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Methodological Challenges and Security Studies in the Hyper-digitalised World

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Malta College of Arts, Science & Technology



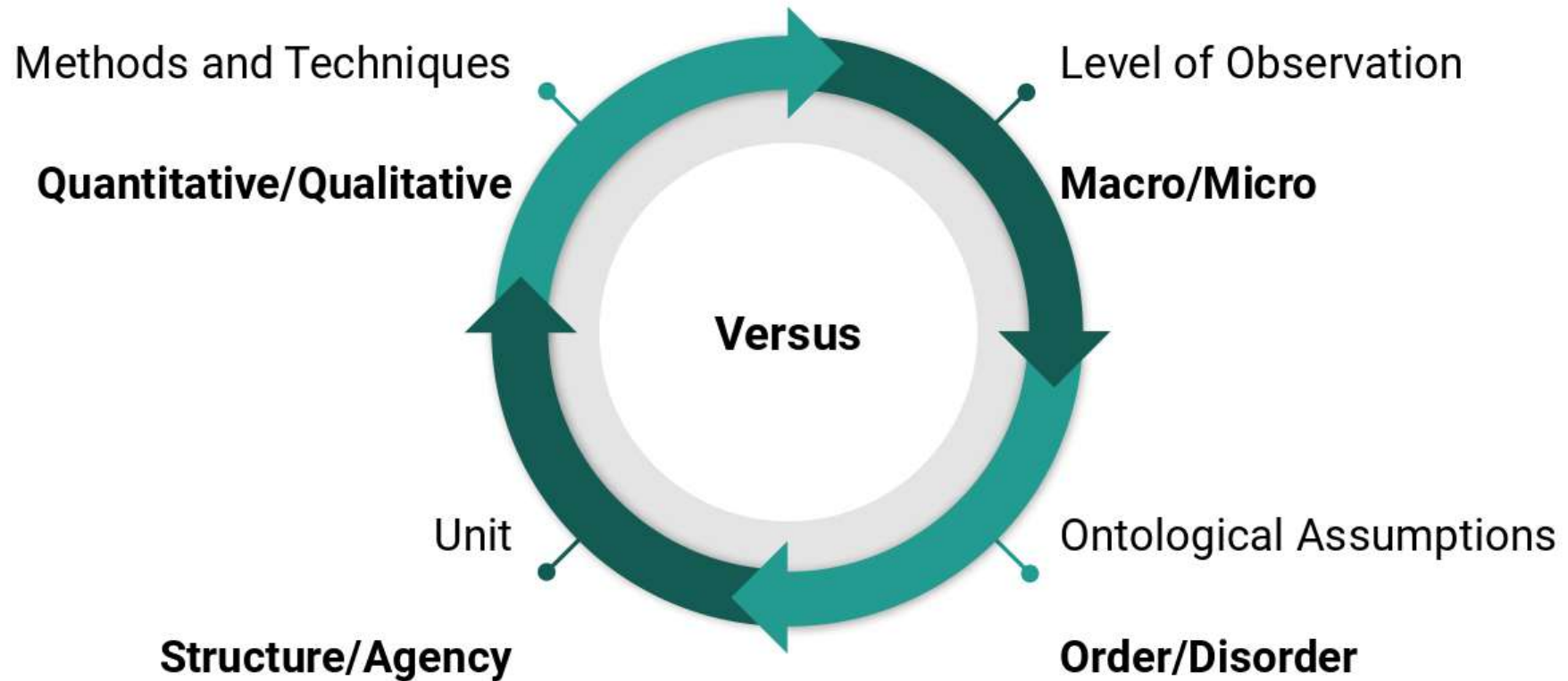
Before starting.... :)



Key-topics

1. A new scientific revolution
2. Re-definition of scientific paradigms
3. Methodological potentialities
4. Applications in security studies
5. Methodological perspectives in the light of COVID-19

Traditional methodological dichotomies





The (meso)-dimension

A third...way..

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Social network analysis: a new paradigm

The SNA is a theoretical and methodological perspective.

It analyses the social reality considering its networked nature.

The relation is the minimum units of observation despite its individual attributes

(Trobia, Milia 2011)

**Which is then
the unit of
Analysis?**



Why not relations?

Systems theory and Emergence

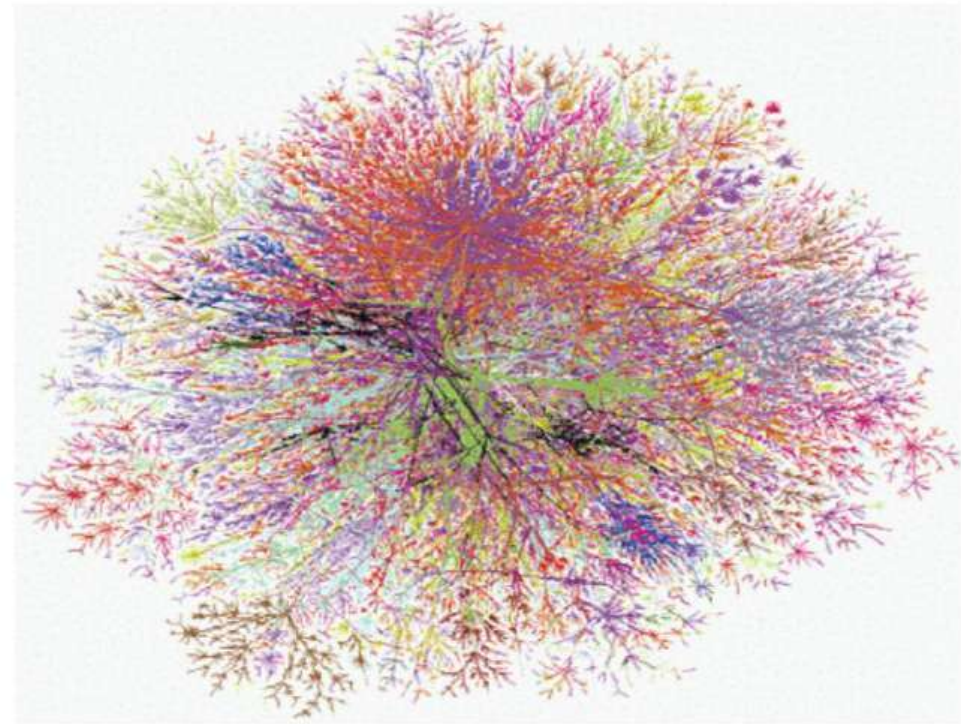
- Globalization= increasing of systemic complexity
- Castells => Network society
- Urry => Complexity sciences, post-disciplinary (physics, informatics, cognitive sciences etc.)

Key lessons

There is no differences between «human» sciences and «natural» sciences

All knowledge is completely related.

Reality is complexity



(W R Cheswick/Bell Labs, 1998)



General issues

- Network is a flexible and not fixed concept (*hic et nunc*)
- Actually we are exploring macro and micro mutual dynamics (agency/structure relations)
- It is not easy to display complex and broad networks



What is a network?

1. Network is not the same of networking but social relations can be described as networks
2. A network is simply a set of relationships between objects which could be people, organizations, nations, etc. It depends on our own research goals and questions

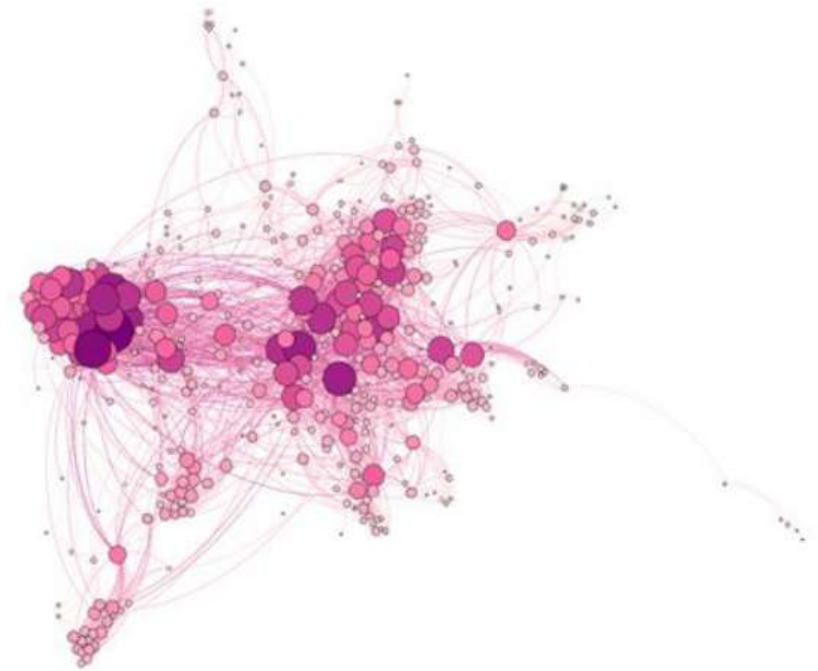
Representing Social Networks

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Questions:

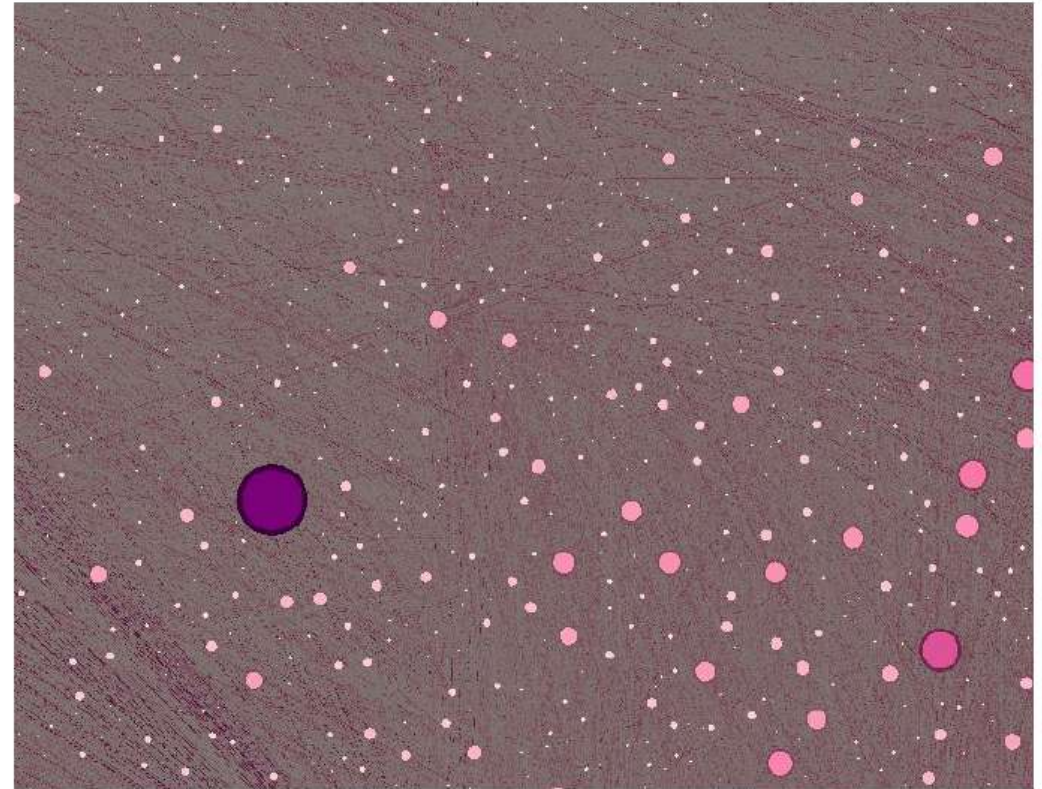
1. What is this?
2. What can you see?
3. What might it represent?
4. Can you see some special feature?



