

# Designing LLM driven tools to support collaboration in complex multi-stakeholder systems

The world is grappling with increasingly complex challenges, from global issues like climate change to local concerns such as rising asthma rates in communities near industrial zones. Tackling these problems requires collaboration between stakeholders across different domains, resulting in highly intricate, multi-stakeholder systems. These complex collaborations introduce unique challenges that make finding effective solutions difficult. While current design methodologies offer frameworks to support collaboration, their effectiveness diminishes as complexity grows, highlighting the urgent need for new, adaptive tools.

This poster shows different examples of how tool that use the unique strengths of Large Language Models can be employed to help improve the collaborative capabilities of multi-stakeholder teams working on complex problems.

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## POWER STRUCTURES

"You're working with a diverse group of stakeholders, and as complexity grows, power dynamics begin to surface between them. Specifically, in an attempt to manage the complexity, stronger hierarchical structures begin to emerge. This can lead to certain voices dominating the conversation, while others risk being overlooked. As a result, collaboration becomes less balanced."

### PROBLEM



The tool is provided with information on ethics and bias

- Information collected from documentation on decision bias and ethics in collaboration
- Analyzing case studies can offer valuable insights that help the tool enhance collaboration strategies and practices.
- Stakeholders can be invited to share their preferred collaboration styles and ideal team structures.

Data Sources

- Create a database with guidelines
- Document biases and ethical considerations
- Provide instruction on how to handle these cases



### SOLUTION



### IMPROVE



As meetings progress, this data becomes increasingly refined, with transcripts from each session enriching the database and making it more tailored to the specific project or assignment.



The tool can be used during meetings to improve relations, reduce hierarchy and promote productive power structures.

Equitable participation can be encouraged by allowing the tool to manage speaking turns.

Conflicts or hostile behavior can be flagged, and alternative approaches can be suggested.

Bias in both discussions and decision-making can be identified and brought to attention.

Positive and negative collaboration patterns can be identified and leveraged to improve future meetings.



## VALUE ALIGNMENT

"You're tackling a complex problem alongside a diverse group of stakeholders, who all want to help solve it. However, beneath the surface, things are far more nuanced. Each stakeholder brings their own values, priorities, and motivations to the table. Managing all this information and keeping everyone aligned is a significant challenge."

### PROBLEM



The tool is provided with information about each stakeholder



Information extracted from documents that stakeholders have shared prior to the meeting.



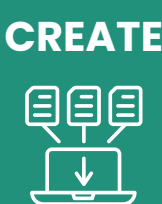
Publicly available information found online, such as websites, press releases, or reports.



Structured information can be collected through tools like a pre-meeting questionnaire designed to capture each stakeholder's values and goals.

Data Sources

- Create a profile for each stakeholder
- Highlight their their goals, values and interests
- Identify their strengths and weaknesses



### SOLUTION



### IMPROVE



As meetings progress, this data becomes increasingly refined, with transcripts from each session enriching the database and making it more tailored to the specific project or assignment.



The tool can be used by both the facilitator as well as other stakeholders to create a better overview of values, goals and stances from each individual stakeholder.

Provide an overview of overlapping values and goals of stakeholders involved.

Recommendations on how to approach negotiations/ collaboration with other stakeholders.

Identify possible points of conflict that might need to be addressed early on.

Identifying goals or values that may be overlooked or underrepresented in the current dialogue.



## COMMUNICATION & CERTAINTY

"You're working with a large, diverse group of people from different backgrounds and areas of expertise. They need to collaborate effectively, but they're not all speaking the same language, figuratively or literally. Additionally, the diversity of backgrounds and expertise levels makes it challenging to determine which information is most relevant and valuable to each stakeholder."

### PROBLEM



The tool is provided with information about each stakeholder



Information extracted from documents that stakeholders have shared prior to the meeting.



Publicly available information found online, such as websites, press releases, or reports.



Structured information can be collected through pre-meeting questionnaire designed to capture stakeholder backgrounds and levels of expertise.

Data Sources

- Create a profile for each stakeholder
- Highlight their background and expertise
- Identify preferred ways of communication



### SOLUTION



### IMPROVE



As meetings progress, this data becomes increasingly refined, with transcripts from each session enriching the database and making it more tailored to the specific project or assignment.



The tool can be used by both the facilitator as well as other stakeholders to improve communication between different groups and reduce uncertainty.

Information can be tailored to each individual stakeholder, highlighting key information.

Question and ambiguity can be clarified by asking the tool to help users understand the data.

Messages can be re-written to fit the recipient's context, enhancing clarity and understanding.

Identify which stakeholders might have difficulty communicating with each other.