequent, communication with the contracting officers is required,
- Status updates on delays, process would be welcomed by clients, and
- Explanations or training related to the procurement process, including the procedure related to approval are needed for clients;

**Continuity of PWGSC Service:**
- Staff changes have an impact on the quality of service as each officer can approach procurement from a different perspective,
- There is a learning curve for the new officer with a resulting impact on the timeline,
- There is a lack of consistency across PWGSC in terms of applying legal principles to R&D projects and interpreting and applying policy, and
- There is a need to build relationships with government departments.

Government departments recommended the following:
- Introduction of more flexibility and less risk aversion into the procurement process;
- Distribution of checklists and template documents to help develop the statement of work and evaluation criteria and better understand the approval process;
- Establishment of consistency in procurement approach among different offices;
- Provision of regular communication on the progress of the procurement; and
- Provision of consistency in the application of approaches to similar issues, such as warranty and limitation of liability.

**4 Innovation Canada: A Call to Action – Special Report on Procurement**

In October 2011, the “Innovation Canada A Call to Action – Special Report on Procurement” (“Jenkins” Report) was released. The main focus of the Special Report is the recommendation to increase federal procurement to support business innovation. PWGSC has recently participated in several initiatives that are identified in the Special Report. These initiatives include the Canadian Innovation Commercialization Program (CICP) and Project ACCORD.

As stated in the Special Report, “government has a huge, ongoing need for an array of goods and services in a broad range of innovative activities. Canadian SMEs can potentially
In the Jenkins Report, there are a number of significant recommendations that, if implemented, will have a significant impact on R&D procurement. The recommendations from the Jenkins Report include:

- Establishing a new sub-objective to contracting policy to support innovation (in line with current sub-objectives such as green, aboriginal and SME considerations);
- Encouraging innovation through specifying requirements in terms of their performance or functional characteristics rather than their design characteristics;
- Encouraging the use of value propositions through the use of point-rated evaluation criteria to support Canadian innovation-oriented enterprises; and
- Encouraging collaboration among government, industry and academia.

5 Current Research and Development Methods of Supply

5.1 Introduction

PWGSC uses several methods to acquire R&D in order to reflect the unique, innovative and state-of-the-art nature of the work. These approaches are:

1. An approach based on Individual requirements through:
   - Competitive Requests for Proposal (RFP); and
   - Directed Contracts (Sole-Source).
2. A program-focused approach based on competitive Call for Proposal (CFP).
3. Collaborative partnerships that demonstrate new approaches to procurement in specific areas.

Approximately 70% of all R&D contracting out within PWGSC is competitive in nature, with 30% undertaken through directed contracts with suppliers. Each method of supply is detailed below.

5.1.1 Competitive Request for Proposal

The most common method of supply for R&D contracting is the use of a competitive Request for Proposal (RFP). These are published on MERX™ by using the Government’s Electronic Tendering Service (GETS) for a specific period of time (based on various factors, such as complexity, application of the trade agreements, etc.).

A Request for Proposal (RFP) is a form of bid solicitation for complex requirements. Bidder selection is mainly based on best overall value rather than on price alone. Under this method of supply, all Bidders propose a response to the same requirement. Bids are evaluated and the successful supplier must be selected in accordance with specific criteria and procedures as set out in the bid solicitation. The criteria can take the form of mandatory, point rated, and financial criteria.

In some cases, consideration can be given to soliciting bids in two steps: during the first step requests that suppliers provide letters of interest and qualifications, from which a short list is developed; in the second step, suppliers on the short list are
requested to submit detailed bids; potential bidders not included on the short list are still able to request the bid solicitation and submit bids.

The RFP clearly defines/communicates the method of selection such as: a) highest combined rating of technical merit and price; b) highest technical score within a maximum stipulated budget; c) lowest cost-per-point; or d) lowest responsive bid.

5.1.2 Directed Contract (Sole-Source)
A directed, or sole-source, contract can be addressed in one of two ways: a) through an Advanced Contract Award Notice (ACAN); or, b) issued without publication to a specific supplier.

An ACAN is the announcement of the GCs’ intention to contract with a specific supplier and is published on GETS for a minimum of 15 days to allow potential bidders to submit a statement of capabilities demonstrating they can provide the good or perform the service. Within the ACAN there is a description of the challenge mechanism, and mandatory requirements, and the stipulation of the Treasury Board Government Contracting Regulations and applicable trade agreement exceptions to competitive contracting, with justification for selecting the chosen supplier. If a statement of capability is received, and accepted as valid, the procurement is then tendered through the RFP process. If no challenge is received or accepted, the GC proceeds with the contract negotiations with the selected supplier.

5.1.3 Competitive Call for Proposals – Program Approach
The Call for Proposals (CFP) is a competitive method of supply that meets strategic government requirements, promoting excellence and stimulating innovation by soliciting project proposals in a competitive environment.

Under this method of supply, the focus of the CFP is on collaboration between government, industry and/or academia in various proportions. Such an approach is in keeping with the Centres of Excellence concepts detailed in the Advantage Canada Economic Plan (2006).

