

Part II Analysis and Reporting Features



17th TourMIS Workshop

September 8, 2022

Analysis and Reporting Features

1. Measuring and benchmarking arrivals and bednights
 - Revision of table ETC-M1: An additional feature ("reference year") has been included to compare the latest available statistics from European countries with the same period before the Covid 19 pandemic.
 - EU27 market was added to the tables ETC-M4 and ECM-M4. The tables now also include a line 'All' (= sum of all destinations) which makes it easier to compare the performance among competing destinations.
2. Market volume and growth analysis (,Portfolio A.')
3. Measuring and benchmarking seasonality
4. The Connectivity of Railroads in Europe

14:45 coffee break

Market volume, market growth analysis
and
Portfolio visualization

A Common Problem In Marketing

To find the right (optimal) mix of target markets

Implications for strategic (long-term) decisions and for the budget allocation process (e.g. where should we invest?)

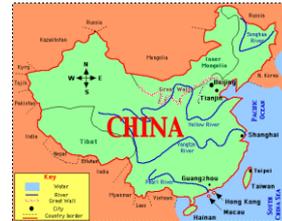
Two basic questions from a DMO's perspective:

- **Attractivity** of a market?
- What are the **chances of my tourism destination** in attracting visitors from a particular market?

Portfolio Analysis

What makes a market attractive?

1. Size/volume



e.g. Germany, China, ...

2. Growth/Prospects



e.g. Middle East, Brazil,...

Measured by market volume and market growth indicators

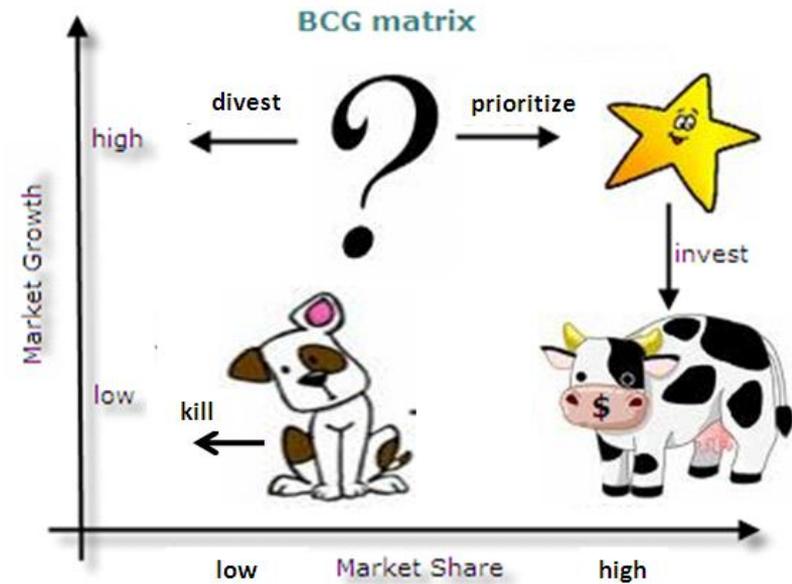
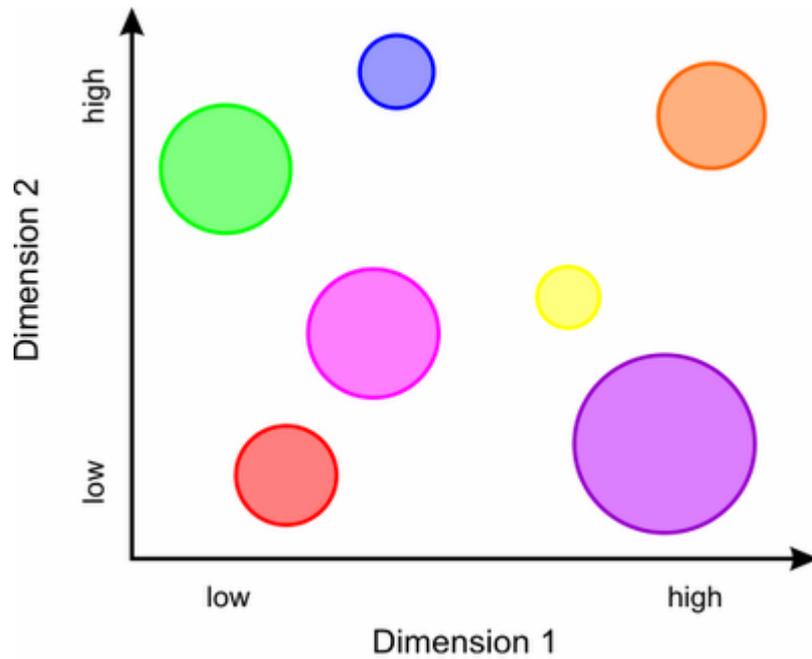
- # of travellers/arrivals/bednights or spendings
- either measured at the country of origin (source market) or in all destinations (e.g. total bednights in all destinations)

