

## **Modeling emergent behavior of illicit organisations**

Koen van der Zwet<sup>12</sup>, Ana Isabel Barros<sup>23</sup>, Tom van Engers<sup>13</sup>, Bob van der Vecht<sup>2</sup>

<sup>1</sup> University of Amsterdam, The Netherlands

<sup>2</sup> TNO, The Netherlands

<sup>3</sup> Institute for Advanced Study (IAS), The Netherlands

### **Abstract:**

Illicit networks or organizations are terms used to refer to any coalition or coordinator of illicit individuals. Some speak of the term organizations as a “carte blanche” to oversimplify the complexity of the ongoing processes. To grasp the emergence of criminal organizational structures, it is important to find differences and similarities in organizational manners of illicit individuals. A continuum of “organizational sophistication” can be observed within illicit markets. This continuum from mechanistic to organic form is characterized by a respectively more hierarchical structure and predictable design typed as organizations, to a respectively flatter structure and ‘loose’ design of cooperation typed as networks.

A model of opponent behaviour has been developed to study the emergent behaviour of illicit organizations. The illicit environment is complex given the feedback mechanisms of law enforcement, rivalry and opportunities for illicit activities. Illicit organizations are differentiated from normal organizations by the need for secrecy. Opponents change their organizational and operational manners as they cope with a trade-off between secrecy and efficiency. As opponents radicalize they change their opinion about the illicit activities. This presentation explains how opponent behaviour and the environment is modelled using Agent-Based Modelling and how experiments can reveal the complexity.