

A világvége megint elmarad

Krízis vagy fejlődés ?

Hungalimentaria 2017

Bánáti Diána

**Executive and Scientific Director
egyetemi tanár,
Debreceni Egyetem
Táplálkozástudományi Intézet**



Történelmi korok – fejlődés



Canopic Coffinette of Tutankhamun

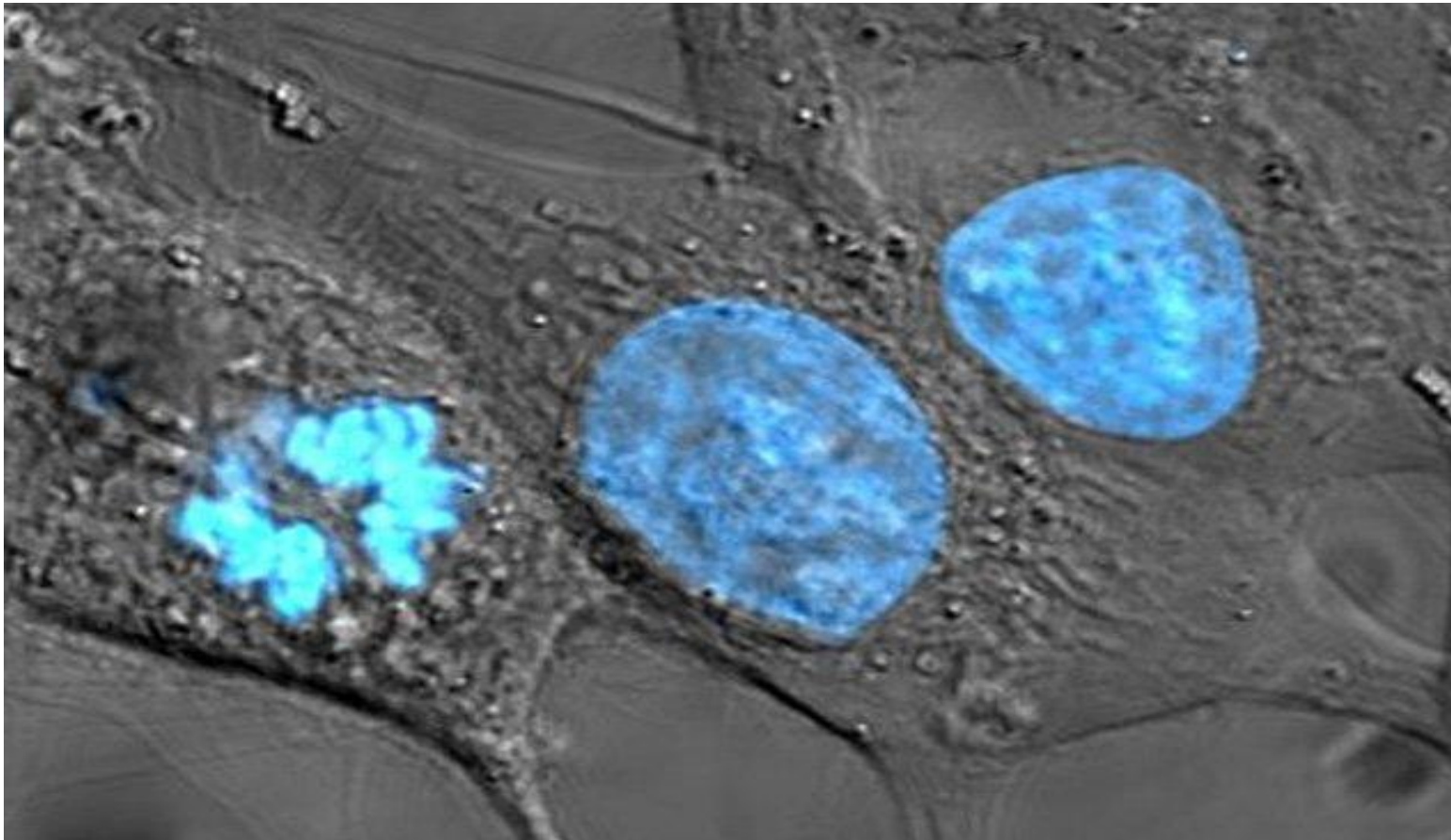


Történelmi korok – Krízis vagy fejlődés ?



Tudományos felfedezések 2016

Slight Genetic Mutation 800 Million Years Ago Leads To Multicellular Life



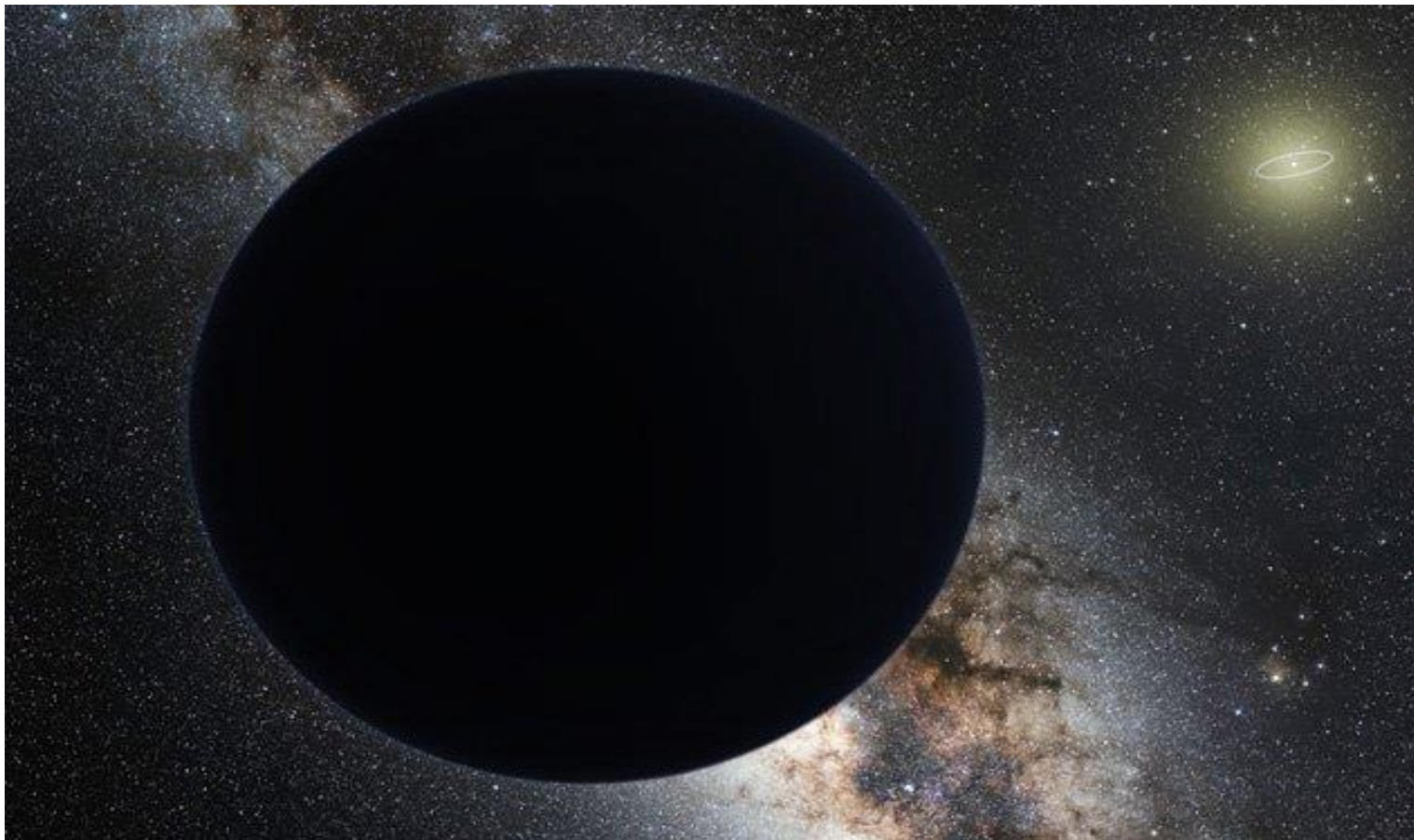
Tudományos felfedezések 2016

New Prime Number Discovered

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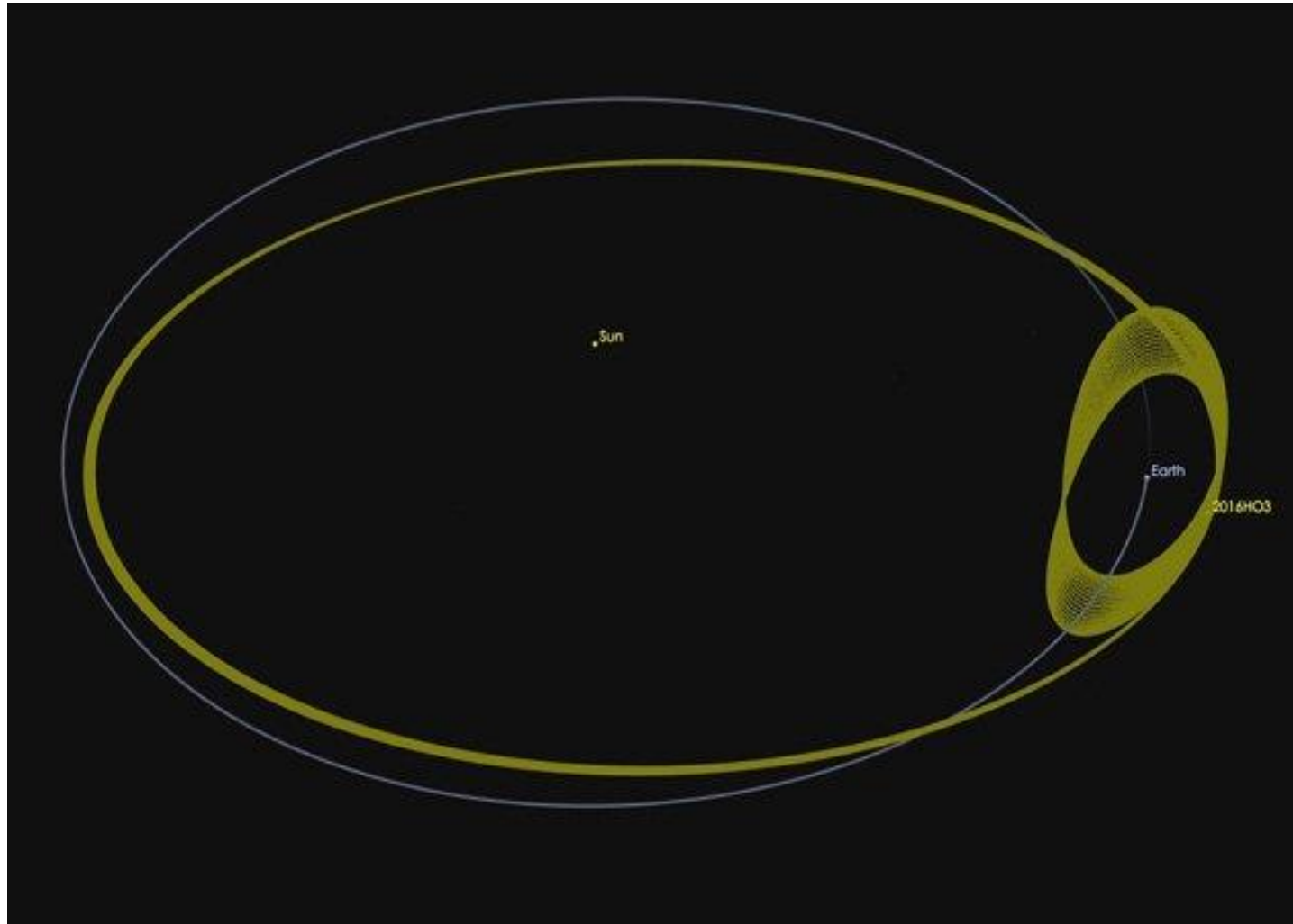
Tudományos felfedezések 2016

