

ARMENIA'S AUTOMOBILE AND BATTERY MARKET ANALYSIS

CAPSTONE PRESENTATION

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MOTIVATION

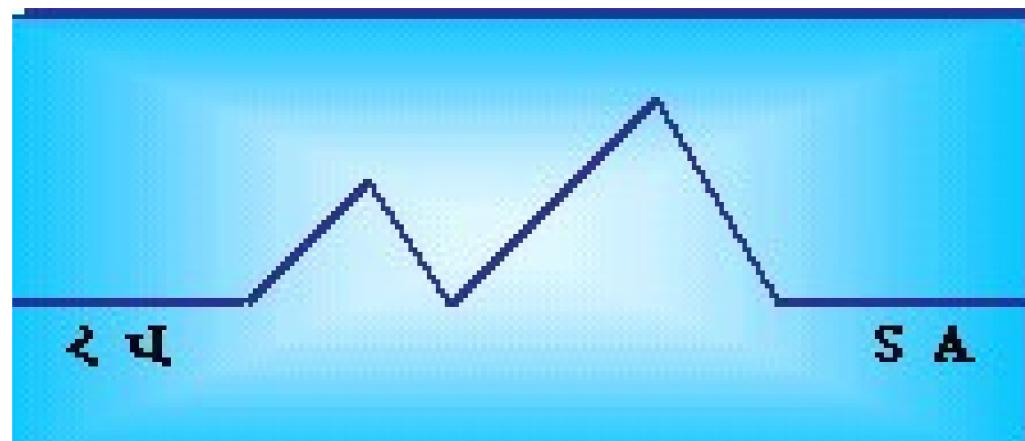


- MARKET ANALYSIS
- IMPORTANT FINDINGS
- MARKET IMPLICATIONS

DATASETS USED



- "Armenian Statistical Agency: Cars & batteries Import/export data."



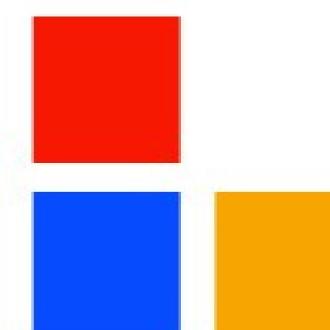
- "Auto selling platforms: Car listings."



- "Spyur.am: Battery store locations."



- "List.am: Apartment prices"