Representing Social Networks

What about this?

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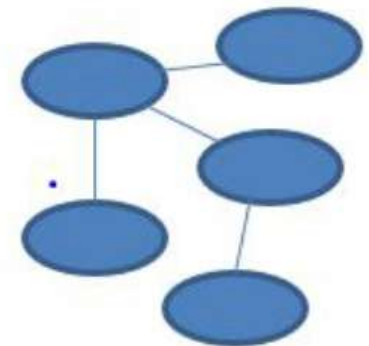
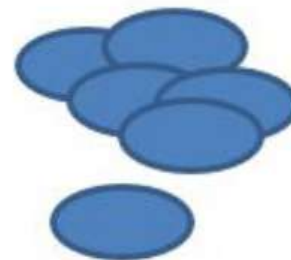


Paradigm Shift

It is rather as if the professional community had been suddenly transported to another planet where familiar objects are seen in a different light and are joined by unfamiliar ones as well. [...]

Nevertheless, paradigm changes do cause scientists to see the world of their research-engagement differently.

(Kuhn 1962)





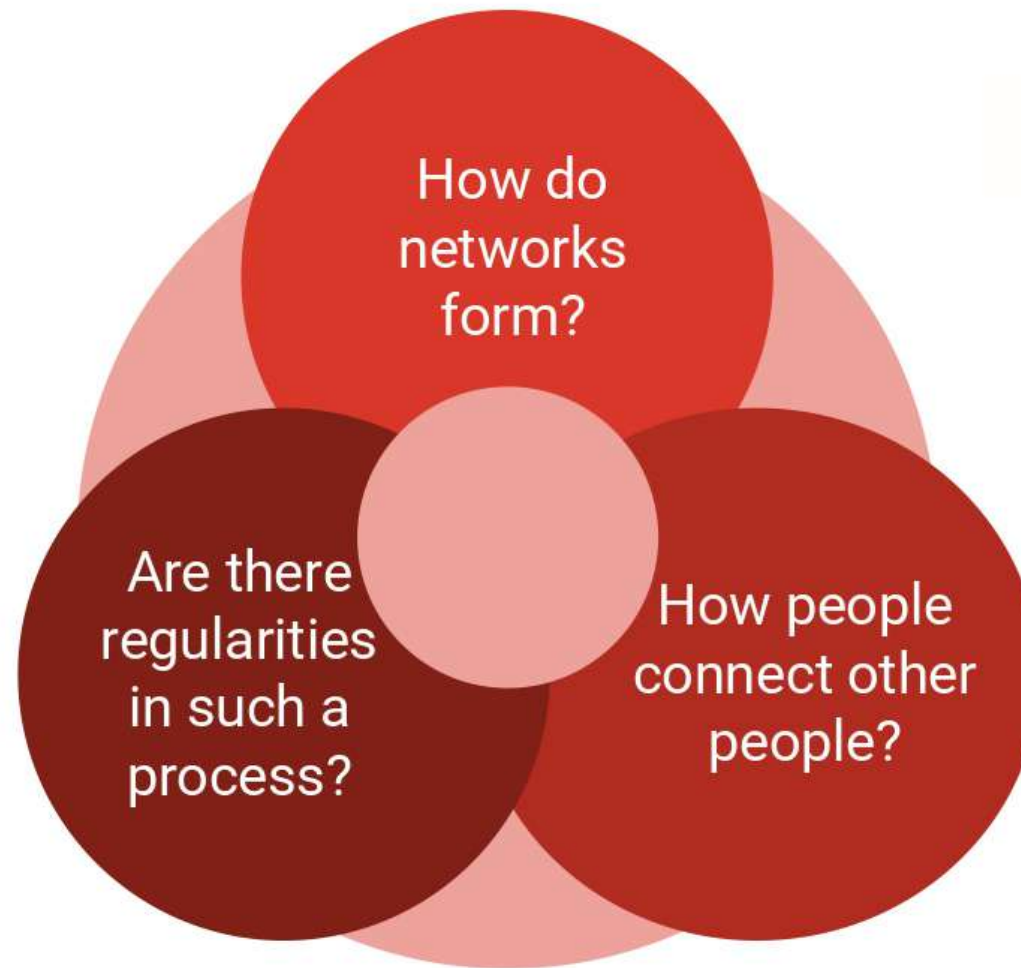
Which perspective on social reality?

Focusing on relation, relations and systems of relations between elements, the network approach investigates not isolated portions of social reality or already defined composed structures, but analyze recurrent patterns of relationships

Emerging in their own peculiarities and, attempts to reveal emergent properties of systems and their principles of organization.

(Ruisi 2014)

Ontological dilemmas



Key question

Are criteria that drive (social) networks completely random?



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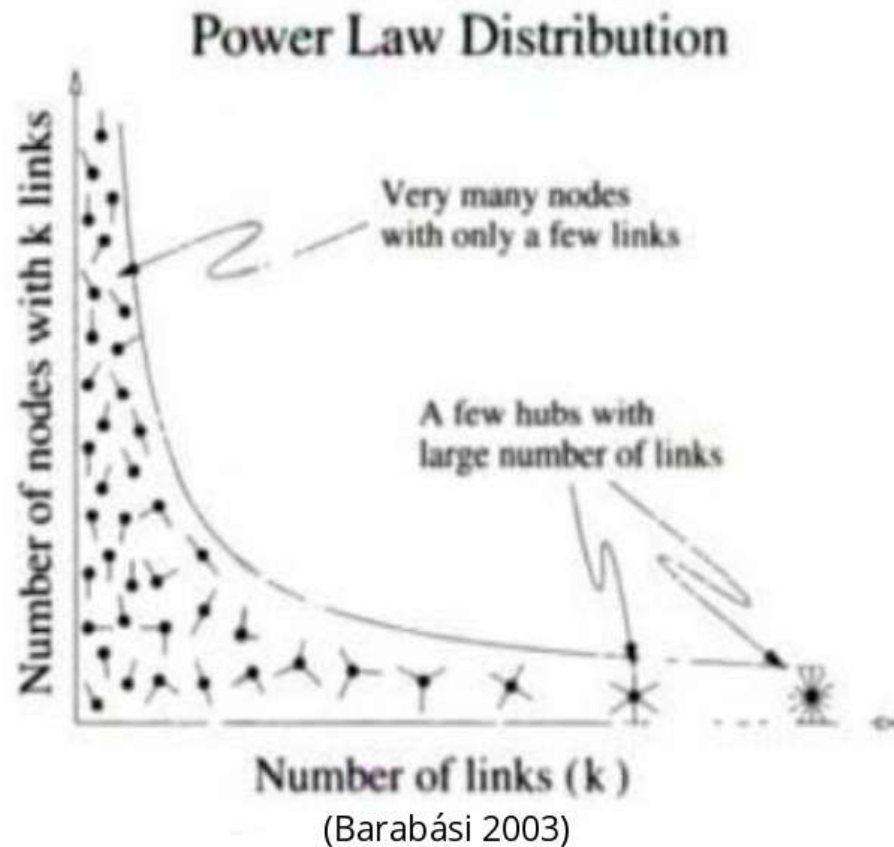
Looking for order in the chaos

- Homophily
- Birds of a feather flock together





From randomness to relational power concentration

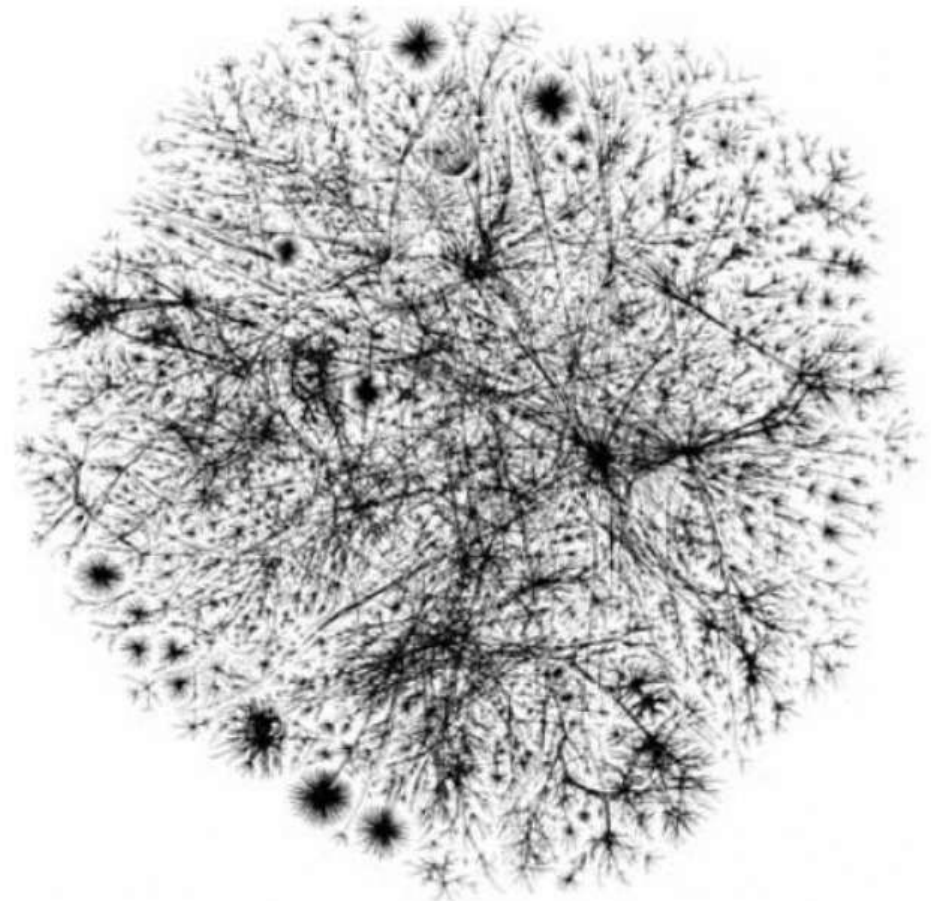


Chance is not the only one to drive networks formation

If not, how can you explain the presence of hubs?