A Ninth Planet was Discovered in the Solar System



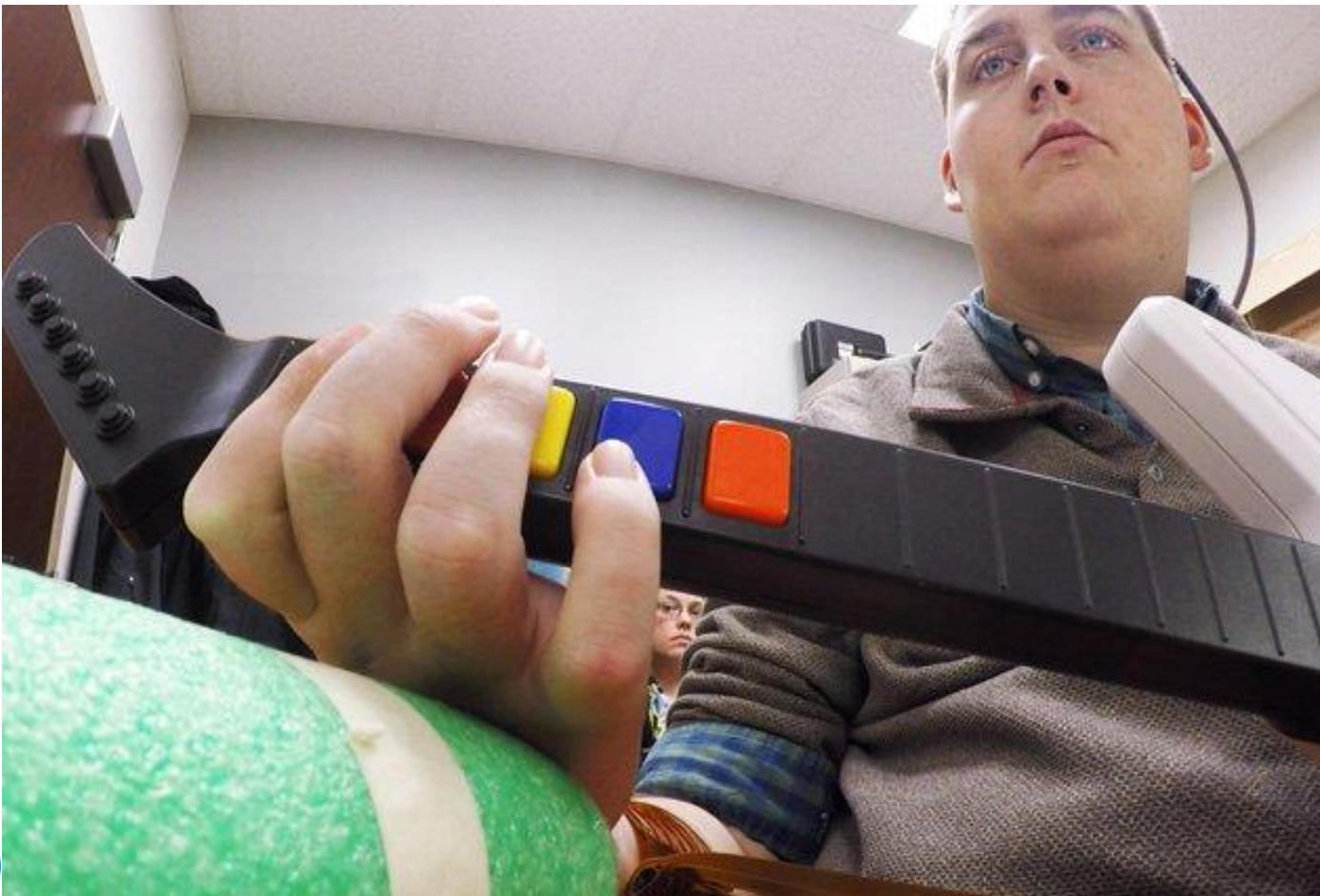
Tudományos felfedezések 2016

Earth has a Second Moon



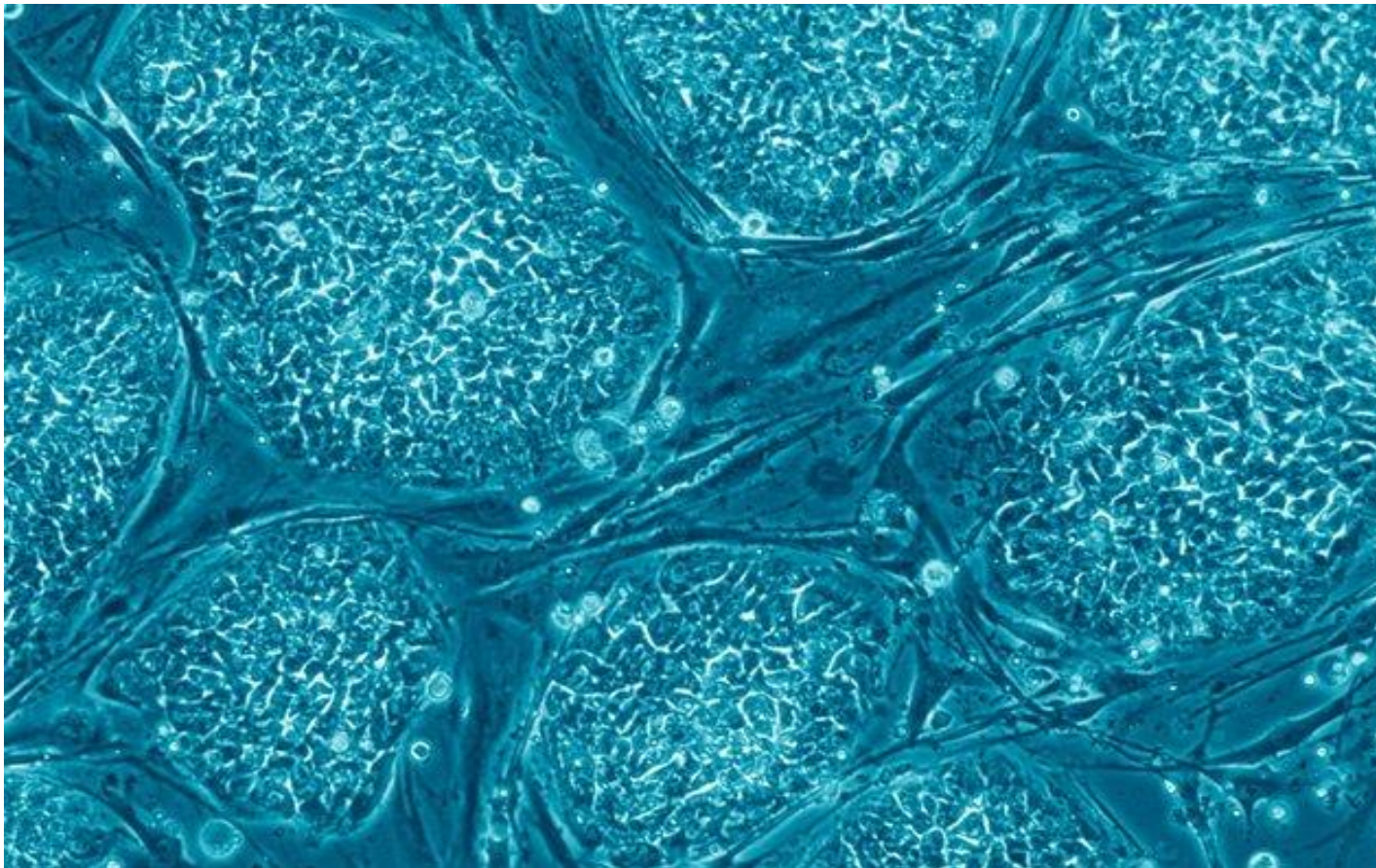
Tudományos felfedezések 2016

Cybernetic Implant Helps Quadriplegic Man Move His Fingers



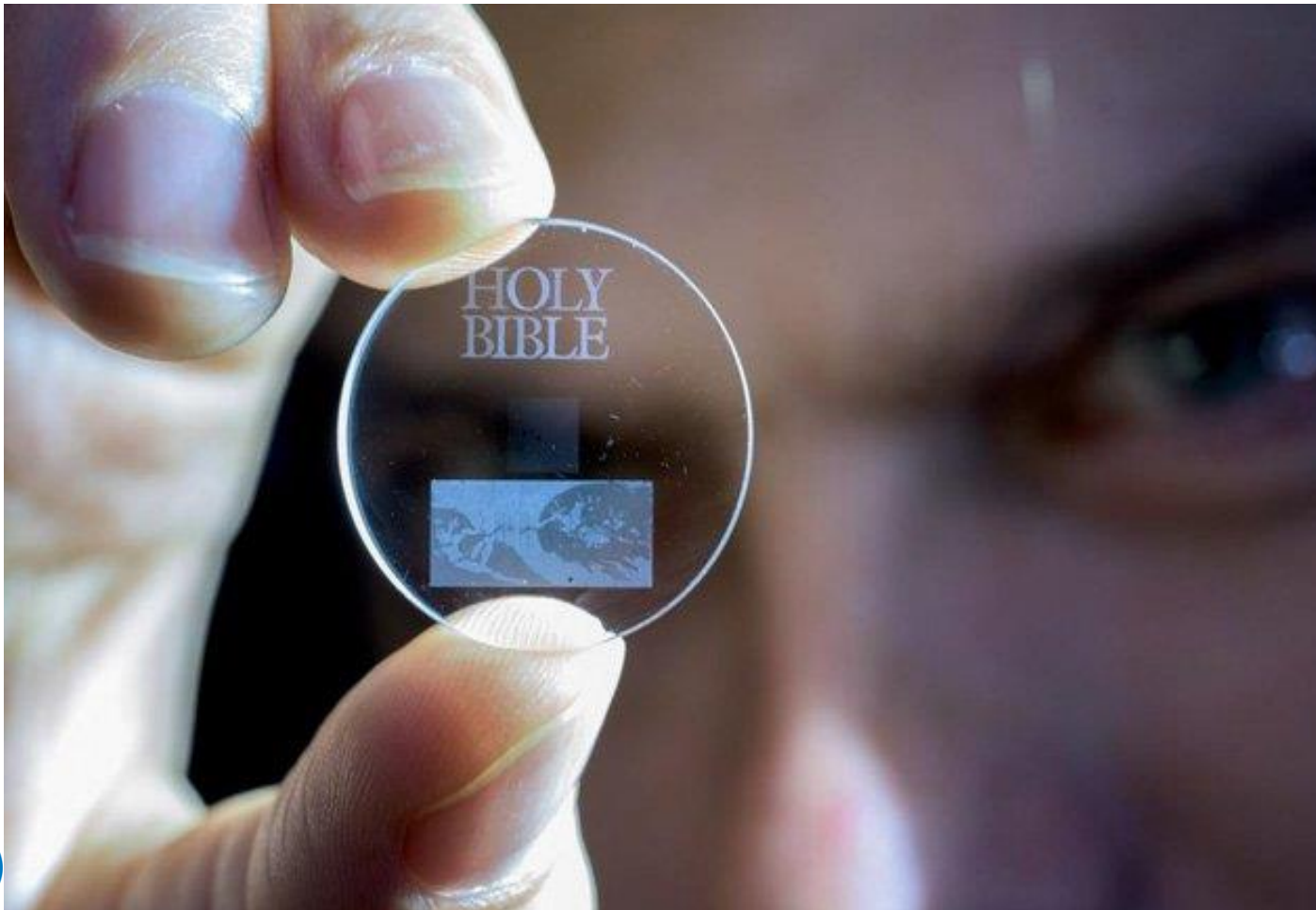
Tudományos felfedezések 2016

Stem Cells Injected Into Stroke Patients Re-Enable Patient To Walk



Tudományos felfedezések 2016

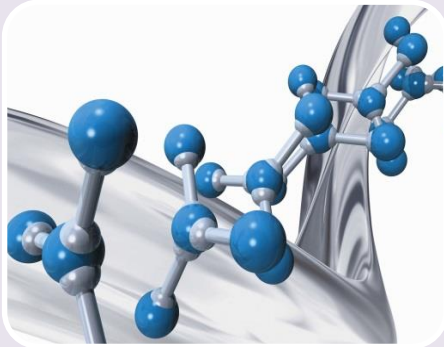
Nearly Eternal Data Storage Method Discovered



Történelmi korok – **Krízis** vagy fejlődés ?



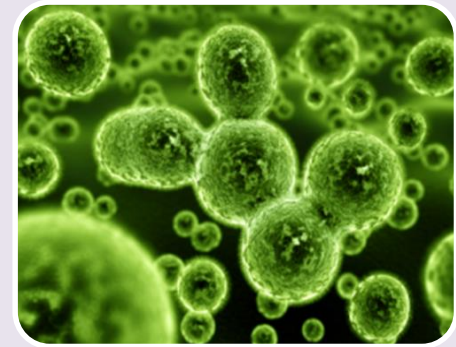
The burden of food-borne diseases



WHO estimates the burden of foodborne diseases caused by 31 agents – bacteria, viruses, parasites, toxins and chemicals.

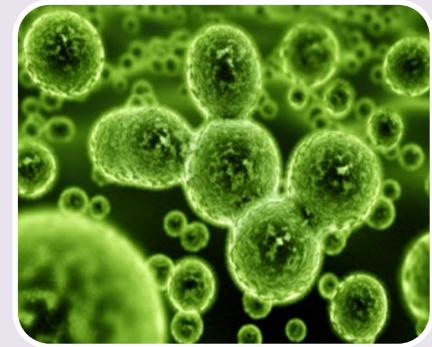
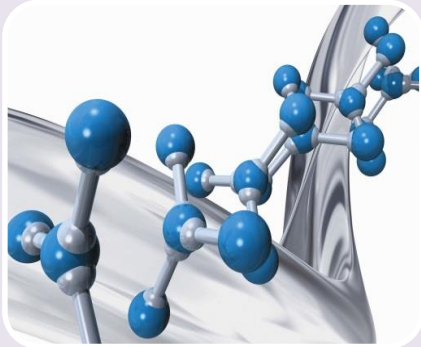


Diarrhoeal diseases are causing 550 million people to fall ill and 230 000 deaths every year.



Other major contributors are typhoid fever, hepatitis A, *Taenia solium* (a tapeworm), and aflatoxin (produced by mould on grain).

The burden of food-borne diseases



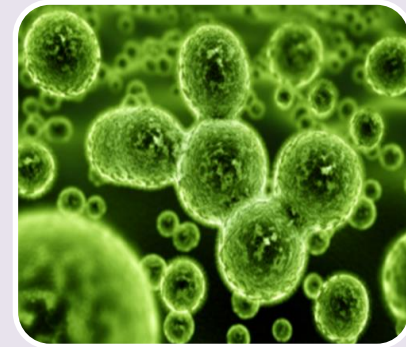
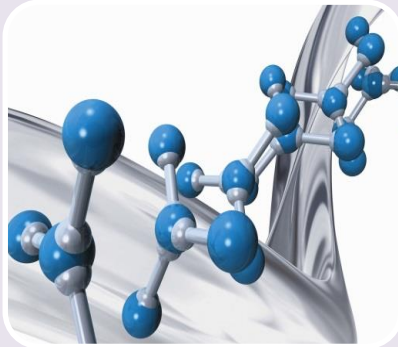
About 1 in 6 (or 48 million) people gets sick each year from contaminated food. 128.000 are hospitalized, 3.000 die of foodborne diseases. (CDC, US, 2016)

High incidence of Salmonellosis and Campylobacteriosis: 6.2 million and 9.2 million cases in Europe each year (EFSA, BIOHAZ opinions, 2011)
Only 1 out of 50 cases is reported !

1 in 10 people fall ill every year (600 million) from eating contaminated food and 420 000 die as a result. (WHO, 2015)

WHO's 1st ever estimate of the global burden of foodborne diseases

Élelmiszer eredetű megbetegedések



Salmonella infection accounts for USD 365 million in direct medical costs each year. (CDC, US, 2016)

In Australia and NZ, the **cost of foodborne illness** has been estimated at \$1.289 billion and \$86 million USD respectively per year.

High costs of Salmonellosis and Campylobacteriosis in Europe:
1.6 & 2.4 billion EUR, respectively.
(EFSA, BIOHAZ Opinions, 2011)

Salmonellosis: 230,000 healthy life years;
Campylobacteriosis: 350,000 healthy life years.

