



ImmoEliza: Mapping Real Estate Prices in Belgium

Welcome to our presentation on ImmoEliza, an innovative project analyzing Belgian real estate data to establish meaningful connections between property prices, features, and locations nationwide.

Project Objectives



Comprehensive Data Collection

Gather and clean residential property listings from across Belgium



Feature Correlation Analysis

Establish relationships between property prices and key features like area, rooms, and amenities



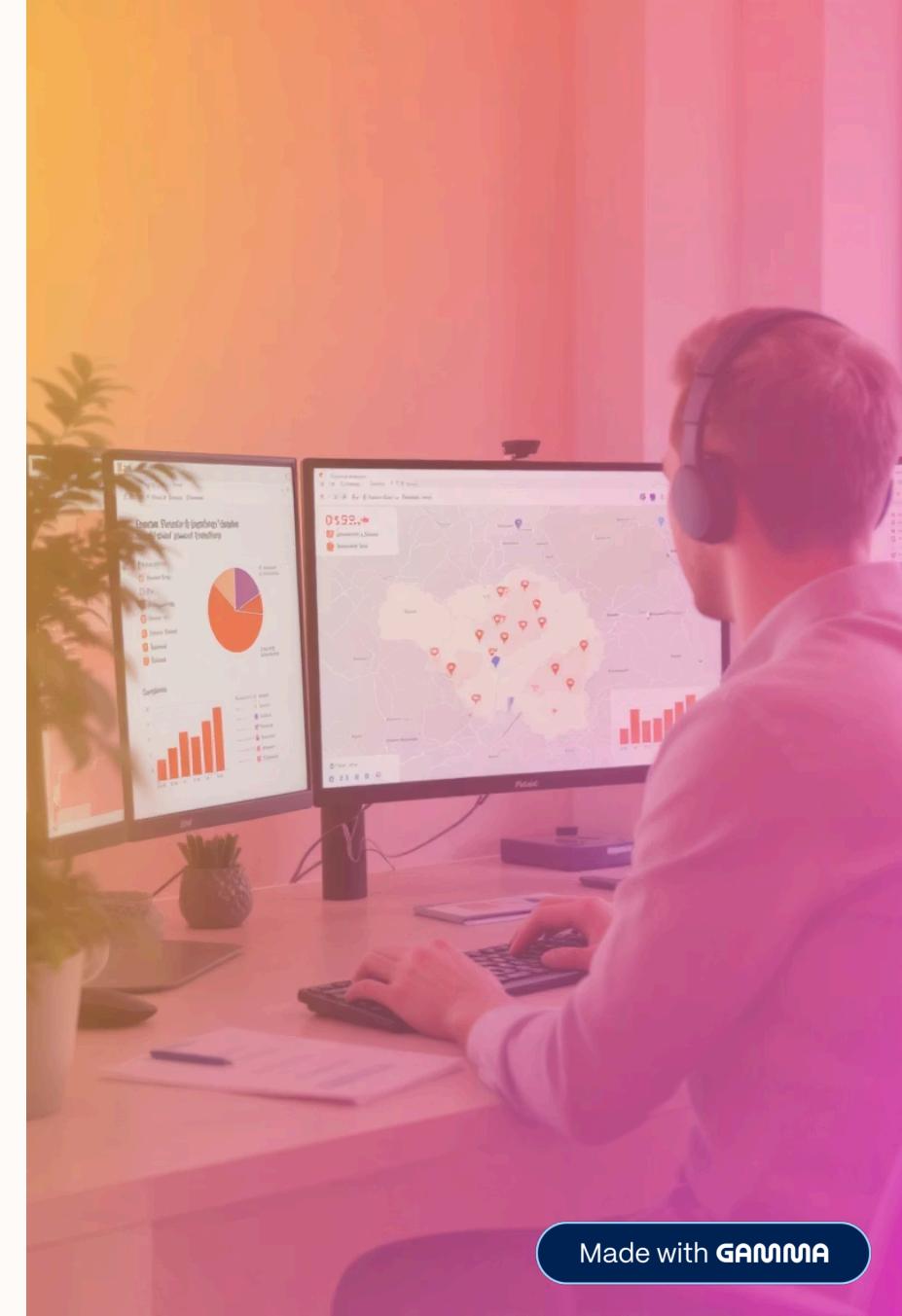
Regional Market Comparison

Compare pricing trends across different regions and cities in Belgium



Practical Application Development

Create tools for price estimation and market analysis that benefit buyers, sellers, and professionals



Data Collection & Sources

Our Data Repository

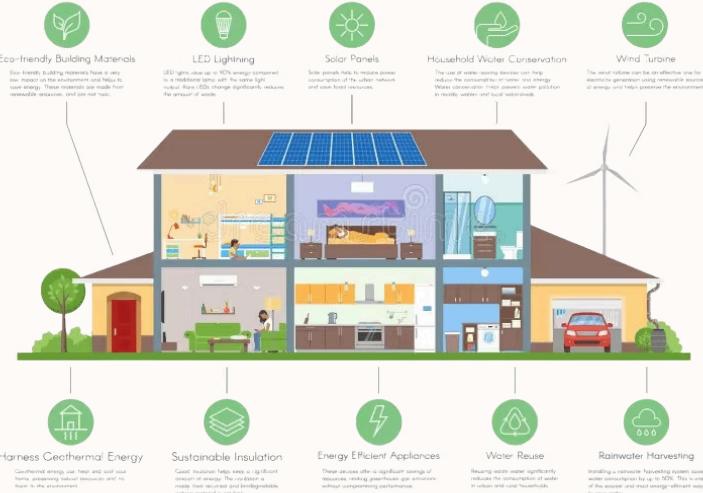
- 80369 property listings scraped from ImmoWeb
- Coverage across all Belgium
- Houses and apartments included
- 50 features

ImmoWeb's position as Belgium's largest real estate platform ensures our dataset is both comprehensive and representative of the current market.

Date	Location	Price	Category
20/31/2PM	Normen	Leachius	123 KK
20/29/2PM	Belgren	Lukes Trelf	125 KK
20/31/2PM	Tyler	Bolitus	44 KK
27/98/2PM	Center	Caterin	84 KK
27/57/1PM	Penson	Saherion	84 KK
20/75/2PM	Pobbita	Poldring	194 KK
20/75/2PM	Fadimon	Coloring	15 IK
20/23/2PM	Leasline	Calest Teel	125 KK
20/01/2PM	Persont	Poleiting	84 KK
20/25/2PM	Calmest	Schaeind	84 KK
20/02/2PM	Behaure	Patuning	82 IK
20/31/2PM	Boltire	Bolting	84 HK

Key Data Features

ECO-FRIENDLY HOME INFOGRAPHIC



Location Data

Locality and postcode information for precise geographic analysis

Size Metrics

Living area in square meters and number of rooms

Property Attributes

Kitchen type, presence of terrace/garden, building condition, facade count

After cleaning, our final dataset contains 76371 valid property records with 47 features.

