



## **Developing Metrics for a Multi-Agency Harbour Safety and Security Exercise**

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Defence Research and  
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Canada



# Outline

- Overview
- Metrics Development
- Exercise Scenario
- Performance Model
- Results
- Concluding Remarks





## Overview

- Marine security, specifically port and harbour security, has been identified as one of the Government of Canada's priorities
- Harbour security is a complex problem because of the multiplicity of threats - air, land and water, and because of the potential for overlapping jurisdictions within the harbour environment
- In response, Defence Research and Development Canada – Atlantic examined existing inter-agency processes in a major harbour and developed metrics for use during a live multi-agency harbour safety and security exercise



# Common Marine Security/Safety Examples



Human Trafficking



Waterside Attacks



Drug Smuggling



On-Water Fires



## Metrics Development

- The goal of the metrics development for the IHSC was to identify the key performance indicators that provide insight into interdepartmental emergency response, and not simply numbers
- The evaluation was based on operator's subjective opinion due to constraints on evaluator interactions with exercise participants, and data recording restrictions imposed at certain operation centers.
- The focus was on the development of Scenario Independent Metrics (SIM) that could be applied to a wide range of future exercises.



## Metrics Development

- Due to limited training resources the same emergency scenario is almost never used twice.
- SIM offer one opportunity to increase the continuity between emergency management exercises by addressing common elements of a wide range of emergency response scenarios
  - What you lose in fidelity you gain in sample size and improved continuity between exercises



# Metrics Development

- A series of evaluation tools were developed to assess;
  - Command and Control
  - Communications
  - Interdepartmental Information Sharing
- The components contained in each of the evaluation tools were determined through review of the guidance provided by the U.S. Homeland Security Exercise and Evaluation Program (HSEEP), and discussion with subject matter experts with experience in each respective area of the evaluation



## Scenario Overview

- The general scenario for the exercise was divided in two geographic areas with three main events
  - While at anchor, a string of explosions onboard a container ship occur. A container containing Sodium hydrosulphite ignites producing a plume of toxic smoke that is carried inland
  - A body of a foreign national non-crewmember was found near the stricken vessel with ties to a terrorist organization
  - A security incident at an waterside oil production facility occurs that may be linked to the explosion on the container ship

