



# ***TRANSFORMÁCIA SPOLOČNOSTI A INOVÁCIE***

***Vladimír Šucha***

***BRAIN  
& BREAKFAST SK***

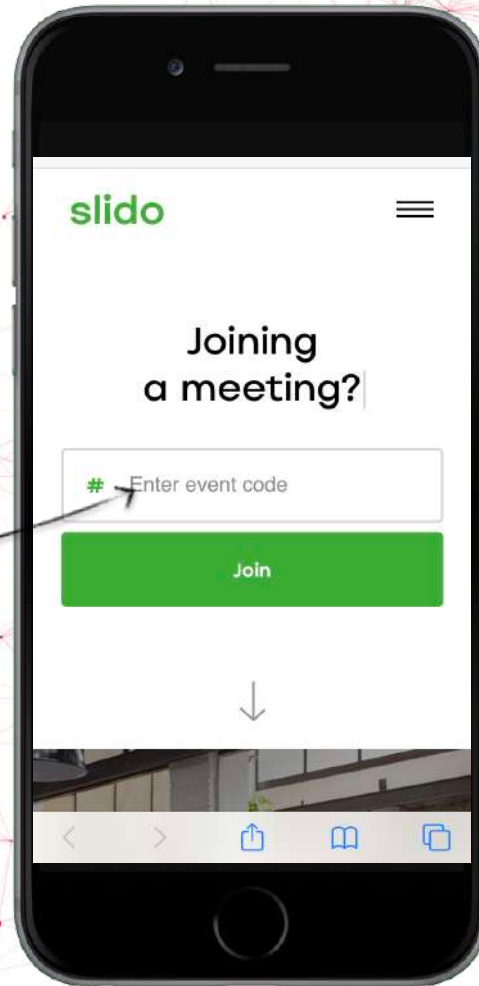
***6/2/2020 od 8:30***





## Dotazy pre hosta?

1. otvorte [slido.com](https://www.slido.com)
2. zadajte "brain"





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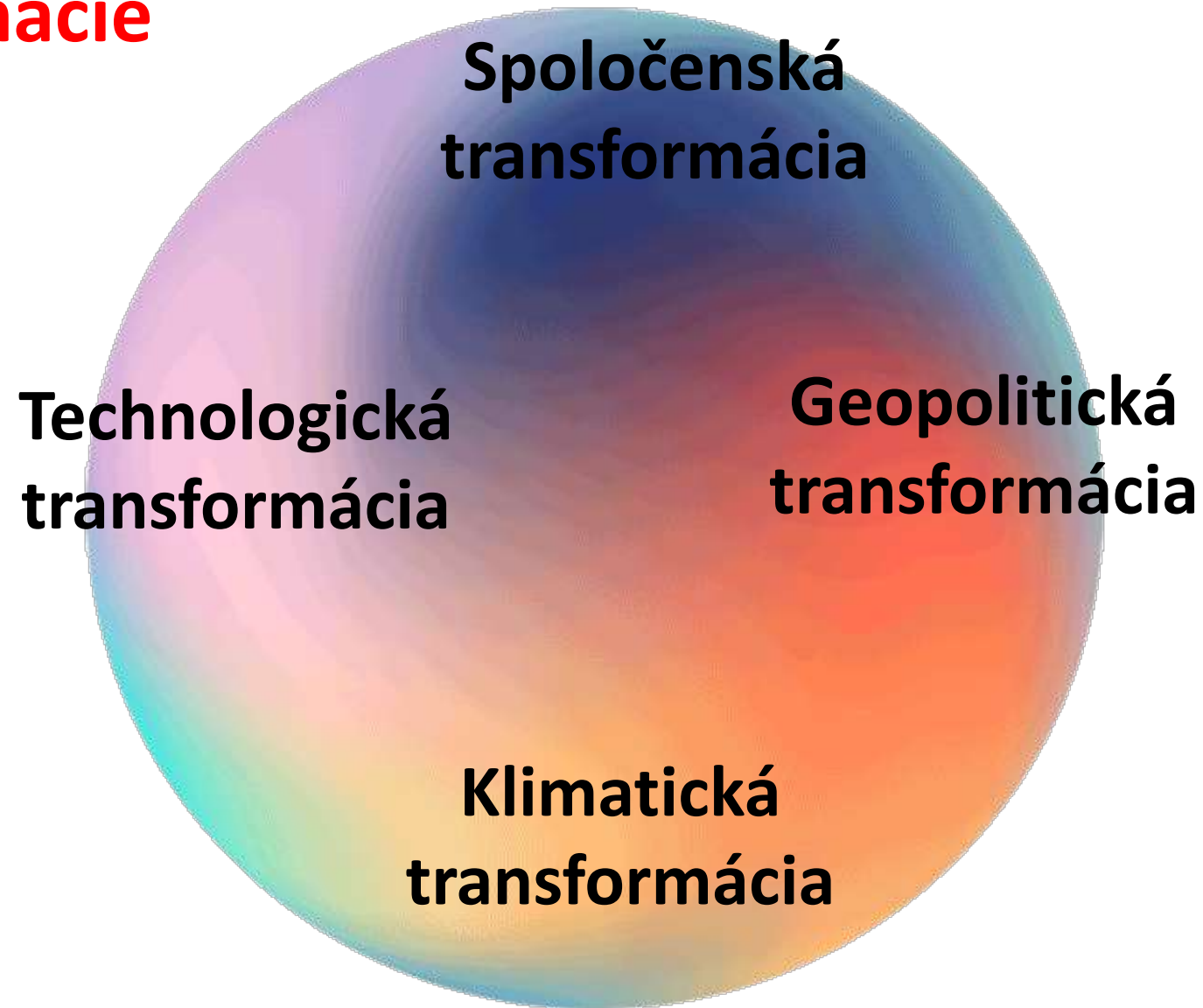


Štyri globálne transformácie  
*Ako sa mení svet a Slovensko v ňom*

Vladimír Šucha



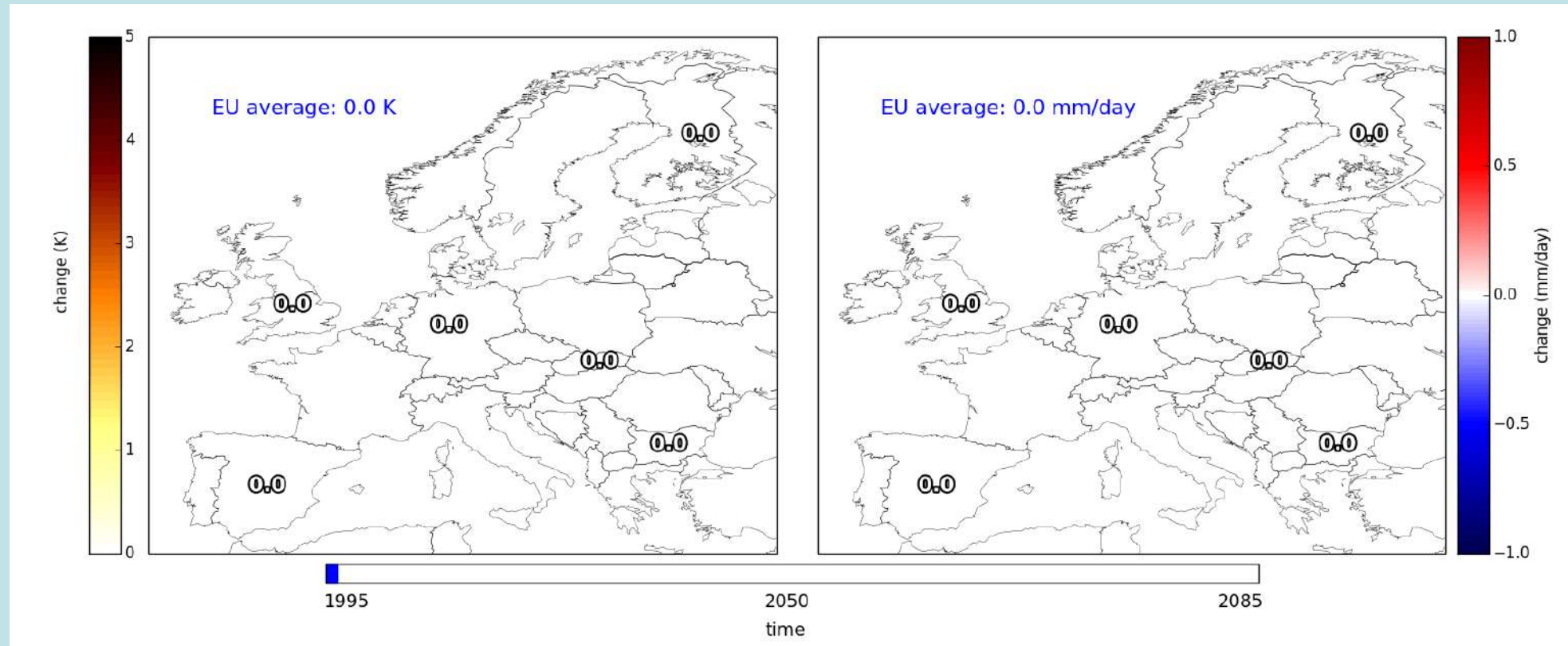
# Štyri hlavné globálne transformácie



# Climate change

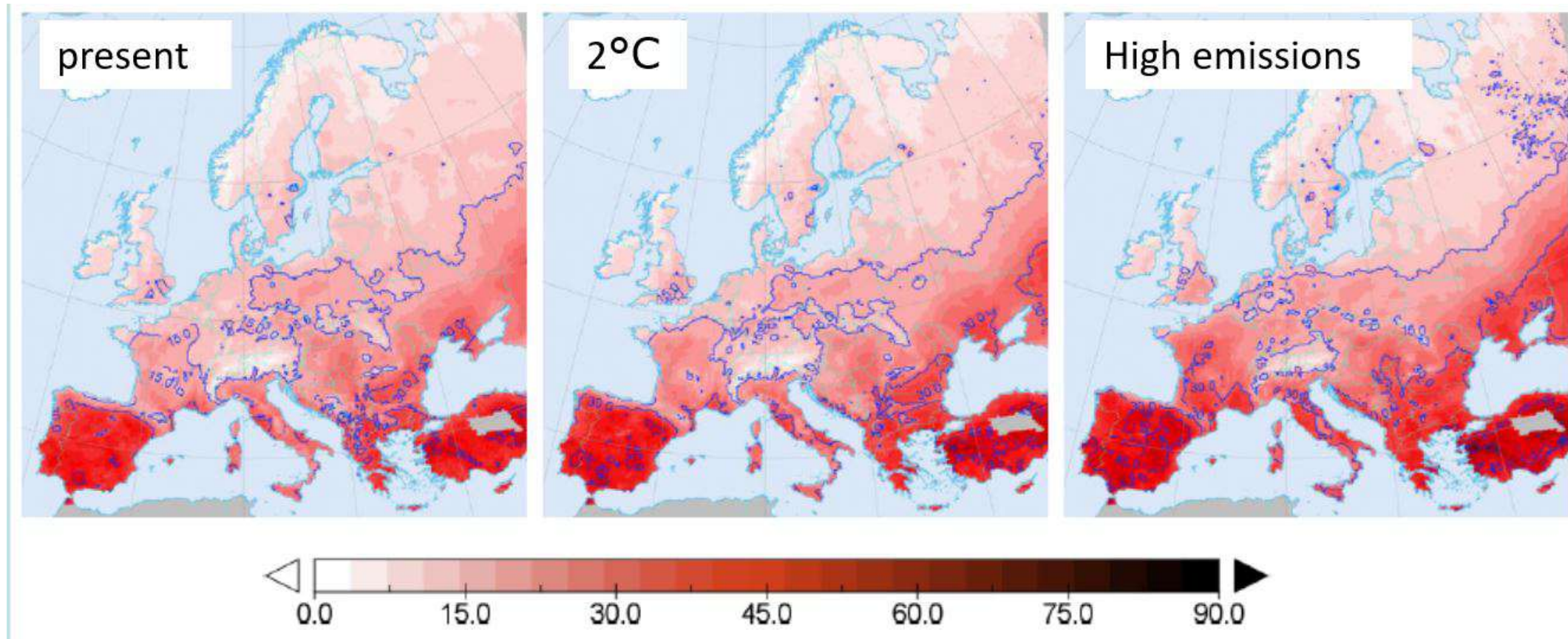
*Temperature*

*Precipitation*



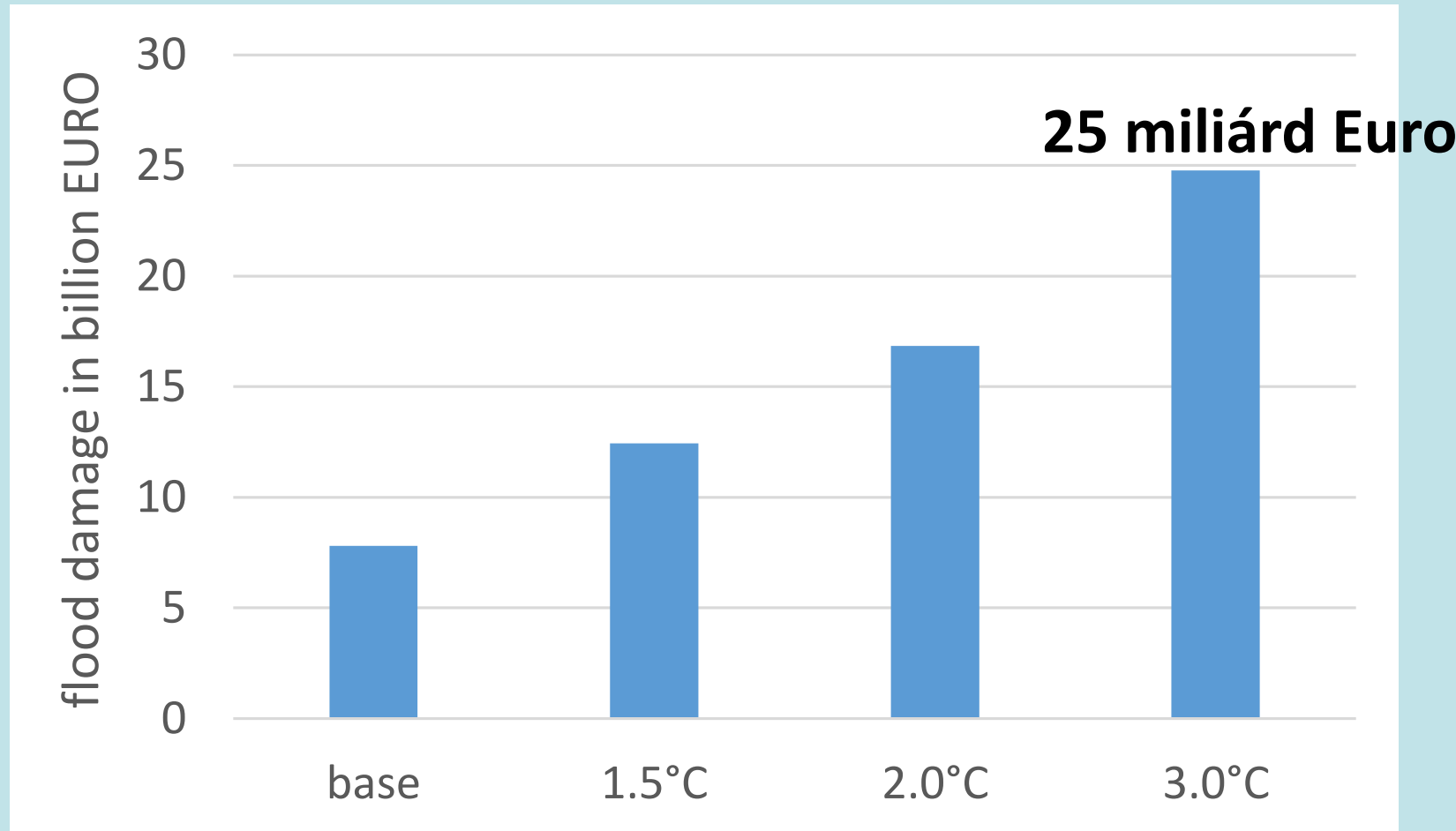
Derived from regional climate projections based on Reference Concentration Pathway RCP8.5

# Riziko lesných požiarov



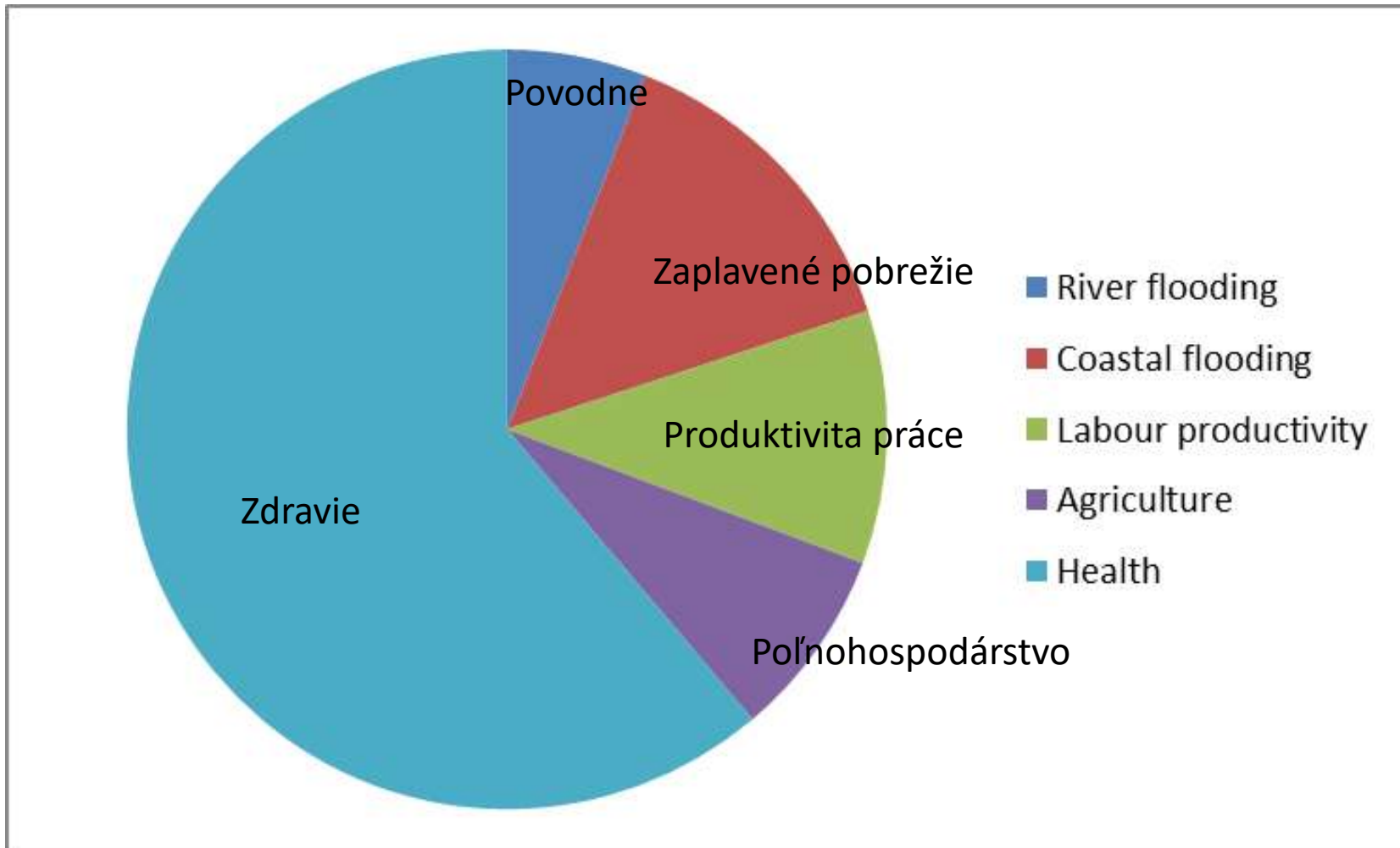


# Odhadované ročné straty - povodne



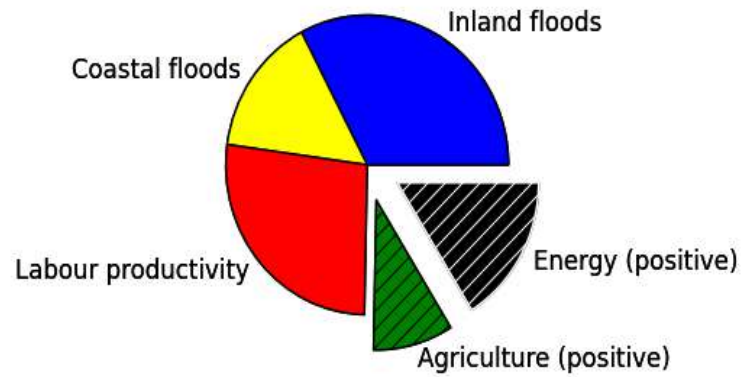
Source: preliminary results JRC PESETA IV

