# Agenda

1. What does research on space of flows really mean?
2. Why is it so important?
3. How can we quantify it? (case of tourism)
4. How can we describe it?
5. What can we get to know by applying it? (case of tourism)
6. Conclusion

# 1

# What does space of flows research really mean?

# What does space of flows research really mean?

- In geographical space a numerous dynamic, „flowing" phenomena exist and are analyzed…

- …as nothing more than its static intersection ;(

- They are an elements of so called SPACE OF FLOWS (Castells, 2004), identified and accepted by geographers…

- …perceived as some kind of abstract and intangible theoretical concept rather than a substantial way of empiry description.

- Because, in order to say anything about SPACE OF FLOWS, we need to have **data on individual relations** between spatial units in particular temporal intersections (eg. matrices from ESPON IRiE)…

# 2

# Why is space of flows research so important?

# Why is space of flows research so important?

**Indeed, it is from all three perspectives:**

- **Objective:** it allows to get to know better our increasingly dynamic world. The size and importance of „flows" (objects of study), as well as our technical abilities to gather data on them, is constantly growing.

- **Subjective:** it allows to address questions which are crucial for study of geographical space (subjects of study):

  - where are the exact places of origins and destinations of „flowing assets"? And then consequently…

  - why there actually?

- **Pragmatic:** ESPON realized that currently knowledge about European space of flows is necessary to make spatial policy more effective. Therefore ESPON IRiE has been selected to be financed.

# 3

# How can we quantify space of flows?

# Case of tourism

# How can we quantify space of flows?

- A shortage of data on space of flows covering large areas and having consistent methodology still exists.

- We applied a variety of methods to deliver it, depending on specificity of given „flowing asset".

- Among data on 11 major „flowing assets" being under investigation of ESPON IRiE we can find resources which has been already gathered by relevant external institutions and provided as ready products…

- …as well as the matrices created by researchers as theoretical models based on real, but incomplete or inconsistent empirical observations (tourism case).

# How can we quantify space of flows?

General assumptions of ESPON IRiE:

- There were 11 major „flowing assets" standardized to investigate in consistent way: 4 flows of economic resources, 4 flows of people resources and 3 flows of knowledge resources.

- Each of these „flowing assets" demands a format of 9 yearly (2010-2018) origin-destination matrices, which contain data on its volume in each individual region-to-region relation.

- A set of regions has been defined as 297 NUTS2 of EU+EFTA area as for 2018. Finally, each of 11 flowing asset has been described by:

  - 9 x 297 x 296 = 791 208 numbers.

# How can we quantify space of flows?

Tourism case:

- **Two** major data **sources** (UNWTO and Eurostat) are **incomplete**, **inconsistent** and deliver it at the **country-to-country** level of spatial aggregation.

- To **fill in country-to-country matrices**, a cascade of estimation methods with decreasing level of reliability has been applied:

  - cross-reference of different indexes on tourist movement delivered by UN-WTO;

  - interpolation or extrapolation of temporal rows within UN-WTO or EUROSTAT data;

  - analysis of total tourist movement dynamics based on UN-WTO and on EUROSTAT data;

  - harmonization of data derived from different sources, by use of *Relative Level of Detail Ratio* ($RLDR$):

$$Flow\ est_{j,i} = Flow_{j,i,source\ known} \times RLDR = Flow_{j,i,eurostat} \times \frac{Flow\ total_{UNWTO}}{Flow\ total_{eurostat}};$$

  - model of gravity analysis, by use of: GDP PPS, number of arrivals with accommodation and orthodromic distance between centroids of regions weighted by their internal population distribution:

$$Flow\ est_{j,i} = 9,179 \times 10^7 \times GDP\ PPS_i \times Pop_j \times 294,233 \times dist_{j,i}^{-0,802}.$$

- To **disaggregate** matrices **to region-to-region** format, the gravity model has been applied:

  - the general one to disaggregate international country-to-country stocks;

  - the modified by means of relevant national distance function of each individual country to disaggregate regional stocks of domestic arrivals.