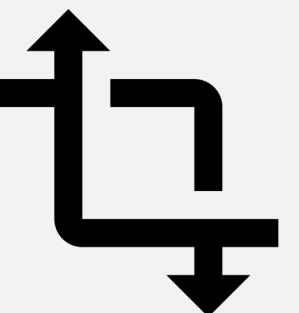


METHODS



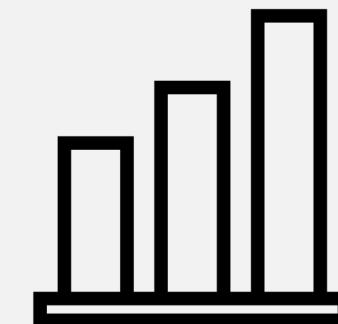
Scraping

- **selenium**
- **pandas**



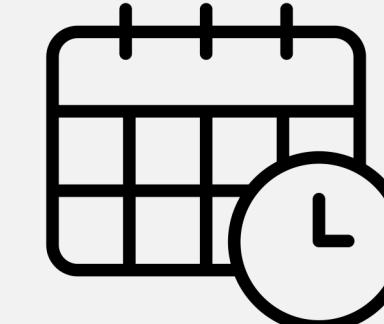
Transformation

- **SAS**
- **Programming**
- **Python**



Visualizations

