What is the best place to be?
Location optimization with R and Google Maps

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Motivation \(\rightarrow\) (boring) decision making

The need to find a convenient place to stay before every conference or business meeting in a new city

- **Nearby** the place of conference/business meeting
- With good public transportation facilities
- Affordable prices (or at least good quality/price ratio)
- Others: **close** to the downtown or any other attractive place to go in the evening, safe, etc.
How does it look in practice?

Finding a location of conference/meeting
How does it look in practice?

Searching for hotels:

not too far away:

- a standard map with hotels (booking.com, google maps, etc..) giving euclidean distance to the downtown or some historical places
- Then filtering out ~70% (reason: price)
- Finding a set of hotels which gives us good distance/price ratio (+overall rating)
How does it look in practice?

~Top 10 destinations that need to be checked (in terms of traveling time)

→ Hotel X1 → Walking 12 min., Public transport 10 min., Rating 6.6
How does it look in practice?

~Top 10 destinations that need to be checked (in terms of traveling time)

→ Hotel X2 → Walking 25 min., Public transport 16-17 min., Rating 7.2
Time consuming process

DISTANCE FROM A HOTEL TO THE VENUE DOES NOT ALWAYS EQUAL TO TIME OF TRAVEL

IS IT REALLY THE BEST AND FASTEST WAY OF PROCEEDING?
How to make it automatic or at least semi-automatic with R and GIS?

Create a regular mesh around the conference/meeting’s location:

- E.g. 1 x 1 km in UTM coordinates for 10-15 km in each direction (not too dense)
- Convert coordinates to lon-lat grid usable by the google services
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- Repeat this step for walking, driving, bicycling, public transport
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(2) Improving readability:
Creating new layers with hotels’ location (over 300!) and transport barriers (e.g. rivers) → library: osmdata

(3) Webscrapping of prices and hotel rates with RSelenium
How to make it automatic or at least semi-automatic with R and GIS?

(4) Interaction with leaflet clickable layers/features

→ strongly simplified version @rpubs: [http://rpubs.com/bczernecki/388489](http://rpubs.com/bczernecki/388489)
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Confirmation: Distance != Time
How to make it automatic or at least semi-automatic with R and GIS?

(5) Wrap up into Shiny (for non-nerdy people) and sum it up into table with sorted results (for data scientist)
Further ideas:
- Adding safety layer for districts
- Advanced filtering and broader statistics for particular locations
- Etc...

Location intelligence (business) | Let’s meet halfway
Thank you for your attention