Élelmiszer eredetű megbetegedések

MALNUTRITION is a global problem

**1.9
BILLION**

adults are
overweight or
obese

**2
BILLION**

people suffer from
some form of
micronutrient
deficiency

**161
Million**

children under
the age 5 are too
short for their age

**795
Million**

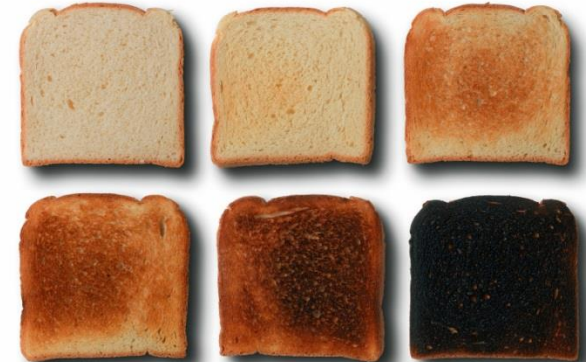
people do not get
the food they need
to live a healthy life

UNHEALTHY DIETS

are one of the leading causes of global **malnutrition**



Élelmiszer eredetű megbetegedések



SARS originated from China



Avoid Traveling to: China,
HongKong



E. coli 0157:H7
kills more than one
victim each day.
WHO IS NEXT?



Élelmiszer eredetű megbetegedések



BSE, 80s - 90s



Dioxins, 1999



Acrylamide, 2004



SARS originated from China

SARS, 2004



Melamine, 2008



Swine flu, 2009

Avoid Traveling to: China, HongKong

Alex Donley
Chicago, IL
1987 - 1993

Katie O'Connell
Kearney, NJ
1990 - 1992

Scott Hinkley
Sarasota, MI
1990 - 1993

Lauren Rudolph
Carlsbad, CA
1986 - 1992

E. coli 0157:H7 kills more than one victim each day.

WHO IS NEXT?

Picture Your Child Here



E. coli, 2011

E. COLI KILLS 19 ACROSS EUROPE
More than 2,000 sickened in 12 countries

Unemployment rate rises to 9.1%

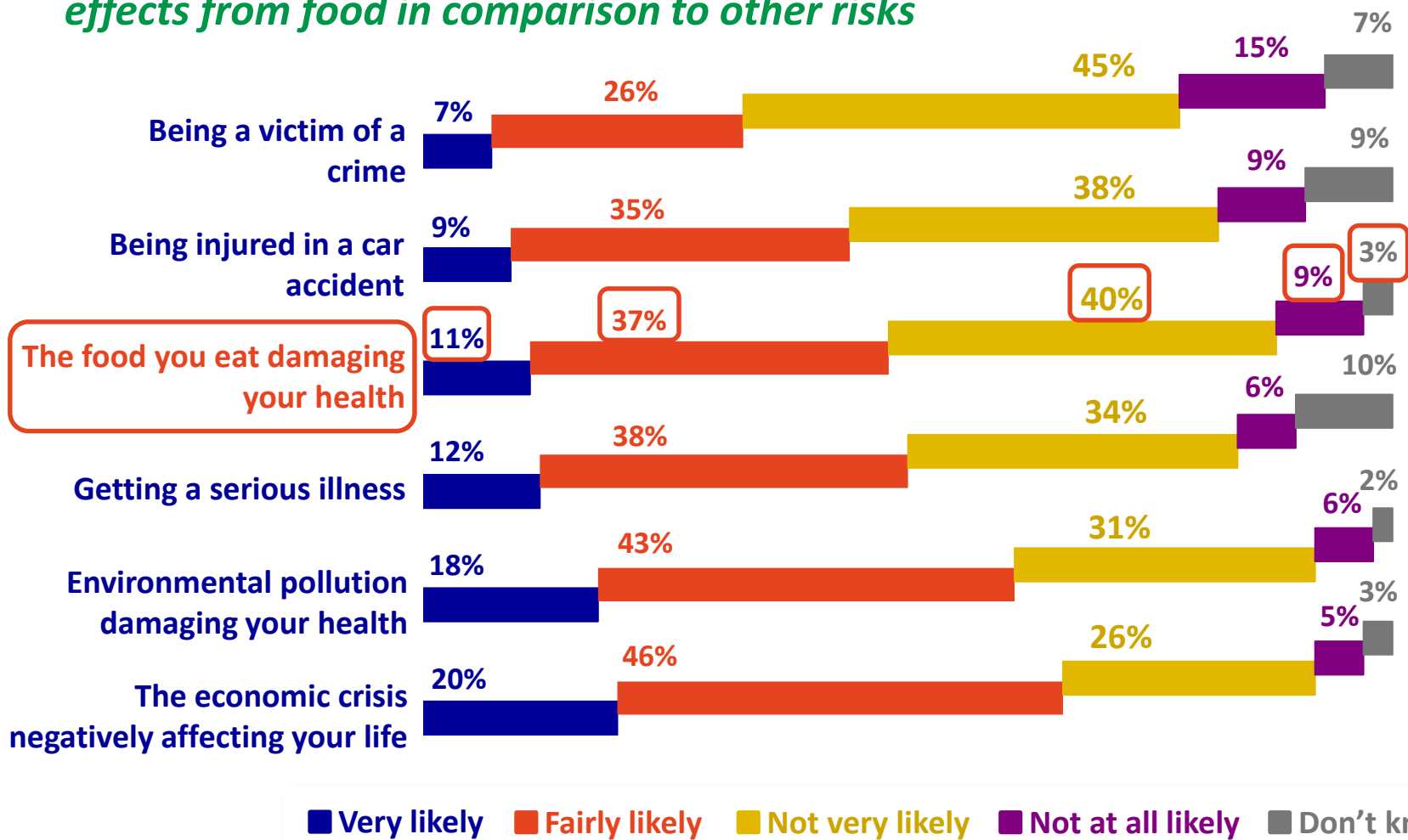
LIVE CNN 3:32 AM PT



Horsemeat, 2013

Az élelmiszer-biztonság megítélése

EU citizens find it less likely that they will be affected by negative health effects from food in comparison to other risks



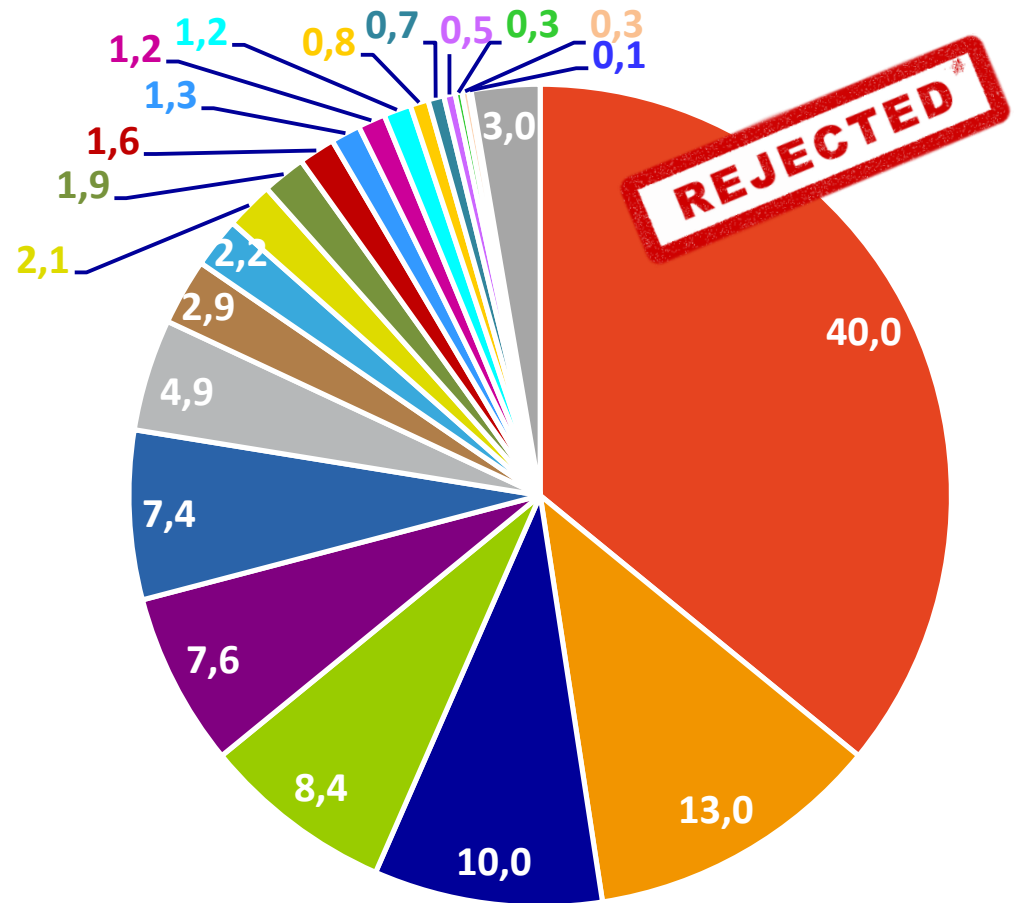
Történelmi korok – Krízis vagy fejlődés ?



Food Safety Indicators

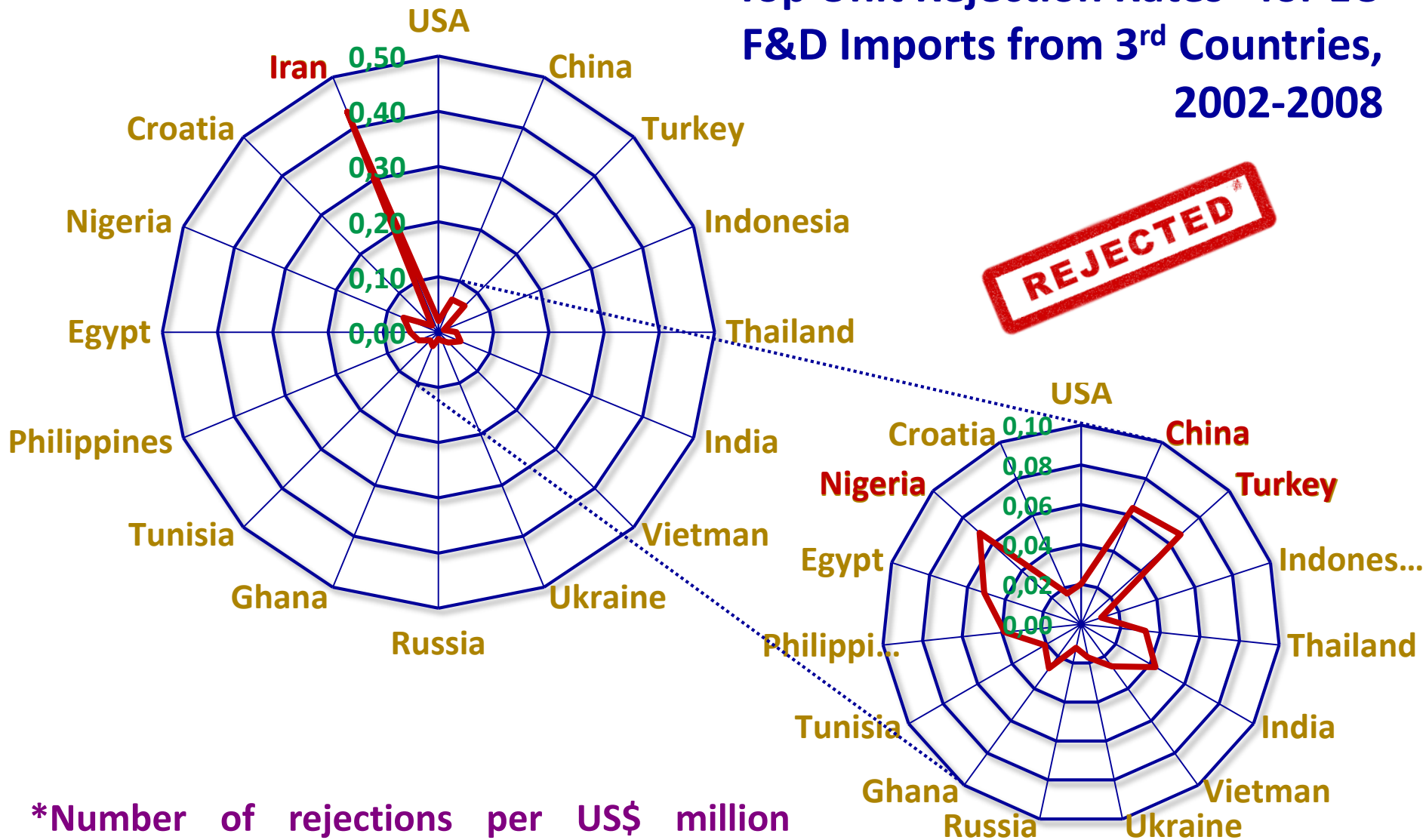
Reasons for EU Rejections of F&D from 3rd Countries (%), 2002-2008

- Mycotoxins
- Microbiological contaminants
- Veterinary drug residues
- Heavy metals
- Unauthorized food additives
- Product composition
- Pesticide residues
- Migration
- Industrial contaminants
- GMO/novel food
- Foreign bodies
- Biotoxins/contaminants
- Radiation
- Organoleptic
- Bad or insufficient controls
- Parasitic infestation
- Labelling
- Packaging
- Other chemical contamination
- Allergens
- Additives
- Not determined/other