Container Ship  
at Anchor

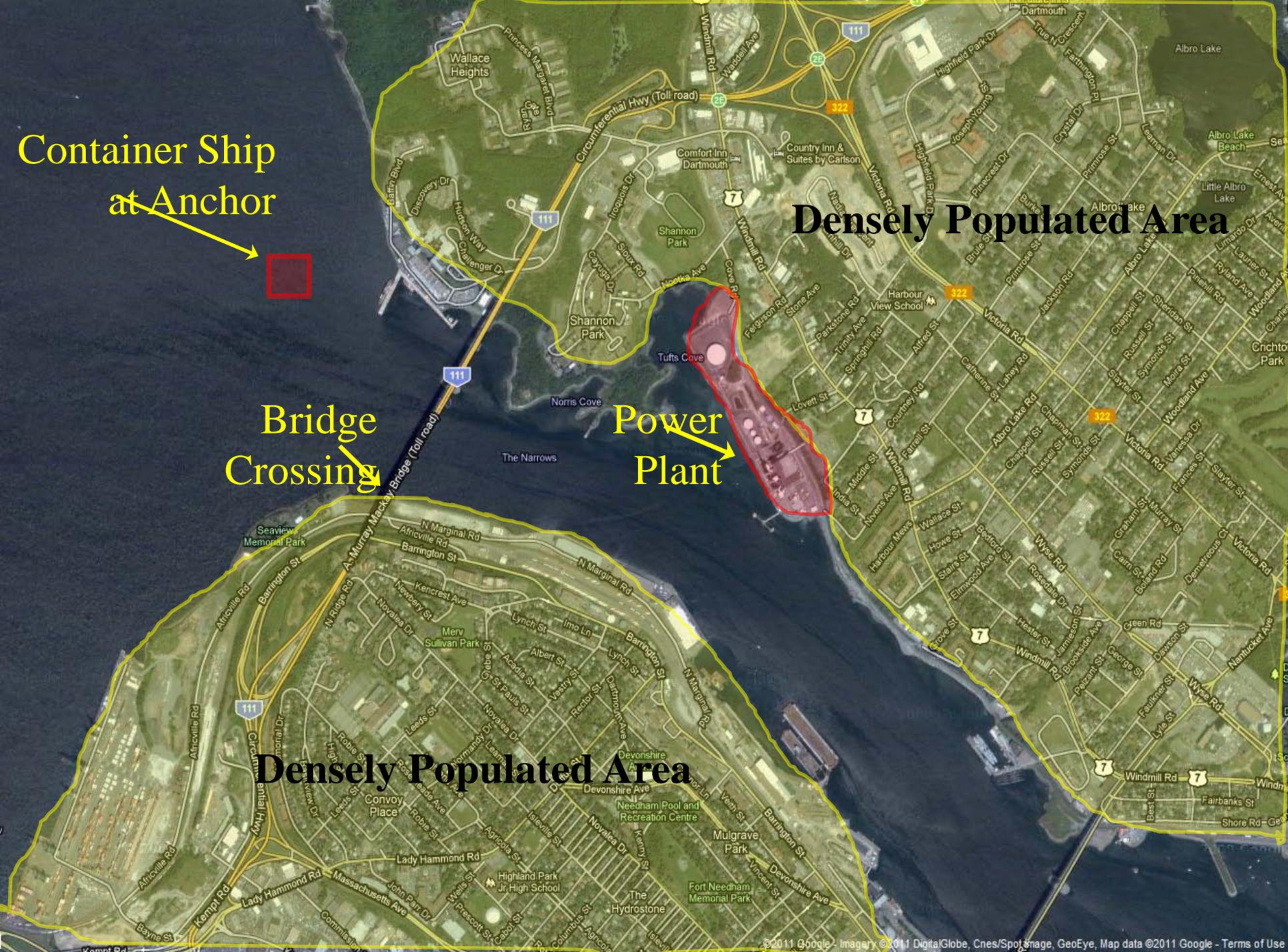


Bridge  
Crossing

Power  
Plant

Densely Populated Area

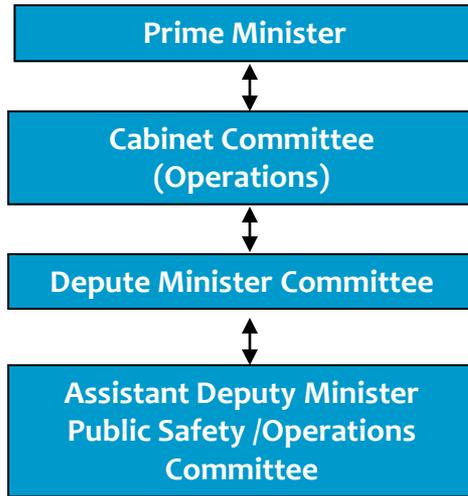
Densely Populated Area



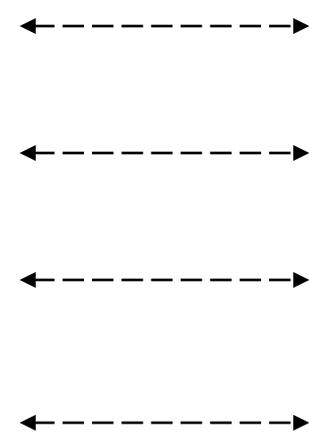
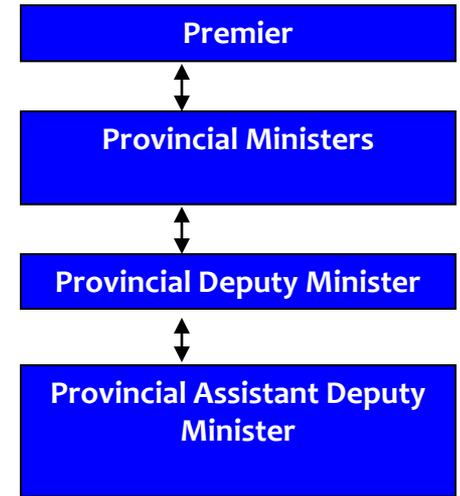


