

Independent Research & Development (IR&D): Entering Project Data into the Defense Innovation Marketplace

Option 2: Instructions to Enter Project Data Using XML Upload

1 INTRODUCTION

"Independent Research and Development" initiated and conducted by defense contractors include: (1) basic research, (2) applied research, (3) development, and (4) systems and other concept formulation studies. IR&D does not include R&D performed under grant or contract from the Government or third parties and does not include technical effort specifically to support bid or proposal activities.

The security of "Company Proprietary" IR&D data is of particular importance to the Department of Defense. In addition to the secure IR&D database and user access limited individuals. IR&D data is handled as Non Classified-Sensitive-Limited Access within the Department of Defense.

Please note that all IR&D data submitted to the Defense Innovation Marketplace must be UNCLASSIFIED even though the overall classification of the project may be classified.

Help Desk Support

Submit a general request for assistance to: questions@DefenseInnovationMarketplace.mil

You may also directly contact key IR&D Points of Contact:

General IR&D Program Questions: Johanna Spangenberg, 703-248-2709, johanna.spangenberg@osd.mil

Technical IR&D Questions: Julia Foscue, 703-767-8031, jfoscue@dtic.mil

2 IR&D SUBMISSION STRUCTURE

The IR&D system allows the user to submit either through manual data entry via a user interface or Extensible Markup Language (XML) File Upload. The fields and content described in this document will apply to either method the user chooses for submission.

XML is a standard that defines a set of rules to help programmers design and submit large amounts of data using a pre-defined scheme. **Attachment 1 is the pre-defined XSD scheme** that should be used to develop XML files for uploading IR&D projects.

After the upload is processed, the results will be returned in an XML file that conforms to **Attachment 2 (Response XSD)**. The Response XML will supply the following information:

Submission Status: Accepted or Rejected

Submission Date

Validation Status: Valid or Invalid

Transaction Type: New

IR&D Record Number: Unique Number assigned to Accepted Records

Project Title

Project Number: Company provided Number submitted with the records

If there are any errors in the submission the entire file will be rejected – with detailed error information in the response XML.

The structure of these XSDs is intended to provide a streamlined but comprehensive tool for capturing all the IR&D activities for the DoD.

Document Layout

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Quick reference to the fields that are collected.

Section 4 **Lists of valid values**

Lists the values that may be used in select fields

Table 1 – Defense Technology Areas

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Section 5 **XSD Schemas**

Attachment 1 – IR&D Input XSD (Schema that firm will follow to provide multiple projects to the Defense Innovation Marketplace)

Attachment 2 – IR&D Input Response XSD (Response to firm that submitted an XSD file to the Defense Innovation Marketplace)

3 SUMMARY OF FIELD DEFINITIONS

The table below provides a summary of the data type and description for each of the fields. For those fields that have an associated list of valid values, the data type/length will be denoted. The list of valid values for these fields will be listed in section 4.

The table provides a summary of the data type and descriptions for the fields.

Field	Data type/Length	Description	Required/ Optional	Multiple Values Allowed?	List of Valid Values
IR&D Record Number	Numeric - 8	Number that is assigned once a new record is successfully submitted.	Conditionally Required	N	N
Company Information					
Parent Organization PIN	Alphanumeric	The provided Parent Organization PIN is unique to your company and will help identify your company and organize your data submission. Organizations that have been issued a PIN must login with their assigned PIN.	Required	N	Y
Company Division Code	Alphanumeric – 5 AN	The Commercial and Government Entity (CAGE) Code is a 5 character ID number used extensively within the federal government. It is administered by DLIS at www.dlis.dla.mil/bincs . Please choose the CAGE code that identifies the name of the Performing (Division/Branch) Organization responsible for the execution of the effort. If the research is not being reported at the Division Level, use the Parent CAGE Code.	Required	N	Y
IR&D Project Information					
Project Title	Alphanumeric – 240	Unclassified title of your Independent Research & Development (IR&D) project. Spell out any acronyms used. This title will be used to reference your project.	Required	N	N

Field	Data type/Length	Description	Required/ Optional	Multiple Values Allowed?	List of Valid Values
Project Number	Alphanumeric – 30	An identifier your firm uses to track this IR&D project.	Optional	N	N
Status of Effort	Alpha - 2	The state of the project. Options are “New Start” or “Follow On.” Select “New Start” if this is the initial report of this research. If this effort has been reported in the past, select “Follow on”.	Required	N	Y
Anticipated Expenditures (\$K)	Numeric - 8	Dollars (in thousands) anticipated to be spent over the next year. For example, \$8 Million would be entered as 8000.	Required	N	N
Primary Defense Technology Area	Alphanumeric – 45AN - Pull Down Menu	DoD employs a set of categories for its Science and Technology activities. Please select the most relevant Defense Technology Area and Subarea.	Required	N	Y
Primary Defense Technology Subarea	Alphanumeric – 56AN - Pull Down Menu	Select the most relevant subarea that corresponds with the Defense Technology Area chosen.	Required	N	Y
Primary Defense Technology Area Other	Alphanumeric – 500 AN	If you have selected “Other” as the Defense Technology Area, provide your own category here.	Required if DTA value selected is "Other"	N	N
Secondary Defense Technology Area	Alphanumeric – 45AN - Pull Down Menu	If more than one Defense Technology Area apply, select the second most relevant area.	Optional	N	Y
Secondary Defense Technology Subarea	Alphanumeric – 56AN - Pull Down Menu	Select the subarea that corresponds with the Secondary Defense Technology Area that was chosen.	Optional	N	Y
Secondary Defense Technology Area Other	Alphanumeric – 500 AN	If "Other" is selected for the Secondary Defense Technology Area, provide your own category here	Required if Secondary DTA value selected is "Other"	N	N