World wide web structure

Few hubs are evident!



(Opte Project 2003 in Trobia, Milia 2011)



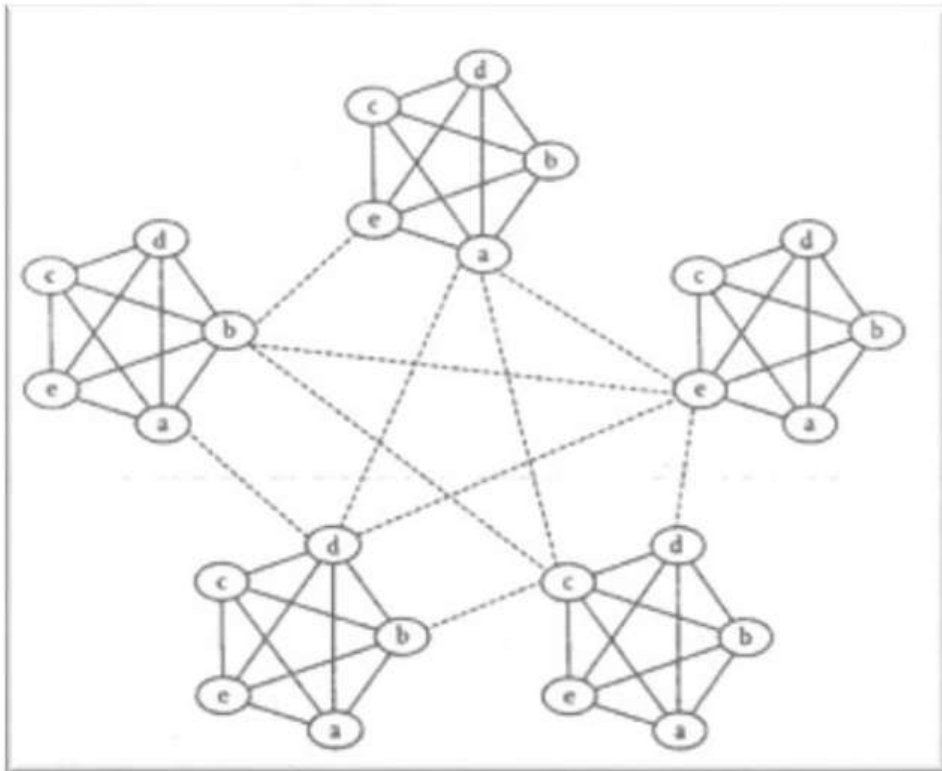
Political.....epidemy

- Turnout cascades are primary local phenomena
- They occur in small parts of the population whose degree separation is low

(Fowler 2005)



How to find a job?



The strength of weak ties

(Granovetter 1973)

Emergent properties in network systems

1. Innovation diffusion in Silicon Valley
2. Problem solving in organizations
3. Economic performance in companies
4. Creativity
5. Resilience

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Lessons to learn

1. Underlying network structures can determine performance of single companies, organizations or merely single individuals (emergence)
2. Every social phenomenon is in itself a networked phenomena “rising”, “living”, “surviving” and “existing” only within relations and systems of relations



How networks are employed in security research

1. Collect network data (several approaches)
2. Define network data (define linkages)
3. Analyse network data
4. Define network underlying structures (when ending?)
5. Mixing with further methods (methodological triangulation)



Violent extremism organizations

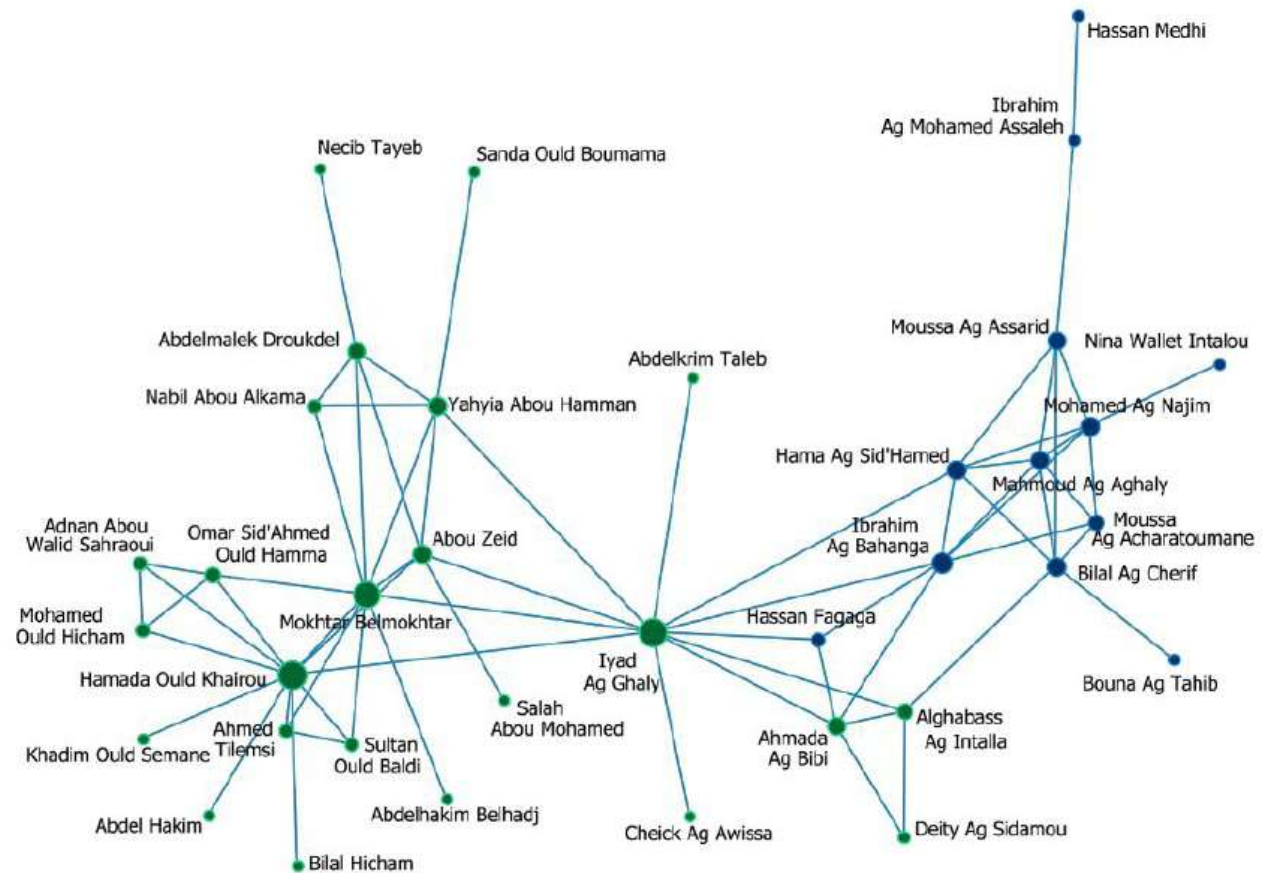
1. Represent violent extremism organizations as networks
2. Measuring their structural resilience
3. Intervene on key-actors
4. Building development scenarios

Let us test!



Let us test!

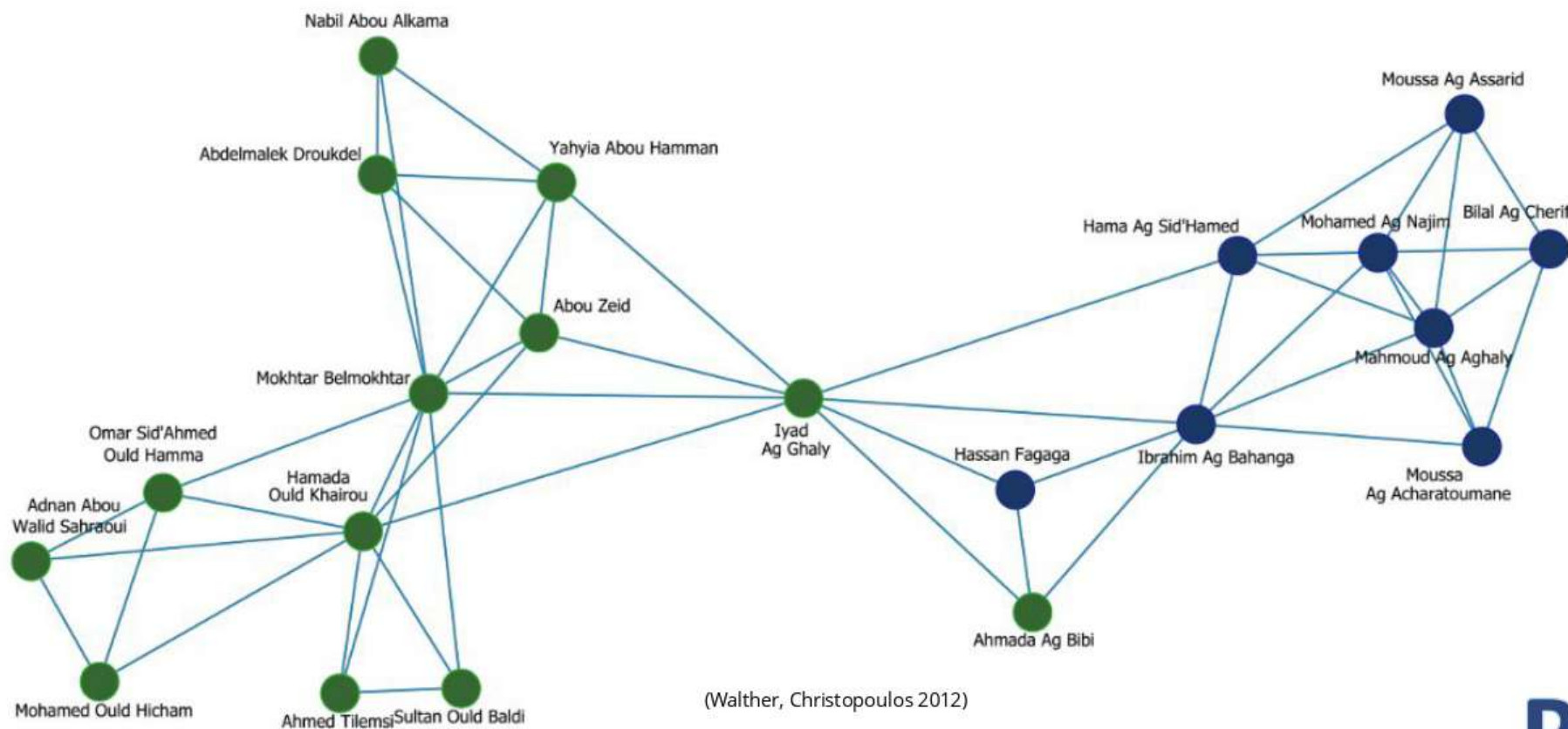
1. Who is or are key(s) actor(s) ?
2. Why?
3. What happens if we “remove” him/them?