Data Processing & Analysis



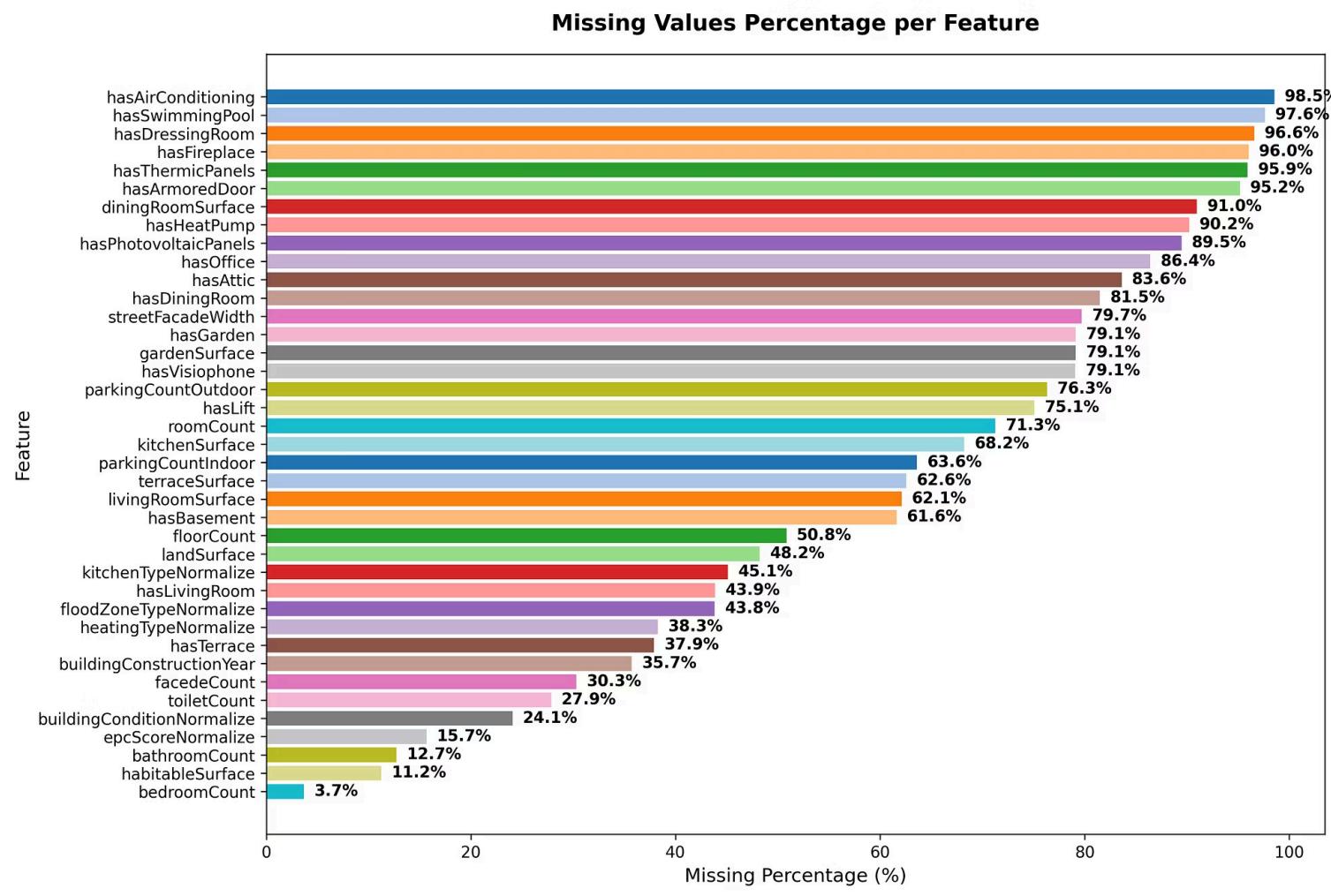
Our Analytical Approach

Data Cleaning

Statistical Analysis

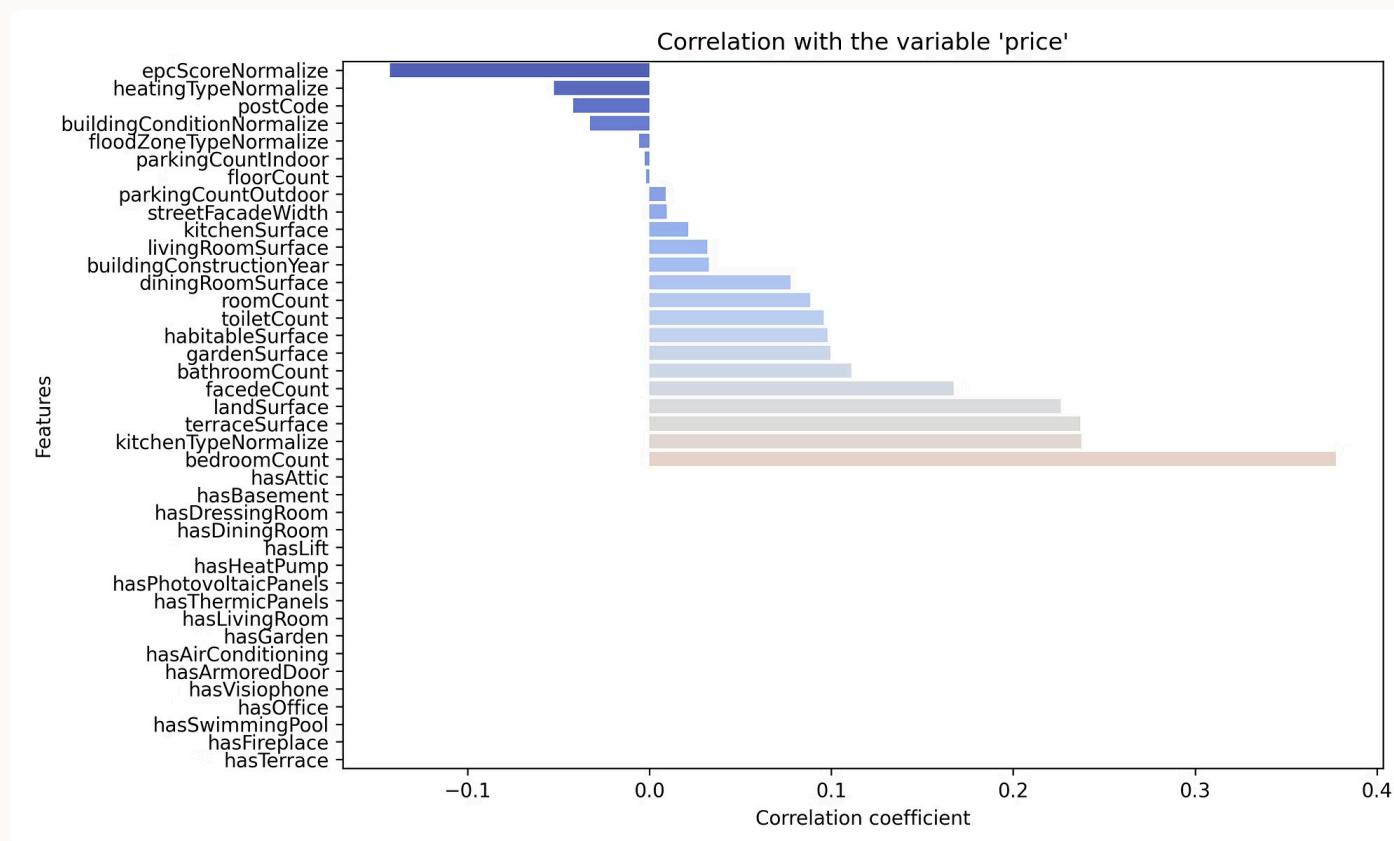
Data Cleaning

Removed duplicates, standardized formats (float to int, bool to int), handled missing values (used -1 for missing values), normalized categorical variable (e.g. buildingCondition => 1=GOOD to 6=TO_RESTORE, epc_scores => 1=A++ to 9=G)