# Distribúcia strát

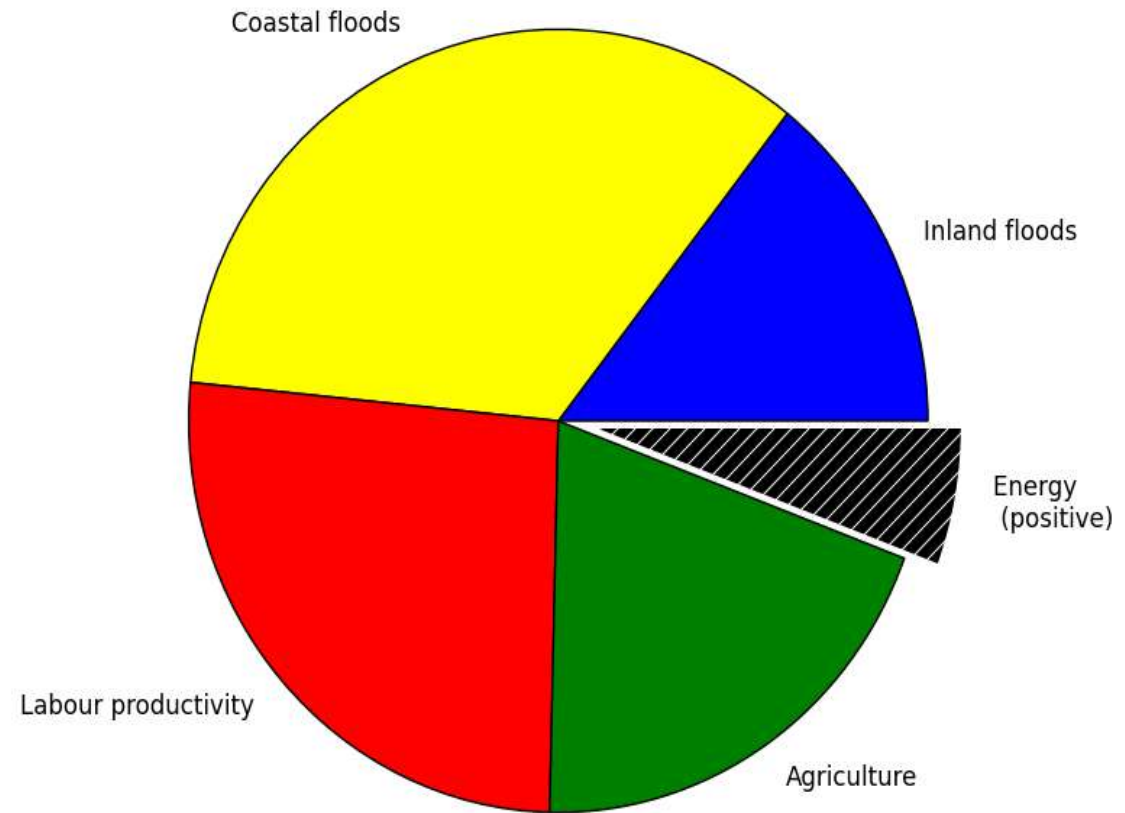


# Ekonomický dopad (okrem zdravia)

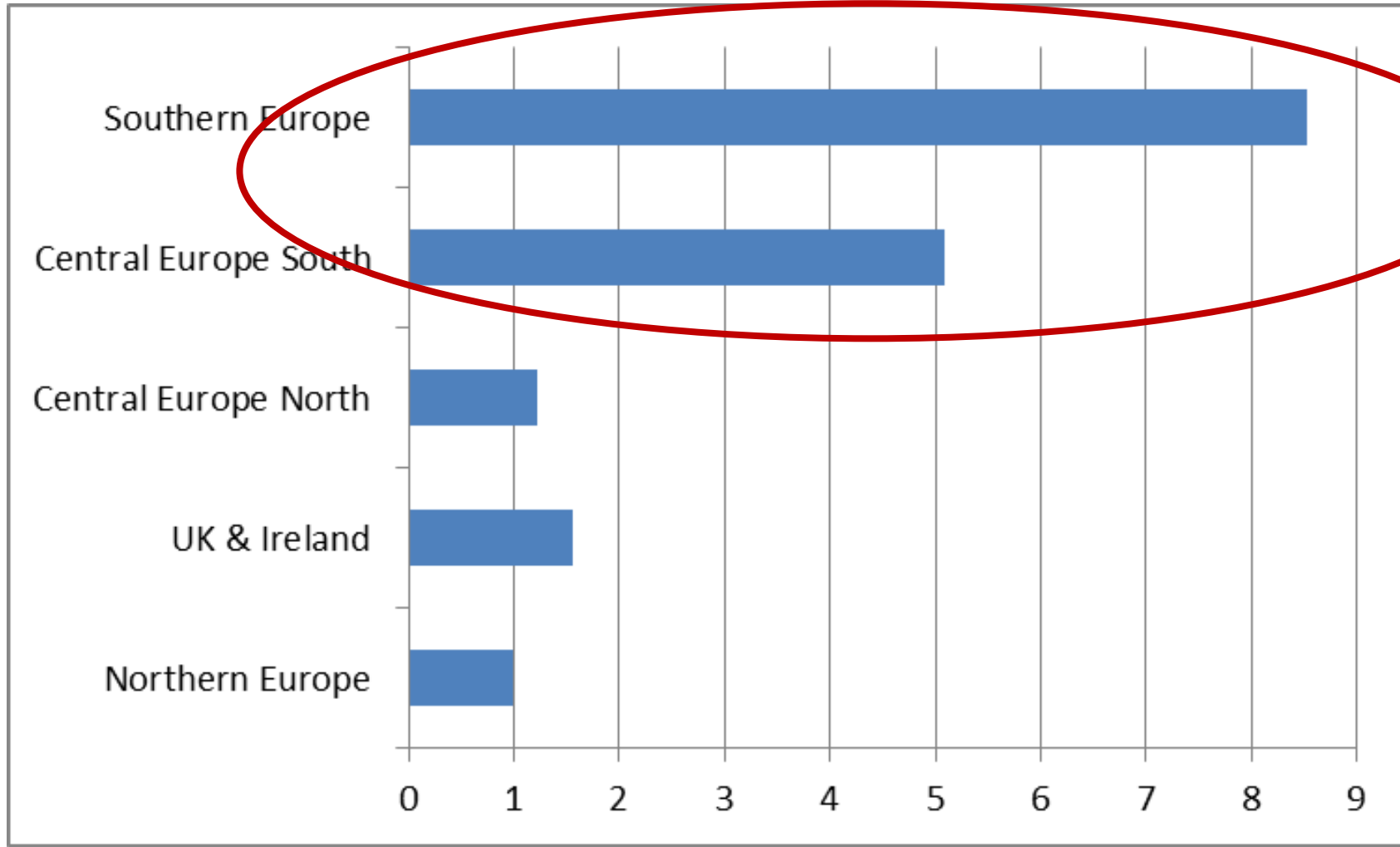
2C



3C



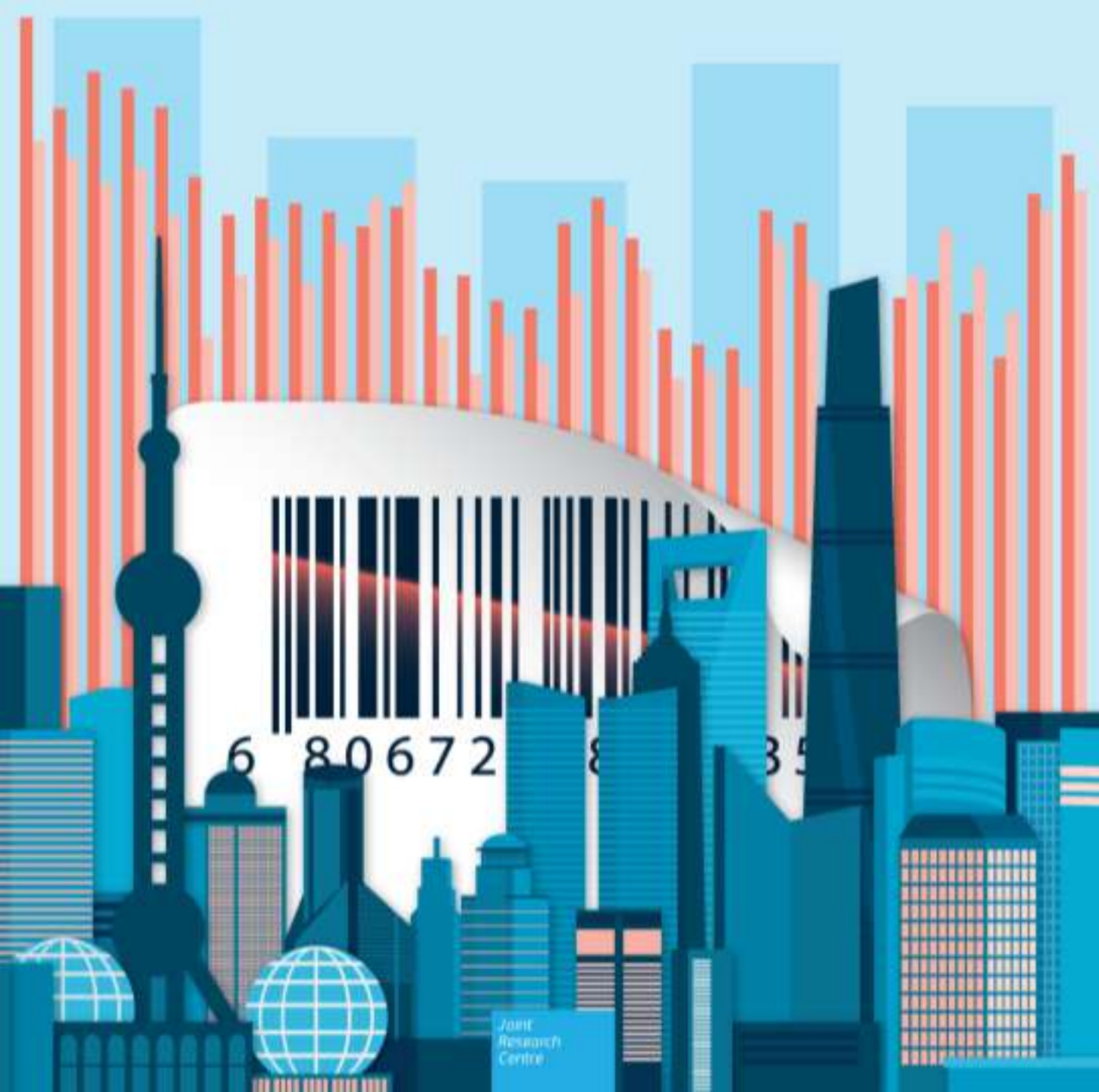
# Sever proti juhu





# Geopolitická transformácia



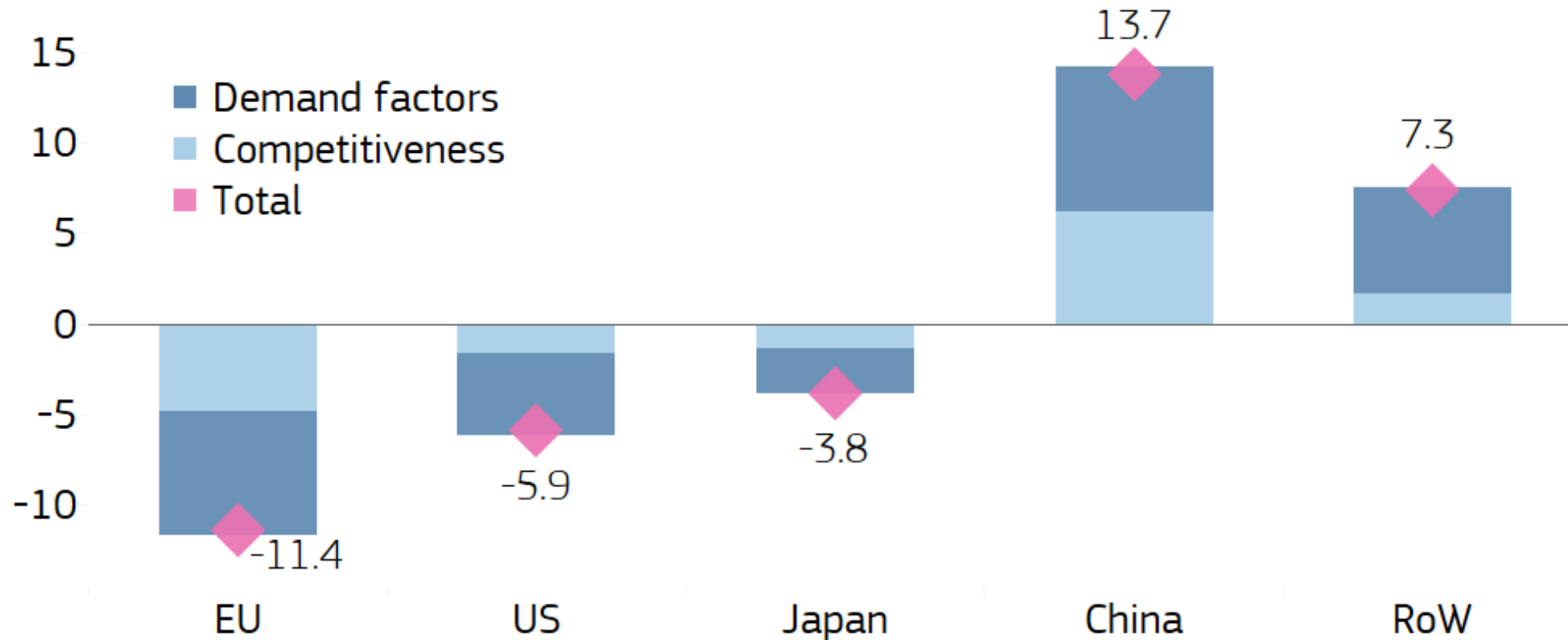


# ČÍNA

<https://ec.europa.eu/jrc/en/china-report-challenges-and-prospects>

# Čína zvýšila 3x svoj podiel vo svetovej priemyselnej produkcii

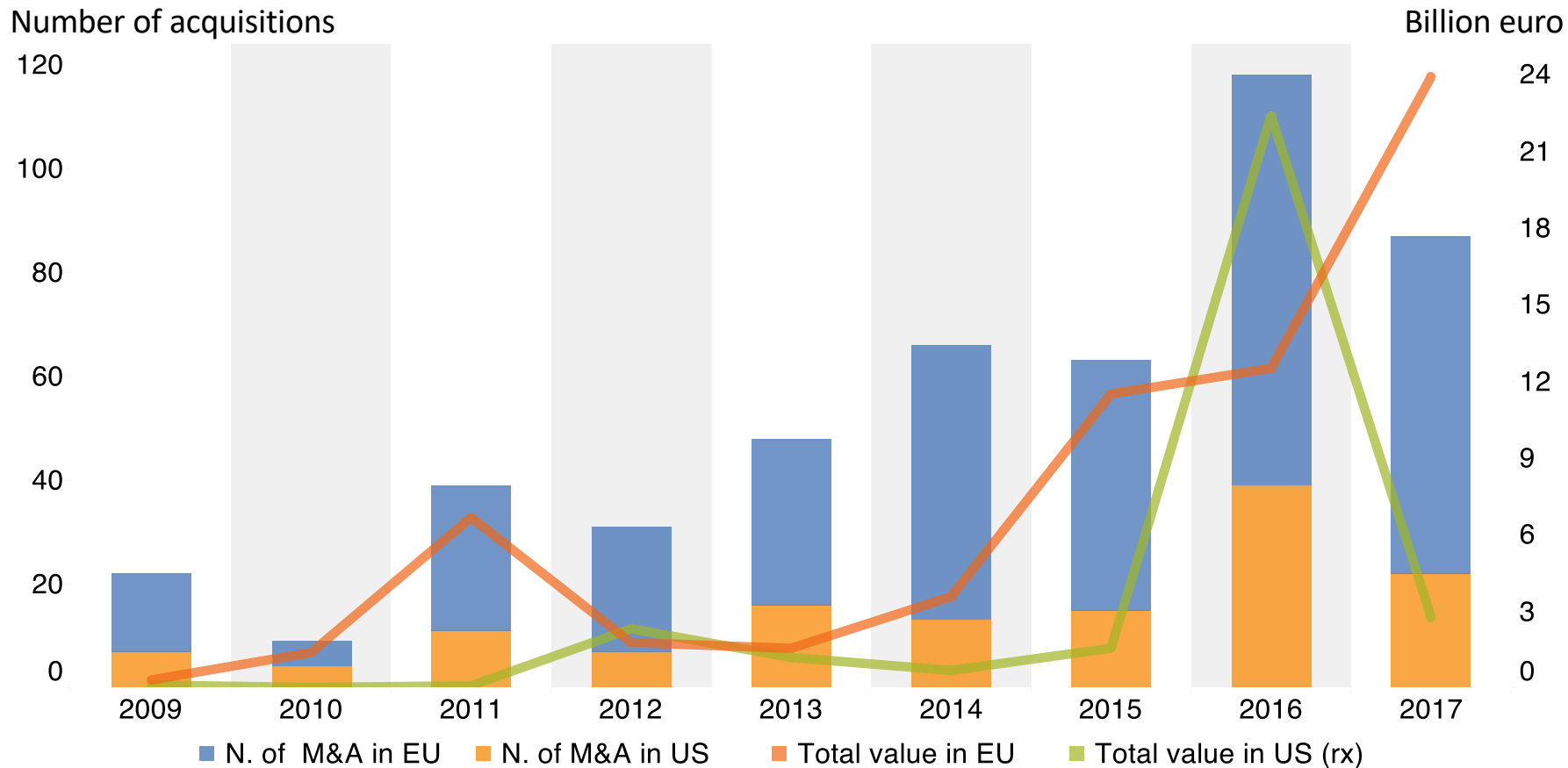
**Figure 2.1:** Global share in manufacturing value chains; Change in pct points, 2000-2014



Source: JRC based on WIOD (2016)

# Čínske nákupy podnikov v EÚ a USA

**Figure 4.1:** Chinese cross-border mergers and acquisitions (M&As) in EU and US



**Source:** JRC calculations based on Bureau van Dijk data (Zephyr and Orbis) for a sample of EU and US firms, shared across datasets to increase cross-reliability of deals and balance sheet data. Note: The aggregate value of the M&A deals is only indicative as many of the deals do not report the value.

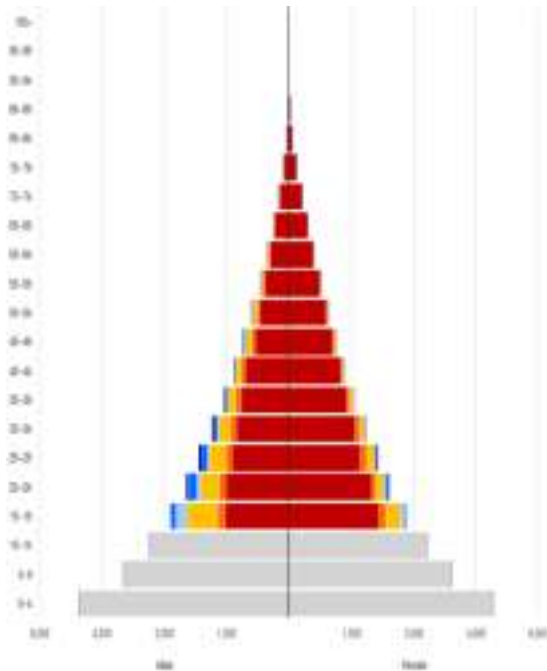


# Nigéria

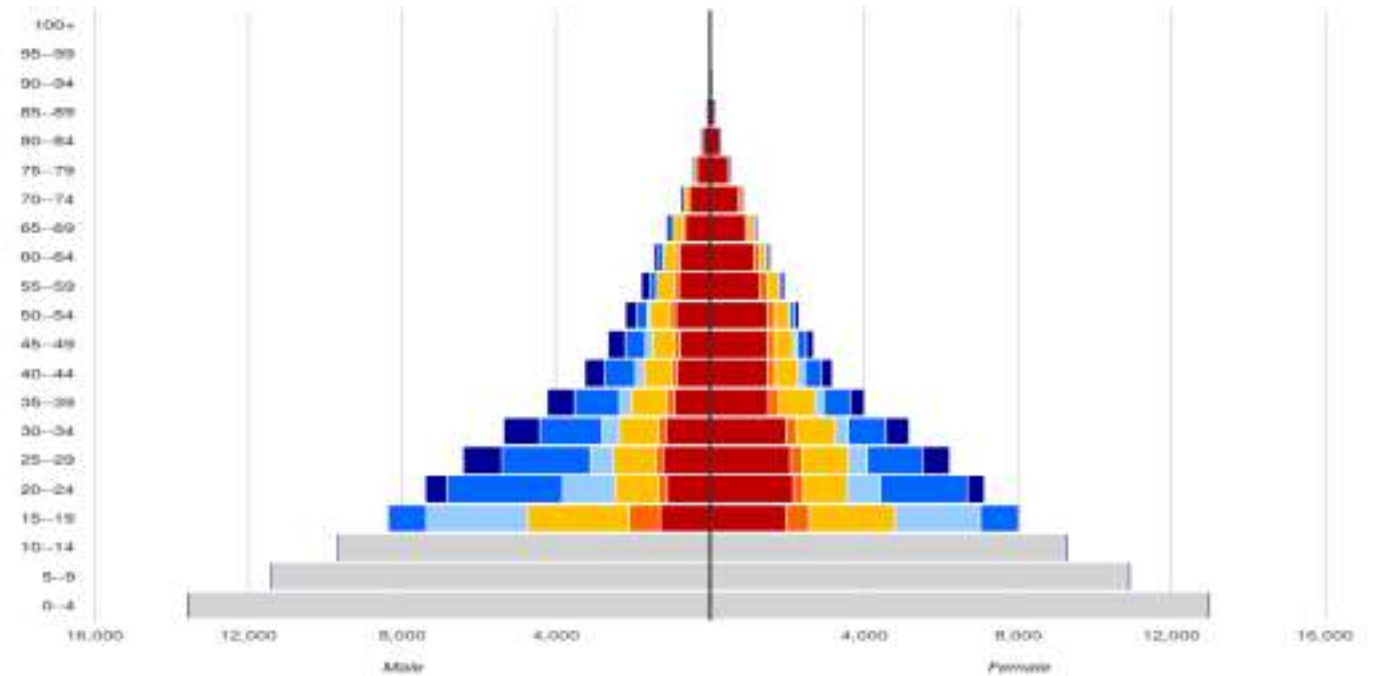
57 mil.

158 mil.

1970



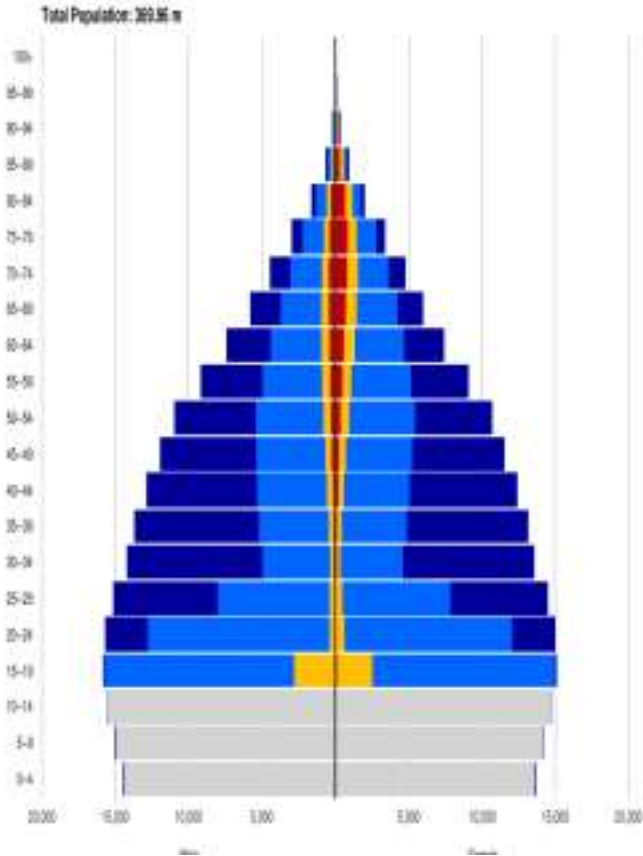
2010



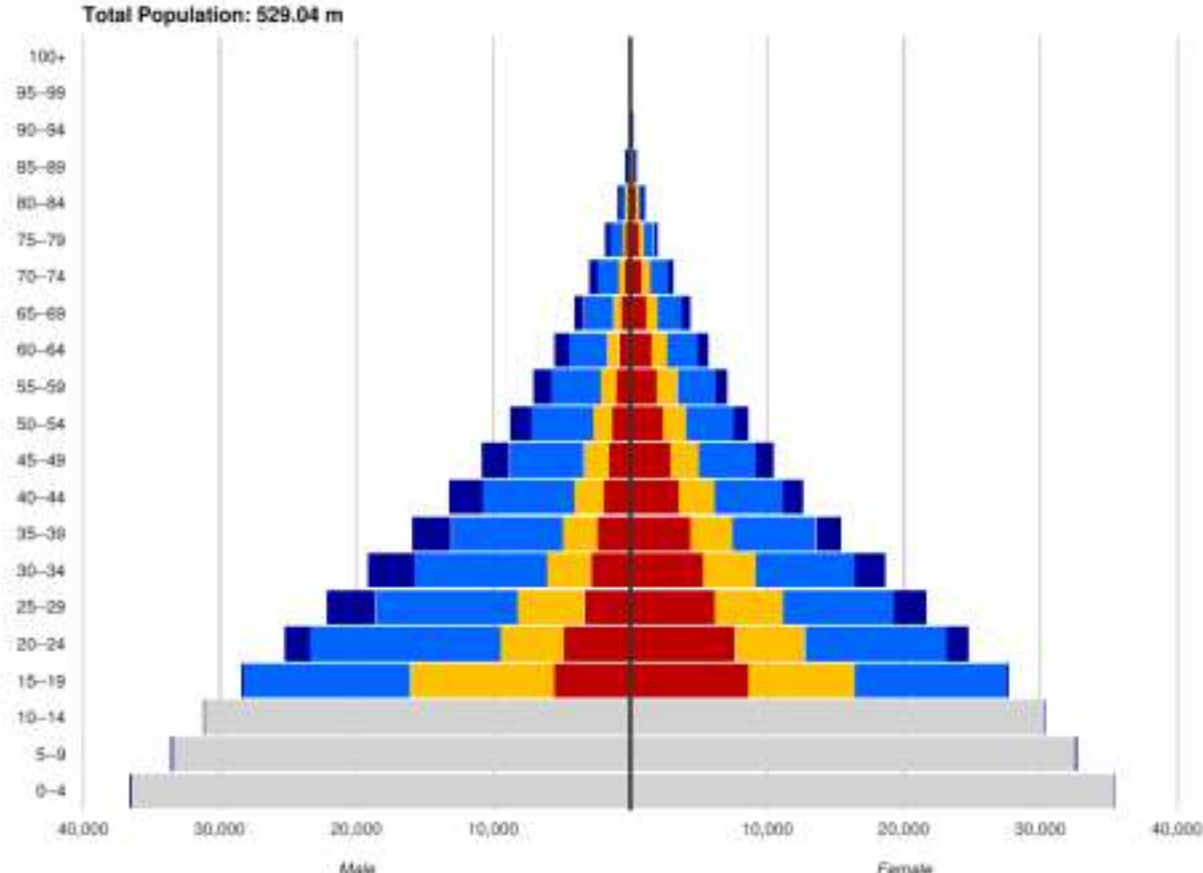
Under 15    No Education    Incomplete Primary    Primary    Lower Secondary    Upper Secondary    Post Secondary

# Nigéria – populačné scenáre

2060 369 mil.



