



8th International  
Conference on  
**BIG DATA**  
& Data Science for Official Statistics

**BILBAO 2024**

Informing Climate Change and  
Sustainable Development Policies  
with Integrated Data

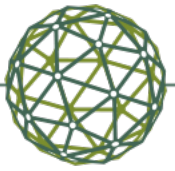
**BILBAO. SPAIN** **10-14 JUNE 2024** **#UNBigData2024**

# The use of mobile phone data for tourism statistics

**Alfonso Fernández Bes**

Tourism Statistics Department - INE





# Tourism in figures

11.6% of GDP (2022)

85.2 millions of international  
tourists in 2023

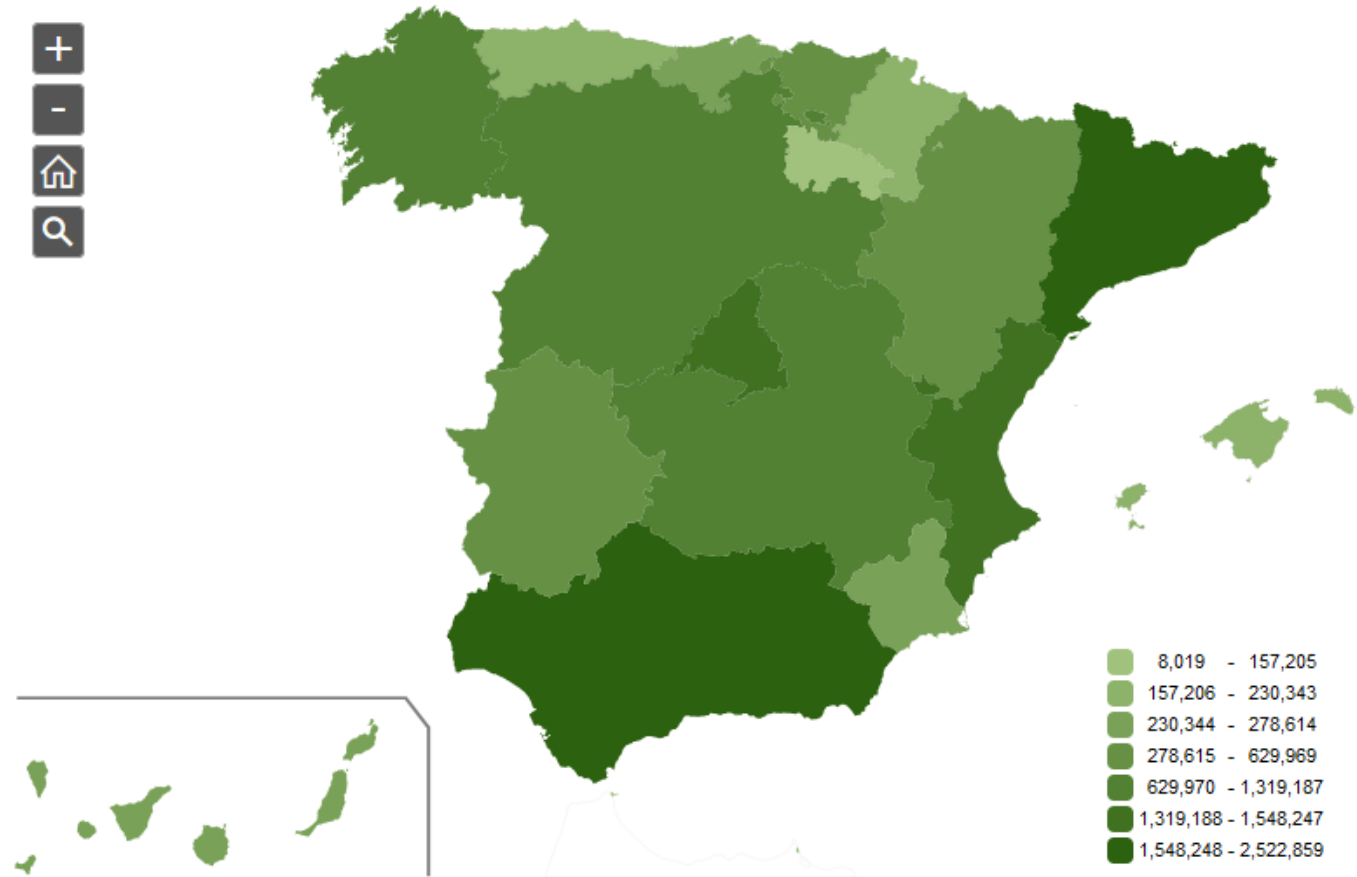
108.8 million € in 2023

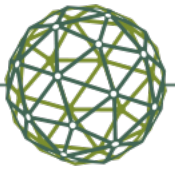
166.6 millions of national tourist in  
2023