Field	Data type/Length	Description	Required/ Optional	Multiple Values Allowed?	List of Valid Values
Targeted DoD Organization	Alphanumeric – 240	The applicable DoD Agency this project is focused on servicing	Optional	Y	Y
Targeted DoD Organization Other	Alphanumeric – 240	If your project is focusing on another organization that is not listed, provide name of that organization.	Required if Targeted DoD Agency value selected is “Other”	N	N
IR&D Project Readiness					
Technology Readiness Levels	Alphanumeric – 20AN - Pull Down Menu	Technology Readiness Level (TRL) is a measure used to evaluate the maturity of evolving technologies (materials, components, devices, etc.) before that technology is incorporated into a system or subsystem. Select the goal in terms of achieved technology readiness level. Information on TRLs is available at: http://www.acq.osd.mil/ddre/publications/docs/TRA2011.pdf	Required	N	Y
IR&D Project Summary					
Project Summary	Alphanumeric - 1,000	A concise summary of your project.	Required	N	N
Keywords	Alphanumeric – 250	Keywords that would best identify this work to a DoD technology planner or system developer. These keywords should assist system users to readily identify and retrieve pertinent information. A keyword can consist of a single word or phrase with several words. Input should involve words and phrases that identify concepts not explicitly stated in the title. Each single word or phrase should be separated by a comma.	Required	N	N
Project Description	Alphanumeric – 10,000	One of two options provided to enter technical data about your project. This field is required if no project documents are attached.	Conditional Required	N	N
Project Document(s) Attachment		Firms have the option of providing additional information – graphics, reports from related projects, brochures, patents, whatever the firm thinks it relevant and wants to show to potential DoD customers.	Conditional Required	Up to 5 attachments Max 15MB each	N

Field	Data type/Length	Description	Required/ Optional	Multiple Values Allowed?	List of Valid Values
Contacting Your Firm					
Your First Name	Alphanumeric - 60	First name of the individual entering the record.	Required	N	N
Your Last Name	Alphanumeric - 60	Last name of the individual entering the record.	Required	N	N
Your Telephone	Alphanumeric – 19	The commercial telephone number of the individual entering the record, including area code and, if applicable, an extension number.	Required	N	N
Your Email	Alphanumeric – 75	The email address of the individual entering the record.	Required	N	N
Technical Contact(s) First Name	Alphanumeric - 60	The first name of the individual within the organization that is responsible for the research project. It is the firm's option who to identify as a point of contact for additional information. At least one Point of Contact is required.	Required	Y	N
Technical Contact(s) Last Name	Alphanumeric - 60	The last name of the individual within the organization that is responsible for the research project. It is the firm's option who to identify as a point of contact for additional information. At least one Point of Contact is required.	Required	Y	N
Technical Contact(s) Telephone	Alphanumeric – 19	The commercial telephone number of the responsible individual including area code and, if applicable, an extension number.	Required	Y	N
Technical Contact(s) Email	Alphanumeric – 75	The email address of the responsible individual/individuals.	Required	Y	N

4 LISTS THE VALID VALUES

The following is a list of values associated with the fields (that have specific values).

Table 1 - Defense Technology Areas (and Sub-areas)

Main Area	Sub-Area
1) Air Platforms	Aircraft Power
1) Air Platforms	Ballistic Protection
1) Air Platforms	Fixed Wing Vehicles
1) Air Platforms	High Speed/Hypersonics
1) Air Platforms	Near-Space (High Altitude)
1) Air Platforms	Rotary Wing Vehicles
1) Air Platforms	Unmanned Aerial Vehicles (UAVs)
1) Air Platforms	Versatile Affordable Advanced Turbine Engines (VAATE)
2) Battlespace Environments	Lower Atmosphere Environments
2) Battlespace Environments	Ocean Battlespace Environments
2) Battlespace Environments	Space/Upper Atmosphere Environments
2) Battlespace Environments	Terrestrial Environments
3) Biomedical	Combat Casualty Care
3) Biomedical	Infectious Diseases of Military Importance
3) Biomedical	Medical Radiological Defense
3) Biomedical	Military Operational Medicine
4) Chemical/Biological Defense	Decontamination
4) Chemical/Biological Defense	Detection
4) Chemical/Biological Defense	Diagnostics
4) Chemical/Biological Defense	Emerging Threats/Special Programs
4) Chemical/Biological Defense	Modeling and Simulation
4) Chemical/Biological Defense	Pretreatments
4) Chemical/Biological Defense	Protection
4) Chemical/Biological Defense	Therapeutics
4) Chemical/Biological Defense	Threat Agent Science

