Social Network Analysis for Law Enforcement and Security

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The Speaker

20+ Years in Information Security and Data Protection

StAG.
INFORMATION**GOVERNANCE**

Speaker / Author

CyCon
International Conference
on Cyber Conflict

2013

iSSE 2016

2013-2019

E-PRIVACY
XX

2016 →

pirate security **psc**
conference

IET Events
The Institution of
Engineering and Technology

2017

Università di Roma
U
Tor Vergata

2018

NATO OTAN

12th INTERNATIONAL CONFERENCE
CPDP DATA
2019 AND

2019

CYBER SECURITY
360 Summit

2020

Standards and Policy

UNINFO

CS·CG CEN/CENELEC/ETSI
Cyber Security Coordination Group

ETSI

2011 →

★ **enisa** ★
THE EU
CYBERSECURITY
AGENCY

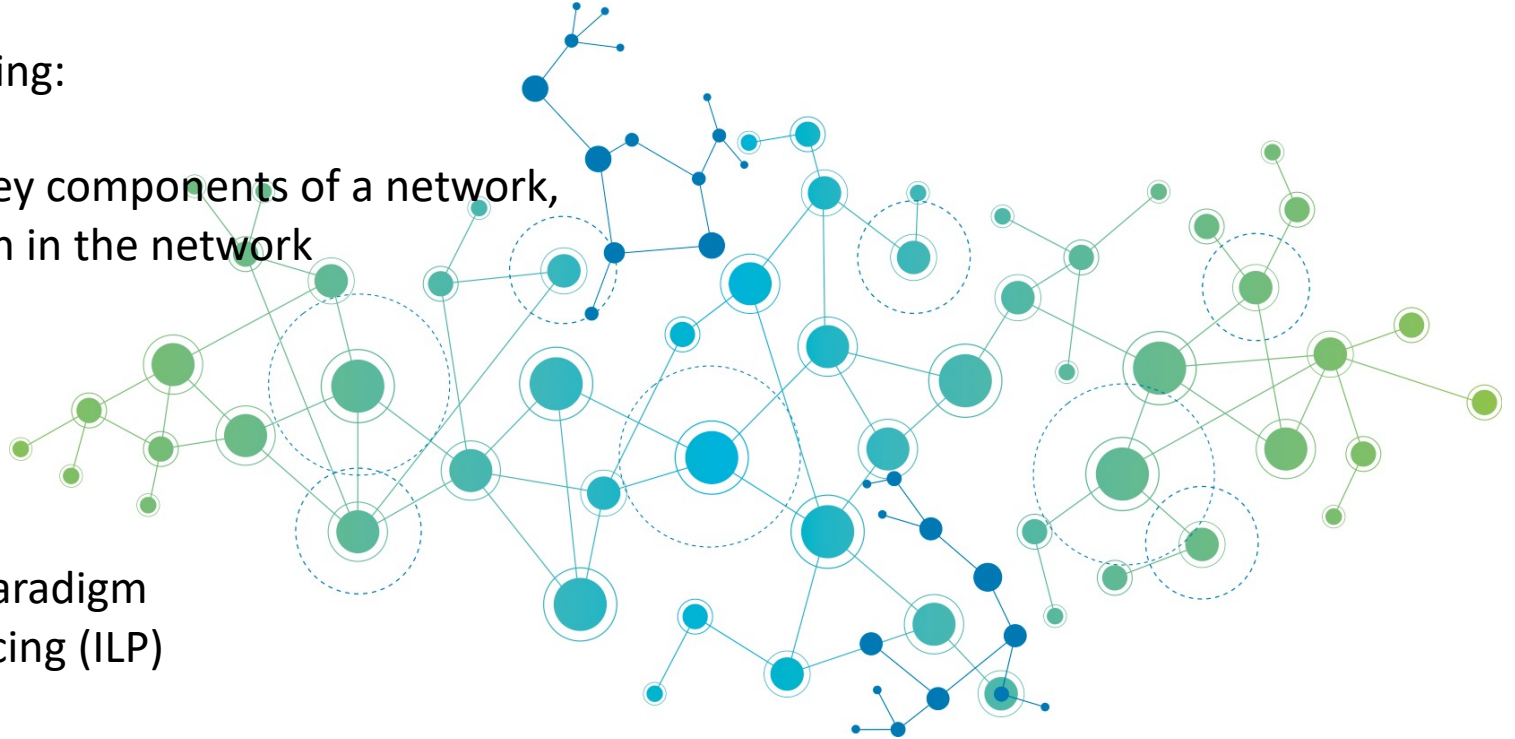cen **CENELEC**

The Network Perspective

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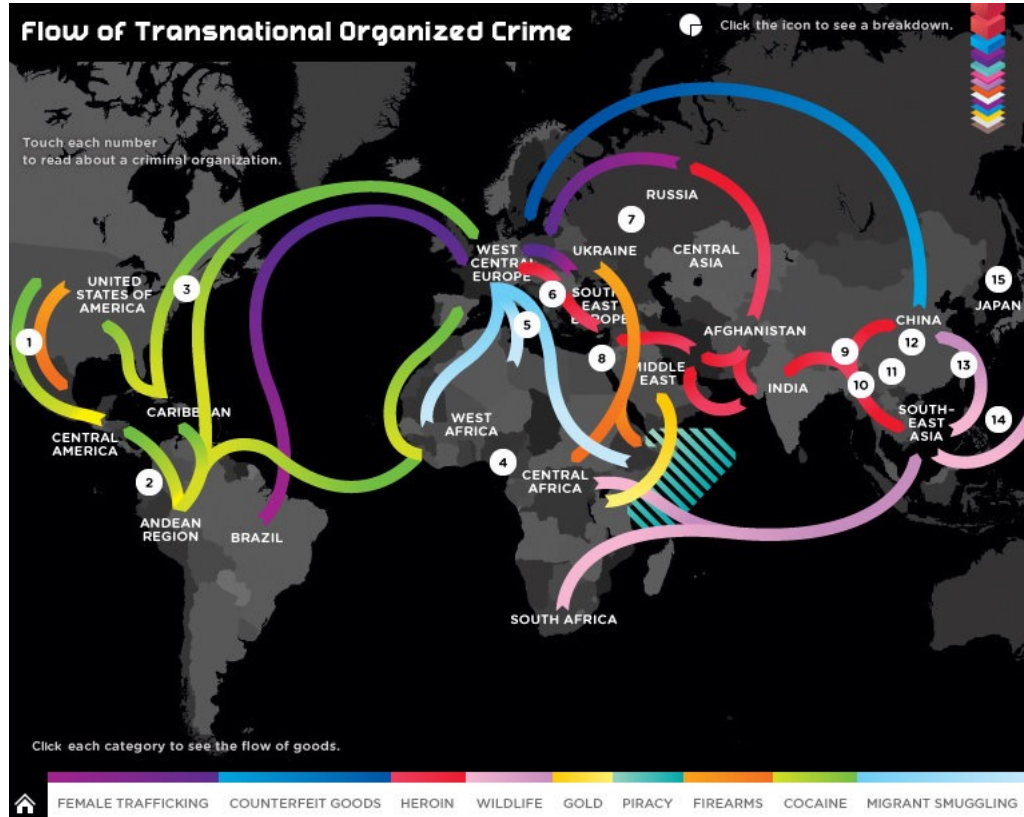
It is capable of identifying:

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

directing investigations

SNA can support the paradigm
of Intelligence-led policing (ILP)