Direction and Guidance

### Federal Government



### Provincial Government



Strategic Coordination

Operational/  
Tactical Coordination

Government Operations Center

National EOC's

Regional EOC

FCSC

PS

FCG

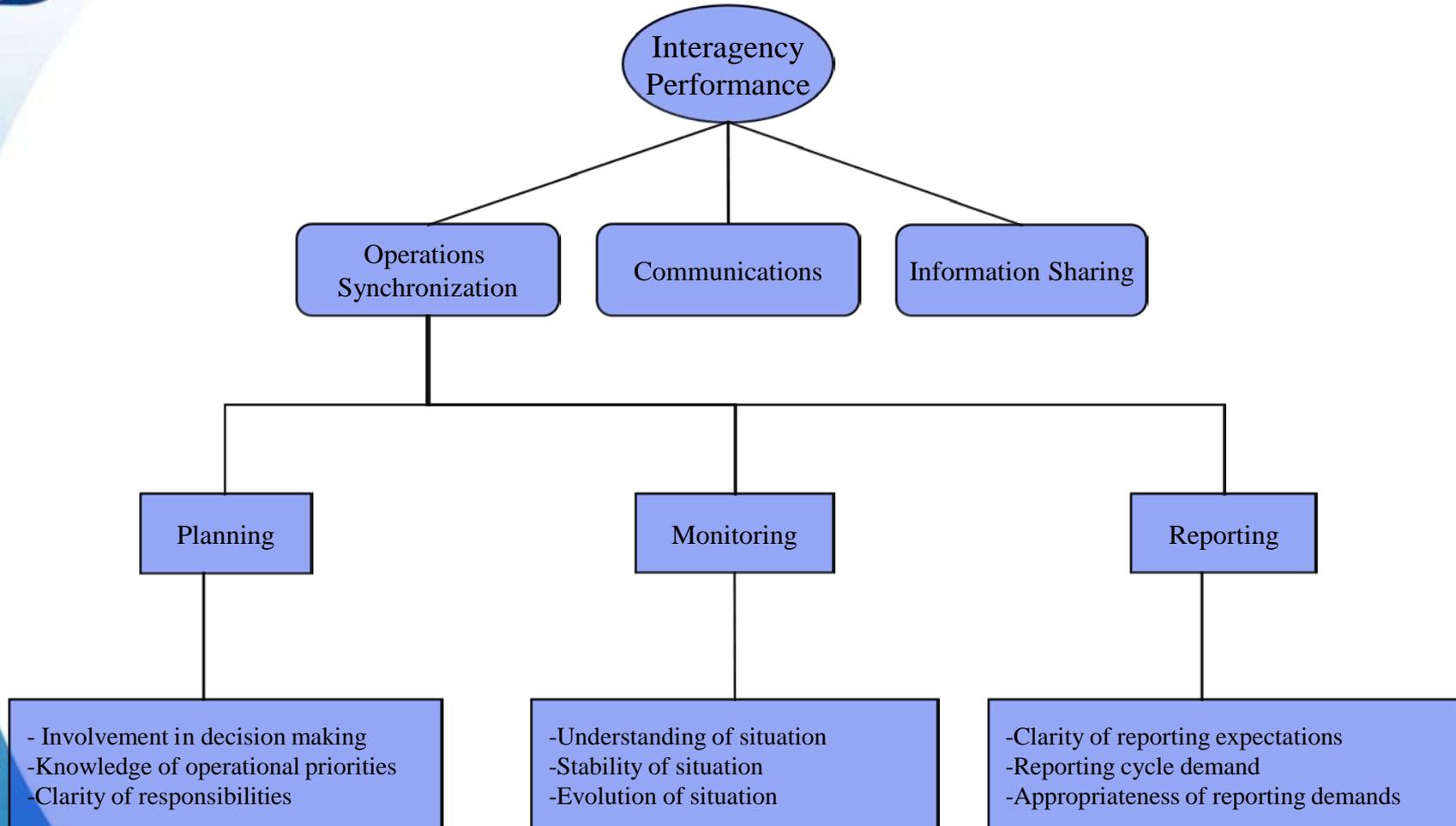
Joint Emergency Operations Centre  
Federal / Provincial