39.7 millions € in 2023

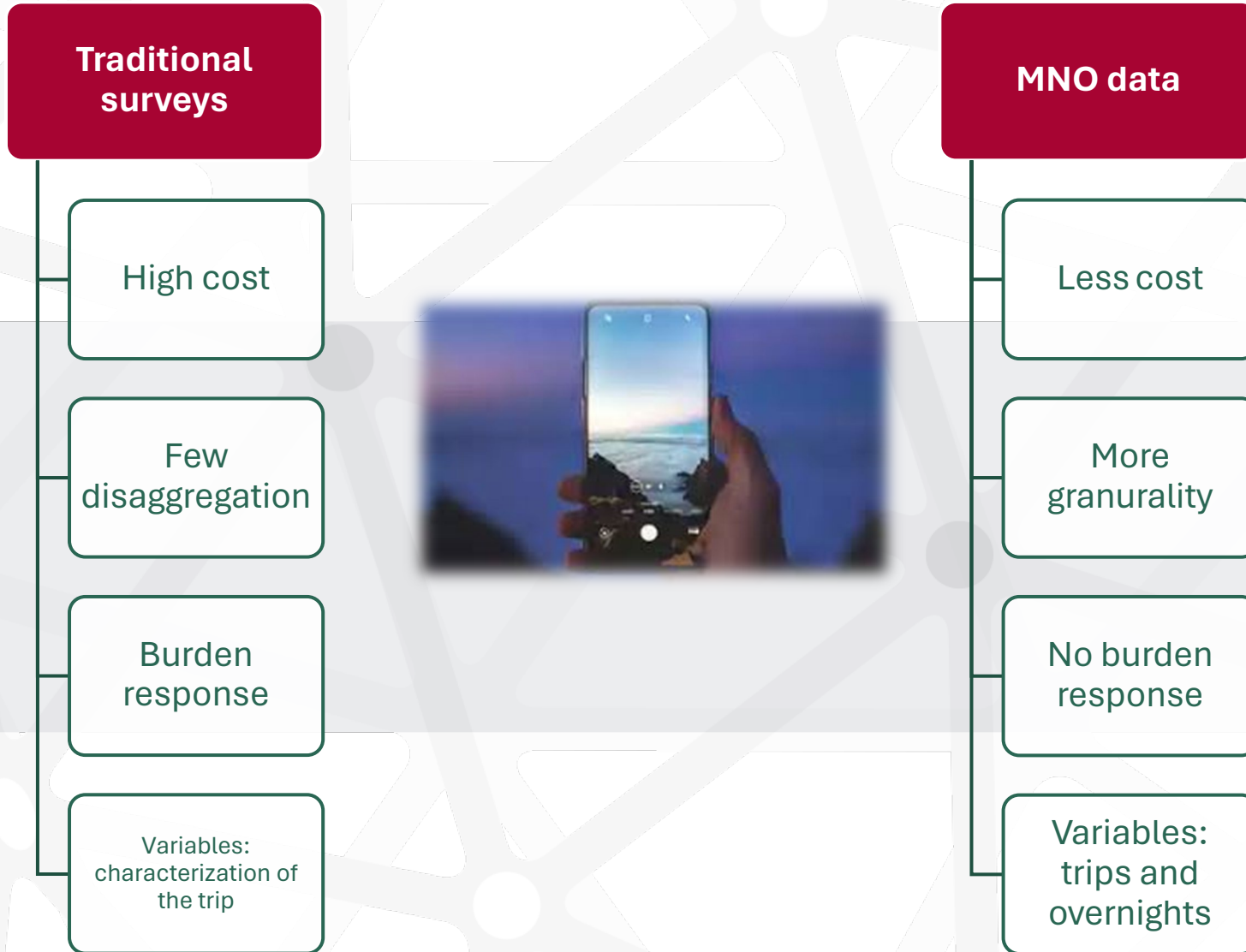
347.1 millions of overnight stays  
in hotels in 2023