(Walther, Christopoulos 2012)



What might happen...if...



(Walther, Christopoulos 2012)



Lessons

1. Organizations can be crippled by targeting key nodes
2. Individuate key nodes for acting surveillance on them
3. Key nodes might be influenced somehow (e.g. cooperation)

Policy implications

1. Enforcement by targeting key actors
2. Focus on organizational structure more than ideology
3. Simulating interventions
4. Counter-recruitment policies



Violent extremism online contents

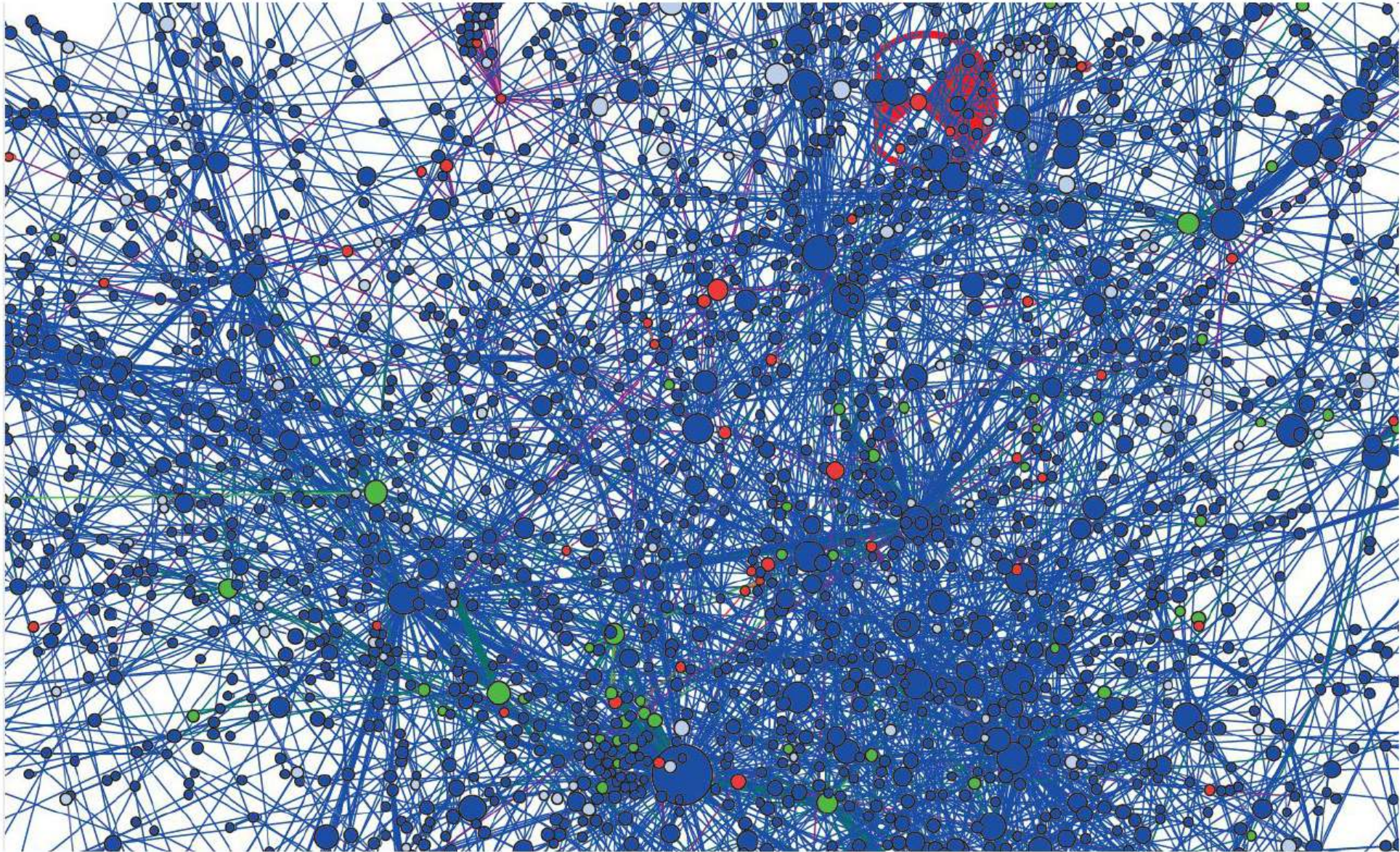
1. Trace supporters or oppositors networks online
2. Observe spread of violent messages on social media
3. Define if certain messages tend to spread more than others
4. Understand structural borders of violent messages
5. Comprehend violent extremism propaganda

Let us test!

Case 1

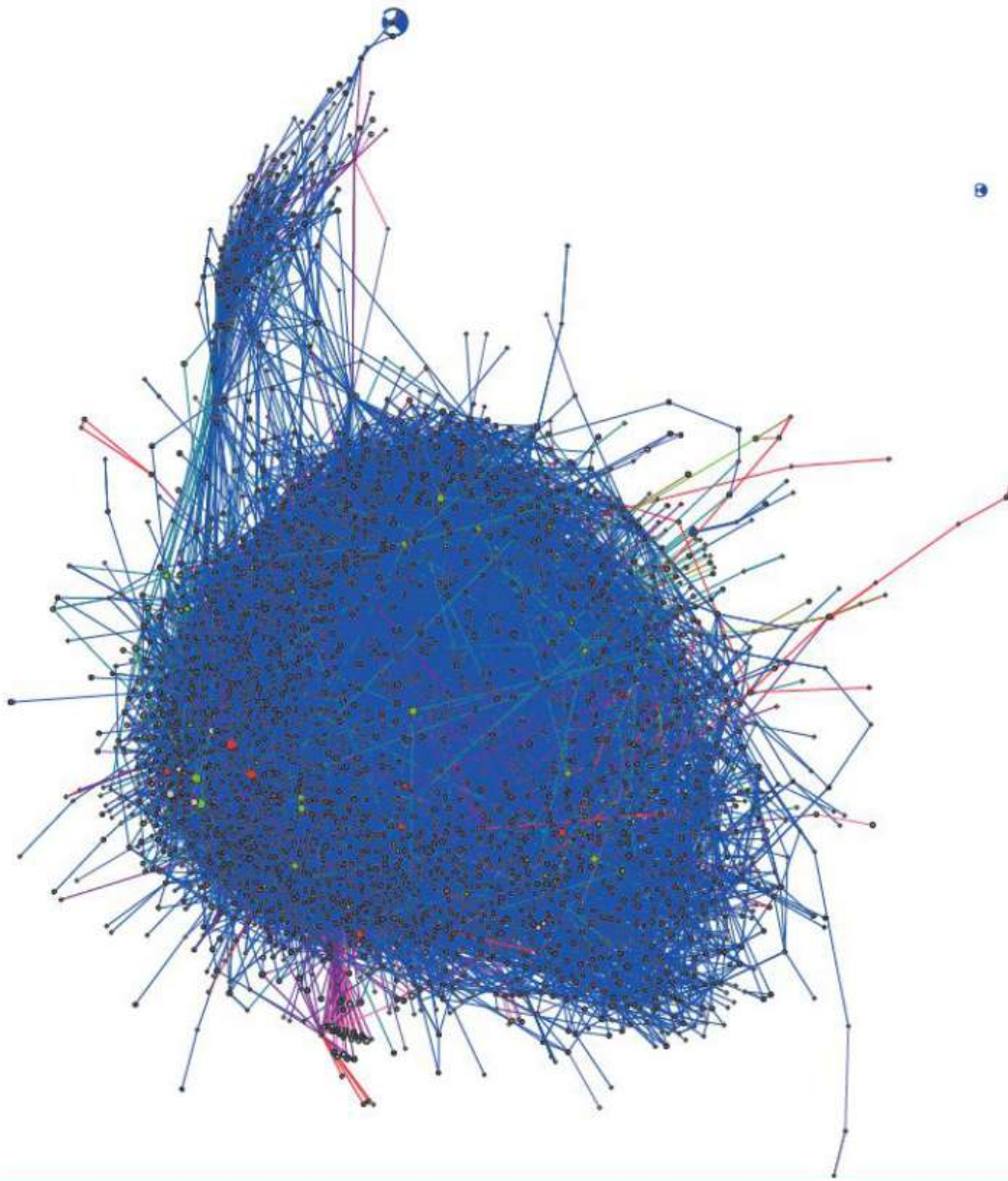
What can we note?