Statements of the problem or general research interest, priorities or gaps are defined and the resulting solutions and technology domains proposed by bidders can vary widely. Each bidder proposes its own project such as a Statement of Work, Test Plan and technical approach. All proposals will respond to the identified gaps, priorities and general interest. Each proposal is unique and will not propose the same product or action.

Bids are evaluated against the same combination of mandatory, technical and financial criteria as published in the solicitation. There is technical competition in the marketplace of ideas or solutions. Cost or price is rarely the deciding factor. Proposals undergo a scientific review process based on priorities and gaps. A proposal that may be weak in one area yet reflects strength overall, may be considered for award if its final evaluated score falls within the order of highest ranked proposals and the financial
proposal within the allocated budget of the specific Call. The CFP follows clearly defined/communicated methods of selection.

Currently, PWGSC uses the CFP for five different government programs. These are:

1. **The Canadian Innovation Commercialization Program**
The Canadian Innovation Commercialization Program (CICP) support innovation, Canadian businesses, and improve the efficiency and effectiveness of government operations by providing real-world evaluations of pre-commercial goods and services.

The CICP has identified four Priority Areas of interest. Each proposal must demonstrate 80% Canadian Content, be provided by Canadian bidders, offer an innovation that has not been sold commercially. Resulting contracts are $500,000 or less (GST/HST extra).

2. **The Canadian Police Research Centre**
The mission of the Canadian Police Research Centre (CPRC) is to harness science and technology knowledge to strengthen police and public safety across Canada. It achieves this mission through research, development of standards, product evaluation, technology transfer, science and technology advocacy, and by being a scientific advisor. The CPRC has historically supported the Policing community and has now expanded their target audience to serve a broader client base of first responders (including firefighters and emergency medical services personnel) along with related federal public safety communities such as the military.

The primary strategic outcome for the CPRC is to support development, testing and evaluation to ensure that the best equipment and information is available to the target audience and to offer Canadian expertise and enterprise an opportunity in this specialized field.

CPRC is a program administered by Defence Research and Development Canada (DRDC), jointly led by the Department of Public Safety (DPS) and the Department of National Defence (DND), and has involved over 20 federal departments and agencies as program partners, as well as provincial and municipal jurisdictions.

3. **The Chemical, Biological, Radiological, Nuclear and Explosives Research and Technology Initiative**
Launched in 2002 as part of the federal government's security agenda The Chemical, Biological, Radiological-Nuclear and Explosives (CBRNE) Research and Technology Initiative (CRTI) will significantly enhance Canada's capacity to deal with potential CBRNE threats to public security by fostering new investments in research and technology.

Projects are selected from the following categories:
- Technology Acquisition;
- Technology Acceleration; and
- Research and Technology Development.
All CRTI Program research projects address at least one, sometimes two or more, of the nine investment priorities of the program.

The CRTI has the participation of twenty federal government departments and agencies, and is led by DRDC, an agency of DND.

4. Public Security Technical Program
DRDC established the Public Security Technical Program (PSTP) in 2005 “to strengthen Canada’s ability to prepare for, prevent, respond to, and recover from high-consequence public safety and security events by employing Science & Technology (S&T) as a strategic enabler and lead investment for the federal government’s public safety and security agenda.”

PSTP covers a broad spectrum of public health, safety and security challenges, which are addressed through four mission areas that will evolve in response to changing public safety and security priorities.

5. The Defence Industrial Research Program
The Defence Industrial Research Program (DIRP) is led by DRDC. The primary objective of the DIRP is to support the strategic research interests of the Canadian Forces and to introduce new and innovative technologies into the Department of National Defence. In addition, the program supports and complements the areas of S&T expertise associated with DRDC. The program is also designed to stimulate research and innovation among the Canadian defence and security industrial base through the provision of cost-shared contracts and scientific support. DIRP fulfills a need and provides direct benefit to the GC, achieves objectives and assists in delivering on DRDC's mandate. The requirement is intended for eligible industry-initiated research projects relevant to the defence of Canada.

The DIRP is a cost-shared program that contracts eligible R&D projects at a maximum 50% sharing ratio to a maximum of $500,000. DIRP focuses on projects from the laboratory to the experimental model of proof-of-concept stage. Projects must have a strong research component.

The Open Season Call for Proposal methodology is open for a one-year period on the GETS, with proposals being received during the “open season” bidding period. This new approach to R&D contracting is critical for DRDC to continuously be exposed to innovative and emerging technologies. It also permits DRDC to remain active in identifying priority gaps. The “open season” concept stands out due to the flexibility and collaborative nature of the process. Bidders are permitted to engage DRDC scientists prior to submitting their final proposals – an important step to ensure quality proposals are received by all suppliers.