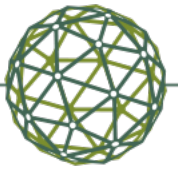
Interprovincial tourists by destination of residents in Spain in the reference period





# Traditional surveys vs New sources of data





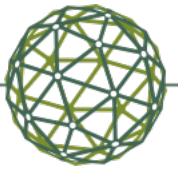
# Measurement of National and Inbound Tourism from the position of cell phones

- Agreement with 3 MNOs:
  - Telefónica
  - Vodafone
  - Orange
- Monthly data provided:
  - July 2019 and so on



**Main objective:** Measure No. of tourist (resident and non-resident), broken down by origin and destination of trips.

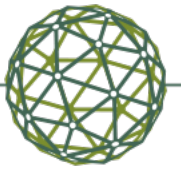




# Measurement of National and Inbound Tourism from the position of cell phones

- Work in cooperation with MNOs to adapt the information recorded in their databases to tourism concepts and definitions
- NSI Spain integrates the information sent by the three companies
- Great results for trips and overnight stays for inbound, outbound and internal tourism
- Work in progress: dealing with the distortions in the borders





# Measurement of National and Inbound Tourism from the position of cell phones

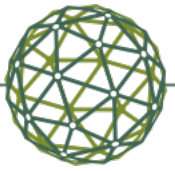
## Inbound – Outbound – Domestic Tourism

- Variables:
  - Tourists
  - Overnight stays
  - Average stay
- Monthly
- Country of origin/destination (Inbound/Outbound)
- Origin/Destination at NUTS2, NUTS3 and municipality level (Outbound-Domestic/Inbound)

**Only inter-province trips in domestic tourism**

**Confidentiality:** INE only receives files with aggregated data  
(we don't have access to individual records nor can identify individuals).

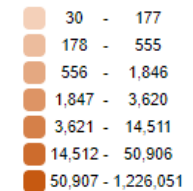
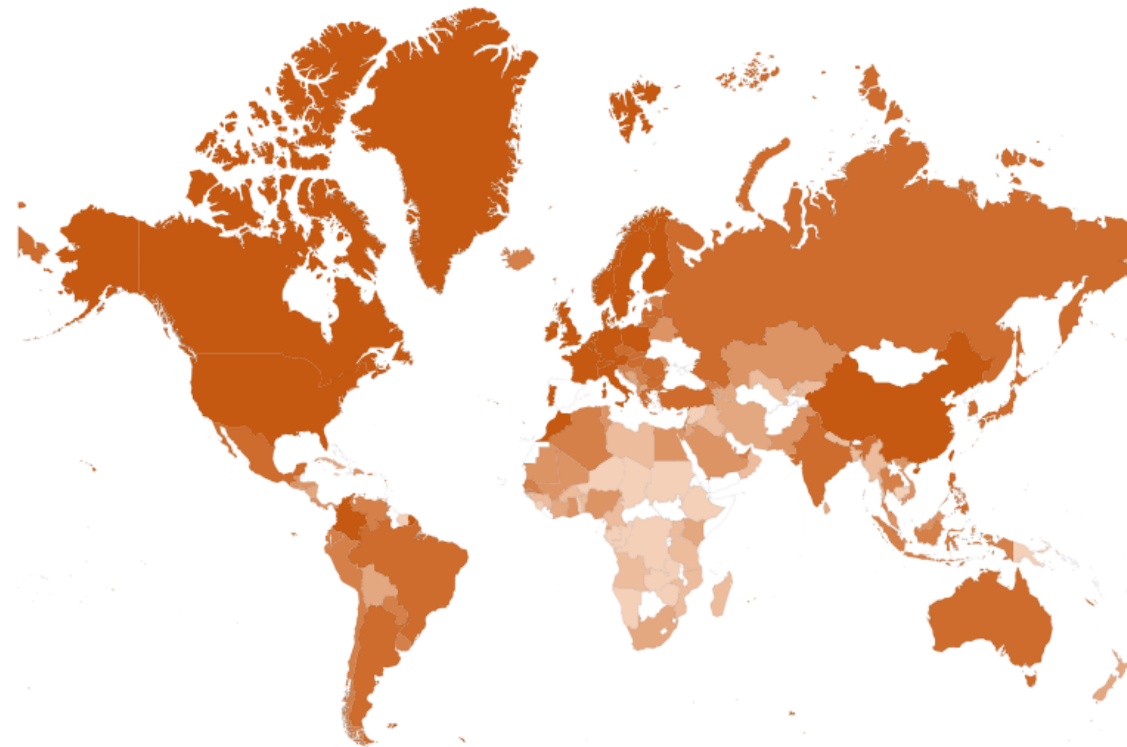
Only cells with 30 tourists or more are published



