Social Network Analysis for Law Enforcement and Security

Alessandro Guarino
Founder & CEO, StAG

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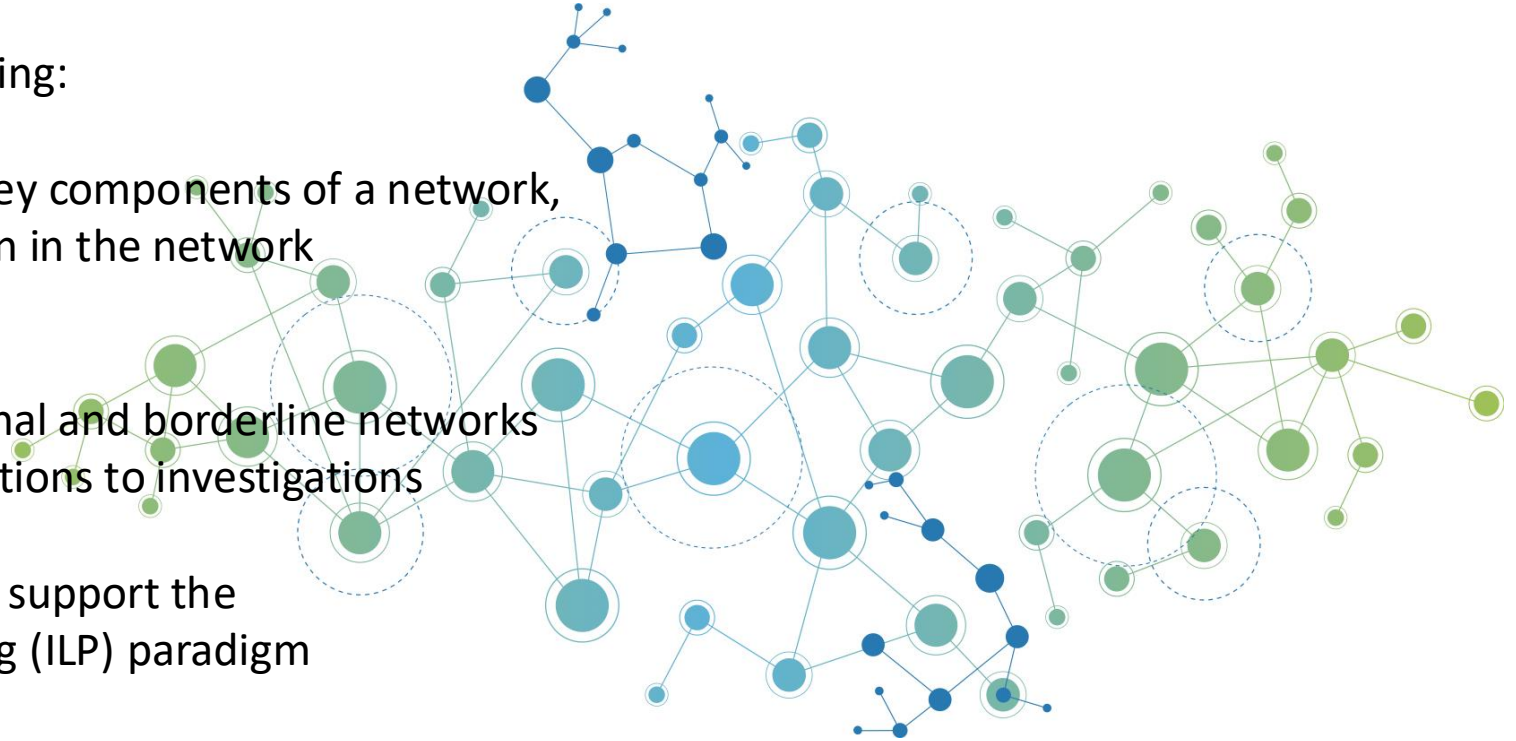
The Network Perspective

