

# Lezione 3.7

## Effetti culturali diretti

# The value of fun (the economics of ‘wow’ and citizen science)



- **The NASA Kennedy Space Center (KSC):**
- More than 1.5 million visitors per year
- February 2018: NASA Facebook had 20,911,149 “likes” and 20,937,006 followers

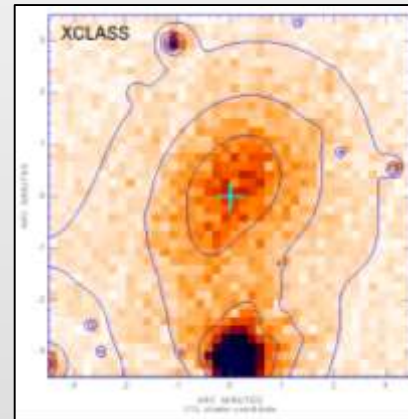


- **Public cultural value of CERN (1993-2038):**
- 5,1 mln CERN visitors
- 775 mln visitors to the sites
- 1,6 mln visitors to CERN’s exhibitions
- 29,3 mln of social media Users



- **EyeWire:** online game
- Supported by grants from the NIH
- Players are required to construct a 3D neuron map, starting from the retina of a mouse
- 250,000 players from more than 145 countries have signed up

- **Zooniverse:** online platform displays several projects. Possibility to *millions* of amateur scientists to analyze data in different domains



The Hunt for Galaxy Clusters  
Talk:  
Explore the depths of the Universe with Galaxy clusters



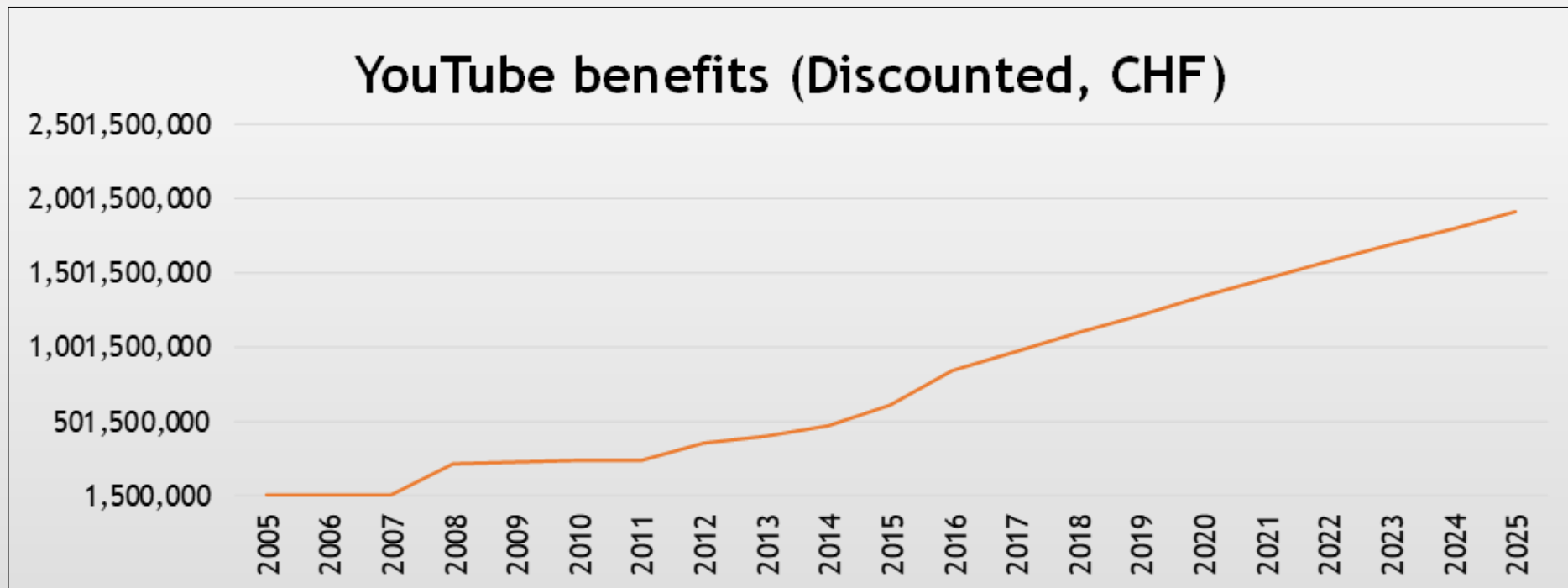
# Youtube data (1)

- **A total of 616 LHC and CERN in general related videos between 2007 and 2017 recorded (cumulatively) around 39.5 million views**
- number of views provided by YouTube statistics and the duration of video

Video Length	Reduction Factor
< 1 MIN	60%
1-2 MIN	50%
2-3 MIN	45%
3-4 MIN	35%
4-5 MIN	35%
5-10 MIN	35%
10-20 MIN	28%
20-30 MIN	19%
30-45 MIN	15%
45-60 MIN	10%
60+ MIN	9%

## Youtube data (2)

- The benefits on YouTube CERN's visitors was estimated from 2005 (launching year of the platform) until 2025 (last year of our analysis)
- Missing data were calculated for the past (from 2005 to 2007) and future (until 2025) by applying an average growth.