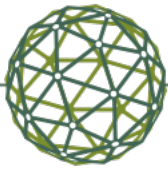
# Inbound tourism from the position of cell phones

Foreign tourists in Spain from each country in the reference period

Period: 2024M03 ▼



**World map:** painting with colour intensity the countries of origin of tourists to Spain

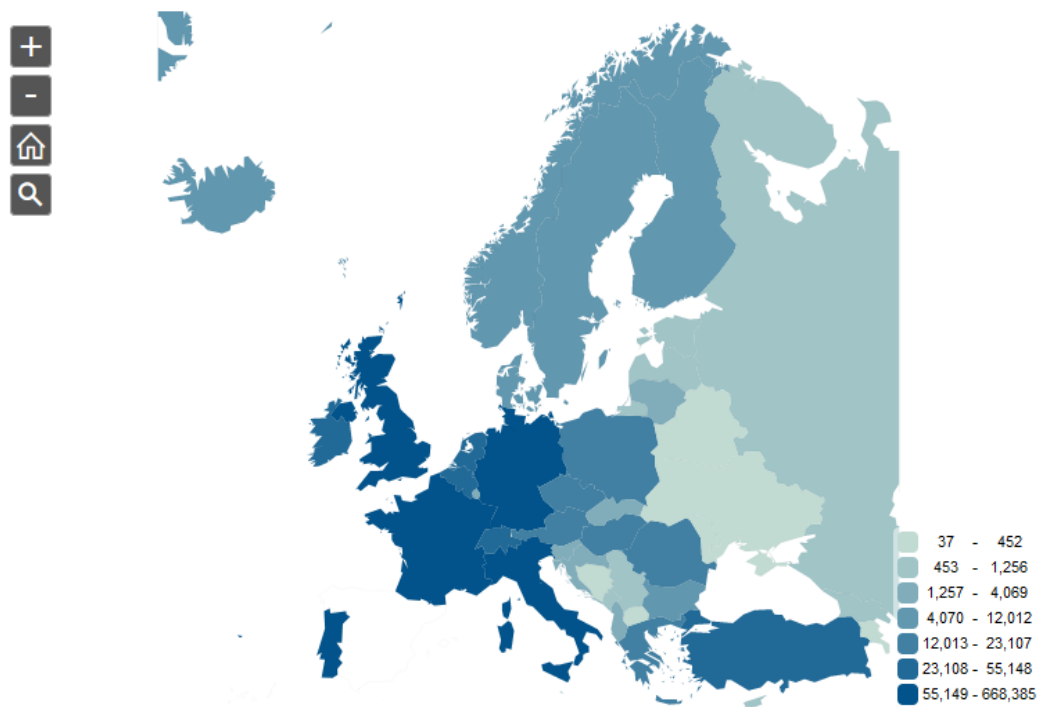


# Outbound tourism from the position of cell phones

Tourists abroad who are residents in Spain in the reference period

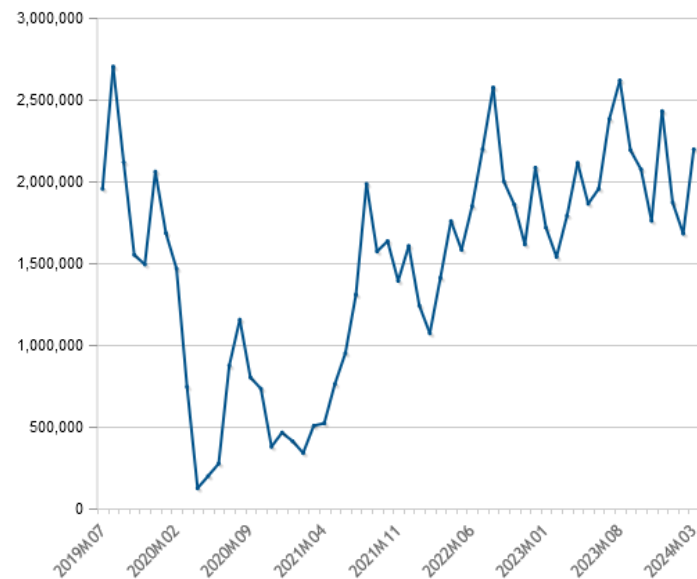
Select the geographical scope:  Europe  America  Asia  Africa  Oceania

