CANADA-U.S. BORDER: INTERORGANIZATIONAL POLICY COORDINATION FOR AN EFFICIENT BORDER

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Abstract
The terrorist attacks of September 11th 2001 caused the United States to close its borders for approximately 24 hours. The need to create a balance between the easy flow of goods and security factors becomes a very high burden on agencies. Many have discussed the lack of resources but more importantly the need for the development of decision support tools for these agencies to be able to manage the risk.

The tragic events of September 11th 2001 have shown one of the paradoxes of globalization: more movements of goods and people to promote trade and commerce, and the difficulty of control of transnational threats such as terrorism. Trying to manage border dialectic has become increasingly difficult for policy-makers and for the agencies that have the mandate to implement these policies. This paper addresses the questions the major problems the agencies are facing to able to implement effectively the policies of risk management with the resources and the decision support systems actually in place by presenting a model to help measure potential danger.

1. Introduction
The September 11th attacks have triggered many questions concerning the security of the Canada-U.S. border. As the events unfolded, the actual border was closed for a little more than 24 hours, creating important difficulties for travelers and businesses. The events have shown one of the paradoxes of globalization: more movements of goods and people to promote trade and commerce, and the difficulty to control transnational threats such as terrorism. Also, it created an important amount of pressure on the different agencies, Canadian and American, to deal with an increase in scrutiny in how their work is being carried out. An emphasis has also been put on the difficulties for these agencies to do their work following the many cut backs imposed over the last ten years on public administrations. Questions of insufficient resources, lack of communication and misinterpretations from the public agencies were brought up by the media following the events. One question arises: could a systemic model help the agencies implement effectively the policies with the resources and the decision support systems actually in place. Section 2 presents a few facts on the Canada-U.S. border and then what the two different countries have put in place intuitively to help better coordinate their strategies at an interagency and intergovernmental level. In section 3, we present a systemic model which could help the different Canadian and American agencies implicated in border management create more efficient strategies in implementing border security policies and measuring potential danger.

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2. Border Management System

2.1 The Importance of the Border
This border comprises 130 land crossings on the longest unguarded border in the world: 8890 kilometers. The actual border crossings are of 200 million passages each year and traffic is expected to increase at a rate of 10% each year over the next 10 years (www.can-am.gc.ca).

The terrorist attacks of September 11th 2001 caused the United States to close its borders for approximately 24 hours. This had a profound effect on people and businesses doing trade as more than 1.2 billion dollars worth of goods cross the Canadian-U.S. border each day. This trade partnership is the most important in the world.

2.2   What has been done in each country?
As both the Canadian and American governments are faced with fighting terrorism they also both realize that their actual structures of government are not completely adequate to deal with these issues. As with many crises, it is soon realized that a greater need of coordination is needed between the different agencies. The September 11th events showed clearly the difficulties in coordination between intelligence agencies such as the CIA and the FBI and also between INS, U.S. Customs service, the Coast Guard and the Bureau of Consular Affairs which are (were) responsible for border management (Moynihan and Roberts, 2002). For example, the U.S Customs Service has (had) to take into account more than 400 laws and 34 international treaties, agreements and conventions on behalf of other federal agencies.

One of the responses from the American government to these coordination problems has been the creation of the Department of Homeland Security (DHS), bringing together 22 federal departments, with different directorates to better coordinate the threats to the homeland. The creation of DHS is the greatest restructuring since 1947 in American public management history (www.dhs.gov). The Border and Transportation Directorate is now responsible of insuring border security. It is the result of the merging of the U.S. Customs Service, the INS, the Federal Protective Service, the Transportation Security Administration, the Federal Law Enforcement Training Center, the Animal Plant Health Inspection Service, and the Office for Domestic Preparedness. All of these agencies belonged to other departments before the creation of DHS. One can assume that each of them had different organizational structures and cultures. The merging of these agencies in one Directorate could become a difficult task to achieve if some aspects are not considered. We think that a systemic model developed in a previous research could be applied (and somewhat) modified to help create a strategic plan without loosing sight of the complexity of the issues, as we will discuss in section 3.