Portfolio Analysis

Strategic Key Performance Indicators

- **Absolute market share** is the ratio when comparing the performance of a particular destination with the overall market volume (in %)
- **Relative market share** is the ratio of the market share of a particular destination compared to the market share of the leading destination (or the second best destination if the destination of evaluation is the market leader)
- **Guest mix share (= importance value)** is the proportion of bednights sold of a particular market compared to the overall number of bednights recorded in a tourism destination (in %)

Visualization by the Market growth-share matrix



Measuring and comparing seasonality in European destinations

Causes of seasonality in tourism

- **Seasonality: The systematic intra-year variation in visitation caused by exogenous factors**
 - Natural (e.g. climate)
 - Institutional
 - caused by the markets of origin (e.g. timing of school holidays)
 - caused by the destination (e.g. regular mega-events)
 - Calendar effects (e.g. Easter)
- **Challenges**
 - The need to **optimize the use of tourism infrastructure** such as roads to accommodate high flows during certain periods
 - Seasonality **increases the risk of high unemployment** during the low seasons
 - In dryer regions the issue of **water scarcity** is of particular concern

Actions to overcome seasonality

- **Product**

Development of new offers, events, packages, ...

- **Pricing**

Providing discounts for periods with less demand

- **Promotion**

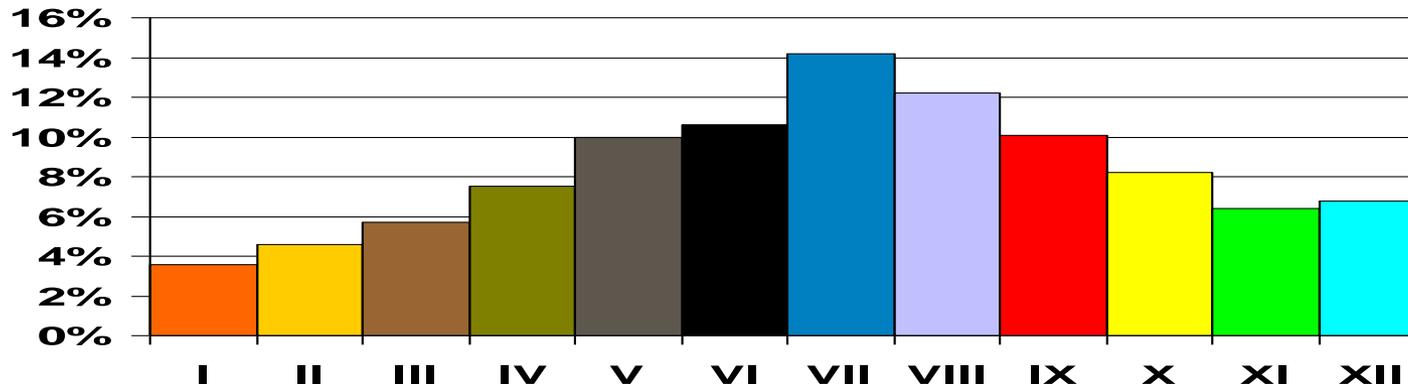
When and how intensively we will promote the tourism products

- **Placement**

Which geographic region/market should be promoted

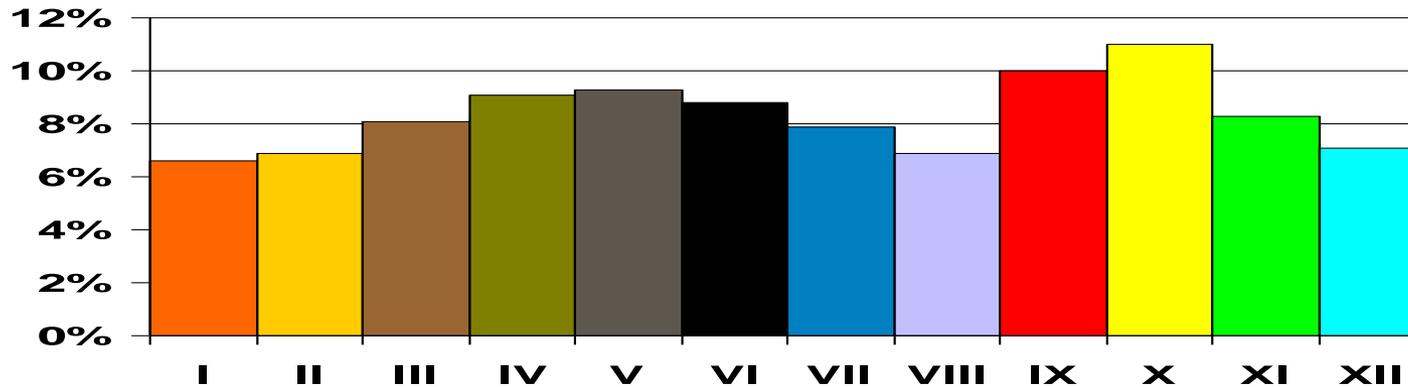
Which segments (e.g. young adults, families, business people)