The DIRP includes five major categories and 38 distinctive topic areas which can be submitted as proposals for consideration.
5.2 Collaborative Partnerships

In addition to the approaches demonstrated through the program focused Call for Proposal, PWGSC, along with other departments, the private sector and academia have entered into collaborative arrangements to address certain R&D requirements. The following is a list of collaborative initiatives either currently underway, in place or being considered. This strategy foresees the possibility of other such collaborative initiatives.

5.2.1 Project ACCORD

Project ACCORD is a DND project to establish an independent Centre for Capability Analysis composed of DND, industry, academic organizations and government that will facilitate the early engagement of industry and academia to provide subject matter experts to assist in identifying and solving defence capability deficiencies. This level of collaboration will be unique in procurement, and is expected to offer a greater level of openness and transparency in delivering expert advice to the GC.

The initial phase of the work (to be completed by Spring, 2012) involves an Options Analysis (OA) Study, which includes researching, analyzing, designing and developing implementation options and recommendations on a number of issues related to the establishment of a capability analysis framework. This framework will facilitate the early engagement of Industry and Academia in providing vital, valuable, and validated advice on ways to address capability deficiencies. It is expected that a pilot of the framework will be conducted after the completion of the OA Study.

An Integrated Project Team (IPT) for this study is comprised of contractor, industry, and academic representatives, as well as GC project management and subject matter expert resources from DND, PWGSC, and Industry Canada. Similar Capability Analysis Centres have been established in the United Kingdom and Australia, and the benefits and lessons learned are being applied to the development of the Canadian version.

The participation of industry during the preliminary planning and/or early definition phase(s) can lead to the perception of unfair advantage or conflict of interest if those same industry partners offer a proposal on the same project during the solicitation phase. For this reason, ACCORD activities will be limited to the provision of advice during the pre-procurement phase of projects and activities will be governed by a Charter of Behaviour agreed upon by all parties.

Project ACCORD will be monitored closely to leverage the lessons learned with the goal of applying the success factors on a more diverse, though smaller scale and leading the culture change in how R&D procurements are conducted at PWGSC at the program level.

The resulting business and contractual agreement will provide guidance on the initiation, implementation, management, monitoring and control facets of the engagement process and formalize the collaboration.
5.2.2 PWGSC/CSA/NASA
PWGSC facilitates contracting with Canadian firms on behalf of the Canadian Space Agency (CSA) in response to missions advertised through competitive Announcements of Opportunity (AO) issued by International Space Agencies such as the National Aeronautics and Space Administration (NASA), European Space Agency (ESA) and Japan Aerospace Exploration Agency (JAXA). PWGSC issues a parallel solicitation to Canadian Industry and Academia requesting proposals related to the AO. Bids are selected on scientific merit and compatibility with the mission and CSA objectives. The CSA and PWGSC evaluate, select and the CSA will subsequently endorse proposal(s) submitted by Canadian bidders. If the selected proposal by NASA has a Canadian component, PWGSC negotiates and issues the resulting contracts on behalf of CSA for Canada’s contribution to the Mission.

5.2.3 Canadian Institute for Military and Veteran Health Research
The Canadian Institute for Military and Veteran Health Research (CIMVHR) is an innovative organization that is building a pan-Canadian coordinated academic approach to health research relating to military personnel, veterans and their families by engaging existing academic research resources and facilitating the development of new research, research capacity and effective knowledge exchange. A unique collaborative and contractual arrangement will be established between CIMVHR and PWGSC. The federal government of Canada is represented by CF Health Services, Veterans Affairs Canada and Defence Research & Development Canada (DRDC). The CIMVHR is physically located at Queen’s University, Kingston, Ontario.

With a network of more than 20 Canadian universities, the CIMVHR will serve all Canadian stakeholders interest in military and veteran health research and provide a conduit between the academic community, not-for-profit groups, government and relevant international with a focus on ensuring sustainability through increased public awareness and public-private funding. Collaboration with provincial partnerships is a potential future benefit that may be explored during later stages of the program.

6 Considerations in R&D Procurement

6.1 Demand-Pull
PWGSC utilizes the demand-pull approach in the contracting out of R&D. This provides incentive to industry, which typically drives innovation. Thus, the GC is in the enviable position of being able to support further development through to commercialization by identifying areas of potential R&D investment through solicitation. The GC creates viable market demand, as demonstrated through the innovative CFP programs.

6.2 Value Proposition Model
A Bid Evaluation Models Working Group (BEMWG) within PWGSC was tasked to assess the application of existing bid evaluation models and to develop a value proposition (VP) based conceptual model. In addition to addressing performance, cost and delivery, the VP model will also consider economic benefits and other national objectives. Some examples of additional value proposition elements are the capability,
capacity and commitment of the bidding firm to sustainability, innovation, efficiency and technology transfer related to the production of the good or delivery of the service.

The VP Model will allow bidders to supplement their technical expertise with additional value-added skills and capabilities in domains of interest to the federal government, such as:

- Cost-sharing / In-kind contribution;
- Multi-disciplinary collaboration or involvement;
- Commercialization in Canada;
- Potential for commercialization;
- Innovation to increase the state-of-the-art;
- Utilization of Canadian small and medium enterprises as sub-contractors;
- Canadian content; and,
- Environmental sustainability.

