Royal Canadian Gendarmerie royale
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Criminal Networks

Canada

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by

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March 2003

Table of Contents

Introduction

This report on criminal networks is divided into three parts dealing with the following elements:

    1) Criminal organizations are both networks and businesses. This report, however, deals more with criminal networks than with businesses.

    2) Criminal organizations, when viewed as networks, have characteristics common to other social networks, but also have specific characteristics that largely relate to the fact that these organizations are criminal businesses.

    3) The self-protection measures undertaken by criminal networks, as well as the limiting of knowledge, make combatting the networks difficult. The fact remains, however, that strategic elements for this fight have been suggested by criminal network specialists.

Criminal Businesses and Networks

In his article on organized crime, McIllwain (1999) claims that three paradigms have been used to define and understand this phenomenon. The first paradigm suggests that organized crime consists of viable organizations, which reflects the institutional approach that was dominant in the 1960s. The second is opposite to this institutional approach, instead portraying organized crime as being made up of exchanges, particularly between those with power and those trying to access those who hold power. This paradigm, dominant in the 1970s, placed particular emphasis on the patron/client relationship. The third paradigm, formed in the 1980s, sees organized crime as a business and emphasizes the phenomenon's economic aspects.

McIllwain claims that the common denominator for these three paradigms rests in human relations, in that they produce networking. He seeks to demonstrate this in his article.

He is, however, not very convincing. It would seem preferable to consider that the three

paradigms each sought to identify an important aspect of organized crime, and that by reconciling them we can gain an overall view of this phenomenon.

From this perspective, the first paradigm has the merit of proposing an integrated approach to organized crime, seen as an organizational phenomenon. The still frequent use of the terms "organized crime" and "criminal organization" clearly show the broad nature of the organizational approach. The second paradigm, to which the ideas of exchange and patron/client relations are central, largely deals with network relations at a time when this idea had yet to acquire its current popularity. The third paradigm defines criminal organizations as "businesses" from the economics perspective.

Instead of viewing the idea of networking as the common denominator of the three approaches, as did McIllwain, we prefer to see networks as one of two elements of criminal organizations, the other being the businesses that give rise to these organizations.

In other words, criminal organizations can present themselves as businesses or networks, depending on whether we are looking mainly at these organizations' outside transactions or their internal relationships (see Potter, 1994: 115-132; and Sciarrone, 2000).

In this report, we will examine criminal networks without totally ignoring the criminal businesses involved, which McIllwain (1999: 304) describes quite well in speaking of "the provision of illicit goods and services, as well as the protection, regulation and extortion of those who engaged in the provision consumption of these goods and services."

The network element of criminal organizations is not as well defined. Like Williams (2001), Von Lampe (2002) and many other authors, McIllwain limits himself to a general idea of networks, defined as a system of ties between nodes. This definition is insufficient to differentiate a network from a business or a bureaucracy. At least two other relevant traits must be included in a more complete definition (Lemieux, 1999, 2000).

Firstly, a network is not only a system of ties between actors, seen as nodes. In a network, there is a direct or indirect bilateral connection between pairs of actors. In other words, each actor in a network may directly or indirectly contact each of the other actors.

Secondly, the main purpose of a network is internal pooling. The purpose of this pooling, through communication, can be a sense of belonging to the network, a pooling of standards, information or more tangible resources. It is obviously facilitated by the existence of direct or indirect connections between pairs of actors.

It can therefore be said that a network is a system of ties between players, such that each may directly or indirectly contact other actors and thus pool affiliation, standards, information or more tangible resources.

In a business, on the other hand, actors cannot contact others, directly or indirectly, and the main purpose is control of outside transactions (for criminal organizations and businesses, see Cartier-Bresson, 1997).

The Characteristics of Criminal Networks

Some authors, particularly Sparrow (1991), Coles (2001), Klerks (2001) and Williams (2001), have identified a certain number of characteristics of criminal networks and have demonstrated how they can be analyzed. These characteristics are either very general, for social networks, or much more specific for criminal networks. We will present the main characteristics, with a view to the third part of this report, that deals with combatting criminal organizations.

Size of the Networks

Size is a fundamental characteristic of networks, in that it determines many other characteristics,

particularly the density of the networks.