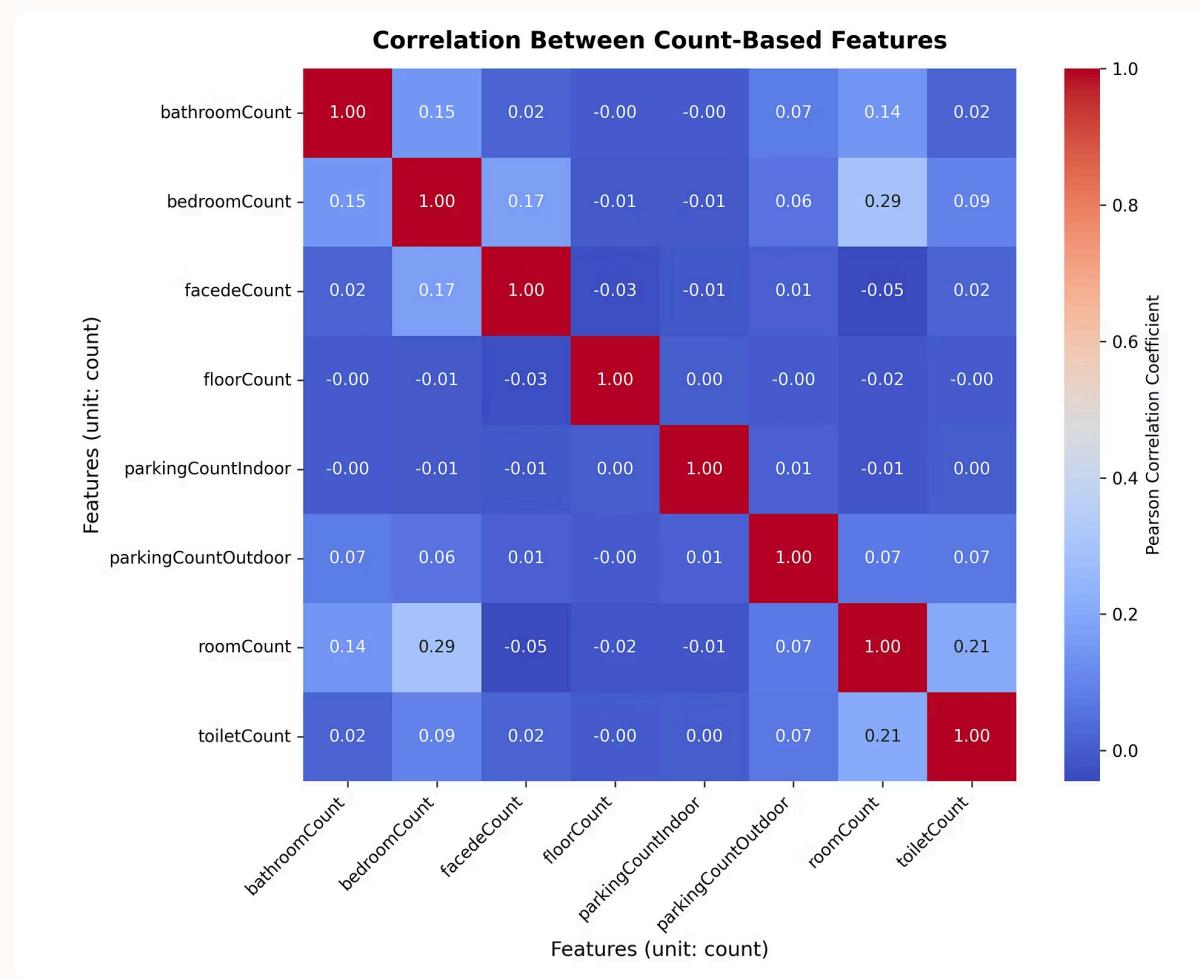


Data Analysis

Correlation between variables, finding outliers, etc.

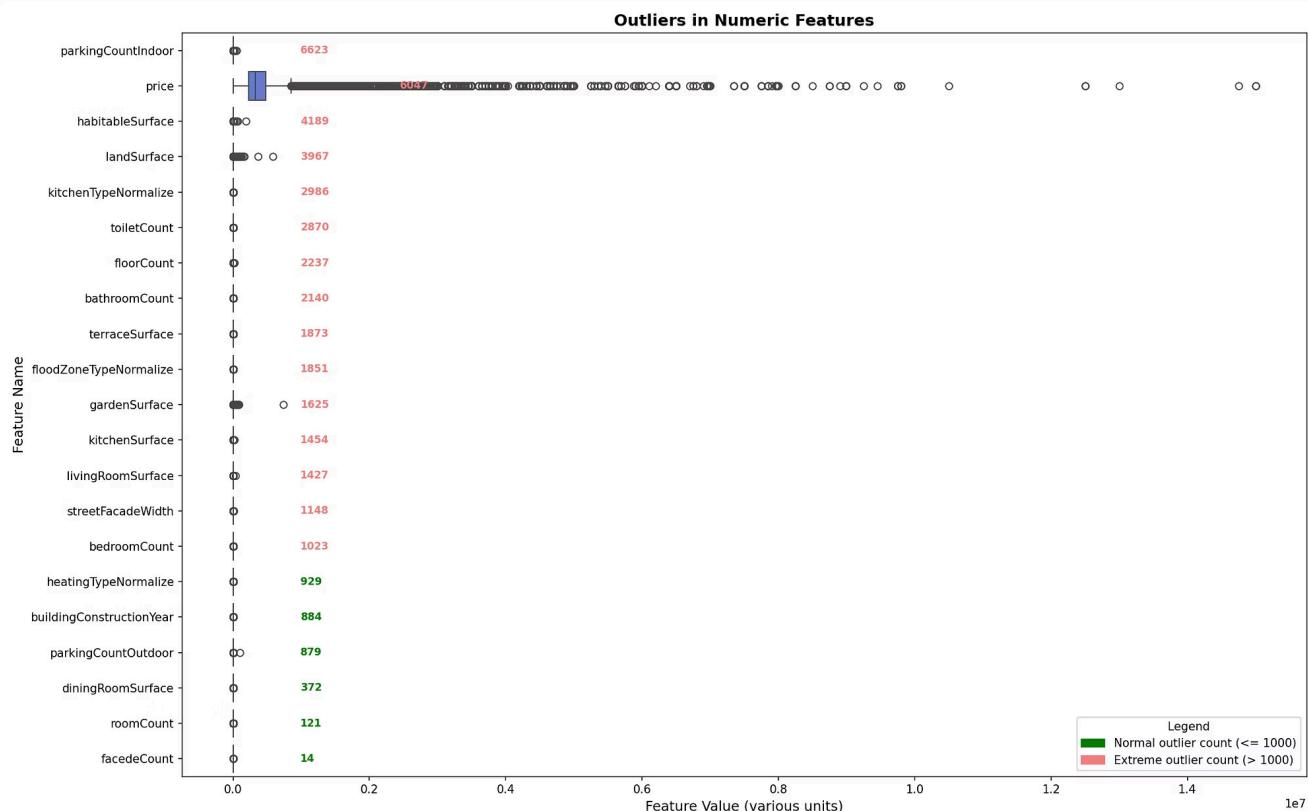


Data Analysis



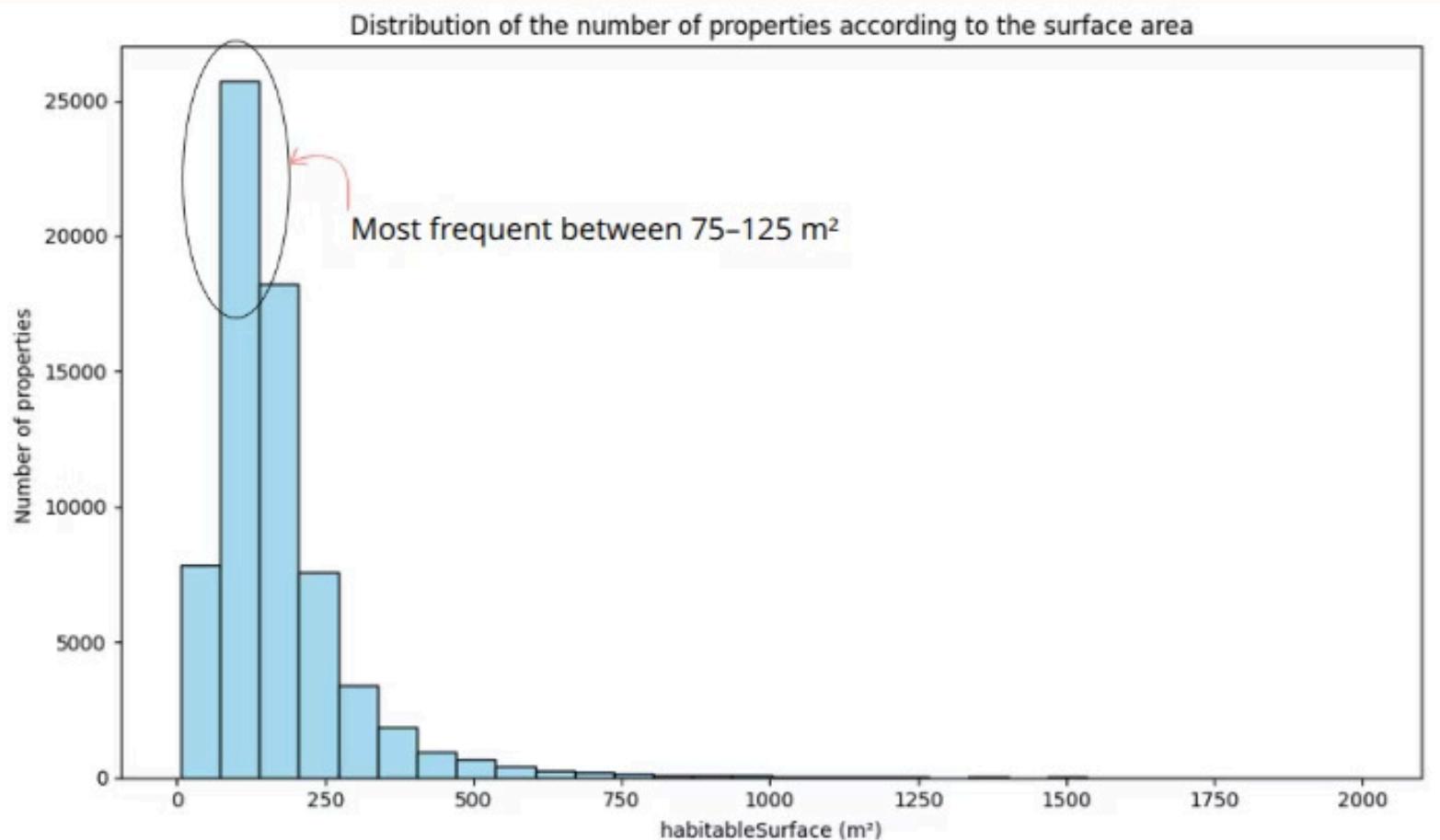
- **bedroomCount ↔ roomCount** (0.29): More bedrooms = more total rooms (makes sense!)
- **roomCount ↔ toiletCount** (0.21): Bigger properties with more rooms tend to have more toilets