Such VP considerations allow bidders to identify areas of quality to maximize the potential direct and indirect benefits to Canada and demonstrate their commitment over and above the technical capabilities. To ensure the quality of the technical evaluation is not compromised, PWGSC will utilize a balanced approach, by ensuring the value added considerations do not overshadow the quality of the proposed solution to the actual requirement.

PWGSC will actively support the federal governments’ overarching objectives of investing in innovation in R&D and economic development as defined in Budget 2011. Utilizing the innovative value proposition approach in the procurement of R&D, where feasible and appropriate, PWGSC can offer the competitive advantage to those firms that, for example, demonstrate the capability and capacity to commercialize in Canada.

6.3 Industrial and Regional Benefits

Industry Canada (IC) has recently endeavoured to better align the Industrial Regional Benefit (IRB) policy with the emerging technology needs of the Department of National Defence (DND). As such, IC is introducing a new Enhanced Priority Technology List (EPTL) that contains the emerging and transformational technologies needed by DND over the long term. The value proposition under the new process associated with the EPTL will require bidder’s to identify how it will align its IRB activities with technologies and services identified on the EPTL. In this way, Canadian industry is encouraged to perform R&D activities. For further information on the EPTL, refer to the following website http://www.ic.gc.ca/eic/site/042.nsf/eng/00062.html.

IRBs are being applied on high value Defence Projects, including those involving Space Science and Technology.
6.4 Challenges and Considerations
The following represent challenges and considerations that have been identified through preliminary consultations on this draft National Strategy.

6.4.1 Access to R&D Performers
A critical concern in the procurement of R&D is reaching highly specialised R&D performers that have not, traditionally, done business with the GC, or have difficulty in submitting a compliant proposal. Many suppliers that are capable of supplying innovative goods or services are not aware that opportunities exist with the federal government.

PWGSC will explore how other government departments and the provinces address these challenges to determine viable options in contracting. PWGSC may utilize supplemental avenues of opportunity to advertising venues, such as newspapers, press releases, industry associations, university alumni lists, etc., to ensure these R&D performers are reached.

6.4.2 Contracting with Universities and Not-for Profit Organizations
PWGSC will explore increasing the level of direct engagement with various Science & Technology (S&T) communities, including universities and Not-for-Profit organizations to improve their participation in procurement opportunities offered by PWGSC.

Contracting with universities poses unique challenges. First and foremost, university scientists often lack the support to respond to RFPs. Universities are often not equipped to accept Government of Canada-imposed indemnification clauses, or give up the Moral Rights to deliverable items as required by the standard terms and conditions. Furthermore, intellectual property rights require negotiation due to the universities need to own and publish the results.

In the past there were specific General Terms and Conditions used in contracts with universities, but as part of the Standard Acquisitions Clauses and Conditions (SACC) Manual consolidation undertaken a few years ago, these were set aside.

Frequently, the R&D contracts that the GC puts in place are ‘subsidized’ by grants and stipends through other programs within the university as it supports their core research activities. The use of students as researchers promotes knowledge and expertise, contributing to a highly skilled workforce.

6.4.3 Harmonization of the Application of Individual Strategies and Terms and Conditions
There exists the perception of inconsistent practices in the procurement process between Headquarters and the Regional Offices due to lack of communication, evolving legal advice and interpreting complexities stemming from the “web of rules.” This is most frequently seen in the application of Intellectual Property, Limitation of Liability, warranty and Canadian Content policies.
**Canadian Content**

The Canadian content policy encourages industrial development in Canada by limiting, in specific circumstances, competition for government procurement opportunities to suppliers of Canadian goods and services. The Canadian content policy frequently plays a significant role in the procurement of Research and Development.

The standard definition of Canadian content is: a minimum of 80 percent of the total proposal price must consist of Canadians goods and services. The Policy encourages industrial development in Canada by limiting, in specific circumstances, competition for government procurement opportunities to suppliers of Canadian goods and services.\(^5\)

There are several challenges in applying the standard policy to R&D, particularly with respect to Technology Demonstration Projects. These are:

- Technical requirements are exigent, which tends to constrain the number of suppliers who meet the requirement;
- Limited interest by suppliers to bid on R&D is influenced by a perceived fit;
- When the solicitation calls for cost sharing by contractor;
- Limited response from bidders on certain requirements due to narrow market such as pharmaceutics for defence applications.

The parameters for Canadian content can be adjusted based on a strong business case analysis. This is addressed in detail in the R&D Contracting Body of Knowledge.

**Limitation of Liability**

In contractual matters, both parties are responsible for managing risks and liabilities under their control. This division of responsibility reflects both common and civil law. Based on this legal principle, Canada may or may not include a clause (or clauses) in procurement contracts, to ensure that it is protected from losses caused either by the contractor's performance of the contract or from the performance of the good or service delivered.