Food Safety Indicators

Top Unit Rejection Rates* for EU
F&D Imports from 3rd Countries,
2002-2008



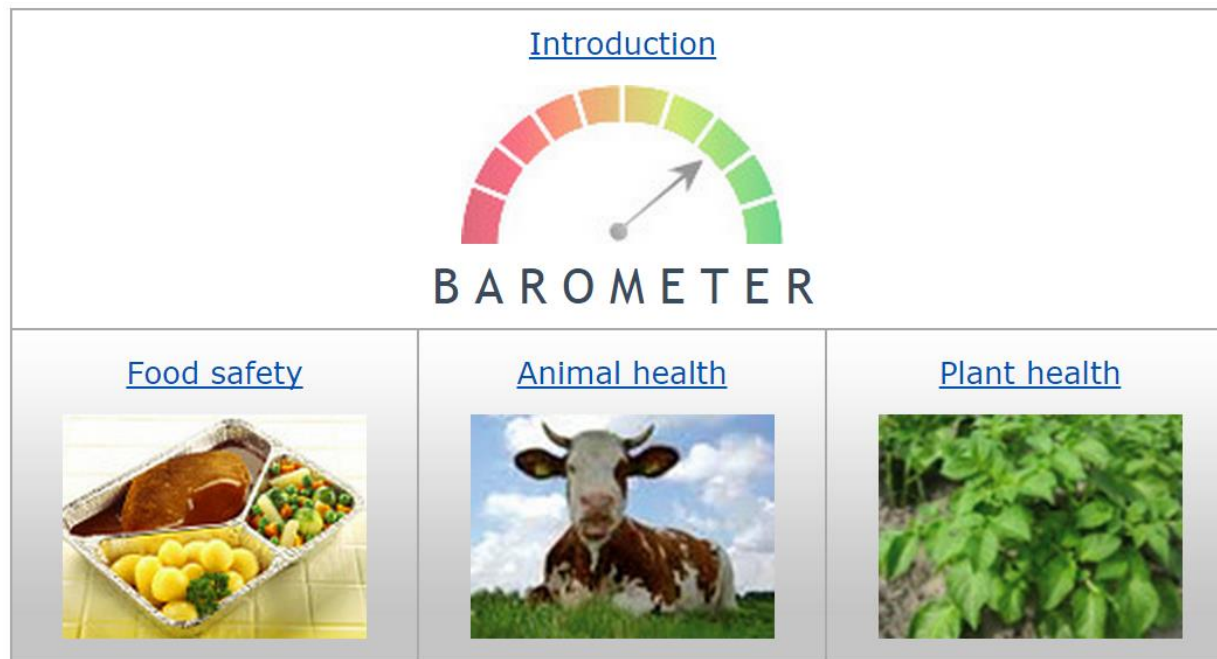
*Number of rejections per US\$ million converted at current exchange rate

Food Safety Indicators – Barometers of the Safety of the Food Chain (FASFC)

❑ Federal Agency for the Safety of the Food Chain (FASFC, BE)

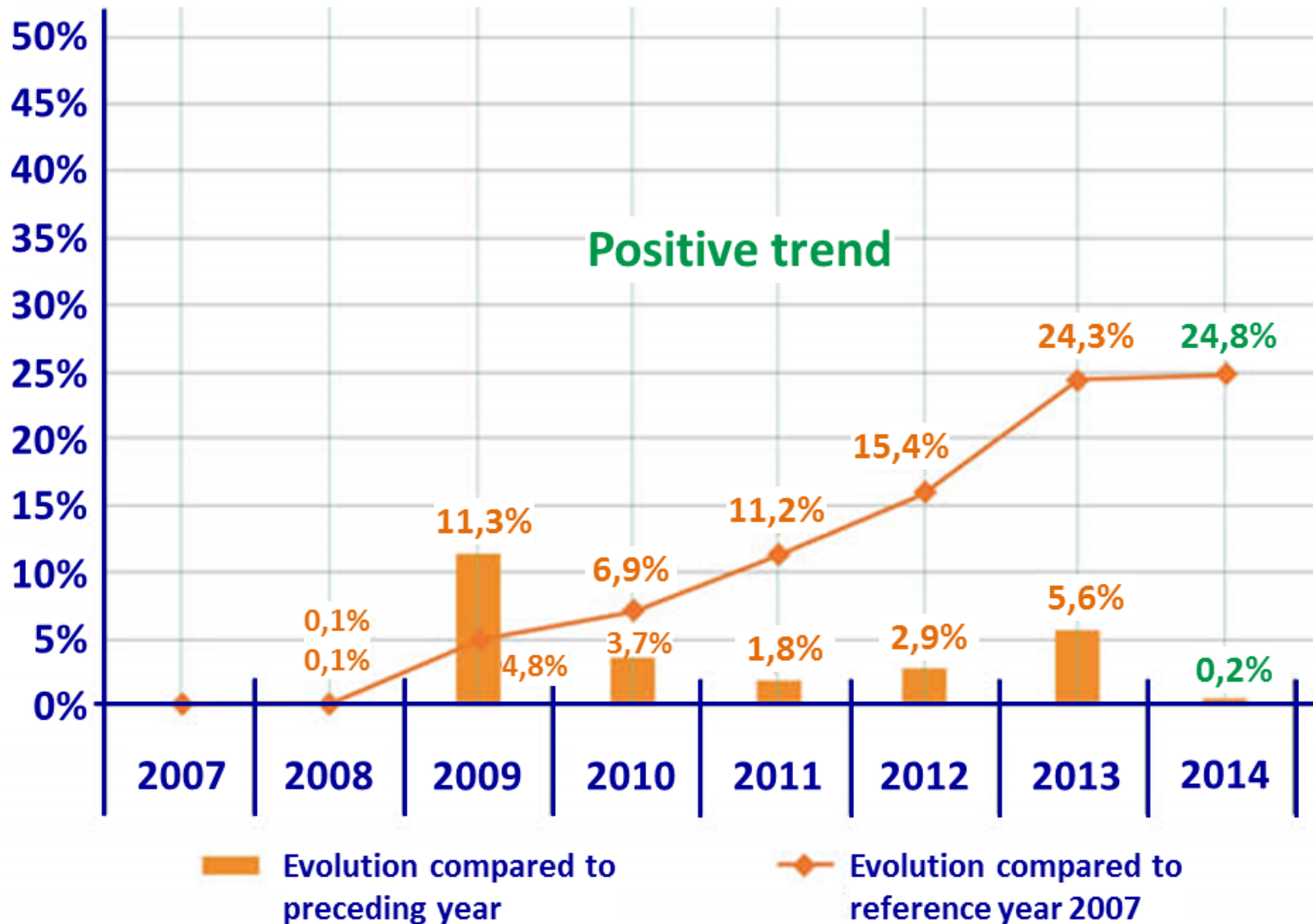
❑ Pressure-State-Response Model (OECD)

“A tool to present to both consumers and industry a clear picture of the state and evolution of the safety of the food chain in Belgium”



Food Safety Indicators – Barometers of the Safety of the Food Chain (FASFC)

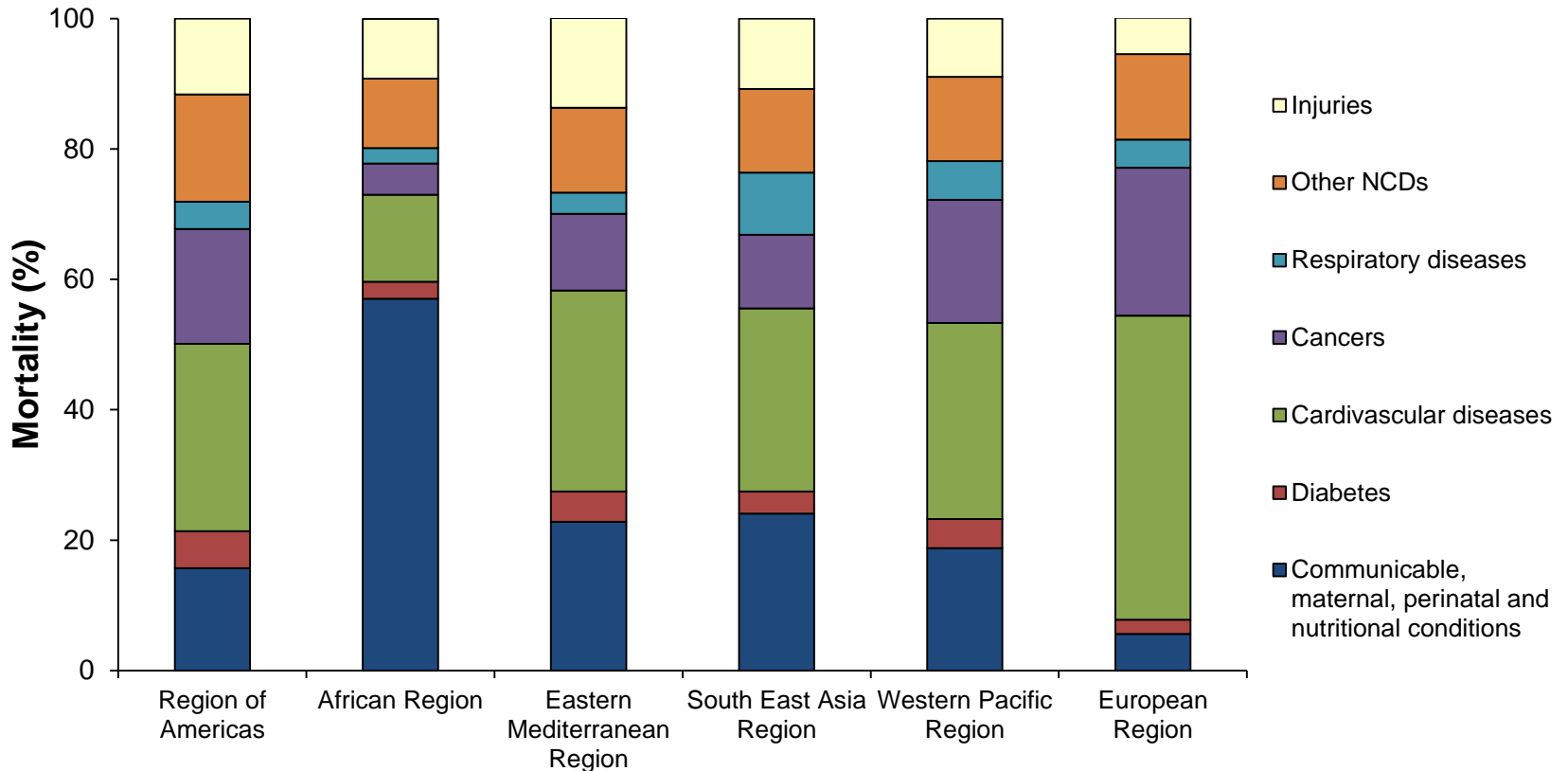
FOOD SAFETY BAROMETER



Történelmi korok – **Krízis** vagy fejlődés ?

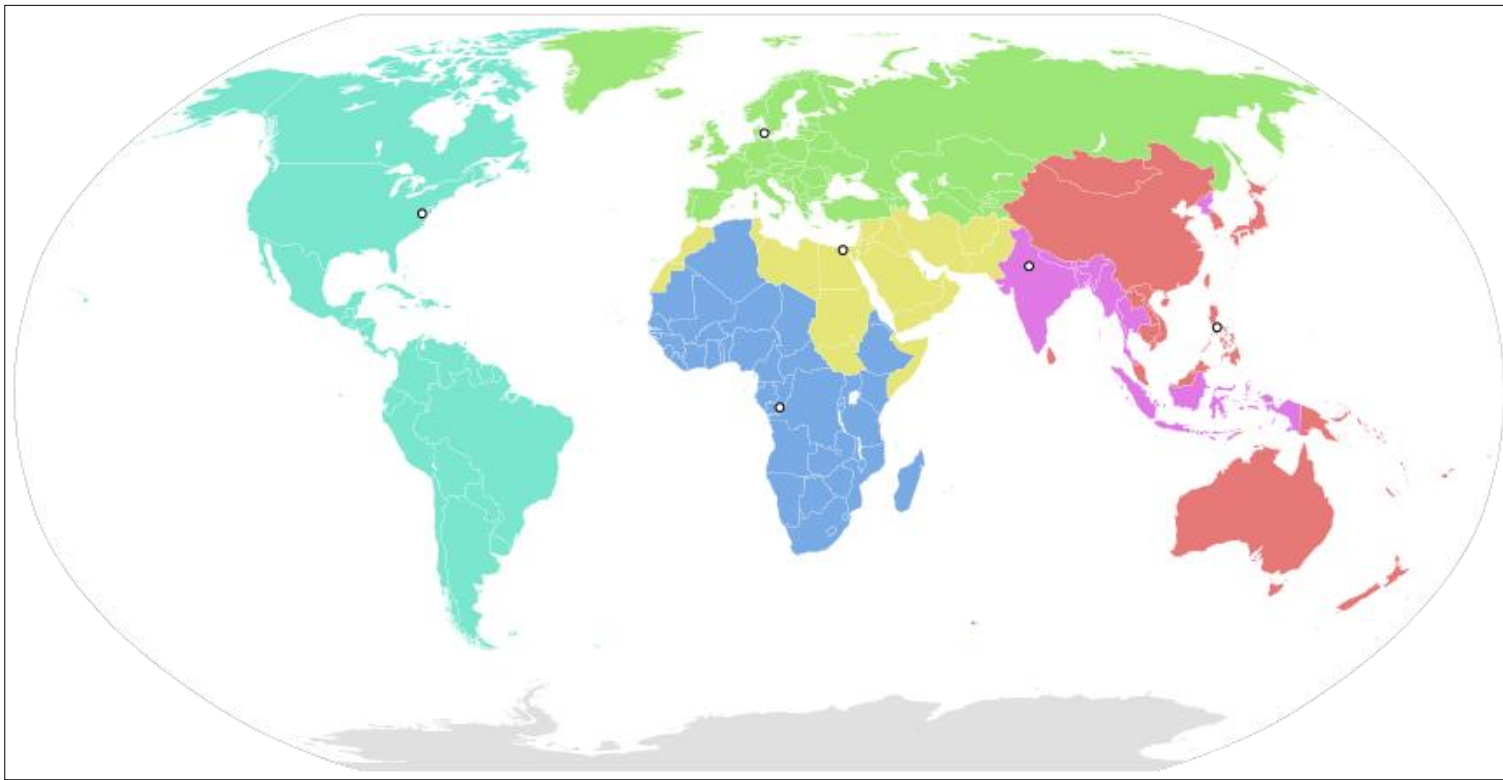


Causes of mortality around the world (WHO, data from 2016)



Source: World Health Organization – Diabetes country profiles, 2016
[\(http://who.int/diabetes/country-profiles/en/\)](http://who.int/diabetes/country-profiles/en/)