# How can we quantify space of flows?

| Internal flows | Int |
|---|---|
| **WTO - raw** | **WTO raw** |
| **WTO - model derived** | **WTO mod** |
| **WTO - time series derived** | **WTO ser** |
| **WTO - temporal intersections comparison** | **WTO dyn** |
| **EUROSTAT - raw** | **EUR raw** |
| **EUROSTAT - time series derived** | **EUR ser** |
| **EUROSTAT - temporal intersections comparison** | **EUR dyn** |
| **Rgression derived** | **Reg** |

| Raw data for disaggregation | / raw |
|---|---|
| Estimated data for disaggregation | / est |

# 4

# How can we describe space of flows?

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**Within WP2 we distinguished three basic approaches…**

- **Structural** – variety of flow across various assets

- **Temporal** – variety of flow across time

- **Spatial** – variety of flow across space

**…and four basic aspects of flows' diversity**

- **Size** – how big is the flow's volume (as absolute or relative value)

- **Balance** – how mutual is the flow

- **Concentration** – how focused is the flow (across different assets, across places of origin or destination, etc.)

- **Distance impact** – how far and distance dependent is the flow

# 5

# What can we get to know by applying space of flows concept?

## Case of tourism

# What can we get to know by applying space of flows concept?

An example of theoretical added value – an attempt to converge of approaches in tourism geography:

a) traditional quantitative and

b) postmodern

- At a larger scale, tourism used to be researched quantitatively and perceived as a complex system of characteristics, circumstances and consequences, but encompassed generally or by looking at some spatial or temporal intersection.

- Postmodern shift in the theory emphasizes individualism and authenticity as one of the main determinants of postmodernity and contemporary tourists moving away to alternative places. It is mostly investigated by qualitative social methods.

- Both approaches have inherent constraints in understanding the entire system. The quantitative study allows to identify some regularities in individual decisions of tourists.
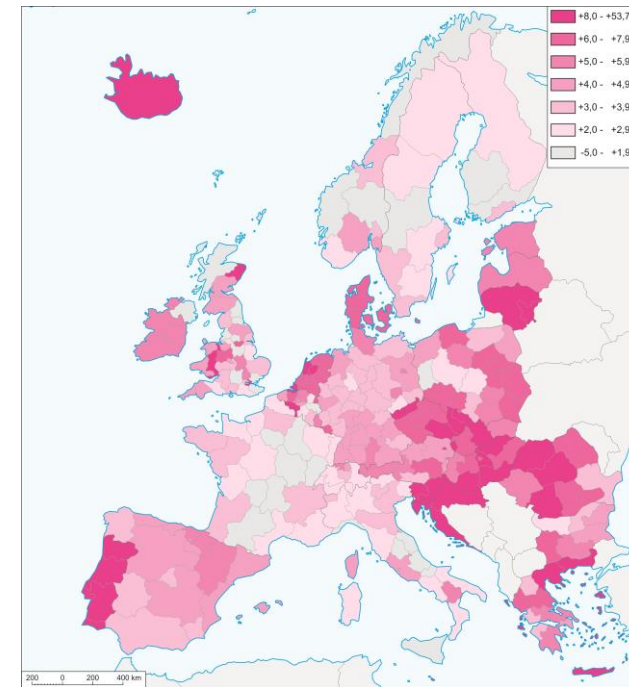
# What can we get to know by applying space of flows concept?

An example of <span style="color:red">cognitive</span> added value :

<span style="color:red">Structural</span> (left) and <span style="color:red">temporal</span> (right) approach
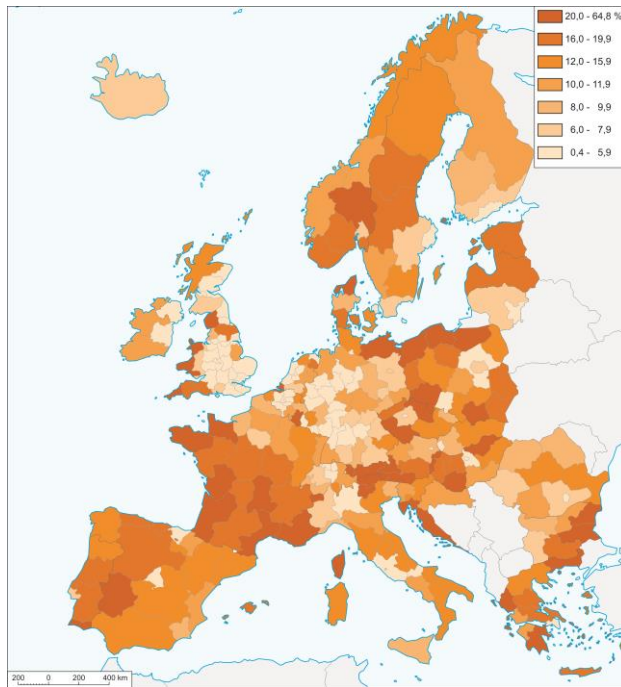