Treasury Board's Policy on Decision Making in Limiting Contractor Liability in Crown Procurement Contracts defines Limitation of liability (LoL) as the establishment by contract of a predetermined maximum financial responsibility that might be more or less than that imposed by law in the absence of such contractual limitation.

Generally, in R&D contracts, Canada is ‘silent’ on liability as stated in our general conditions. General Conditions – Research & Development (2040) states that “The Contractor is liable for any damage caused by the Contractor, its employees, subcontractors, or agents to Canada or any third party. Canada is liable for any damage caused by Canada, its employees or agents to the Contractor or any third

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\(^5\) Source: Annex 5.1: Canadian Content Policy

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The Parties agree that no limitation of liability or indemnity provision applies to the Contract unless it is specifically incorporated in full text in the Articles of Agreement. Damage includes any injury to persons (including injury resulting in death) or loss of or damage to property (including real property) caused as a result of or during the performance of the Contract." The liability will then be subject to the common or civil law. In certain circumstances, it is in the public interest for the Crown to assume all or part of a contractor's potential liabilities. This transfer of potential risk or liabilities is set out in a limitation of liability or indemnification clause. This policy provides for a risk-based, administratively efficient management regime that responds to program delivery challenges, recognizes market place realities, and supports effective stewardship of public funds.

PWGSC is prepared to examine the development of new limitation models for R&D on a case-by-case basis.

**Intellectual Property**

Intellectual Property (IP) is defined as any rights resulting from intellectual activity in the industrial, scientific, literary, or artistic fields including all intellectual creation legally protected through patents, copyright, industrial design, integrated circuit topography, and plant breeders' rights, or subject to protection under the law as trade secrets and confidential information. IP does not include prototypes or any other physical embodiments of intellectual creation when such physical embodiments are deliverables of a Crown Procurement Contract.

Treasury Board’s Policy on Title to Intellectual Property Arising Under Crown Procurement Contracts states that the primary objective in entering into Crown Procurement Contracts is to receive the deliverables contracted for, and to be able to use those deliverables, and any IP arising by the virtue of such Crown Procurement Contracts for GC activities.

IP issues are of considerable concern to R&D suppliers. The ‘Publish or Perish’ axiom within academic institutions and research houses, combined with the industry principle that a firm or researcher must own the title to the material and not waive their moral rights to the material to be considered viable has resulted in a higher level of negotiations where IP is concerned on R&D contracting. The procurement strategy and solicitation documentation will define the ownership of IP, and may also restrict any potential commercialization of the end result to a Canadian-owned supplier. This ensures that the R&D investment remains in Canada and exploiting the IP will benefit Canadians and maintain domestic capability expertise.

**Warranty**

It is often difficult to place a warranty for an R&D good or service. The nature of R&D is such that warranties may not be applicable in all cases. It is not generally possible to determine what the expected useful life span of an R&D output actually is.

General Conditions – Research & Development (2040) identifies specific provisions for warranty that states, “the contractor warrants that, for twelve (12) months (or any other...
period stated in the contract), the Work will be free from all defects in design, material or workmanship, and will conform to the requirements of the contract.”

Contractors have, understandably, taken issue with this provision. Most R&D projects include some degree of technical uncertainty and risk, and in some cases, projects incorporate learning through trial and error. Discretion is therefore required in differentiating between advancement of knowledge and defects in R&D work.

Related to the warranty issue is “fitness for purpose”; that is, whatever is being purchased will do what it is supposed to do. Often in the R&D environment it is difficult to define "what it is supposed to do". This is where PWGSC must define the actualities/realities in solicitation and contractual documents, based on what the client requires.

PWGSC, in consultation with the client, will determine on a case-by-case basis if the warranty clause will be altered or removed from the general terms and conditions. In addition, specific wording reflecting the removal will be incorporated into the plain language science procurement templates.

6.5 Other Considerations
There are a number of programs and initiatives at PWGSC and across government than influence procurement decision-making.

6.5.1 Small Medium Enterprise (SME)
Large business accounted for 60% of the total average value awarded; however, the total average number of contracts issued represents only 37%. SMEs, on the other hand, represent 57% of the total average number of contracts, with an awarded value of 37%. Thus, SMEs represent an important source of R&D services to the GC.

The remaining 3% of value awarded and 7% of contracts issued under other are self-employed persons and foreign suppliers.

The CICP in particular, has simplified the process to enhance SME participation in GC opportunities and to provide direct access to the relevant federal departments and agencies that can assist in testing which may eventually lead to further development of their innovation(s) and potential commercialization.
6.5.2 Aboriginal Enterprises
The mandatory set-aside element of the Procurement Strategy for Aboriginal Business (PSAB) opportunities is rarely used for R&D, as the goods/services are not usually destined for Aboriginal populations.

6.6 Related Procurement Initiatives
There are a number of programs and initiatives at PWGSC and across government that influence procurement decision-making.