Gini coefficient



LÜBECK

Gini=0.207



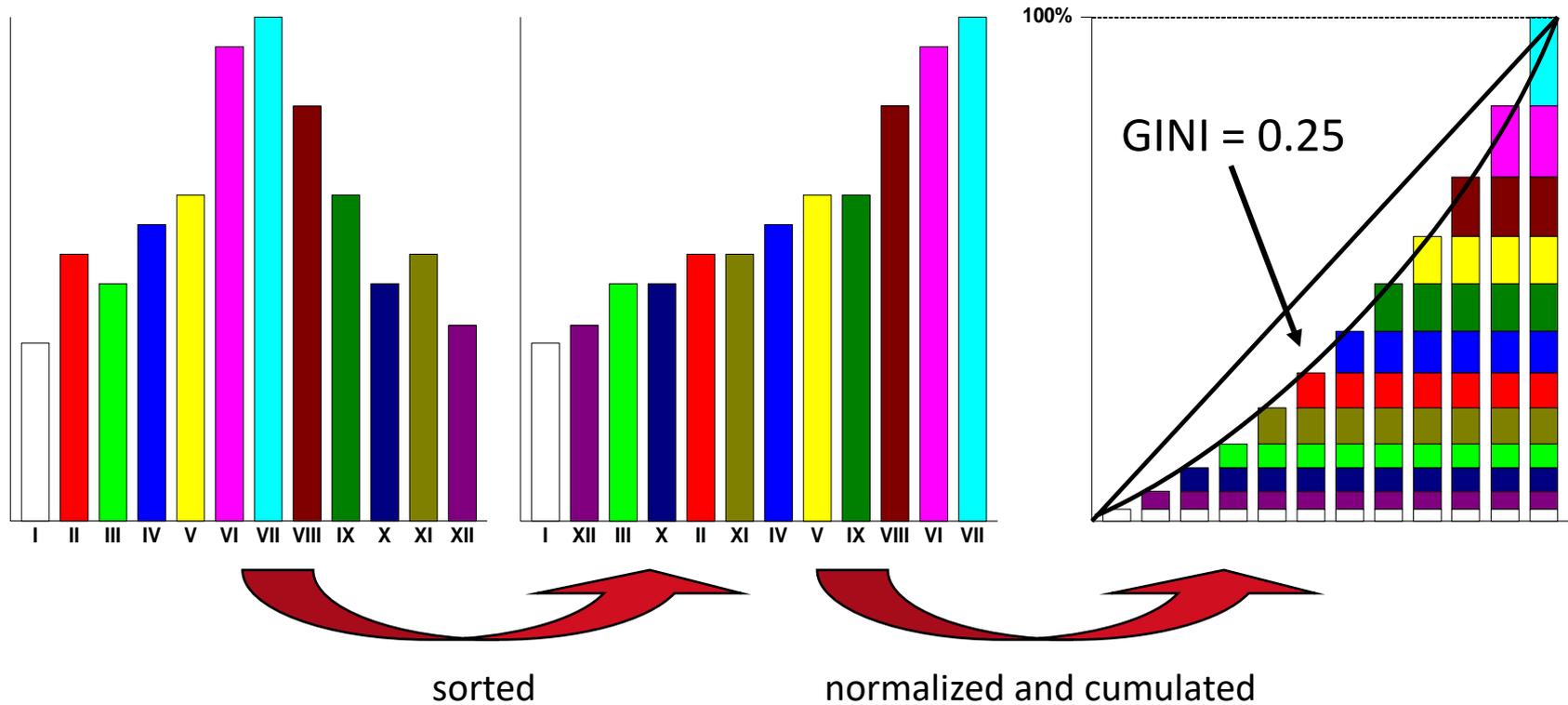
MADRID

Gini=0.088

Gini coefficient

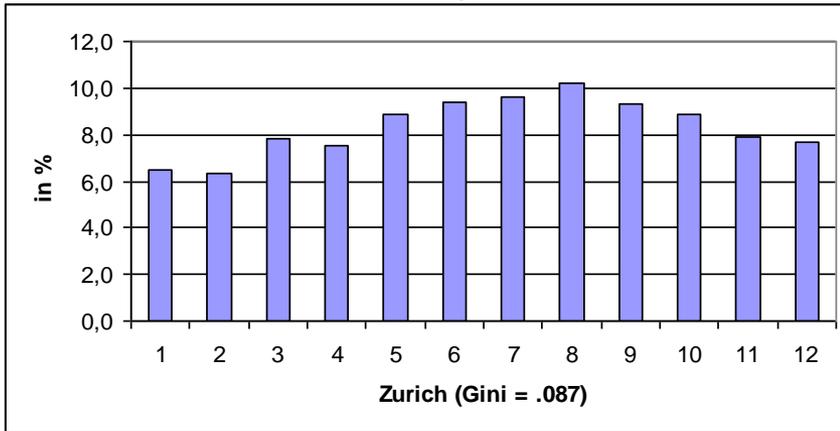
Measure of statistical dispersion. The Gini can be approximated