- **matplotlib**
- **seaborn**



Predictions

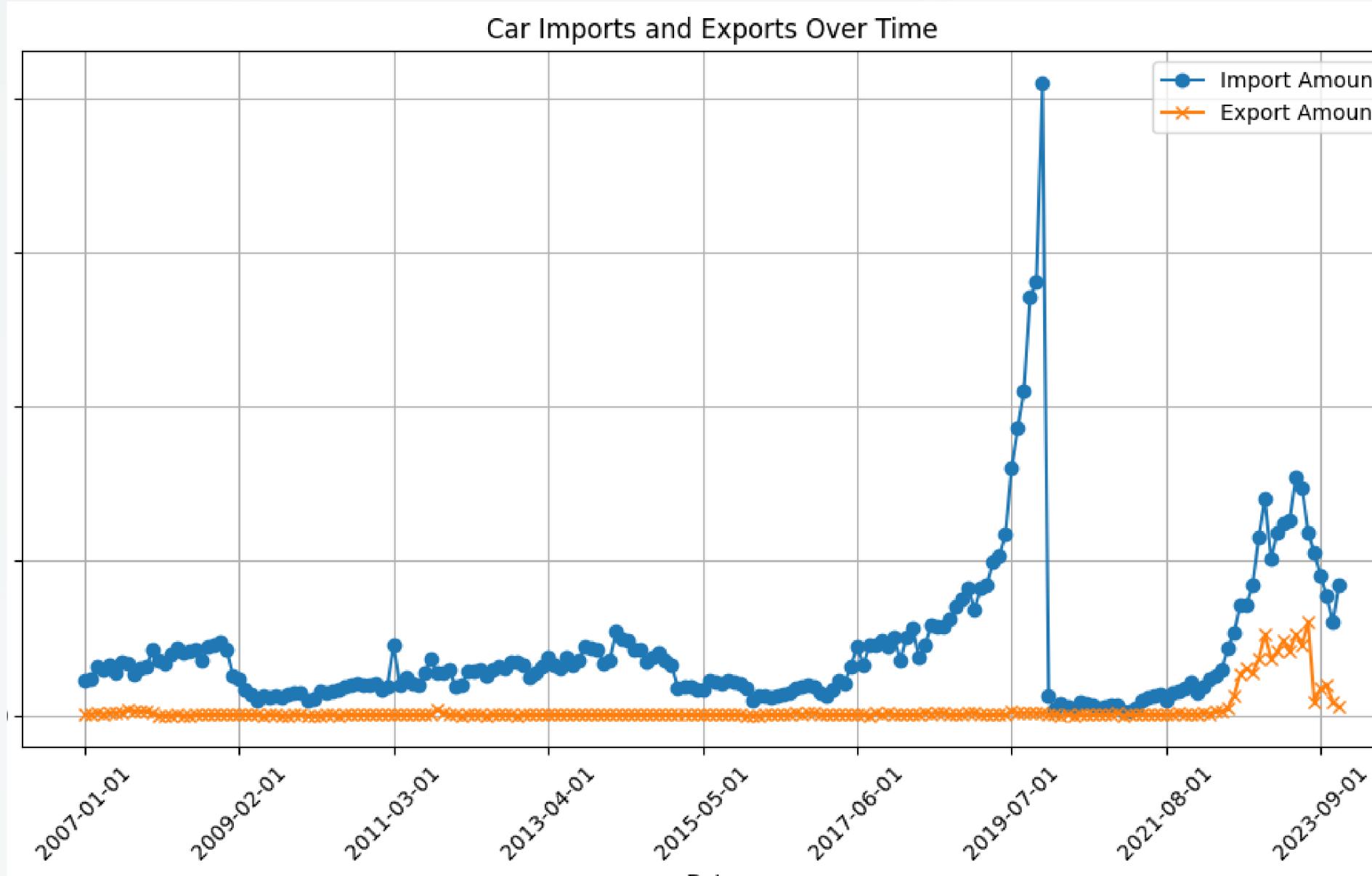
- **statsmodels**
- **pmdarima**



Geospatial

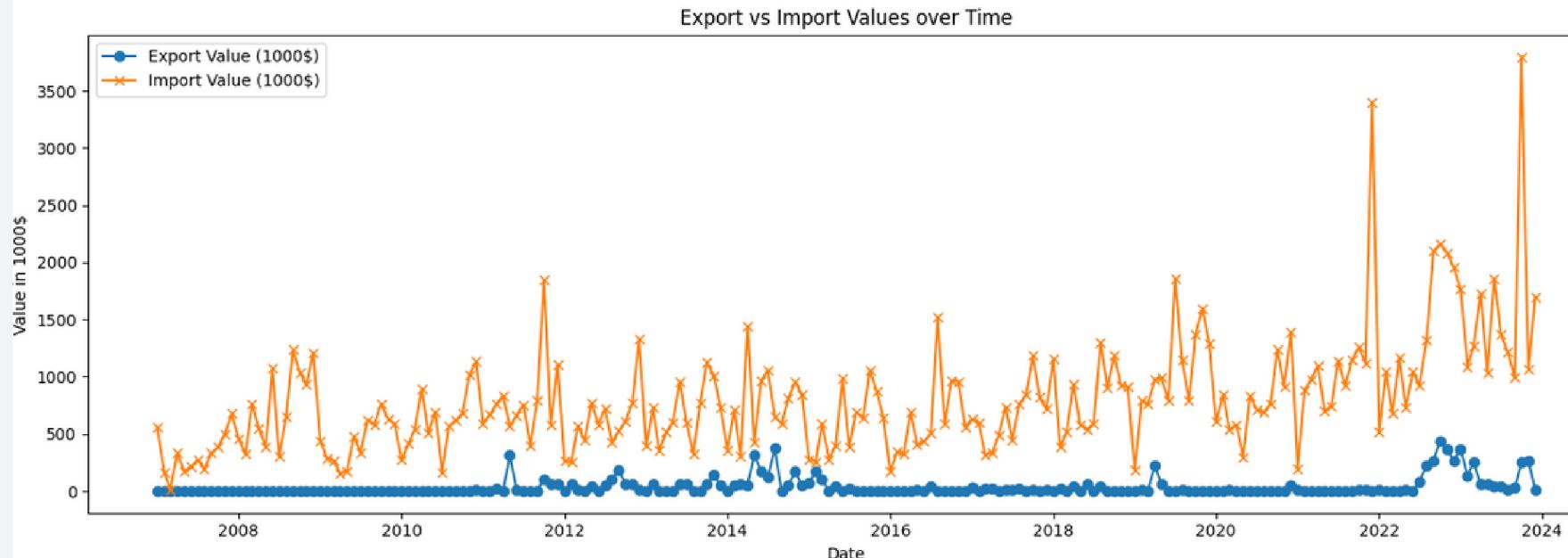
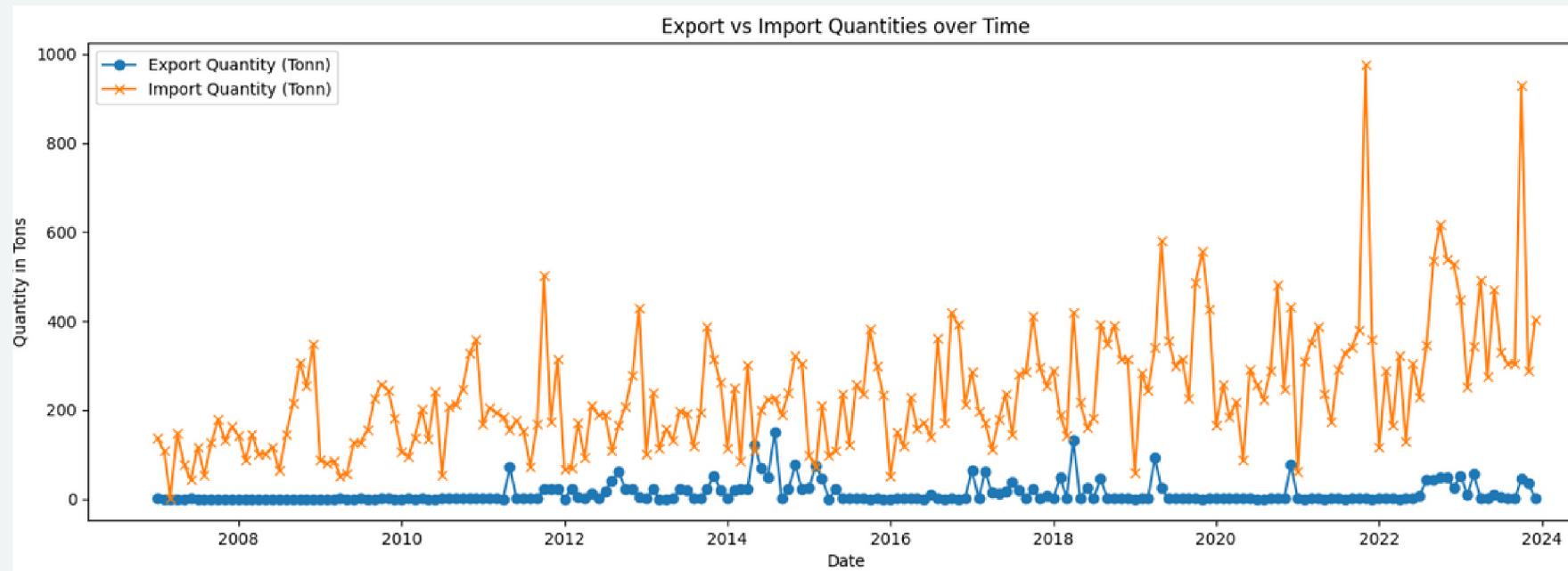
- **folium**
- **geojson**