2060 529 mil.



Under 15
  No Education
  Incomplete Primary
  Primary
  Lower Secondary
  Upper Secondary
  Post Secondary

Source: Wittgenstein Centre Data explorer (2015)

# Nová bezpečnostná situácia

Geopolitical 


Terrorism 


Fake news 


Cyber 

**Hrozby**




Smart Systems 


Complexity 


Societal 

**Zraniteľnosť**



Technology 

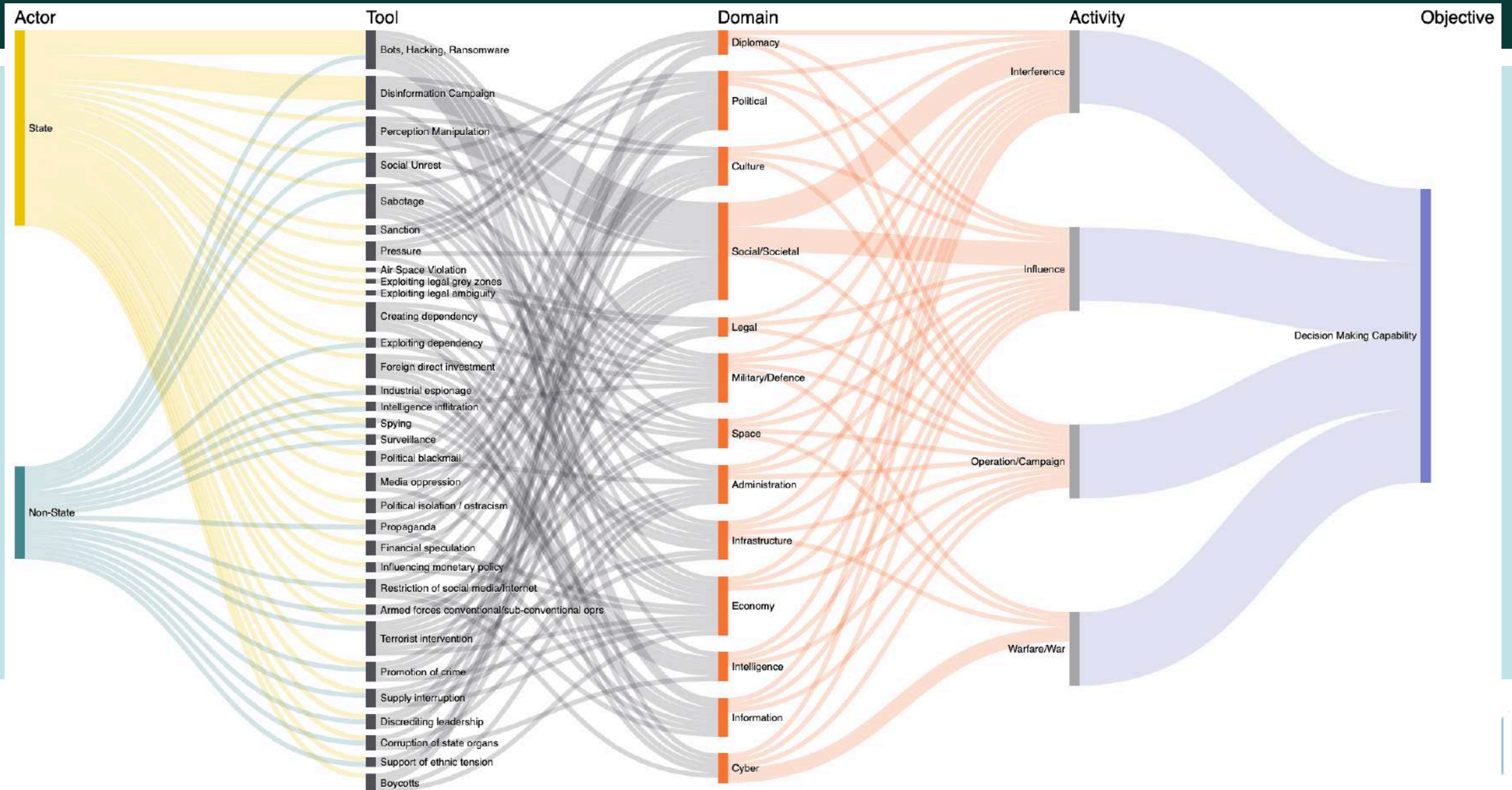
Media 

Social sciences 

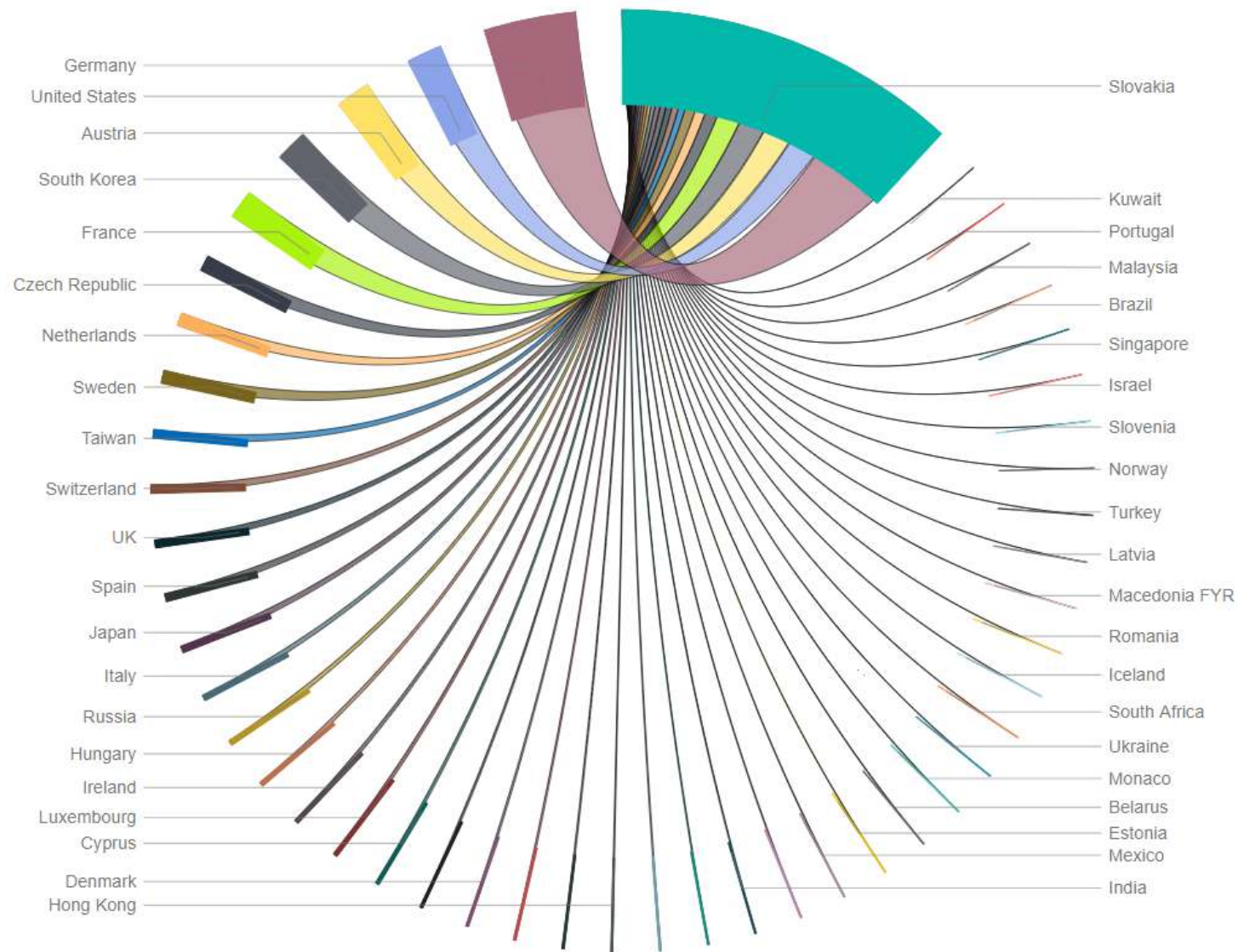
Icon made by Freepik from [www.flaticon.com](http://www.flaticon.com)

**Multi-disciplinarita**

# Hybridné hrozby







**Who Invests in Slovakia (2003-2018)**

# Technologická transformácia





# Digitálna transformácia

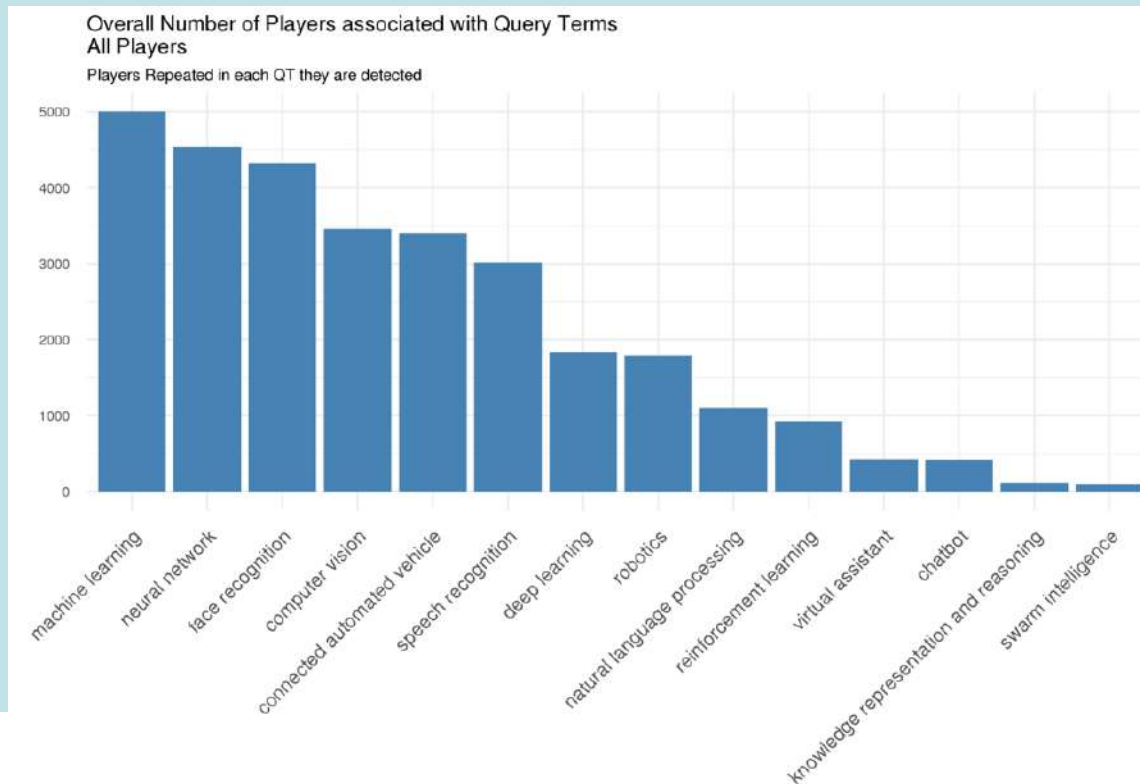


Dáta – Informácie - Poznatky



# Umelá inteligencia

AI – človekom vytvorené zariadenia schopné pozorovať svoje okolie, učiť sa, a na základe získaných poznatkov robiť inteligentné rozhodnutia alebo akcie





Infrastructure

Analytics

Applications

**Hadoop On-Premise**  
 cloudera Hortonworks  
 MAPR Pivotal  
 IBM InfoSphere  
 bluedata jethro

**Hadoop in the Cloud**  
 amazon Microsoft Azure  
 Google Cloud Platform  
 IBM InfoSphere  
 TREASURE DATA

**Spark**  
 databricks  
 GridGain

**Cluster Services**  
 amazon  
 kubernet...  
 HPC SYSTEMS...  
 MESOSPHERE

**Analyst Platforms**  
 Palantir  
 AYASDI  
 Quid enigma

**Analytics Platforms**  
 Microsoft  
 GUAUVUS  
 Datameer

**Data Science Platforms**  
 context relevant  
 CONTINUUM DataRobot  
 Alpine  
 MODE plotly ARIMO  
 #dataiku tonian

**Visualization**  
 +tableau  
 Google Cloud Platform  
 Qlik looker  
 Roambi

**Sales & Marketing**  
 RADIUS Gainsight  
 bloomreach Zeta  
 EVERSTRING livefyre  
 blueyonder Lattice  
 kahuna infer SAILTHRU

**Customer Service**  
 MEDALLIA  
 ATTENSTY  
 CLARABRIDGE  
 CLICKFOX  
 STELLA Service

**Human Capital**  
 gild  
 Connectifier  
 textio  
 entelo  
 hiQ

**Legal**  
 RAVEL  
 JUDICATA  
 Everlaw  
 Brevia  
 PREPROMOTION

**NoSQL Databases**  
 amazon dynamoDB Go  
 Microsoft Azure  
 mongoDB  
 CERO SPIKE  
 SequoiaDB redis

**Graph Databases**  
 neo4j  
 OrientDB  
 InfiniteGraph

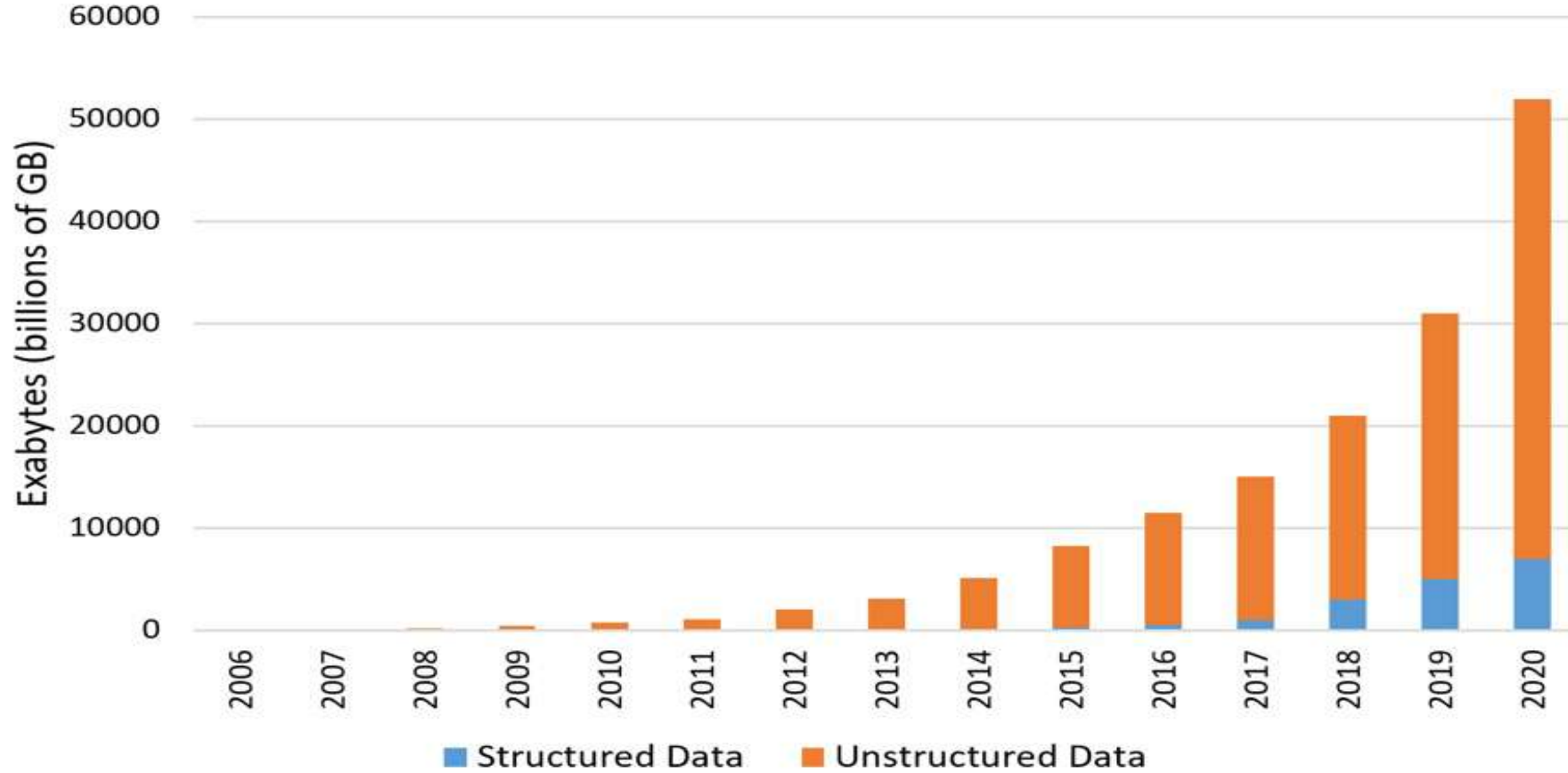
**MP Databases**  
 TERADOL  
 VERTI  
 NETI  
 Oct  
 kogr  
 SASOL

**Management / Monitoring**  
 New Relic  
 AFFIN DYNAMICS  
 amazon web services  
 actifio  
 Numerify  
 splunk  
 DATADOG  
 Trocena DRIVEN Anodot

amazon web services  
 Google

**Frameworks**  
 HADOOP  
 YARN  
 Spark  
 ME  
 TE  
 Fli

**Heatmaps**  
 JAWBOI  
 practice fusion  
 Withings  
 kinsa  
 VALIDIC  
 netatmo  
 Human API



**Vertical AI Applications**  
 cyberason  
 Metrix  
 Guardian Analytics  
 ft science  
 sicnifyd  
 facebook  
 Clara  
 KASIST  
 lumiat

**Finance**  
 LendingClub  
 nDeck  
 Kreditech  
 Kabbage  
 INSIKT  
 Dataminr  
 Lenddo  
 AIDYIA  
 ISENTIUM  
 antopian  
 sentient

**Industries**  
 OP@WER eHarmony  
 RetailNext  
 STITCH FIX  
 WorkFusion  
 BLUE@RIVER  
 TACHYUS  
 Seeq FarmLogs  
 SwiftKey  
 HowGood  
 select  
 statmuse BOXEVER

**Search**  
 elasticsearch  
 solr

**Security**  
 Apache Ranger

**Visualization**  
 Zeppelin

**Incubators & Schools**  
 GA  
 PLURAL SIGHT  
 INSIGHT  
 DataCamp  
 DataElite  
 The Data Incubator  
 METIS

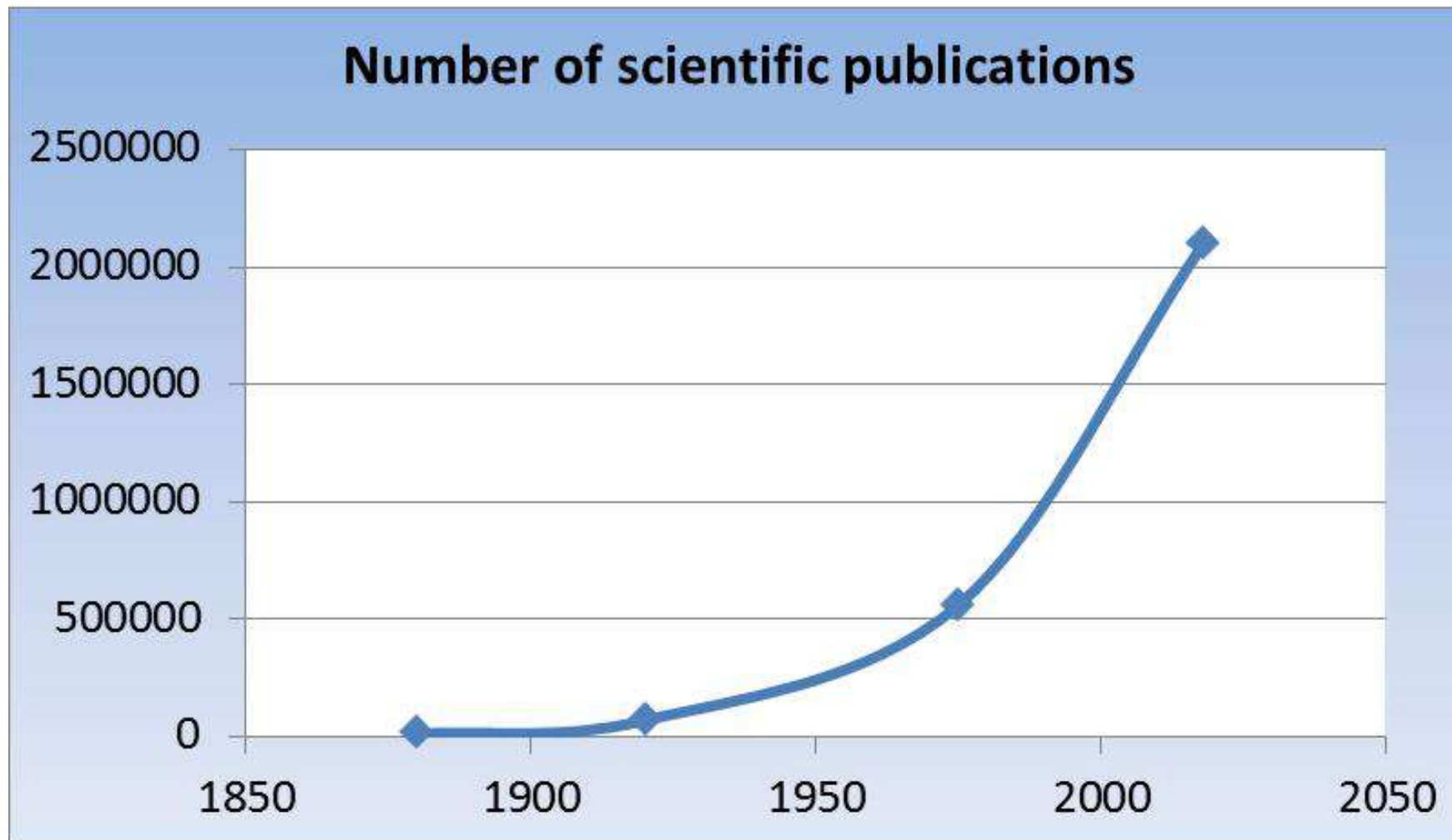
# The Cambrian Explosion...of Data

Last Updated 3/23/2016

© Matt Turck (@mattturck), Jim Hao (@jimrhao), & FirstMark Capital (@firstmarkcap)