The density of a network is measured by the actual number of ties between actors divided by the possible number of ties, assuming that there is a tie between each pair of participants. For example, in a network with ten actors, there are 45 possible ties between actors, using the following formula: N of actors multiplied by N-1 of actors, divided by two. Thus in our example, 10 x 9 is divided by 2. If there are 18 actual ties, the density would be 18 divided by 45, or .40.

Generally, density is higher in a small network than in a large one, meaning that, in a large network, a large proportion of connections between participants are indirect.

This is the case for transnational criminal networks, which were specifically studied by Williams and his collaborators (Williams, 2001; Williams and Godson, 2002). Williams states that these networks can be considered to be composed of strategic alliances between national networks, e.g., the Columbian drug trade network and the Sicilian drug distribution network.

There are also large networks within a single country. Generally, they are made up of sub-networks between which there are loose couplings through weak ties, particularly important in criminal networks.

Loose Couplings and Weak Ties

In his classic article on the strength of weak ties, Granovetter (1973) demonstrated how these ties allow bridges to be built between networks and sub-networks within a larger network. Unlike strong ties, weak ties less frequently put the actors involved in touch with each other. Weak ties are less emotionally loaded and lend themselves less to trust. They exist between "acquaintances" who are not "close" (Lemieux, 2000).

In criminal networks, the core is generally composed of actors connected by strong ties, while

the relationship between the core and the surrounding sub-networks is achieved through weak ties. These weak ties are channels through which orders are transmitted (Sparrow, 1991: 271) or, information is transmitted in an upward direction to allow the core to be updated on what is happening at the periphery of the network (Williams, 2001: 73).

The Nature of Ties

Lupsha (1983: 74-76) questions the nature of ties connecting members of a criminal network. In his opinion, there are frequently three main categories of ties.

First, there are blood ties, which Lupsha sees as the most fundamental. This is the case for the network that he specifically examines, the "New Purple Gang," but in many other criminal networks, these blood ties between father and son, uncle and nephew, brothers or cousins are most likely to ensure a solid network. We must add that this is not a characteristic specific to criminal networks. In a study that we conducted of leadership networks in Quebec (Lemieux *et al.,* 1981: 187), we found that blood ties were often behind the formation and transformation of networks.

According to Lupsha, there are also ties between actors who belong to the same age groups and who, because of this, share a common generational background and cultural references. These ties obviously connect with the preceding ties, at least in the case of brothers and cousins.

Finally, Lupsha identifies ties resulting from neighbourhood or from past participation in the same associations. These ties were neglected by researchers when Lupsha was writing in 1983, even though case studies that took them into account, including his own, showed just how important they were.

Lupsha could have added ethnic ties, which, at least in certain criminal networks, are factors with the same or greater importance for social cohesion as the previous three.

The Central Actors

Graph 1, representing a fictitious network, shows that there are various ways to define the centre of a network. For the present time, we will examine the solid lines, which refer to the most frequent ties between actors, and ignore the dotted lines, which refer to less frequent ties.

In an oft-cited article, Freeman (1979) proposed three notions of centrality. Sparrow (1991: 264-266) adds three other notions, but we will only examine one of these. Freeman's first notion, known as **degree** centrality, is based on the number of direct ties between one actor and the other actors in the network. It is also a measurement of an actor's social capital (Putnam, 2000: 10; Lemieux, 2001). The actor with the greatest number of direct ties is considered to be the centre of the network. According to this definition, the centre of the network in Graph 1 would be C, as C has the most direct ties (four). This rather summary notion of centrality is not very relevant in criminal networks, where leaders generally have fewer direct ties than other participants, in order to be less exposed to police searches.

The second, more-relevant notion known as **closeness** centrality. It is measured by the total length of the shortest paths (known as geodesic paths) connecting one actor to other actors in the network, the centre being the actor with the shortest total length. The length of a path is measured by the number of relationships separating actors. In Graph 1, the centre of the network would be B, as the total of the shortest paths separating B from the other actors is 13, with no other actor having a lower total. The centre thus defined has a strategic position in terms of effective communication in a network.

