Bringing intelligence and social network analysis together to fight illegal wildlife trade: lessons for policymakers and practitioners

Dr Jacopo Costa, Senior Research Fellow, Basel Institute on Governance

This policy brief explains how intelligence practitioners within law enforcement authorities and researchers skilled in social network analysis (SNA) can and should cooperate better in the fight against illegal wildlife trade (IWT).

Intelligence data are crucial for SNA researchers to conduct empirical analysis of illicit activities and dark networks. In turn, these research results can fruitfully feed back into investigations and further intelligence work. The combined effect of research and intelligence can have positive effects on the fight against IWT, and these effects are larger than the simple sum of their components.

Policymakers and stakeholders who wish to increase the effectiveness and efficiency of the fight against IWT and other environmental crimes are advised to promote the systematic cooperation between intelligence practitioners and researchers, in a way that both communities can maximise the benefits of this synergetic strategy.

1. Introduction

Illegal wildlife trade (IWT) is a low-risk, high-profit trade that threatens sustainable development and is becoming increasingly professionalised through globalisation and organised crime. Intelligence and law enforcement activities are fundamental to fighting IWT by identifying, depicting and dismantling the crime networks that support it.

Collaboration between researchers in social network analysis (SNA) and law enforcement practitioners working with intelligence has the potential to contribute significantly to achieving this goal, but these communities do not currently work together in a systematic or meaningful way. This policy brief explores how they can and why they should.

SNA is an empirical method that analyses the structures, functions and operations of social networks. When applied to illicit and dark networks, the collaboration between researchers and practitioners can be an important avenue to better understand crime networks, their structure, members and modi operandi.

This policy brief aims to help policymakers and other stakeholders understand the value of SNA for

investigations into IWT and design effective strategies to empower this collaboration.

It presents insights from a fruitful collaboration between researchers in SNA and law enforcement practitioners during an investigation into a wildlife trafficker and his network operating between East Africa and Southeast Asia. This collaboration is within the framework of a wider programme of the Basel Institute on Governance aimed at combating IWT and financial crime.

The results show that:

a. Intelligence data arising from investigations are crucial to in-depth research using SNA techniques.
b. SNA can provide concrete value and impetus to investigations.
c. The synergy between researchers and practitioners produces shared benefits that are greater than the sum of their parts.

2. Main findings

a. Intelligence data are crucial to SNA research

The research highlights that high-quality intelligence data are vital for high-quality SNA on illicit activities and dark networks. Specific caveats and privacy protection

methods have to be implemented, but the opportunities are rich, including in this case study:

Using SNA to investigate phone and call logs. This enabled the researcher to depict structures (geographical location, membership, borders) and percolation dynamics (information and resource flows) characterising the targeted crime network. The content of these interactions illuminated operative and logistical functions typical of IWT, as well as the social meaning of its mechanisms, strategies and norms.

Triangulating the intelligence data with other sources, such as intelligence reports, judicial documents and newspaper articles. This gave further context to empirically connect individuals, clusters and events at the regional and global levels. This capacity for contextualisation helps to analytically confirm the functions of nodes and clusters and the existence of specific links, as well as highlight new relational patterns. It also helps to explain the meaning of specific connections and operative functions, and to connect clusters and relational islands.

SNA's unique strength here is its capacity to identify new nodes and clusters, extract their personal, sociometric and operative information, and identify their reciprocal connections and links.

> ### Box 1: What information is it possible to extract from call logs?
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> Call logs offer important types of information and data that support SNA research on criminal networks, such as:
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> - Contact lists with nicknames and phone numbers;
> - International dialling codes of phone numbers used by different contacts;
> - Amount of phone and messaging interactions;
> - Content of SMS and instant/chat messages;
> - Attachments (photos, videos, audio).

Working together to improve data quality and the reliability of intelligence. Intelligence data from ongoing investigations, such as in this case study, relates to recent activities and unknown individuals often identified only by nicknames. Sociometric and other data are incomplete or missing, and the information is often amorphous and encrypted. The process of handling intelligence data to obtain insights on the network and its characteristics is similarly uncertain. For example, international dialling codes can be a satisfactory proxy for the geographical placement of the nodes, but practitioners working with the results need to be aware of such limitations.

An additional limitation is that the intelligence data used for SNA, unlike other judicial documents such as wiretapping or court transcripts, may not have been validated in court.

However, this case study has shown that close collaboration between intelligence analysts, other law enforcement practitioners and SNA researchers can help to clarify these doubts and weaknesses in the data through ongoing feedback, suggestions and clarifications. The process also helps to generate the trust needed for law enforcement to share primary materials and confidential data with the researcher.