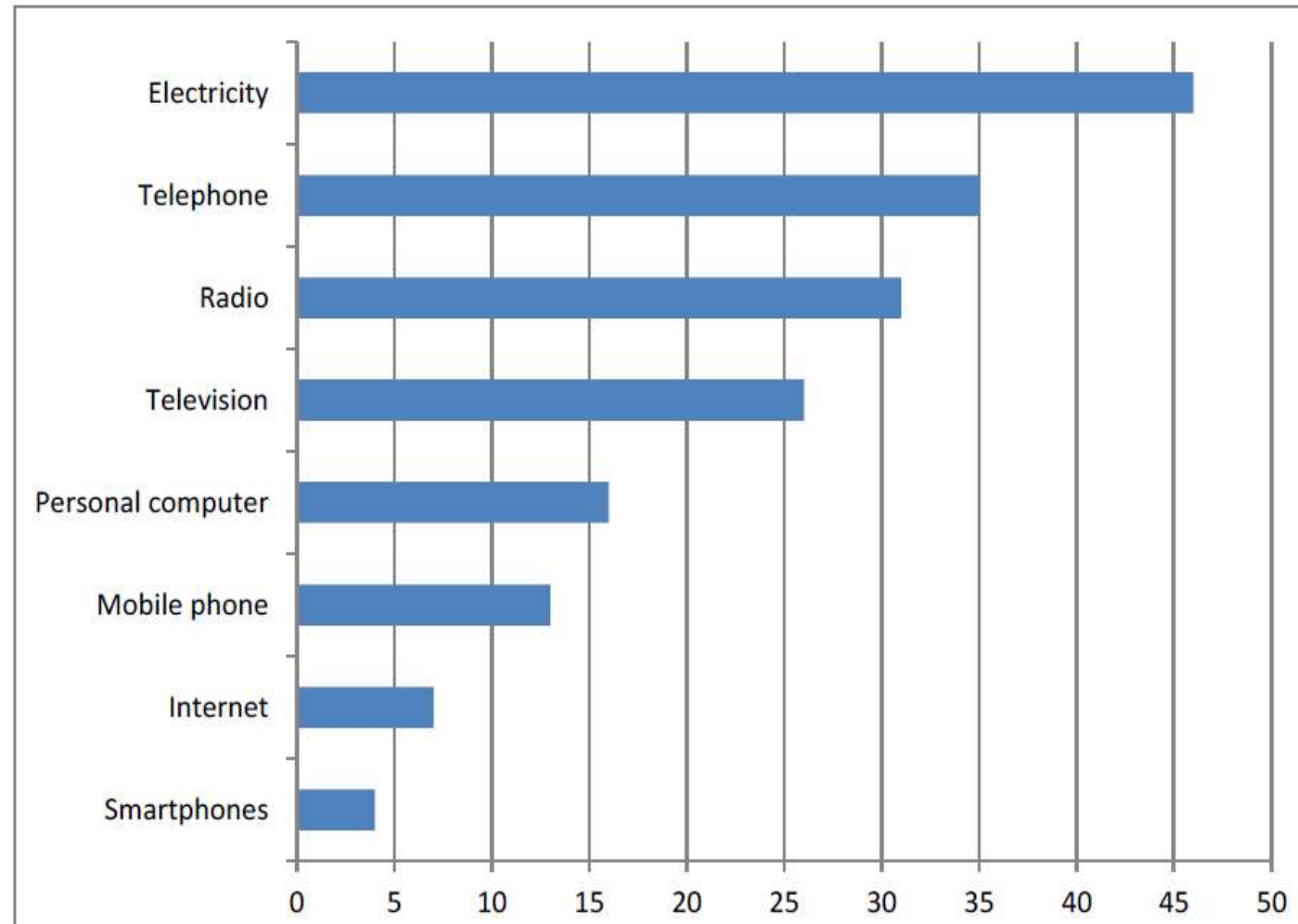
FIRSTMARK

Každých 20 sekund je publikovaný nový vedecký článok



# Nevídaná rychlost a penetrácia

Years until used by 25% of US population

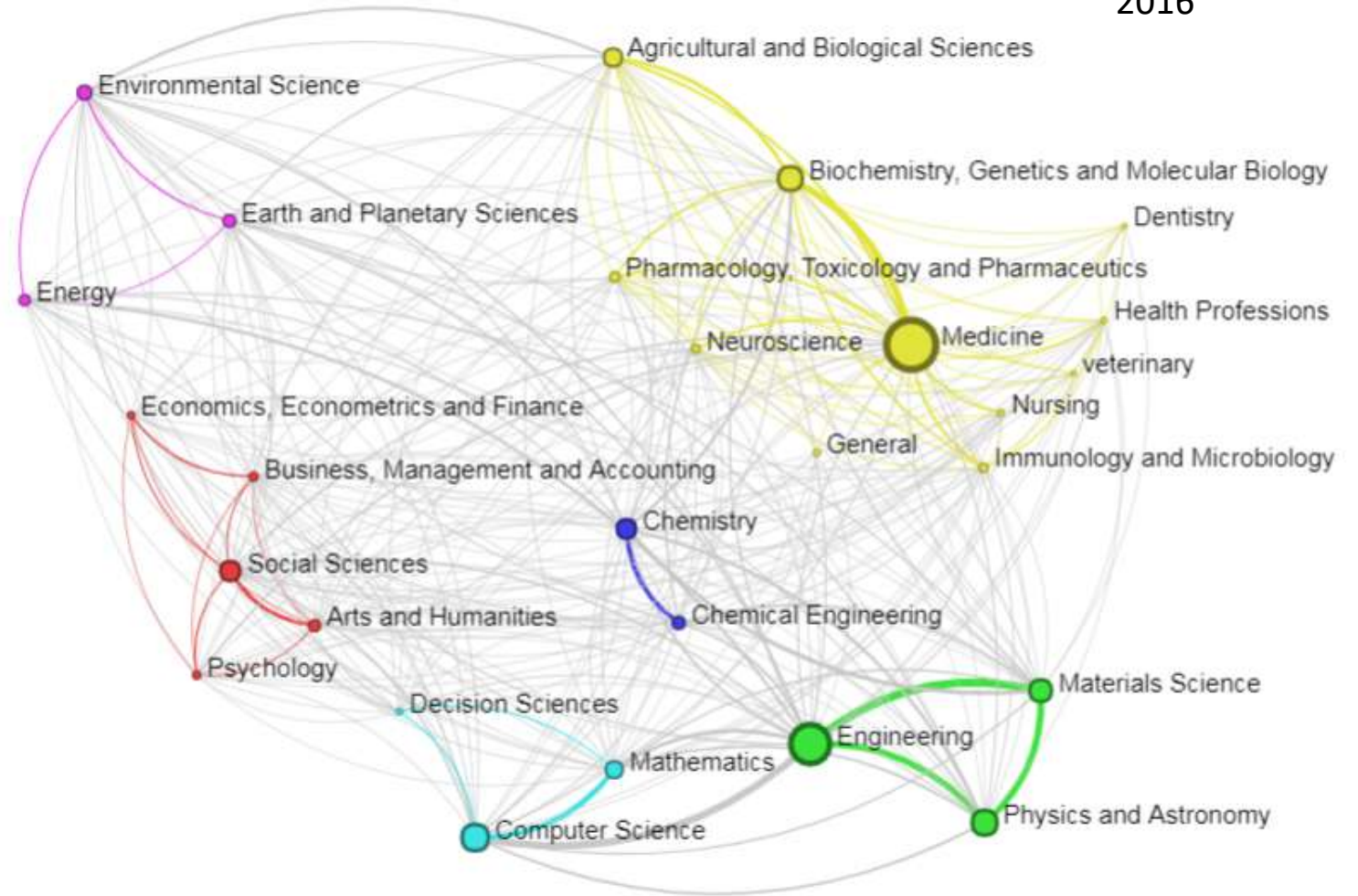
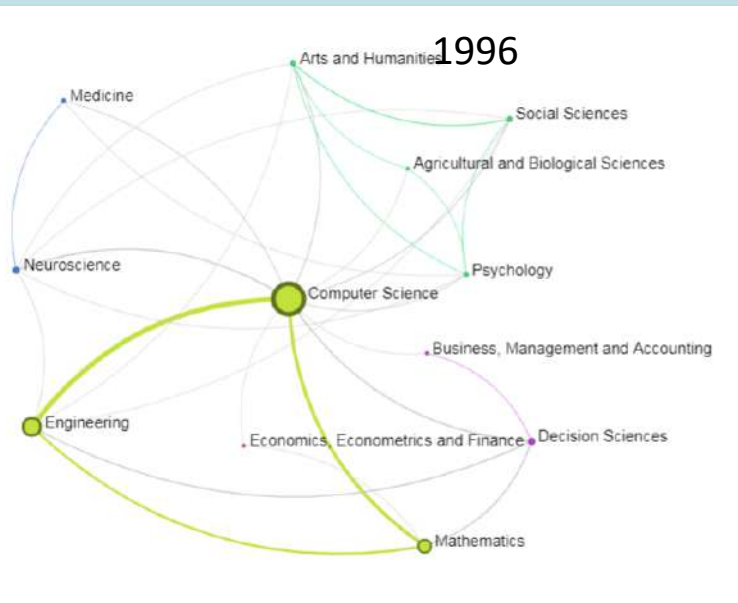


Source: US Census, Wall Street Journal

# Penetrácia

2016

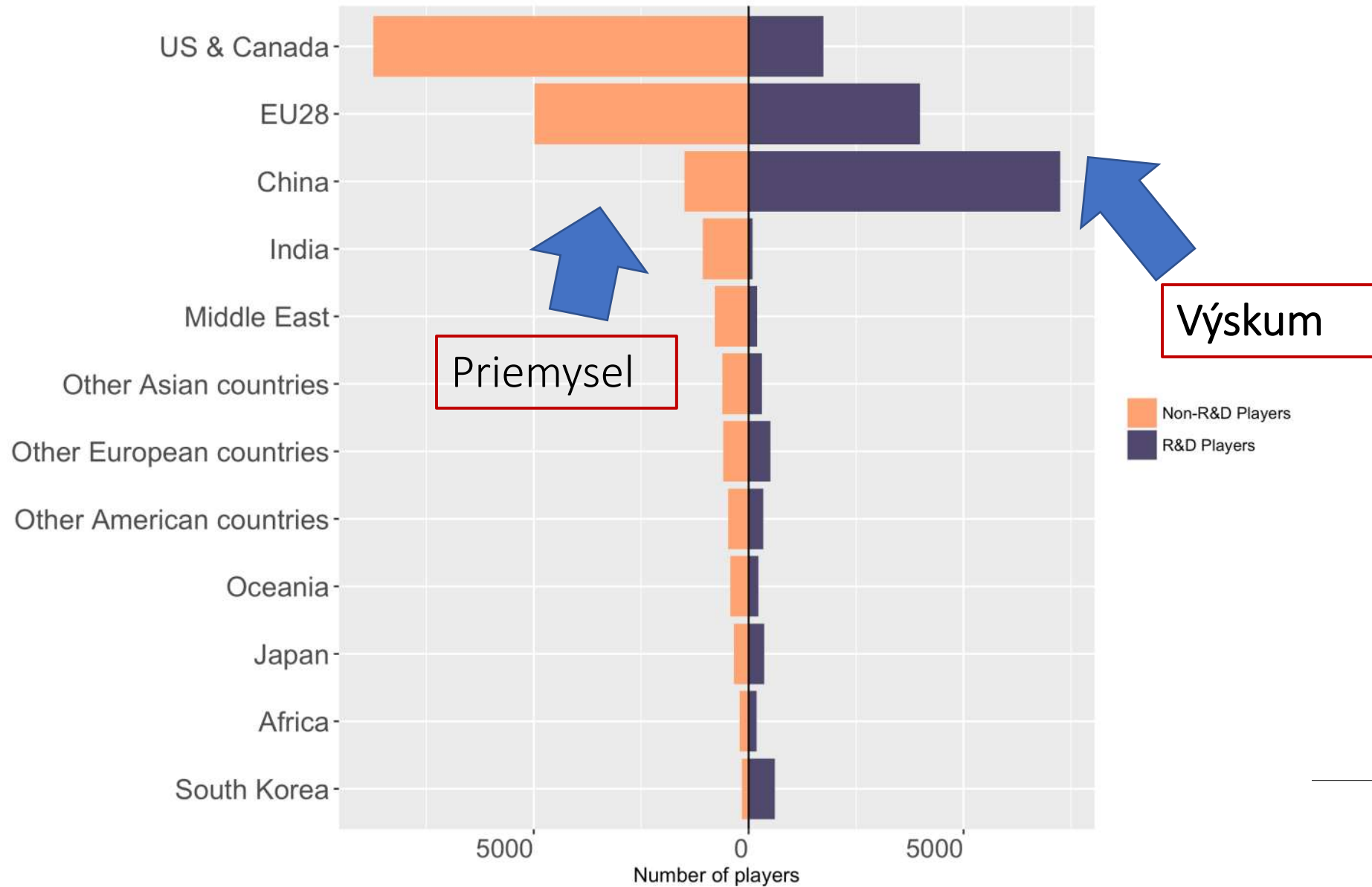
1996





# Globálny ekosystém umelej inteligencie

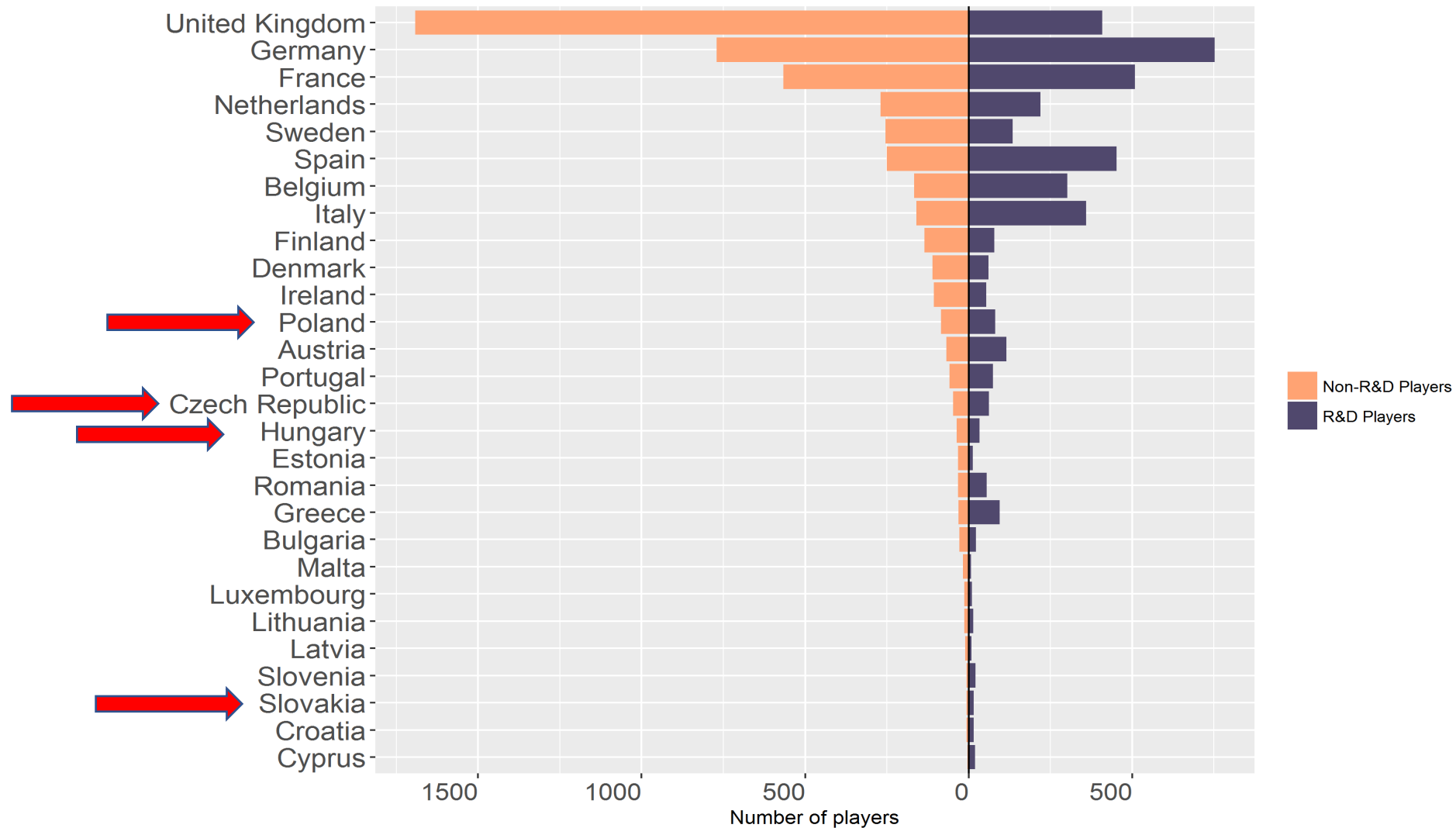
AI R&D players vs Industry AI players not engaged in R&D activities by geographical zone





# Ekosystém umelej inteligencie v EU28

AI R&D players vs Industry AI players not engaged in R&D activities by geographical zone, 2009-20



# Spoločenský a etický dopad



# Príležitosti

## AI automatizácia



## Kvalita práce



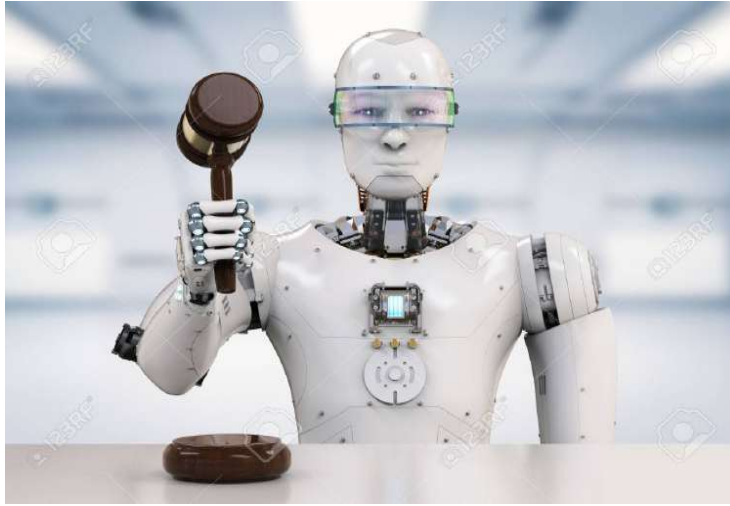
## Lepšie rozhodovanie



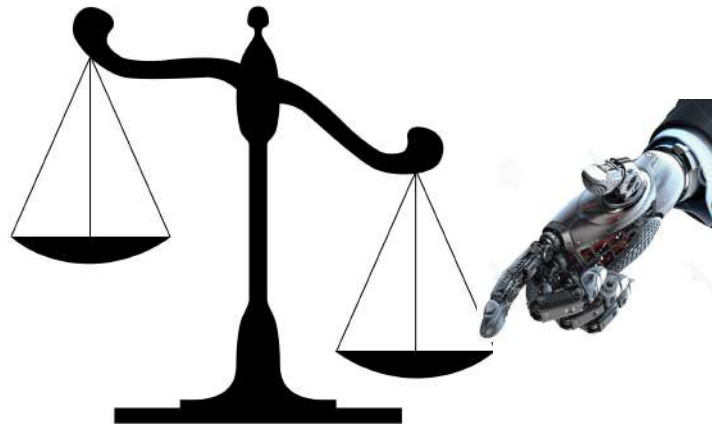


# Výzvy - problémy

Algoritmické rozhodovanie



and algorithm bias



Strata a zmena práce



Regulácia a inovácia

Volvo admits its self-driving cars are confused by kangaroos

Swedish company's animal detection system can identify and avoid deer, elk and caribou, but is yet to work against the marsupials' movements



▲ Kangaroos are responsible for about 90% of collisions between vehicles and animals in Australia – although most are not serious. Photograph: Paul Kane/Getty Images

# Algoritmické rozhodovanie



Tolan, S., M. Miron, E. Gomez, and C. Castillo (2019). Why machine learning may lead to unfairness: Evidence from risk assessment for juvenile justice in catalonia. ACM AI and Law Conference.