Period: 2024M03



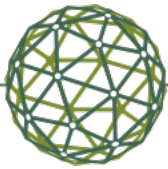
See Total

Europe



Map for each continent, painting with colour intensity the countries of destination of tourists from Spain



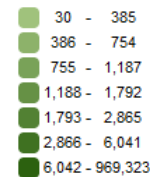
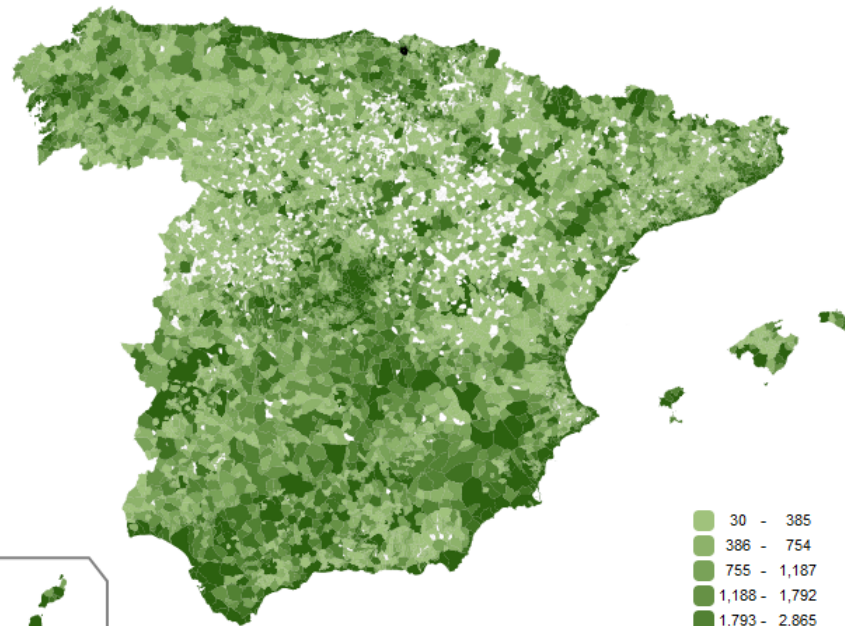


# Domestic tourism from the position of cell phones

## Interprovincial tourists by destination of residents in Spain in the reference period

Select the geographical scope:  Autonomous Communities and Cities  Provinces  Municipalities