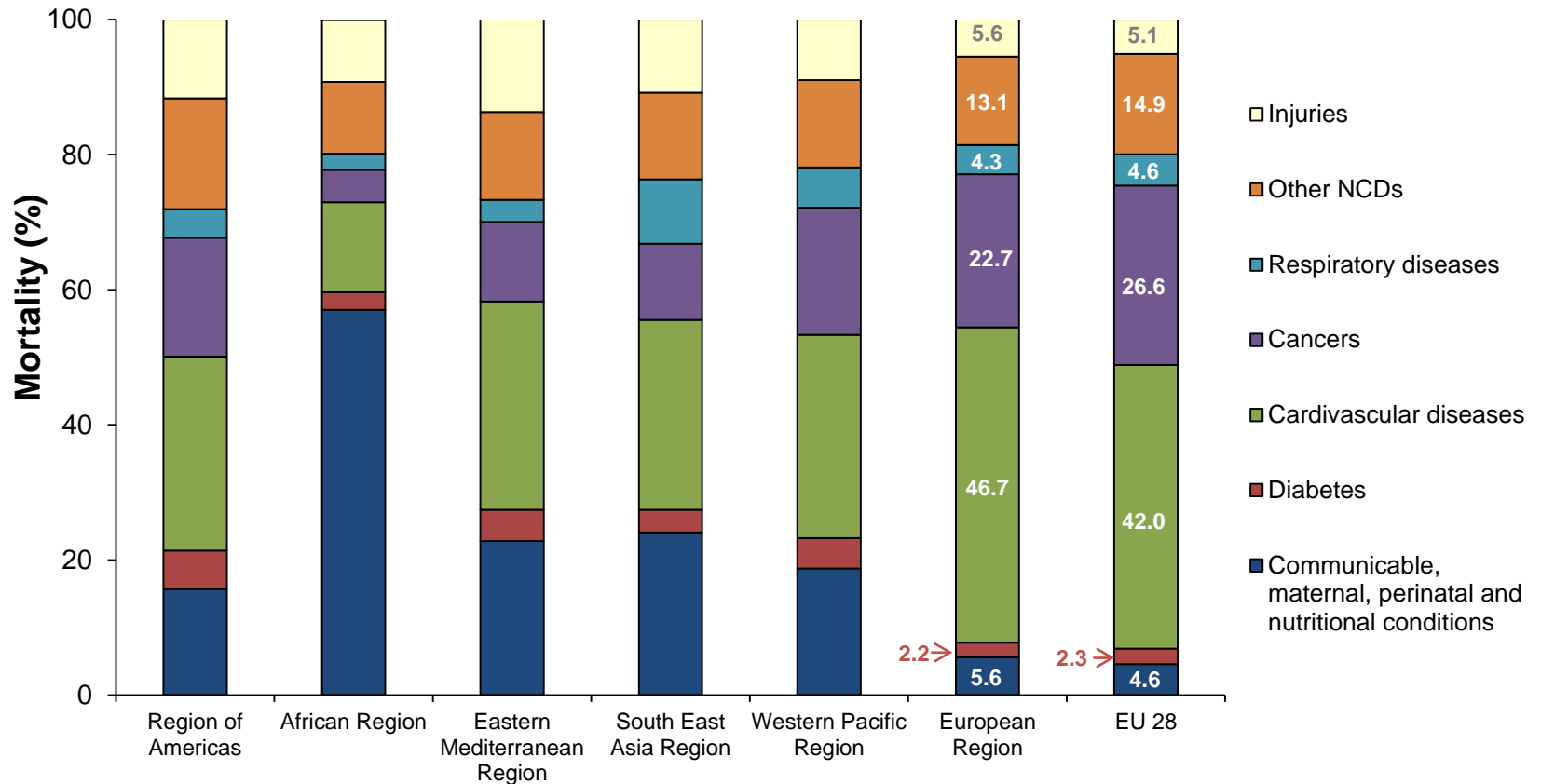
Regions of the world - WHO



https://upload.wikimedia.org/wikipedia/commons/b/b3/World_Health_Organisation_regional_offices.svg

- Region of Americas
- Africa Region
- Eastern Mediterranean Region
- European Region
- South East Asia Region
- Western Pacific Region

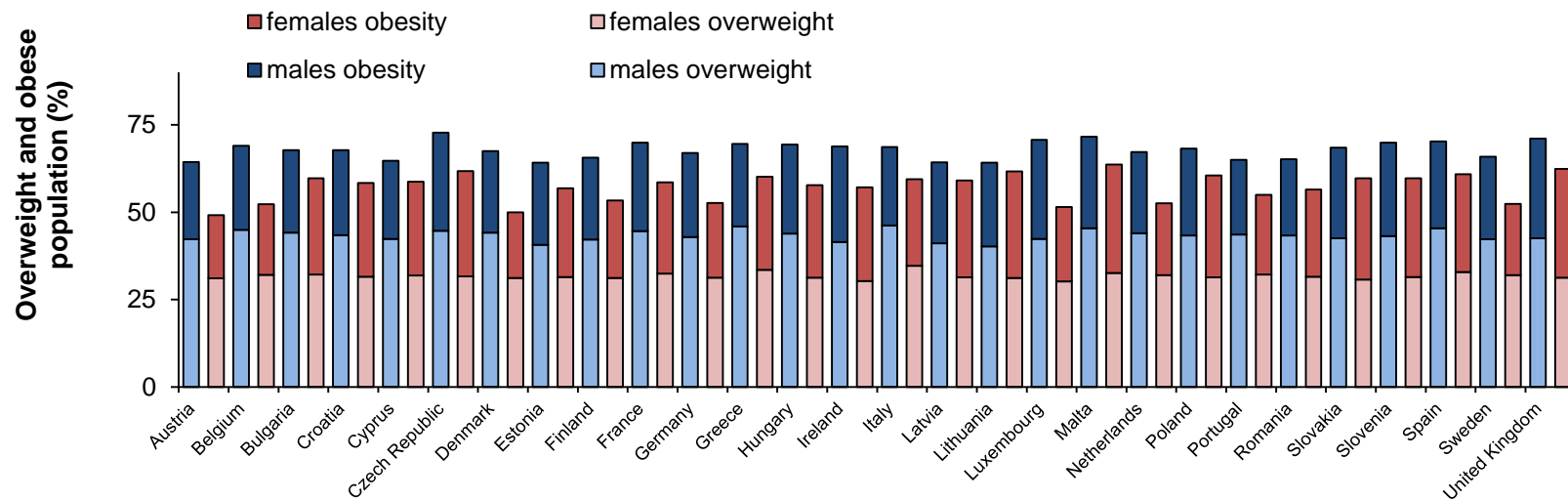
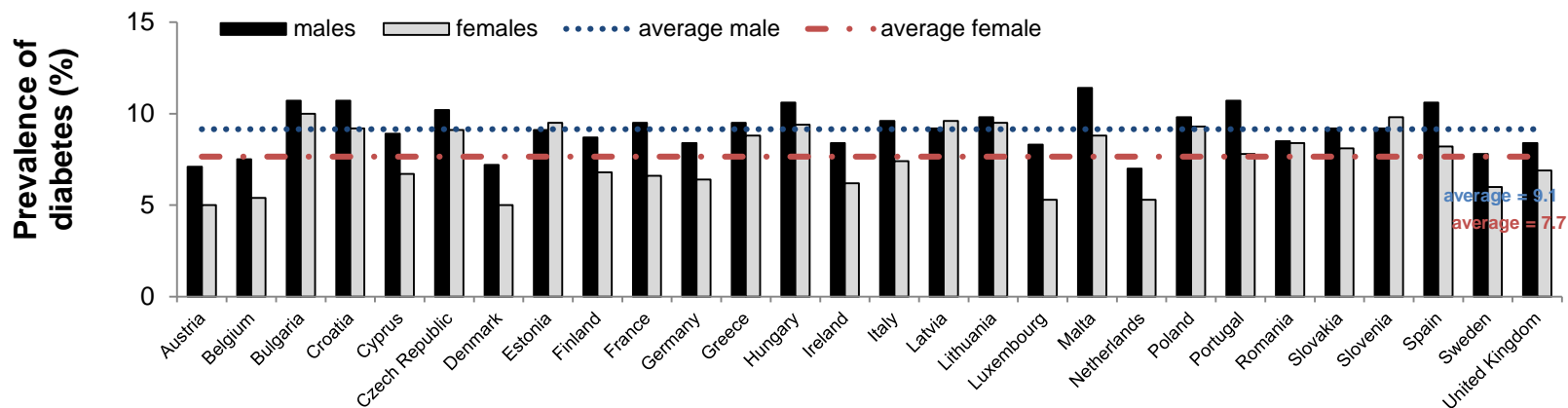
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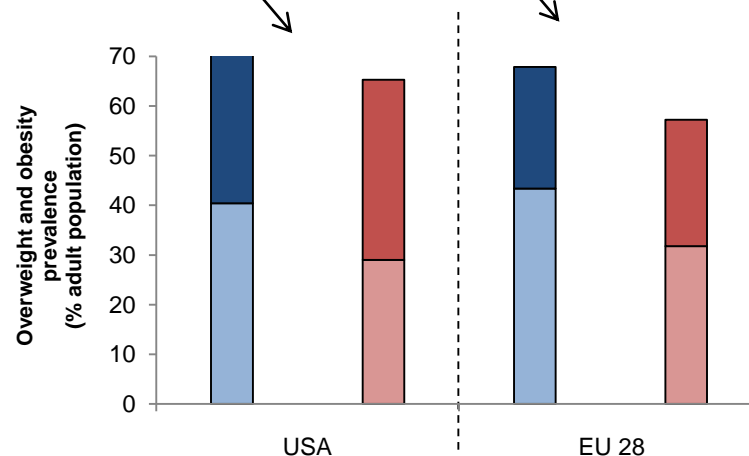
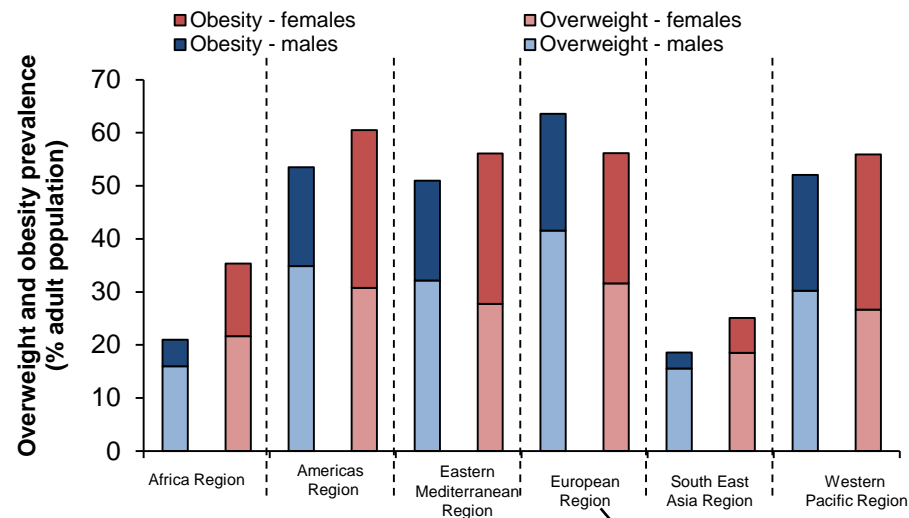
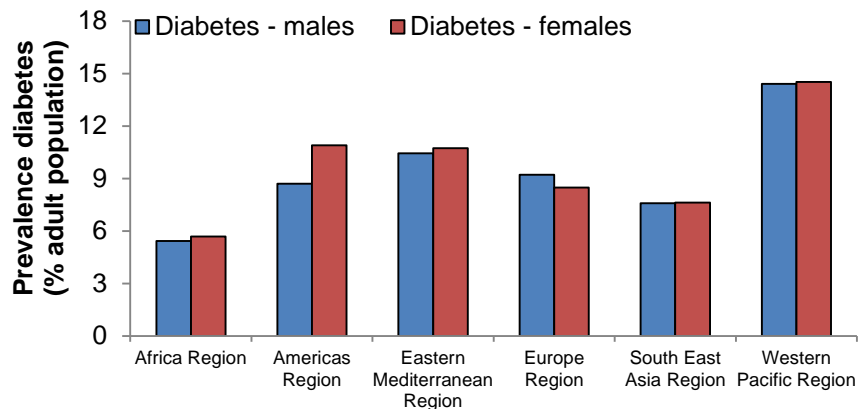
Diabetes, overweight and obesity in Europe

(WHO data from 2016)



Diabetes, overweight and obesity in the world

(WHO data from 2016)

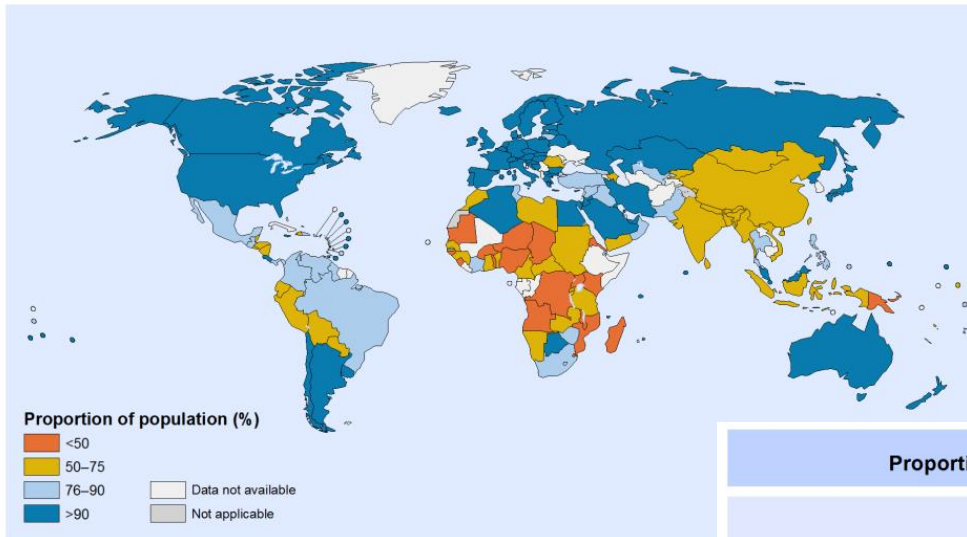


Történelmi korok – Krízis vagy fejlődés ?