with trapezoids:
$$G^* = 1 - \sum_{i=1}^{12} (X_i - X_{i-1}) \times (Y_i + Y_{i-1})$$

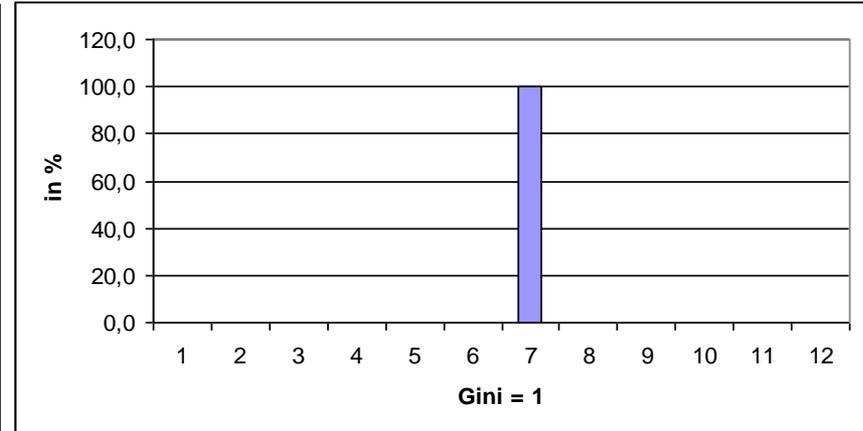
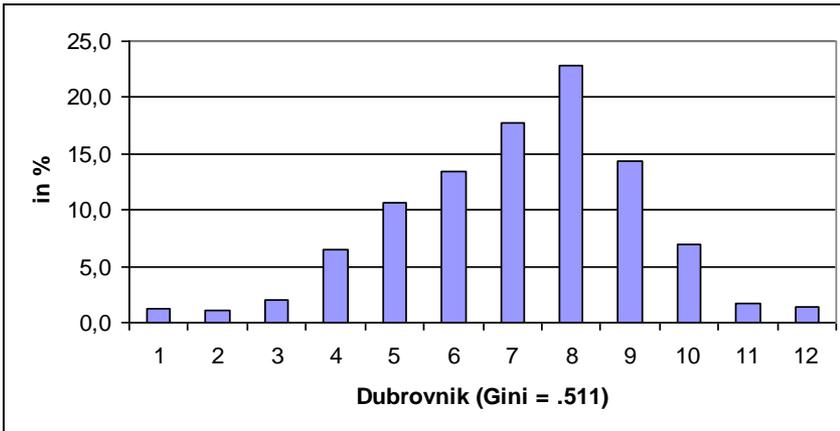
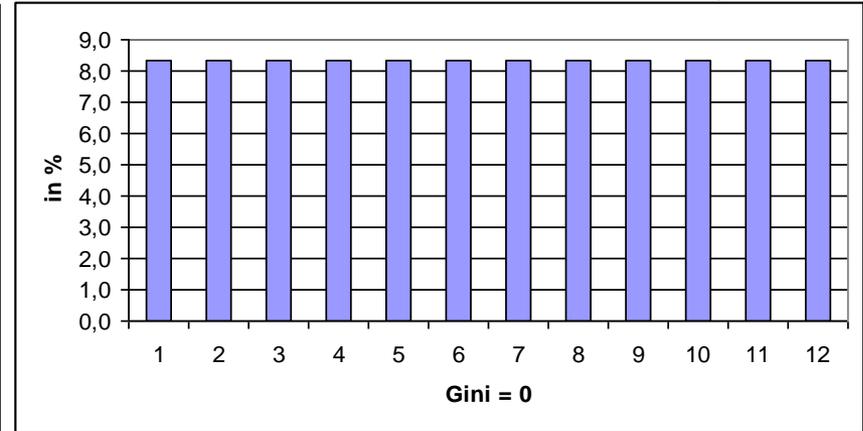