HISTORICAL FACTORS: CARS



- **2008-2009 Financial Crisis**
- **2019 Taxation Surge**
- **2020 COVID-19 Pandemic and Nagorno-Karabakh War**
- **2021 Market Resilience**

HISTORICAL FACTORS: BATTERIES



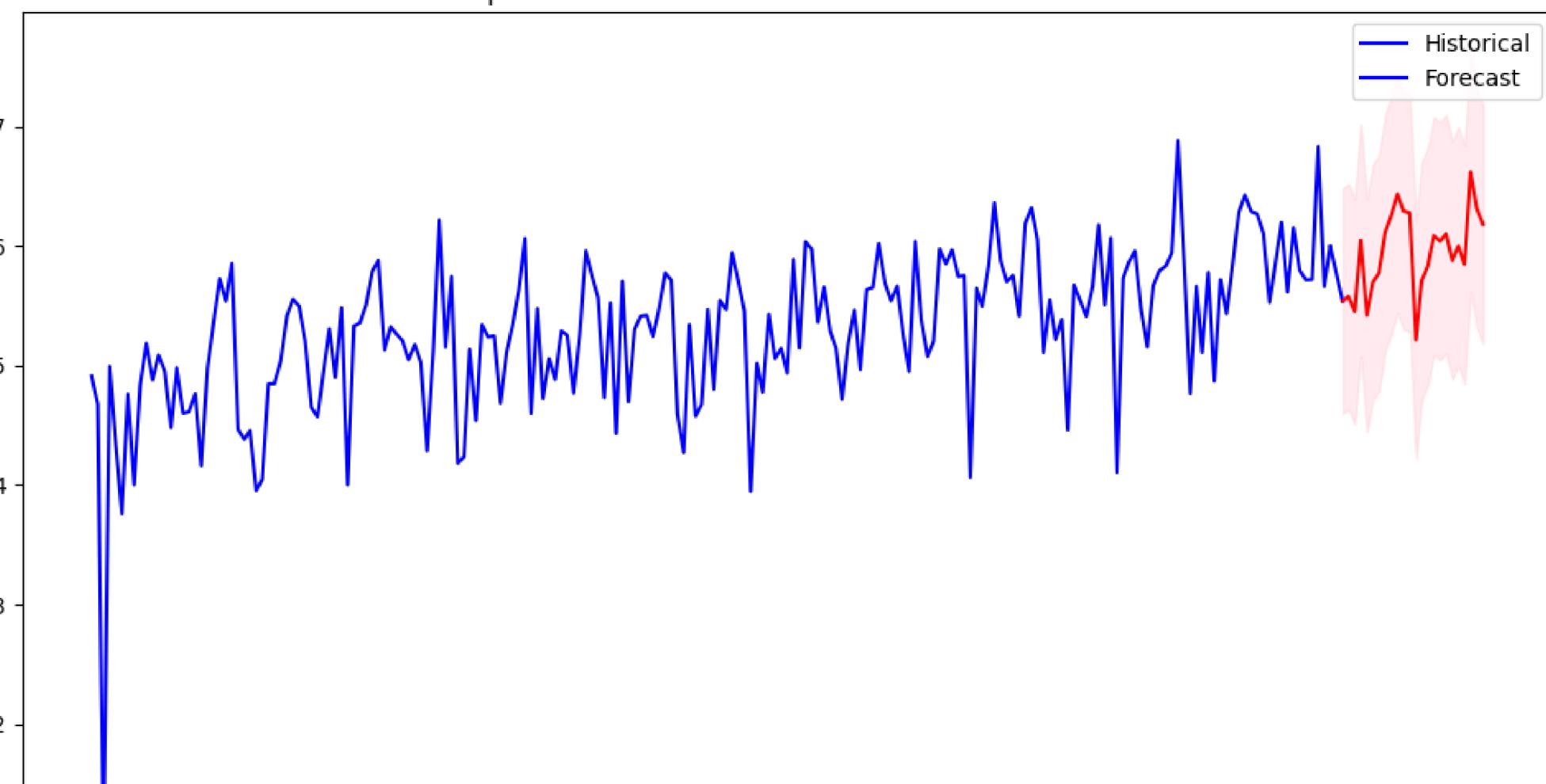
- All previous factors
- 2011-Present: Local battery manufacturing