Improved drinking water sources (WHO)

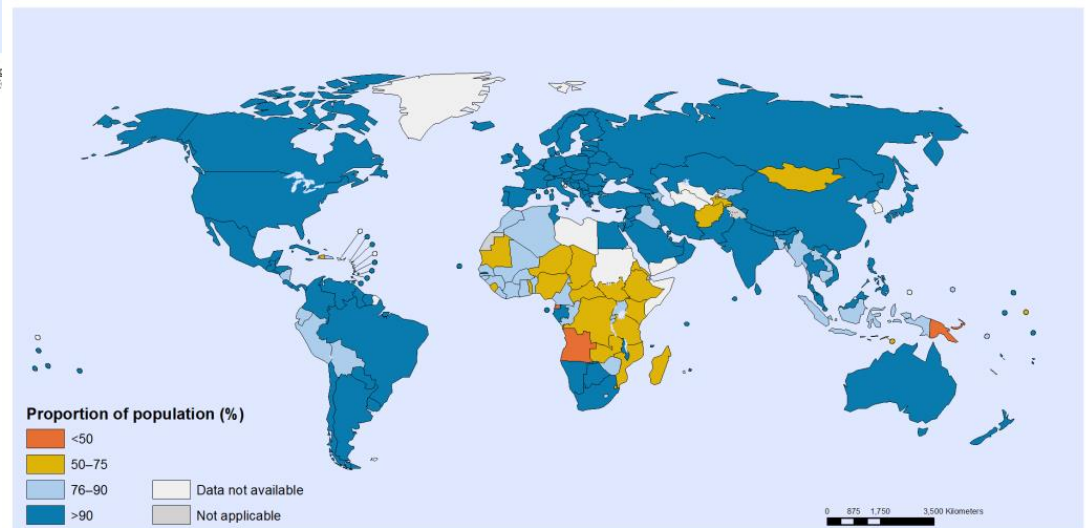
Proportion of population using improved drinking water sources (%), 1990



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Data Source: World Health Org
Map Production: Information E
World Health Organization

Proportion of population using improved drinking water sources (%), 2015



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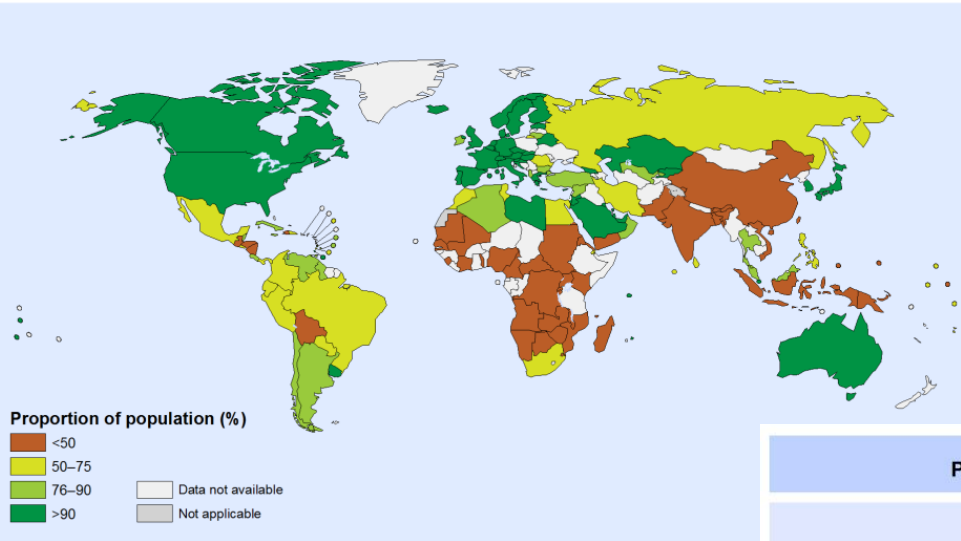
Data Source: World Health Organization
Map Production: Information Evidence and Research (IER)
World Health Organization



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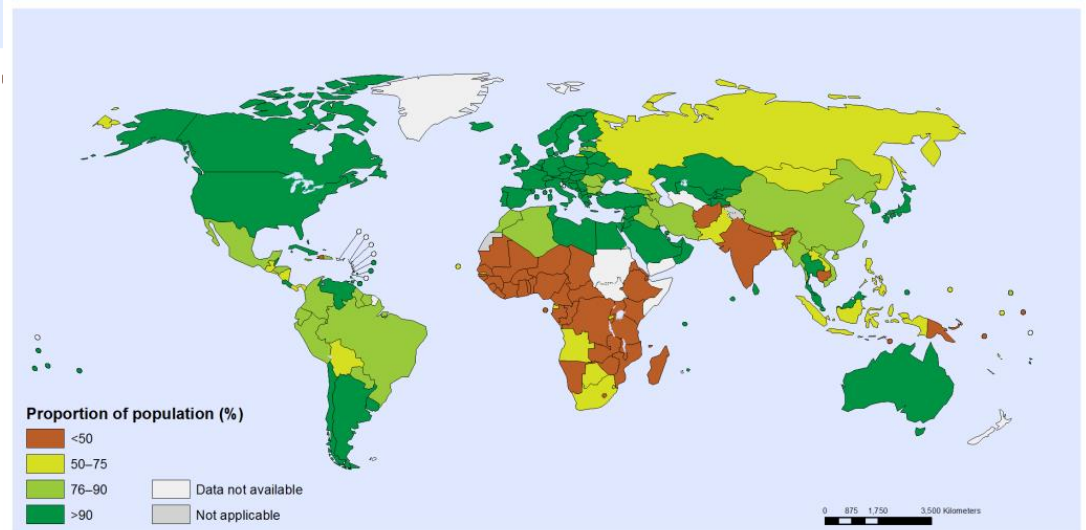
Improved sanitation facilities (WHO)

Proportion of population using improved sanitation facilities (%), 1990



Improved sanitation facilities refers to flush toilets and covered latrines (<http://www.who.int/mediacentre/factsheets/fs392/en/>)

Proportion of population using improved sanitation facilities (%), 2015



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Data Source: World Health Organization
Map Production: Information Evidence and World Health Organization

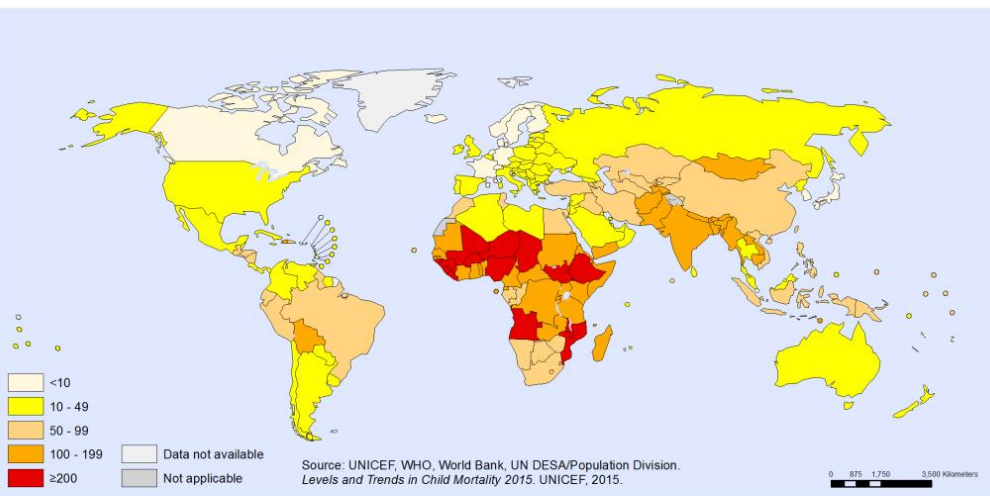
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Data Source: World Health Organization
Map Production: Information Evidence and Research (IER)
World Health Organization

World Health Organization
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Life expectancy (under 5 years old mortality rate) (WHO)

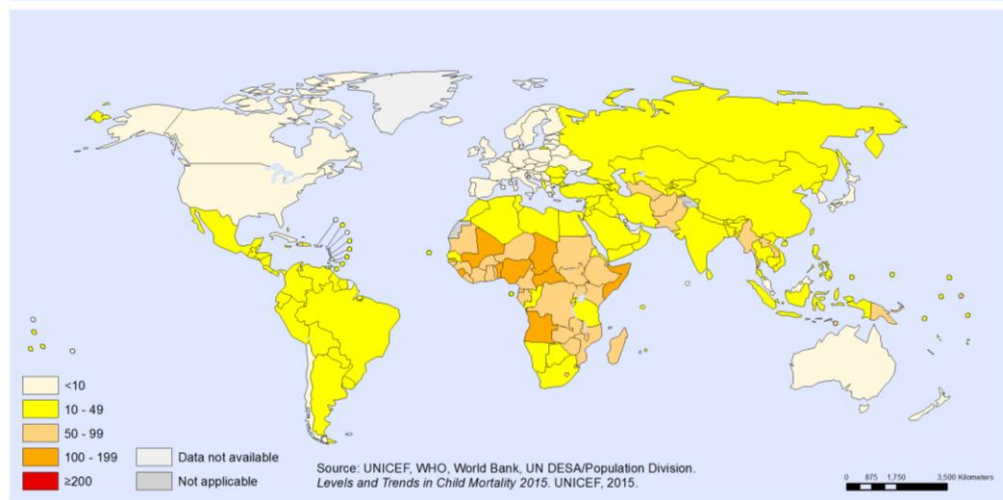
Under-five mortality rate (probability of dying by age 5 per 1000 live births), 1990



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Data Source: World Health Organization
Map Production: Health Statistics and Information Systems (HSI)
World Health Organization

Under-five mortality rate (probability of dying by age 5 per 1000 live births), 2015

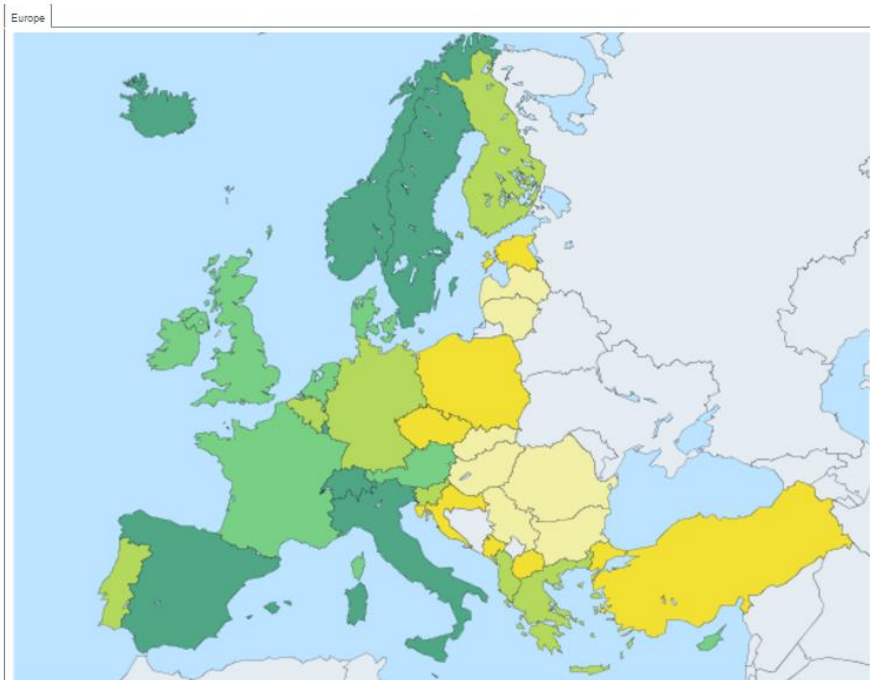
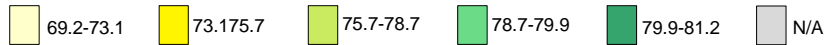


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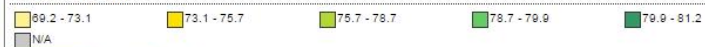
Life expectancy at birth, Europe (EUROSTAT)

Male



Life expectancy at birth: Men (Years)

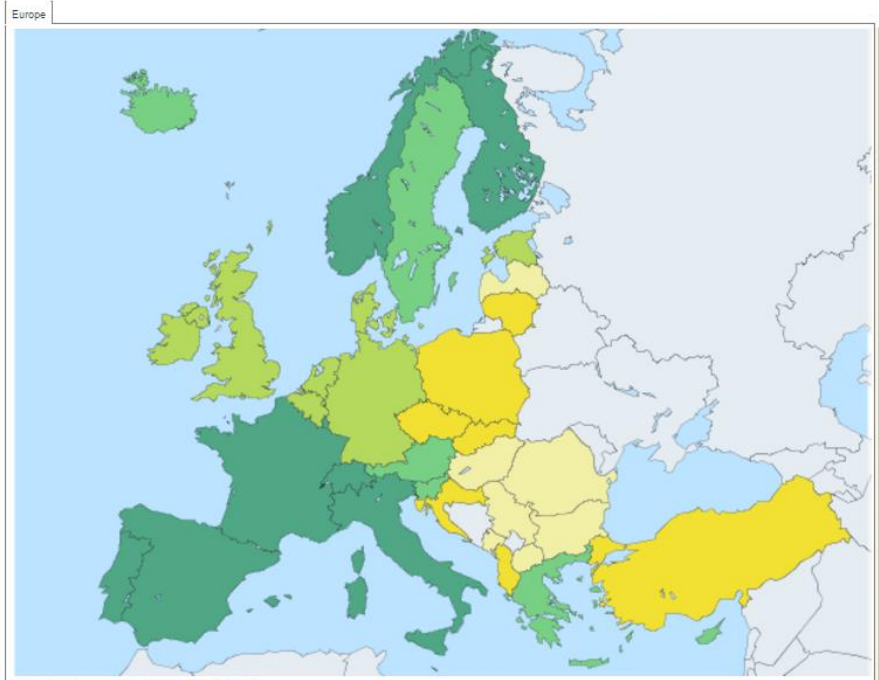
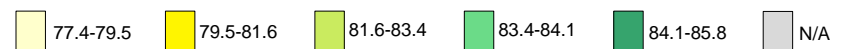
Legend (Series: 2015)



N/A

[General Information](#)
[News](#)

Female



Life expectancy at birth: Women (Years)