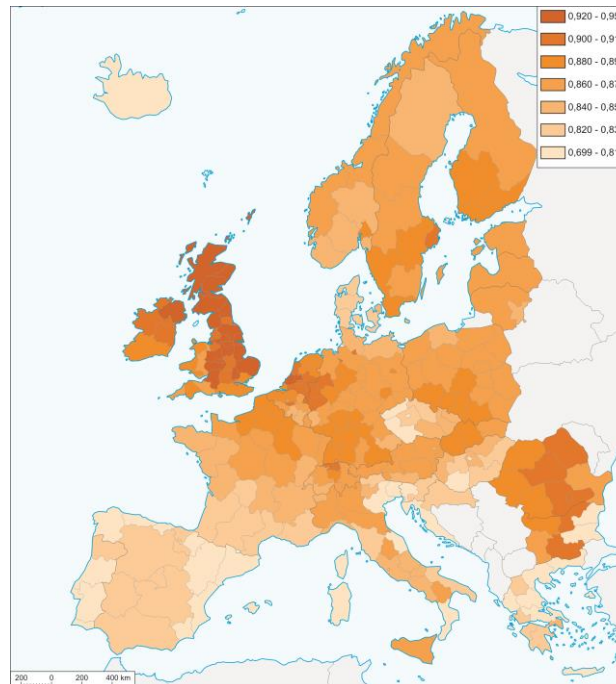***Regions according to the share
of tourist inflow***



***Regions according to the index
of average yearly dynamics of tourist inflow***

# What can we get to know by applying space of flows concept?

**An example of cognitive added value :**

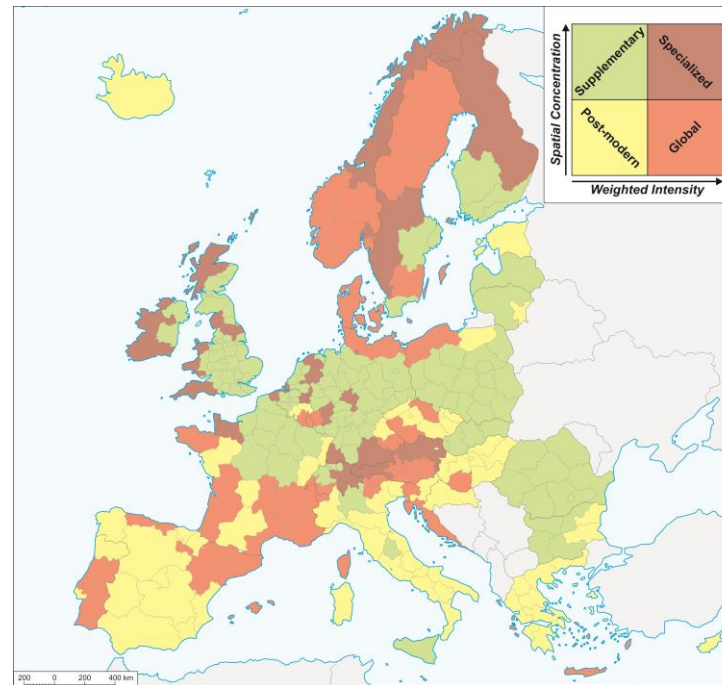Spatial approach – case of concentration aspect



**Regions according to spatial concentration of tourists' origin**

# What can we get to know by applying space of flows concept?

**An example of cognitive added value :**

Spatial approach – example of synthesis: combination of aspects



**Types of the regions according to size and concentration of tourist flow**

# 6

# Conclusion

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The space of flows will become gradually one of the most important objects of geographers' study

# Thank you!

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