Case 2

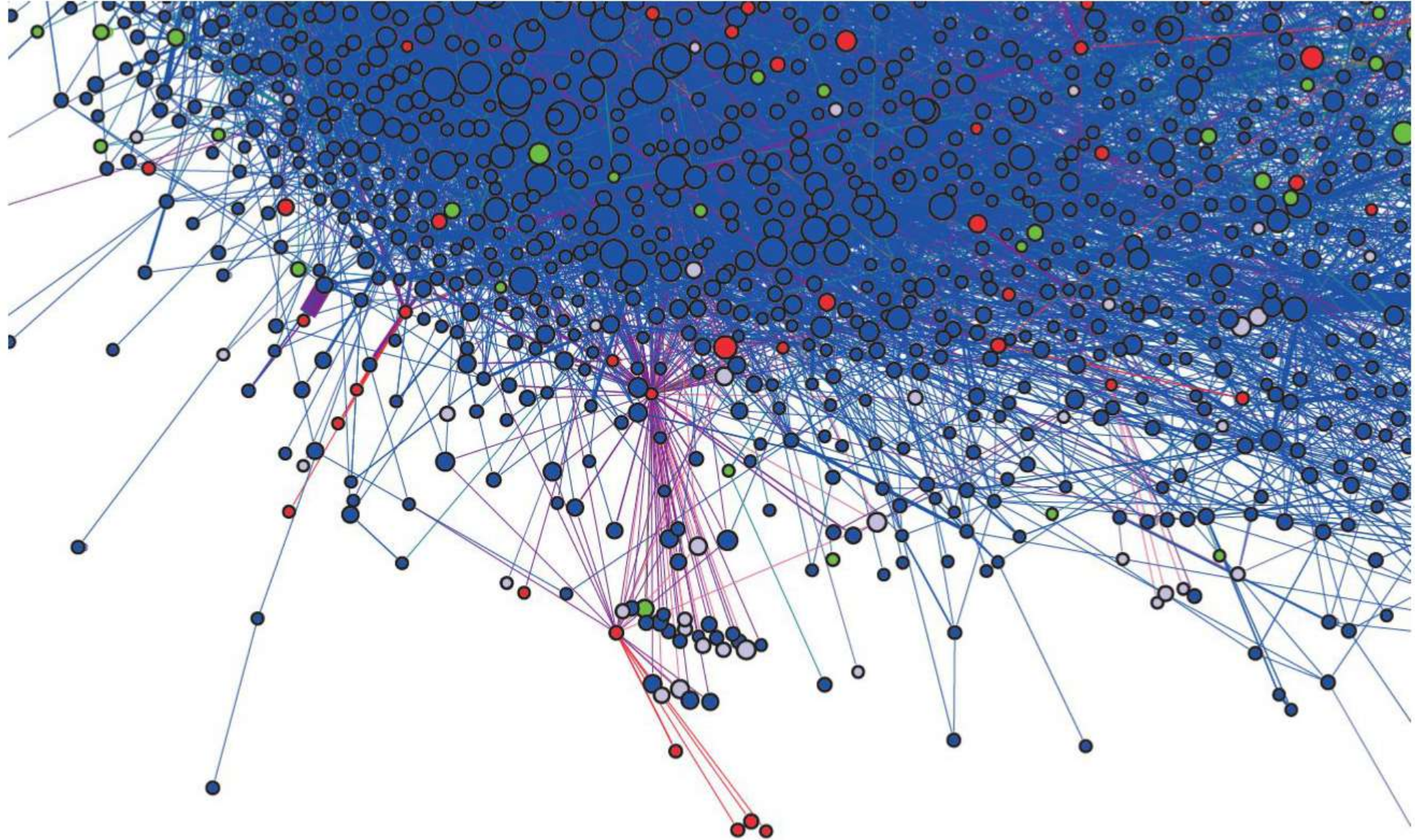
Any difference or
similarity?



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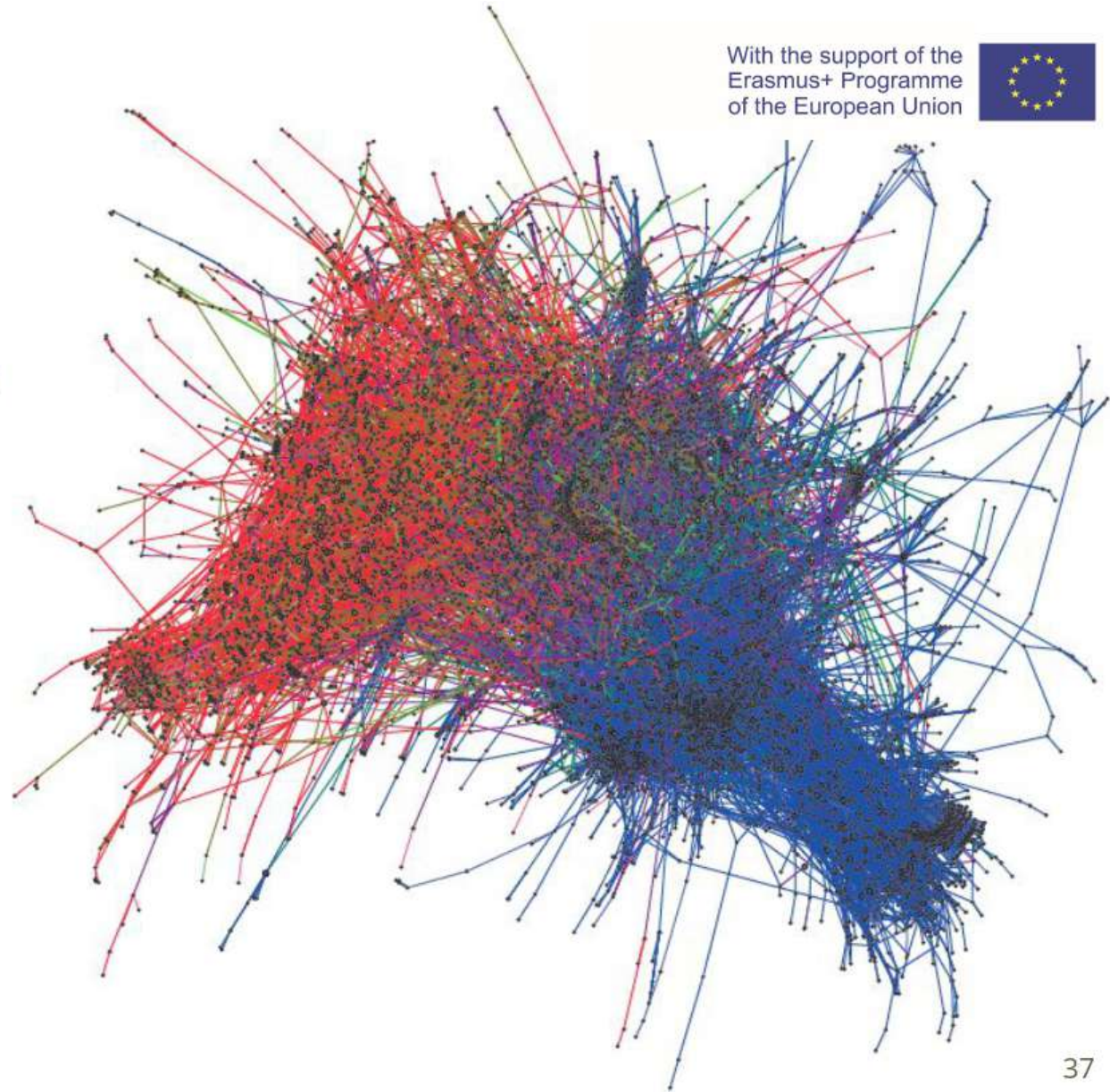
POWERS

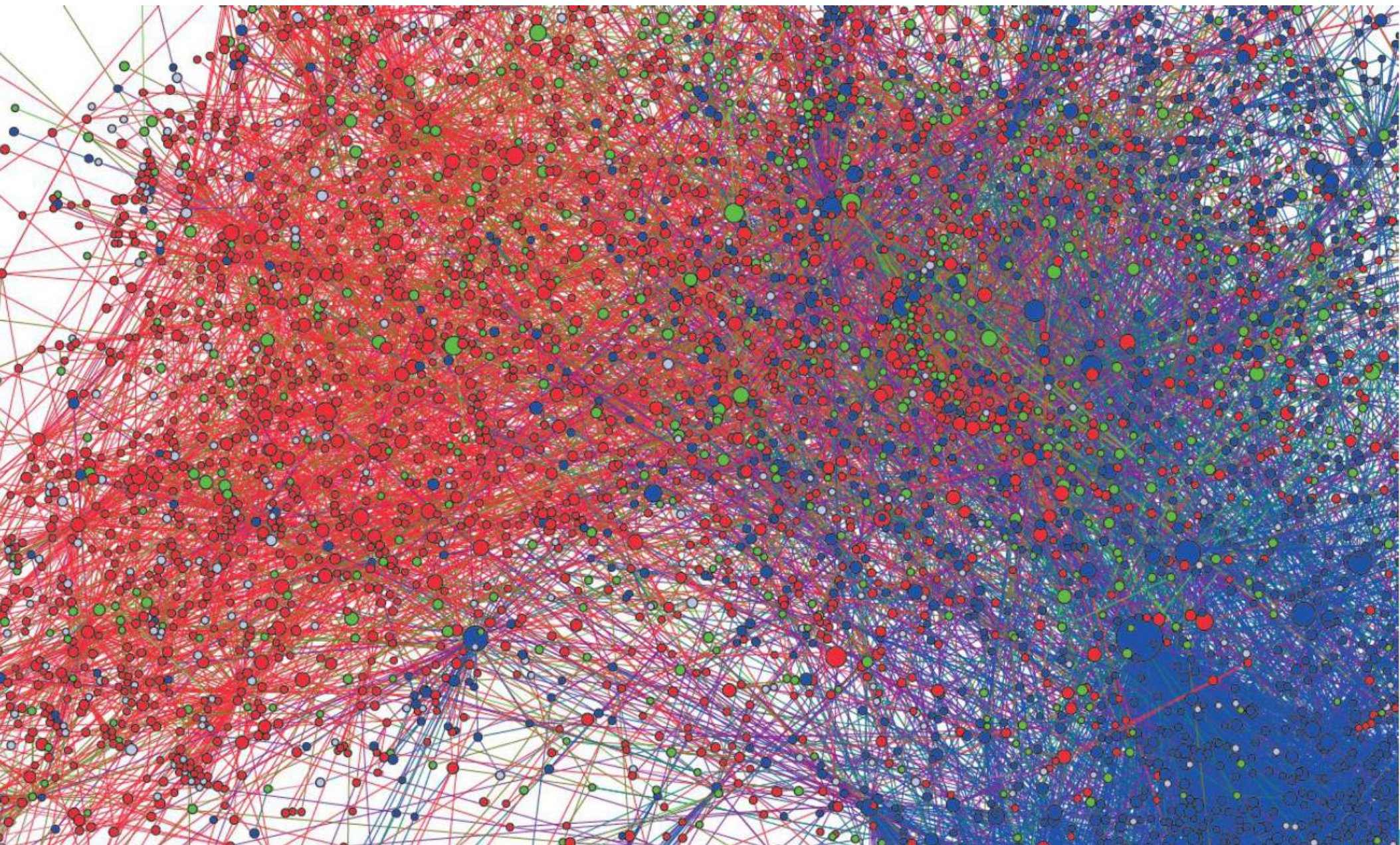


Case 3

What about this?