Import Amount of Cars and 2-Year Prediction with Exogenous Variables

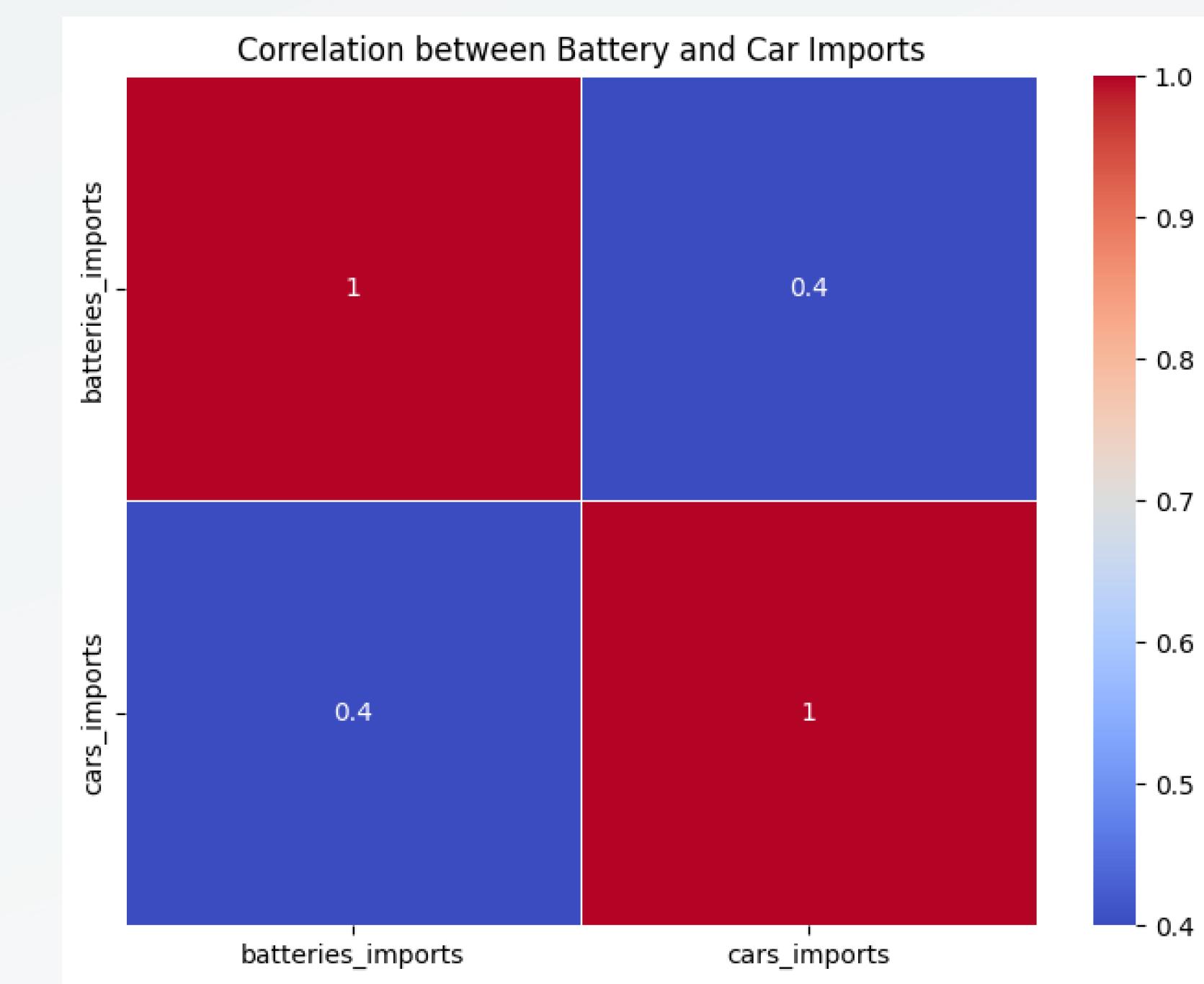


SARIMAX

Import Amount of Batteries and 2-Year Prediction



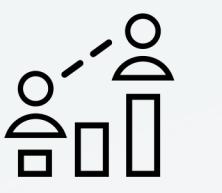
$$Y_t = c + \sum_{i=1}^p \phi_i Y_{t-i} + \sum_{j=1}^q \theta_j \epsilon_{t-j} + \sum_{k=1}^P \Phi_k Y_{t-k \times s} + \sum_{l=1}^Q \Theta_l \epsilon_{t-l \times s} + \sum_m \beta_m X_{mt} + \epsilon_t$$