6.6.1 Complexity Risk Assessment
As part of the Procurement Modernization Process, PWGSC has put in place a strategy that reflects:

- Streaming requirements based on complexity (Basic / Standard / Complex);
- Risk management considerations in the approval process;
- The removal of unnecessary oversight; and
- Increased approval authorities.

Approval authority is now based on the risk associated with the requirement, rather than dollars alone. The increased delegations for contract entry and associated amendments will reduce the administrative burden associated with the approval process and thus reduce the time to contract award.

6.6.2 Government Department Engagement
Acquisitions Branch has created a team dedicated to developing and improving relationships with government departments and agencies to better plan, understand and influence GC demand.
6.6.3 Goods and Services Identification Number (GSIN) Review
PWGSC has reviewed all commodities, identified by GSIN, to develop clarity in how commodities are defined and identified, remove obsolete and redundant commodities, and consolidate similar commodities into a single GSIN.

This will be further enhanced by the development of a web portal describing all active GSINs, applicability of R&D, more specific terminology, the office of primary interest (OPI) and contact information. The website will also provide examples of what could be included within that commodity listing, as well as exclusions, and a listing of all vendors who have registered as a supplier to the Government of Canada. The Office of Small and Medium Enterprises (OSME) will incorporate this site into the Buy and Sell section (https://buyandsell.gc.ca/) of their site.

It is expected that rationalizing the GSIN listing for R&D and providing a more effective means of understanding the different commodities will aid suppliers in identifying the services they provide more accurately, as well as provide government departments with ready access to PWGSC representatives.

6.6.4 Development of Service Standards
PWGSC has committed to new Service Standards across the department to ensure PWGSC continues to deliver high quality services and programs that meet the needs of our clients. This includes robust performance measures and tools, such as the client satisfaction barometer to take stock of and respond to issues raised by clients; and champion a client service culture by integrating service excellence into all facets of organization, from staffing, orientation to training.

6.6.5 Environmental Considerations
The Policy on Green Procurement was created in 2006 to advance the protection of the environment and support sustainable development by integrating environmental performance considerations into the procurement decision-making process.

As part of the 2011-2014 Federal Sustainable Development Strategy, participating departments and agencies must develop an organizational Sustainable Development Strategy that reflects the targets specific to their organization for each of the key areas.

Bid Submission
Currently PWGSC implements the following green procurement practices to ensure the Bidder respects the following with their bid submission:

- Use 30% recycled paper;
- Print double sided (duplex printing); and
- Submit bound bids using plastic comb binding, staples, etc. (in lieu of binders with rings).

In addition, under various CFP methods of supply (CICP, CRTI and others), proponents may submit their proposal electronically.
**Contract Period**  
PWGSC encourages the following practices during the contract period:

- Contractor can submit electronic documents such as invoices, supporting documentation, progress reports and other information; and
- Teleconferences / Videoconferences preferred over travel for meetings.

**7 Recommendations**  
Government departments indicated that there is a lack of understanding of R&D by PWGSC which leads to a risk averse approach to procurement that does not address the nuances of R&D contracting. R&D projects have a much higher level of risk due to the inherent uncertainty that accompanies such projects. There is typically a lack of clarity in the scope and task breakdown, and an unknown number of variables that can have an impact on the technical, project or cost aspects of the contract. Parameters for success or acceptance for work to be done competently and diligently, and interpreted in the context of scientific or technology advancement. By their very nature, R&D contracting requires a more flexible approach due to the higher risk of project failure.

Government departments identified a lack of consistency across PWGSC in terms of applying legal principles to R&D projects. These operational issues will be addressed through the following mechanisms and delivered to stakeholders through the buyandsell.gc.ca and gcpedia.gc.ca websites.

**7.1 Establish a Community of Practice**  
**Recommendation**  
PWGSC will develop a Community of Practice (CoP) to facilitate engagement with specific subject matter experts in both PWGSC and government departments. The CoP will be supplemented on an as needed basis by including industry, academia, other levels of government departments and international partners.

Based on the outcomes of this consultation, PWGSC will be able to ensure the consistent application of procedures, risk management, legal interpretations and identify options available in R&D contracting, understanding that the nature of R&D procurement means that there will always be a need for an appropriate degree of flexibility.

**Context**  
It was identified that there is a need for shared knowledge and ideas among all PWGSC offices involved in R&D contracting. The CoP is the specific focus around which the stakeholders develop, share and maintain its core of knowledge.

The CoP will be an integral part of PWGSC’s structure as a mean to capture the knowledge that is not so easily articulated. PWGSC will encourage, support, and sponsor CoP in order to benefit from shared knowledge that will lead to higher productivity.
These are four areas that can be affected by CoP (Lesser, L.E.; Storck, J. (2001).
- Decreasing the learning curve of new employees;
- Responding more rapidly to customer needs and inquiries;
- Reducing rework and preventing "reinvention of the wheel"; and
- Spawning new ideas.

