EuroMCM Sample Problem λ : The Round Table

Painting by Évrard d'Espinques

1 Background

The Council for European Recovery & Emergency Support (CERES) is a hypothetical multinational charitable organisation. The organisation manages the distribution of an annual emergency fund, roughly €500 million, across diverse operational regions that include both mainland Europe and overseas territories of the European Union. Each territory is assigned a Regional Delegate who holds in-depth, confidential information regarding local crises, yet these Delegates often remain unaware of the challenges faced by their colleagues in distant areas. In the past, CERES allocated resources using fixed formulas that failed to reflect the dynamic nature of on-the-ground situations. To enhance the quality of decision-making, CERES introduced a round table discussion, a series of meetings where Delegates present their cases, critically evaluate one another, and negotiate the distribution of resources.

The structure of the meeting fundamentally affects the negotiating dynamics. CERES aims to rely on a mathematical and statistical methodology for the design of these encounters, so as to ensure that collective utility is reflected in these interactions, instead of being driven merely by rhetoric. Thus, a delegate from the Canaries, for example, may remain unaware of the urgent need created by a heatwave in the Balkans and may therefore inadvertently contribute to a misallocation of resources. Studies of critical decision-making circumstances reveal that such meetings are prone to two risks: first, shared information bias, whereby participants give precedence to information that is commonly held among them; and second, strategic misrepresentation, whereby individuals influence outcomes by deliberately inflating or understating their true needs.

2 Requirements

Your team acts as the chief process architects for CERES. Your goal is not to choose the winners, but to design the meeting mechanism that produces the most optimal and stable outcomes. Specifically, you should:

- Develop a system that simulates the interaction between distinct Regional Delegates. Your model must define the profile of each participant (including their private information, negotiation style,

and risk tolerance) and the rules for how they exchange information (e.g., qualitative justifications vs. quantitative data) within a meeting environment.

- Use your model to simulate and analyse the efficacy of different meeting protocols with batch testing. You must compare at least three distinct mechanisms, such as:
  1. A single round of comprehensive presentations followed by immediate allocation;
  2. Multiple rounds where information is progressively disclosed, and tentative allocations are adjusted based on peer feedback;
  3. A mechanism where information is submitted privately to a central mediator before public discussion.

- Define a mathematical or statistical framework to evaluate the success of a meeting beyond simple resource utilisation. Does the final allocation logically follow the arguments presented?

- Investigate the robustness of your chosen meeting protocol. Discuss:
  1. What happens if specific participants systematically overestimate their needs?
  2. How does the system respond if critical information is delayed or withheld until the final round?
  3. Can the protocol detect "Narrative Drift," where a Delegate's final demands subtly contradict their initial opening statement made in early rounds?
  4. Does increasing the number of meeting rounds yield diminishing returns or introduce "meeting fatigue"?

3 Share Your Insights

Provide a one-page non-technical recommendation memo to the CERES Board of Directors. Summarise which meeting structure yields the highest return on investment for humanity and explain how your model mitigates the risk of human (or systemic) bias.

4 Submission

Your PDF solution (≤25 pages) should include:

- One-page Summary Sheet
- Table of Contents
- Complete Solution
- One-page Memo
- References
- Report on Use of AI Tools (if applicable; excluded from the 25-page limit)

There is no mandatory minimum length. Teams may submit incomplete solutions. The use of AI tools is allowed but optional; compliance with EuroMCM AI usage policy is required.

5 Links

Do We Really Need Another Meeting? The Science of Workplace Meetings

Meetings at work: Perceived effectiveness and recommended improvements

A Game Theoretic Approach to the Pragmatics of Debate: An Expository Note

Generative Agents: Interactive Simulacra of Human Behavior

CAMEL: Communicative Agents for "Mind" Exploration of Large Language Model Society

MALLM: Multi-Agent Large Language Models Framework

Survey on Evaluation of LLM-based Agents

6 Glossary

Regional Delegate: An autonomous representative of a region, possessing private information about local needs and acting to maximise their region's allocation while maintaining organisational standing.

Narrative Drift: A phenomenon in storytelling in which the plot of the story deviates from its apparent initial direction.

Meeting Fatigue: Mental and physical exhaustion from excessive, poorly run, or back-to-back meetings.