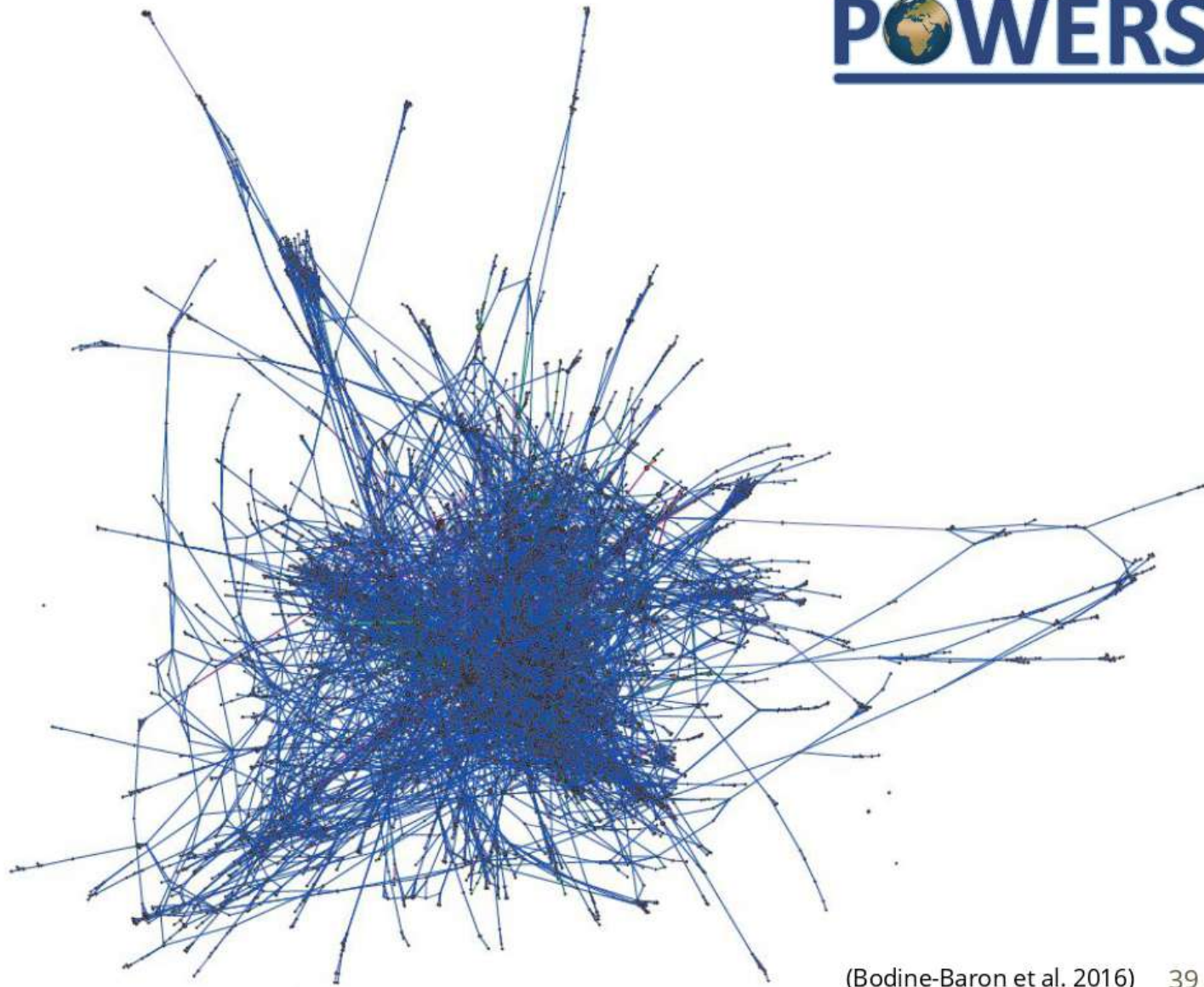
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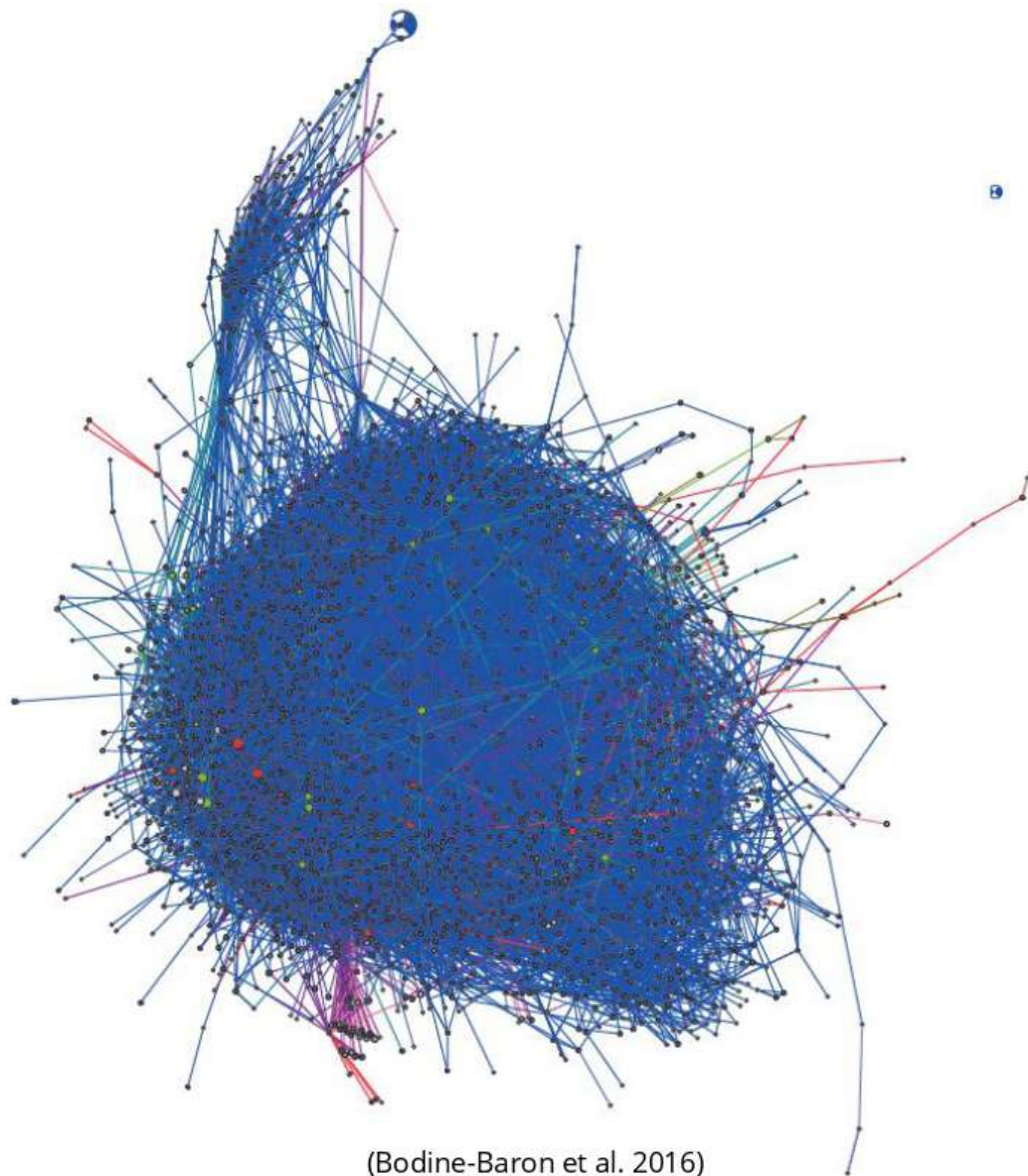




Tunisian community



Libyan community



(Bodine-Baron et al. 2016)

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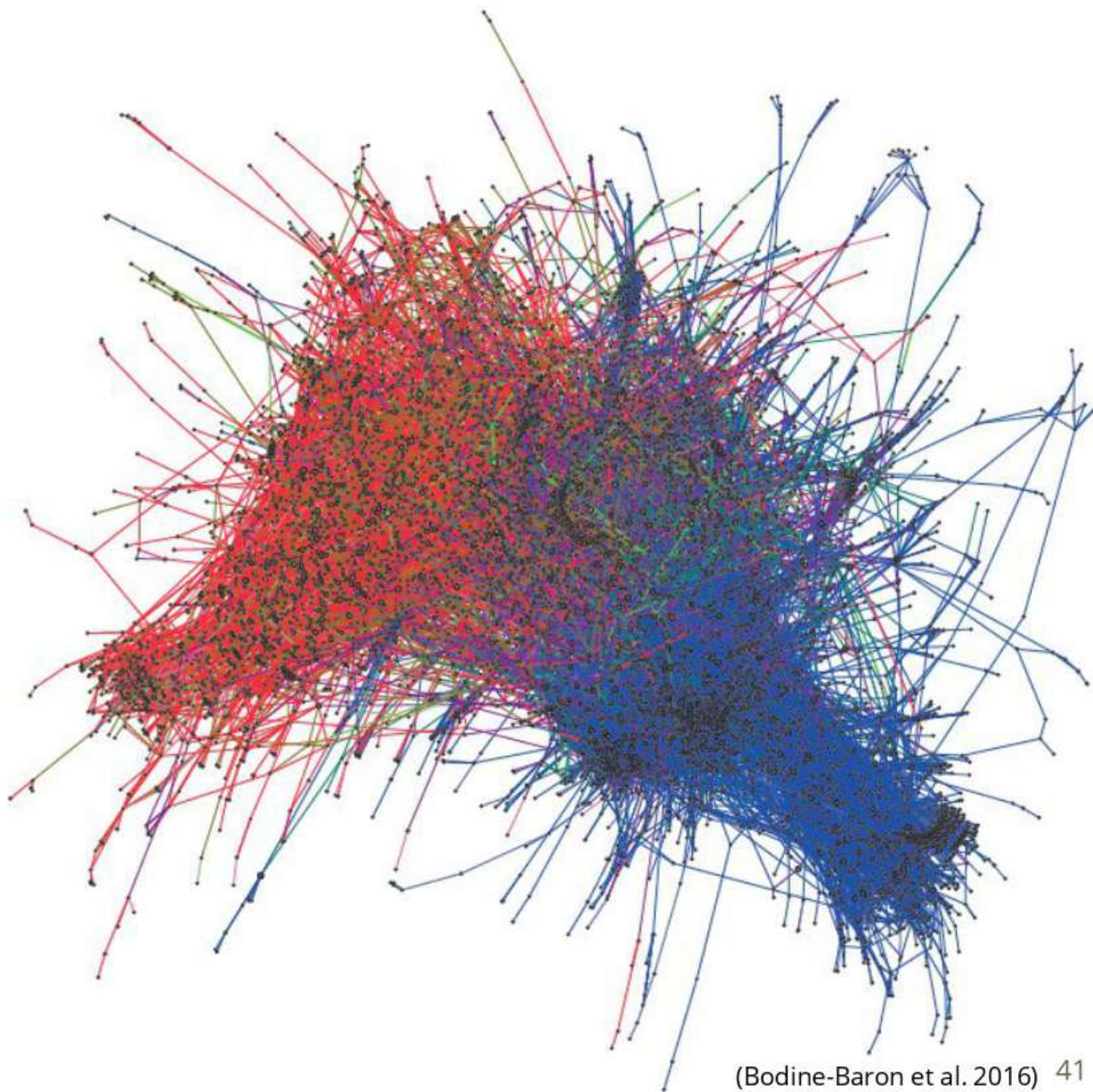
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Yemeni community





