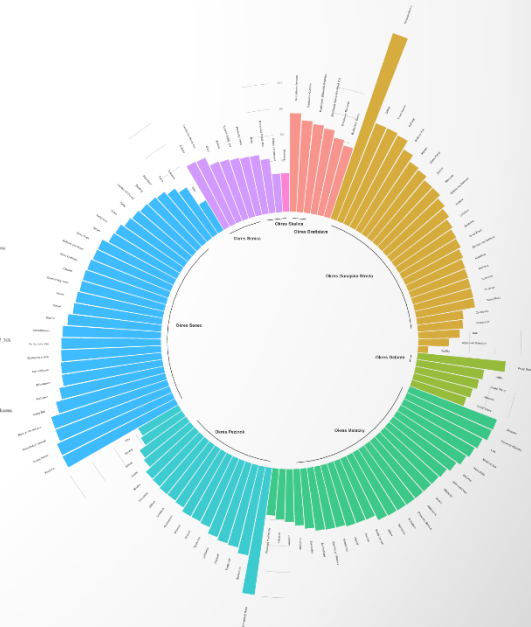
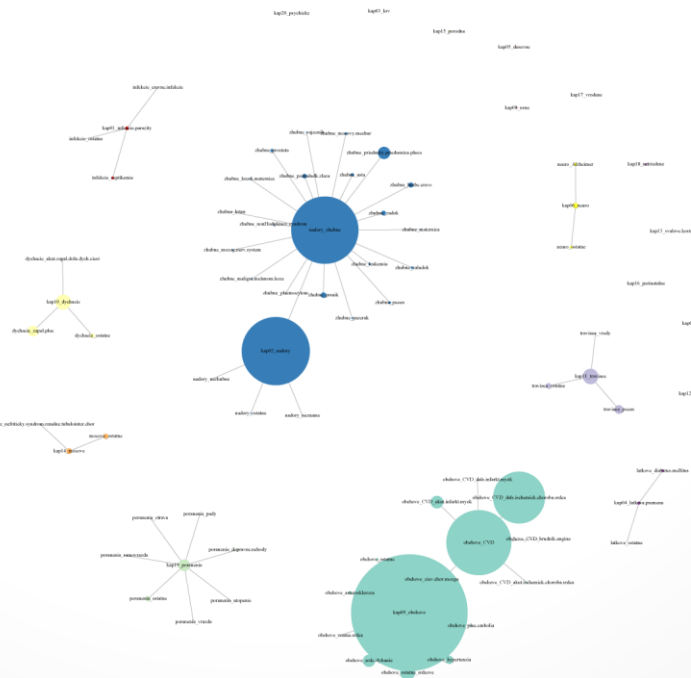
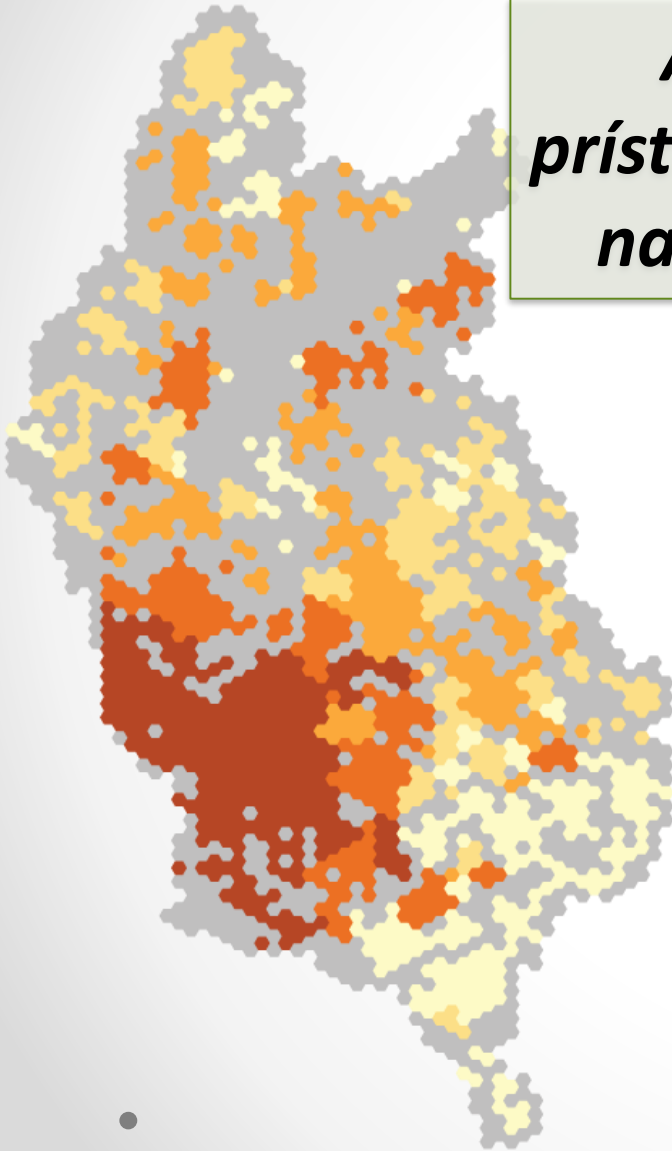




Atlas pre 21. storočie : inovatívne prístupy vizualizácie priestorových údajov na príklade suburbanizácie Bratislavy

