

# The Problem of Creating Sociotechnical Teams

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# Question

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- The way work teams are created can increase the productivity of a company?



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- The way work teams are created can increase the productivity of a company?
  - If yes, which is the best way to divide work teams?
    - Which are the factors influencing productivity of work teams?

# Factors (#1)

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- Professional profile of the team members:
  - Which work team is the best to project one software?
    - Team 1:
      - 1 Project Manager;
      - 1 Database Administrator;
      - 4 Programmers;
    - Team 2:
      - 4 Database Administrators;
      - 1 Project Manager;

# Factors (#2)

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- **The relationship between team members:**
  
- This can be:
  - Positive
    - Team members who have a good relationship;
  - Negative
    - Team members who have a bad relationship;
  - Indifferent
    - Team members who do not know;

# Factors (#3)

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## □ Emotional :

- Emotional state of the team members;
- Statistically speaking, we're talking about an uncontrollable variable;

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Creating teams using professional  
and social factors

# The Sociotechnical System

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## The Theory of the Sociotechnical System (Trist, 1981)

- Social System
- Technical System



# The Study of Social System

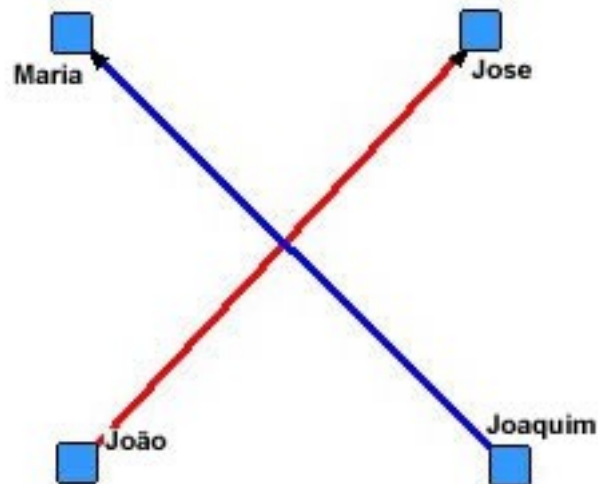
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- Sociometry is a quantitative method for measuring social relationships.
  - It was developed by psychotherapist Jacob Moreno;

# The Study of Social System

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- **Sociogram**: indicates the relationship of team members through a graph;



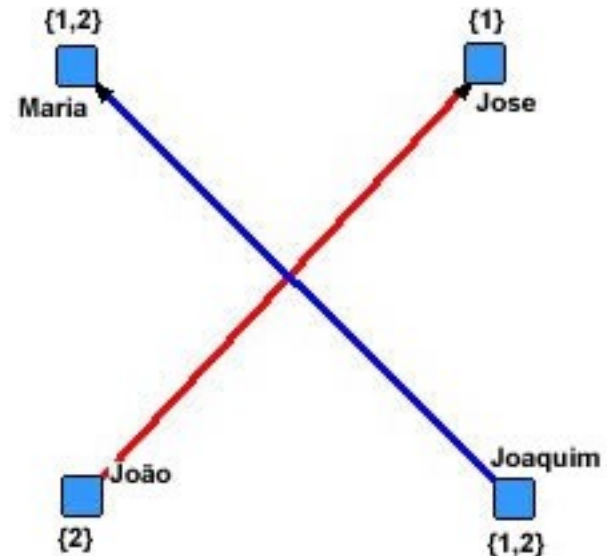
# The Study of Technical System

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- The professional information can be added to the vertices of the graph
- A person can have multiple skills;

Maria is:

- Java Programmer (skill 1)
- C Programmer (skill 2)



