

## **Innovative Solutions Canada Program**

### **Challenge EN578-170003/27: Advanced Decision Support for First Responder Command and Control Attachment 3**

#### **Questions and Answers #1 to #8**

This document contains questions and answers related to this challenge.

#### **Question #1:**

**Essential (Mandatory) Outcome #1 states: Position responder leadership to leverage some aspect of advanced natural language processing in a real-time environment to interpret voice and/or text information and support decision-making;**

Can you clarify the anticipated source of the voice and text information that may be processed through NLP? I.e. is this radio communication or is it coming from another source?

#### **Response #1:**

The source of information could be from communication devices such as wireless communication devices and/or other systems that are supporting the emergency situation. For example, Computer Aid Dispatch Systems, Situational Awareness Systems, etc. Additional, voice and text information from other responders and stakeholders could also be used.

#### **Question #2:**

Is there an anticipated pathway for enabling this communication to flow to NLP for processing? I.e. if this is radio is there a preferred technology that is already in place to capture, record, and forward audio from radio communications?

#### **Response #2:**

Proponents should outline the optimal pathway for enabling the communication to NLP for processing while considering this challenge is focused on innovative solutions to advance decision support for First Responder Command and Control.

#### **Question #3:**

Can you provide a couple of examples of the types of voice and or text you are anticipating leveraging to improve decision making and perhaps what type of decision might be made from said voice and text?

#### **Response #3:**

Examples of voice would be radio transmissions from responder agency colleagues, such as tactical commanders, intelligence groups, and community partners who are not necessarily responders. Text examples could include, but not limited to, social media feeds, computer aided dispatch systems, records entry systems, policies and procedures, past similar events.

**Question #4:**

**Essential (Mandatory) Outcome #3 states: Distill knowledge from previous similar events and approved doctrine into contextually relevant insight for first responder incident command while minimizing cognitive load on key decision makers;**

Can you clarify if this outcome is focused on bringing in past context of Incident Command System (ICS) / C3 or if this is focused on bringing similar issues and their resulting decisions from past events?

**Response #4:**

The outcome is focused on leveraging the most important information and resulting decisions from similar issues and their resulting decisions to attention of the decision maker of the day. In essence the solution should position the decision maker to quickly compare legacy information including doctrine and previous outcomes with the current situation to make a real time decision.

**Question #5:**

In the latter case will issues and decision records from past events be provided?

**Response #5:**

No. More in depth consultations with responders and subsequent requirements definition will be necessary to ascertain the doctrine, policies, procedures and outcomes from past events in order to benchmark the desired current individual or organizational performance standards and operational outcomes.

**Question #6:**

Alternatively, would you consider this a future capability as the technology likely was not in place at past emergency events to produce the type of data required to train models going forward?

**Response #6:**

The outcome is focused on leveraging the most important information and resulting decisions from similar issues and their resulting decisions from emergency events. This knowledge should be used in the design of the technical capability. The proposed technical capability should be innovative in that it goes beyond the current command and control decision support offerings.

**Question #7:**

**Essential (Mandatory) Outcome #4 states: Improve the probability of making good decisions during high-risk events, while reducing the cognitive load of incident command personnel;**

Can you provide further clarification on how decisions are evaluated in the context of this outcome? What makes a good decision?

**Response #7:**

The proposed solution should outline how technical capabilities can be leveraged to improve decision making in the context of high-risk events. The technical capabilities should help in the decision making of incident command personnel. A good decision is based on having access to relevant information in a timely manner than can be used to reduce the risk of an emergency situation. For instance, an incident commander at a hostage taking could benefit from having myriad information quickly fused together to help him /her decide when to use force, apprehend offenders, request assistance from other responders and other stakeholders.

**Question #8:**

**Additional Outcome #1 states: Position responder leadership to leverage emerging; location-based broadband-enabled communications services.**

Can you specify the type of communication services you wish to leverage and how location-based technology is intended to be leveraged from an emerging communication services perspective?

**Response #8:**

Proponents are responsible to outlining how they can optimal leverage emerging location-based technologies. This could include several elements including location based services, user equipment positioning techniques, global navigation systems, internet of things positioning, etc. The proposed solution should be innovative in that it provides decision support that goes beyond the current offerings that depict, among other things, the location of responders and other stakeholders.