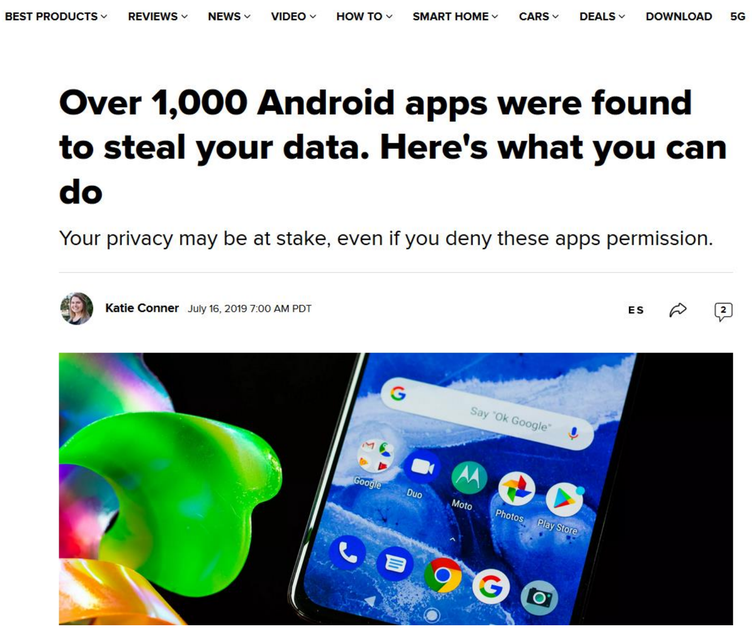
Visualizing Mass Mobility Based on Mobile Cellular Data

To Frame the Real Risks Behind the Media Hype

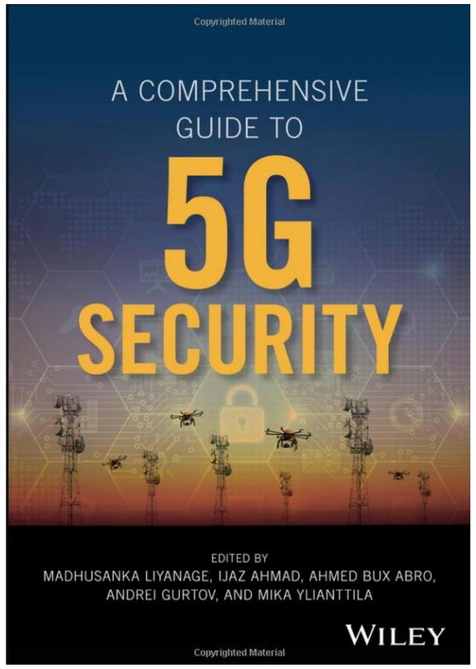
Spatial Big Data Research Lab & GEOInsight

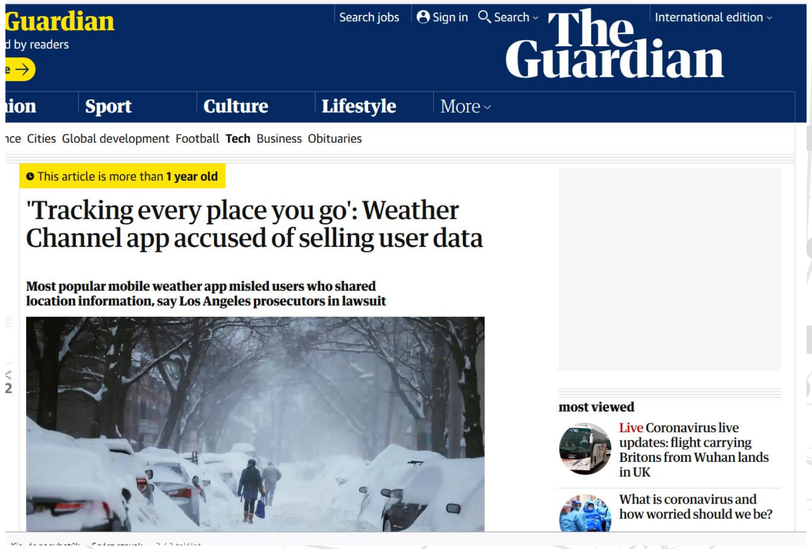

BEST PRODUCTS REVIEWS NEWS VIDEO HOW TO SMART HOME CARS DEALS DOWNLOAD 5G

Over 1,000 Android apps were found to steal your data. Here's what you can do

Your privacy may be at stake, even if you deny these apps permission.

