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OBJECTIVE DEFINITION

- Construction of a Global Perceived Tourist Attractiveness Index (IGATP) in the Porto Metropolitan Area based on Google Places API data

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DATA COLLECTION

- Data retrieved from Google Places API (name, rating, number of reviews, location, category, comments)
- Manual classification of places into 4 domains: Services, Cultural Tourism, Natural Resources, Accommodation

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DATA PREPROCESSING

- Automatic translation of comments to English
- Duplicate detection and removal
- Text cleaning and normalization
- Filtering of places outside the AMP

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EXPLORATORY DATA ANALYSIS

- Descriptive statistics of ratings, review counts, and sentiment polarity
- Distribution analysis across domains and municipalities
- Identification of missing or inconsistent values
- Initial geospatial visualizations

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SEMANTIC ANALYSIS (LDA)

- LDA applied to translated comments
- Identification and labeling of key topics
- Cross-analysis with clusters

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RESULTS AND CONCLUSIONS

- Municipalities and parishes with highest perceived attractiveness
- Attractiveness profiles based on clustering
- Relevance of semantic topics

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FINAL REFLECTION AND RECOMMENDATIONS

- Methodological limitations
- Suggestions for municipalities and tourism stakeholders
- Replication potential of the index in other regions

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SUB-INDICES CONSTRUCTION

- Bayesian Rating: score penalized for places with few reviews
- Popularity: normalization of the number of reviews
- Sentiment: average polarity score of comments (using VADER)

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CLUSTERING OF PLACES

- K-means and K-medoids applied to sub-indices
- Determination of optimal number of clusters (silhouette, elbow)
- Visualization using PCA
- Interpretation of attractiveness profiles

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IGATP INDEX CONSTRUCTION

- Min-Max normalization of sub-indices
- Weighted aggregation to build the final index per place
- Calculation of average values per municipality and parish

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SPATIAL ANALYSIS

- Interpolation at parish and municipality level
- Thematic mapping using KeplerGL
- Spatial autocorrelation (Moran's I)
- LISA cluster maps