

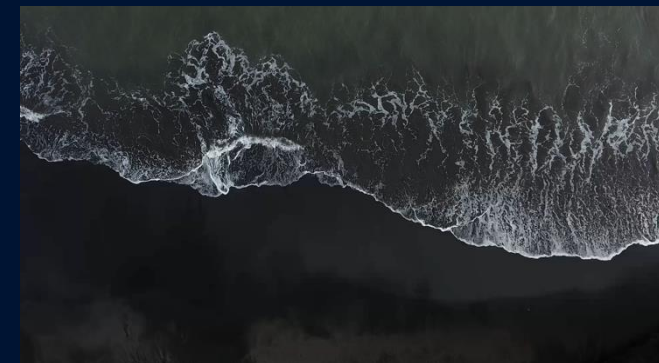
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# Hackathon Challenge Using LLM's in Policy Evaluation

## *Countries' GHG Emission Focus*

*David Dekker and Dimitris Christopoulos*  
*Edinburgh Business School*

2025





## *Hackathon Overview & Objectives*

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- **Hackathon Structure** – Three-day event on text analysis, data integration and clustering
- **Core Objectives** – Use LLMs to analyse policies and identify trends
- **Interdisciplinary Collaboration** – Researchers from STEM, policy, economics and environmental fields





- **Importance of Climate Policy Evaluation** – Policies shape national emissions strategies
- **Challenges in Policy Analysis** – Heterogeneous formats, quantity, languages, and structures
- **LLMs as a Solution** – Extract structured insights from diverse documents



## *Data Sources*

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- **International Treaties** – Kyoto Protocol, Paris Agreement, UN SDGs (3)
- **Country-Specific Documents** – UNFCCC reports & Nationally(252) Determined Contributions (NDCs)
- **Data Collection Methods** – Web scraping, document parsing, and structuring (1364)





# Documents

# 1364

- Dataset consists of official documents of 212 different countries relating climate mitigation policies.
- [UNFCCC](https://unfccc.int/) <https://unfccc.int/>
- [Documents | UNFCCC](#)
- Filter: Official document review reports AND Mitigation



**Data Pre-processing** – Extract, clean, and normalize policy documents



**Text Embeddings** – Convert policies into numerical vectors



**Clustering Techniques** – Apply k-means, hierarchical clustering, and topic modeling



**Visualization & Interpretation** – Generate policy clusters for analysis

## Clustering & Policy Vignettes

### Understanding Clusters

- Identify common policy themes



### Policy Vignettes

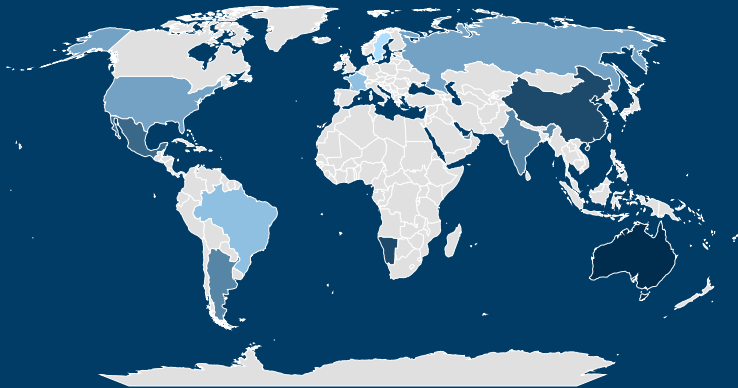
- Create illustrative case studies for each cluster



### Example Profiles

- *High Ambition Leaders,*
- *Gradual Adopters,*
- *Minimal Compliance States*





## Integrating Geo-Socio-Economic Variables

- **External Data Sources** – GDP, trade data, geographic proximity
- **Policy Correlation Analysis** – Economic strength vs. policy ambition
- **Key Research Questions** – *What neighboring countries share similar policies?*