# Automatické výberové konania



# Nerovnost příležitostí – muži vs ženy

## 1956 Dartmouth Conference: The Founding Fathers of AI



John McCarthy



Marvin Minsky



Claude Shannon



Ray Solomonoff



Alan Newell



Herbert Simon



Arthur Samuel



Oliver Selfridge



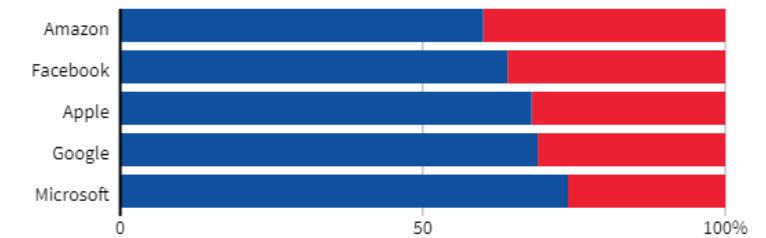
Nathaniel Rochester



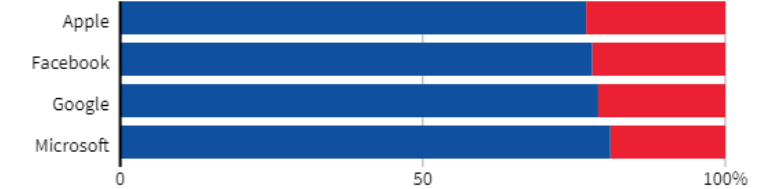
Trenchard More

### GLOBAL HEADCOUNT

Male Female

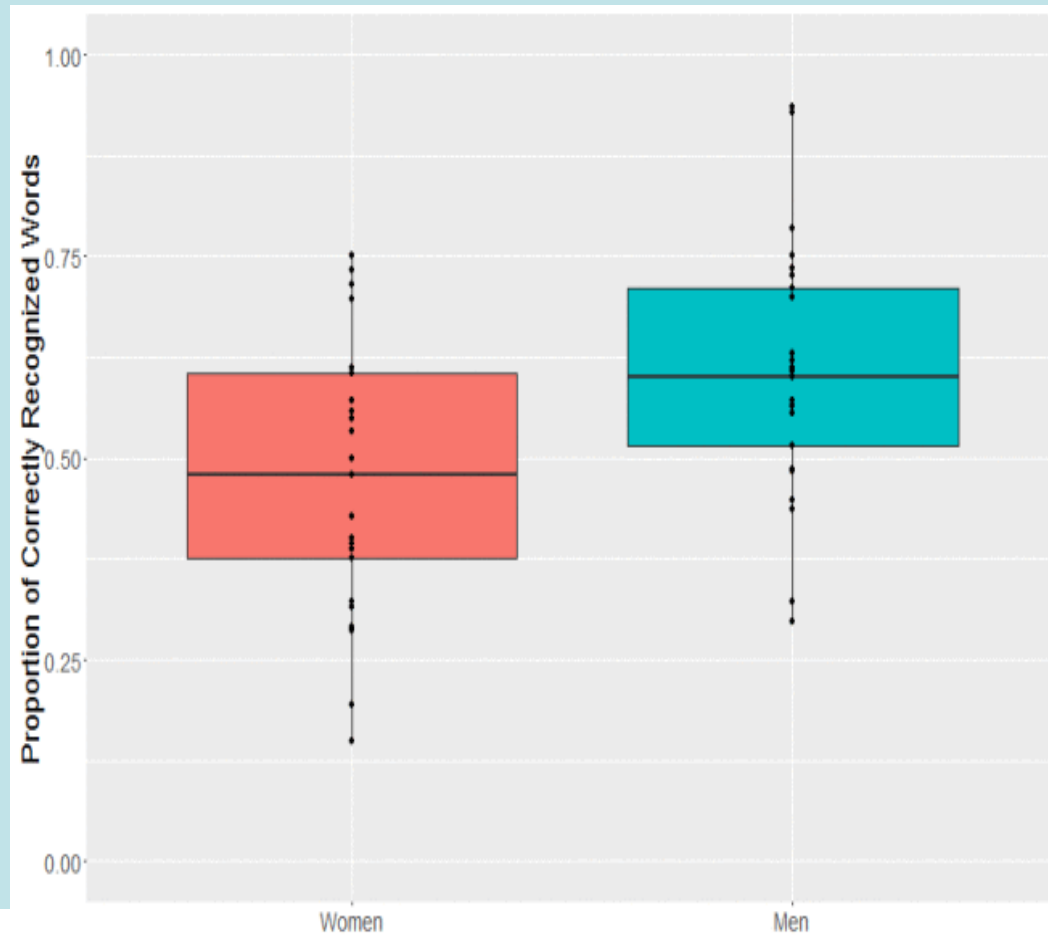


### EMPLOYEES IN TECHNICAL ROLES

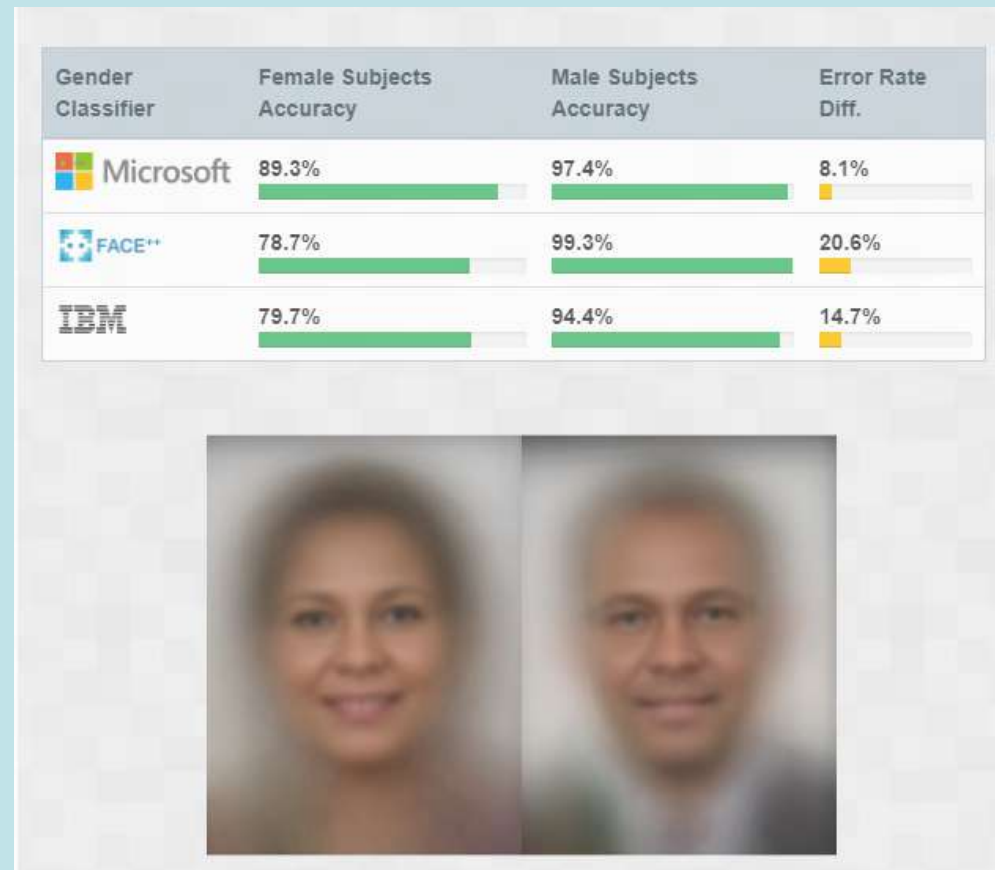


<https://www.reuters.com/article/us-amazon-com-jobs-automation-insight/amazon-scrap-secret-ai-recruiting-tool-that-showed-bias-against-women-idUSKCN1MK08G>

# Rozlišovanie hlasu



# Rozlišovanie tváre



Buolamwini, J., Gebru, T. (2018) Gender Shades: Intersectional Accuracy Disparities in Commercial Gender Classification, Proceedings of Machine Learning Research 81:1–15, 2018.

# Dozor-sledovanie

**Masové sledovanie  
spoločnosti**

**Psychologické profilovanie**

**Spoločenské triedenie a  
hodnotenie**

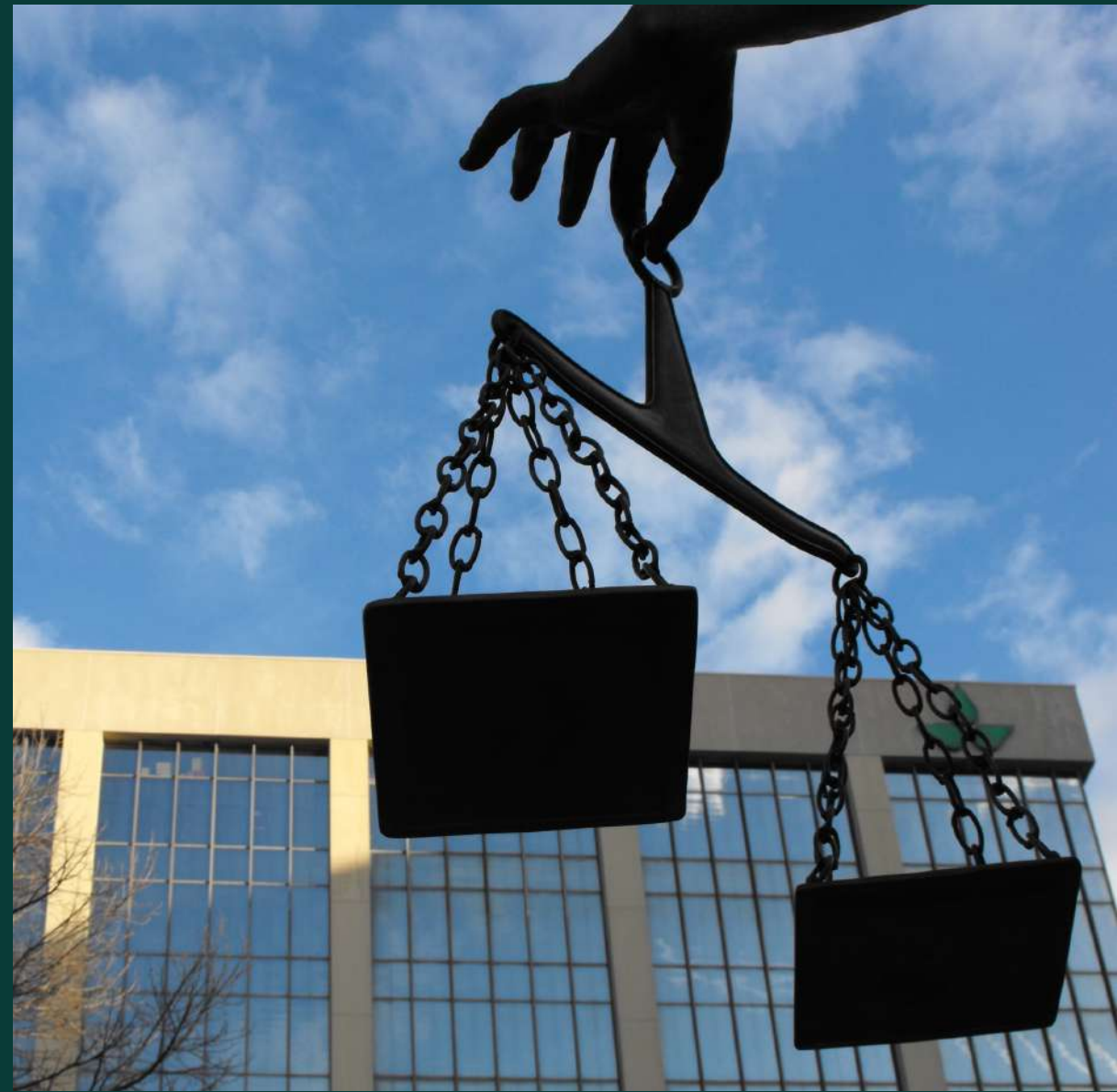




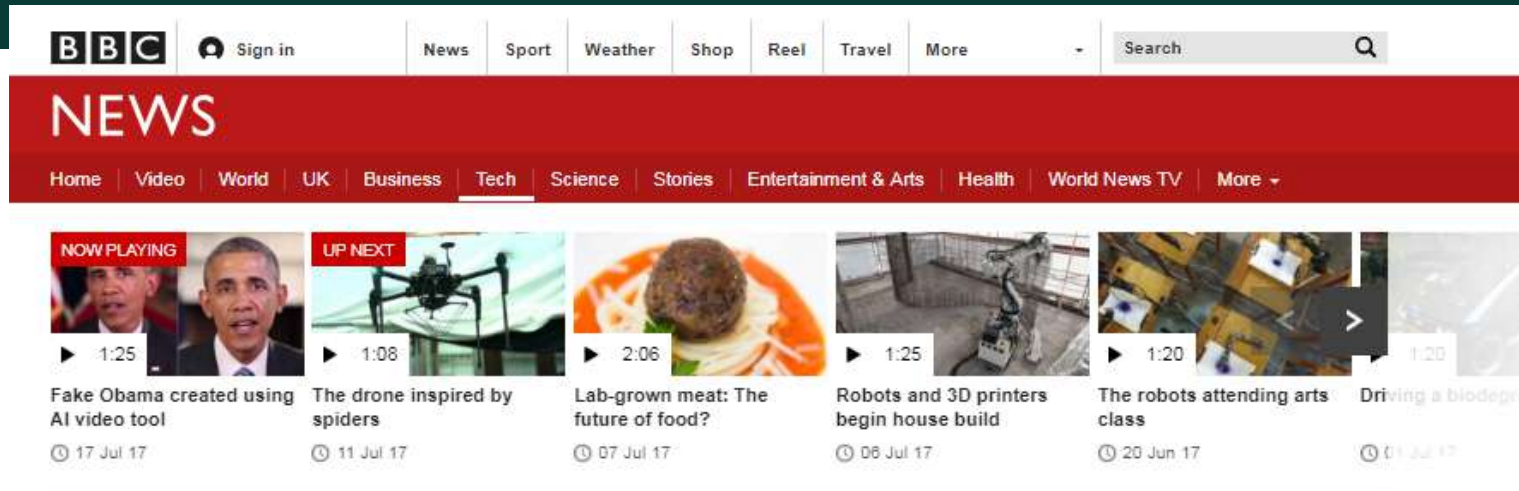
**Sloboda  
vyjadrovania  
manipulácia**



# Nerovnosť a diskriminácia



# Deep fake – podvody cez umelú inteligenciu



The screenshot shows the BBC News website interface. At the top, there are navigation links for News, Sport, Weather, Shop, Reel, Travel, and More, along with a search bar. Below this is a red banner with the word "NEWS" and sub-navigation for Home, Video, World, UK, Business, Tech, Science, Stories, Entertainment & Arts, Health, World News TV, and More. A row of video thumbnails is displayed, each with a play button and a duration. The first thumbnail is titled "Fake Obama created using AI video tool" and has a duration of 1:25. Other thumbnails include "The drone inspired by spiders" (1:08), "Lab-grown meat: The future of food?" (2:06), "Robots and 3D printers begin house build" (1:25), "The robots attending arts class" (1:20), and "Driving a biodegradable..." (1:20).

## MOTHERBOARD

### 'Deep Voice' Software Can Clone Anyone's Voice With Just 3.7 Seconds of Audio

Using snippets of voices, Baidu's 'Deep Voice' can generate new speech, accents, and tones.

SHARE  

NOT BAD FOR A BOT

### Google's voice-generating AI is now indistinguishable from humans

By [Dave Gershgorn](#) | December 26, 2017



Home  Popular  Latest  Obsessions 



The image shows a video player with a close-up of Barack Obama's face. He is looking slightly to the right and appears to be speaking. At the bottom of the video, there is a white text overlay that reads: "But this is not. This footage is faked." The video player has a black background and a small logo in the top left corner.

### Fake Obama created using AI tool to make phoney speeches

Researchers at the **University of Washington** have produced a photorealistic former US President Barack Obama.

Artificial intelligence was used to precisely model how Mr Obama moves his mouth when he speaks.

Their technique allows them to put any words into their synthetic Barack Obama's mouth.

BBC Click finds out more.

See more at [Click's website](#) and [@BBCClick](#).

17 Jul 2017

     Share



Kto z nich je reálna osoba

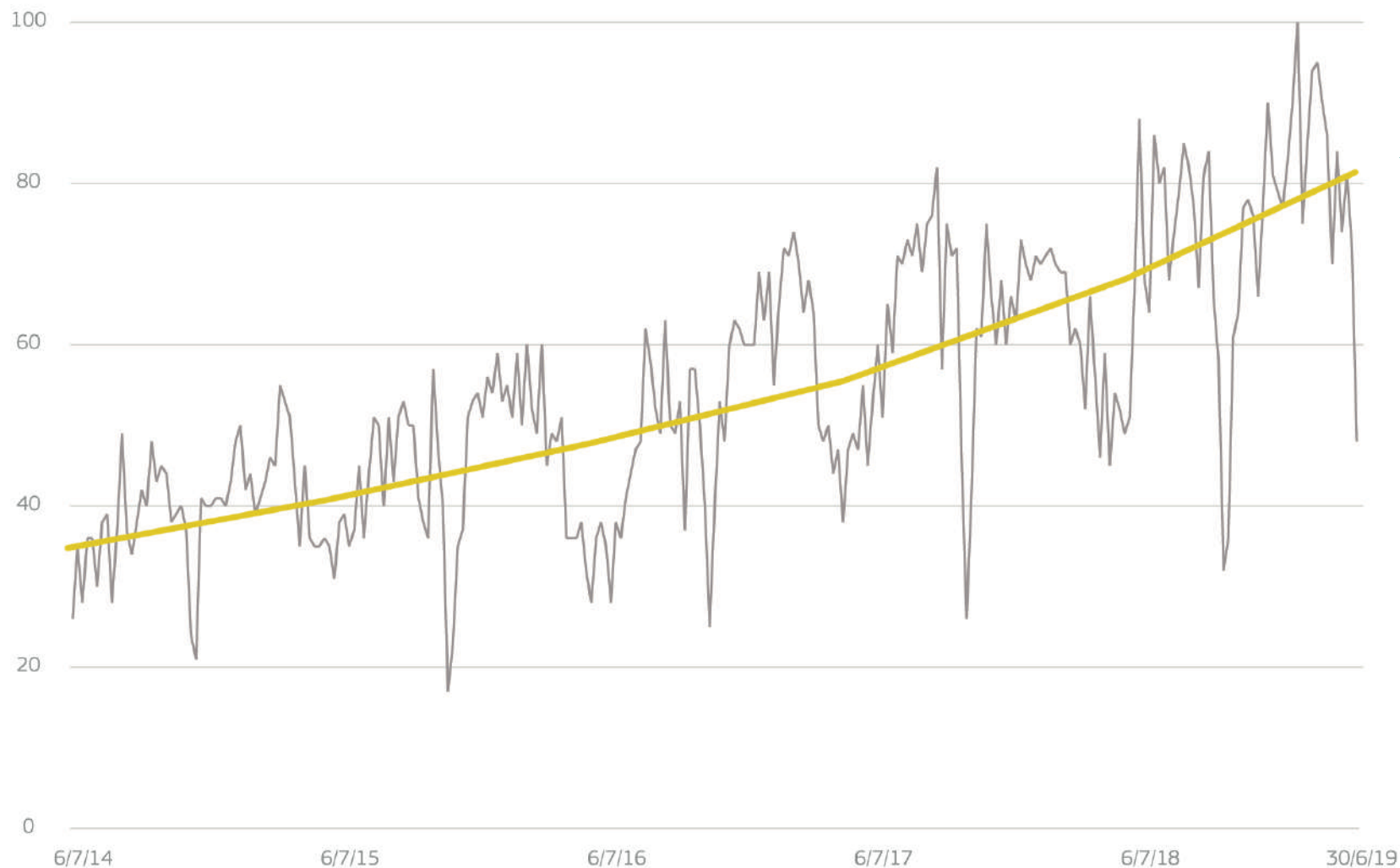




# Strata a zmena práce



# Vyhľadávanie hesla „**Budúcnosť práce**“ stále rastie

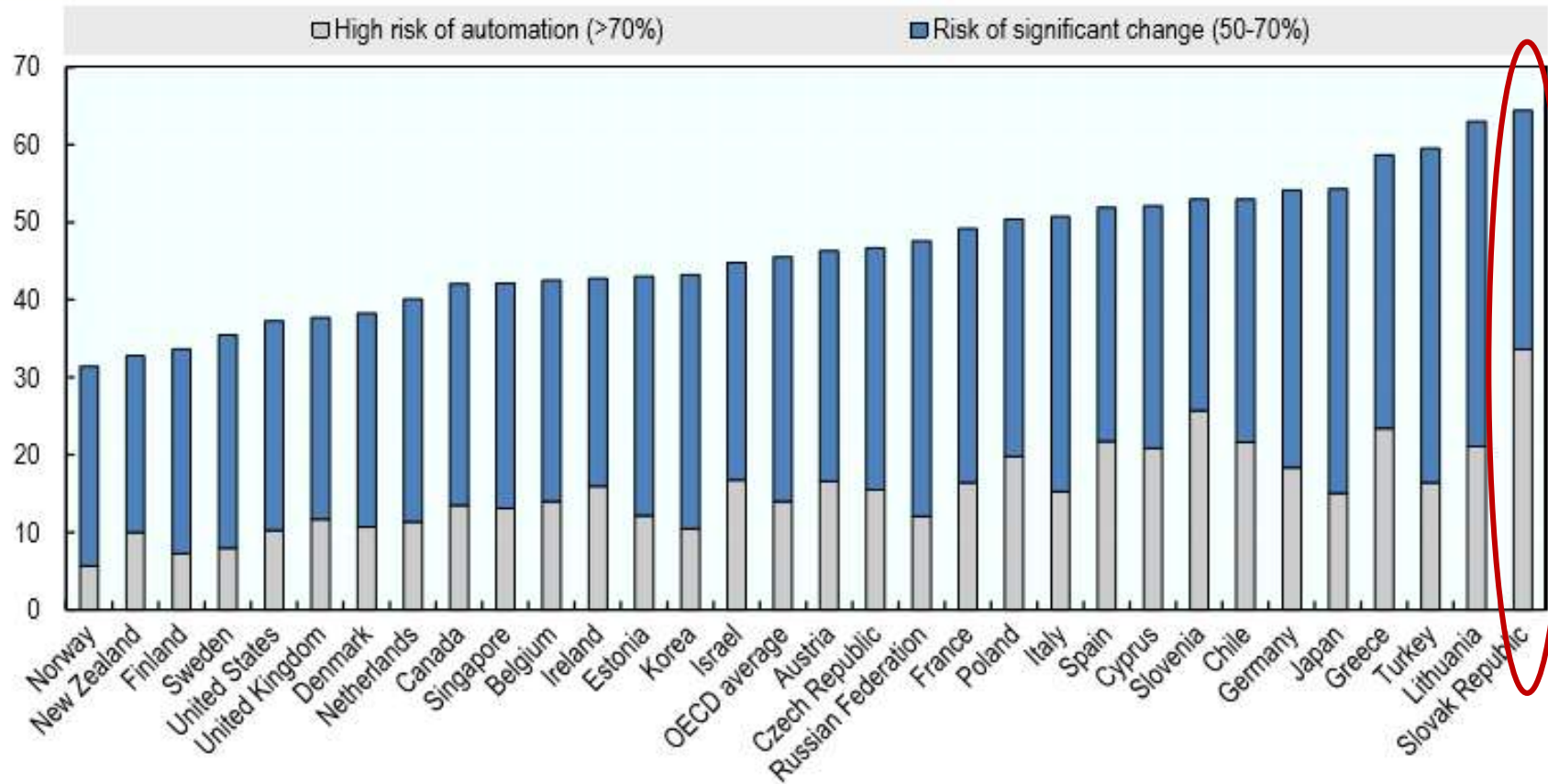


Google Search Volume  
for "Future of Work"  
(Global level, peak=100).