Betweenness centrality is a measurement of the importance of the intermediary position held by actors in a network. According to this third notion, the centre is the individual who serves the most often as intermediary between the different pairs of actors when we consider the shortest path between them. Thus, in Graph 1, B serves as intermediary, as we have just defined this term, a total of eight times, between A and C, A and D, C and D, E and D, F and D, G and D, E and H, and E and I. Nonetheless, this is lower than C's score, who, using the same method,

serves as intermediary 19 times, according to the above definition. We can see that betweenness centrality is a more subtle indication of the strategic importance of C than degree centrality. If C were to be removed from the network, actors E, F and G would be isolated from the partial network made up of A, B, D, H and I.

Sparrow adds the centrality of **articulation,** which refers to the actor whose removal would produce the greatest fragmentation in a network. The centre of the network in this case would be B rather than C, as B's removal would break the network up into three smaller networks rather than two. Actor A would become isolated from C, E, F and G as well as from D, H and I, who themselves are isolated from C, E, F and G.

Communication and Control

Graph 1 is made up of non-directional ties, which presupposes two-way communication between the actors who are themselves connected. The fictitious network in the graph is in fact a network as we have defined it, a group of actors with two-way connections for each of the 36 pairs of actors. This is generally the case for the communication of information within a network.

Insofar as criminal organizations are businesses that must control their external and even internal environments, very frequent ties between participants take on an asymmetric form, with control generally being exercised from the top down, A to B, B to C, B to D and so forth. It follows

Graph 1: Ties Between Actors in a Fictitious Network

_____ :Very frequent ties between actors

__ __ __ _ :Less frequent ties between actors
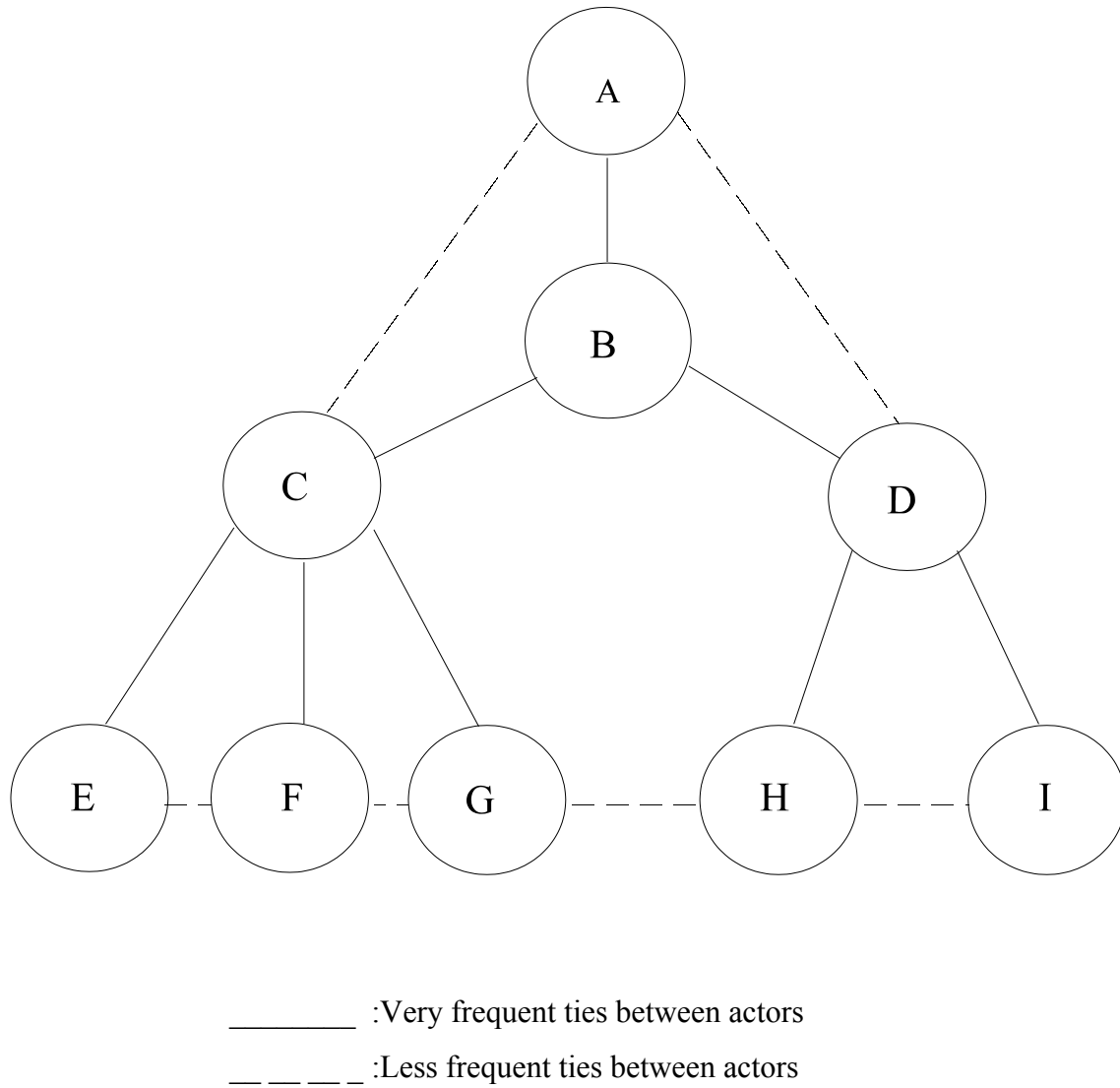
that the central actors are no longer necessarily the same as they are in situations in which there is two-way communication between network members.