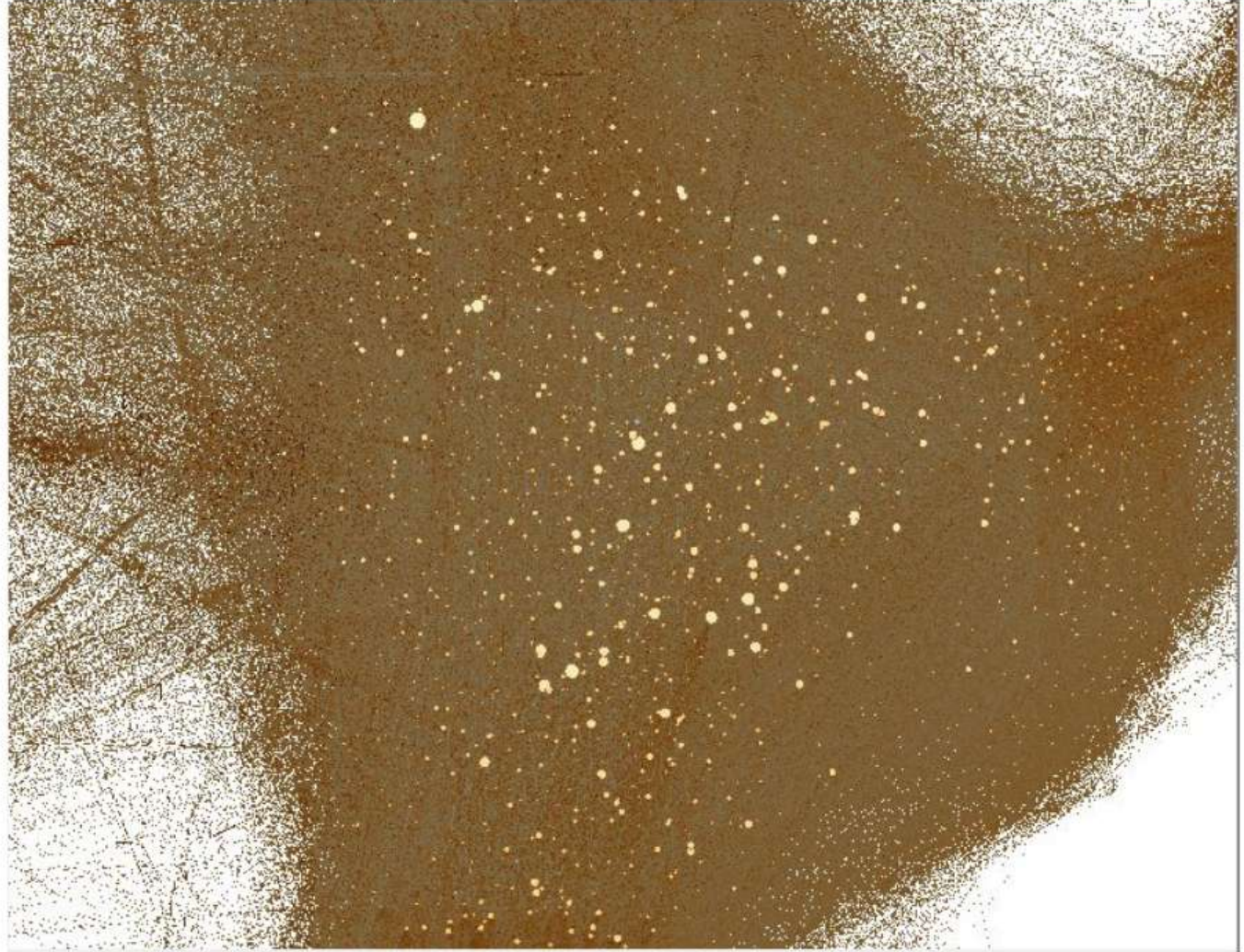
Lessons

1. Extremism support might be visualised geographically
2. Propaganda spreadness can be interrupted also at distinct levels
3. Interventions can occur at online and offline levels
4. Not-affiliated actors might play a role
5. Counter-violent policies can be targeted and more efficiently implemented
6. Online recruitment might be traced and prevented



Antimafia movement

(Ruisi 2014)





Antimafia movement in local elections

(Ruisi 2014)

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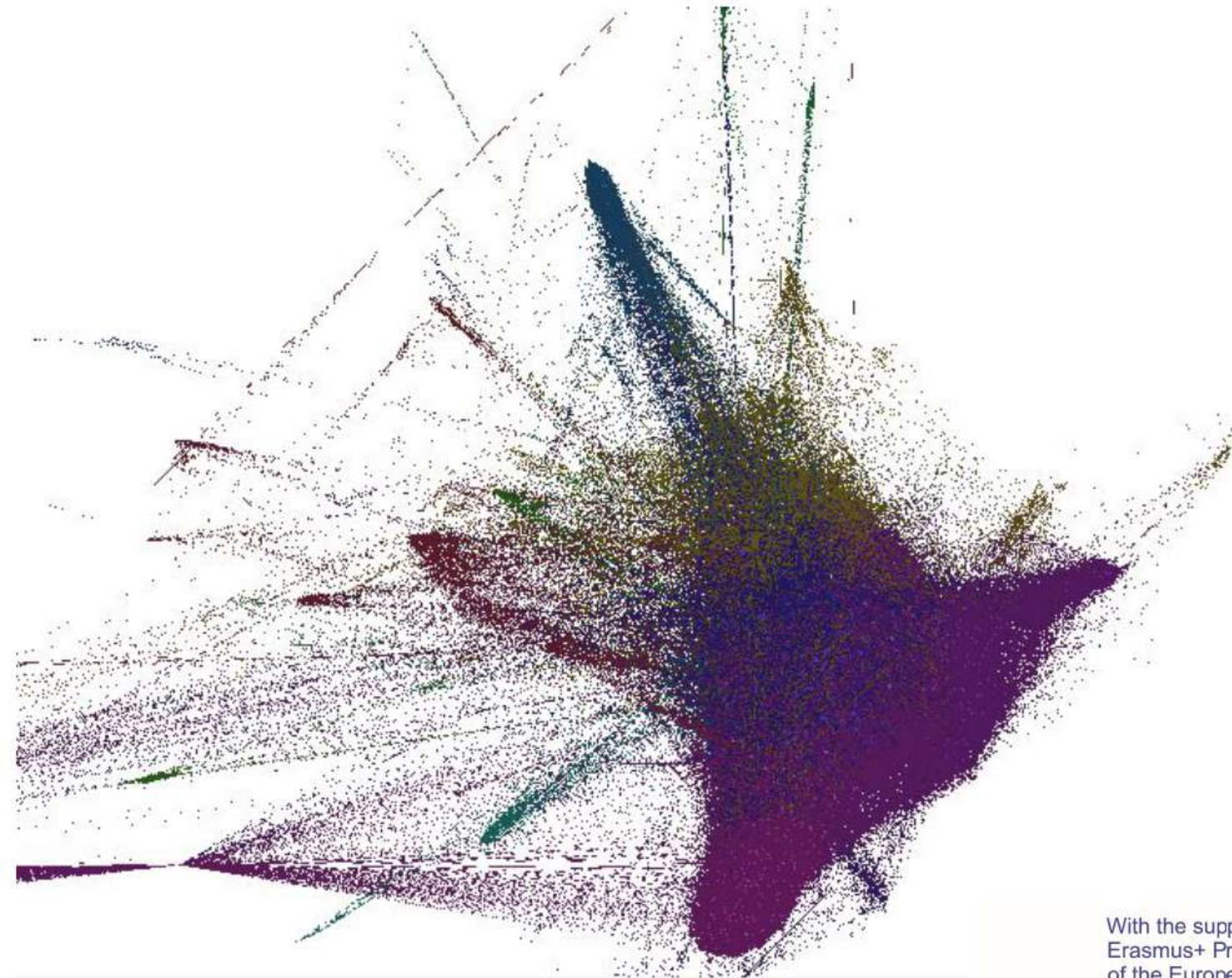
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A (whole?) town!

(Ruisi 2014)