Measuring seasonality

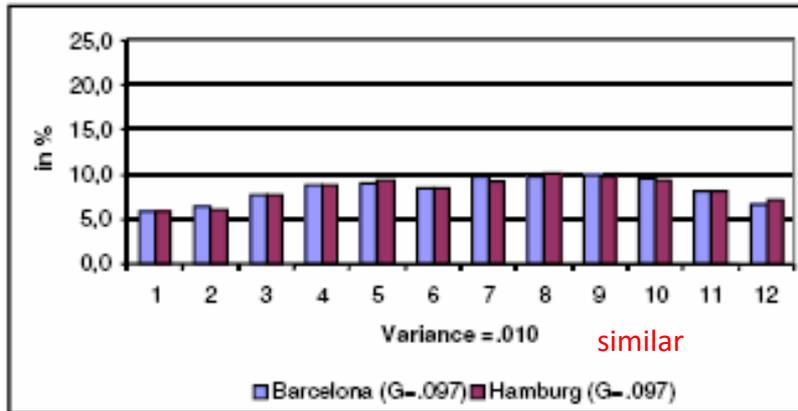
Examples



Extreme situations (in theory)

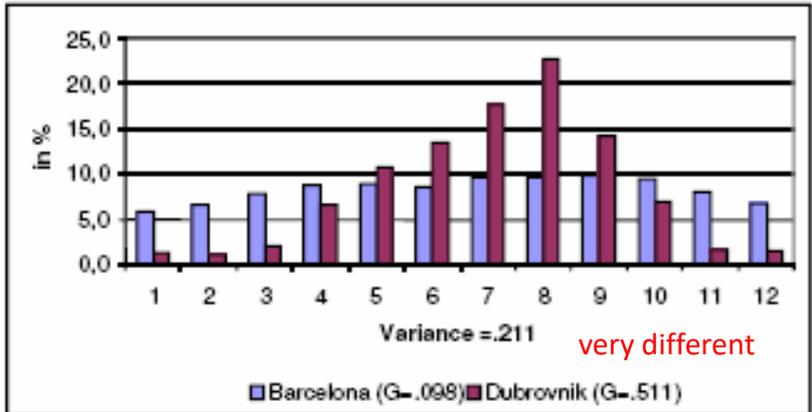
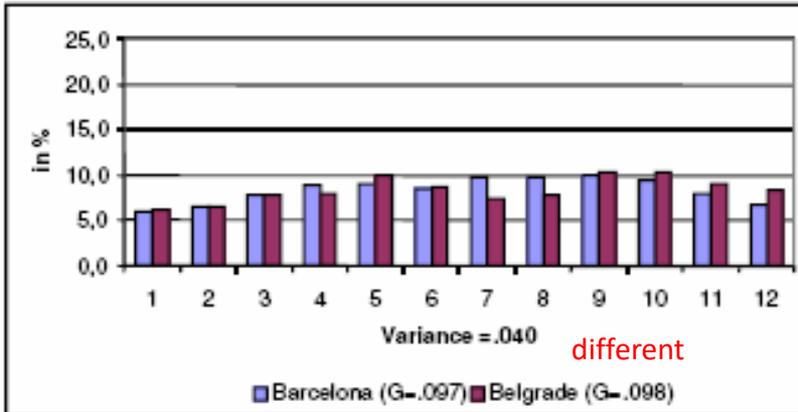


Similarity of seasonal patterns



$$d = \sqrt{\sum_{i=1}^{12} (x_i - y_i)^2}$$

Similarity of seasonal patterns of two destinations. Multiple destinations?



