

The background of the slide is a dark gray with a complex, abstract network pattern. This pattern consists of numerous small black dots (nodes) connected by thin, light gray lines (edges), creating a web-like structure that fills the entire frame. The density of the connections varies, with some areas appearing more clustered than others.

# Social Networks in Social Science Research: Theory and Practice

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28.02.2024

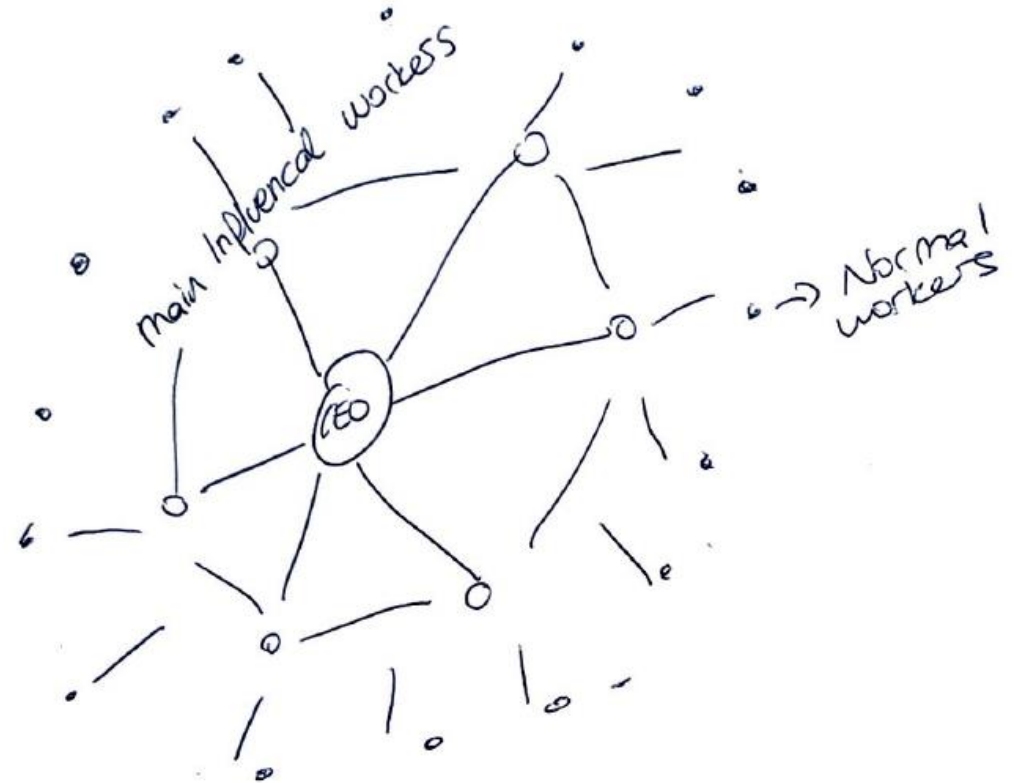
# Session 3

1. Scenarios from last session
2. Article presentation: Social Capital in Europe
3. Text discussion
4. Next session

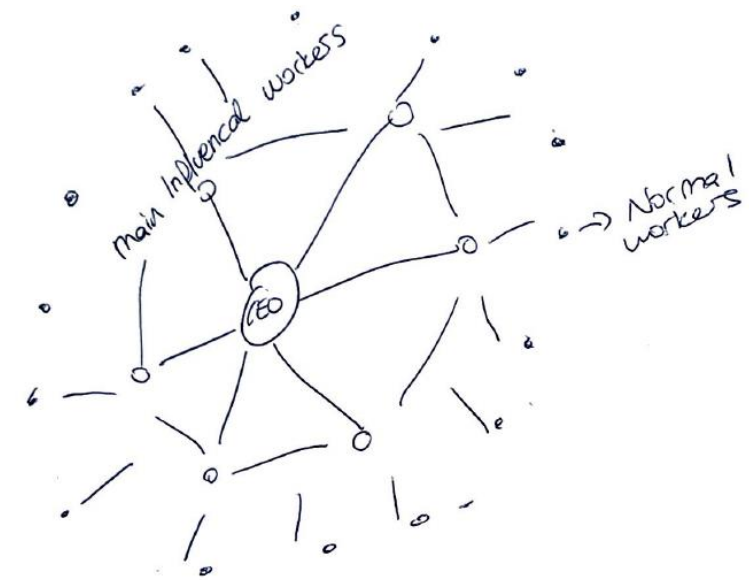
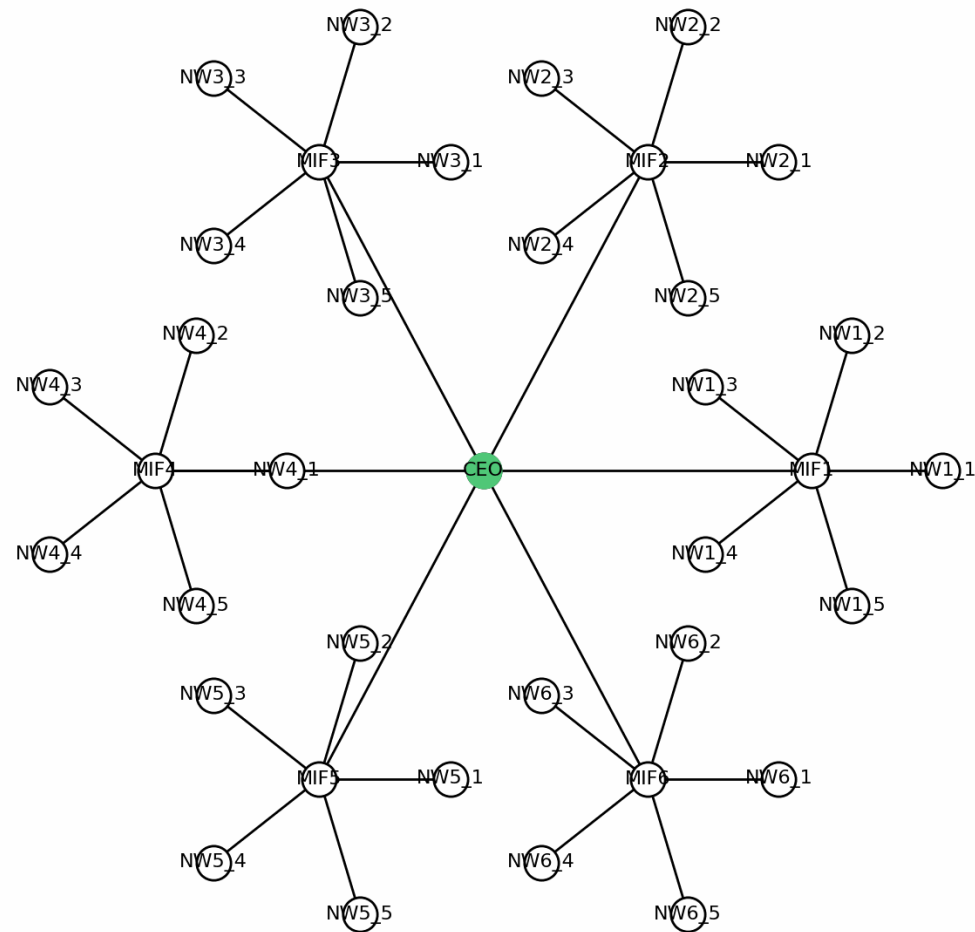
# Scenario 1

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- A company wants to implement a new filing protocol for its workers. The employees are reluctant to use the new system. How to best implement this innovation?