Katie Conner July 16, 2019 7:00 AM PDT



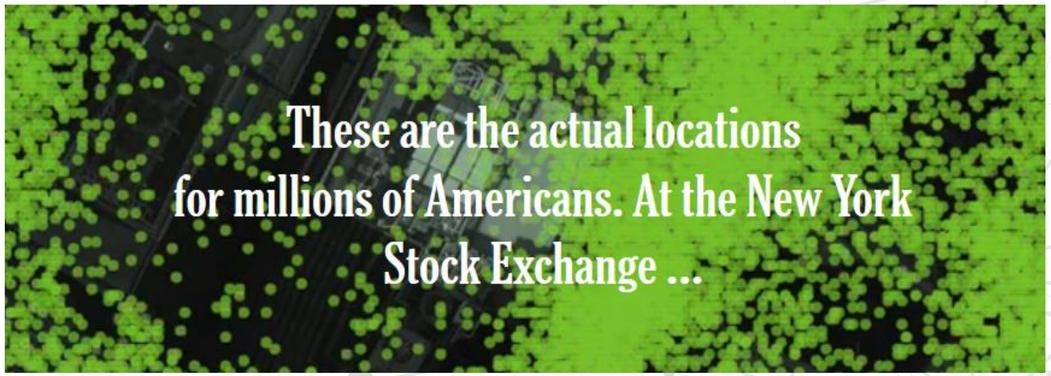


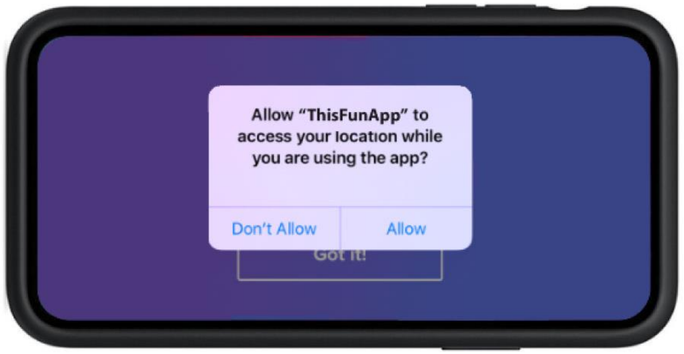
Service providers collect and sell locational data to „third parties”

