Project 1: Interpret a Data Visualisation

Introduction

Within the European Union, Madrid, the vibrant capital of Spain, is of great political, economic, and cultural significance. Madrid, a significant worldwide city with a population of about 3.2 million, is home to a vibrant economy, historic areas, and cultural treasures. This report explores the "Madrid in Detail" Tableau dashboard in order to derive three significant insights that highlight the diverse character of the city. The objective is to interpret the major factors that contribute to Madrid's significance in the international arena using interactive maps, nationality distributions, and correlation analysis that are found in the dashboard.

Insight 1: Population density Distribution in Madrid Neighbourhoods

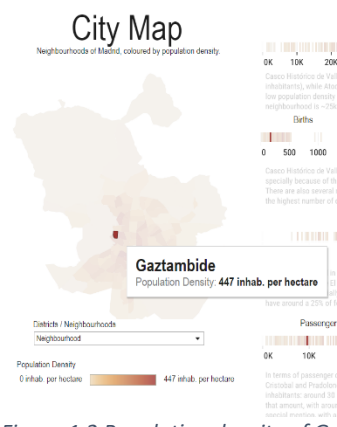*Figure 1.1 Madrid city map of Population density distribution*

Figure 1.2 Population density of Gaztambide neighbourhood

Darker colours indicate higher population density, as seen in the interactive map of Madrid (Fig. 1.1). Analysis of the map indicates variability in density, most notably in Gaztambide (447 residents/hectare), which is depicted in Fig. 1.2 in a darker tone. The ability to customise infrastructure and services for densely inhabited places like Gaztambide makes this insight essential for urban development. The dynamic representation helps make strategic decisions for optimising the particular requirements of densely inhabited clusters and offers a detailed view of Madrid's urban setting.

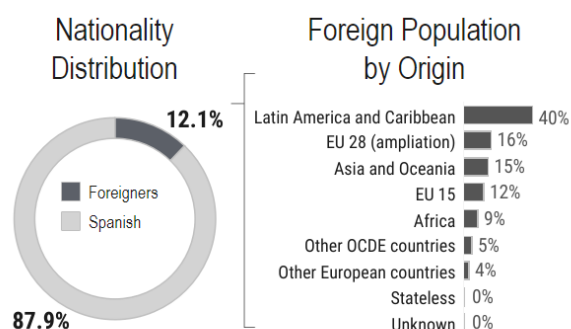## Insight 2: Diversity in Nationality composition of the city of Madrid.

Figure 2 Diversity in nationality composition of the city of Madrid

The Madrid nationality distribution pie chart, which shows that 12.1% of the population is foreign, depicts a multicultural diversity of varied backgrounds. Upon deeper inspection, the largest group of foreign-born people is found to be Latin Americans and Caribbeans (40%) and then people from the EU 28 (Ampliation) (16%). Madrid's cosmopolitan identity is reflected in this combination of cultures, which presents a chance for focused community engagement and services in regions with concentrated populations of particular nationalities, especially Latin Americans and Caribbeans.

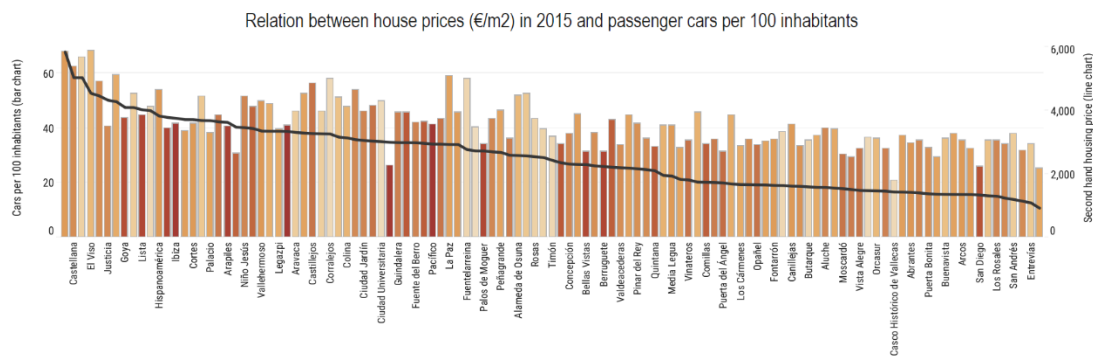## Insight 3: Correlation Between Car Ownership and Housing Prices in Madrid.

Figure 3 correlation Between car ownership and housing prices in Madrid

The correlation between car ownership and the cost of secondhand houses in Madrid suggests that there may be a relationship between these two variables. Increased neighbourhood car ownership correlates with different property price patterns, suggesting a complex interplay between real estate dynamics, urban planning, and lifestyle choices. This relationship is evident in both the line chart illustrating second hand housing prices for neibourhoods and the bar char depicting the number of cars per 100 inhabitants for different neibourhoods. This insight highlights the complexity of neighbourhood preferences and exhorts real estate experts and legislators to take these connections into account when making decisions about future city development.

Summary and Conclusions

To sum up, three insights have been made from the analysis of the "Madrid in Detail" dashboard. The nationality distribution emphasises Madrid's status as a melting pot of various cultures, while the population density distribution draws attention to the spatial complexities of urban living. The relationship between housing costs and car ownership sheds light on urban dynamics. All of these observations support the importance of data visualisation in revealing the complexity of an international city like Madrid.