On the Canadian side of the border, the following agencies correspond to the American agencies: Citizenship and Immigration, Royal Canadian Mounted Police, Canada Customs and Revenue Agency, Canadian Food Inspection Agency and the Canadian Air Transport Security Authority. Canada has not followed the integration pattern of the U.S. The Canadian policy on crisis management is determined by what is called the lead-agency: depending on what type of crisis occurs, the department with the most expertise will be the coordinating agency. For example, in the case of an environmental crisis, Environment Canada would be called to coordinate all other federal agencies for this event. But on a daily basis, agencies must coordinate their actions or act on behalf of others. For example, the Canada Custom and Revenue Agency administers more than 180 legislative instruments.

As their American counterparts, Canadian agencies have also been through many cut backs having "to do more with less" (Moynihan and Roberts, 2002). This has created a tremendous amount of pressure on them and even more so as traffic is expected to increase by 10% each year as we mentioned previously.   The reduction in resources and the importance of

coordination between the agencies of a same country are characteristics shared by Canada and the U.S., but sometimes expressed differently.

2.3 Common Initiatives
In this perspective, the need for intergovernmental coordination also arises as "terrorist do not respect borders, but law enforcement authorities must" (Ciffulo, 2001). What remains difficult to evaluate is how to structure the coordination on an intergovernmental basis. This represents complex management issues of coordination not only in managerial terms (structure and culture) but also because of distinctive national laws and policies. As we mentioned in our paper entitled "Optimal Border Policy and Cooperation" (Tanguay and Therrien, 2003): *Even before September 11th, many initiatives were being discussed and put forward by both countries. Initiatives such as the Shared Border Accord, the Border Vision, the Cross-Border Crime Forum and more importantly the Canada-U.S. Partnership Forum (CUSP) (www.dfait-maeci.gc.ca) have addressed issues such as promoting trade, reducing costs in control, intelligence sharing and transnational crime. These initiatives were put forward after the first attacks on the World Trade Center in 1993, as concerns for security and terrorists' threats were heightened at that moment. The need to create a balance between the easy flow of goods and security factors became a very high burden on agencies.*

In December 2001, as a direct result from the CUSP dialogues and the events of 9-11, Canada and the U.S. signed the Smart Border declaration, a 30 point plan to enhance security while facilitating the flow of people and goods (www.dfait-maeci.can-am.gc.ca). This declaration is seen by many as the operational application of moving towards a common security perimeter. The 30 point action plan coordinates many aspects such as risk management for trade and immigration policies. The plan should account for the paradoxes of globalization: more movements of goods and people to promote trade and commerce, and the difficulty of control of transnational threats such as terrorism. Trying to manage border dialectic has become increasingly difficult for policy-makers and the agencies mandated to implement these policies: "(…) Policy makers anxious about reigning in globalization's dark side look to the border to fend off contrabands, criminals, illegal migrants, and terrorists" (Flynn, 2002). Authors such as Flynn (2002) and Haynal (2002) have discussed the lack of resources and the need for the development of decision support tools for these agencies.

This situation creates a complex network of organizations which in turn need to develop special tools to coordinate their actions. To determine the scope of the network, a systemic model needs to be developed encompassing an understanding of the interagency flows. This type of modeling was developed by Therrien (1998, 2003), in a previous study on modeling complexity in forest fire management. The need to develop a systemic model is important in this situation as this can help in interoperability between systems on organizational and informational basis. We suppose in our proposed research that this problem lies in complexity and therefore, there is a need to build a systemic model to build some understanding of the phenomenon without loosing complexity.

3. A Systemic Model for Efficient Strategies

3.1 The need for a systemic analysis
The systemic analysis helps to translate this concept of complex system. From the definition of Le Moigne, Genelot (1992), mentions that it is necessary to focus attention on the five fundamental points to take into account the complexity of systems:

1) to clarify the finality;
2) to take into account the actions and the evolutions of the environment;
3) to define the functions to be used to obtain the result;
4) to organize these functions between them and to regulate them;

5) to make the system evolve to keep it operating over time.

These criteria are part of the composition making up the complexity of the situation surrounding the effort to comprehend the phenomenon of border management. "In one way or another, we are forced to take into account this complexity, with wholes or systems, in all the spheres of knowledge" (Bertalanffy, 1968). It is not possible anymore to use the traditional analytical thought because of the complexity of the system. The systemic problematic is primarily a problem of the limitations of the analytical procedures in science.

The systemic analysis allows a better understanding of the dynamic complexity (Senge 1990) of border management and show the need for developing a model of the system. The systemic analysis of the management system allows one to discover that each agency has different models and that the links between the agencies are not necessarily possible because of these particular differences in point of views. The modeling of the system makes it operational for interoperability. Le Moigne (1995) proposes that the modeling of complex systems be perceived as a general system. He names this modeling action systemography. These concepts of systemography and general system is used to build a model of representation.

