

Strategies for ad-hoc Data Collection and Analysis During Major Event Interagency Exercises and Operations

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The goal of this paper is to briefly describe some of the methods used recently to collect and analyze operational data during major event interagency exercises and operations. Over the last three years Defence Research and Development Canada has been involved in support to operations for the Vancouver 2010 Olympic Games as well as other major events. During that time we have developed strategies and methods for collecting data that is useful for producing effective and actionable advice to improve operations and for providing data to further our scientific program. We describe strategies for planning these types of analyses, techniques for collecting data and some suggestions regarding how the data can be effectively reported.

1. Introduction

Over the last three years the Major Events Coordinated Security Solutions (MECSS) project within DRDC has been asked to analyze exercises and operations involving major events. During that time DRDC has deployed analysts to provide analysis support to two major events and their training exercises.

The Vancouver 2010 Olympics (V2010) was one such event where MECSS deployed analysts to several command centres to observe and report on operations and give recommendations as to how the operations could be improved. One of our main objectives was to determine if there were any interagency issues of concern (the V2010 Integrated Security Unit (ISU) and Integrated Public Safety (IPS) involved operations spanning several police forces, multiple civilian government agencies, private organizations, and the military in a supporting role). The analysis support lasted seventeen days of V2010 as well as at least six major preparatory exercises of 4-5 days each. The second event was the five day G8/G20 international meeting of heads of state, which was preceded by a five day exercise. Similar to V2010, an ISU was set up for the summits. For this event, we were also interested in the planning process required for such a large operation.

We have often been fortunate enough to observe operators from different centres but that does not imply we have had the opportunity to observe any of the exercises or events from all sides. Given the size of these operations, the scope of work would just be too large. It would appear, however, that the basic themes observed upon here hold true from all accounts.

2. The basis of analysis support

Militaries around the world have adopted the idea of After Action Reporting (AARs) and producing Lessons Learned Reports (LLRs) as their preferred method for formalizing and enabling learning in a large and complex organization. Without these reports an organization must depend on the knowledge of key individuals to execute organizational improvement. This can be difficult as personnel in these positions tend to switch locations and roles every few years. In the worst case, mistakes can be repeated over and over again and every new operation requires re-invention of procedures and processes. In light of these issues, the practice of using AARs and LLRs was adopted by the V2010 ISU and IPS.

Implementation

In several cases we have noted that operationally oriented organizations have difficulty in effectively producing adequate AARs and LLRs. The concept and value of their reports are well understood but those who are responsible for generating the reports have too few resources and insufficient mandate to carry it out effectively.

We speculate that lack of a strong push for effective post-event reporting may be endemic to operationally focused organizations. After all, their mandate is to provide fast and effective responses to rapidly changing, dynamic, and dangerous situations. Their success is measured according to how they respond *during* an event. DRDC on the other hand is a science focused organization where accurate observations and reasoned plans for future events are extremely highly valued. Hence, DRDC decided to assign appropriate resources, including a well trained team and sufficient funding, to the task of producing effective analysis and reporting to aid the upcoming operations.

While our initial response was to treat the operation as a scientist treats an experiment, we quickly learned that there are much more effective methods we could use. The methods include traditional techniques like the use of surveys as well as obtaining artifacts from operations, and extensive interviews and in-situ observation. Here we describe some of the more effective techniques and the reasons they worked.

3. Preparing for an event

Background Knowledge

The scientists and technicians involved in the various operational analyses all had some previous experience in collecting behavioural data. The challenge for us was to gain a sufficient understanding of the current operation, procedures and roles of the various forces and agencies involved, and how all the pieces function (or are meant to function) together. Learning these details is complex; it requires a combination of: obtaining and understanding relevant operational documents and many face-to-face meetings with those involved or embedded in the various organizations.

Relevant documents may include: Concept of Operations (CONOPS), Standard Operation Procedures (SOPs), any orders, Administration orders or instructions, Roles and Responsibility documents, Police Evidence Pads (which can contain SOPs), relevant websites, newspaper articles, and government mandates regarding the operation of interest.

Having the relevant background knowledge is key, for two reasons: a) it allows the analyst to understand the consequences of both the policies and the actions of various operators; and, b) if operators believe that the analyst truly understands the current operation, they are more likely to cooperate.

Buy in and trust

Operational analysis is virtually impossible without strong buy in from operational commanders and staff. If operational staffs do not understand that analysts have an important role they will likely not trust the analysts enough to allow them to collect relevant data. Buy in has to come from the highest level of command or else the needs of analysts will likely be ignored.