5) Ground and Sea Vehicles	Ballistic Protection
5) Ground and Sea Vehicles	Ground Vehicles
5) Ground and Sea Vehicles	Sea Vehicles
5) Ground and Sea Vehicles	Unmanned Ground Vehicles
5) Ground and Sea Vehicles	Unmanned Sea Vehicles
6) Human Systems	Human, Social, and Cultural Sciences and Modeling
6) Human Systems	Personnel, Training and Leader Development
6) Human Systems	Protection, Sustainment and Physical Performance
6) Human Systems	System Interfaces and Cognitive Processing
7) Information Systems Technology	Algorithms
7) Information Systems Technology	Communications and Networking
7) Information Systems Technology	Computing and Software Technology
7) Information Systems Technology	Information Security
7) Information Systems Technology	Knowledge and Information Management/Battle Command
7) Information Systems Technology	Modeling and Simulation Technologies
8) Materials/Processes	Civil Engineering
8) Materials/Processes	Environmental Quality
8) Materials/Processes	Manufacturing Technology for Affordability
8) Materials/Processes	Materials/Processes for Survivability and Life Extension
9) Nuclear Technology	Forensics and Detection Technology
9) Nuclear Technology	Lethality and Effects
9) Nuclear Technology	Modeling and Simulation
9) Nuclear Technology	Radiation Hardened Microelectronics
9) Nuclear Technology	Systems Effects and Survivability Technology
9) Nuclear Technology	Test and Simulation Technology
9) Nuclear Technology	Threat Reduction and Detection Technology
9) Nuclear Technology	Warfighter Consequence Management Technology
10) Sensors, Electronics & Electronic Warfare	Acoustic Sensors
10) Sensors, Electronics & Electronic Warfare	Automatic Target Recognition
10) Sensors, Electronics & Electronic Warfare	Counter WMD
10) Sensors, Electronics & Electronic Warfare	Electro-Optical Sensors
10) Sensors, Electronics & Electronic Warfare	Electro-Optical Technology

10) Sensors, Electronics & Electronic Warfare	Electronic Materials
10) Sensors, Electronics & Electronic Warfare	Electronics Integration Technology
10) Sensors, Electronics & Electronic Warfare	EW Electro-Optical/Infrared (EO/IR)
10) Sensors, Electronics & Electronic Warfare	EW Integrated Technologies
10) Sensors, Electronics & Electronic Warfare	EW Radio Frequency (RF)
10) Sensors, Electronics & Electronic Warfare	Integrated Platform Electronics
10) Sensors, Electronics & Electronic Warfare	Microelectronics
10) Sensors, Electronics & Electronic Warfare	Radar Sensors
10) Sensors, Electronics & Electronic Warfare	Radio Frequency Components
10) Sensors, Electronics & Electronic Warfare	Spectrum Management
11) Space Platforms	Space and Launch Vehicles
11) Space Platforms	Space Propulsion
12) Weapons	Counter WMD
12) Weapons	Countermine/Mines
12) Weapons	Guidance and Control
12) Weapons	Guns
12) Weapons	High-Power Microwave
12) Weapons	Lasers
12) Weapons	Missiles
12) Weapons	Munitions
12) Weapons	Non-Lethal Weapons
12) Weapons	Ordnance
12) Weapons	Propulsion
12) Weapons	Undersea Weapons
12) Weapons	Weapons Lethality/Vulnerability
13) Other – please describe	User has to provide text if 'Other' is selected

Table 2 – Targeted DOD Organization

Air Force
Army
Assistant Secretary of Defense for Logistics and Material Readiness
Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs
Assistant Secretary of Defense for Operational Energy Plans and Programs
Assistant Secretary of Defense for Research & Engineering
Defense Advanced Research Projects Agency
Defense Commissary Agency
Defense Intelligence Agency
Defense Logistics Agency
Defense Security Cooperation Agency
Defense Security Service
Defense Technical Information Center
Defense Technology Security Administration
Defense Threat Reduction Agency
Missile Defense Agency
National Security Agency
National-Geospatial Intelligence Agency
Navy
U.S. Special Operations Command – SOCOM
United States Marine Corps
Other

Table 3 – Technology Readiness Level

Technology Readiness Level	Text for XML	Description
1	Basic principles observed and reported.	Lowest level of technology readiness. Scientific research begins to be translated into applied research and development. Examples might include paper studies of a technology's basic properties.
2	Technology concept and/or application formulated.	Invention begins. Once basic principles are observed, practical applications can be invented. Applications are speculative and there may be no proof or detailed analysis to support the assumptions. Examples are limited to analytic studies.
3	Analytical and experimental critical function and/or characteristic proof of concept.	Active research and development is initiated. This includes analytical studies and laboratory studies to physically validate analytical predictions of separate elements of the technology. Examples include components that are not yet integrated or representative.
4	Component and/or breadboard validation in laboratory environment.	Basic technological components are integrated to establish that they will work together. This is relatively "low fidelity" compared to the eventual system. Examples include integration of "ad hoc" hardware in the laboratory.
5	Component and/or breadboard validation in relevant environment.	Fidelity of breadboard technology increases significantly. The basic technological components are integrated with reasonably realistic supporting elements so it can be tested in a simulated environment. Examples include "high fidelity" laboratory integration of components.
6	System/subsystem model or prototype demonstration in a relevant environment.	Representative model or prototype system, which is well beyond that of TRL 5, is tested in a relevant environment. Represents a major step up in a technology's demonstrated readiness. Examples include testing a prototype in a high-fidelity laboratory environment or in simulated operational environment.