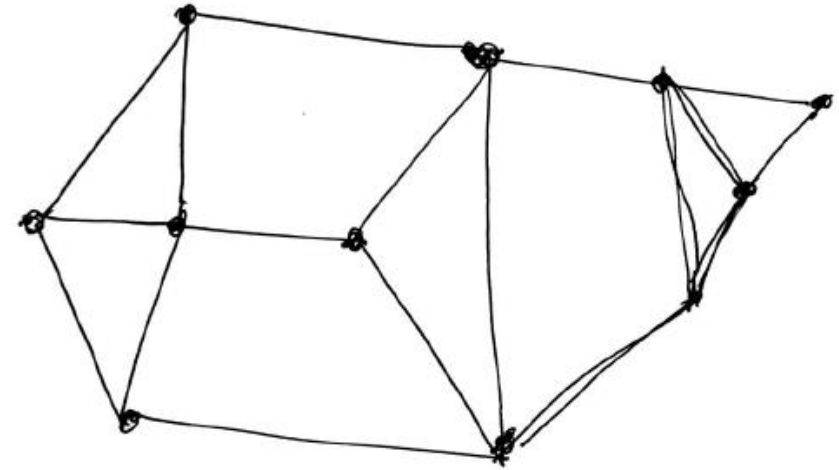
# Innovation diffusion simulation



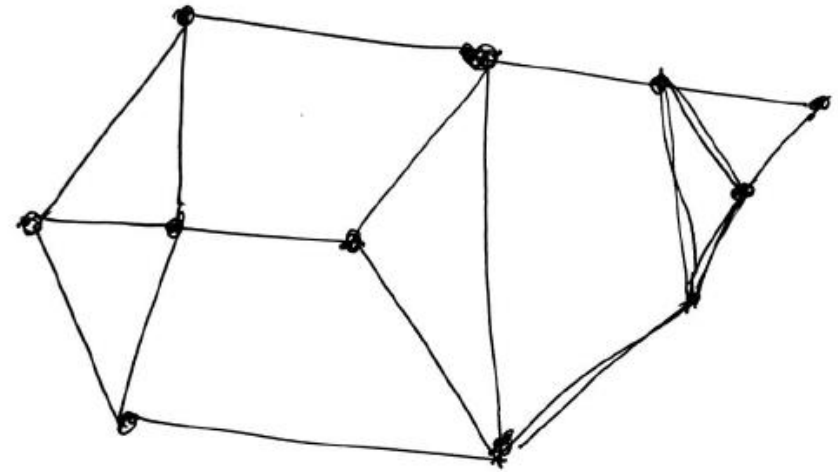
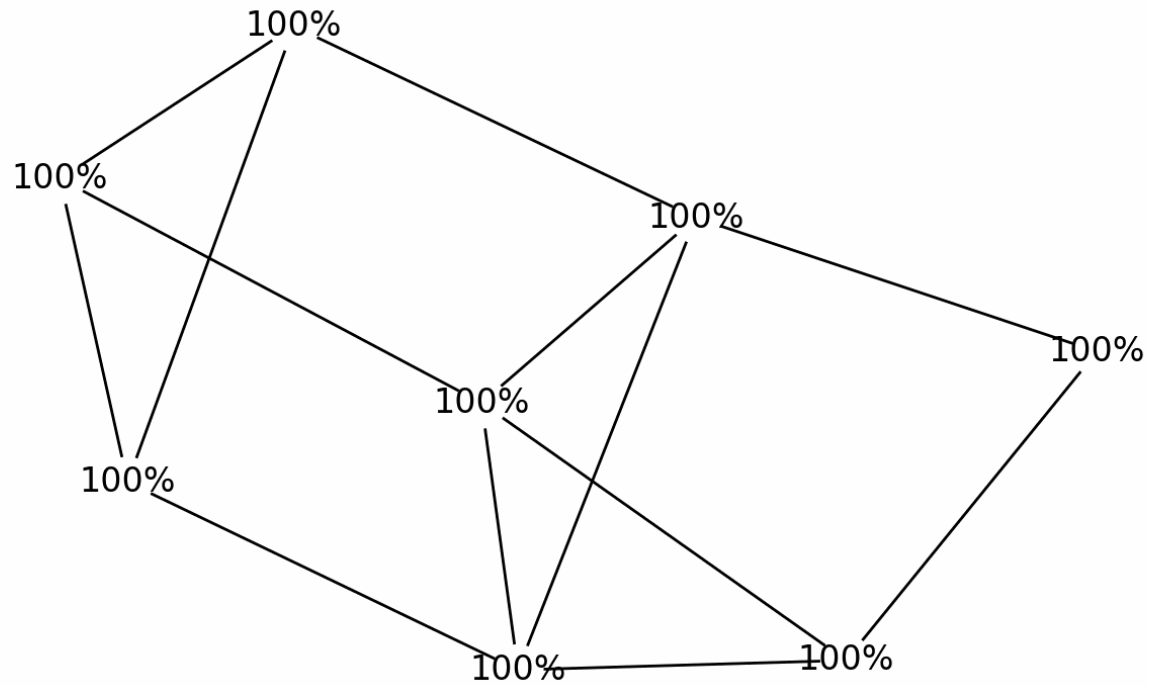
# Scenario 2