Operational staffs will interact closely with analysts during operations and exercises. Hence analysts will likely need to demonstrate their knowledge of agency and force operations as well as the details of the current operation in order to gain the operators' trust and be accepted as a useful component of the operation. It is helpful to describe the analyst's goals to any operator who is unsure of the analyst role. One effective tool used at a recent operation was to develop an abbreviated list of questions the analyst hopes to answer and to give this to operators when they are introduced. This allows the operators to prepare their thoughts ahead of time and to better understand the kind of information the analysts are hoping to gather.

Embedding a contact within the organization early on will also increase buy in and trust. MECSS has been successful in placing Scientific Advisors within security centres during the planning stages. They have been invaluable in opening the lines of communication between DRDC and the operational commanders and staff, providing a means to receive relevant planning documents, as well as a voice in the preparation of exercises and events. This has worked especially well recently where the Scientific Advisor was able to put analysts in touch with exercise and event planners. These planners had already proven themselves with the operators through their involvement so having them introduce the DRDC analysts greatly increased the amount of trust between analysts and operators.

Logistics

Taking part in operations and exercises involves several logistical challenges. Among these challenges are: Ensuring analysts have proper credentials and accreditation to take part in the event, ensuring appropriate lodging and transportation are available, setting up a communications plan if the analyst team is to be distributed spatially or temporally,

ensuring that any ethics protocols are in place, and instituting an appropriate reporting/command structure for the team. In general we have been following quasi-military protocols to manage our deployments; they are created for working in operational environments and are well suited for them.

Managing analysts

Being an analyst during an event or exercise can be very demanding. It requires the ability to be flexible when plans change radically and it can require long hours and difficult shift schedules. Analysts should be made aware of the demands that may be made on them during an operation or exercise and be encouraged to make any personal preparations that may be required. Significant time commitments are required as travel time before and after may be needed. It is also important to plan for a day or two post exercise or event to consolidate notes and to complete the quick-look letter reports as a group.

4. Data collection during an event

Surveys

Surveys can potentially end up being the only quantitative data recovered from operations. This makes them a primary source of information with which scientists can use standard analysis techniques. However they can be a double edged sword as operators may not be enthusiastic about completing surveys.

We have learned that two keys for obtaining completed surveys are a) obtaining the buy in from senior commanders who can then impress upon the operators the value in the surveys and b) producing surveys that have clear face-validity regarding the operation (e.g. including questions that relate to operational concerns). It also helps to produce a concise survey – ideally no longer than one double-sided page – so that it looks less daunting to complete.

Completion seems to be best when operators are given the survey near the end of the exercise or event but before their last shift. This ensures they have gained enough experience to adequately answer the questions while still allowing them time within their shifts to note their responses in full.

Artifacts

Artifacts are typically physical objects that can be retrieved from the operation. Usually these artifacts are documentation from the operation but could potentially include equipment or supplies. The purpose of collecting artifacts is to bring back information from operations for further analysis after the fact.

Interviews

Interviews with operators are the key to finding useful information to report. Regardless of the level of access had by the analyst they will never have the level of detailed information that the operators have. In a scientific experiment the analyst/scientist usually has full knowledge and control of the environment. In an operational environment the analyst/scientists may have the least amount of knowledge and control. Because of the reversal of roles, it benefits the analysts to realize that he/she is best thought of as a conduit of useful information gleaned from discussion with operators and ultimately expressed in reports.

5. Reporting

Scientists are usually responsible for producing detailed and accurate reports which are scientifically rigorous. Long and detailed reports are not appropriate for the typical operator or commander. They are interested in easily digestible actionable advice usually given in short order (sometimes just days after an event and in some cases, even during an event itself).

It is useful to plan a meeting of all analysts involved immediately post exercise or operation in order to produce an initial summary of observations and allocate follow-up work. This would then be expanded over the next few weeks to produce a letter report. Letter reports tend to become the de facto standard for exercise and event analysis support. Only a few scientists may then be available afterwards to follow-up the letter report findings with more comprehensive reports.

It is also important to remember to follow proper ethics protocols in pursuing these avenues. Adding an extra form to read through and fill out may not be practical given the limited time the operators may have so we have found it useful to use unsigned consent. For example, we may include a statement in the introduction of a survey which states that by completing and returning the survey, they consent to the use of their responses for further research.

6. Impact

The reports produced by analysts have the potential to improve further operations. However, the reports are not where the potential for impact ends. Analysts should be encouraged to do what they can to continue to impact operations by exploiting the knowledge they have gained and developing new methods for delivering the knowledge. Methods include producing videos, databases, or developing workshops to increase the visibility of the analysis findings.