7	System prototype demonstration in an operational environment.	Operation Environment Demonstration	Prototype near, or at, planned operational system. Represents a major step up from TRL 6, requiring demonstration of an actual system prototype in an operational environment such as an aircraft, vehicle, or space. Examples include testing the prototype in a test bed aircraft.
8	Actual system completed and qualified through test and demonstration.	Demonstration Qualification	Technology has been proven to work in its final form and under expected conditions. In almost all cases, this TRL represents the end of true system development. Examples include developmental test and evaluation of the system in its intended weapon system to determine if it meets design specifications.
9	Actual system proven through successful mission operations.	Mission Operations Proof	Actual application of the technology in its final form and under mission conditions, such as those encountered in operational test and evaluation. Examples include using the system under operational mission conditions.

5 XSD Schemas

Attachment 1 - IR&D Input XSD

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2008 rel. 2 sp2 (http://www.altova.com) by Erin Duffy (DTIC) -->
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns="http://www.defenseinnovationmarketplace.mil/iraddc"
targetNamespace="http://www.defenseinnovationmarketplace.mil/iraddc" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xsd:element name="ResearchProjects">
    <xsd:annotation>
      <xsd:documentation>A list of Independent Research and Development (IR&D) projects that you want to submit to the Defense Innovation
Marketplace.</xsd:documentation>
    </xsd:annotation>
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element ref="ResearchProject" maxOccurs="100"/>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
  <xsd:element name="ResearchProject">
    <xsd:annotation>
      <xsd:documentation>A single Independent Research and Development (IR&D) project.</xsd:documentation>
    </xsd:annotation>
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="TransactionType">
          <xsd:annotation>
            <xsd:documentation>Indicates whether this is a new record, or an update to an existing one.</xsd:documentation>
          </xsd:annotation>
          <xsd:simpleType>
            <xsd:restriction base="xsd:string">
              <xsd:enumeration value="N"/>
              <xsd:enumeration value="U"/>
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
        <xsd:element name="IRADRecordNumber" minOccurs="0">
          <xsd:annotation>
```

<xsd:documentation>This IR&D Record number is used to identify a project in the IR&D system, and is assigned to a project when the project is initially uploaded to IR&D. This field must be populated when the XML file represents updates to a project that was previously uploaded to IR&D.</xsd:documentation>

</xsd:annotation>

<xsd:simpleType>

<xsd:restriction base="xsd:string">

<xsd:length value="8"/>

</xsd:restriction>

</xsd:simpleType>

</xsd:element>

<xsd:element name="CompanyDivisionCAGECode">

<xsd:annotation>

<xsd:documentation>The CAGE code for the company division responsible for this research project. If there is not an applicable division CAGE code, use the Company CAGE code here.</xsd:documentation>

</xsd:annotation>

<xsd:simpleType>

<xsd:restriction base="xsd:string">

<xsd:length value="5"/>

</xsd:restriction>

</xsd:simpleType>

</xsd:element>

<xsd:element name="ProjectTitle">

<xsd:annotation>

<xsd:documentation>Please provide the unclassified title of your Independent Research & Development (IR&D) project. Please spell out any acronyms used. This title will be used to reference your project.

</xsd:documentation>

</xsd:annotation>

<xsd:simpleType>

<xsd:restriction base="xsd:string">

<xsd:minLength value="1"/>

<xsd:maxLength value="240"/>

</xsd:restriction>

</xsd:simpleType>

</xsd:element>

<xsd:element name="ProjectNumber" minOccurs="0">

<xsd:annotation>

<xsd:documentation>An identifier your firm uses to track this IR&D project.</xsd:documentation>

</xsd:annotation>

<xsd:simpleType>

```

        <xsd:restriction base="xsd:string">
            <xsd:minLength value="0"/>
            <xsd:maxLength value="30"/>
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="StatusOfEffort">
    <xsd:annotation>
        <xsd:documentation>The current status of this project for this data call year. Choose 'NS' for 'New Start' or 'FO' for
follow-on projects.</xsd:documentation>
    </xsd:annotation>
    <xsd:simpleType>
        <xsd:restriction base="xsd:string">
            <xsd:enumeration value="FO"/>
            <xsd:enumeration value="NS"/>
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="AnticipatedExpenditures">
    <xsd:annotation>
        <xsd:documentation>Dollars (in thousands) anticipated to be spent over the next year. For example, $8 Million would be
entered as 8000.</xsd:documentation>
    </xsd:annotation>
    <xsd:simpleType>
        <xsd:restriction base="xsd:integer">
            <xsd:maxExclusive value="99999999"/>
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="PrimaryDefenseTechnologyArea" type="DefenseTechnologyAreaGroupType">
    <xsd:annotation>
        <xsd:documentation>The DoD employs a series of categories for its Science and Technology activities. Please select the
most relevant Defense Technology Area and Subarea for your primary entry. Optionally, you may select a secondary Defense Technology Area and
Subarea.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
<xsd:element name="SecondaryDefenseTechnologyArea" type="DefenseTechnologyAreaGroupType" minOccurs="0"/>
<xsd:element name="TargetedDoDOrganizations" minOccurs="0">
    <xsd:annotation>

```