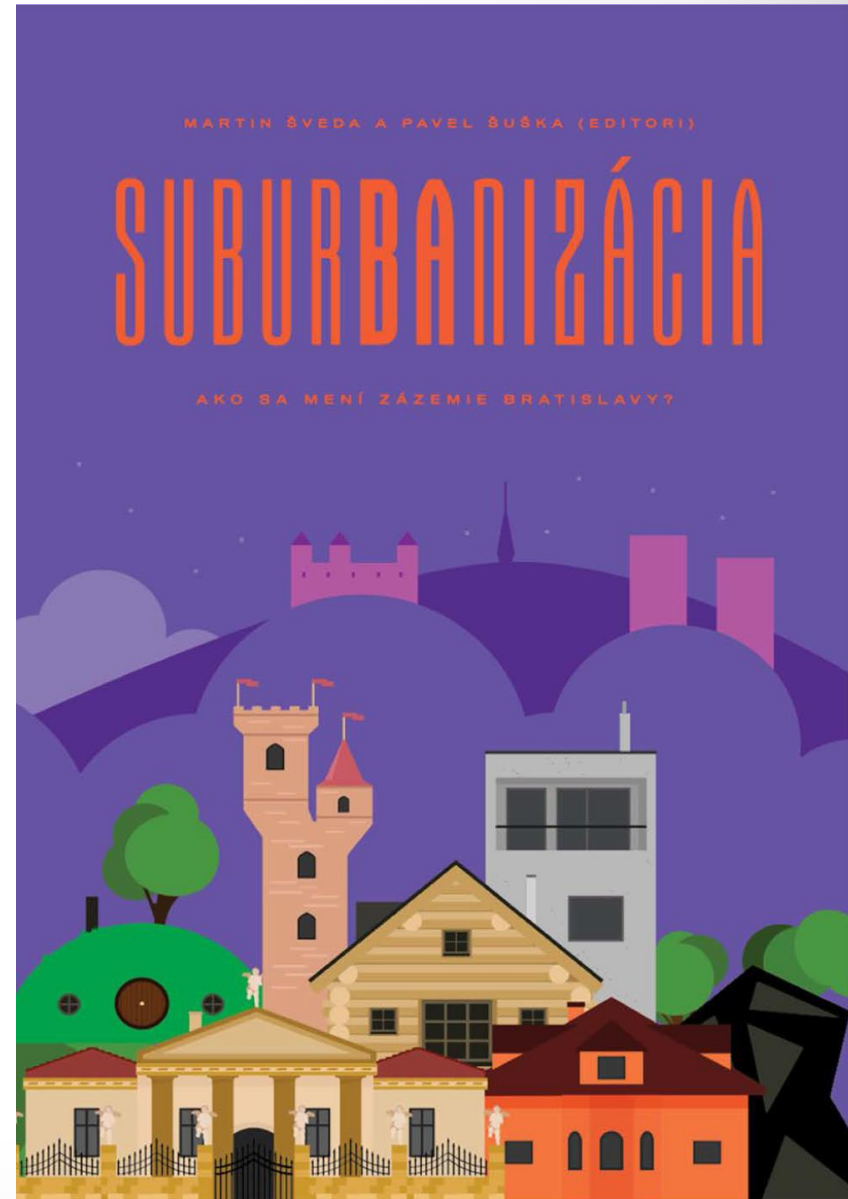
Ján Výboštok – Martin Šveda



Kontext

Projekt APVV-16-0462 „SUBURBA“:

1. monografia SuburBANizácia:
Ako sa mení zázemie Bratislavy?
2. monografia SuburBANizácia II:
Sondy do meniaceho sa zázemia
Bratislavy
3. Atlas SuburBANizácie:
sociálno-priestorová transformácia
v zázemí Bratislavy



Inšpirácia

LONDON

The Information Capital

100 maps and graphics that will change how you view the city



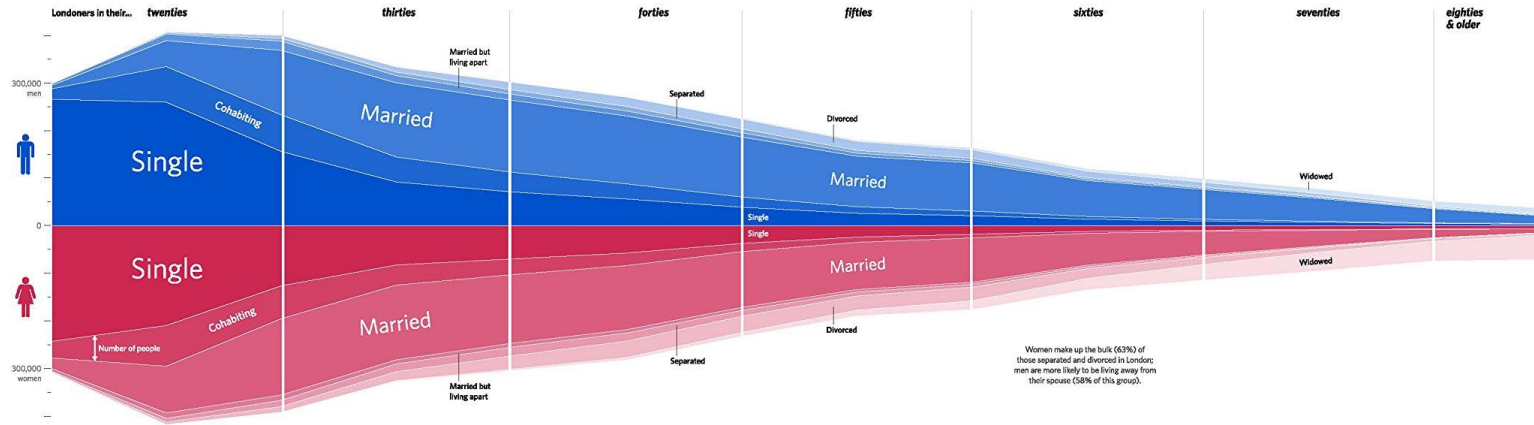
James Cheshire
Oliver Uberti

Relationship Status

We age, we marry, we migrate.

Twenty-five and single? In London, you're anything but alone. According to the 2011 Census, more than half of twentysomethings go solo. Then come your thirties and that deep river of available singles your age narrows to a shallow stream. By age fifty, it's little more than a trickle.