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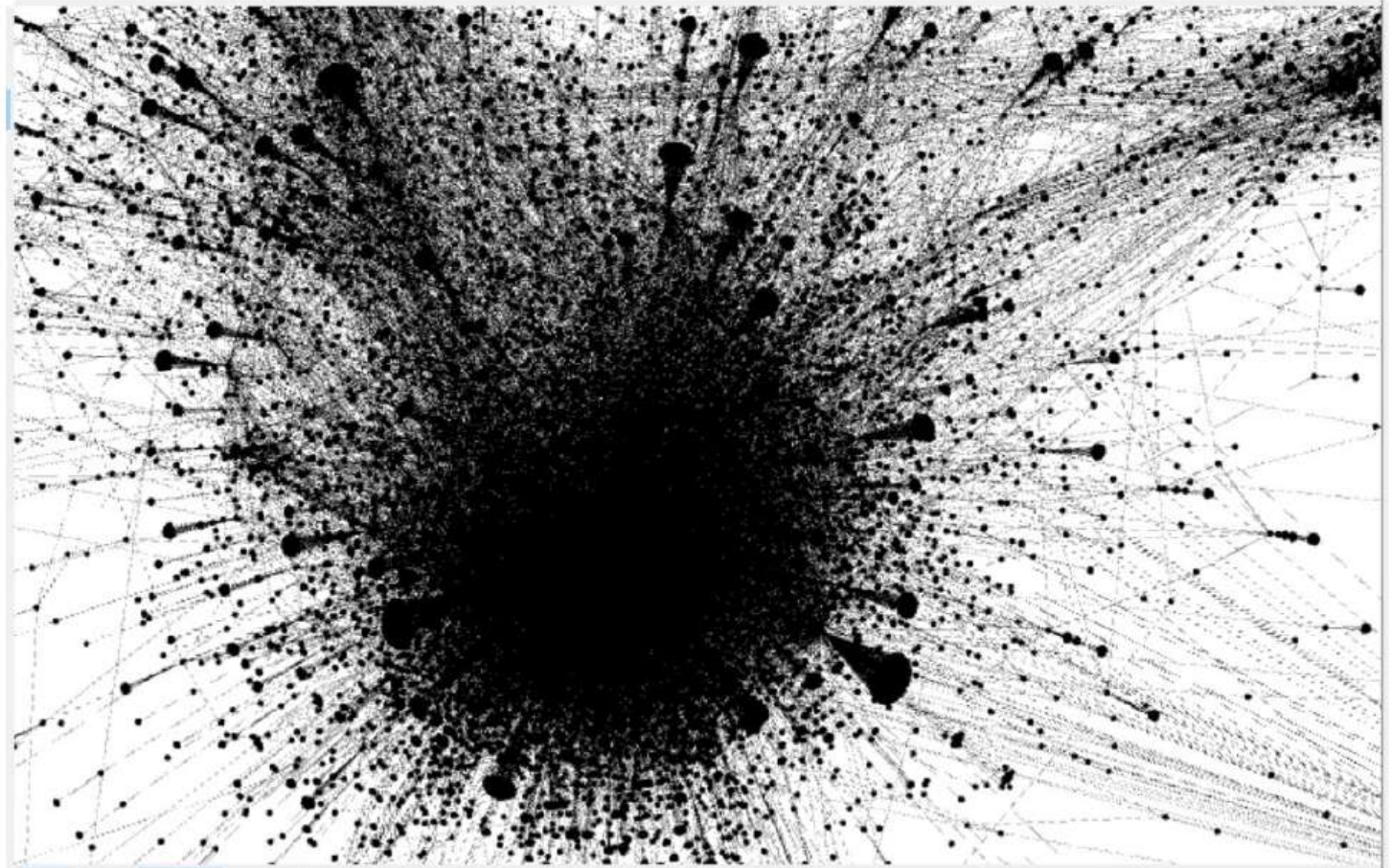
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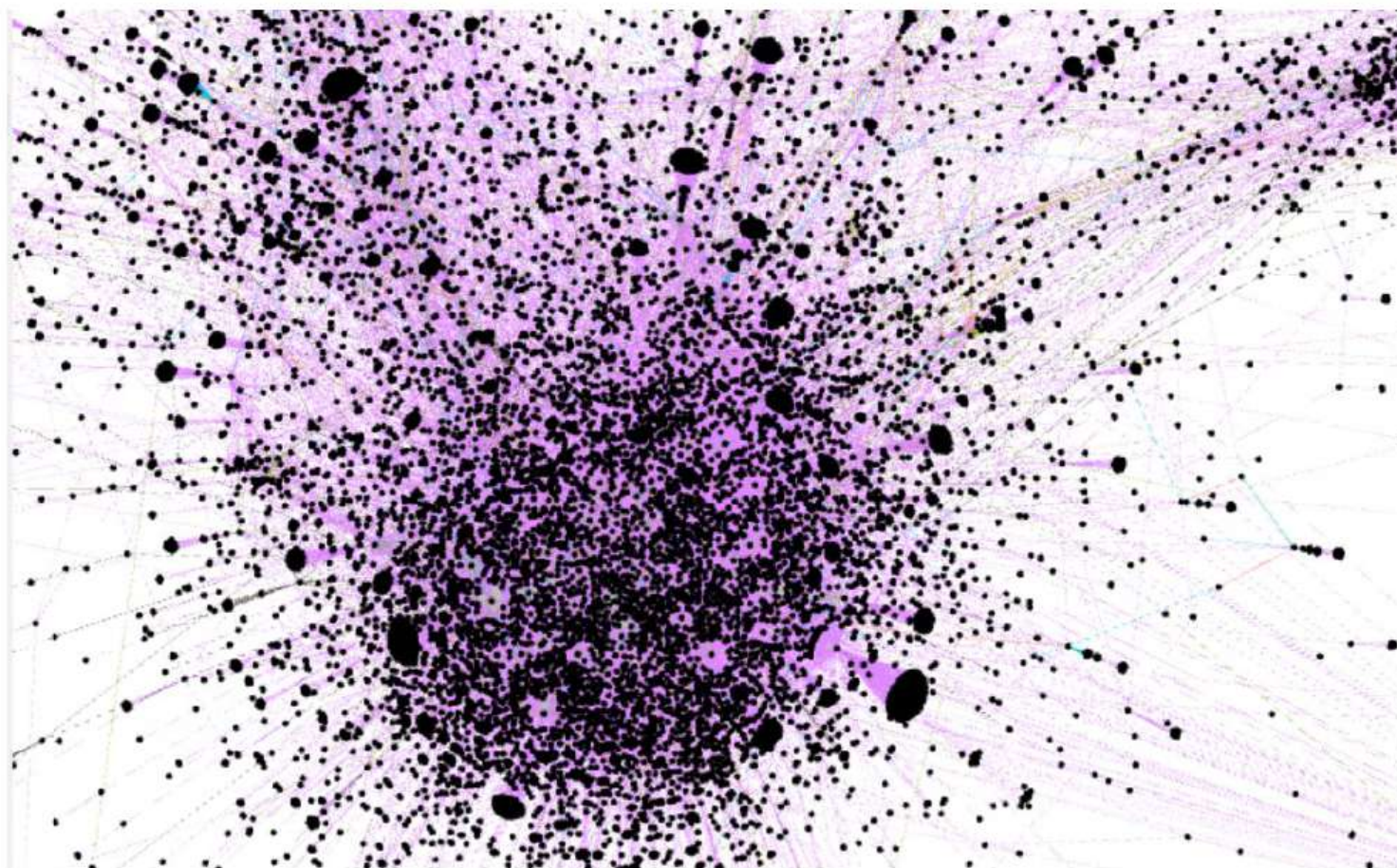
Organizations
recruitment as a
..contagious
phenomenon

Tweets and Terrorist attack

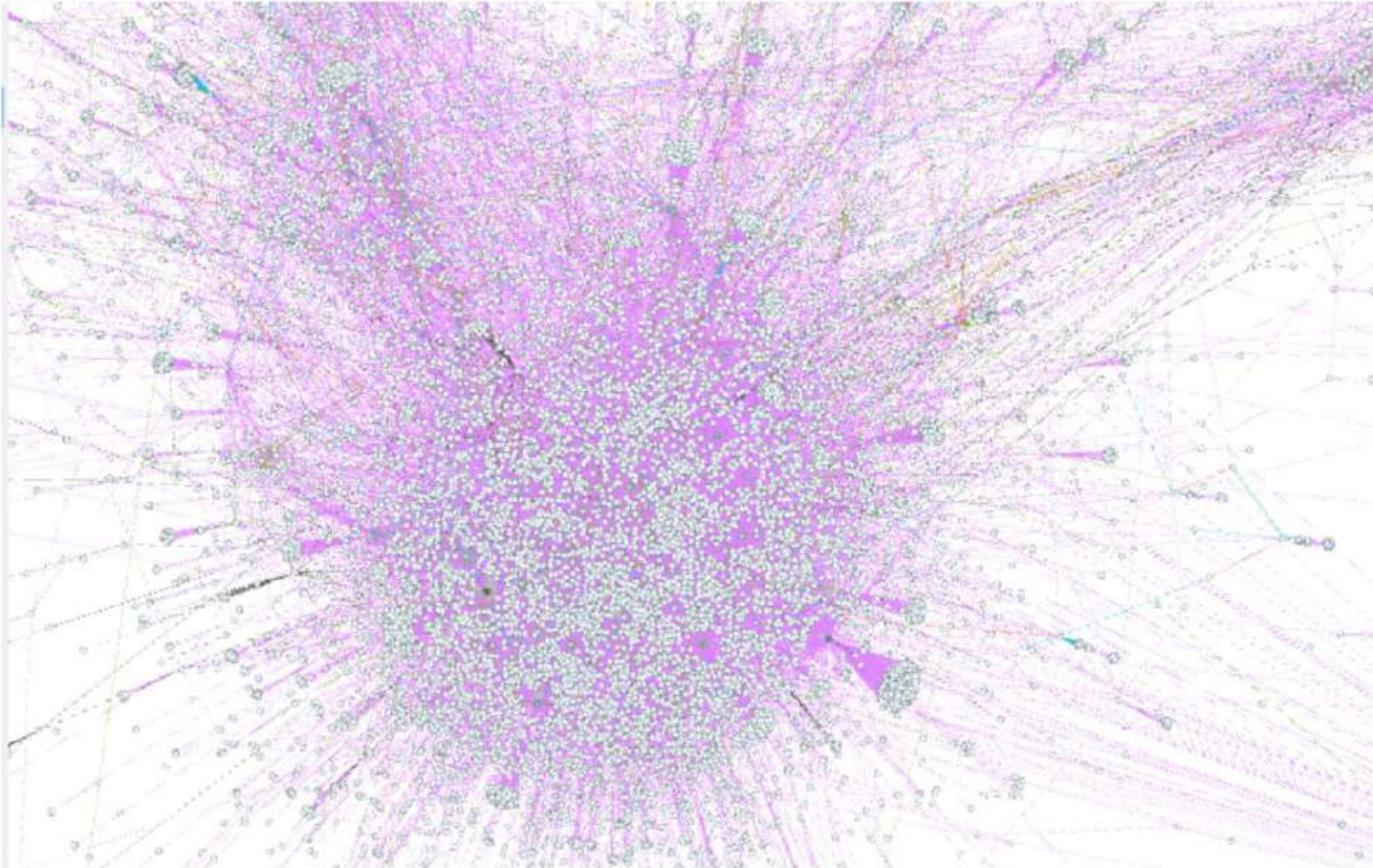


Tweets and Terrorist attack

retweet		
1	(86,07%)	
2	(7,57%)	
3	(2,59%)	
null	(1,51%)	
4	(0,96%)	
5	(0,49%)	
6	(0,22%)	
7	(0,16%)	



Tweets communities: strong or weak?



Weak 433
Strong 22147

What can this tell us?
Which routes can be
opened?



Policy implications

1. Monitor propaganda online
2. Trace ideology spreadness
3. Individuate communities (agents performing online)
4. Reflect offline networks when applicable
5. Implement counter-propaganda policies efficiently
6. Counter online recruitment

Limitations and issues

1. Sensitive data
2. Ambiguity (negative ties?)
3. Privacy of citizens
4. Ethics (know through others)
5. Cyberspace and International Law
6. Role of private actors (i.e. Facebook, Google, Twitter)
7. Triangulation



Applications in security studies

1. Violent extremism
2. International criminal linkages beyond borders
3. Terrorists networks (transboundary)
4. Defence strategy
5. Counter propaganda
6. Counter recruitment



Key lessons learn

1. Diffusion of objects within networks is independent of the content
2. “Spreadinness” appears to be a structural property
3. Agency is embedded within structure (meso-dimension)
4. Hubs are core-actors in the network for resilience
5. Connectors play a key role in the diffusion

Benefits of such methods/1

1. Study networks at structural levels
2. Understanding resilience
3. Scenario analysis (how networks can develop)
4. Predicting modelling (how networks can spread)
5. Targeted counter policies (key vulnerabilities)



Benefits of such methods/2

1. Comprehending fields of actions
2. Combine transboundary approaches to fight extremists networks
3. Understand successfulness of propaganda
4. Monitor communication and organisational strategies
5. Online data have been exacerbated by COVID-19

Methods in COVID-19 era

1. COVID-19 paradoxically offered the possibility to faster the use of the digital methods
2. Security stakeholders can invest more on digital methods
3. Security studies could use much more SNA and big data
4. Networks representation can be more reliable ("representation" of their structural networks)



Thank You

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Question Time

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