```

    <xsd:documentation>Select those DoD organizations that you think will most benefit from
this project. If you list 'Other' as one of the Targeted Agencies, you must include data in the DefenseTechnologyOther element.</xsd:documentation>
  </xsd:annotation>
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="TargetedDoDOrganization" maxOccurs="10">
        <xsd:simpleType>
          <xsd:restriction base="xsd:string">
            <xsd:pattern value="Air Force|USAF"/>
            <xsd:pattern value="Army|DA"/>
            <xsd:pattern value="Assistant Secretary of Defense for Logistics and Material
Readiness|ASDLM"/>
            <xsd:pattern value="Assistant Secretary of Defense for Nuclear, Chemical, and Biological
Defense Programs|ASDNC"/>
            <xsd:pattern value="Assistant Secretary of Defense for Operational Energy Plans and
Programs|ASDOE"/>
            <xsd:pattern value="Assistant Secretary of Defense for Research &
Engineering|ASDRE"/>
            <xsd:pattern value="Defense Advanced Research Projects Agency|DARPA"/>
            <xsd:pattern value="Defense Commissary Agency|DCA"/>
            <xsd:pattern value="Defense Intelligence Agency|DIA"/>
            <xsd:pattern value="Defense Logistics Agency|DLA"/>
            <xsd:pattern value="Defense Security Cooperation Agency|DSCA"/>
            <xsd:pattern value="Defense Security Service|DSS"/>
            <xsd:pattern value="Defense Technical Information Center|DTIC"/>
            <xsd:pattern value="Defense Threat Reduction Agency|DTRA"/>
            <xsd:pattern value="Defense Technology Security Administration|DTSA"/>
            <xsd:pattern value="Missile Defense Agency|MDA"/>
            <xsd:pattern value="National-Geospatial Intelligence Agency|NGIA"/>
            <xsd:pattern value="National Security Agency|NSA"/>
            <xsd:pattern value="U.S. Special Operations Command|SOCOM"/>
            <xsd:pattern value="United States Marine Corps|USMC"/>
            <xsd:pattern value="Other|OTHER"/>
          </xsd:restriction>
        </xsd:simpleType>
      </xsd:element>
      <xsd:element name="OtherTargetedDoDOrganization" minOccurs="0">
        <xsd:annotation>

```

describing the other agency.</xsd:documentation> <xsd:documentation>if 'Other' is selected as a Targeted DoDAgency, fill out this free form text

```
</xsd:annotation>
<xsd:simpleType>
  <xsd:restriction base="xsd:string">
    <xsd:maxLength value="200"/>
  </xsd:restriction>
</xsd:simpleType>
</xsd:element>
```

```
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="TechnologyReadinessLevel">
  <xsd:annotation>
    <xsd:documentation>Technology Readiness Level (TRL) is used to provide information about the maturity of evolving
technologies (materials, components, devices, etc.) before incorporated into a system or subsystem. Please select anticipated TRL for this project at the end of the
year.</xsd:documentation>
```

```
</xsd:annotation>
<xsd:simpleType>
  <xsd:restriction base="xsd:string">
    <xsd:pattern value="Basic Principles|BASIC PRINCIPLES"/>
    <xsd:pattern value="Technology Concept|TECHNOLOGY CONCEPT"/>
    <xsd:pattern value="Critical Function|CRITICAL FUNCTION"/>
    <xsd:pattern value="Laboratory Validation|LABORATORY VALIDATION"/>
    <xsd:pattern value="Relevant Environment Validation|RELEVANT ENVIRONMENT VALIDATION"/>
    <xsd:pattern value="Relevant Environment Demonstration|RELEVANT ENVIRONMENT DEMONSTRATION"/>
    <xsd:pattern value="Operation Environment Demonstration|OPERATION ENVIRONMENT DEMONSTRATION"/>
    <xsd:pattern value="Demonstration Qualification|DEMONSTRATION QUALIFICATION"/>
    <xsd:pattern value="Mission Operations Proof|MISSION OPERATIONS PROOF"/>
  </xsd:restriction>
```

```
</xsd:simpleType>
</xsd:element>
<xsd:element name="Keywords">
  <xsd:annotation>
    <xsd:documentation>Use words that best characterize the project, the more specific, the better. Think of who the
customer is and the words they would use to search for your project. A keyword can consist of a single word or a phrase with several words. Please separate keywords
by a comma.</xsd:documentation>
```

```
</xsd:annotation>
<xsd:simpleType>
```

```

        <xsd:restriction base="xsd:string">
            <xsd:maxLength value="250"/>
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="ProjectSummary">
    <xsd:annotation>
        <xsd:documentation>Provide a one or two sentence summary of your project to be used as a snapshot description
included in search results.</xsd:documentation>
    </xsd:annotation>
    <xsd:simpleType>
        <xsd:restriction base="xsd:string">
            <xsd:maxLength value="1000"/>
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="ProjectDescription" minOccurs="0">
    <xsd:annotation>
        <xsd:documentation>Use this element to provide a more detailed technical explanation of your project, and its objective
and approach. Either this element or at least 1 ProjectDocument attachment is required.</xsd:documentation>
    </xsd:annotation>
    <xsd:simpleType>
        <xsd:restriction base="xsd:string">
            <xsd:maxLength value="10000"/>
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="ProjectDocuments" minOccurs="0">
    <xsd:annotation>
        <xsd:documentation>Use this element to attach documents that explain your project and its technical approach in more
detail. You must either attach one document here or fill out the Project Description field.</xsd:documentation>
    </xsd:annotation>
    <xsd:complexType>
        <xsd:sequence maxOccurs="5">
            <xsd:element name="ProjectDocument" type="DocumentType"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
<xsd:element name="SubmitterPointOfContact" type="PointOfContactType">

```