Period: 2024M03

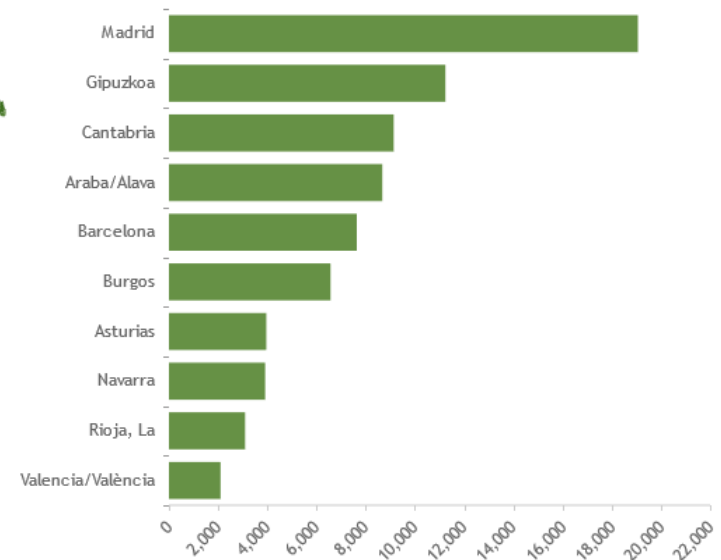


See Total

**Bilbao**

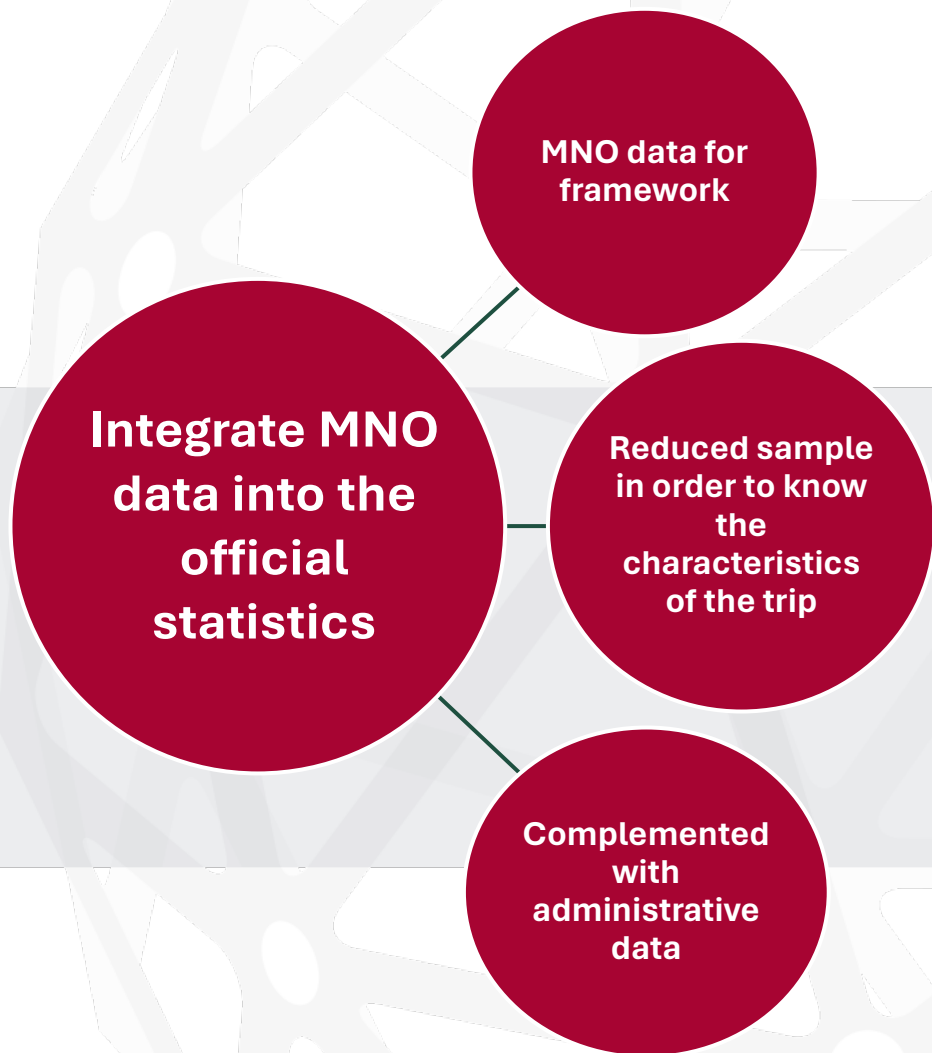
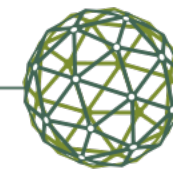
Tourists Communities and Autonomous Cities Provinces Municipalities

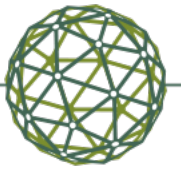
### Main origins of the selected destination



Maps for municipalities, painting with colour intensity according the number of tourists and a graph for the main provinces of origin.

# Future plans





**THANK YOU VERY MUCH FOR  
YOUR ATTENTION**

[Alfonso.fernandez.bes@ine.es](mailto:Alfonso.fernandez.bes@ine.es)