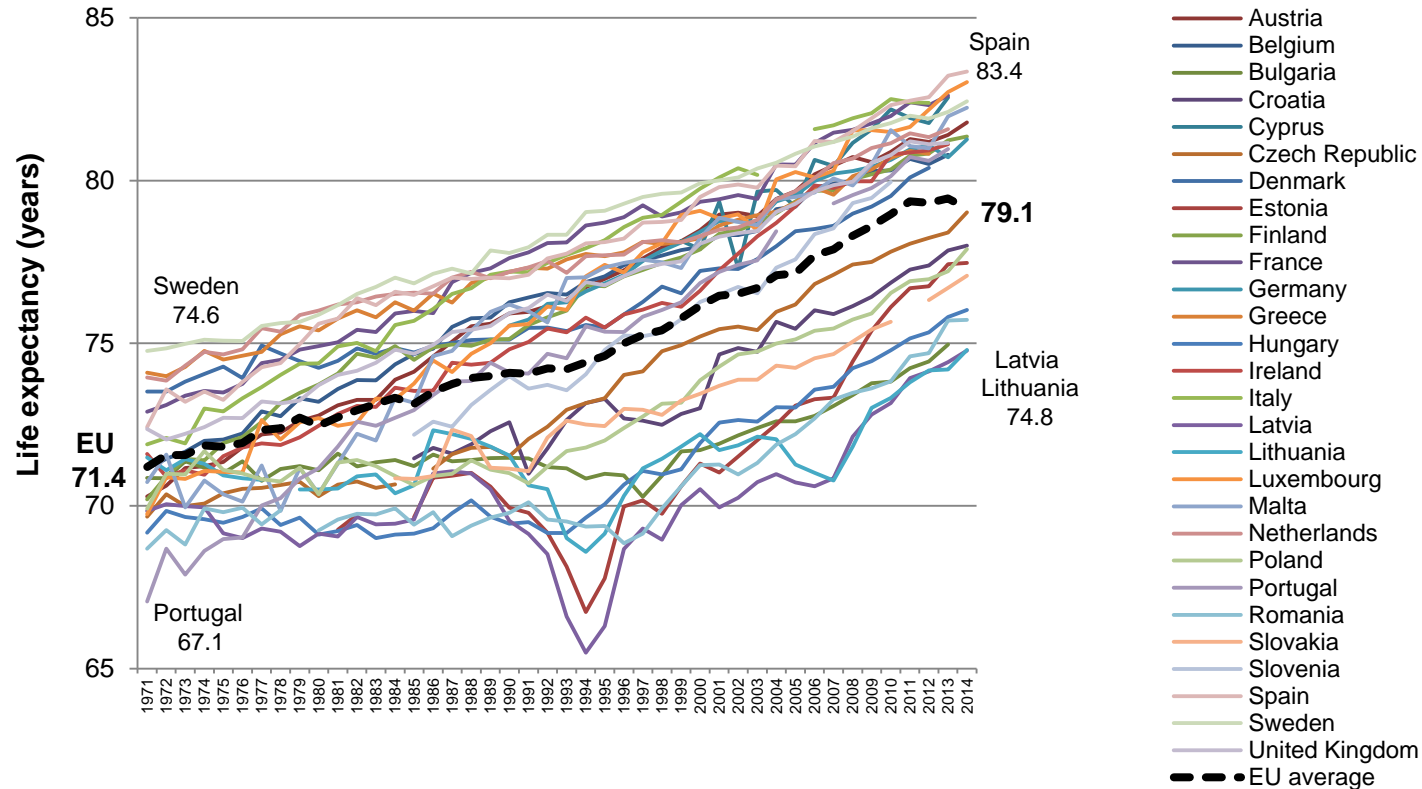
Legend (Series: 2015)



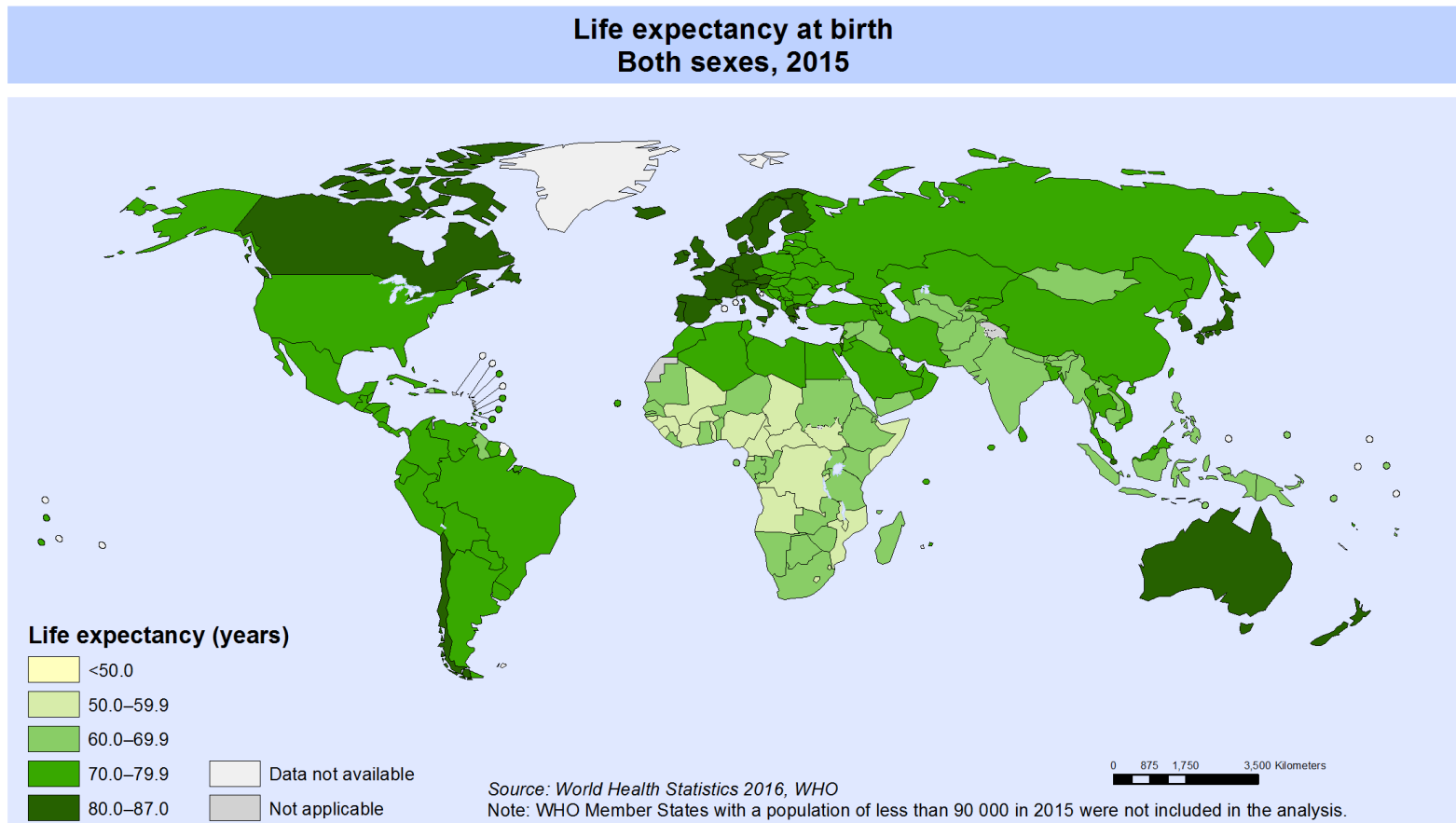
N/A

[General Information](#)
[News](#)

Life expectancy at birth (1970-2014), Europe (WHO)



Life expectancy at birth, Global (WHO)



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization
Map Production: Information Evidence and Research (IER)
World Health Organization



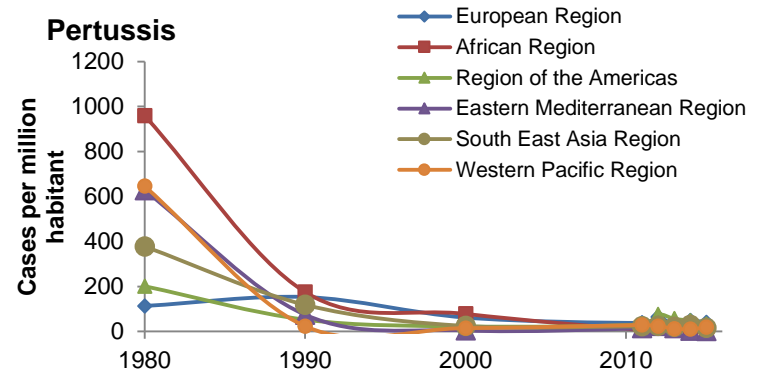
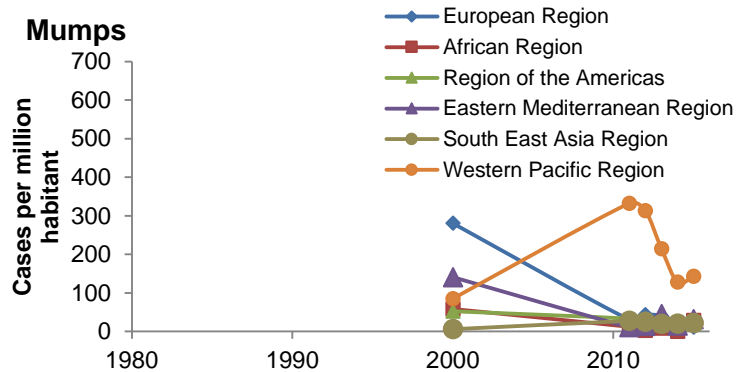
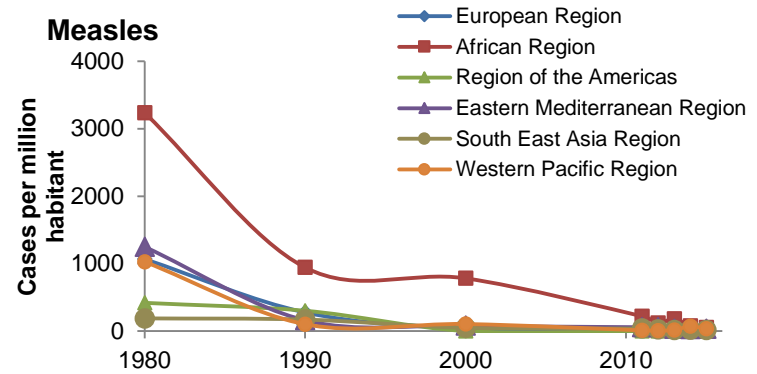
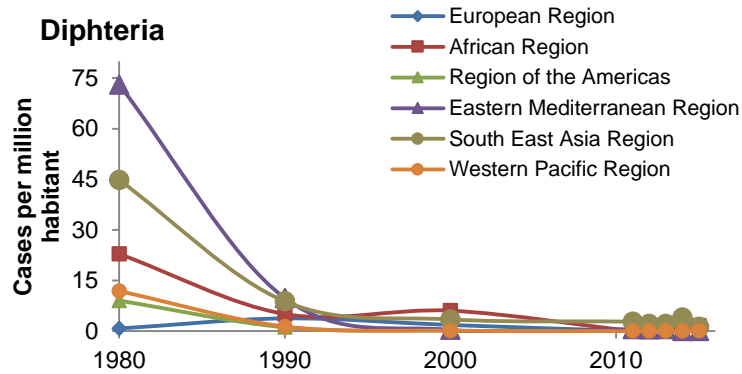
© WHO 2016. All rights reserved.



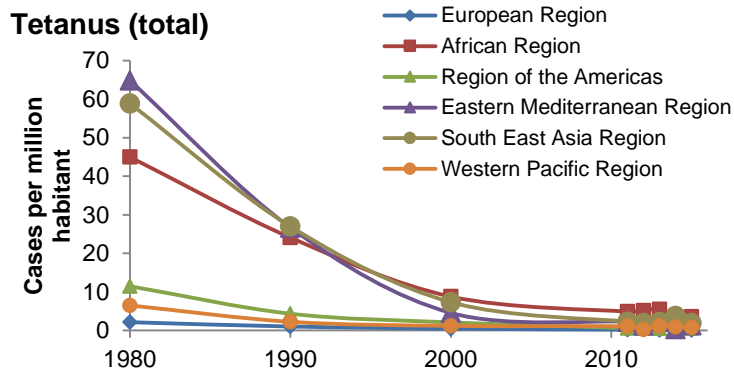
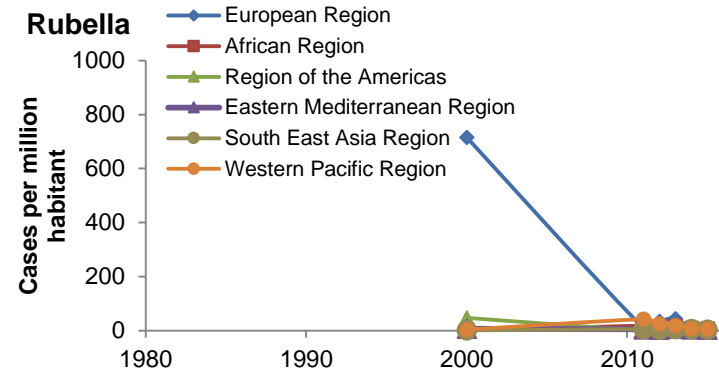
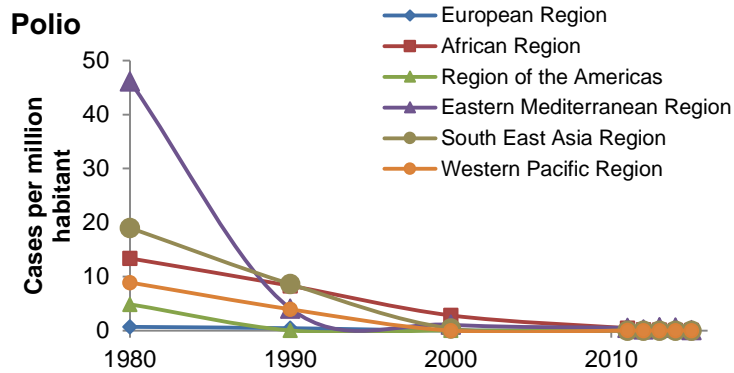
Europe

http://gamapservr.who.int/mapLibrary/Files/Maps/Global_LifeExpectancy_bothsexes_2015.png

Infectious vaccine-preventable disease – Overview in WHO Regions



Infectious vaccine-preventable disease – Overview in WHO Regions



Történelmi korok – Krízis vagy fejlődés ?