# Chart 1. Large shares of jobs are at risk of automation or significant change

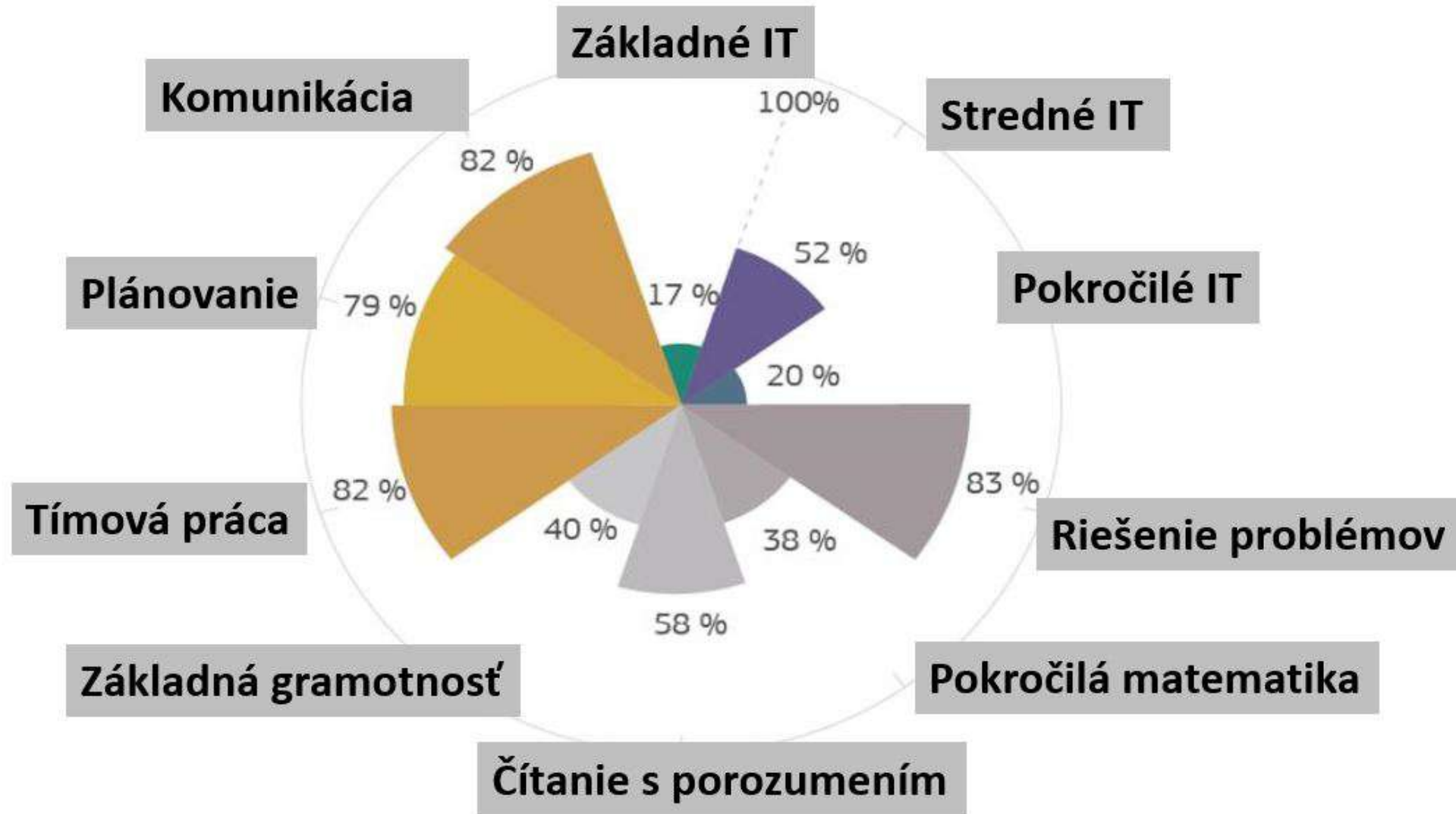
Percentage of jobs at risk by degree of risk



Notes: High risk – more than 70% probability of automation; risk of significant change – between 50 and 70% probability.

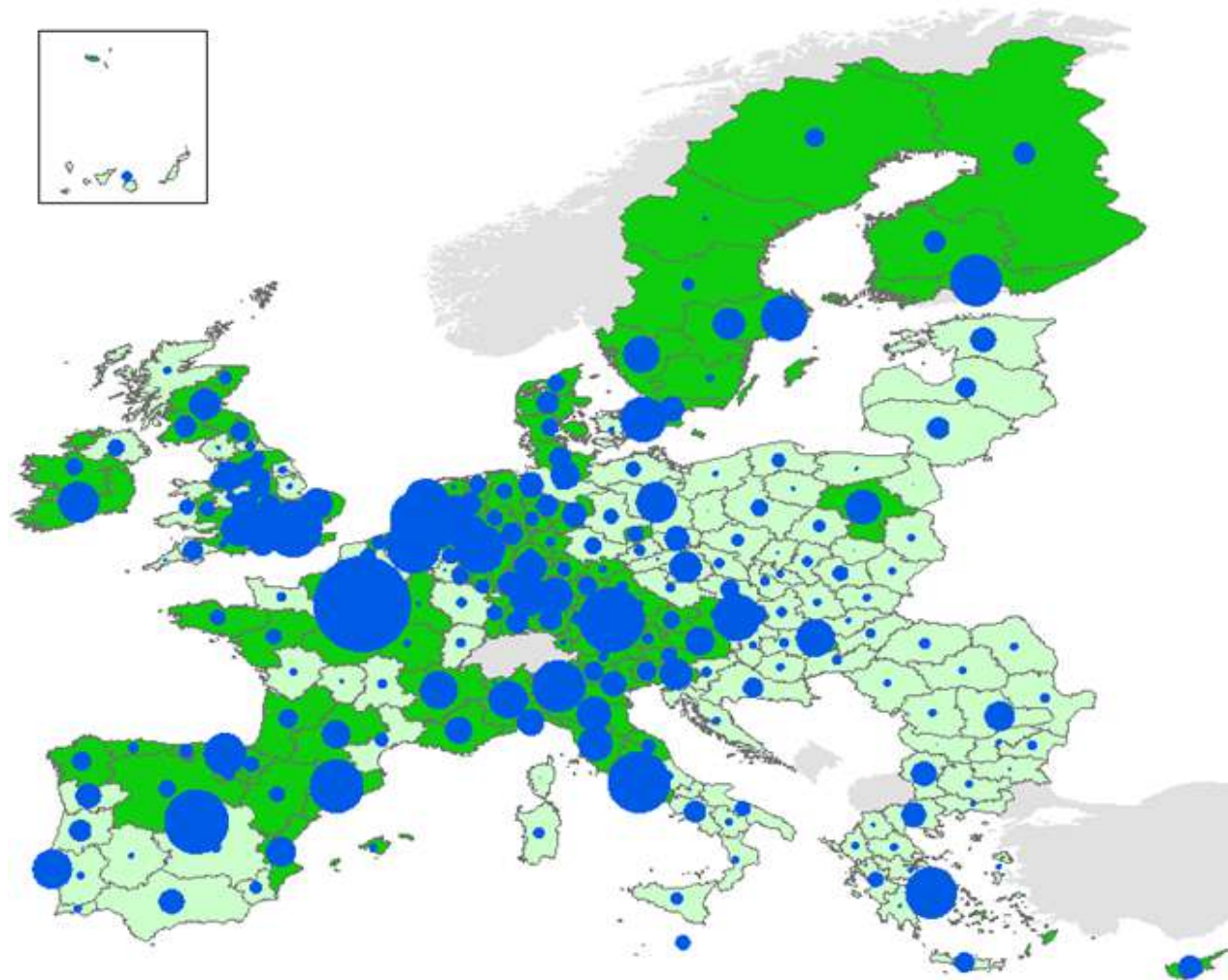
Source: OECD (2018), Survey of Adult Skills (PIAAC) 2012, 2015.