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- There is a tool-sharing program within a neighborhood. How to make it effective?



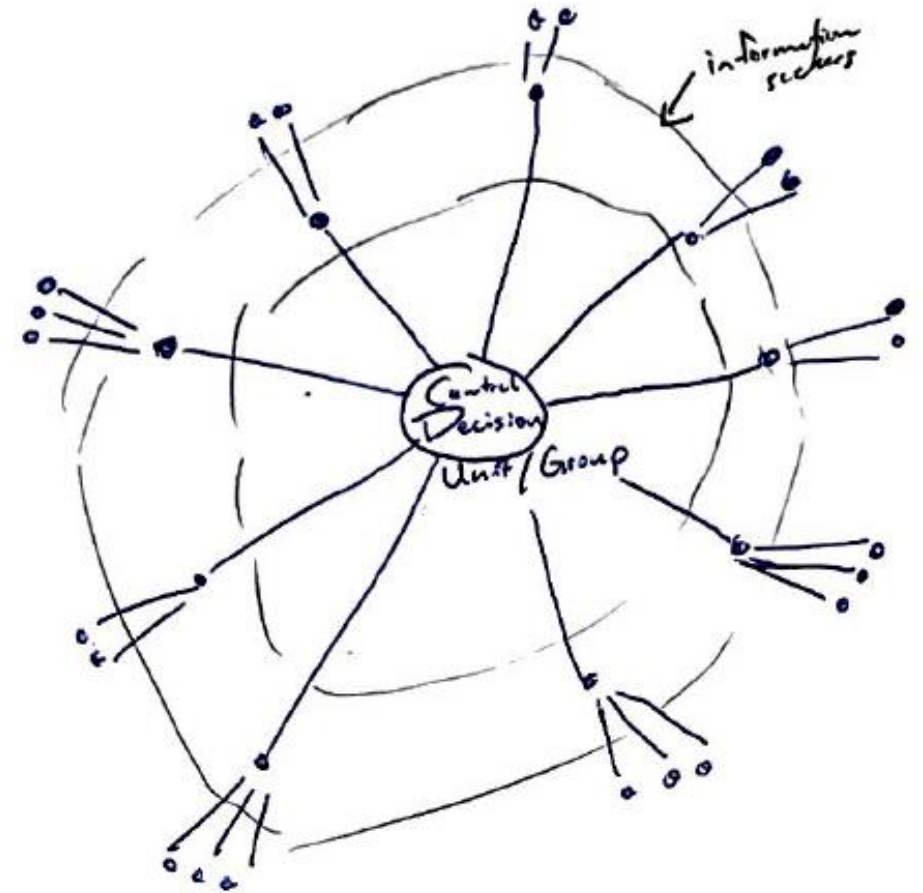
## Reputation system simulation



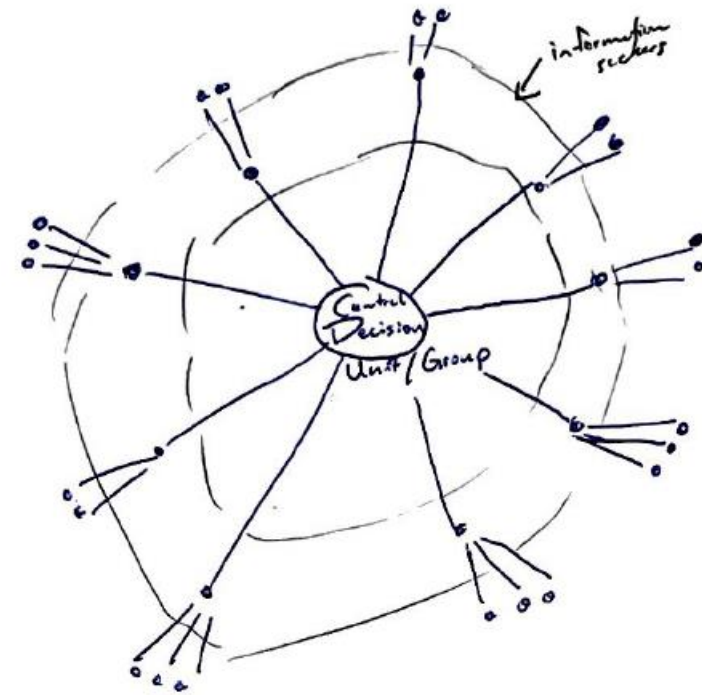