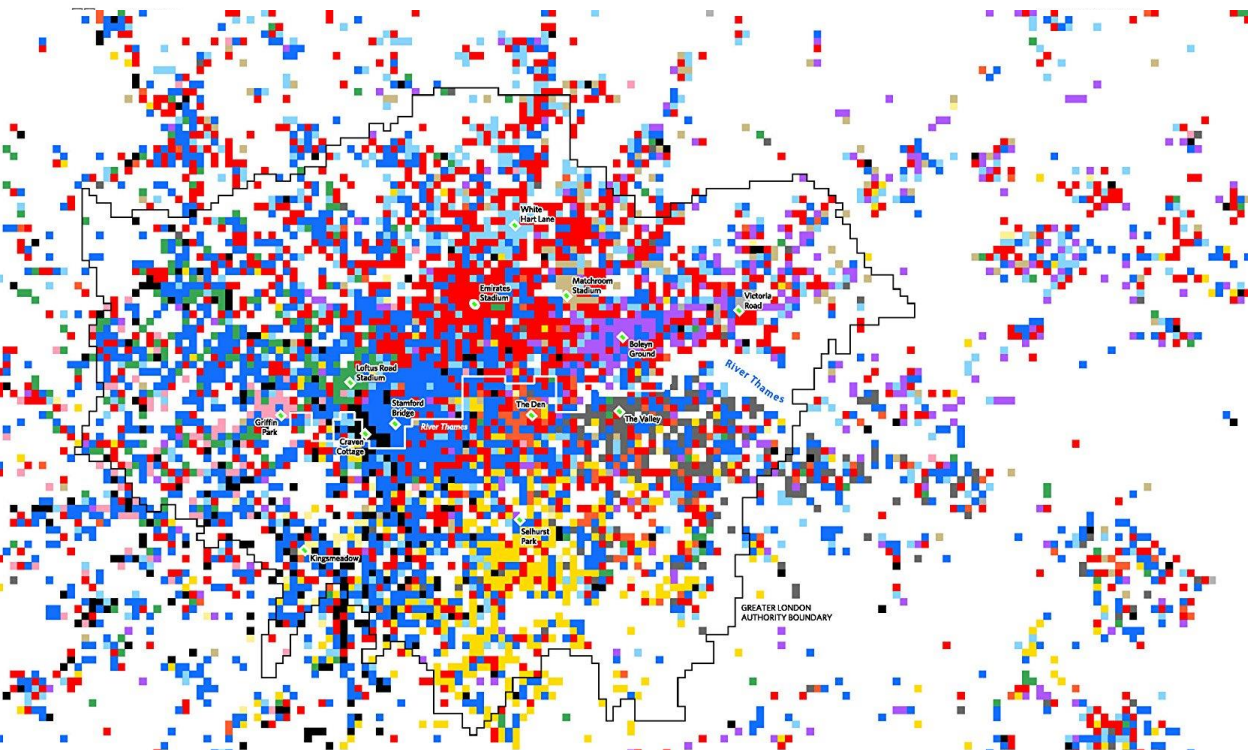
Most will have married and settled in the leafier boroughs (see maps). Young singles - and their cohabiting friends - prefer trendier parts of the city such as Hoxton, Clapham and Peckham. Those living away from their spouse fall into two camps: pricey places in Kensington or more affordable housing near Heathrow, Wembley and Upton Park. Separated couples and divorcees cluster around Tottenham and to the east; widowed spouses stay put.



Women make up the bulk (63%) of those separated and divorced in London; men are more likely to be living away from their spouse (38% of this group).

Areas with above average concentrations of each relationship status, 2011

- Well above average
- Above average
- Average
- Below average



The Football Tribes

Win or lose, fans of London clubs voice their allegiance on Twitter.

On 22 March 2014, the Chelsea Blues crushed their red rivals 6-0 in a game neither club will soon forget. Arsenal fans took to Twitter to bemoan the loss ('Utterly, woefully, hideously execrable. #afc') while #carefree Chelsea beamed with pride ('There's only one team in London!' #cfc).

In fact, there are thirteen professional football clubs in London. Here, we divided the city into squares, each coloured by the club with the most tweeted hashtag in that area. Taken together, the squares form a mosaic of football loyalties. Chelsea (dark blue) and Arsenal (red) - the London clubs with the most titles in Premier League history (3 each) - dominate on both sides of the Thames; tweets for the eleven other clubs mostly prevail near their grounds.

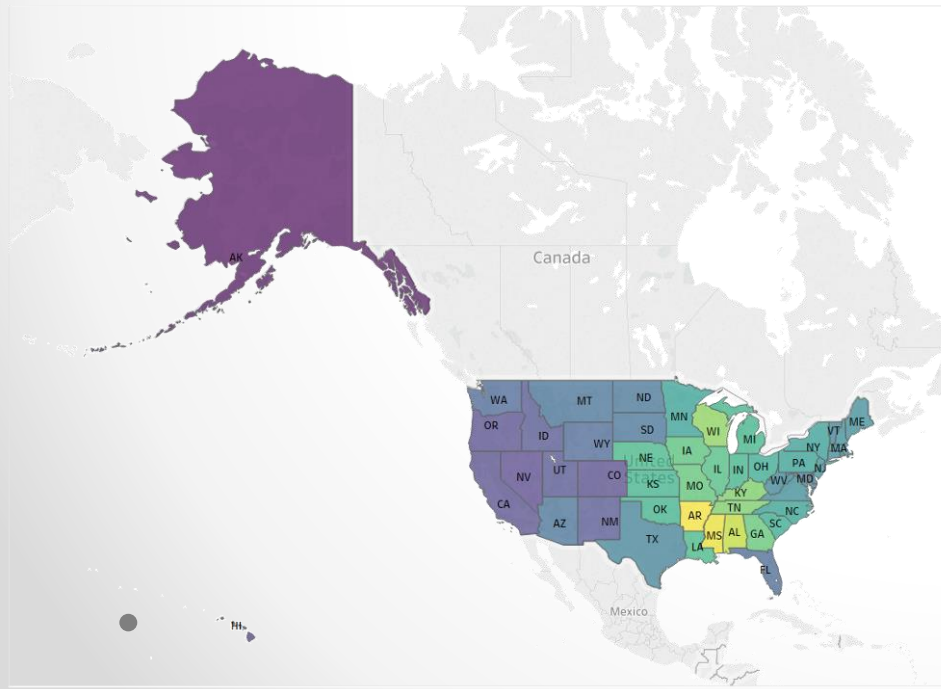
Chelsea finished the season ahead of Arsenal in the League and in the Twittersphere. The recent #ChampionsOfEurope out-tweeted the Gunners 22,000-19,000. On this map, blue is the colour, indeed.