```

        <xsd:annotation>
            <xsd:documentation>Point of Contact Information for the person submitting this research project.</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <xsd:element name="TechnicalPointOfContacts">
        <xsd:annotation>
            <xsd:documentation>Please add the contact information for the Point of Contact(s) who can discuss this project with
interested DoD users.
You may list up to five Point of Contacts.</xsd:documentation>
        </xsd:annotation>
        <xsd:complexType>
            <xsd:sequence maxOccurs="5">
                <xsd:element name="TechnicalPointOfContact" type="PointOfContactType"/>
            </xsd:sequence>
        </xsd:complexType>
    </xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:complexType name="DefenseTechnologyAreaGroupType">
    <xsd:sequence>
        <xsd:element name="DefenseTechnologyArea">
            <xsd:simpleType>
                <xsd:restriction base="xsd:string">
                    <xsd:pattern value="Air Platforms|AIR PLATFORMS"/>
                    <xsd:pattern value="Battlespace Environments|BATTLESPACE ENVIRONMENTS"/>
                    <xsd:pattern value="Biomedical|BIOMEDICAL"/>
                    <xsd:pattern value="Chemical/Biological Defense|CHEMICAL/BIOLOGICAL DEFENSE"/>
                    <xsd:pattern value="Ground and Sea Vehicles|GROUND AND SEA VEHICLES"/>
                    <xsd:pattern value="Human Systems|HUMAN SYSTEMS"/>
                    <xsd:pattern value="Information Systems Technology|INFORMATION SYSTEMS TECHNOLOGY"/>
                    <xsd:pattern value="Materials/Processes|MATERIALS/PROCESSES"/>
                    <xsd:pattern value="Nuclear Technology|NUCLEAR TECHNOLOGY"/>
                    <xsd:pattern value="Sensors, Electronics, and Electronic Warfare|SENSORS, ELECTRONICS, AND ELECTRONIC WARFARE"/>
                    <xsd:pattern value="Space Platforms|SPACE PLATFORMS"/>
                    <xsd:pattern value="Weapons|WEAPONS"/>
                    <xsd:pattern value="Other|OTHER"/>
                </xsd:restriction>
            </xsd:simpleType>
        </xsd:element>
    </xsd:sequence>
</xsd:complexType>

```

```

</xsd:element>
<xsd:element name="DefenseTechnologySubArea">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string">
      <xsd:pattern value="Aircraft Power|AIRCRAFT POWER"/>
      <xsd:pattern value="Fixed Wing Vehicles|FIXED WING VEHICLES"/>
      <xsd:pattern value="High Speed/Hypersonics|HIGH SPEED/HYPERSONICS"/>
      <xsd:pattern value="Near-Space \((High Altitude\)|NEAR-SPACE \((HIGH ALTITUDE\))"/>
      <xsd:pattern value="Rotary Wing Vehicles|ROTARY WING VEHICLES"/>
      <xsd:pattern value="Versatile Affordable Advanced Turbine Engines \((VAATE\)|VERSATILE AFFORDABLE ADVANCED
TURBINE ENGINES \((VAATE\))"/>
      <xsd:pattern value="Unmanned Aerial Vehicles \((UAVs\)|UNMANNED AERIAL VEHICLES \((UAVS\))"/>
      <xsd:pattern value="Ballistic Protection|BALLISTIC PROTECTION"/>
      <xsd:pattern value="Lower Atmosphere Environments|LOWER ATMOSPHERE ENVIRONMENTS"/>
      <xsd:pattern value="Ocean Battlespace Environments|OCEAN BATTLESPACE ENVIRONMENTS"/>
      <xsd:pattern value="Space/Upper Atmosphere Environments|SPACE/UPPER ATMOSPHERE ENVIRONMENTS"/>
      <xsd:pattern value="Terrestrial Environments|TERRESTRIAL ENVIRONMENTS"/>
      <xsd:pattern value="Combat Casualty Care|COMBAT CASUALTY CARE"/>
      <xsd:pattern value="Infectious Diseases of Military Importance|INFECTIOUS DISEASES OF MILITARY IMPORTANCE"/>
      <xsd:pattern value="Medical Radiological Defense|MEDICAL RADIOLOGICAL DEFENSE"/>
      <xsd:pattern value="Military Operational Medicine|MILITARY OPERATIONAL MEDICINE"/>
      <xsd:pattern value="Decontamination|DECONTAMINATION"/>
      <xsd:pattern value="Detection|DETECTION"/>
      <xsd:pattern value="Diagnostics|DIAGNOSTICS"/>
      <xsd:pattern value="Emerging Threats/Special Programs|EMERGING THREATS/SPECIAL PROGRAMS"/>
      <xsd:pattern value="Modeling and Simulation|MODELING AND SIMULATION"/>
      <xsd:pattern value="Pretreatments|PRETREATMENTS"/>
      <xsd:pattern value="Protection|PROTECTION"/>
      <xsd:pattern value="Therapeutics|THERAPEUTICS"/>
      <xsd:pattern value="Threat Agent Science|THREAT AGENT SCIENCE"/>
      <xsd:pattern value="Ground Vehicles|GROUND VEHICLES"/>
      <xsd:pattern value="Sea Vehicles|SEA VEHICLES"/>
      <xsd:pattern value="Unmanned Ground Vehicles|UNMANNED GROUND VEHICLES"/>
      <xsd:pattern value="Unmanned Sea Vehicles|UNMANNED SEA VEHICLES"/>
      <xsd:pattern value="Ballistic Protection|BALLISTIC PROTECTION"/>
      <xsd:pattern value="Personnel, Training, and Leader Development|PERSONNEL, TRAINING, AND LEADER
DEVELOPMENT"/>
      <xsd:pattern value="Protection, Sustainment, and Physical Performance|PROTECTION, SUSTAINMENT, AND PHYSICAL
PERFORMANCE"/>
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>

```