The Connectivity of Railroads in Europe

Working Group Members

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Travel by Rail gaining importance

- 2021 “European Year of Rail” EU Action Plan
- 2022 “DiscoverEU” campaign (European Year of Youth)
- Sustainability: for efficient and green mobility
- Post COVID-19: relaunching transport and tourism
- New Train Routes: EU connectivity initiatives
- Intermodal integration & Digitalisation

Rail still only represents 8% total travel within EU (measured in passenger km)

EC Action plan: double rail traffic by 2030, triple by 2050

Eurostat (2020) People on the move: Statistics on Mobility in Europe. 2020 edition.

Literature Research (52 papers)

Emerging Themes

- Governance
- Open access – market competitiveness
- Sustainability
- Infrastructure planning
- Passenger/tourism flows
- (tourism) economic impacts
- Service quality & passenger behavior
- Rail tourism (heritage)

Common Methodologies/ Data

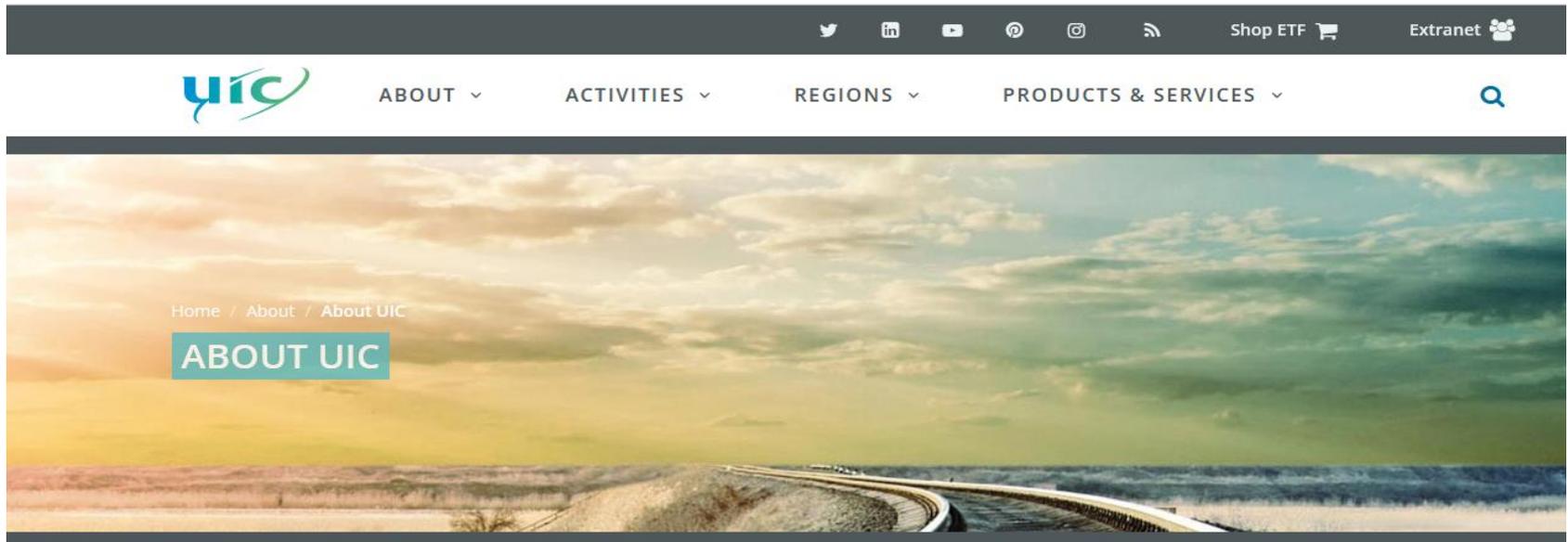
- Review
- Conceptual Model/Index
- (Comparative) Case studies
- Mobile data, video observation
- Interviews, focus groups
- Survey
- Panel data, Eurostats

Regions of Focus

- China: tourism & economic impacts
- UK: governance, service quality
- EU countries: open access, market competitiveness
 - Italy, Netherlands, Poland
- EU (multiple): index, reviews

Travel by Rail

- Measuring the tourism share of rail travel is difficult
- Replacement: Measurement of connectivity - quality of rail connections between tourism destinations and major markets in Europe
- International Union of Railways - MERITS database



The Connectivity of Railroads in Europe

- Acquisition of the MERITS database (all 2021 timetables) by CityDNA – Analysis by Modul University
- Review of the data material (completeness, information content)
- Data uploaded to TourMIS
- Aim: Analysis of direct connections between the most important European cities
 - Direct and indirect connections between (CityDNA) cities
 - Number of (international) trains
 - Average speed

The MERITS Database 2021

Big and complex data set

- Number of railway companies: 1,534
 - **195 (12.7%) providers of passenger services**
 - 827 freight
 - 194 infrastructure or other
 - 318 (20.7%) unknown
 - Largest number of passenger service providers from Germany (48), Europe (18), Austria (15), Italy, Czech Rep. (15), Sweden (10), Poland (10), Netherlands (9), Switzerland (8), UK (6), France (6), Hungary (6), and Spain (3).
- Number of stations: 24,001
- Number of trains: 639,389
- Number of departures: 8.7mn

Stations in Europe

35,964 stations with UIC identifier (code) provided by the International Union of Railways. Thereof 11,963 (33%) without name, 24,001 (67%) with name.