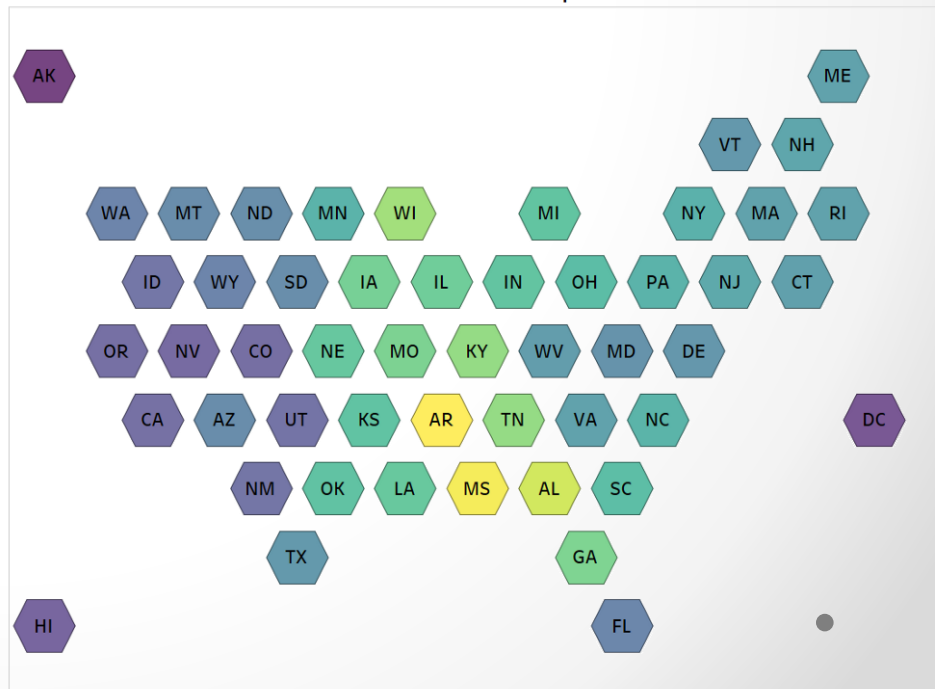
Argument

- Kvalita (grafická) výstupov
- Zrozumiteľnosť
- Jednoduchosť
- Ovplyvnenie interpretácie