Actor C has the greatest degree centrality, as he controls three actors, while B and D control just two and A just one, which clearly demonstrates the insufficient nature of the measurement of centrality. Obviously, it is A, not C, who dominates all nine actors when we assume that control is exercised from the top down.

The only actor with a control connection to all others, A can be considered the only candidate for the central position in terms of closeness.

As regards betweenness centrality, B is an intermediary seven times in the flow of control on the graph (if it is again assumed that control is exercised from the top down), while C is an intermediary three times, and B twice.

Finally, B is also the centre in terms of articulation, as his removal would break the organization into three pieces, as is the case when we assume that the ties between actors are communication ties.

We must particularly note the important change in the position of A according to whether the ties in the graph refer to two-way connections or simply top-down connections. In the first case, A appears to be a type of power broker connected to B, who is the centre of the network according to three of the four notions of centrality. In the second case, A is in a much better position. Not only is he the centre in terms of closeness, but he is the dominant actor, in that he is the only one with the control to reach all of the organization's actors.

Redundancy in Networks

If we examine only the solid lines in Graph 1, which represent the very frequent communication and control ties, the fictitious criminal organization seems fragile. As we have just seen, the organization may be splintered by the removal of just one central actor or a few ties.

As noted by Williams (2001: 80-81), this is why criminal organizations increase their resilience and thus become stronger by adding redundancy by links that are weak and less frequent than the others.

A network is even more redundant and, thus, denser, if several actors or ties must be removed to break it into pieces that are not connected. As stated by Williams (p. 81) " … redundancy enables members of the network to take over tasks and responsibilities from those who have been arrested, incarcerated, or killed by law enforcement."

Thus, when the dotted lines are added to Graph 1, lines which refer to less frequent communication or control between certain members of the network, we can see that the organization's resilience is increased. For example, if B is captured, A can re-establish communication with C and D. Or, if C is captured, E, F and G can be reached through H. Conversely, if D is captured, H and I can be reached through G.

The Various Roles in A Criminal Network

After noting that there is a complex division of work in criminal networks, Williams (2001: 82-84) proposes the identification of a certain number of roles. He states these roles appear in all networks, while other roles exist in specific types of businesses in which criminal networks are involved.

There are seven roles that can be found in all networks and one individual can assume more than one. They are:

> 1) The **organizers** are the core ensuring the network's direction. It is they who determine the scale and scope of activities, as well as the guidance and impetus necessary for performing those activities.
>
> 2) **Insulators** are the individuals or groups charged with insulating the core from the danger posed by the infiltration and compromise to which it is exposed. These actors transmit directives or guidance from the core to the periphery. They also ensure that the flow of communication from the periphery in no way compromises the core.
>
> 3) **Communicators** are individuals who ensure that communication flows effectively from one actor to another throughout the network. Unlike the insulators, they must gather feedback regarding directives that they transmit to other actors in the network. Williams

claims that there can be conflicts between those who act as insulators and those who act as communicators, or that the same individuals may assume both roles simultaneously to avoid these conflicts.

