

Strategic Simulation Games to foster Policy Development for Critical Infrastructure Protection

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Abstract: Strategic Simulation Games have become an important element of policy development in the context of Critical Infrastructure Protection (CIP). They foster the network between all stakeholders, train the co-operation and solution-finding process, and evaluate existing concepts. Key elements for success include a well-established scenario as well as specific tasks for the participants. In the following article experiences from Swiss Strategic Simulation Games in the context of CIP are discussed.

1 Challenges of developing Critical Infrastructure Protection Policies

The need for Critical Infrastructure Protection (CIP) is widely accepted. On the European and national level different initiatives and activities have been launched. One of the problems is the development of a comprehensive and accepted policy concerning all relevant aspects of Critical Infrastructure Protection. Often the following aspects lead to difficulties:

- Public and private stakeholders dealing with critical infrastructure protection need to be identified and integrated in the process of policy development in form of public-private partnerships.
- The strong interdependencies of infrastructures, under-developed methods for analysis and description, lack of experience and the fast growing use of information technologies make CIP a complex subject.
- There is little experience with incidents affecting critical infrastructures. Thus, verifying existing policies have to be done on a simulation level.

Besides other instruments like risk analysis Strategic Simulation Games offer good opportunities to face the above mentioned difficulties. The following article gives a short introduction to Strategic Simulation Games (section 2), shows possible goals and benefits (section 3), provides experiences made in Switzerland (section 4) and includes recommendations (section 5).

2 Strategic Simulation Games

The term “Simulation Games” is used in a wide sense. The authors focus on Strategic Simulation Games that are widely used as interactive methods including the use of scenarios. They are designed for leaders and aim to train the decision-making process in a complex situation. A successful Strategic Simulation Game includes the following key elements:

- A well-balanced and accepted scenario is highly important. It must be both open enough and yet focused on the main issue to build a starting point for the participants. A well-presented introduction (e.g. with multimedia tools) may help the participants to identify themselves with the setting of the scenario.
- The story line of the game is preferably based on the decisions made by the participants. Therefore, the facilitators of the game must be prepared for different ways of evolution and have clear rules in terms of how to react. These rules are often supported by pre-defined models sometimes implemented on information systems.
- For the participants it is crucial to have a well-defined role and clear tasks as well as be well informed about the actual scenario situation. Participants can act in groups or individually.
- The facilitators of the Strategic Simulation Game are responsible for both the interaction with participants as well as external communication, e.g. by avoiding possible fruitless discussion on flaws in the construction of the game and the reality of the scenario.

In addition to these elements two further phases can be defined: the preparation phase and the evaluation phase. Having an important impact on the game itself both must be clearly defined.

3 Strategic Simulation Games and CIP Policy Development

Why should Strategic Simulation Games be used for CIP policy development? There are four specific reasons:

- (1) Strategic Simulation Games help to understand complex systems like critical infrastructures. This will help to set up a knowledge base for improved policy development as well as strategic and political decision making, e.g. to find a common language between the stakeholders (definitions, accepted scenarios etc.)
- (2) Strategic Simulation Games train the decision-making-process, foster co-operation between all stakeholders and provide the opportunity to build a trusted network both on the individual and the institutional level. These elements are key to successful crisis management, effectiveness and economic strength.

- (3) Existing crisis management concepts can be evaluated by Strategic Simulation Games. The focus can be on an interactive discussion of the concepts or a review of implemented processes and organisations, e.g. to check if an early warning system is able to detect an emerging crisis based on pre-defined indicators.
- (4) Finally, Strategic Simulation Games are a good instrument for awareness raising for politicians, experts and the public. New ideas and tools can be presented allowing participants to get into direct contact with them, e.g. a media campaign or political initiatives can be launched reporting on the results of the event.

Compared to other methods for policy development the main benefits of Strategic Simulation Games are the strong interaction between the participants, the attractive setting as well as the fascination of a new approach for most of the participants. However, critical issues include the need for certain resources during the preparation phase (creating the scenario, creating documents, instructing facilitators, informing participants etc.), the processing phase (state-of-the art event organisation, attractive presentation of the scenario) and the evaluation phase (identifying the key issue and the way forward).

4 Experiences in Switzerland

Switzerland has a long tradition of Strategic Simulation Games for policy development. The Strategic Leadership Training headed by Prof. Laurent Carrel is an agency within the Swiss Federal Chancellery that provides different training opportunities to the heads of the various departments, to the Federal Council staff offices and Swiss business leaders.¹⁷ A first Strategic Simulation Game concerning Critical Infrastructure¹⁸ was held in 1997 using a day-after-scenario¹⁹ with simulated attacks on critical infrastructure.

Another Strategic Simulation Game was INFORMO 2001 (13th – 15th June 2001) and consisted of a two-day gaming exercise focusing on a scenario with breakdowns of different infrastructure sectors (information and communication, traffic systems, etc.) due to several problems with the underlying information infrastructure. The 150 participants from both the Federal administration and the private sectors had to manage this situation. One of the participating groups was the recently established Special Task Force Information Assurance. Its objective was to consult the Swiss Government. The following goals were set and reached during the two-day gaming exercise:

- Building a network of trust and confidence on the basis of a strong public-private partnership between all involved stakeholders;
- Evaluation of the concept of the Special Task Force Information Assurance;

¹⁷ See: <http://www.sfa.admin.ch> (last visited 30 March 2003)

¹⁸ Critical Infrastructure Protection focusing on the dependency of information systems is discussed in Switzerland under the label “information assurance”

¹⁹ See: <http://www.rand.org> (last visited 30 March 2003)

- Discussion of a permanent early warning system for Information Assurance;
- Building a bridge between the policy-making community and the experts for IT and IT-security to foster the issue of Critical Infrastructure Protection;
- Awareness raising for politicians and the public.

This simulation game was an important milestone in the development of a Swiss Critical Infrastructure Protection Policy with positive feedback from participants and the media.

5 Recommendations

Several nations have recently developed their national policies on CIP. It is clear that for reasons of effectiveness, efficiency and speed, an international co-operative effort in this area would be beneficial to all countries involved. Sharing experiences from strategic simulation games and testing new national concepts as well as international co-operation would therefore be an essential contribution to a comprehensive Critical Infrastructure Protection Policy.

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