Le Moigne (1995) proposes a "canonical form" of the general System, which must "allow the instrumentation, by systemography, of the modeling of the complex phenomenon", to conceptualize the general System like "the representation of an identifiable active phenomenon perceived by its projects in an active environment, in which it functions and changes teleologicaly". Thus the general system includes the systemic elements like the context, the relations and the finality of the system (teleology).

The general System is to some extent a matrix whose model maker will establish, by moulding, a print a priori. It lays out a virgin systemic model, without a legend. The "development" phase consists precisely of redirecting the legend, in other words to establish the correspondence between the features of this systemic model and the features perceived or designed by the phenomenon to model. The model "with legend" will be necessarily systemic (it is moulded on a system a-priori). In other words, its incompletion will not constitute a regrettable imperfection, but a condition necessary to the anticipation, by simulation, of possible emergence of new behaviors within this complex system. The model of the phenomenon is not only the chart of a territory. It becomes an active component of the system of modeling, autonomous phenomenon, in which, by cognitive simulation, will be able to bring up to date forms of potential actions. The phenomenon was seen as being complex by the system of modeling. The models, which will be produced by it, will then be seen as complex.

A complex system is a model of a phenomenon perceived as complex that one builds by systemic modeling (LeMoigne, 1995). In order to model the phenomenon, it is necessary to develop logics of modeling which will be used to make the model understandable and will explain our base "logic". "The question is not: "-will we transgress the rules of logic? But- Which logical system should we choose? Therefore, no existing logical system is appropriate for certain scientific problems, then it is necessary to invent a new logical system" (Pessis-Pasternak, 1987). As mentioned, a complex system must be modeled to make it understandable. Thus in using the concept of systemography, it is possible to understand the system of border management, to make accessible the finality of this complex system, and allow strategic systemic changes.

3.2   A systemic model to help determine the level of danger
In the model developed by Therrien (1998, 2003), an *instant* is represented by events, which involve decisions, which have themselves effects. The instant represents the model that each agency has. The *instant* is not the same for each agency; however, the experiences and the decisions it describes have effects, which can affect the *instants* of the other agencies involved in the same event(s). For example, during the September 11th events, many comments were

made on the discrepancy between the decision making between the FBI and the CIA. They were important protagonist in the management of the event, sharing many *instants*, but had many different effects because of a lack of coordination. To represent complexity related to instant, it is possible to make a projection on the principal dimensions of complexity, therefore to represent it in a hyperspace. The hyperspace of the complexity of an instant is composed of:

1) uncertainty on the data: an agency does not know necessarily all the data ;
2) uncertainty on the models: an agency does not always have the models of behavior for the event, other agencies of the system, etc;
3) tangle of the networks: an agency is part of a system in which several decisions can influence its own decisions;
4) uncertainty related to the solutions considered: an agency does not always know the effects its decisions will have;
5) limitation of the means: there is a limited number of means which the agencies can use to manage their resources.

The hyperspace of complexity helps us draw a model which can calculate the differences on the five axes described above in a qualitative manner. The results of these differences can help to indicate strategic bridges between the agencies without causing major disruptions in the actual agencies. Conserving the complexity helps in determining strategies of change which respect the actual structures and cultures of the agencies.

On another level, the hyperspace of complexity can also be used as a tool to calculate a potential level of danger. An instant is in a hyperspace of complexity in a similar manner to the hyperspace of danger suggested by the cindynics (danger sciences). As Wybo (1998) proposes, one can at every instant allot an evaluation of the level of danger and his evolution with the succession of the instants according the five axes of cindynics. "To each situation, corresponds a space of danger with its five components, which allows estimating, with the means of a metric specific to the type of danger, a total level of danger. Between two situations, we define a cycle of evolution formed of four phases: perception, analysis, decision and latency" (Wybo, 1998) (see figure 1).