Before - Alaska Effect

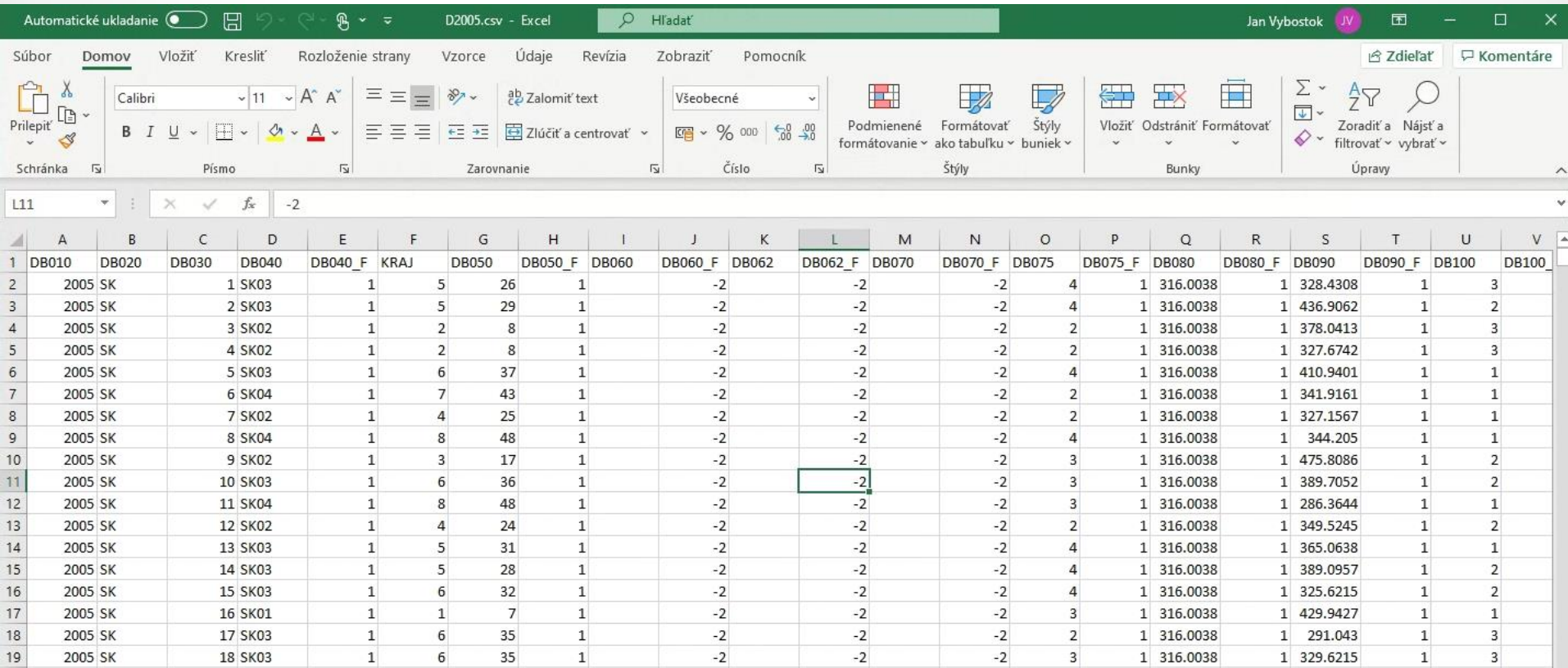


After - Hex Map



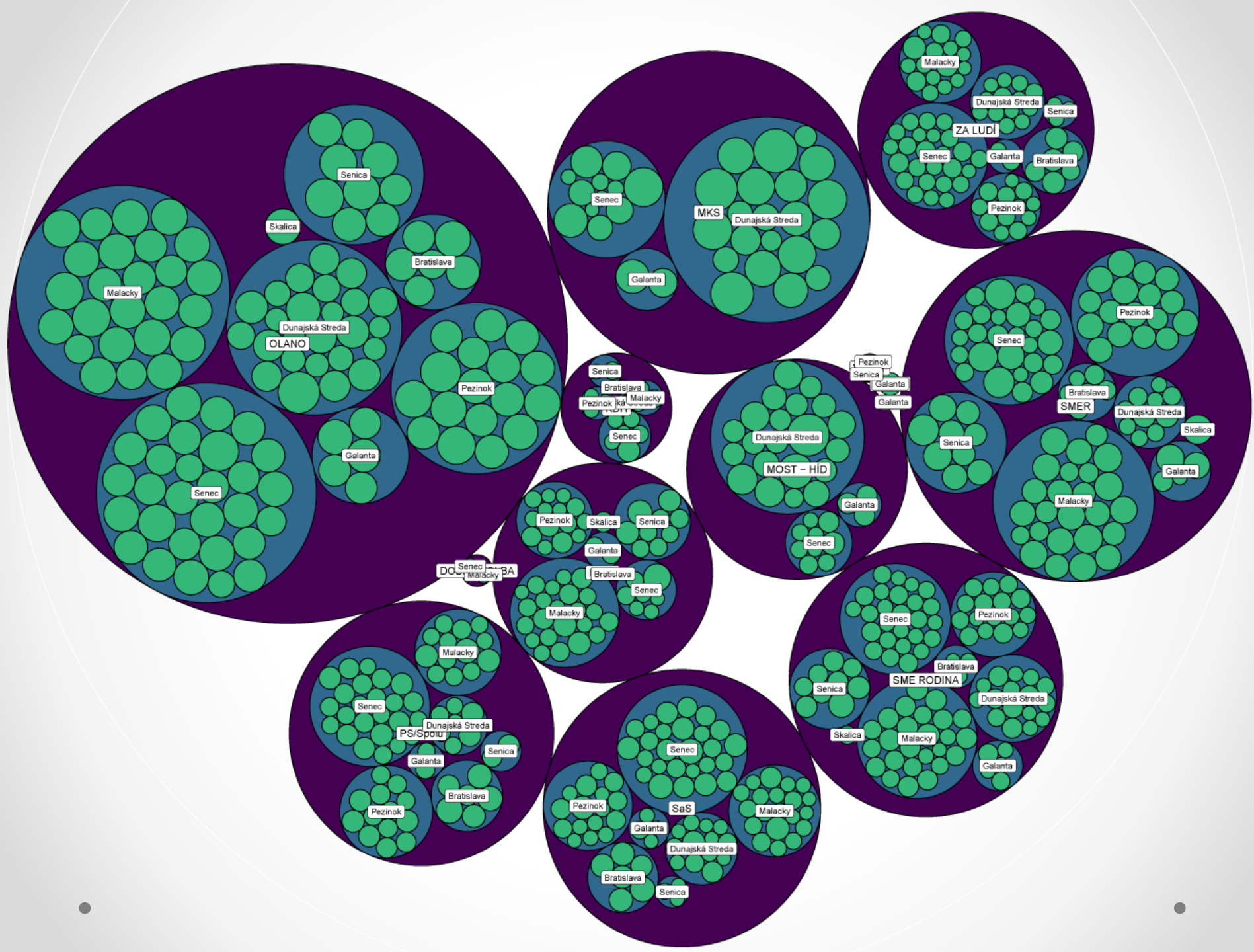
Dáta a metódy ich spracovania

- zdroje dát (ŠÚ SR, Sociálna poisťovňa, CMN, Google API a i.)
- tvorba vizualizácii v R, Exceli a ArcGIS/QGIS
- grafické úpravy v Adobe Illustrator



The screenshot shows the Microsoft Excel interface with a data table. The table has columns labeled from A to V and rows numbered 1 to 19. The data includes identifiers like DB010, DB020, DB030, DB040, DB040_F, KRAJ, DB050, DB050_F, DB060, DB060_F, DB062, DB062_F, DB070, DB070_F, DB075, DB075_F, DB080, DB080_F, DB090, DB090_F, DB100, and DB100. Numerical values are present in columns K, L, M, N, O, P, Q, R, S, T, U, and V.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
1	DB010	DB020	DB030	DB040	DB040_F	KRAJ	DB050	DB050_F	DB060	DB060_F	DB062	DB062_F	DB070	DB070_F	DB075	DB075_F	DB080	DB080_F	DB090	DB090_F	DB100	DB100
2	2005 SK		1 SK03		1	5	26	1		-2		-2		-2	4	1	316.0038	1	328.4308	1	3	
3	2005 SK		2 SK03		1	5	29	1		-2		-2		-2	4	1	316.0038	1	436.9062	1	2	
4	2005 SK		3 SK02		1	2	8	1		-2		-2		-2	2	1	316.0038	1	378.0413	1	3	
5	2005 SK		4 SK02		1	2	8	1		-2		-2		-2	2	1	316.0038	1	327.6742	1	3	
6	2005 SK		5 SK03		1	6	37	1		-2		-2		-2	4	1	316.0038	1	410.9401	1	1	
7	2005 SK		6 SK04		1	7	43	1		-2		-2		-2	2	1	316.0038	1	341.9161	1	1	
8	2005 SK		7 SK02		1	4	25	1		-2		-2		-2	2	1	316.0038	1	327.1567	1	1	
9	2005 SK		8 SK04		1	8	48	1		-2		-2		-2	4	1	316.0038	1	344.205	1	1	
10	2005 SK		9 SK02		1	3	17	1		-2		-2		-2	3	1	316.0038	1	475.8086	1	2	
11	2005 SK		10 SK03		1	6	36	1		-2		-2		-2	3	1	316.0038	1	389.7052	1	2	
12	2005 SK		11 SK04		1	8	48	1		-2		-2		-2	3	1	316.0038	1	286.3644	1	1	
13	2005 SK		12 SK02		1	4	24	1		-2		-2		-2	2	1	316.0038	1	349.5245	1	2	
14	2005 SK		13 SK03		1	5	31	1		-2		-2		-2	4	1	316.0038	1	365.0638	1	1	
15	2005 SK		14 SK03		1	5	28	1		-2		-2		-2	4	1	316.0038	1	389.0957	1	2	
16	2005 SK		15 SK03		1	6	32	1		-2		-2		-2	4	1	316.0038	1	325.6215	1	2	
17	2005 SK		16 SK01		1	1	7	1		-2		-2		-2	3	1	316.0038	1	429.9427	1	1	
18	2005 SK		17 SK03		1	6	35	1		-2		-2		-2	2	1	316.0038	1	291.043	1	3	
19	2005 SK		18 SK03		1	6	35	1		-2		-2		-2	3	1	316.0038	1	329.6215	1	3	