01 Apps share your location with a location data company

02 Location data company analyses and resale insights

03 Targeted advertising

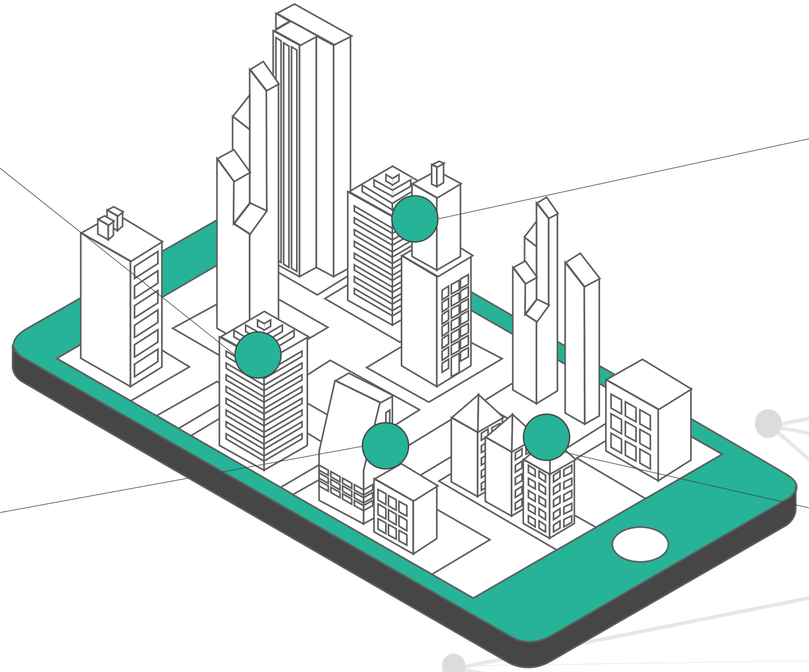




Amount/share and authorisation

4,2 – 5,6 million equipment

01



02

Useful for market application

Targeted advertising is the No. 1. goal

(De-)anonimyzation

Interlinking equipment and person

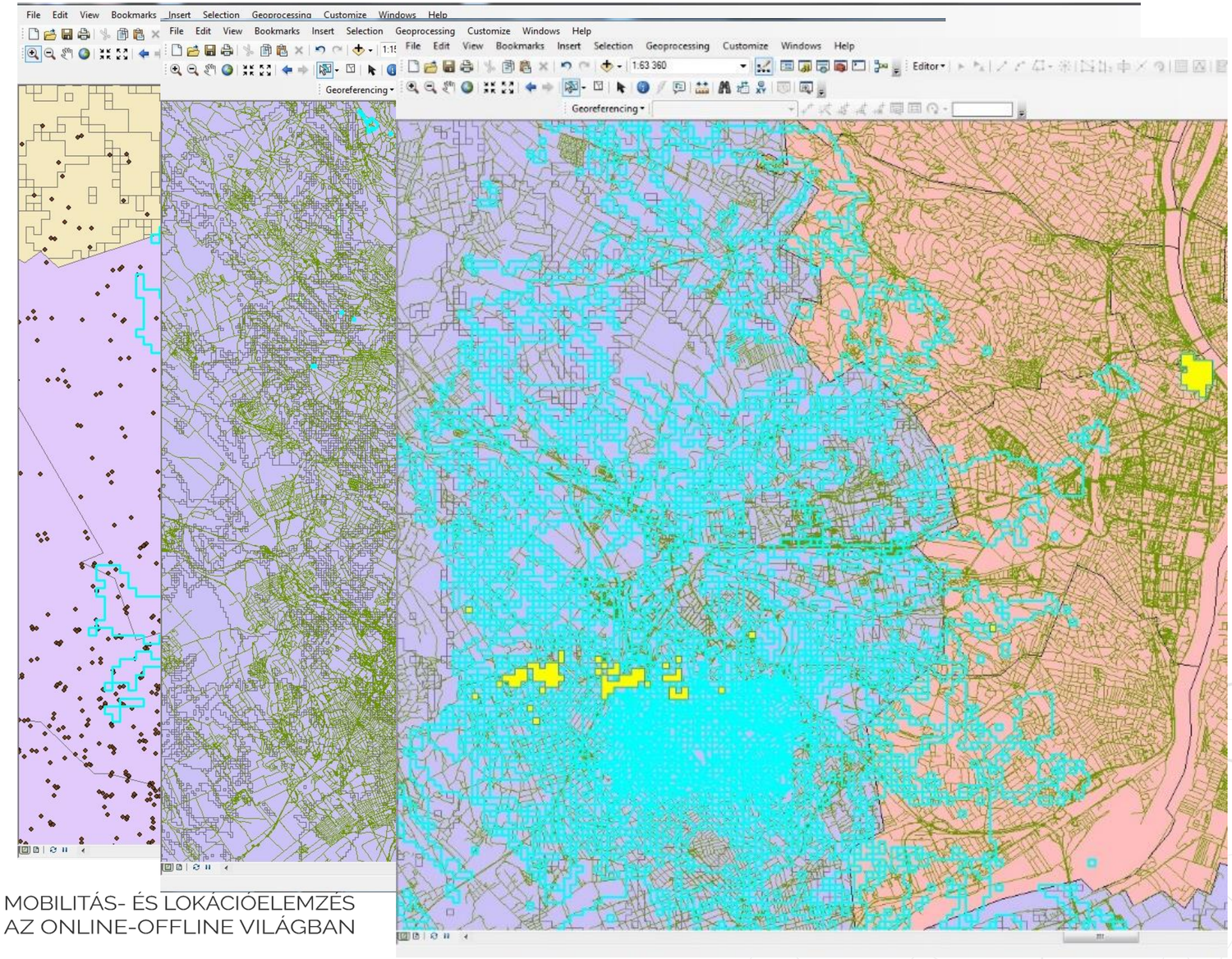
03

04

Competing technologies

Amount vs. resolution

Do mobile service providers collect and sell/use locational data?