# Zručnosti

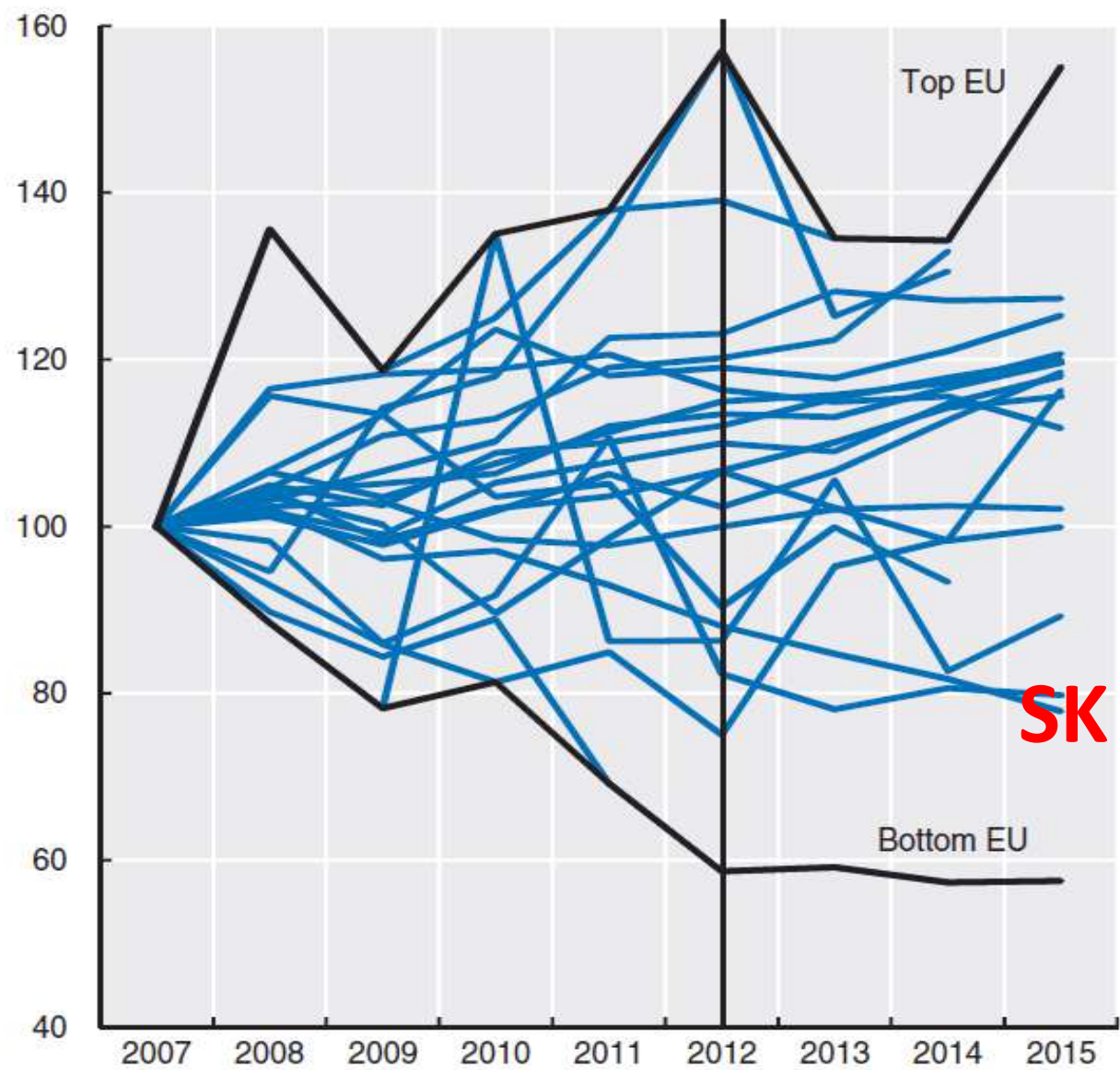




# Polarizácia regiónov v inováciách

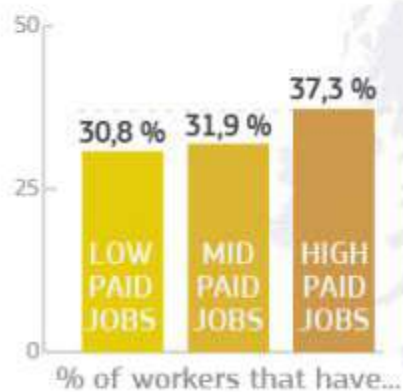


# Polarizácia EU v Inováciách

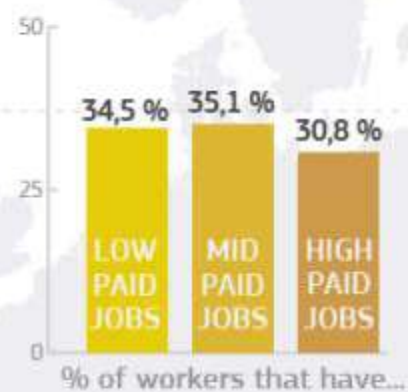


# Polarizácia platov

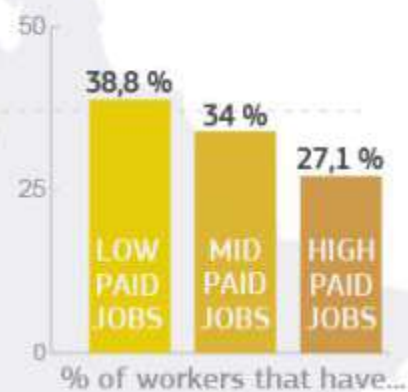
## Inovační lídri



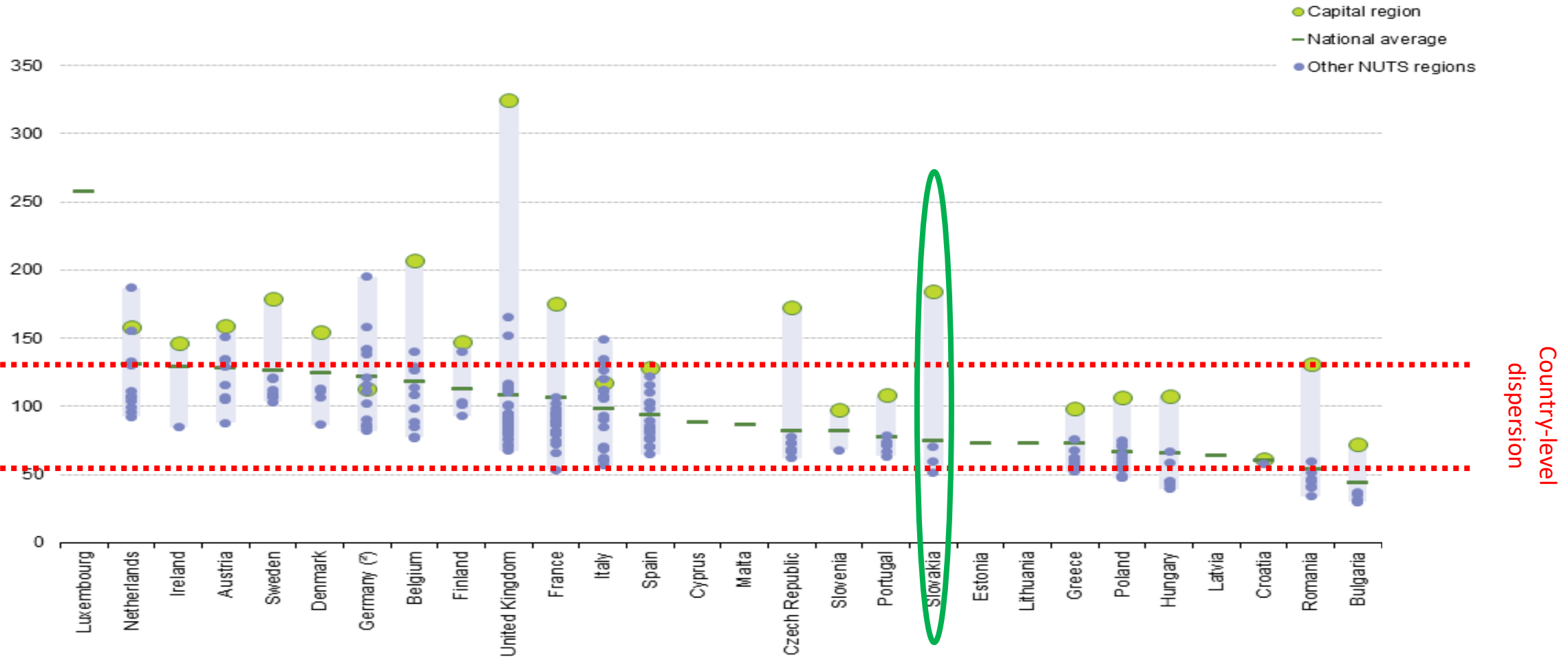
## Silní inovátori



## Priemerní inovátori

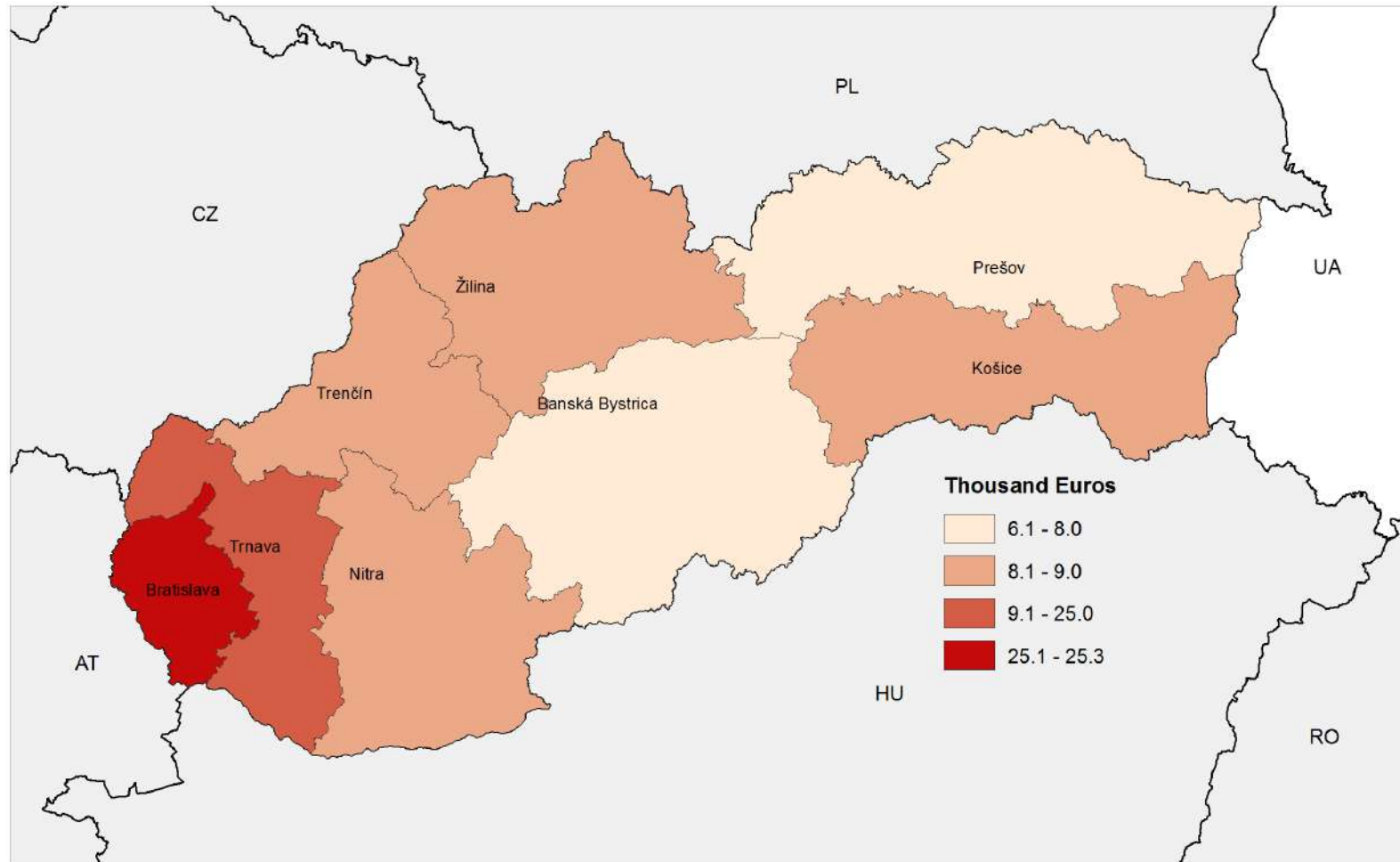


# Regionálne rozdiely: *per capita HDP (PPS)* (EU28 average =100)



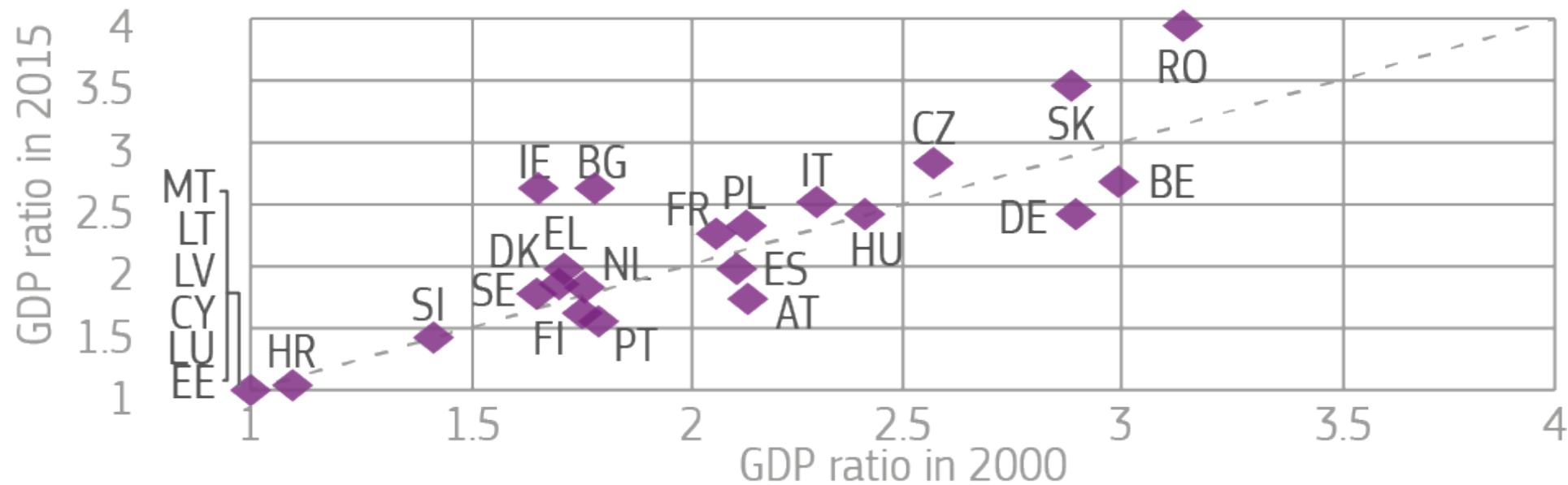


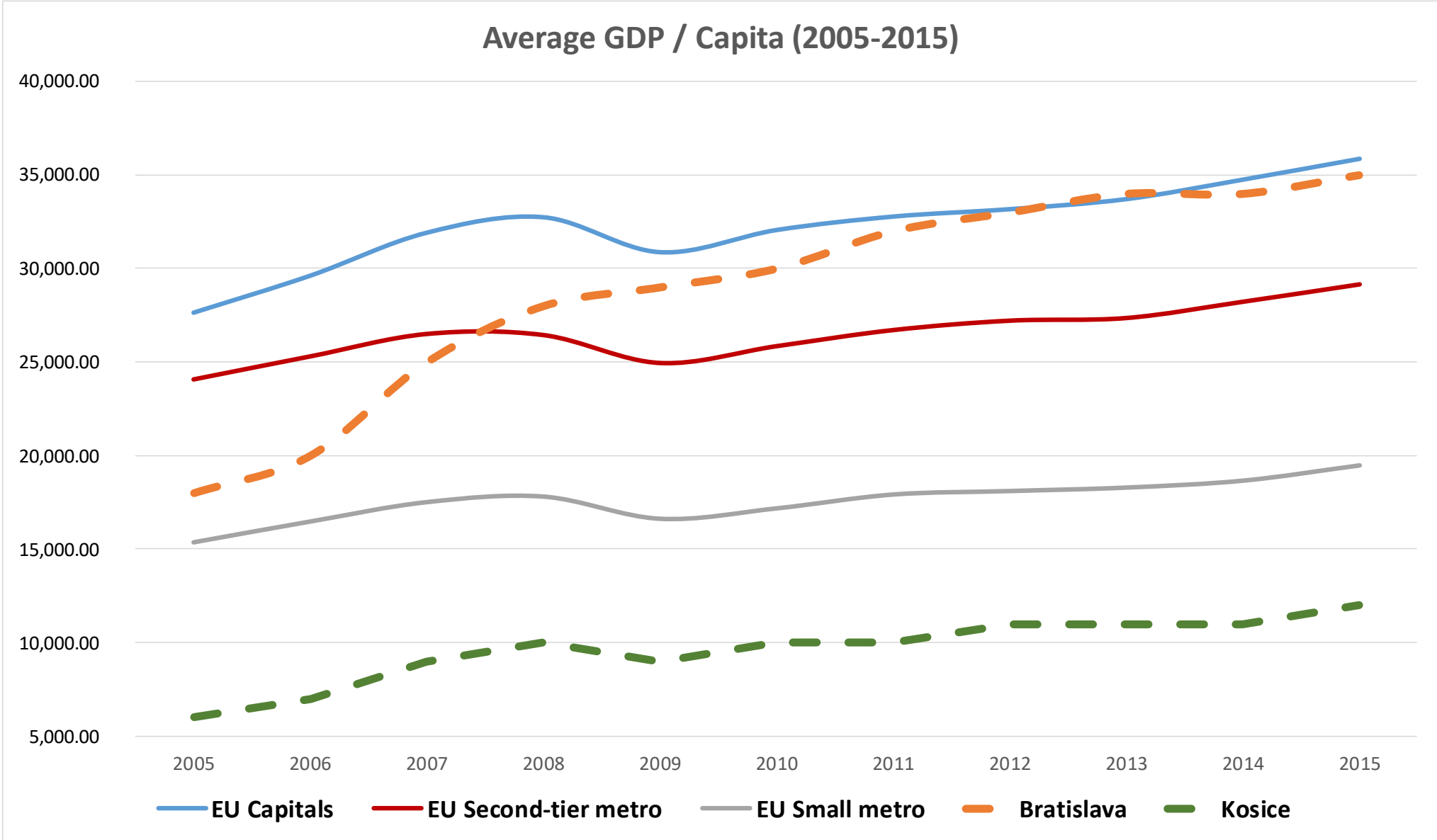
# HDP per capita



Source: Cambridge Econometrics

# Nárast nerovností medzi regiónmi



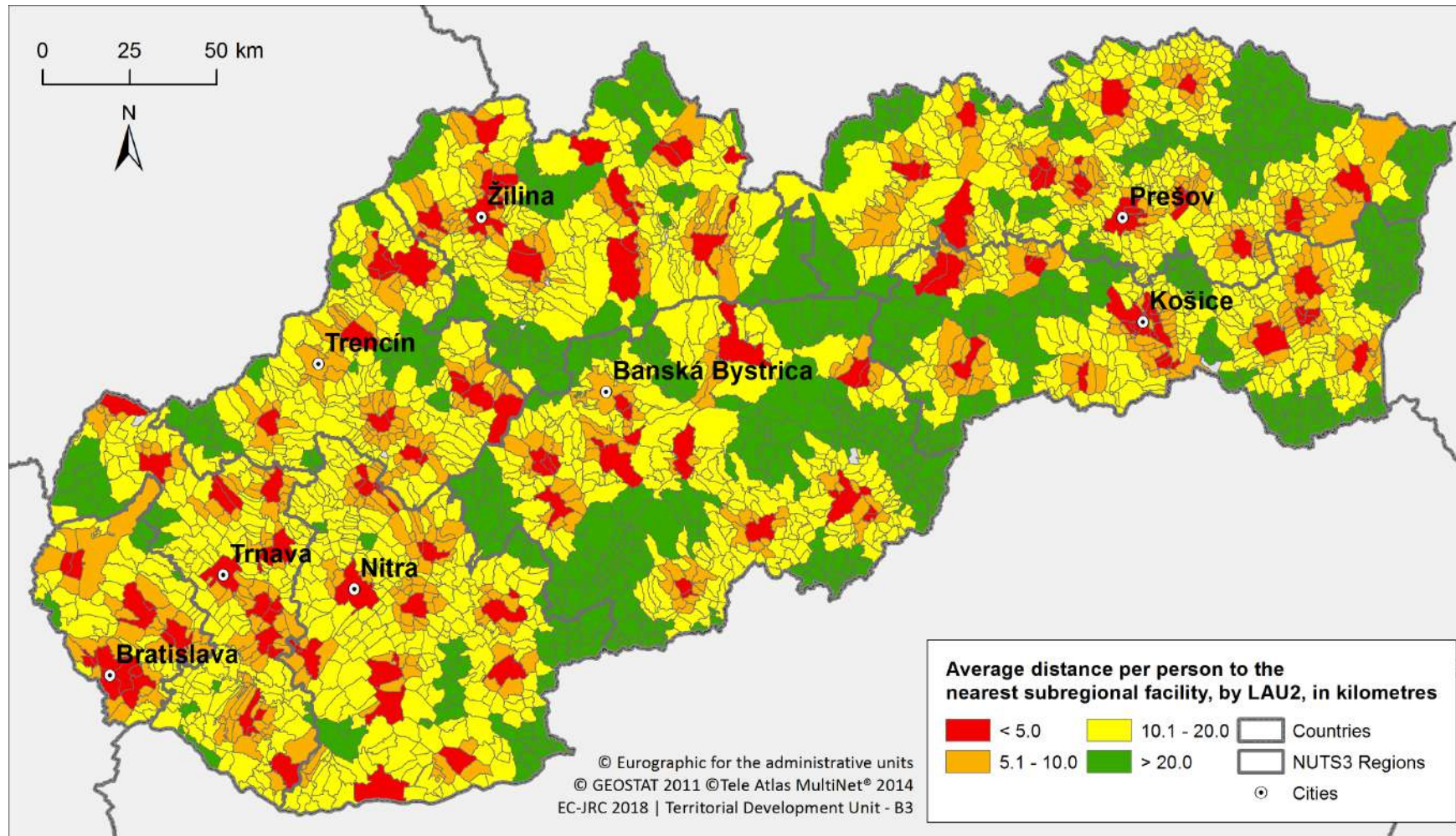


## Bratislava at the top of economic growth in EU

Source: EUROSTAT

# Dostupnosť služieb

*Nemocnica, divadlo, stredné školy, kultúra, supermarket*







EDWARD O. WILSON

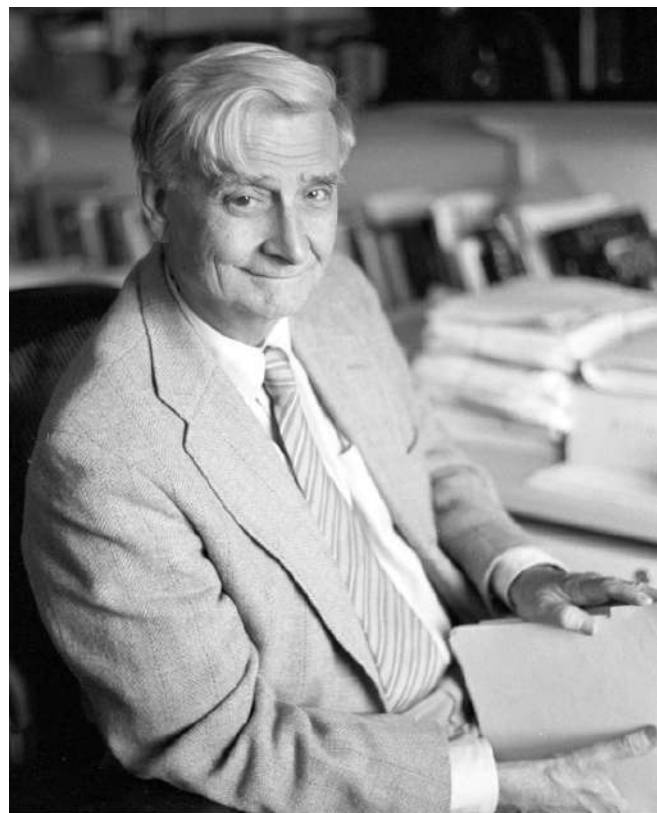


CONSILIENCE

"There's a new Darwin. His name is Edward O. Wilson"  
Tom Wolfe



THE UNITY OF KNOWLEDGE



**Topíme sa v  
informáciách a  
nevyhnutne nám  
chýba múdrosť**

**Svet budú riadiť ľudia,  
ktorí budú vedieť dať  
dokopy správne informácie  
v správny čas a urobiť  
správne rozhodnutia.**



# Manažment poznatkov-informácií





# Informačné komunity





Post-fact

Post-trust

**Debatable**

**Misleading**

**Mostly true**

**False**

**True**





Spoločnosť plochej Zeme

187 393 členov

“People in this  
country have had  
enough of experts.”

~

Michael Gove, British  
politician







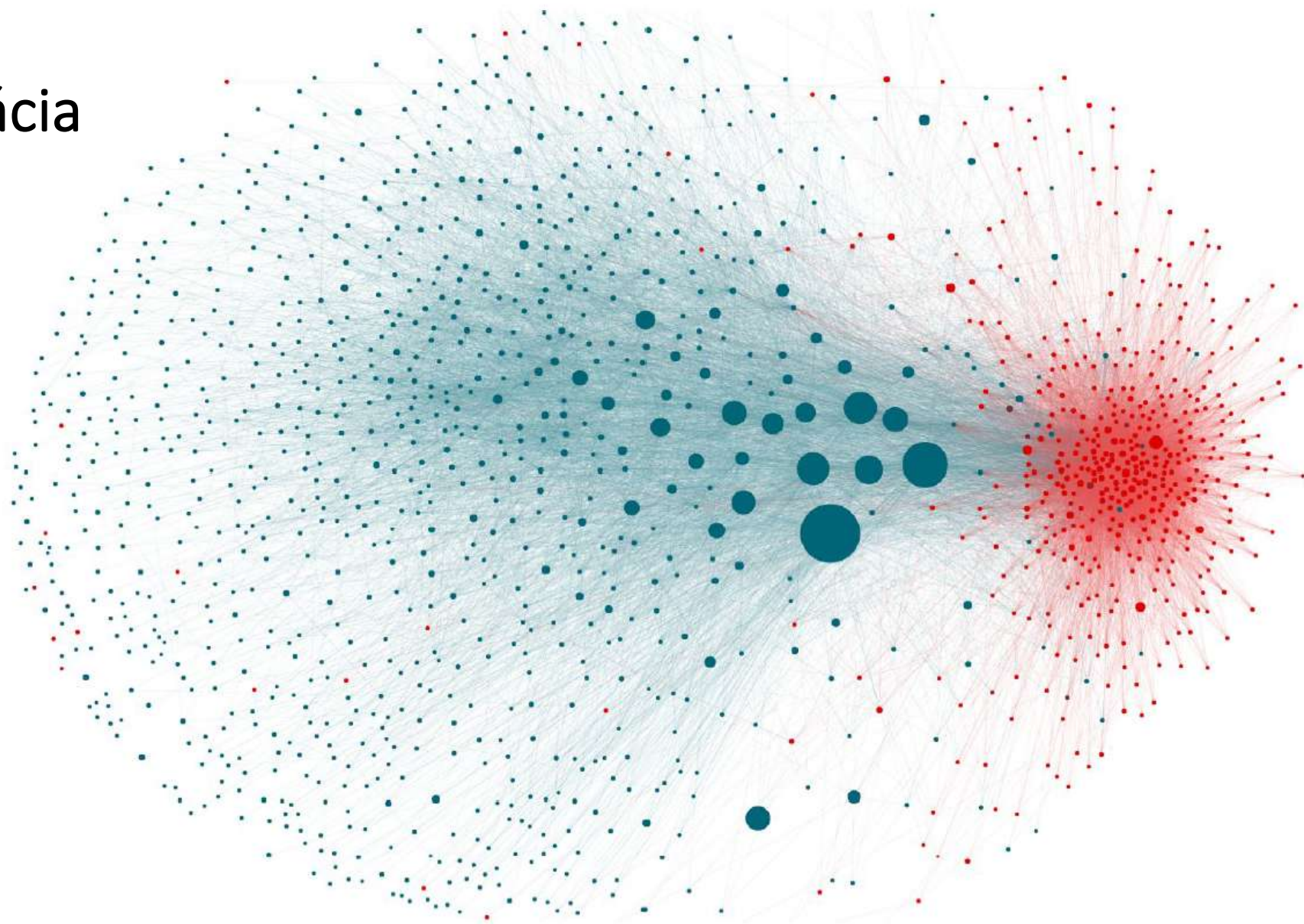
# Change My View

<https://changemyview.net/>

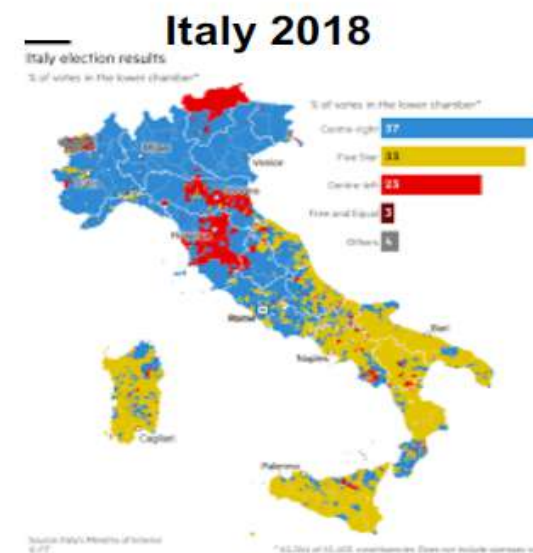
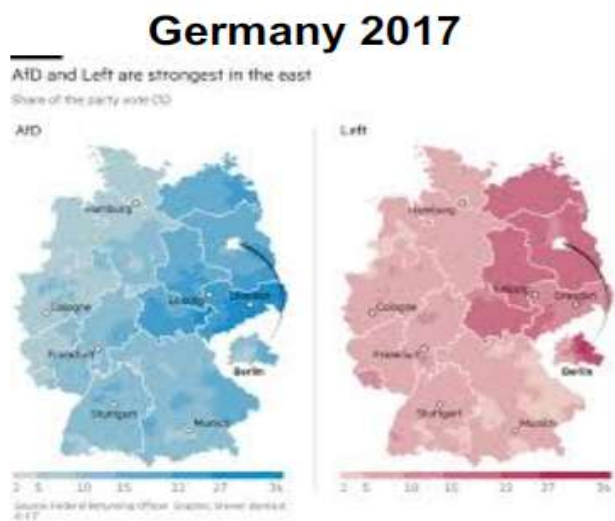
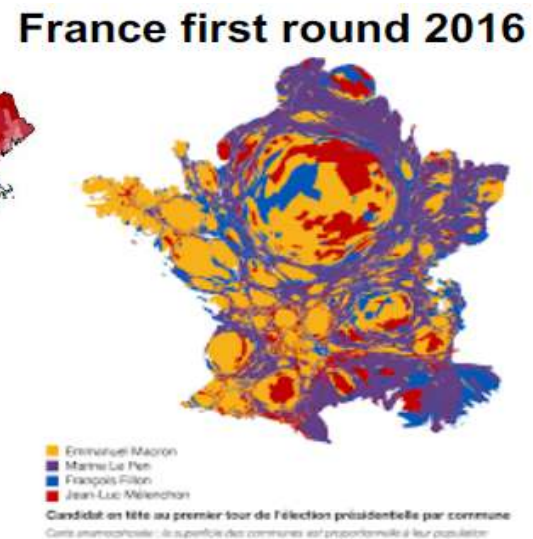
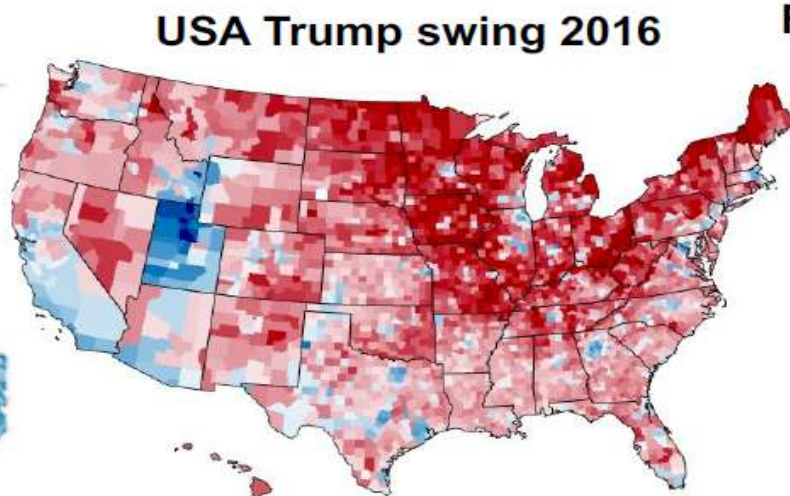
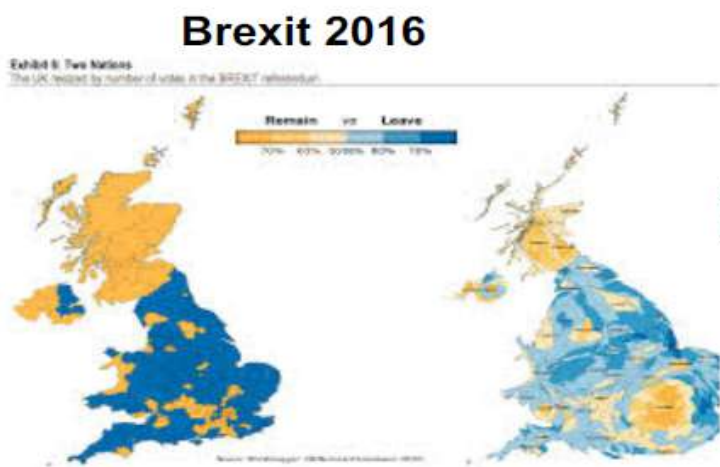


"Vaša poznámka zmenila môj názor"

# Polarizácia

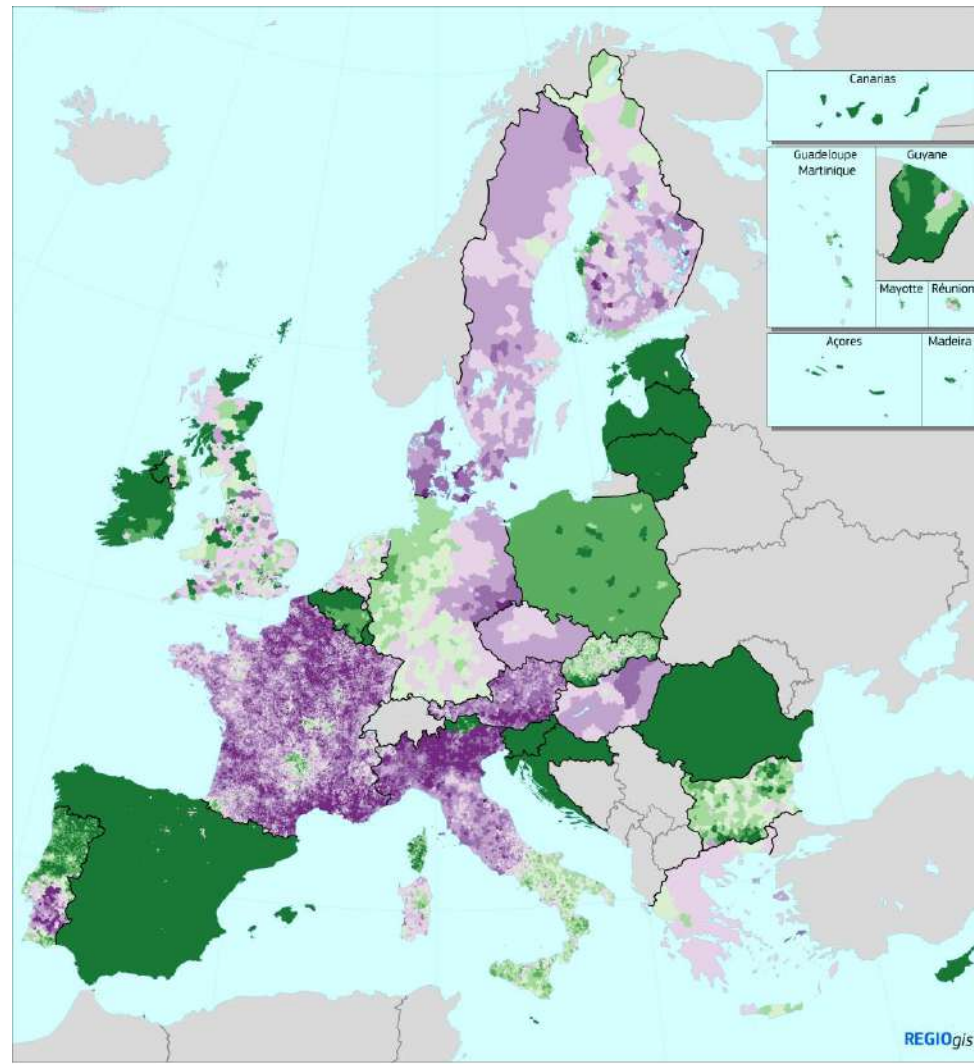


# Geografia nespokojnosti



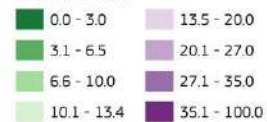


# Anti-Europeanizmus



Minimum share of votes for parties (strongly) opposed to European integration, 2013-2018

% of valid votes



Sources: national authorities, CLEA, Chapel Hill Expert Surveys 2014 and 2017, EuroGeographics, DG REGIO

Election years:

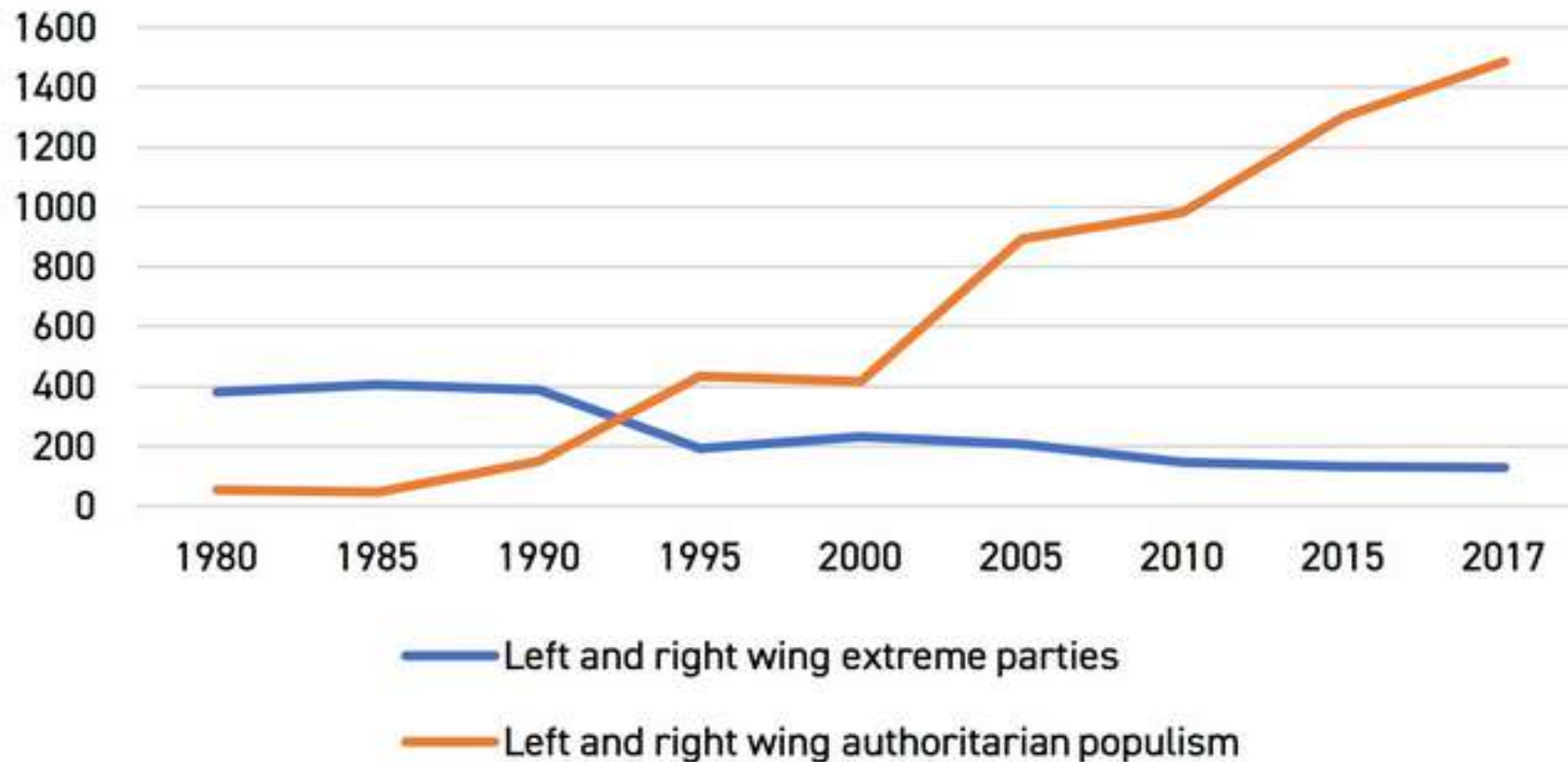
2018: IT  
2017: BG, CZ, DE, FR, MT, NL, AT  
2016: IE, ES, HR, CY, LT, RO, SK  
2015: DK, EE, EL, PL, PT, FI, UK  
2014: BE, LV, HU, SI, SE  
2013: LU  
EU-28 average = 13.4%