Data Analysis



- **price** (6047): There are many properties with unusually high or low prices.
- **parkingCountIndoor** (6623):
 - Most properties don't have indoor parking (likely the "normal" case, especially for apartments, older homes, or properties in dense urban areas)
 - Some properties have unusually high indoor parking counts (likely large residential complexes, luxury properties)

Regional & City-Level Insights



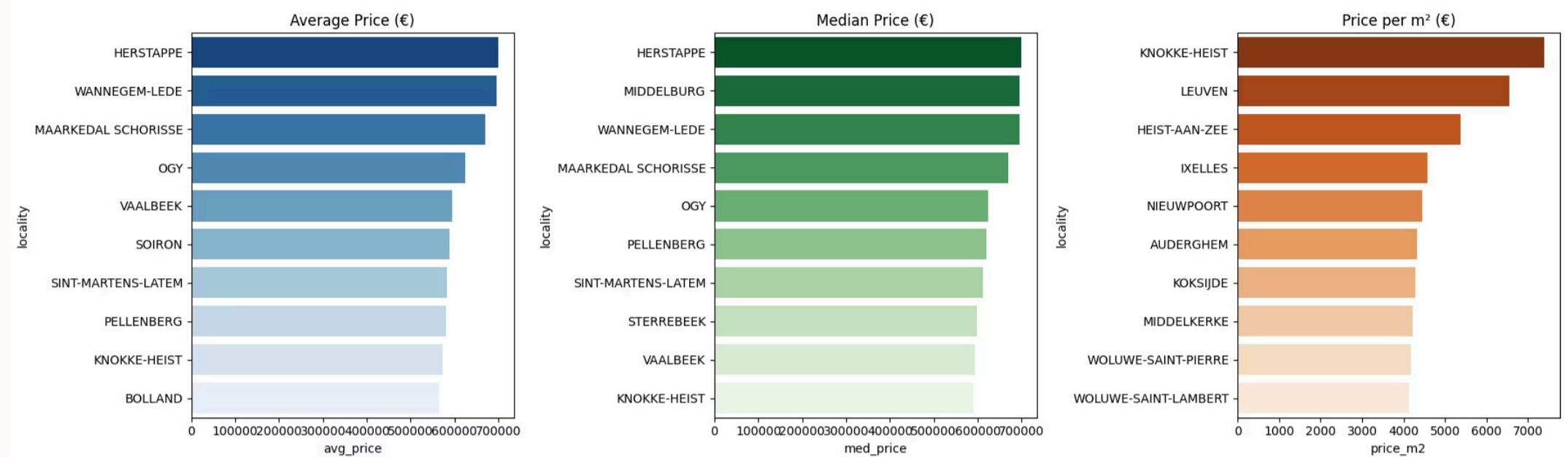
- The majority of Typical properties are concentrated in **lower surface ranges**.
- **Outliers or luxury properties** with very large surface areas.
- **Typical Belgian residential properties** fall into a compact to medium size range.

Regional & City-Level Insights

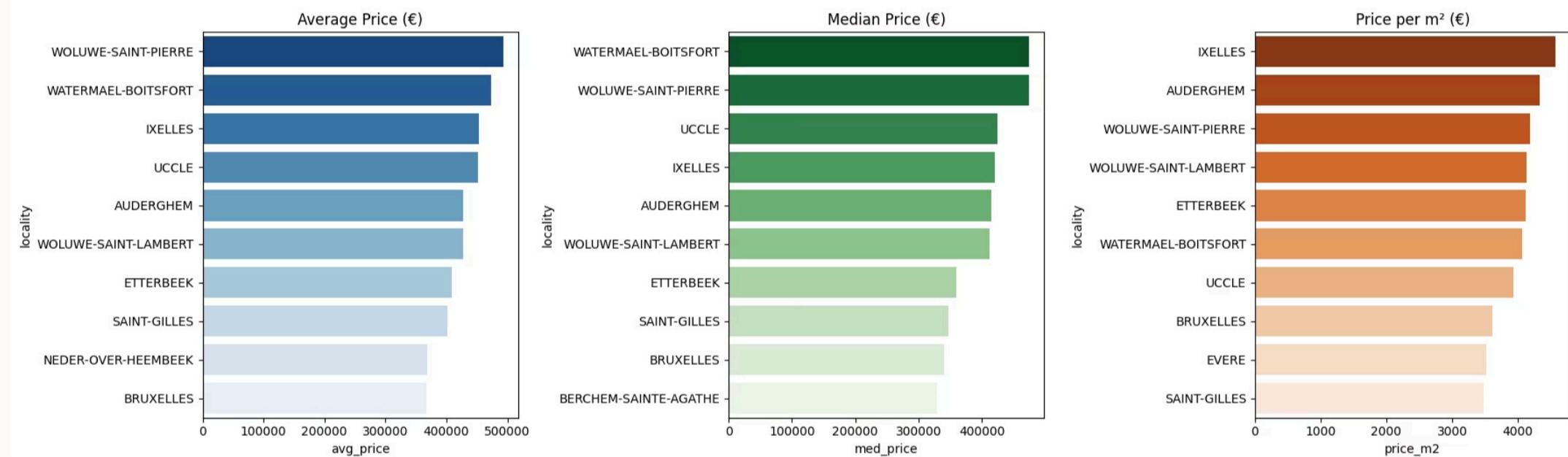
Our analysis reveals significant price variations between regions, with Flanders commanding the highest per-square-meter prices in Belgium.