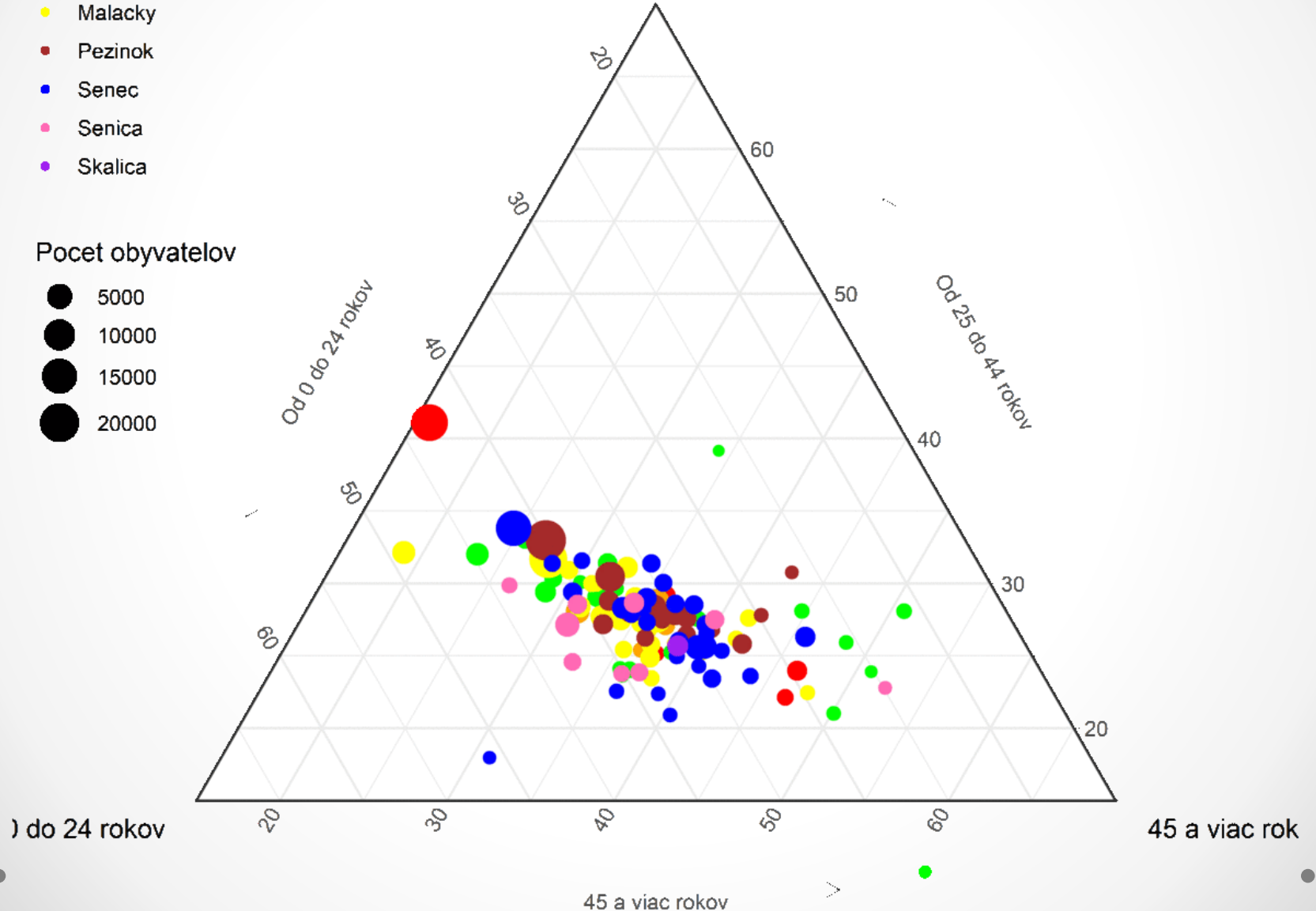


- Bratislava
- Dunajská Streda
- Galanta
- Malacky
- Pezinok
- Senec
- Senica
- Skalica

Pocet obyvateľov

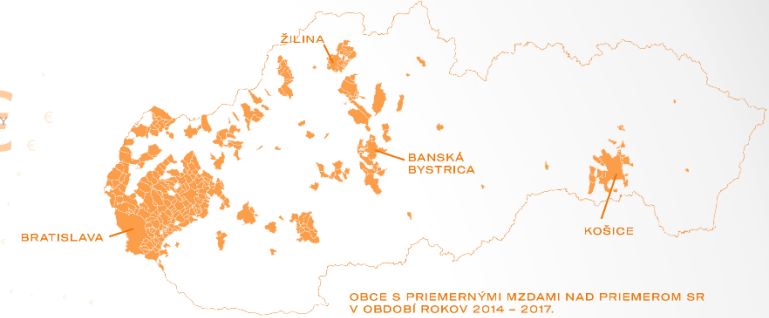
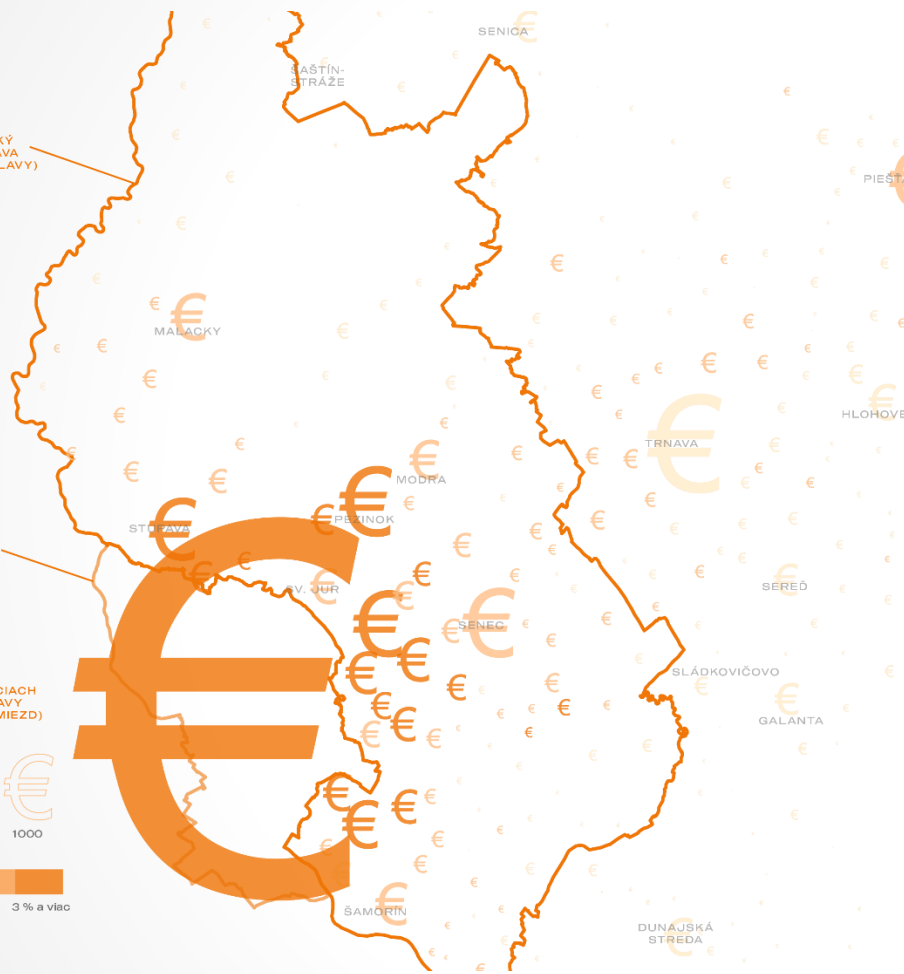
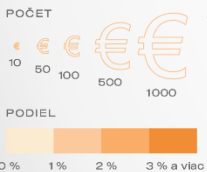
- 5000
- 10000
- 15000
- 20000