Social Network Analysis (SNA): an analytical tool that studies social relationships.
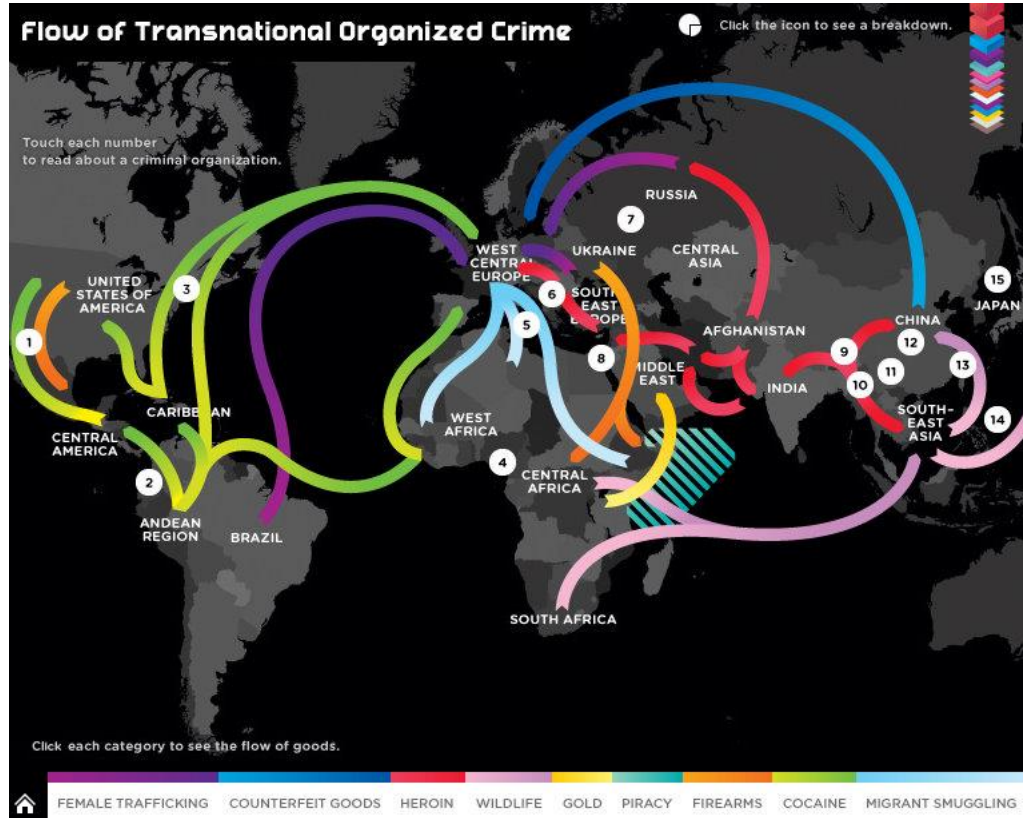
It is capable of identifying:

- The structure and key components of a network,
- Flows of information in the network
- Key players

When applied to criminal and borderline networks is able to provide directions to investigations

SNA is ideally suited to support the Intelligence-led policing (ILP) paradigm

Criminal Networks

Image from: http://geometrx.com/2011/02/mapping-transnational-organized-crime

Criminal organisations are global as well

Network-based internal organisation

Some use cases:

Terrorism
Cultural Heritage trafficking
Corruption
Human trafficking
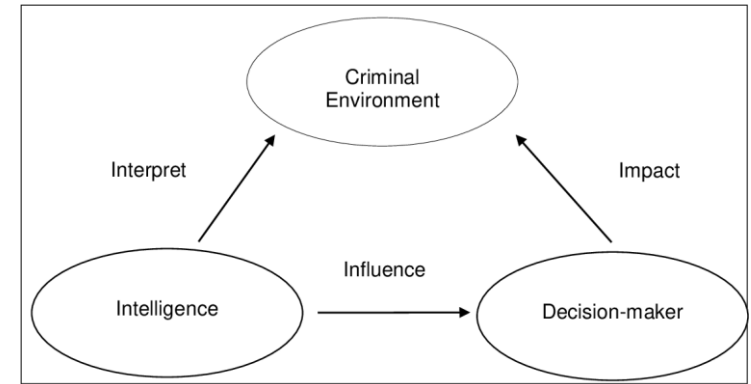Cybercrimes
Environmental Crimes

SNA and Intelligence-Led Policing

LE Paradigms timeline and their main traits:

Community-oriented   tactical   reactive
Problem-driven policing   tactical   reactive
CompStat   strategic reactive
Intelligence-Led Policing.   strategic proactive

ILP Is also focused on a broader range of activities not only crime hotspots, like CompStat for example.