Here is the Top 10 of most expensive localities:

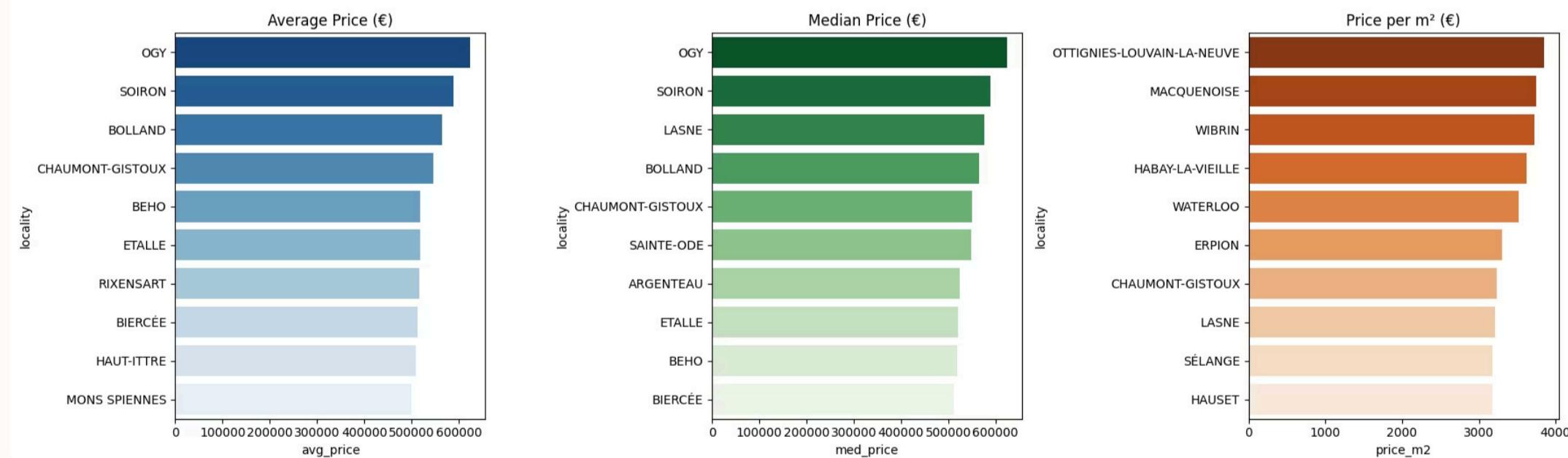
Belgium - Top 10 Most Expensive Municipalities -



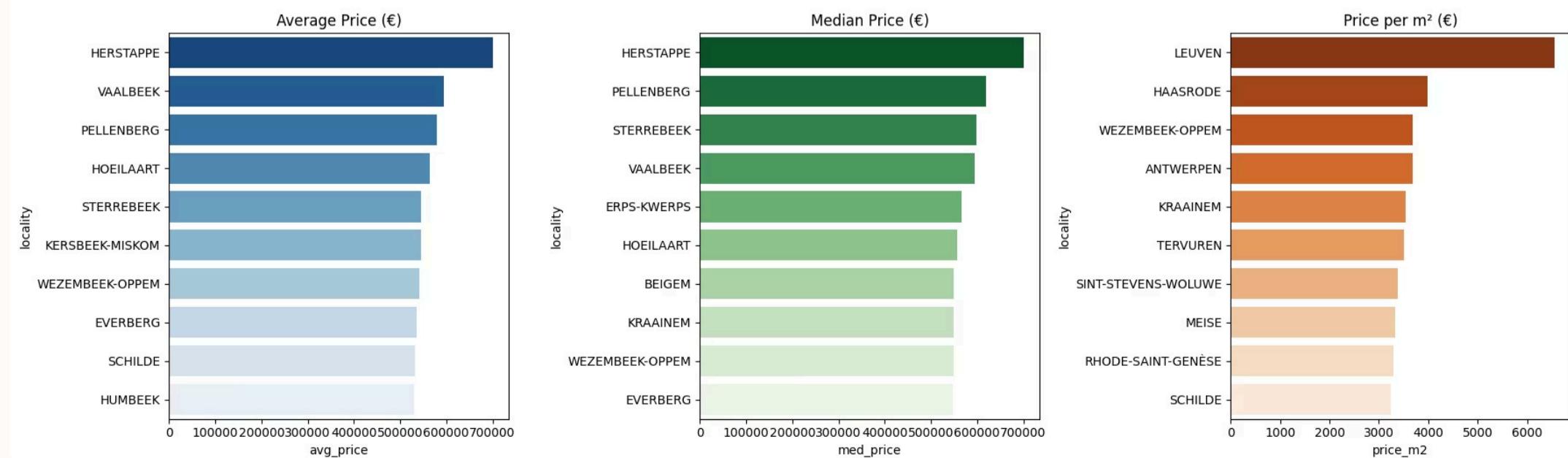
Brussels - Top 10 Most Expensive Municipalities -



Wallonia - Top 10 Most Expensive Municipalities -



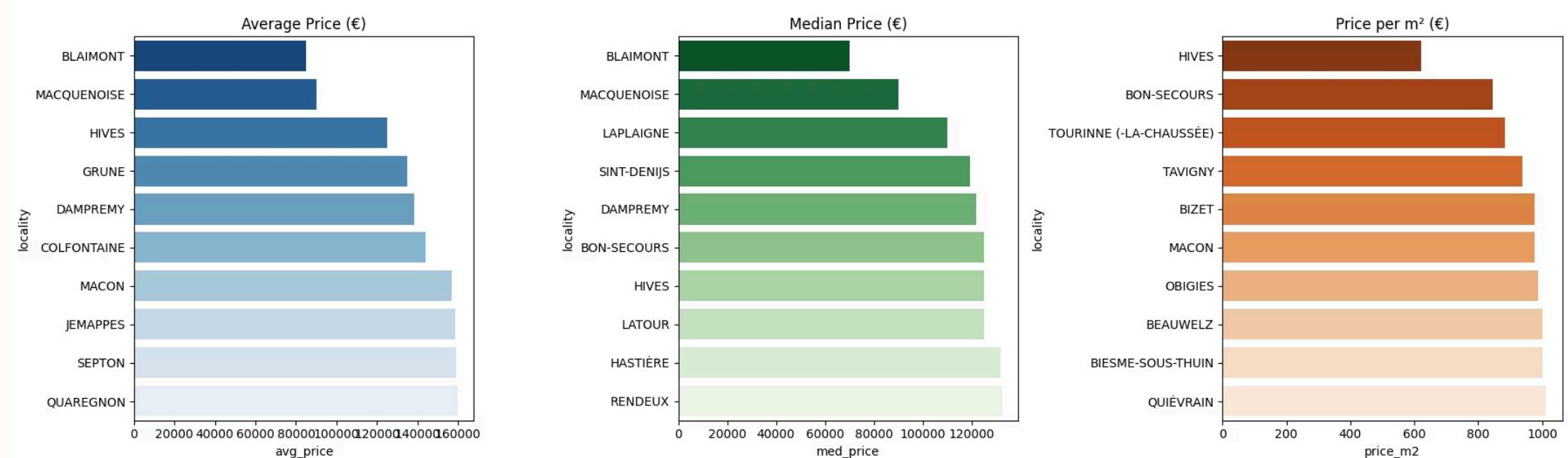
Flanders - Top 10 Most Expensive Municipalities -



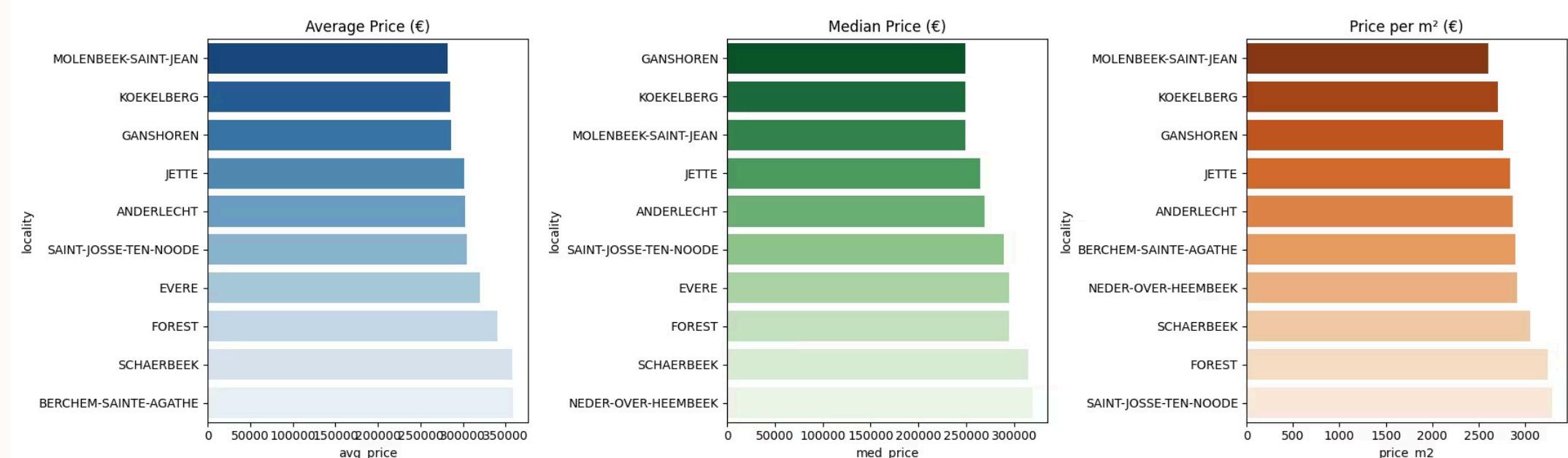
Regional & City-Level Insights

Here is the Top 10 of less expensive localities:

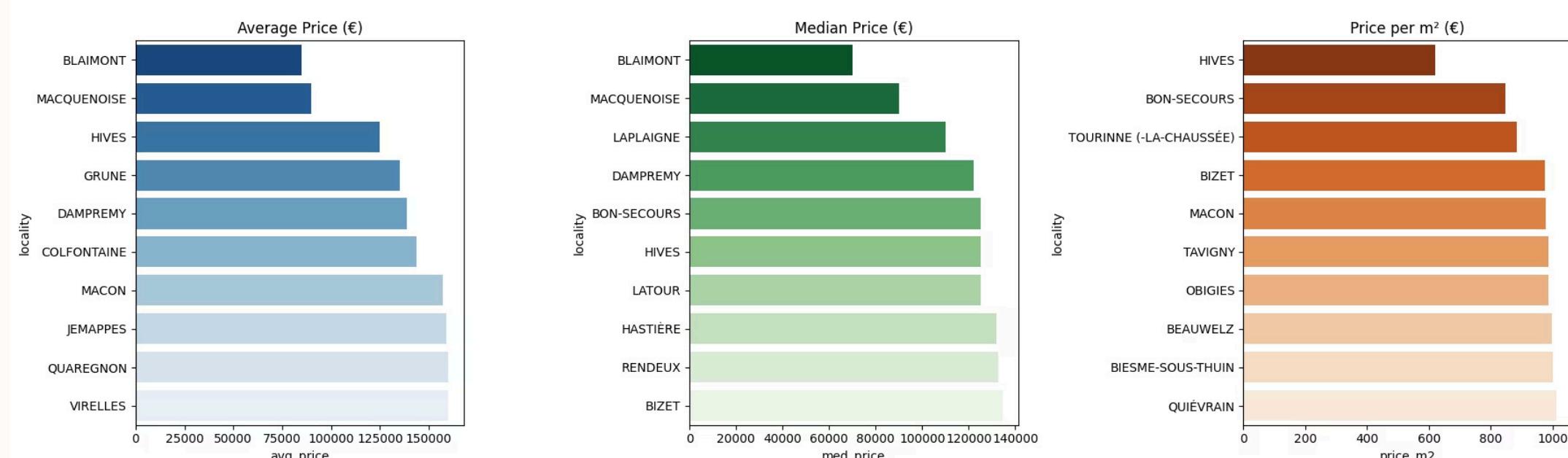
Belgium - Top 10 Least Expensive Municipalities -



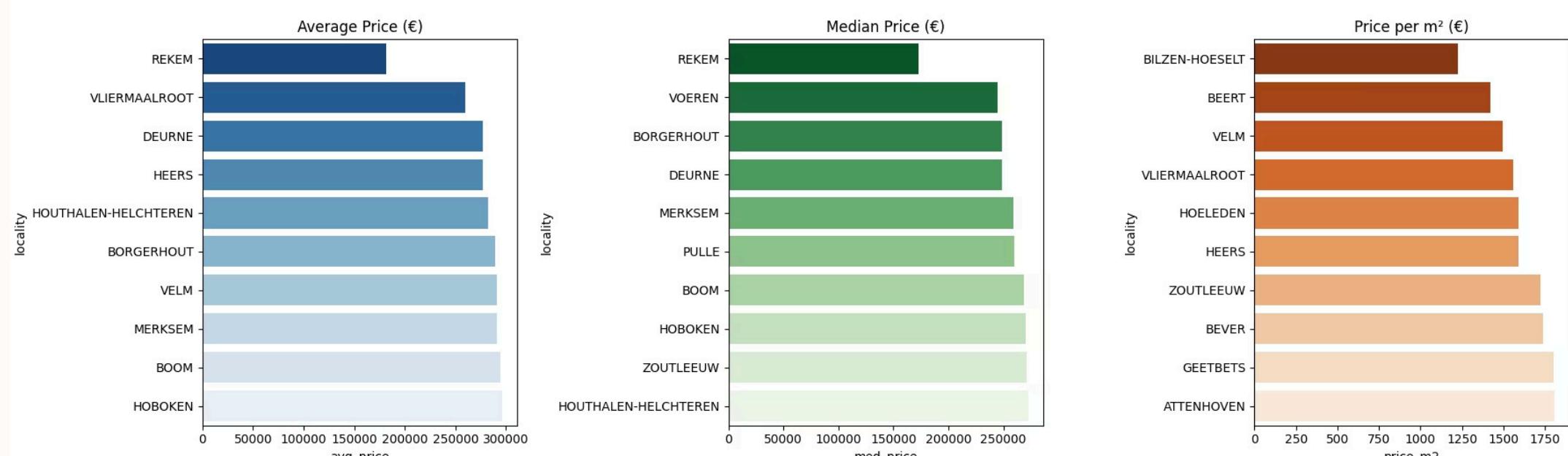
Brussels - Top 10 Least Expensive Municipalities -