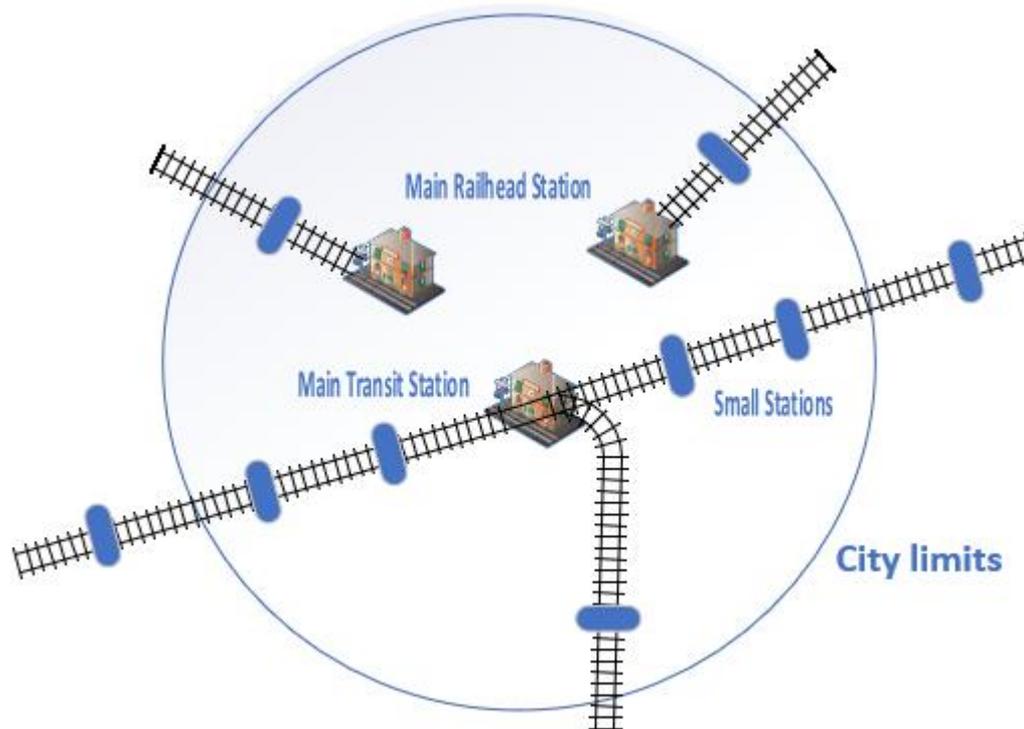
Country	Geo	in %	no Geo	Total	in %	Geo in %	Country	Geo	in %	no Geo	Total	in %	Geo in %
Germany	6,495	28.73%	306	6,801	28.34%	95.50%	Serbia	32	0.14%		32	0.13%	100.00%
France	5,815	25.72%	715	6,530	27.21%	89.05%	Slovenia	20	0.09%	2	22	0.09%	90.91%
Italy	3,610	15.97%	30	3,640	15.17%	99.18%	Croatia	16	0.07%	1	17	0.07%	94.12%
United Kingdom	2,587	11.44%	13	2,600	10.83%	99.50%	Romania	15	0.07%		15	0.06%	100.00%
Spain	1,160	5.13%	56	1,216	5.07%	95.39%	Greece	14	0.06%		14	0.06%	100.00%
Belgium	561	2.48%	8	569	2.37%	98.59%	Bulgaria	12	0.05%		12	0.05%	100.00%
Switzerland	443	1.96%	65	508	2.12%	87.20%	Bosnia and Herzegovina	12	0.05%		12	0.05%	100.00%
Netherlands	403	1.78%	14	417	1.74%	96.64%	Slovakia	12	0.05%		12	0.05%	100.00%
Czech Rep.	378	1.67%		378	1.57%	100.00%	Russia	10	0.04%		10	0.04%	100.00%
Austria	180	0.80%	163	343	1.43%	52.48%	Macedonia	10	0.04%		10	0.04%	100.00%
Denmark	209	0.92%		209	0.87%	100.00%	Ukraine	8	0.04%		8	0.03%	100.00%
Finland	207	0.92%		207	0.86%	100.00%	Montenegro	6	0.03%		6	0.02%	100.00%
Norway	188	0.83%		188	0.78%	100.00%	Turkey	3	0.01%		3	0.01%	100.00%
Poland	144	0.64%		144	0.60%	100.00%	Latvia	3	0.01%		3	0.01%	100.00%
Hungary	83	0.37%	1	84	0.35%	98.81%	Belarus	3	0.01%		3	0.01%	100.00%
Luxembourg	63	0.28%	5	68	0.28%	92.65%	Andorra	3	0.01%		3	0.01%	100.00%
Portugal	51	0.23%	15	66	0.27%	77.27%	Lithuania	2	0.01%		2	0.01%	100.00%
Sweden	33	0.15%		33	0.14%	100.00%	Marocco	2	0.01%		2	0.01%	100.00%
							Total	22,610	100.00%	1,391	24,001	100.00%	