10 – 10 – 10

10 ezer év alatt

10 millióról 10 milliárdra nő a lélekszám

> 10 md különféle árucikk kapható NY-ban
és Londonban (Beinhocker, 2006)

1800 → 2006

x 6: a világ lakossága meghatszorozódott

x 2: az átlagéletkora a duplájára nőtt

(OECD, 2006)

1955 → 2017

A világ lakossága:

x3 keres

1/3-val több kalóriát visz be étellemmel

1/3-a gyereket kell eltemetniük

1/3-val hosszabb életre számíthatnak

1955 → 2017

Kisebb volt a valószínűsége:

- éhezés, szamárköhögés,
- tbc, malária, torkgyík,
- tífusz, hastífusz,
- kanyaró, himlő, skorbut vagy gyermekbénulás

következtében veszítsék el életüket....

1955 → 2017

- A várható élettartam csak 3 országban csökkent:
Oroszo., Szváziföld, Zimbabwe.
- A csecsemőhalandóság sehol sem nőtt.
- A szegénység az elmúlt 50 évben nagyon ütemben csökkent, mint a megelőző 500 évben. (In: Lomborg. B, 2001)

Történelmi korok – Krízis vagy fejlődés ?



Tudományos felfedezések – Internet kora



Tudományos felfedezések – Internet kora

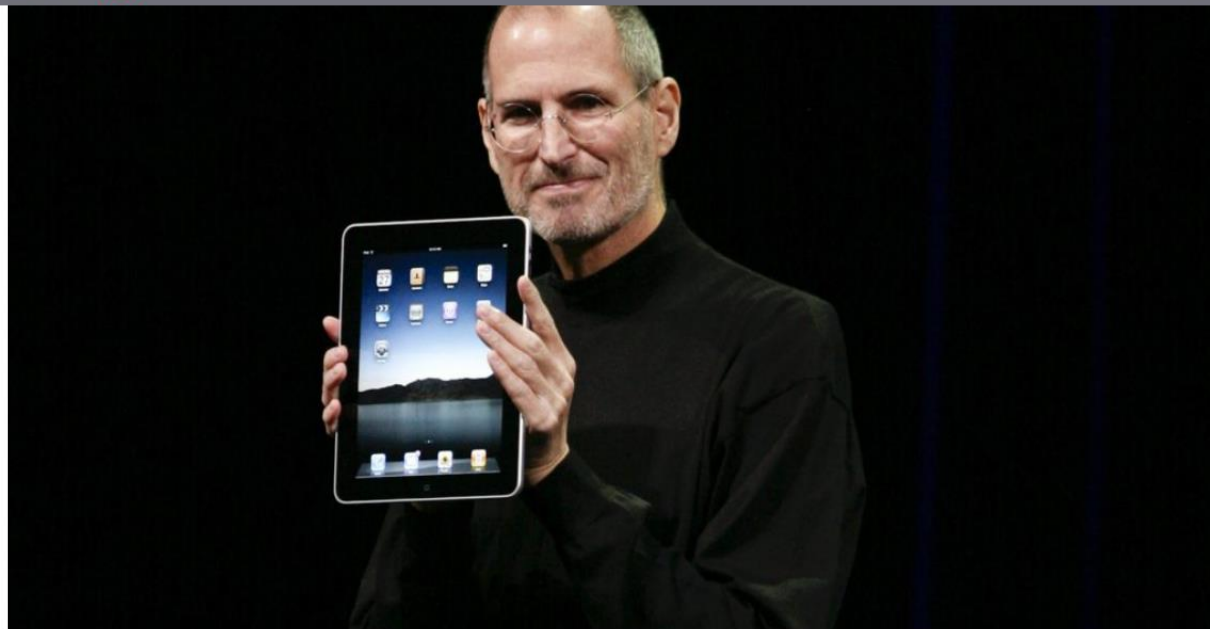
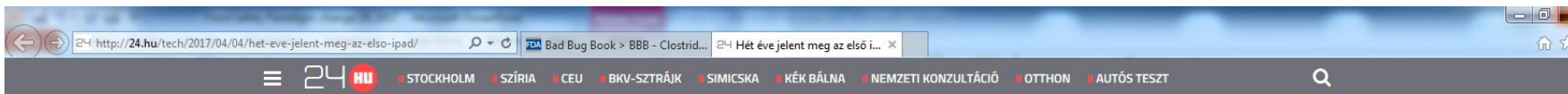


© Edward Galagan

Tudományos felfedezések – Internet kora

TECH 25

Hét éve jelent meg az első iPad



Forrás: Euopress

Az iPaddel hadat üzentek a netbookoknak, és nyertek: 2011 márciusában [úgy került be](#) a brand a Guinness Rekordok Könyvébe, mint a leggyorsabban kelendő fogyasztói elektronikai eszköz, akkoriban

naponta 311,666 darabot értékesítettek belőle.

Azóta már számos generáció jelent meg eltérő vékonysággal, súllyal, 2010 óta már több mint 300 millió darab iPad-termék [kelt el](#) napjainkig. Nézzük, mit tudnak ezek!

n cookie-kat használ



Tudományos felfedezések – RFID

Radiofrequency Identification



RFID-tag, 50 mm long

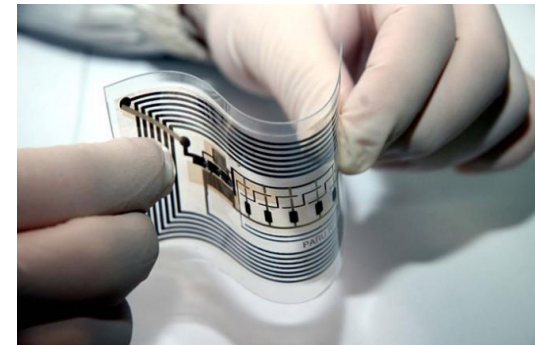


Implanting RFID chip into hand for personal identification



This is what will replace your cards & cash

“NutriSmart” system:
RFID wafers injected into
food



Tudományos felfedezések – Food Scanner



Tudományos felfedezések

Moore's Law: Exponential Change

1 The accelerating pace of change ...



2 ... and exponential growth in computing power ...

Computer technology, shown here climbing dramatically by powers of 10, is now progressing more each hour than it did in its entire first 90 years

COMPUTER RANKINGS

By calculations per second per \$1,000



Analytical engine
Never fully built, Charles Babbage's invention was designed to solve computational and logical problems



Colossus
The electronic computer, with 1,500 vacuum tubes, helped the British crack German codes during WW II



UNIVAC I
The first commercially marketed computer, used to tabulate the U.S. Census, occupied 943 cu. ft.



Apple II
At a price of \$1,298, the compact machine was one of the first massively popular personal computers

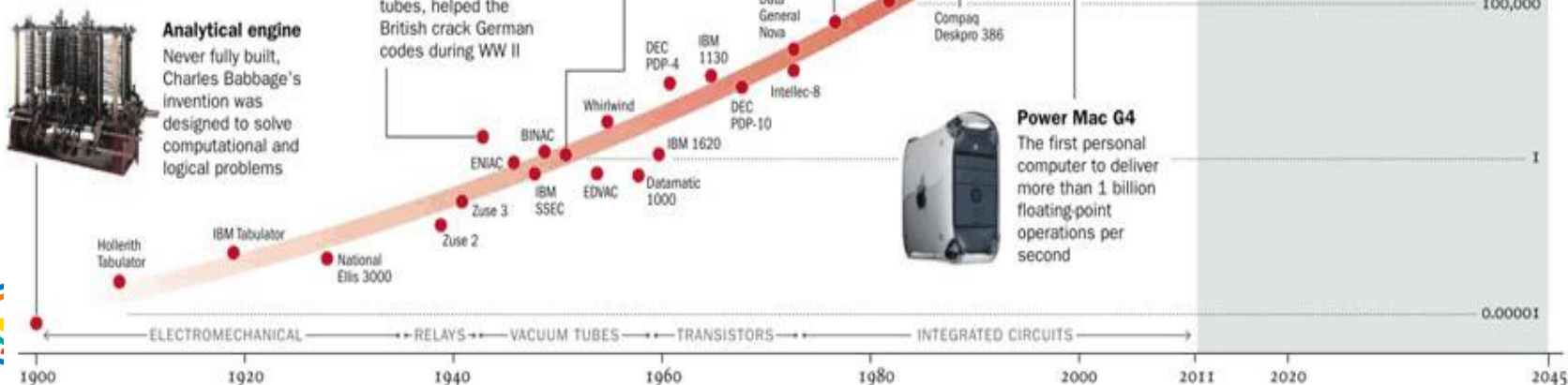
3 ... will lead to the Singularity

2045
Surpasses brainpower equivalent to that of all human brains combined

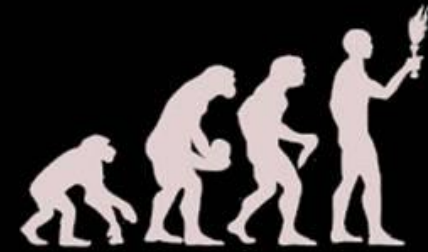
Surpasses brainpower of human in 2023



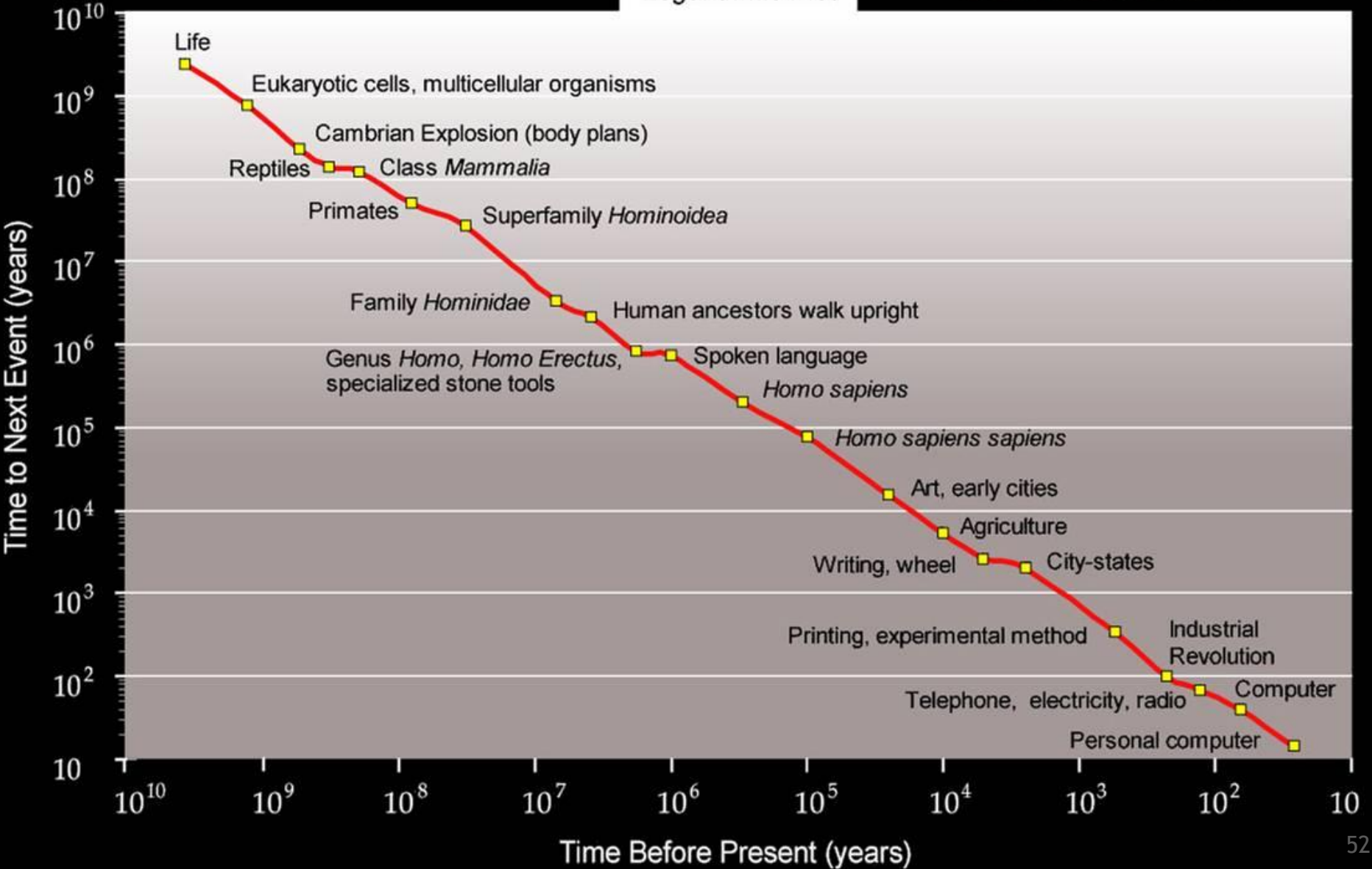
Surpasses brainpower of mouse in 2015



Countdown to Singularity



Logarithmic Plot



Tudományos felfedezések

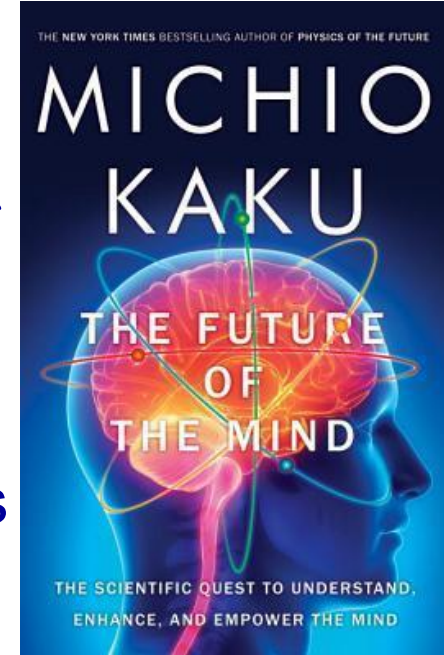
“The Age of Intelligent Machines” (1990)

“The Age of Spiritual Machines: When Computers Exceed Human Intelligence” (2000)

“The Singularity is Near: When Humans Transcend Biology” (2005)

“Fantastic Voyage: Live Long to Live Forever” (2001)

“The Future of the Mind: The Scientific Quest to Understand, Enhance, and Empower the Mind” (2014)



A világvége megint elmarad

Krízis vagy fejlődés ?

“... ha sikerül fenntartani a gondolatok, eszmék, ötletek szabad evolúcióját, nem kell globális katasztrófától tartanunk.” (Matt Ridley)

“A siker tízezer éve bevált titka a folyamatos változásban és változtatásban rejlik.”

... egy józan optimista ...