4) **Guardians** ensure network security and take necessary measures to minimize its vulnerability to infiltrations or external attack. Their role also consists in watching over recruitment to the network and ensuring the loyalty of recruits through a variety of ritual oaths and latent coercion directed against new members and their families. Guardians seek to prevent defections from the network actors and to minimize damages when defections occur.

5) **Extenders** extend the network by recruiting new members and also by negotiating collaboration with other networks and encouraging collaboration with the business sector, government and justice. Various tactics are used to this end. They range from voluntary recruitment through bribery and corruption to involuntary recruitment through coercion, occasionally supported by incentives and rewards.

6) **Monitors** are dedicated to the network's effectiveness their responsibilities consist in providing information to organizers regarding weaknesses and problems within the network so that the organizers can resolve them. Monitors ensure that the network is able to adjust to new circumstances and maintain the high degree of flexibility that is necessary to circumvent law enforcement.

7) **Crossovers** are part of a criminal network, but continue to work in legal institutions, whether governmental, financial or commercial. As such, these individuals provide invaluable information and contribute to the protection of the network.

Combatting Criminal Networks

Several of the seven roles identified by Williams make it difficult to combat criminal networks . This is particularly true for the roles of insulators, guardians, monitors and crossovers. Several authors have written of this difficulty, emphasizing the self-protection measures used by members of criminal networks, the limited knowledge available to specialists in combatting the networks or the strategies that the specialists can use despite these limitations.

Self-Protection in Criminal Networks

In addition to demonstrating how insulators, guardians, monitors and crossovers help to protect criminal networks against those who seek to neutralize them, Williams (2001: 74-75) adds some considerations regarding the self-protection used by the networks.

According to Williams, this self-protection deals mainly with the network's core. Infiltration of the periphery is possible, but infiltration of the core is much more difficult, not only because it is better protected, but also because the members of the core are united by strong ties and a high degree of mutual trust and loyalty.

Furthermore, infiltration or indictment of certain parts of the periphery has no major negative effect on the network, as those parts of the periphery can be cut off from the network or replaced by recruitment of new members. The fact that strategic information is compartmentalized in the periphery also helps to limit damage.

Williams and other authors add that, in criminal networks based on ethnic lines, the defensive mechanisms are particularly effective. In these networks, mutual trust and loyalty is even greater within the core and replacement of the effected parts of the periphery is easier as a result of the strong ties in ethnic circles and the low visibility of what is happening.

Sparrow (1991: 262-263) indicates two additional difficulties that complicate the task of properly identifying criminal networks. Firstly, it is often difficult to establish where a network begins and ends, particularly in the increasing number of cases in which national or transnational networks are interconnected. Secondly, criminal networks are fluid, not static, such that, even if their boundaries are identified at a given time, there is no certainty that those boundaries will be the same later on.

Limited Knowledge of Criminal Networks

In addition to noting the nebulous nature of the boundaries of criminal networks and the fluidity of the networks, Sparrow points out several limitations regarding knowledge of the networks in his 1991 article. His comments are all the more interesting since, in addition to being a specialist in the mathematical analysis of networks, he was a member of the British Police Service for ten years, attaining the rank of Detective Chief Inspector.

In his article, Sparrow places particular emphasis on the need to go beyond simply describing criminal networks and to concentrate on their analysis, using what is taught in network sciences. As he states at the beginning of his article, it is through analysis that data is transformed into information or intelligence.

It is to this end that Sparrow proposes certain concepts raised in the second part of this report, including that of the centre, which he shows cannot be reduced to degree centrality. Sparrow also demonstrates that the information that can be gathered on the structure of criminal networks is most often incomplete, and that the missing ties are not distributed at random. They depend on distortions introduced by initial assumptions about the networks or by information-gathering methods. According to Sparrow, little research has been conducted on the effects of this incomplete information in reconstructing the structure of criminal networks (Sparrow, 1991: 262).

Klerks (2001) is another author who has closely examined current problems in the analysis of criminal networks. He notes that law-enforcement professionals often have a simplistic view of their adversaries. They use rigid terms to define criminal leadership, chains of command and criminal infrastructure, while Klerks instead sees criminal organizations as involving improvisation, fluid networks, ad hoc coalitions, flexible entrepreneurs and even organizational chaos.