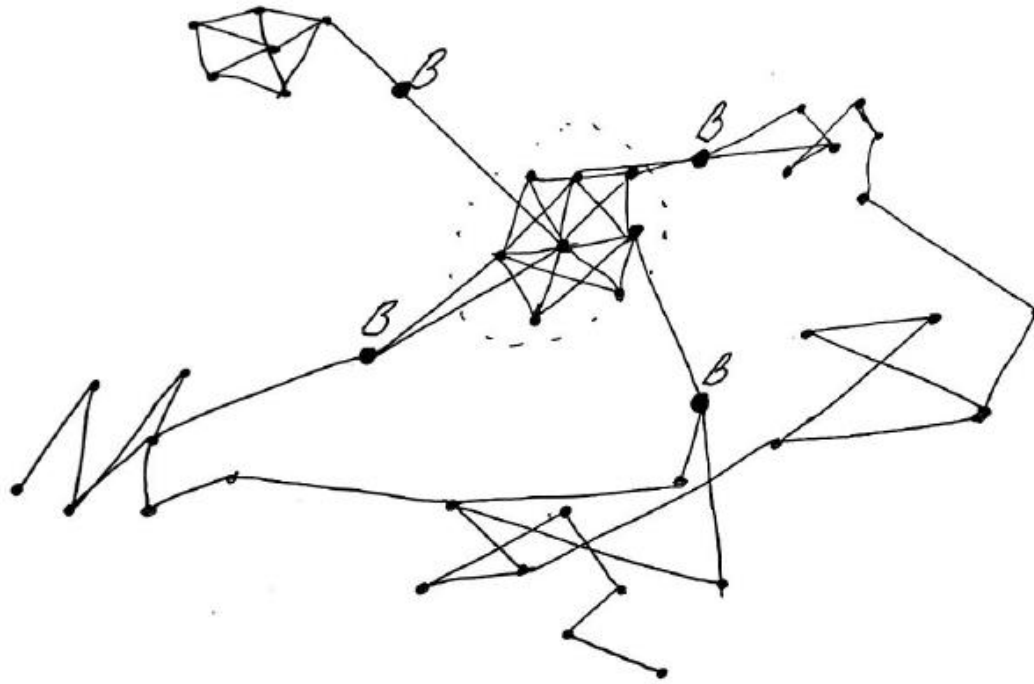
# Scenario 3

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- A venture capital firm is looking for new start-ups to invest into that will be 'a real deal'. What can help them in doing it?