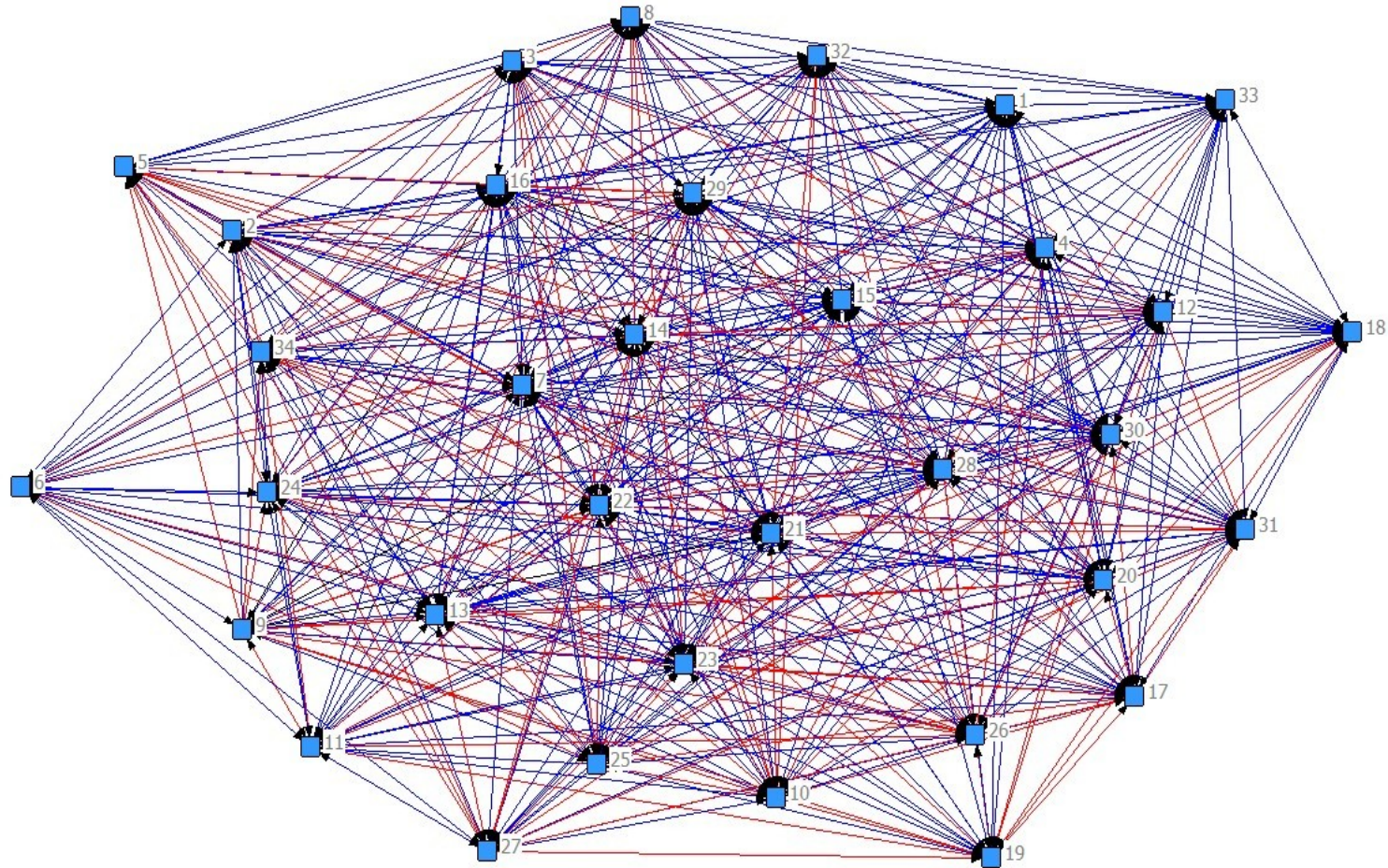
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- **Definition:** Find  $k$  work teams that have the demanded “skills” and only good and indifferent relationships;
  - This problem is NP-hard;

# Instance of a Brazilian Company

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- Work being performed...
  - We are studying mathematical formulations of the problem;
  - For example, formulation using representatives;

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## References

MORENO, Jacob L. Who Shall Survive?  
Foundations of Sociometry, Group  
Psychotherapy and Sociodrama. 2005.

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Thank you!