## *Expected Outcomes & Deliverables*

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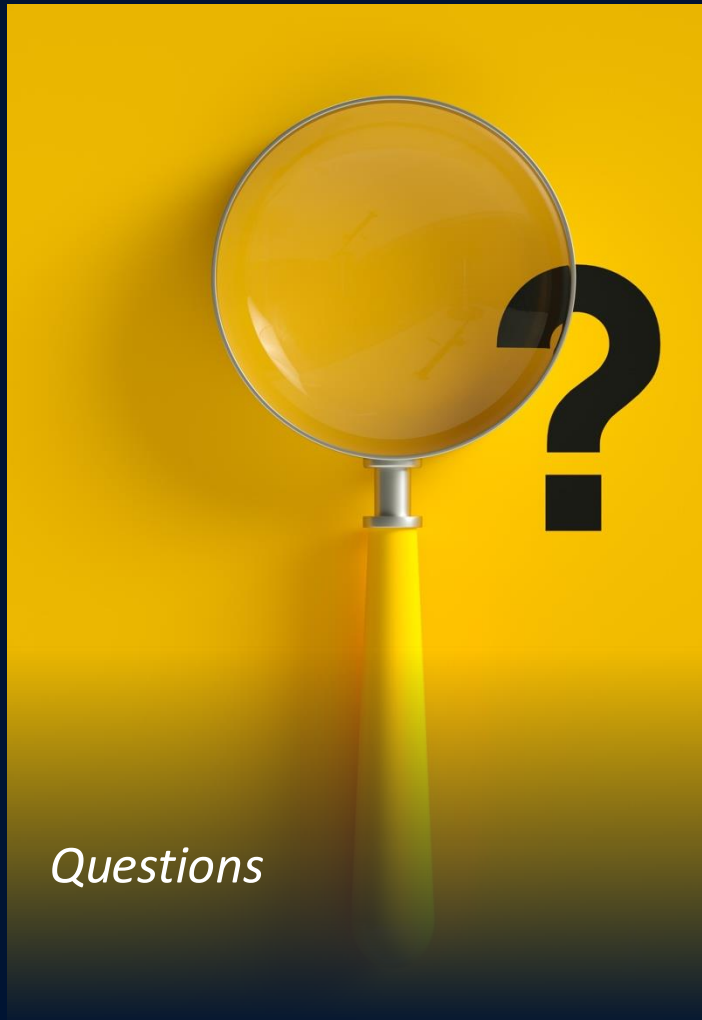


- **Code Pipeline** – Fully documented text analysis and clustering workflow
- **Analytical Report** – Findings on policy trends and clusters
- **Final Presentation** – Summary of insights and implications



## *Q&A and Next Steps*

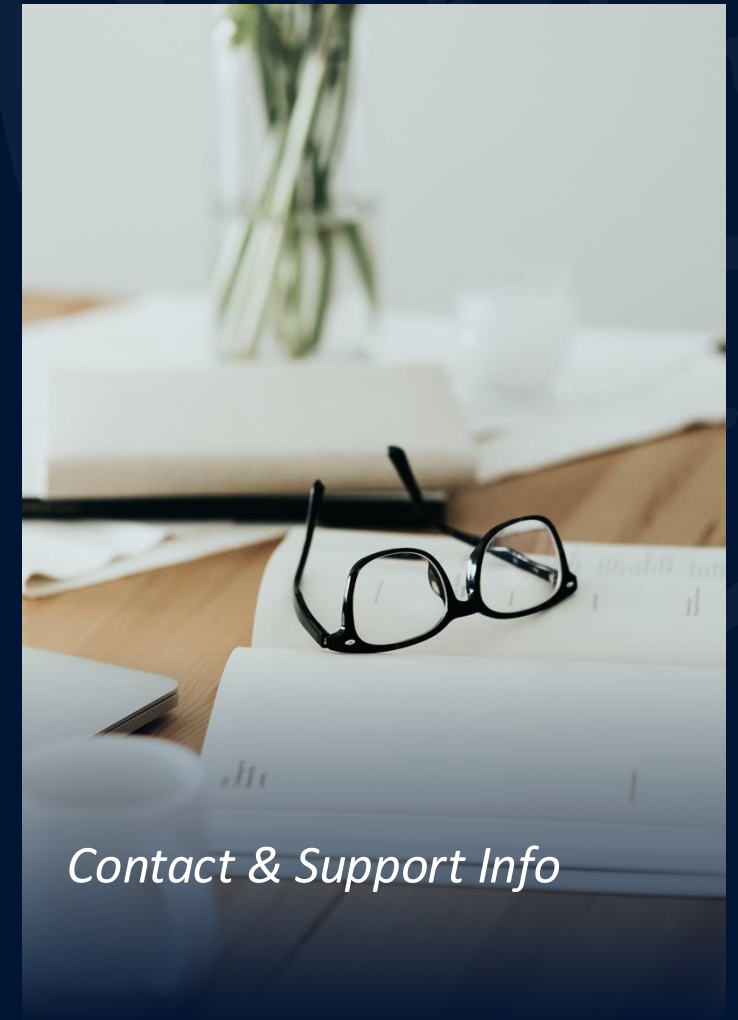
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*Questions*



*Collaboration Encouraged*



*Contact & Support Info*

# Thank you.

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