My version

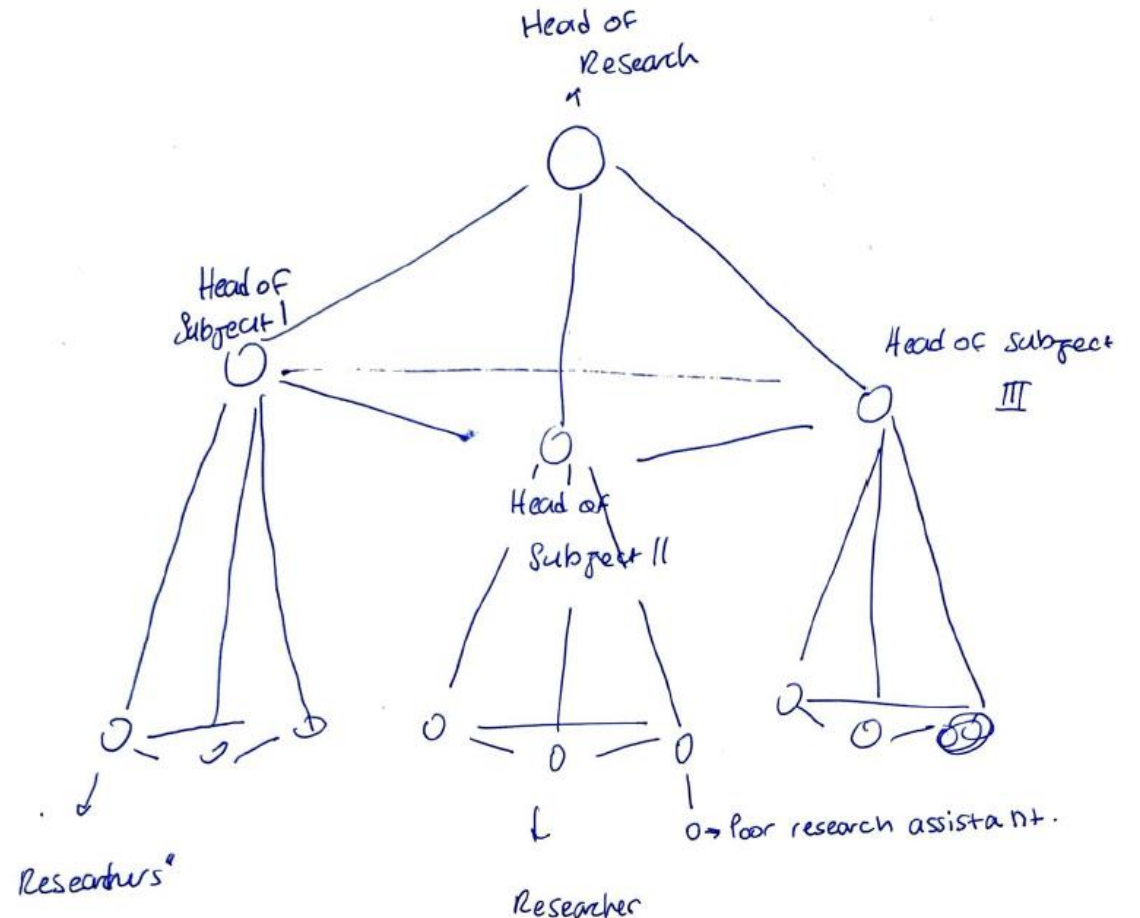