**Implementation Plan**

PWGSC will implement the recommendation as follows:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicate with PWGSC regional offices</td>
<td>Semi-Annual</td>
</tr>
<tr>
<td>Communicate with government departments</td>
<td>Regularly</td>
</tr>
<tr>
<td>Communicate with other levels of government departments and international partners through structured networking events</td>
<td>Annual</td>
</tr>
<tr>
<td>Review the approach that the British Columbia government has implemented in their contracts with universities and determine the feasibility of implementing similar terms and conditions</td>
<td>2012-2013</td>
</tr>
</tbody>
</table>

### 7.2 Create an R&D Contracting Body of Knowledge

**Recommendation**

PWGSC is proposing to establish an R&D Contracting Body of Knowledge containing reference material identifying scenario-based options to the challenges identified herein, including the harmonization of the application of terms and conditions. The Contracting Body of Knowledge will be an evolving tool that will emphasize Risk Management as well as other areas of concern, as identified through consultations. Refer to Appendix A for outline of the Contracting Body of Knowledge.

**Context**

Government departments and suppliers have commended the procurement expertise of PWGSC, but did identify a lack of flexibility in risk management and in the approach that did not address the nuances of R&D contracting.

**Implementation Plan**

PWGSC will implement the recommendation as follows:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop the R&amp;D Contracting Body of Knowledge</td>
<td>2012-2013</td>
</tr>
<tr>
<td>Harmonize the application of terms and conditions</td>
<td>Initiated in 2012/13 and as required</td>
</tr>
<tr>
<td>Update and share solicitation and contractual templates</td>
<td>Annually</td>
</tr>
</tbody>
</table>
8 Next Steps
Consultation feedback will be incorporated into the draft National Procurement Strategy as appropriate, be finalized and then be approved. Suppliers and government departments should anticipate that PWGSC will begin implementing the recommendations contained in the final National Procurement Review during FY 2012-13.

9 Bibliography
The following provides the policies, statutes, acts and regulations that are referenced within this document.


Mobilizing Science and Technology to Canada’s Advantage: http://www.ic.gc.ca/eic/site/ic1.nsf/eng/00871.html


The list below provides the sources used for the market analysis within this document.


Appendix A

R&D Contracting Body of Knowledge

1. Cost Sharing (R&D)

Cost sharing in R&D contracts is an arrangement under which the Contractor agrees to absorb part of the cost of the project. This could be accomplished by:

- Performing specific tasks without charge;
- Furnishing or making available to Canada some Contractor-owned or controlled resources without charge;
- Absorbing a percentage of the total cost;
- Absorbing some identified element of the total cost; or,
- Any combination of the above.

The in-kind contribution is determined by the type of program or project, and overall procurement strategy. The amount of the in-kind contribution may also form part of the financial evaluation criteria, similar to how discounts may be applied on goods or reduced volume discounts on computer supplies. The cost sharing arrangement must be tracked and monitored through the period of the contract.

Contractor-owned or controlled resources may include, but not necessarily be limited to:

- Provision of accommodation;
- Use of equipment or instruments;
- Use of laboratory, computer or other facilities;
- Use of computer software;
- Provision of transportation; and/or
- Labour.

Principles

Principles are:

- A comprehensive description of the cost-sharing arrangement must be included in the contract under the Statement of Work and the terms must be adequately reflected in the Basis and Method of Payment.
- No element of profit should be included under the basis of payment in the contract. It would not be compatible for the proposed Contractor to offer to share the cost and then to reduce this commitment by taking a profit.
- Adequate measures must be built into the contract to ensure that the Contractor fulfills all of its obligations under the cost-sharing agreement.
Labour
It is not always desirable in cost-shared contracts to only accept labour as part of the Contractor’s contribution. The rationale for this position is based on the fact that labour associated with the task for which labour is being contributed may be difficult to separate from labour for tasks for which the Contractor is to be paid; however, Canada can negotiate an overall percentage of the total labour being charged under the contract.

There is also the possibility that a Contractor could underestimate the time to perform the labour task(s) and will transfer the excess time to a task for which the Contractor can legitimately charge the terms of the contract. Such manoeuvre might be very difficult, if not impossible, to detect during an audit.

It is preferable during negotiations to have the prospective Contractor agree to supply without charge an equivalent dollar amount in other support, such as the other items listed above.

Third Party Support
There may be instances where a Bidder includes in its submission support from third parties such as Provincial or Municipal Governments, another company, or a private sector organization. Any arrangement that the Contractor has made with the third party must remain the sole responsibility of the Contractor. Such a third party agreement or changes thereto should not impact on the Contractor’s obligations to Canada under the terms and conditions of the contract.

2. Canadian Content
PWGSC is currently examining socio-economic strategies and evaluation processes that may be used to achieve global government objectives for R&D acquisitions, to ensure an optimization of benefits to Canada from R&D. Such guidance would support the development and implementation of cohesive and informed strategies for all federal R&D acquisitions.

Context
The current version of the PWGSC had its inception in the late 1990’s. Although the application of this policy works very well for the vast amount of commodities, there are several challenges in applying this policy to R&D requirements.