0 500 km

© EuroGeographics Association for the administrative boundaries

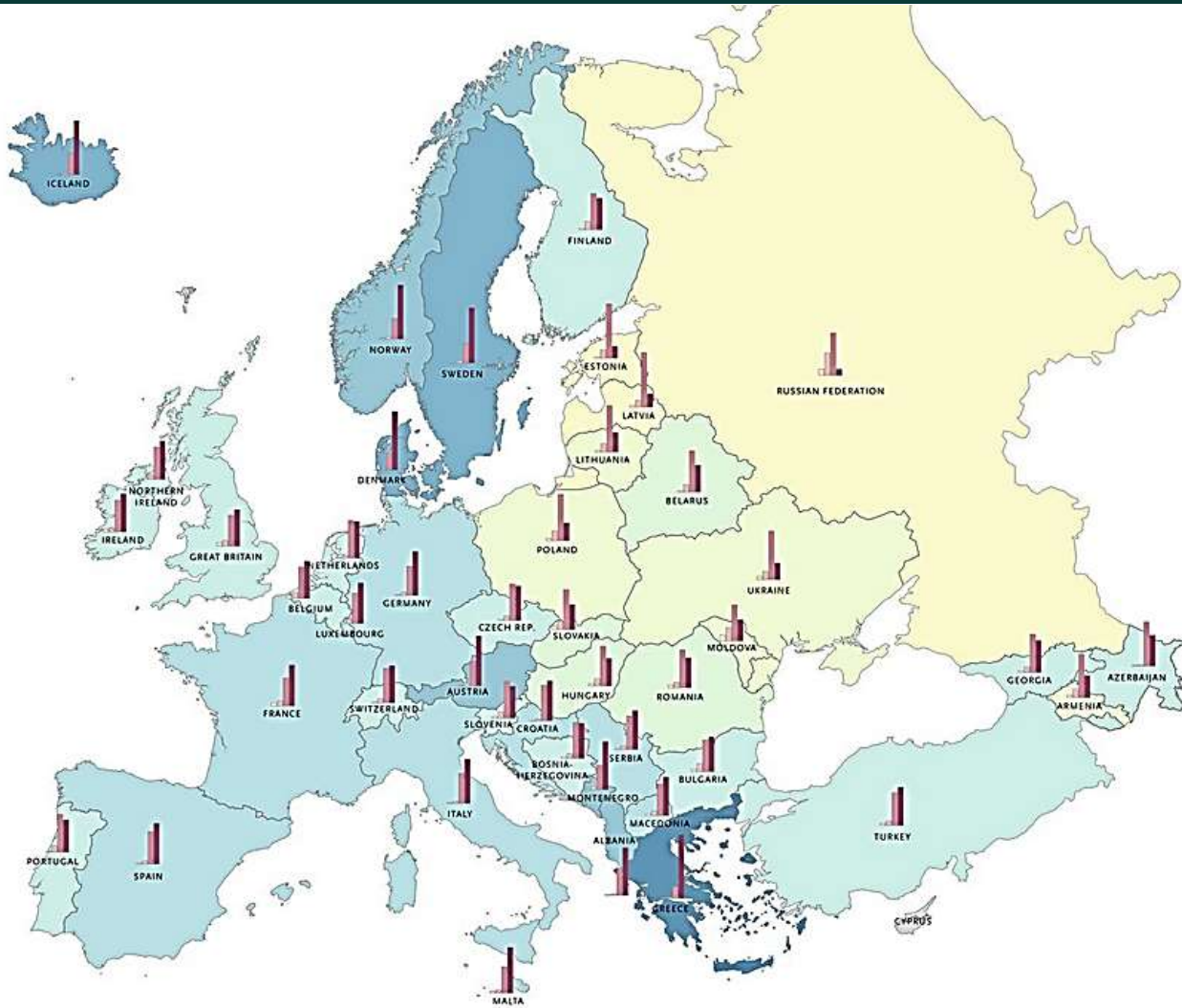


# Nárast autoritárskeho populizmu

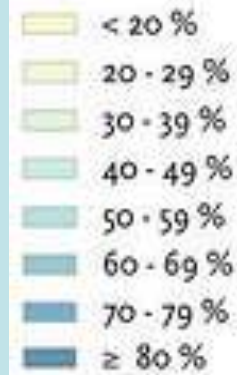


The graphs show the total number of seats in national parliaments for left-wing and right-wing populist parties with a democratic or anti-democratic ideology.

# Hodnoty v spoločnosti



Percentage of people who find having a democratic political system "very good"



Having a democratic political system is:

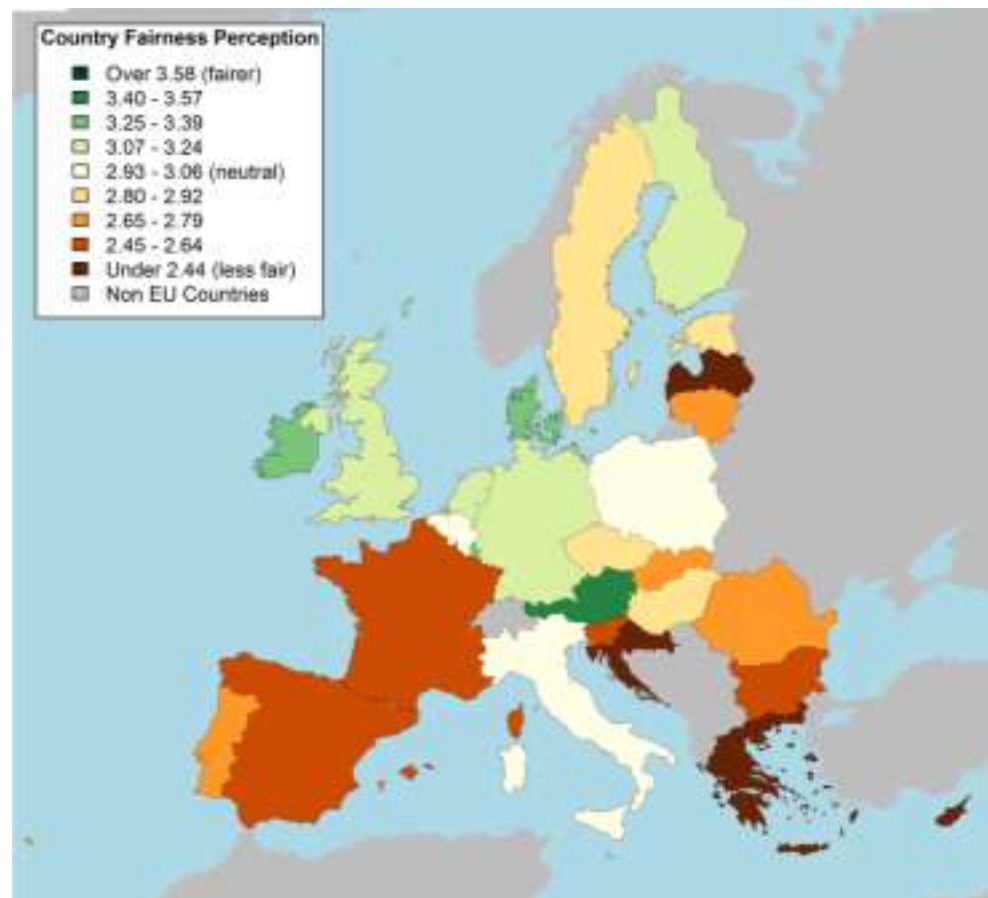
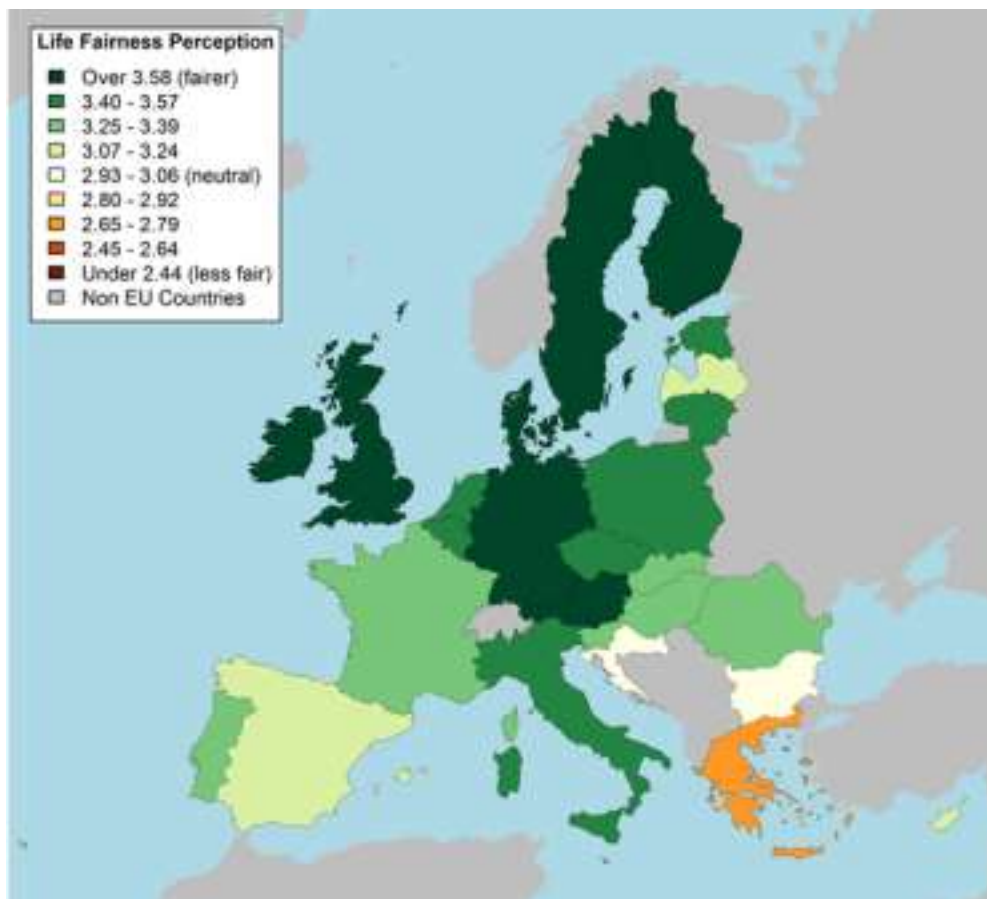


# Nespravodlivosť



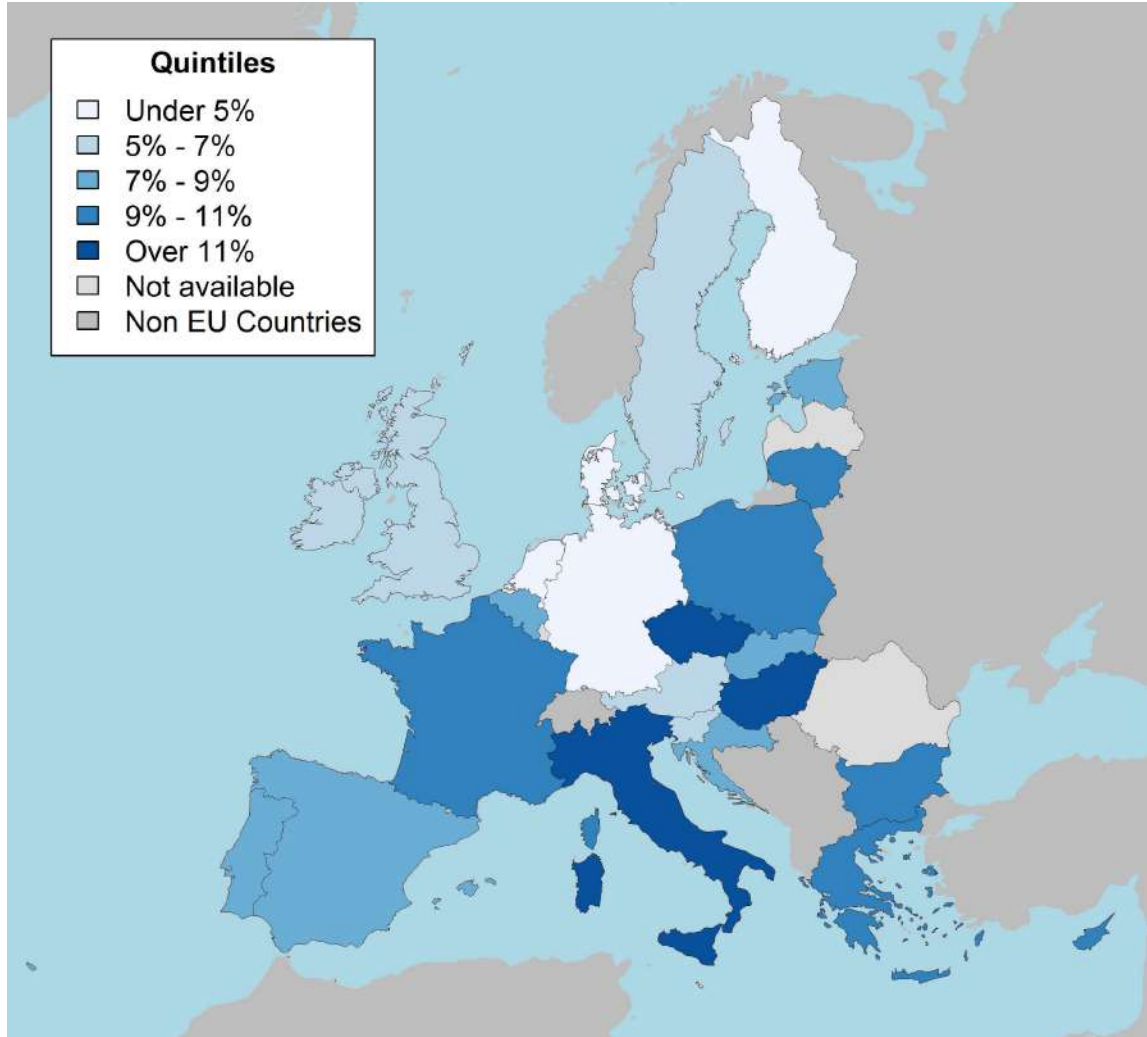
**1 z 5**

# Ako ľudia vnímajú férovosť

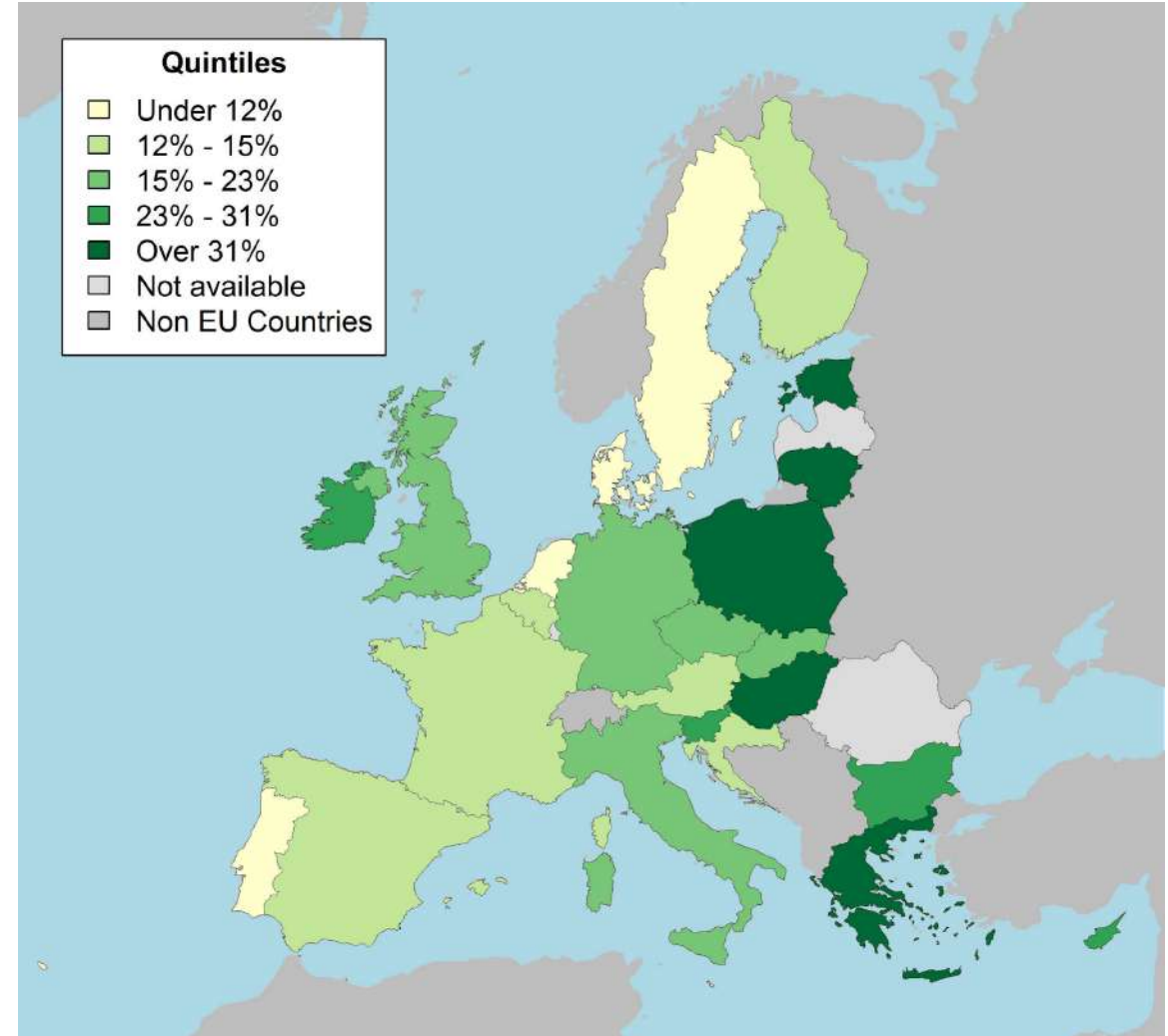




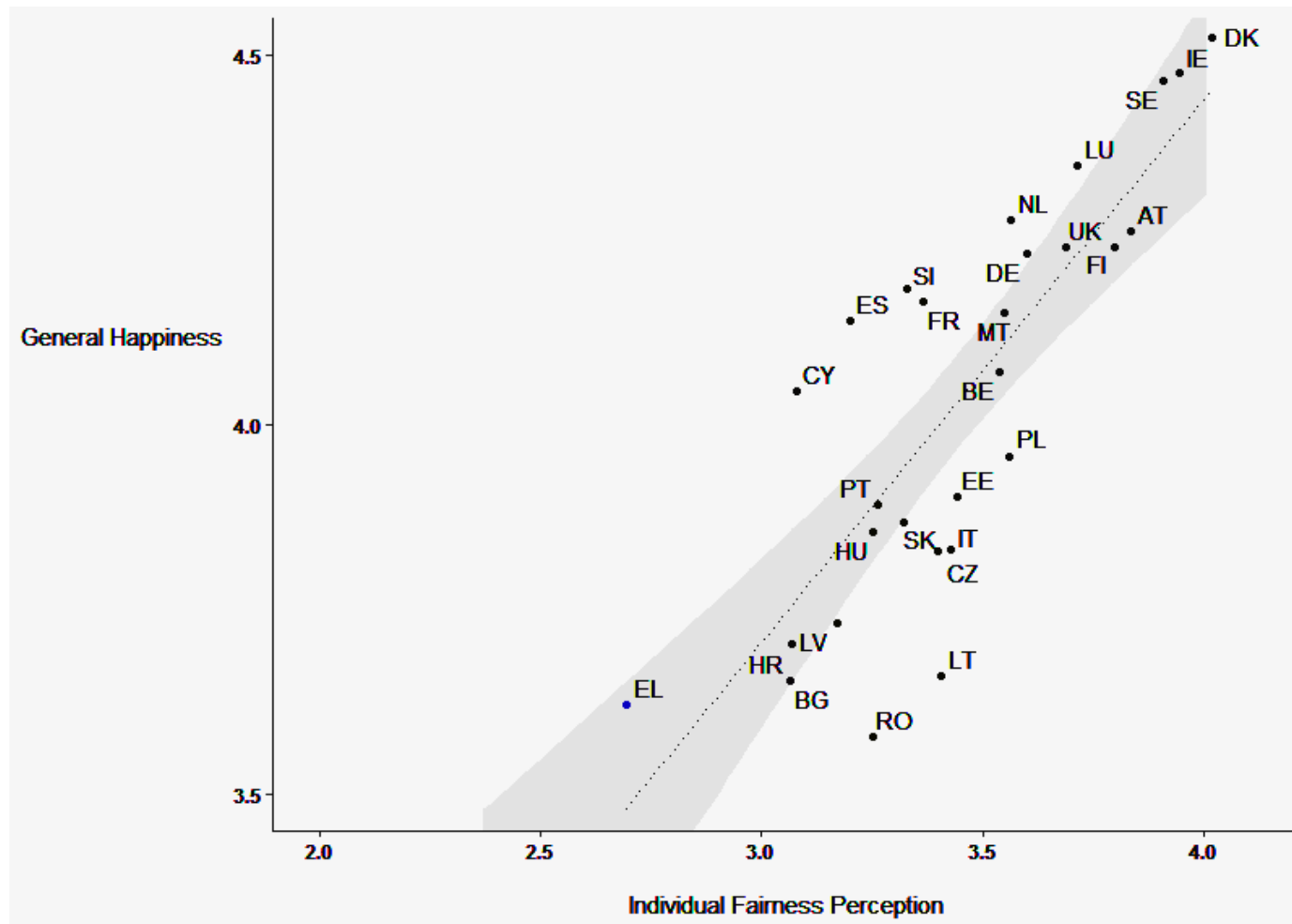
# Opustení



# Spoločensky izolovaní



# Férovosť a šťastie



# Štyri hlavné globálne transformácie