Municipal Emergency Operations Centre

Private Sector & NGO's

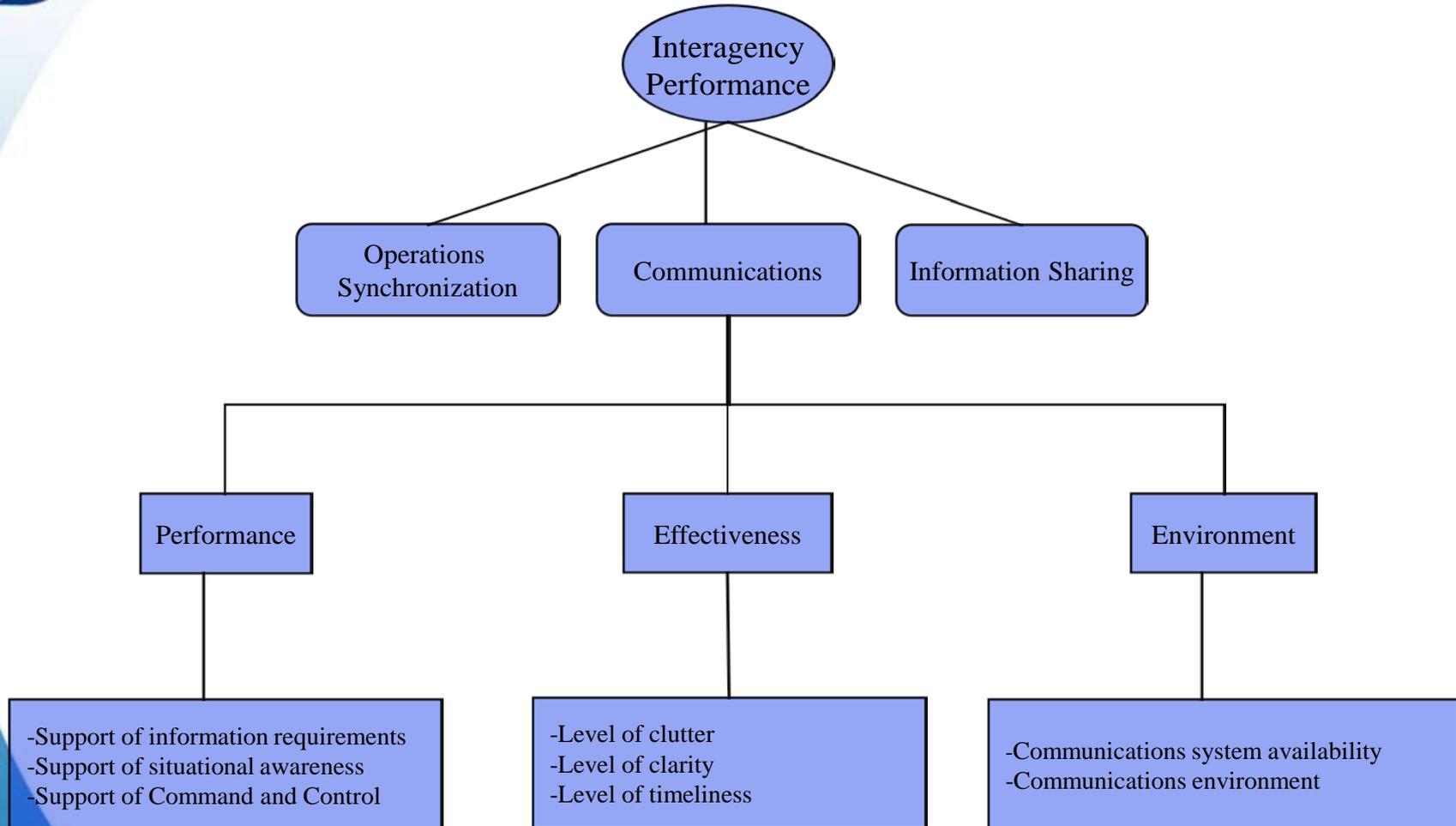


# Exercise Performance Model



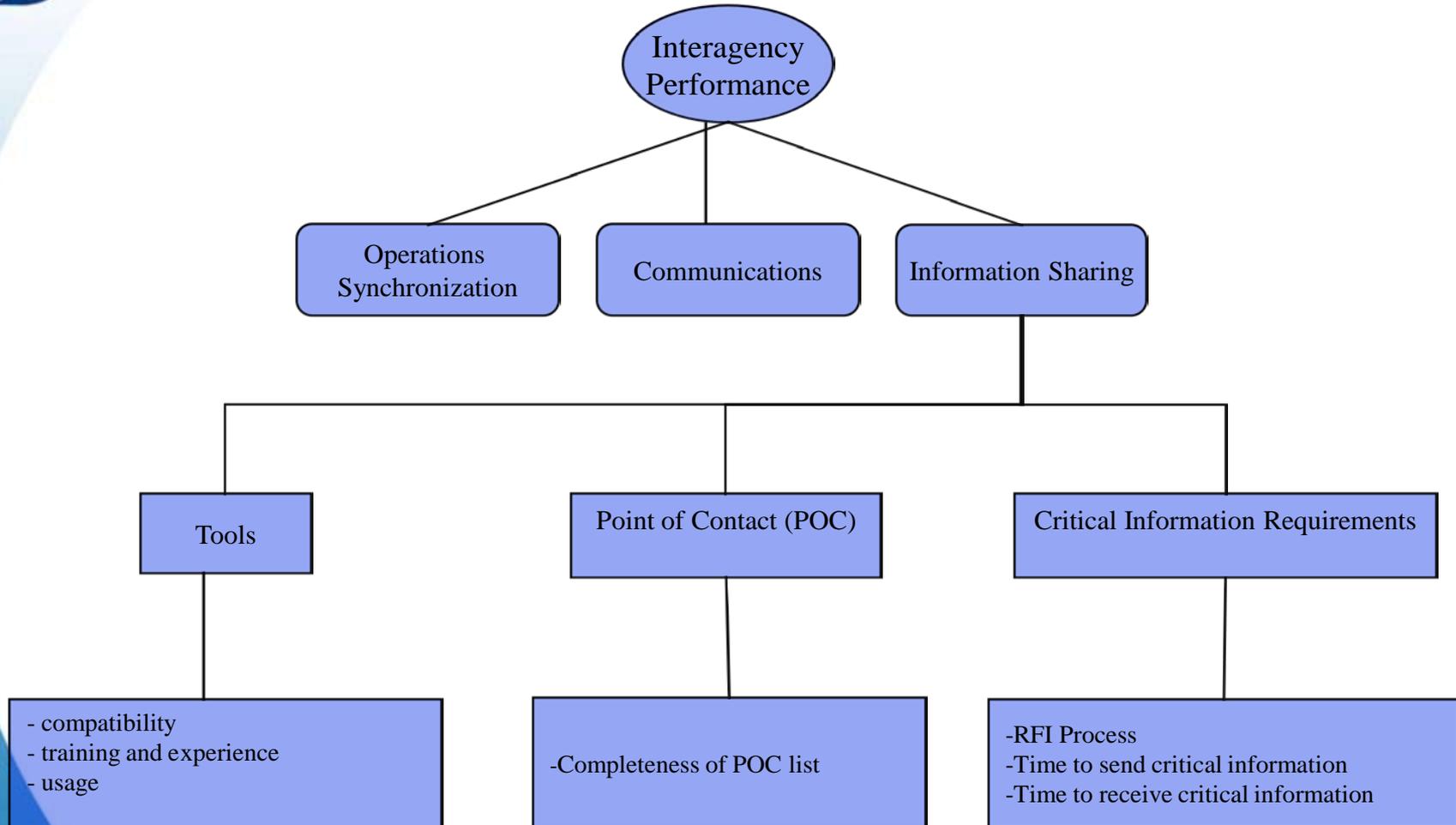


# Exercise Performance Model





# Exercise Performance Model





## Results

- Number of Locations = 12
- Operations Synchronization Assessment Tool (OSAT)
  - 38 responses
- Communications Assessment Tool (CAT)
  - 26 responses
- Coordination Group Assessment (CGA)
  - 10 responses
- Post Exercise Player Assessment (PEPA)
  - 32 responses



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# Coordination Group Assessment

Meeting Group:				Location:		Time:				
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Not Applicable					
1	2	3	4	5	n/a					
Question	Description				Response					
1	Overall, the critical information required to coordinate the regional federal resources and overall response activities was available?				1	2	3	4	5	n/a
2	Technical and/or science-based advice was available as required?				1	2	3	4	5	n/a
3	Additional community members were engaged as appropriate to provide assistance and advice on the situation?				1	2	3	4	5	n/a
4	The optimum group of agency representatives was assembled to coordinate the overall response				1	2	3	4	5	n/a
5	The format of the meeting (participants, information sources, and required actions) was well defined prior to the event				1	2	3	4	5	n/a
6	Overall, the coordination group was able to carry out their primary functional responsibilities?				1	2	3	4	5	n/a