Klerks also notes that some questions need to be asked by criminal network analysts. For example, what constitutes the bonding mechanisms that tie network members together in the different criminal constellations? It is often assumed to be the lure of profit, but this motive is not a complete

explanation. There are also ethnic or tribal ties, family or community relations, prison time together, or even common consumer habits regarding music, cars, etc.

Finally, Klerks adds that the fight against criminal networks must pay particular attention to positions of power within the networks, particularly to actors who serve as intermediaries. This comment is akin to Williams' views regarding roles in criminal networks, as many of those roles are intermediary roles in a broad sense. This is also true for "tertius gaudens" including what Burt (1992) refers to as structural holes. This is, for example, the position held by B, as regards A, C and D in Graph 1, if we rely on very frequent ties. A, C and D can only communicate with each other through B. However, this beneficial position is often cancelled out in criminal networks by the redundancy requirements mentioned above.

In a recent article on networks responsible for the attacks of September 11, 2001, Krebs (2001) notes, citing others, that analysis of social networks is more successful when applied to the prosecution of criminal networks than to the prevention of their activities.

In his opinion, this shortcoming is due to the very nature of criminal networks and the limitations inherent in their analysis. Unlike other social networks, conspirators such as those of September 11 do not have many ties outside their immediate group and minimize activation of existing ties within the network. They are united by strong ties built during their years of study or in training camps, but these strong ties remain dormant and thus hidden to external observers including analysts.

Some Strategic Elements

Despite the self-protection used by members of criminal networks and the limited nature of the possible analysis of these networks, some strategic elements have been identified in publications dealing with criminal networks.

Once again, Williams (2001: 95-97) is one of the authors who has most extensively examined this matter. He has noted that one way of destabilizing criminal networks is to attack them in such a way

as to make them dysfunctional. This can be accomplished through disinformation or other measures likely to create suspicion or acrimony within the networks. Crossovers, if they can be convinced, can be used for this purpose. Not only can disinformation have a corrosive effect within criminal networks, but it can also provoke them to take steps that make them increasingly vulnerable to attacks from law enforcement.

Williams also recommends that governments and law enforcement agencies imitate criminal networks by adopting more flexible structures than is their norm. These structures are usually overly hierarchical and are marked by competition, rivalries and interagency antipathy, and by a reluctance to share information and co-ordinate operations.

Williams concludes that "it takes a network to defeat a network." This conclusion is somewhat similar to Sparrow's (1991: 272), that it is through the teaching of network theory that information specialists and the agencies for which they work will better be able to understand what they are doing and identify the additional analytical tools that they need.

Conclusion

In conclusion, we would like to highlight the main points raised in this report.

1) Criminal organizations can be seen as businesses targeting their external environment, and as networks that connect their members internally. This report examines criminal organizations as networks.

2) A network, whether criminal or not, is not simply a series of ties between actors. A network is also characterized by the existence of direct or indirect two-way connections between each actor and each of the other actors, so as to allow resources to be pooled through communication within the network.

3) The larger the network, the lower the density, with density being measured by the ratio of the number of actual ties in the network to the possible number of ties if there were a direct connection between each pair of actors. In this regard, transnational criminal networks

are usually less dense than national criminal networks.

4) Ties between one criminal network and another, between sub-networks of a criminal network, or between the core and the periphery of a network are generally weak ties, producing loose couplings, but which build bridges that would not otherwise exist.

5) The main strong ties within criminal networks are family ties, ties within an age group, ties of neighbourhood or previous membership in the same organizations, as well as ethnic ties, in some cases.

6) There are many ways of identifying the centre of a network, the most relevant for criminal networks relating to the greatest closeness, betweenness or articulation of the centre as regards other actors.

7) However, if we examine control ties instead of communication between members of a network, the centre is generally the individual who can directly or indirectly control all other network actors.

8) To increase their resilience in the face of threats from other organizations, criminal networks create redundancy by increasing the number of their internal ties.

9) Seven roles can be identified in criminal networks: organizer, insulator, communicator, guardian, extender, monitor and crossover. A single actor can assume more than one of these roles.

10) The fight against criminal networks is made difficult by the self-protection measures used by the networks and the limited knowledge of specialists regarding the networks.

11) However, strategic elements stand out, particularly as regards the teaching of network theories. For these strategies to be effective, however, the organizations fighting criminal networks must adopt a network format, as it is true that it takes a network to defeat a network.

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