```

&amp; MODELING"/>
<xsd:pattern value="System Interfaces and Cognitive Processing|SYSTEM INTERFACES AND COGNITIVE PROCESSING"/>
<xsd:pattern value="Human, Social, and Cultural Sciences &amp; Modeling|HUMAN, SOCIAL, AND CULTURAL SCIENCES
MANAGEMENT/BATTLE COMMAND"/>
<xsd:pattern value="Algorithms|ALGORITHMS"/>
<xsd:pattern value="Communications and Networking|COMMUNICATIONS AND NETWORKING"/>
<xsd:pattern value="Computing and Software Technology|COMPUTING AND SOFTWARE TECHNOLOGY"/>
<xsd:pattern value="Information Security|INFORMATION SECURITY"/>
<xsd:pattern value="Knowledge and Information Management/Battle Command|KNOWLEDGE AND INFORMATION
AND LIFE EXTENSION"/>
<xsd:pattern value="Modeling and Simulation Technologies|MODELING AND SIMULATION TECHNOLOGIES"/>
<xsd:pattern value="Civil Engineering|CIVIL ENGINEERING"/>
<xsd:pattern value="Environmental Quality|ENVIRONMENTAL QUALITY"/>
<xsd:pattern value="Manufacturing Technology for Affordability|MANUFACTURING TECHNOLOGY FOR AFFORDABILITY"/>
<xsd:pattern value="Materials/Processes for Survivability and Life Extension|MATERIALS/PROCESSES FOR SURVIVABILITY
TECHNOLOGY"/>
<xsd:pattern value="Forensics and Detection Technology|FORENSICS AND DETECTION TECHNOLOGY"/>
<xsd:pattern value="Lethality and Effects|LETHALITY AND EFFECTS"/>
<xsd:pattern value="Modeling and Simulation|MODELING AND SIMULATION"/>
<xsd:pattern value="Radiation Hardened Microelectronics|RADIATION HARDENED MICROELECTRONICS"/>
<xsd:pattern value="Systems Effects and Survivability Technology|SYSTEMS EFFECTS AND SURVIVABILITY
TECHNOLOGY"/>
<xsd:pattern value="Test and Simulation Technology|TEST AND SIMULATION TECHNOLOGY"/>
<xsd:pattern value="Threat Reduction and Detection Technology|THREAT REDUCTION AND DETECTION TECHNOLOGY"/>
<xsd:pattern value="Warfighter Consequence Management Technology|WARFIGHTER CONSEQUENCE MANAGEMENT
TECHNOLOGY"/>
<xsd:pattern value="Acoustic Sensors|ACOUSTIC SENSORS"/>
<xsd:pattern value="Automatic Target Recognition|AUTOMATIC TARGET RECOGNITION"/>
<xsd:pattern value="Counter WMD|COUNTER WMD"/>
<xsd:pattern value="EW Electro-Optical/Infrared \|(EO/IR\)|EW ELECTRO-OPTICAL/INFRARED \|(EO/IR\)" />
<xsd:pattern value="EW Integrated Technologies|EW INTEGRATED TECHNOLOGIES"/>
<xsd:pattern value="EW Radio Frequency \|(RF\)|EW RADIO FREQUENCY \|(RF\)" />
<xsd:pattern value="Electro-Optical Sensors|ELECTRO-OPTICAL SENSORS"/>
<xsd:pattern value="Electro-Optical Technology|ELECTRO-OPTICAL TECHNOLOGY"/>
<xsd:pattern value="Electronic Materials|ELECTRONIC MATERIALS"/>
<xsd:pattern value="Electronics Integration Technology|ELECTRONICS INTEGRATION TECHNOLOGY"/>
<xsd:pattern value="Integrated Platform Electronics|INTEGRATED PLATFORM ELECTRONICS"/>
<xsd:pattern value="Microelectronics|MICROELECTRONICS"/>
<xsd:pattern value="Radar Sensors|RADAR SENSORS"/>
<xsd:pattern value="Radio Frequency Components|RADIO FREQUENCY COMPONENTS"/>

```