The confidentiality of ongoing investigations raises the importance of the need for the strongest possible data protection mechanisms for the personal information of individuals and companies. When publishing research based on SNA that uses intelligence data and sensitive information, it is especially vital to anonymise and protect personal data. These considerations should be built into any data-sharing and collaboration strategy between law enforcement, intelligence and SNA research functions to ensure trust and smooth cooperation.

b. SNA can provide concrete value and new impetus to investigations

The case study confirms that social network analysis can concretely support investigative efforts beyond the production of fresh empirical knowledge on how illegal wildlife trade operates and the role of criminal networks. In particular, SNA positively impacts different aspects of present and future avenues of inquiries and investigations. Box 2 summarises some contributions of SNA to the activities of practitioners.

The case study shows that the in-depth SNA carried out by the researcher has supported the concrete operations of intelligence practitioners and other law enforcement agents who are limited by time constraints and an excess of information and data.

Here, it is necessary to note the difference between the goals of SNA for researchers and practitioners. As mentioned, the insights produced by the SNA research are anonymised, i.e. sensitive information is not disclosed at all. In practice, this type of information is exactly what the investigators are interested in for their activities. This is solved by decrypting these insights into information with investigative value and preparing confidential tailored reports for practitioners.

A relevant contribution given by research to the investigations is the capacity to deeply analyse these materials. This makes it possible to:

- extract and supply to the practitioners new evidence for ongoing investigations;
- cross-check this information with insights and databases belonging to other actors in the field of fighting IWT, such as state agencies, NGOs and financial or transport taskforces;
- create new intelligence avenues for investigations, targeting people, firms, clusters, links and events.

Box 2: Contributions of SNA to the work of practitioners

The empirical findings in this case reinforce arguments in the literature regarding the contributions of SNA to investigations and other law enforcement activities:

- Generating new theoretical and operative knowledge on the traits of crime networks:
  - On the theoretical side, illuminating how the illicit business and crime networks operate in general as well as in particular contexts.
  - On the operative side, generating actionable information that may have otherwise been missed in the noise of large data sets.
- Identifying structural weaknesses and powerful individuals that can be targeted to neutralise crime networks:
  - Identifying the key players who direct the networks and their illicit operations.
  - Assessing vulnerabilities and strategic positions in the crime networks.
  - Providing information that helps practitioners to deactivate selected nodes and networks.
- Creating conceptual models to define effective red flag systems able to predict links, flows and connections between different nodes in the network.

Regarding the topic of creating new evidence and sustaining investigative activities, the research - together with identifying several new names – has provided additional information and details on individuals and clusters previously identified by law enforcement agents and practitioners.

This additional information further clarifies their functional role along the illicit supply chain, and makes it possible to identify their operative strategies, geographical placement and relational links with other clusters and rings.

This can help to define strategies to take these nodes and clusters out of the criminal network, thereby contributing to efforts to neutralise it. It also opens up new opportunities for disseminating the collected information

in targeted intelligence packages to relevant stakeholders, such as wildlife authorities, NGOs and law enforcement actors.

An emerging insight is that SNA and its empirical insights seem to confirm and elaborate findings on operative mechanisms and strategies that emerge from the investigative and law enforcement activities. In this specific case study, SNA has for example confirmed:

- the operative and logistic collaboration between different crime rings in East Africa;
- the re-organisation of the network and crime rings to cover the space which was created following the arrest of the central trafficker;
- the nature and direction of the financial flows within East Africa, and between East Africa and Southeast Asia.

These different points underline once again the dual scope that SNA has for investigations: first to produce new and fresh knowledge on how these relational structures and their operative strategies evolve over time, and second to apply this knowledge to build new investigative patterns and operative avenues.

SNA can reveal recurring and common names, routes and operative schemes. This is because the accumulation and stratification of nodes, events and strategies along the network structures allow recurring actors and patters to emerge. This helps practitioners seeking to identify professionals (accountants, lawyers, etc.) used by different crime networks because of their relevant skills, know-how and social capital. This is important because these connections can also survive the dismantling of part of the network, adapting to the changes and supporting resilient evolution and transformation.

SNA offers the opportunity to examine these overlapping dynamics, bringing to light particularly sensitive nodes and clusters. Its focus on recurring operative schemes allow the type of information to emerge that is so valuable to the efforts of law enforcement and intelligence practitioners to dismantle the networks.

c. The synergy between researchers and practitioners produces shared benefits that are greater than the sum of their parts.

The case study has shown that the combined effect of research and intelligence has concrete positive effects on the fight against IWT, and these effects are larger than the simple sum of their components.

In particular, the collaboration creates feedback mechanisms that reciprocally support the activities of both parties. Within this framework, the intelligence communities supply the data and background for the research, and the researchers give back knowledge and insights with high intelligence value for ongoing and future investigations. Continuous interactions between these communities create a shared platform of interests, aims and goals, thereby maximising the effectiveness of their joint activities.