Criminal Networks

Flow of Transnational Organized Crime

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
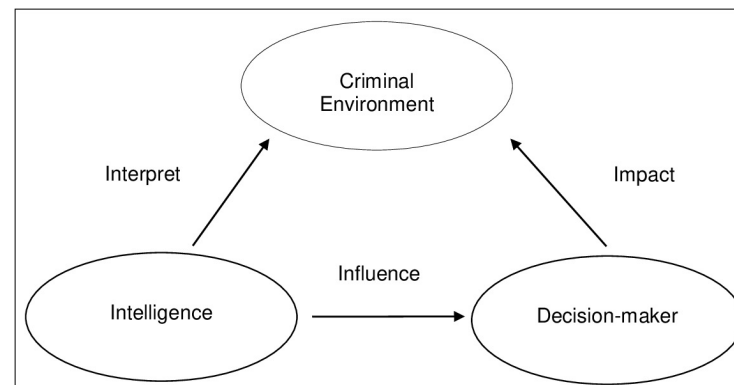Environmental Crimes

Of interest to LE and Security Agencies

SNA and Intelligence-Led Policing

LE Paradigms timeline:

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.

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.
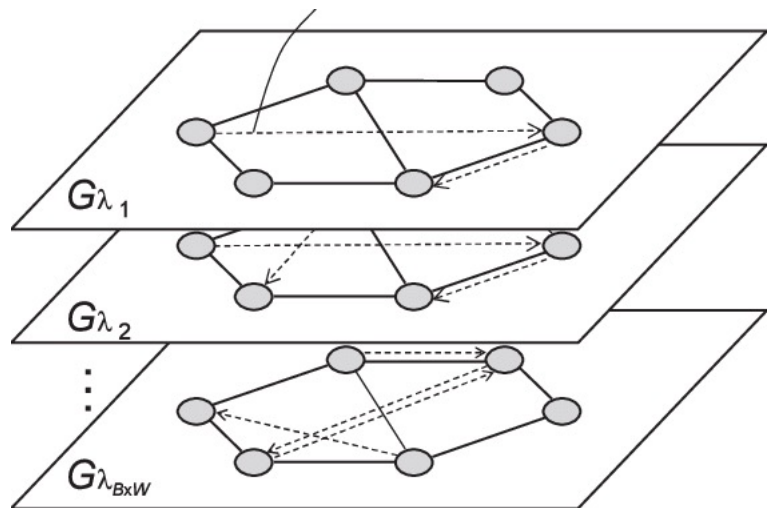
In particular disruption strategies can benefit from SNA since it can identify "key players" in complex organisations (OC or more loosely connected social networks that span both the legal and criminal worlds – e.g. Cultural Heritage trafficking

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, 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)
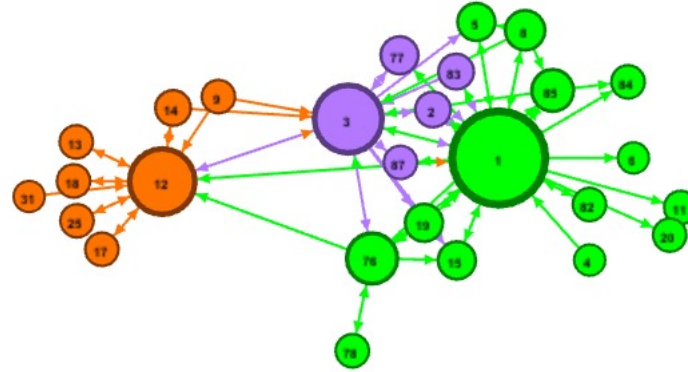
Tools

Cliques, Community detection

Key Players (e.g. centrality)

Brokers (e.g. betweness)

AI-based prediction

Coming Up

A Horizon Europe Research and Development FTC project will kick-off in October 2022

It will study the applications of SNA to investigations in the domain of Cultural Heritage trafficking

The goal is developing a functional SNA Intelligence platform for CHT investigatiions

Another project proposal is in the works for the next Autumn HE calls

Thanks for Your Time
What are your questions?

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Slides available on:
www.studioag.pro

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