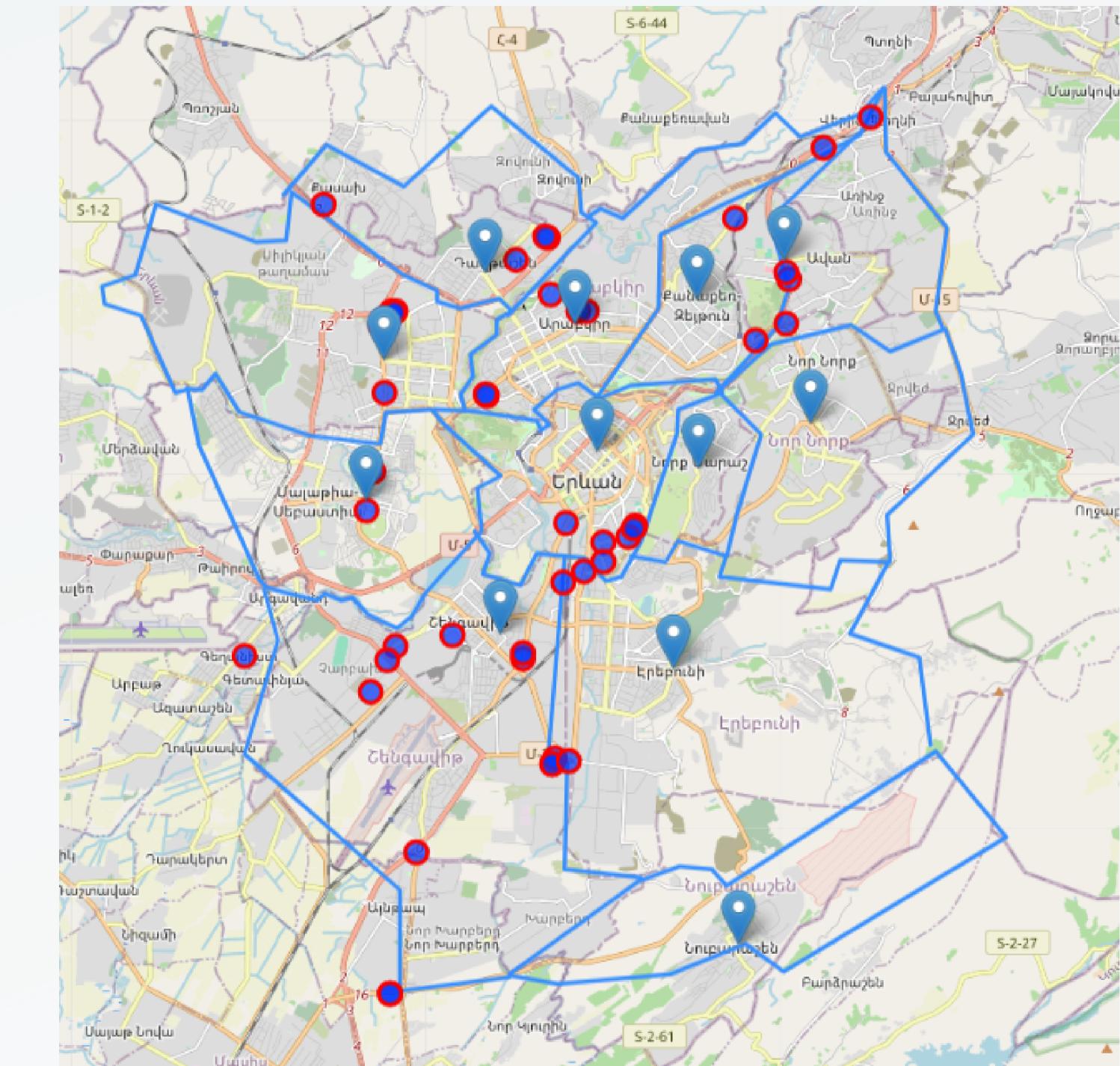


CORRELATION RATE **0.4**

GEOSPATIAL ANALYSIS

ATTRIBUTES

1. Competitors 
2. Density 
3. Solvency 



GEOSPATIAL ANALYSIS