01

Spatial resolution does not meet business demands

02

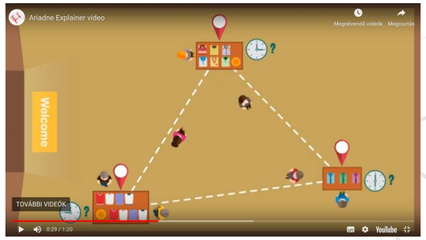
Data noise - stemming from system data

03

Competing technologies provide suitable business solutions

Crowd analytics

Timely data, radio frequency spectrum, no need for apps/external network connection



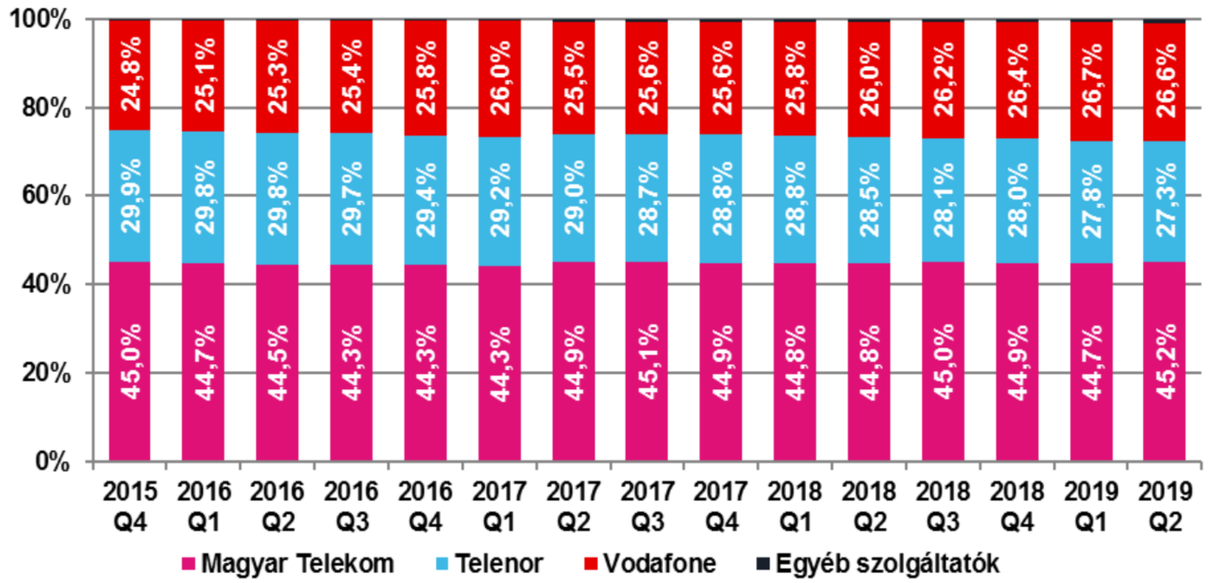
Ariadne
Retail Analytics

Indoor navigation

Ultrasonic beacons

Marvelmind
robotics

Market share of service providers, mobile communication



Nemzeti Média-és Hírközlési Hatóságmobilpiaci jelentése 2019. december 5.

04

Fierce competition – no one risks to loose customers' trust

GEOINSIGHT

Locational component of mobile cellular data is not suitable for business usage

As spatial resolution, data quality and privacy issues do not meet market demand

Mobility research

Monitoring, forecasting, planning

Appropriate for blue-sky research and various types of social application

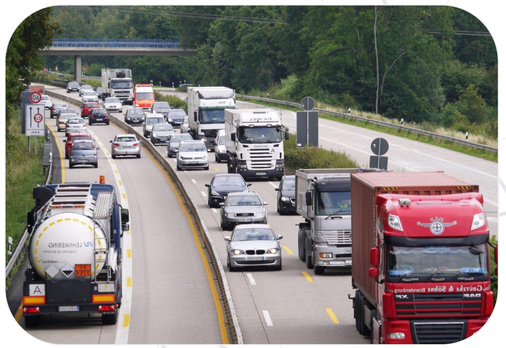
Data: MTelekom mobile cellular data

Goal
joint scientific exploration
Duration, frequency
1 Nov 2017 - 30 Nov 2019, daily
Interface
anonymized, encrypted system data

Visualization of mass movement in Hungary

based on mobile cellular data

Hungarians moving around



Visitors moving around

BUD airport departures

BUD airport arrivals

Perspectives for scientific exploration

- Segmenting mobility patterns with unsupervised machine learning (fuzzy c-means)
  - 2x2 dimensions: Poly – Distmax, MaxSpeed-PriceNew
  - 3 dimension: RouteSumRad, PriceNew, Age
- Dynamic survey on the population’s daily distribution (city/metropolitan region/countryside), 2017-2019

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