A key aspect of the policy is the determination of Eligible Bidders. When a requirement is covered by the Canadian Content Policy, the bidder must certify the Canadian Content by submitting a certification that the good or service offered meet the definition of Canadian goods and/or services. For requirements consisting of a mix of goods and services, 80 percent of the total bid price must consist of Canadian goods and Canadian services. Specific examples of how to determine whether a mix of goods and services meets the 80 percent rule are also provided.

The application of this policy is straightforward for a large number of R&D requirements but for many others, such as certain Technology Demonstration Projects, various aspects of the policy are quite problematic. There may be a paradox at play in respect to four fundamental axes:
• Owing to the significant technical challenges and higher risk inherent with R&D, RFPs tend to be rigorous in terms of criteria related to expertise and quality of the technical proposal. This generally tends to constrain the number of suppliers who have the required expertise and also offer as suitably strong and well-suited technical proposal.

• Industry considers R&D as a strategic investment and an activity that is highly influenced by its strategic business direction, its business plan and its level of resources. R&D investments by industry allows it to position itself for growth or to maintain a competitive edge. Interest by suppliers to bid on any given R&D requirement will be influenced by the perceived fit and possible strategic advantage of undertaking the Government R&D requirement. This issue is even more significant when a solicitation calls for cost sharing by the Contractor. These considerations may mean that interest by highly qualified suppliers to bid on any given R&D opportunities may be limited. A good example of this is R&D in pharmaceutics for defence applications, which involves a very narrow market and possibly a low return on investment from an industry perspective. This strategic consideration has significantly reduced the response from qualified bidders on certain requirements.

• As reflected in Industry Canada’s “Mobilizing Science and Technology to Canada’s Advantage” and other strategic directions by Government, investment in R&D is critical in helping to build a strong economy and benefits all Canadians. R&D being exempted from the international trade agreements (NATFA, WTO-AGP and others), means that Canada has the ability to limit competition to Canadian S&T performers and to maximize the level of Canadian content. This strategic direction is not delivered to best effect under a strict application of the PWGSC Canadian Content policy on two fronts: first, PWGSC does not recognise the strategic significance of Canadian S&T Performers; and, second, the fact that Canadian Content requirements will not be set if three or more “Eligible Bidders” are not responding.

• Space Industries Policy: Space R&D is an important segment of the government R&D portfolio and space assets are generally considered as strategic national assets to Canada. A new Space Policy is currently being examined and appropriate sections will be incorporated in the National Strategy document in due course.

These key considerations dictate that a strategic and targeted approach be established to maximize the opportunity afforded by the exclusion under the international trade agreements. The previous TB S&T Contracting-out policy mandated that S&T be performed in Canada, with exceptions where specific exclusions were met. This is still the prevalent approach today, although this is not fully aligned with PWGSC’s Canadian Content policy. In addition, the previous version of PWGSC Canadian Content policy allowed for adjusting the level of Canadian Content where necessary to reflect the realities of any given procurement. The following example is provided to illustrate the concepts.
The following is an illustration.

A R&D requirement calls for a combination of goods and services. It is believed that there are three Canadian firms capable of performing the necessary work; however, a certain piece of equipment required in the R&D work is only available from the United States, and the value of this equipment alone is roughly 30% of the total value of the total project. Strict application of the policy would mean that the requirement would be fully open, i.e. include no Canadian Content requirement. On the other hand, several options would be available in terms setting a procurement strategy meeting the spirit of Advantage Canada and provide maximum benefits. For instance, 80% Canadian Content may be applied to the services portion only; alternatively, the required percentage of Canadian Content for the whole project may be set at 50%.

Cases like the one described above (i.e. 30% nominal foreign content for instance), do not happen often, but when they do come up, the lack of knowledge limits the options that may be considered. In the past, Contracting Authorities in SPD have submitted a document to the Interdepartmental Procurement Review Committee detailing a different approach to Canadian Content. All cases have been accepted without further individual consideration and the procurement strategy has implemented an option like the ones described above. Thus, the parameters for Canadian content can be adjusted based on a strong business case analysis.

To ensure that this sensitive issue be treated appropriately, until further notice, therefore, all PRC submissions for R&D requirements must be coordinated by PWGSC and any deviation on “eligibility” must be forwarded to the Senior Director, Science Procurement Directorate for review.

3. Technology Readiness Levels

Technology development is the process of developing and demonstrating new or unproven technology, the application of existing technology to new or different uses, or the combination of existing and proven technology to achieve a specific goal. Technology development associated with a specific acquisition project must be identified early in the project life cycle and its maturity level should have evolved to a confidence level that allows the project to establish a credible technical scope, schedule and cost baseline. Projects that perform concurrent technology development and design implementation run the risk of proceeding with an ill-defined project baseline. The Technology Readiness Scale shown in this Attachment 1 to this Appendix assists in identifying those elements and processes of technology development required to reach proven maturity levels to ensure project success.