ATTRIBUTES

1. Competitors 
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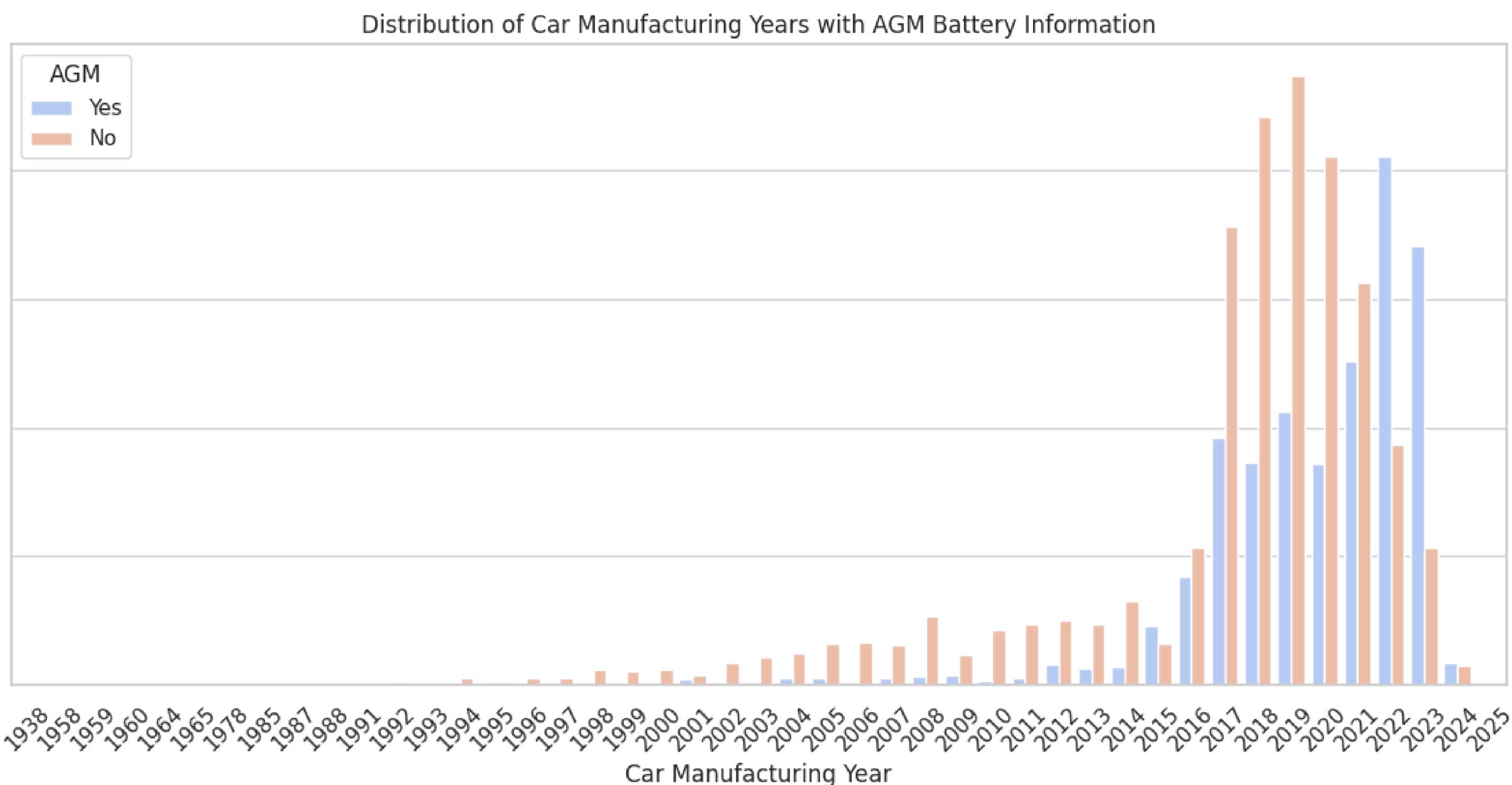
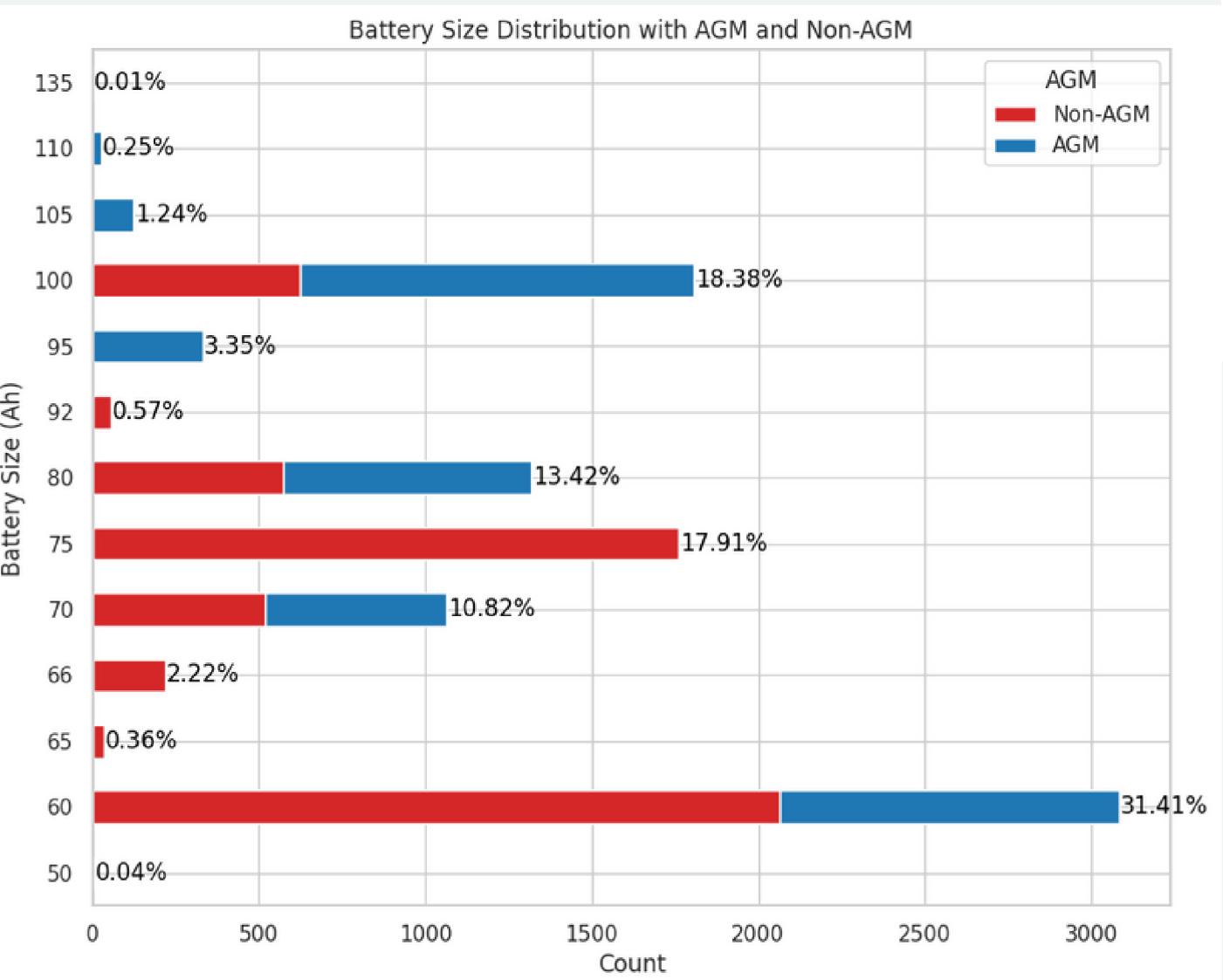
Nor Nork