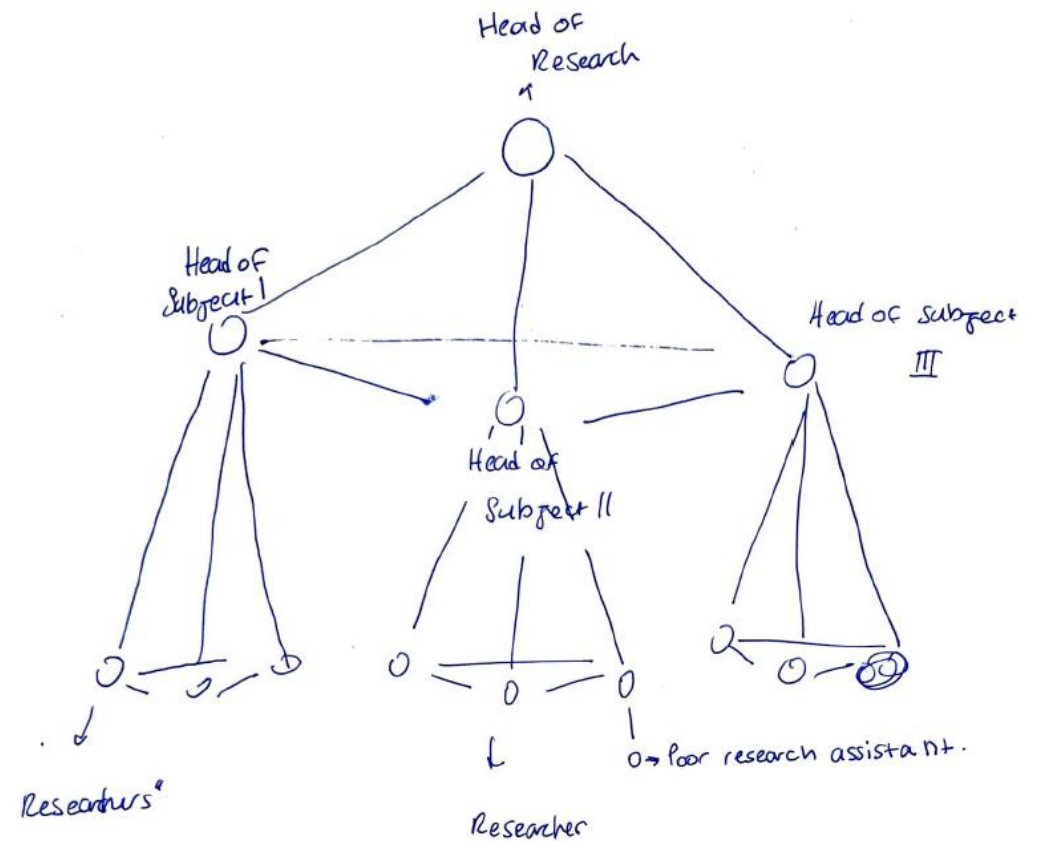
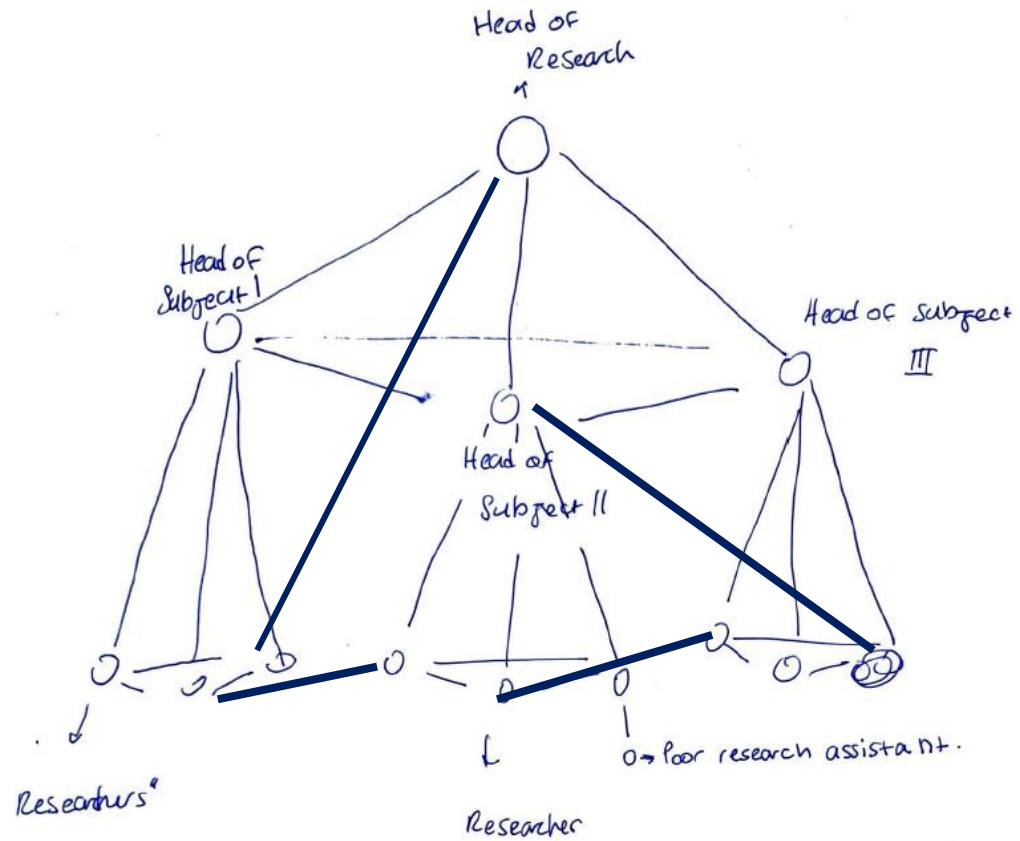
# Scenario 4