Completeness of MERITS dataset 2021

Countries with more than 10 stations in the MERITS Database

Country	Area (km ²)	Population (mn)	Stations			Appearances			
			in MERITS	per 1,000 km ²	per 1 mn citizens	min. 1x	in %	Total	per station
1 Germany	357,386	83.7	6,801	19.0	81.3	5,996	88.2%	4,265,062	711.3
2 France	551,695	67.9	6,530	11.8	96.2	22	0.3%	887	40.3
3 Italy	301,318	58.9	3,640	12.1	61.8	1,752	48.1%	198,118	113.1
4 UK	242,495	66.3	2,600	10.7	39.2	2,504	96.3%	2,263,369	903.9
5 Spain	498,511	47.4	1,216	2.4	25.6	689	56.7%	11,009	16.0
6 Belgium	30,510	11.6	569	18.6	49.1	549	96.5%	358,337	652.7
7 Switzerland	41,290	8.8	508	12.3	58.0	11	2.2%	6,325	575.0
8 Netherlands	41,198	17.7	417	10.1	23.5	16	3.8%	6,137	383.6
9 Czech Republic	78,866	10.5	378	4.8	35.9	370	97.9%	44,264	119.6
10 Austria	83,858	9.1	343	4.1	37.9	38	11.1%	6,538	172.1
11 Denmark	44,493	5.9	209	4.7	35.5	7	3.3%	271	38.7
12 Finland	338,145	5.6	207	0.6	37.3	190	91.8%	47,944	252.3
13 Norway	385,178	5.4	188	0.5	34.6	185	98.4%	22,973	124.2
14 Poland	312,685	38.0	144	0.5	3.8	129	89.6%	109,625	849.8
15 Hungary	93,030	9.7	84	0.9	8.7	79	94.0%	19,387	245.4
16 Luxembourg	2,586	0.6	68	26.3	107.1	-	0.0%		
17 Portugal	88,416	10.4	66	0.7	6.4	48	72.7%	3,645	75.9
18 Sweden	450,295	10.5	33	0.1	3.1	32	97.0%	20,010	625.3
19 Serbia	88,361	6.8	32	0.4	4.7	12	37.5%	109	9.1
20 Slovenia	20,273	2.1	22	1.1	10.4	21	95.5%	3,946	187.9
21 Croatia	56,594	3.9	17	0.3	4.4	8	47.1%	298	37.3
22 Romania	238,397	19.2	15	0.1	0.8	9	60.0%	962	106.9
23 Greece	131,940	10.7	14	0.1	1.3	10	71.4%	322	32.2
24 Bulgaria	110,994	6.8	12	0.1	1.8	10	83.3%	990	99.0
25 Slovakia	49,036	5.4	12	0.2	2.2	12	100.0%	1,749	145.8
26 Bosnia and Herzegovina	51,129	3.5	12	0.2	3.5	-	0.0%		
Total 26 countries	4,688,679	526.3	24,137	5.1	45.9	12,699	52.6%	7,392,277	582.1

Stations in Cities



- Which station belong to a particular city?
- Main train stations?

Currently six reports in TourMIS

1. List of stations
2. Information on specific trains
3. Stations in cities
4. Arriving and departing trains by stations
5. Arriving and departing trains by city
6. Direct connections between cities

White paper (Manual) on who to use and interpret the Merits database on TourMIS