Comments:										



# Dashboard Results (Coordination Group)

CGA	Description	Average Response Value				
1	Overall, the critical information required to coordinate the regional federal resources and emergency response activities was available?	3.1 (+- 0.7)				
2	Technical and/or science-based advice was available as required?	3.0 (+- 0.8)				
3	Additional community members were engaged as appropriate to provide assistance and advice on the situation?	2.4 (+- 1.4)				
4	The optimum group of agency representatives was assembled to coordinate the emergency response?	4.0 (+- 0.9)				
5	The format of the meeting (participants, information sources, and required actions) was well defined prior to the event?	4.0 (+- 0.9)				
6	Overall, the coordination group was able to carry out their primary functional responsibilities	4.0 (+- 0.7)				
Numeric Value		1	2	3	4	5
Response		Very Low	Low	Neutral	High	Very High



## Comments

- What these results indicated was that there was quite good support for the current structure and process related to the FCG, but that the group's situational awareness and access to the right external expertise during meetings was low.
- Improving situational awareness and access to external expertise are ideal candidates for technology solutions.
- Engaging additional communities members for advice during the coordination group meetings received the lowest score in the assessment. This would indicate that efforts should focus on technology solutions that would increase access to relevant community members as required.



## Lesson Learned

- Try to establish common measurement goals among stakeholders and introduce your metrics early.
- Take advantage of exercise planning conferences
- Accept that not everyone is as excited about performance measurement as you might be
- Try to build good relationships with the agencies that will be participating in the evaluation
- Ensure that the metrics are not relegated to a low priority during hectic exercise play
- Try to team your observer with a SME from each respective agency



## Future Work

- Work to establish self-reporting standards for agencies participating in emergency management exercises
  - This would promote more effective data management
  - Reduce the number of external evaluators
  - Reduce the number of evaluators required at busy operations centers



## Conclusions

- The results of this assessment best serve as a benchmark for comparison with future evaluations
- As new operating procedures and technology solutions are introduced, we can now begin to explore the positive or negative affect these changes have with respect to the existing assessment results gathered during this exercise.
- The lessons learned from this exercise will help to refine the concepts and questions that made up this evaluation

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