- Few Competitors
- Density: 9
- Solvency: 2



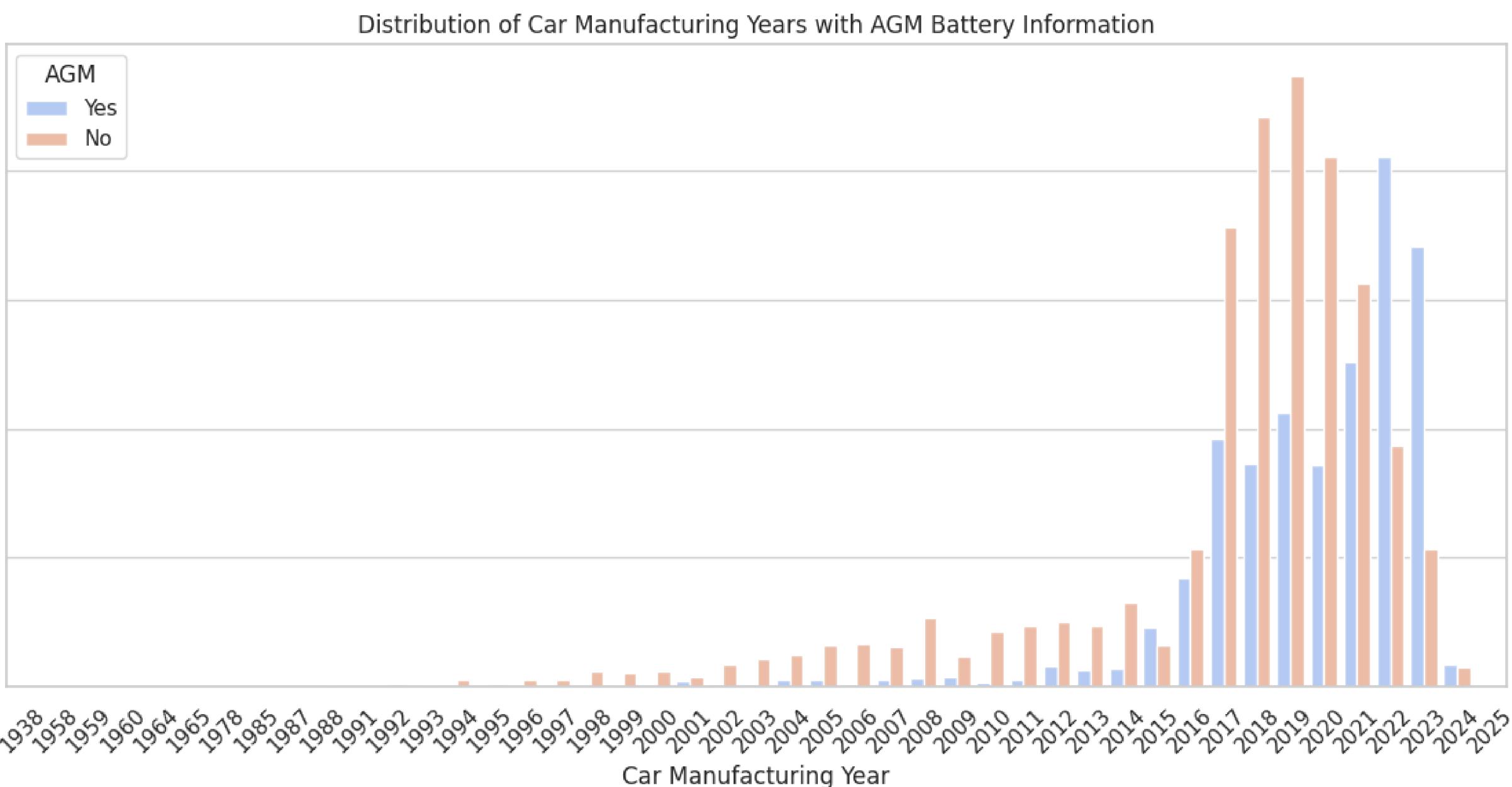
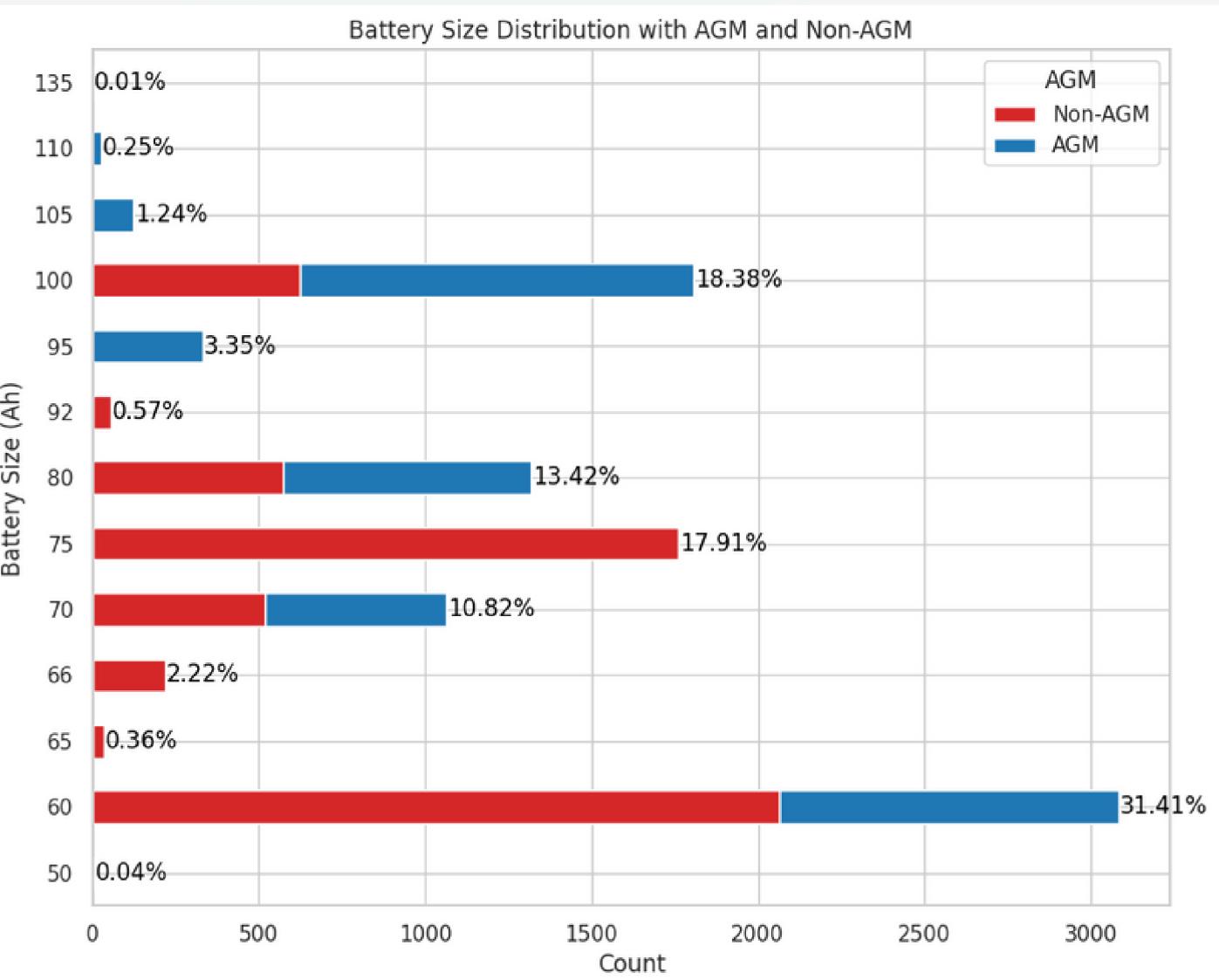
STORAGE ORGANIZATION

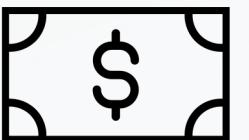
Regular → AGM



STORAGE ORGANIZATION

Regular → AGM



- Adaptation to Innovations
- Solvency Levels 
- Global Factors 

THANK YOU!!!