Figure 1: Cindynics situation evolution model (Source: Introduction to cindynics, 1998)
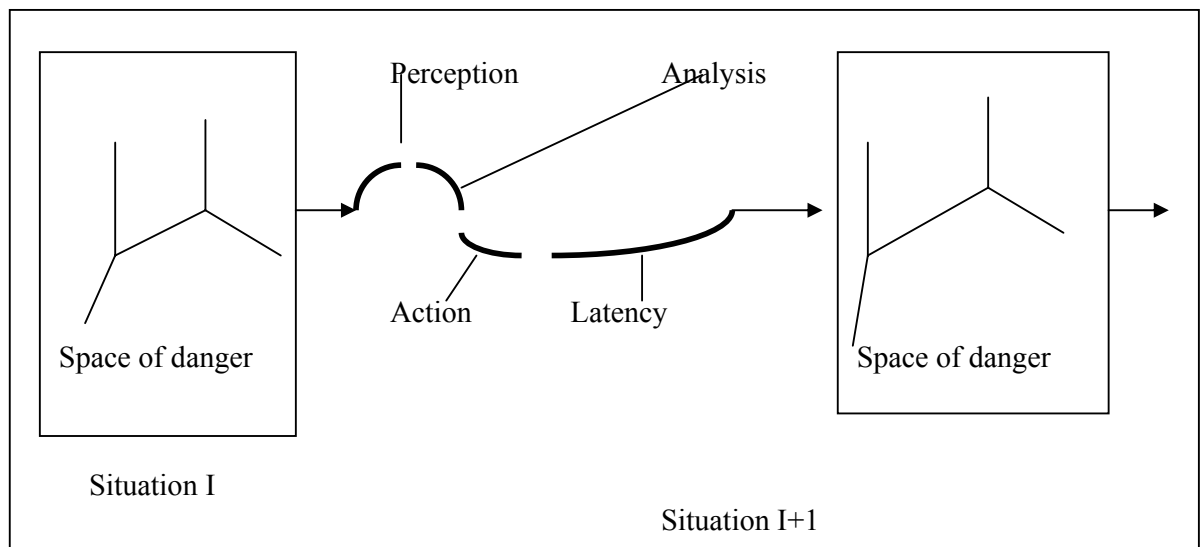
Each instant contains the behavior of each agency (Nicolet, 1998) in:
➢ the acquired experience;
➢ the models used;

> ➢ the finalities which guide it;
> ➢ the knowledge of the rules to be followed;
> ➢ and the values it upholds.

Therefore, by calculating qualitatively the differences that exist between the instants of each agency, we can determine a potential level of danger. For example, we could determine that the differences between the five axes of the instant are so large between the FBI and the CIA, that this represents a potential for difficulties in coordination. The complex system of border management can be represented by a general context and contexts associated with each agency, understanding a system of instants. The finality of this model will be to preserve information that was experienced by each agency in order to return accessible information while respecting the context of the decisions. The second finality will consist of developing a metric of measuring potential danger. This measure will be obtained by calculating the differences between the different instants of each agency.

Systemic border management : tools for the research project
In this part of the research we first need to assess the coordination mechanisms related to the links between the U.S. and Canadian agencies related to border control. We will also need to identify clearly the responsibilities of each of the agencies involved in border management and review appropriate documentation with an impact on border policy or management. A preliminary finding has shown us that more than 50 agencies (combined) will need to be contacted through a questionnaire. With the findings, interviews will be needed to complete the data required to build the systemic model on border management.

4. Conclusion

In this paper, we have shown the importance of the border between Canada and the United States and the need for a balance between the flow of goods and people and security issues. Recent changes in both the Canadian and American public agencies which are responsible for the security of the border have triggered questions about the efficiency of implementing the new security policies being developed by both countries.

We proposed a model which took into account the complexity of the system of agencies responsible for border security. The purpose is to study the dysfunctions and the insufficiencies of border control agencies on terrorist threats by:

- Identifying the links between the different management processes;
- Studying the mechanisms;
- Propose decision-support tool or linkages that could help to better coordinate the strategic management processes

The proposed model is represented by a hyperspace of complexity were can be calculated qualitatively the potential for danger that exist between the agencies. This model can in turn help identify strategies for change in the management of border security.

Authors' Biography

Professor Therrien holds a doctorate in engineering and management from the École des Mines de Paris, France where she was awarded a bursary from European Economic Commission and by the Canadian government. She is an assistant professor at the Maine Business School of the University of Maine. Her research interests are in crisis management, danger sciences and organizational learning and networks. She has published academic articles and reports in Europe and North America and has also been called upon by governments for this expertise. Dr. Therrien has worked for the Canadian Red Cross, the Montreal Urban Community, the Quebec Provincial Government and Science Applications International Corporation (SAIC).

She teaches courses in Principles of Management and Crisis Management, Canadian-US Business and International Business.

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