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- There is a highly multidisciplinary research team that is working on a project. The scientists have very different backgrounds and expertise. How to enhance this collaboration?



## My version



# Article presentation

Pichler, F., & Wallace, C. (2009). Social capital and social class in Europe: The role of social networks in social stratification. *European Sociological Review*, 25(3), 319-332.

# Reading for today

Burt, R. S. (2017). Structural holes versus network closure as social capital. *Social capital*, 31-56.

# Network constraint index (Burt 1992)

Calculated based on the following elements:

- Direct Ties: The strength of the direct ties an individual  $i$  has with others in the network.
- Indirect Ties: The strength of the indirect ties between  $i$  and other individuals through a mutual contact.
- Redundancy: The extent to which  $i$ 's contacts are connected to each other, increasing redundancy and thus constraint.

$$C_i = \sum_j (p_{ij} + \sum_q p_{iq} p_{qi})^2$$

Where:

- $p_{ij}$  is the proportion of P's total ties that is directly allocated to contact  $j$ .
- $p_{iq}p_{qj}$  represents the indirect paths from P to  $j$  through  $q$ .

# Everyone wants to be a broker

Buskens, V., & Van de Rijt, A. (2008). Dynamics of networks if everyone strives for structural holes. *American Journal of Sociology*, 114(2), 371-407.

- Burt: social capital is subject to strategic tie formation. But the more people follow strategic motivations, the less benefits are to be reaped. Networks will stabilize with position diversity.
- Buskens & Van de Rijt: when everyone strives to be in a broker position, networks eventually stabilize, but no one benefits more than others.

# Alternative measurements of brokerage

- Betweenness centrality
- Eigenvector centrality
- Reachability
- Contact diversity
- ...

# Network closure

Two mechanisms of network closure:

- Information sharing
- Norm enforcement

**Only in small communities?**

Diekmann, A., Jann, B., Przepiorka, W., & Wehrli, S. (2014). Reputation formation and the evolution of cooperation in anonymous online markets. *American sociological review*, 79(1), 65-85.



The background of the image is a dense, out-of-focus field of light-colored wooden question marks. The marks are scattered across the entire frame, creating a textured, repetitive pattern. The lighting is soft and even, highlighting the natural grain of the wood.

Questions?

## **Final task:**

Convince each other you are a good addition to their social capital.

You can rely on the following mechanisms:

- 1) Transitivity (“my friend’s friend is my friend”)
- 2) Closure (your community membership)
- 3) Brokerage (your network position)
- 4) Homophily (“birds of a feather...”)
- 5) Resource accumulation (material, skills, information, etc.)

...

# Next session:

## Firm and Organization Networks

- Mandatory reading:

Uzzi, B. (1999). Embeddedness in the making of financial capital: How social relations and networks benefit firms seeking financing. *American sociological review*, 481-505.

- Article presentation:

\*Muscillo, A., Pin, P., Razzolini, T., & Serti, F. (2023). Does “network closure” beef up firms’ performance? *Social Networks*, 73, 89-103.

See you next week!