Designing an effective framework for collaboration involves:

- setting some basic pillars, such as a common topic and goals;
- looking at this collaboration as a way to manage the complexity and amount of available data, and as an opportunity to analyse them from a different perspective;
- conceiving of the collaboration as a way to build a bridge between these two disciplines, on both the analytical and operative sides.

3. Policy recommendations

The results of the research encourage greater exploitation of the potential of synergetic collaboration between SNA researchers and intelligence/law enforcement practitioners as a tool to fight IWT.

a. Encourage awareness and adaptation

As a preliminary condition, both researchers and practitioners need to become aware of the reciprocal advantages that can emerge from their collaboration and be proactive in supporting this exchange. In this framework, the community of researchers needs to adapt its methods and techniques to the advancement of forensic techniques that can offer a larger amount of intelligence data for research purposes (Catanese et al., 2013; Ferrara et al., 2014; Tajuddin & Manaf, 2015).

When facing this issue, the research community has to establish clear ethical standards for conducting empirical analysis on intelligence data. It also has to define a set of methodological standards and guidelines that make it possible to handle technical challenges and weaknesses connected to using this type of data. This will prepare the academic communities in the criminological and conservation fields for the effects of technological innovation in the field of combating IWT, which will likely affect research activities even more radically.

b. Identify points for collaboration and sharing

In parallel, practitioners have to identify specific points in the intelligence cycle that can benefit from collaboration with SNA researchers. This will make it possible to better tailor the collaboration, avoiding unhelpful and costly repetition and overlap between the respective activities.

Practitioners should also identify stakeholders, such as NGOs, civil society organisations, law enforcement agencies and international donors, that are engaged in countering IWT and are potentially interested in receiving information and insights with investigative value. Given their concrete knowledge of the public and private actors that operate in the counter-IWT field, practitioners can liaise with these actors to establish fruitful relationships and connections for the sharing of valuable insights, sensitive information and investigative avenues.

In this direction, it may be important to build cross-regional and transnational networks of counter-IWT actors and organisations, or to join and support them where they already exist. This will make it easier to share not only the knowledge produced by the research but also the information with intelligence value that has emerged during the SNA.

c. Design collaboration into interventions from the start

Public-private interventions aimed at countering IWT can be designed from an early stage to include potential collaboration between researchers and practitioners. This can benefit the production of fresh knowledge on how IWT works, which is important considering the scarcity of empirical research. It can also benefit investigative activities by offering new information that can drive forward open cases or identify innovative investigative avenues. The effects of this collaboration can spill over into a general increase in efficiency in the use of resources spent for these interventions, including where these resources are provided by donors.

As this case study has shown, the positive impact of collaboration is greater than the sum of the impacts produced by researchers and practitioners when working alone. Instead of designing two different interventions – one directed at research and the other at investigations – it can be more effective to design from the beginning an intervention that systematically relies on the synergies between researchers and practitioners.

This makes it possible to increase the quality of the outputs, outcomes and impact of the intervention, without extra costs. In a world of constrained resources for environmental conservation, this can add significant value

and increase the capacity to attract grants and funds from donors.

Box 3: Policy recommendations in brief

- Design public-private interventions and programmes based on the collaboration between SNA researchers and law enforcement/intelligence practitioners;
- Communicate the positive consequences of this collaboration for the efficiency and effectiveness of IWT interventions;
- Make more efficient use of resources and the output of interventions, both for research and law enforcement activities;
- Build a common language, spaces and strategies between the two communities;
- Prepare manuals and guidelines, training courses and events to build shared capabilities and skills;
- Work together to solve legislative obstacles regarding differences between countries and regions with respect to privacy and data protection;
- For the research community, adapt methods, techniques and ethical standards to the technological advancement and greater availability of intelligence data;
- For the practitioner community, understand the strategic contribution of adapting SNA to investigative activities;
- Build strong networks of counter-IWT actors to share fresh knowledge and intelligence.

d. Bring the communities together

To increase the effectiveness of this collaboration, it is important to build a common language, spaces and strategies between the two communities.

The preparation of manuals and guidelines, training courses and events (virtual and, when possible, physical) to share experiences and best practices can help the process of reciprocal adaptation between researchers and practitioners.

e. Overcome legal and data protection hurdles

To further increase the effectiveness of this collaboration, it is important to solve obstacles with respect to the protection of personal data, data management and information sharing.

The criminal structures involved in these crimes operate through transnational networks that cut across countries, regions and continents (Costa, 2020). In contrast, privacy protection laws are constrained by national or regional boundaries that limit the uniformity, clarity and efficiency in the handling of sensitive data such as those coming from intelligence activities.

Through open discussions with all concerned stakeholders and the creation of clear guidelines for those working with the data, it is possible to overcome these hurdles while maintaining full compliance with the regulations.

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