Wallonia - Top 10 Least Expensive Municipalities -

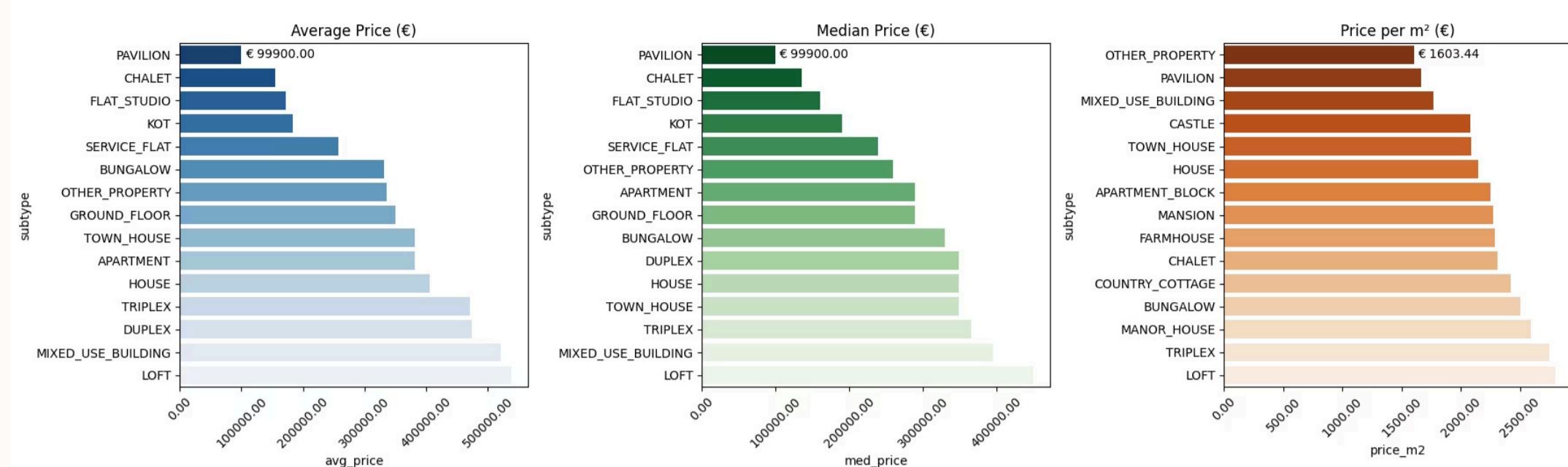


Flanders - Top 10 Least Expensive Municipalities -

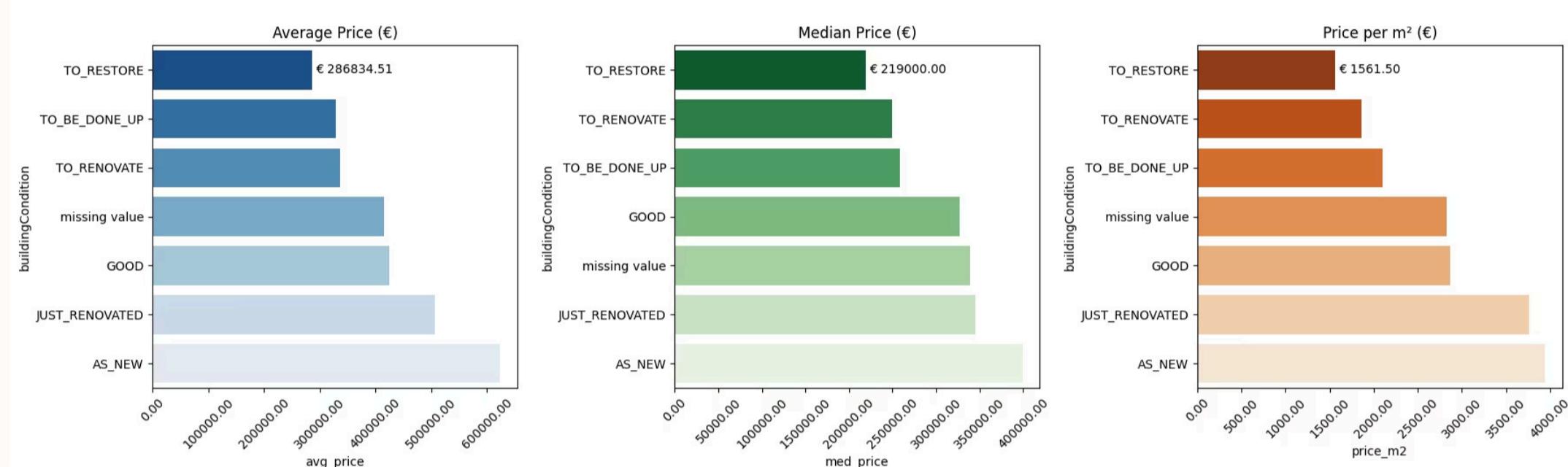


Regional & City-Level Insights

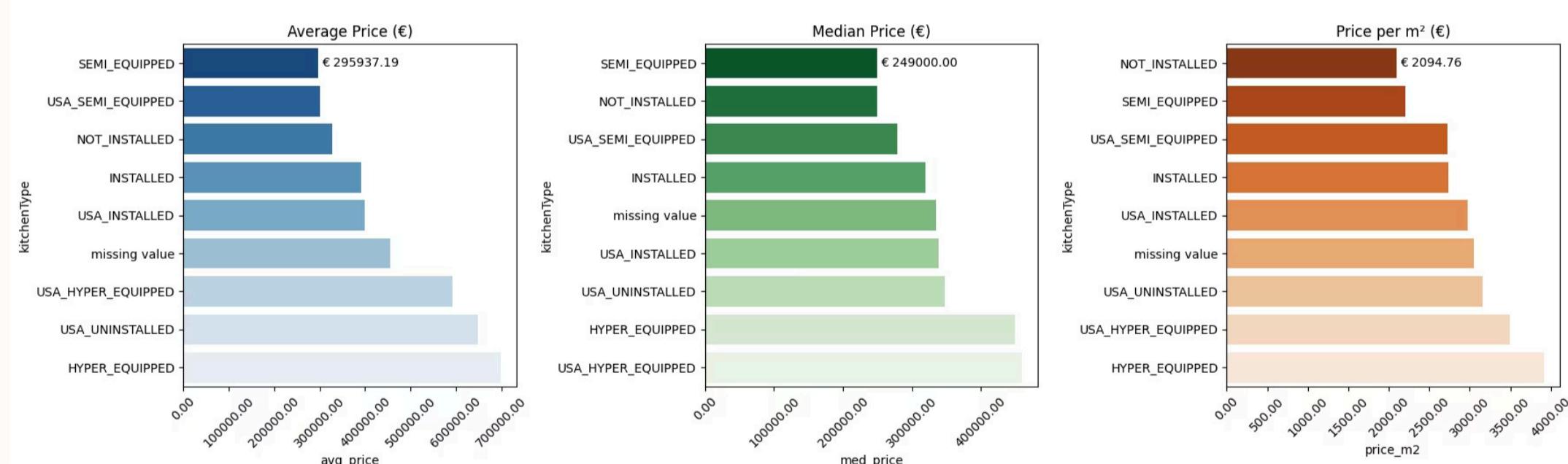
Price Comparison by Property Subtype



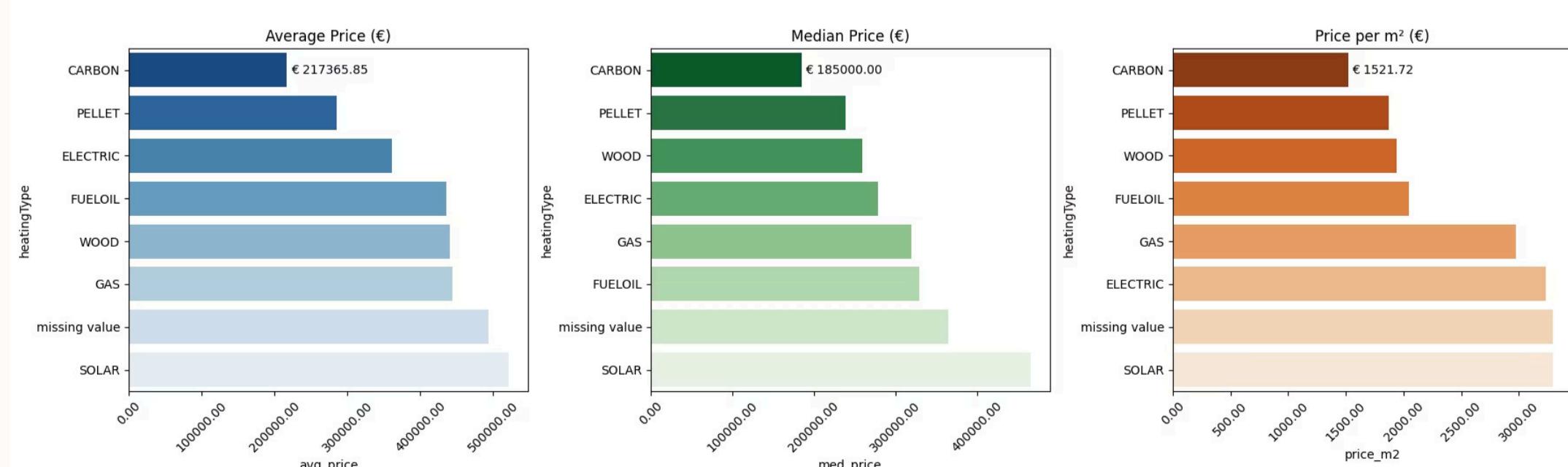
Price Comparison by Building Condition



Price Comparison by Kitchen Type



Price Comparison by Heating Type



Regional & City-Level Insights

💰 Locality Price Extremes by Region

- **Brussels** 🏆 Most expensive: WOLUWE-SAINT-PIERRE — 493,022 € (n=227) 🔺 Least expensive: MOLENBEEK-SAINT-JEAN — 282,000 € (n=506)
- **Flanders** 🏆 Most expensive: HERSTAPPE — 700,000 € (n=1) 🔺 Least expensive: REKEM — 181,200 € (n=7)
- **Wallonia** 🏆 Most expensive: OGY — 625,000 € (n=2) 🔺 Least expensive: BLAIMONT — 84,842 € (n=19)
- 💰 **Region price comparison:** 🏆 Most expensive: Flanders — 377,868 € (n=18124) 🔺 Least expensive: Wallonia — 287,953 € (n=18085)
- 🏆 **Most sold type:** HOUSE (34825 sales) → 45.59%
- **Most popular type:** HOUSE:34825 → 45.59% , APARTMENT:26765 → 35.04%
- * **Renovation status**, followed by **heating type** and **kitchen quality**, are the most actionable criteria that significantly affect both the absolute and relative value of real estate in Belgium.
- Properties in **excellent condition with modern amenities** (solar heating, hyper-equipped kitchens) consistently outperform others in €/m² and sale price.