Od 25 do 44 rokov

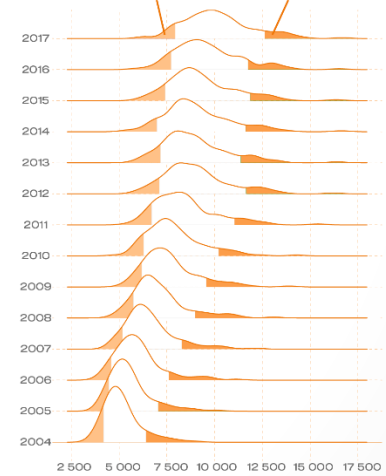


FUNKČNÝ MESTSKÝ
REGIÓN BRATISLAVA
(ZÁZEMIE BRATISLAVY)

VYSOKOPRÍJMOVÍ
OBYVATELIA V OBCIACH
ZÁZEMIA BRATISLAVY
(1% NAJVVYŠŠÍCH MIEZD)



10% OBCÍ S NAJNÍŽŠOU MZDOU 10% OBCÍ S NAJVVYŠŠOU MZDOU



DISTRIBÚCIA OBCÍ ZÁZEMIA BRATISLAVY
PODĽA PRIEMERNEJ ROČNEJ MZDY
V OBDOBÍ ROKOV 2014 - 2017

NADPIS NADPIS NADPIS

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean et est a dui semper facilisis. Pellentesque placerat elit a nunc. Nullam tortor odio, rutrum quis, egestas ut, posuere sed, felis. Vestibulum placerat feugiat nisl. Suspendisse lacinia, odio non feugiat vestibulum, sem erat blandit metus, ac nonummy magna odio pharetra felis. Vivamus vehicula velit non metus faucibus auctor. Nam sed augue. Donec orci. Cras eget diam et dolor dapibus sollicitudin. In lacinia, tellus vitae laoreet ultrices, lectus ligula dictum dui, eget condimentum velit dui vitae ante. Nulla nonummy augue nec pede. Pellentesque ut nulla. Donec at libero. Pellentesque at nisl

Sprocesovanie dopytu

The image shows a screenshot of the RStudio IDE interface. The main editor window displays R code for data processing. The code includes package loading, data reading, merging, filtering, and date manipulation. The environment pane on the right shows that the environment is currently empty. The console at the bottom is ready for input.

```
1 rm(list=ls())
2 setwd("D:/R_projekty")
3
4 pacman::p_load(data.table, tidyverse, ggraph, igraph, viridis)
5
6 # nactanie dat
7 data <- fread("zivorodenost_obce_1995_2020.csv")
8
9 # merge s obcami
10 obce <- read.csv("obce_okresy.csv", stringsAsFactors = F)
11 data <- merge(data, obce, by = c("okres", "obec"), all.y = T)
12 data$rok <- str_extract(data$mesiac, "\\d{4}")
13
14 # filter + nazvy
15 data <- data[data$ICZUJ < 600000, c(12:10, 1, 9, 8, 14, 3:6)]
16 names(data)[4:11] <- c("OKS", "NM2", "IDN2", "rok", "mesiac", "obyv", "zivonar_abs", "zivonar_re1")
17
18 # uprava datum
19 data$mesiac <- gsub("M", "-", data$mesiac, fixed = T)
20 data$mesiac <- paste(data$mesiac, "01", sep = "-")
21 data$mesiac <- as.Date(data$mesiac)
22
23 # aggregate do 5-rocnych intervalov
24 data$interval <- ifelse(as.numeric(data$rok) < 2000, "x9599", ifelse(
25   as.numeric(data$rok) %in% 2000:2004, "x2000", ifelse(
26     as.numeric(data$rok) %in% 2005:2009, "x2005", "x2010-2014")
27 ))
```

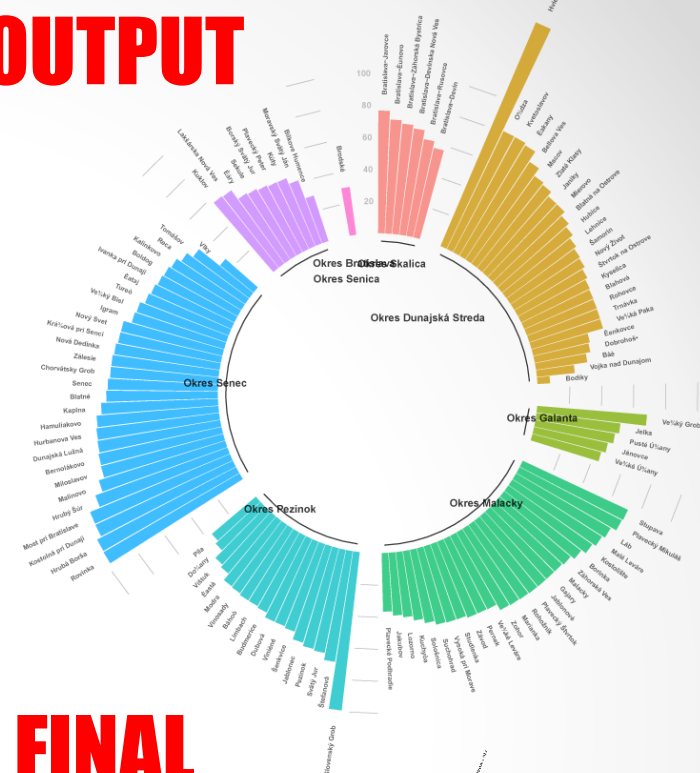
Environment: Global Environment (Empty)