```

        <xsd:pattern value="Spectrum Management|SPECTRUM MANAGEMENT"/>
        <xsd:pattern value="Space Propulsion|SPACE PROPULSION"/>
        <xsd:pattern value="Space and Launch Vehicles|SPACE AND LAUNCH VEHICLES"/>
        <xsd:pattern value="Countermine/Mines|COUNTERMINE/MINES"/>
        <xsd:pattern value="Counter WMD|COUNTER WMD"/>
        <xsd:pattern value="Guidance and Control|GUIDANCE AND CONTROL"/>
        <xsd:pattern value="Guns|GUNS"/>
        <xsd:pattern value="High-Power Microwave|HIGH-POWER MICROWAVE"/>
        <xsd:pattern value="Lasers|LASERS"/>
        <xsd:pattern value="Missiles|MISSILES"/>
        <xsd:pattern value="Munitions|MUNITIONS"/>
        <xsd:pattern value="Non-Lethal Weapons|NON-LETHAL WEAPONS"/>
        <xsd:pattern value="Ordnance|ORDNANCE"/>
        <xsd:pattern value="Propulsion|PROPULSION"/>
        <xsd:pattern value="Undersea Weapons|UNDERSEA WEAPONS"/>
        <xsd:pattern value="Weapons Lethality/Vulnerability|WEAPONS LETHALITY/VULNERABILITY"/>
        <xsd:pattern value="Other|OTHER"/>
    </xsd:restriction>
</xsd:simpleType>
</xsd:element>
<xsd:element name="DefenseTechnologyOther" minOccurs="0">
    <xsd:annotation>
        <xsd:documentation>This Defense Technology free form text field is required if 'Other' is chosen for the Defense Technology Area
and Subarea.</xsd:documentation>
    </xsd:annotation>
    <xsd:simpleType>
        <xsd:restriction base="xsd:string">
            <xsd:maxLength value="200"/>
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
<xsd:complexType name="DocumentType">
    <xsd:sequence>
        <xsd:element name="FileName">
            <xsd:simpleType>
                <xsd:restriction base="xsd:string">
                    <xsd:maxLength value="250"/>
                </xsd:restriction>
            </xsd:simpleType>
        </xsd:element>
    </xsd:sequence>
</xsd:complexType>

```

```

        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="MIMEType">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string">
            <xsd:maxLength value="128"/>
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="Content">
    <xsd:simpleType>
        <xsd:restriction base="xsd:base64Binary">
            <xsd:maxLength value="52428800"/>
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="DisplayName" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string">
            <xsd:maxLength value="250"/>
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
<xsd:complexType name="PointOfContactType">
    <xsd:sequence>
        <xsd:element name="FirstName">
            <xsd:simpleType>
                <xsd:restriction base="xsd:string">
                    <xsd:maxLength value="60"/>
                </xsd:restriction>
            </xsd:simpleType>
        </xsd:element>
        <xsd:element name="LastName">
            <xsd:simpleType>
                <xsd:restriction base="xsd:string">
                    <xsd:maxLength value="60"/>
                </xsd:restriction>
            </xsd:simpleType>
        </xsd:element>
    </xsd:sequence>
</xsd:complexType>

```



```
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="PhoneNumber">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string">
          <xsd:maxLength value="19"/>
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="EmailAddress">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string">
          <xsd:maxLength value="75"/>
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
  </xsd:sequence>
</xsd:complexType>
</xsd:schema>
```

Attachment 2 - IR&D Input Response XSD

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2008 rel. 2 sp2 (http://www.altova.com) by Erin Duffy (DTIC) -->
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns="http://www.defenseinnovationmarketplace.mil/iraddc/response"
targetNamespace="http://www.defenseinnovationmarketplace.mil/iraddc/response" elementFormDefault="qualified">
  <xsd:element name="ResearchProjectResponse">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="SubmissionStatus">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string">
              <xsd:enumeration value="Accepted"/>
              <xsd:enumeration value="Rejected"/>
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
        <xsd:element name="SubmissionDate" type="xsd:dateTime"/>
        <xsd:element name="UUID" type="xsd:string" minOccurs="0"/>
        <xsd:element name="FileError" type="xsd:string" minOccurs="0"/>
        <xsd:element name="ResearchProjectResults" minOccurs="0">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element ref="ResearchProjectResult" maxOccurs="unbounded"/>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
  <xsd:element name="ResearchProjectResult">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="ValidationStatus">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string">
              <xsd:enumeration value="Valid"/>
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
</xsd:schema>
```

```

        <xsd:enumeration value="Invalid"/>
    </xsd:restriction>
</xsd:simpleType>
</xsd:element>
<xsd:element name="TransactionType">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string">
            <xsd:enumeration value="N"/>
            <xsd:enumeration value="U"/>
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="Errors" minOccurs="0">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element ref="Error" maxOccurs="unbounded"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
<xsd:element name="IRADRecordNumber" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string">
            <xsd:minLength value="8"/>
            <xsd:maxLength value="8"/>
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="ProjectTitle" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string">
            <xsd:maxLength value="240"/>
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="ProjectNumber" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string">
            <xsd:maxLength value="30"/>
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>

```

```
        </xsd:simpleType>
      </xsd:element>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Error">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Message" type="xsd:string"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
</xsd:schema>
```