Source: Ratcliffe (2003).

Benefits

LEAs implementing ILP can greatly benefit from the analysis of complex criminal networks, exploiting their vulnerabilities to deploy effective prevention and intervention strategies.

SNA supplies insights on the best use of investigative resources (personnel, technical, undercover ops) in a targeted way.
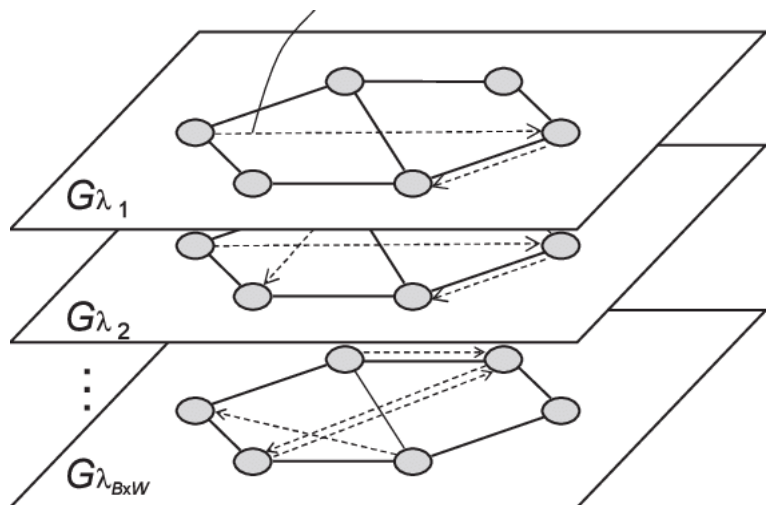
In particular **disruption strategies** can benefit from SNA since it can identify "key players" in complex organisations (OC or more loosely connected social networks that span both the legal and criminal worlds – e.g. in the domain of Cultural Heritage trafficking

SNA can also identify groups of actors that have similar positions ("role equivalence"), allowing insights not only on the current key roles but also the possible successors in a given role (leadership or broker)

Data Fusion to Build Better Graphs

Build a more complete graph by layering diverse but correlated data sources.

Correlation of entities (individuals or organisations)
Link building

- OSINT: Social Network Platforms, Public websites
- OSINT: Specialised information on specific markets
- Seized Evidence (mobile devices, computers, …)
- Financial transactions (including cryptocurrencies)
- Existing LE-available repositories (historical cases, other intelligence)
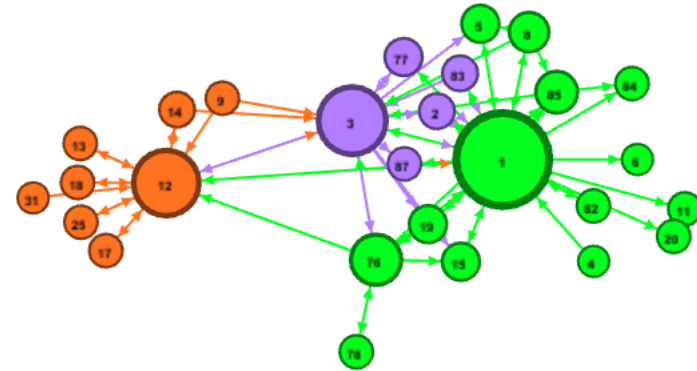
SNA Toolbox

Cliques, Community detection

Key Players (e.g. centrality)

Brokers (e.g. betweness)

AI-based prediction of the network morphology

RITHMS

RITHMS was a Horizon Europe Research and Development FCT project

RITHMS studied the applications of SNA to investigations in the domain of Cultural Heritage trafficking and was meant to develop a functional and sustainable SNA Intelligence platform for CHT investigations

Thanks for Your Time
What are your questions?

Contacts:

a.guarino@stagcyber.eu

X.   @alexsib17

StAG – Information Governance
www.stagcyber.eu