Console: D:/R_projekty/ > |

DATA

okres	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	okres	obec	mesiac	Stredny (priemerny) stav trvale byvajuceho obyvateľstva (Osoba)	Zivotonarodeni (Osoba)	Hrubá miera Zivotonarodnosti (Promile)									
2	Bratislava I	Bratislava - mestská časť Staré Mesto	1995M01	48027	21	5,148									
3	Bratislava I	Bratislava - mestská časť Staré Mesto	1995M02	48005	20	5,431									
4	Bratislava I	Bratislava - mestská časť Staré Mesto	1995M03	47866	28	6,87									
5	Bratislava I	Bratislava - mestská časť Staré Mesto	1995M04	47952	33	8,373									
6	Bratislava I	Bratislava - mestská časť Staré Mesto	1995M05	47924	34	8,353									
7	Bratislava I	Bratislava - mestská časť Staré Mesto	1995M06	47896	31	7,874									
8	Bratislava I	Bratislava - mestská časť Staré Mesto	1995M07	47909	25	6,144									
9	Bratislava I	Bratislava - mestská časť Staré Mesto	1995M08	47866	56	13,746									
10	Bratislava I	Bratislava - mestská časť Staré Mesto	1995M09	47998	27	6,844									
11	Bratislava I	Bratislava - mestská časť Staré Mesto	1995M10	47993	30	7,36									
12	Bratislava I	Bratislava - mestská časť Staré Mesto	1995M11	47959	35	8,279									
13	Bratislava I	Bratislava - mestská časť Staré Mesto	1995M12	47918	38	9,337									
14	Bratislava I	Bratislava - mestská časť Staré Mesto	1996M01	47873	21	5,185									
15	Bratislava I	Bratislava - mestská časť Staré Mesto	1996M02	47848	43	11,715									
16	Bratislava I	Bratislava - mestská časť Staré Mesto	1996M03	47873	27	6,467									
17	Bratislava I	Bratislava - mestská časť Staré Mesto	1996M04	47801	23	5,854									
18	Bratislava I	Bratislava - mestská časť Staré Mesto	1996M05	47813	38	9,158									
19	Bratislava I	Bratislava - mestská časť Staré Mesto	1996M06	47825	32	8,141									
20	Bratislava I	Bratislava - mestská časť Staré Mesto	1996M07	47813	28	6,895									
21	Bratislava I	Bratislava - mestská časť Staré Mesto	1996M08	47825	34	8,371									
22	Bratislava I	Bratislava - mestská časť Staré Mesto	1996M09	47825	25	6,261									
23	Bratislava I	Bratislava - mestská časť Staré Mesto	1996M10	47795	20	4,927									
24	Bratislava I	Bratislava - mestská časť Staré Mesto	1996M11	47822	22	5,694									
25	Bratislava I	Bratislava - mestská časť Staré Mesto	1996M12	47897	25	6,171									
26	Bratislava I	Bratislava - mestská časť Staré Mesto	1997M01	47838	13	3,213									
27	Bratislava I	Bratislava - mestská časť Staré Mesto	1997M02	47821	42	11,497									
28	Bratislava I	Bratislava - mestská časť Staré Mesto	1997M03	47825	20	4,945									
29	Bratislava I	Bratislava - mestská časť Staré Mesto	1997M04	47813	52	13,288									
30	Bratislava I	Bratislava - mestská časť Staré Mesto	1997M05	47817	19	4,701									
31	Bratislava I	Bratislava - mestská časť Staré Mesto	1997M06	47817	34	8,762									
32	Bratislava I	Bratislava - mestská časť Staré Mesto	1997M07	47862	22	5,468									
33	Bratislava I	Bratislava - mestská časť Staré Mesto	1997M08	47821	48	11,918									
34	Bratislava I	Bratislava - mestská časť Staré Mesto	1997M09	47883	32	8,217									
35	Bratislava I	Bratislava - mestská časť Staré Mesto	1997M10	47813	27	6,718									
36	Bratislava I	Bratislava - mestská časť Staré Mesto	1997M11	47865	26	6,693									
37	Bratislava I	Bratislava - mestská časť Staré Mesto	1997M12	47886	29	7,234									
38	Bratislava I	Bratislava - mestská časť Staré Mesto	1998M01	47137	23	5,745									

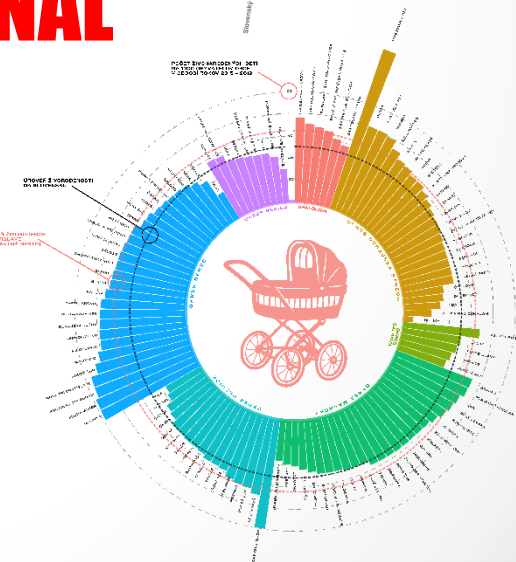
OUTPUT



SCRIPT

```
RStudio  
Code View Plots Session Build Debug Profile Tools Help  
lukas_pretok@R: zivotarodnost_lokice.R  
1 read(list=c("1", "2"))  
2 setwd("D:/R_projekty")  
3  
4 pacman::p_load(data.table, tidyverse, graph, igraph, viridis)  
5  
6 # nacitane dat  
7 data <- fread("zivotarodnost_obce_1995_2020.csv")  
8  
9 # merge s obcami  
10 obce <- read.csv("obce_okresy.csv", stringsAsFactors = F)  
11 data <- merge(data, obce, by = c("okres", "obec"), all.y = T)  
12 data$rok <- str_extract(data$mesiac, "A.[0-9]{2}")  
13  
14 # FITovani nazvy  
15 data <- data[data$ICZU < 600000, c(12:10, 1, 9, 8, 14, 3, 6)]  
16 names(data)[4:11] <- c("OKRS", "NMZ", "IUMZ", "rok", "mesiac", "obvym", "zivonarabs", "zivonar_nel")  
17  
18 # unavna datum  
19 data$mesiac <- gsub("M", "-", data$mesiac, fixed = T)  
20 data$mesiac <- paste(data$mesiac, "01", sep = "-")  
21 data$mesiac <- as.Date(data$mesiac)  
22  
23 # spracovanie do 3-rocnych intervalov  
24 data$interval <- ifelse(as.numeric(data$rok) < 2000, "X0599", ifelse(2000 < as.numeric(data$rok) < 2005, "X0600", "X0601"))  
25  
2021 (log Level) R Script  
D:/R_projekty/  
You are welcome to redistribute it under certain conditions.  
type 'license()' or 'licence()' for distribution details.  
  
Natural language support but running in an English locale  
  
R is a collaborative project with many contributors.  
type 'contributors()' for more information and  
'citation()' on how to cite R or R packages in publications.  
  
type 'demo()' for some demos, 'help()' for on-line help, or  
'help.start()' for an HTML browser interface to help.  
type 'q()' to quit R.  
  
[workspace loaded from D:/R_projekty/RData]
```

FINAL





Atlas pre 21. storočie : inovatívne prístupy vizualizácie priestorových údajov na príklade suburbanizácie Bratislavy

Ján Výboštok – Martin Šveda