Use Cases & Impact



Homebuyers

Determine fair market value before making offers, identify undervalued properties, compare neighborhoods efficiently



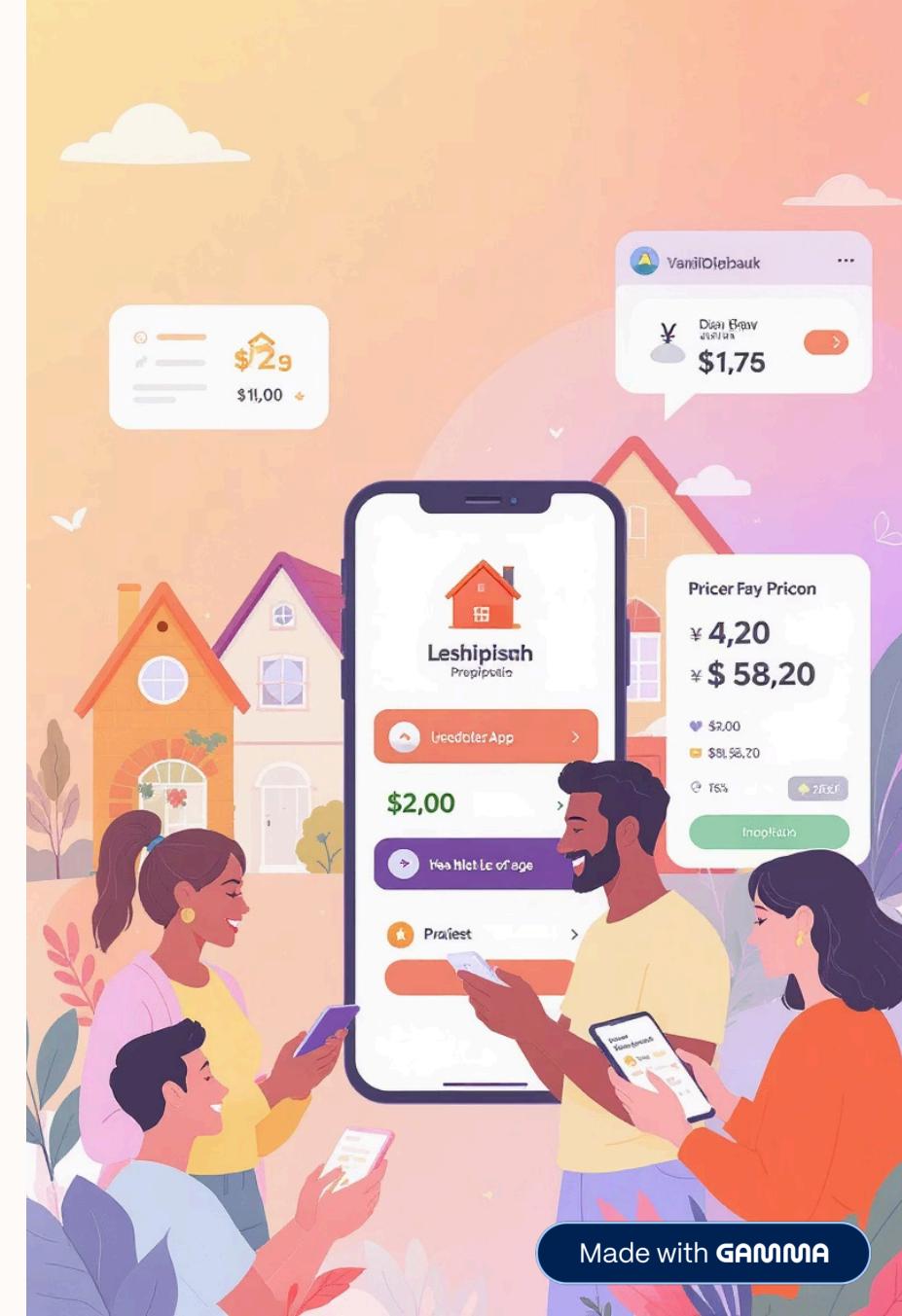
Sellers & Agents

Set competitive listing prices based on property features, understand market positioning, highlight value-driving attributes

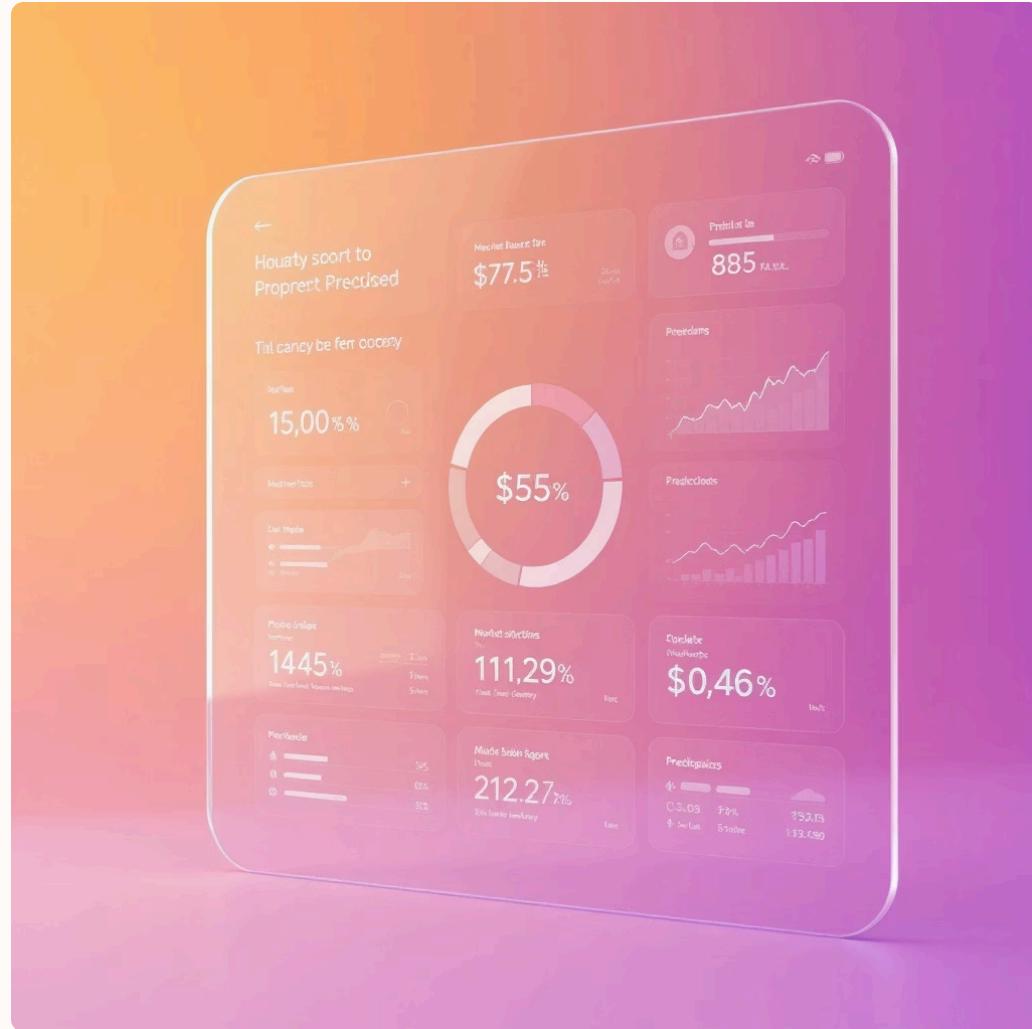


Investors

Identify emerging high-value areas, calculate potential returns, make data-driven investment decisions



Conclusion: Toward a Transparent Market



ImmoEliza's Impact

- Providing data-driven clarity to Belgian property pricing
- Empowering buyers and sellers with market knowledge
- Reducing information asymmetry in real estate transactions

Future Developments

- Expanding feature set with more property attributes
- Improving prediction accuracy with advanced AI
- Implementing real-time data updates and market alerts