# LHC and CERN (in general): number of videos and viewers 2007 – 2017

Year	Number of videos	Number of views	Duration of the video (in minutes)
2007	18	1,173,467	84.07
2008	48	12,551,069	396.38
2009	60	1,065,962	328.07
2010	35	2,426,585	154.55
2011	39	327,446	450.37
2012	54	8,441,822	593.12
2013	42	1,355,750	705.65
2014	77	1,992,482	914.93
2015	103	3,773,252	862.77
2016	66	4,603,369	992.32
2017	74	1,770,141	1,657.75
<b>Total 2007-2018</b>	616	39,481,346	7,139.97

# A generic model and the value for on-site visitors

Let us denote the WTP ( $WTP_x = WTP_1, WTP_2 \dots WTP_x$ ) for each type of outreach activity ( $x = 1, 2 \dots, X$ ) by the type of user in the general public ( $g = 1, \dots, G$ ), such as high-school students, retired people, and working-age laypeople

$$CU = \sum_{x=1}^X \sum_{g=1}^G \sum_{t=0}^T \frac{1}{(1 + SDR)^t} \cdot WTP_{xgt}$$

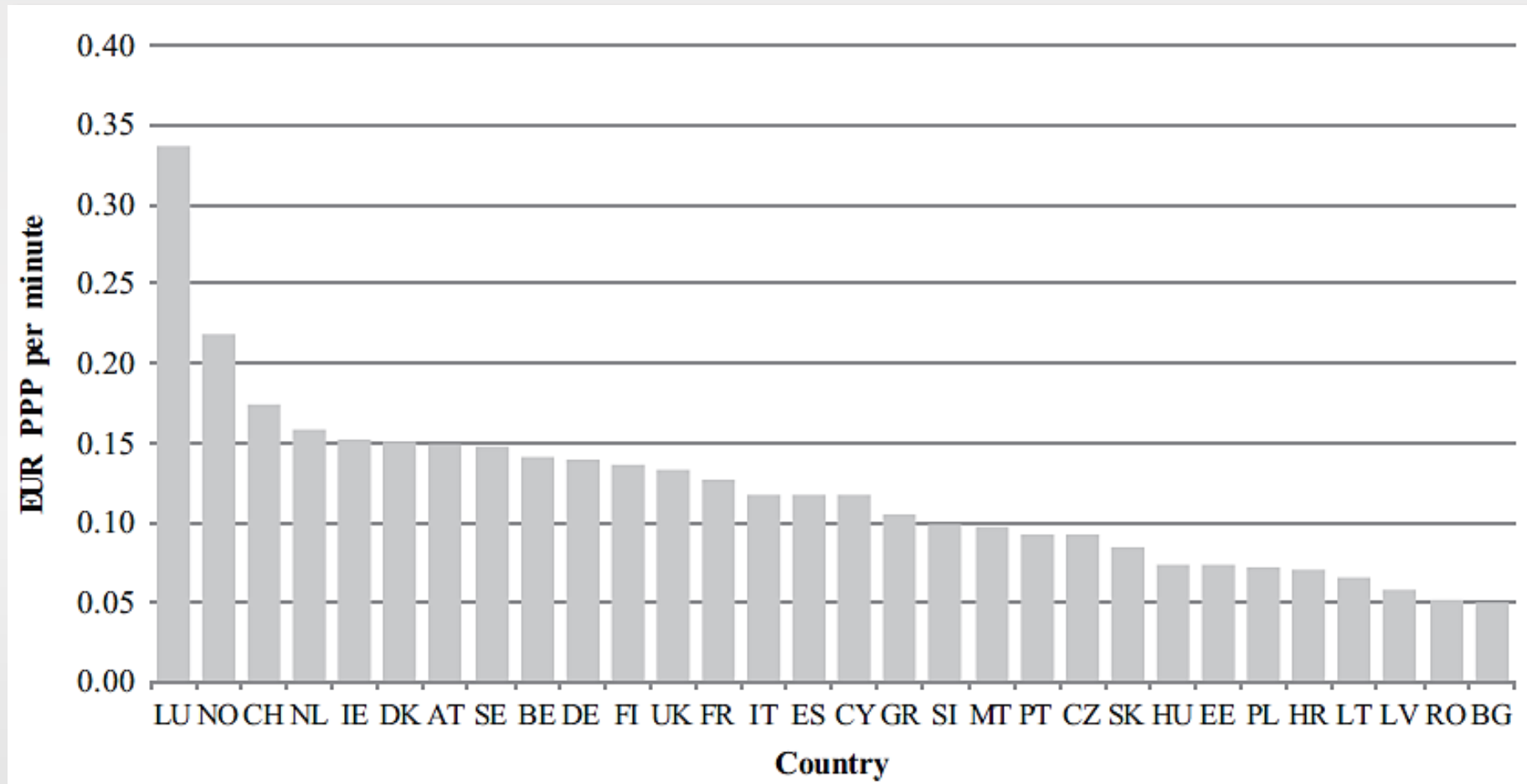
*CU*: Benefits to users of cultural goods

*X*: Outreach activities

*SDR*: Social discount rate

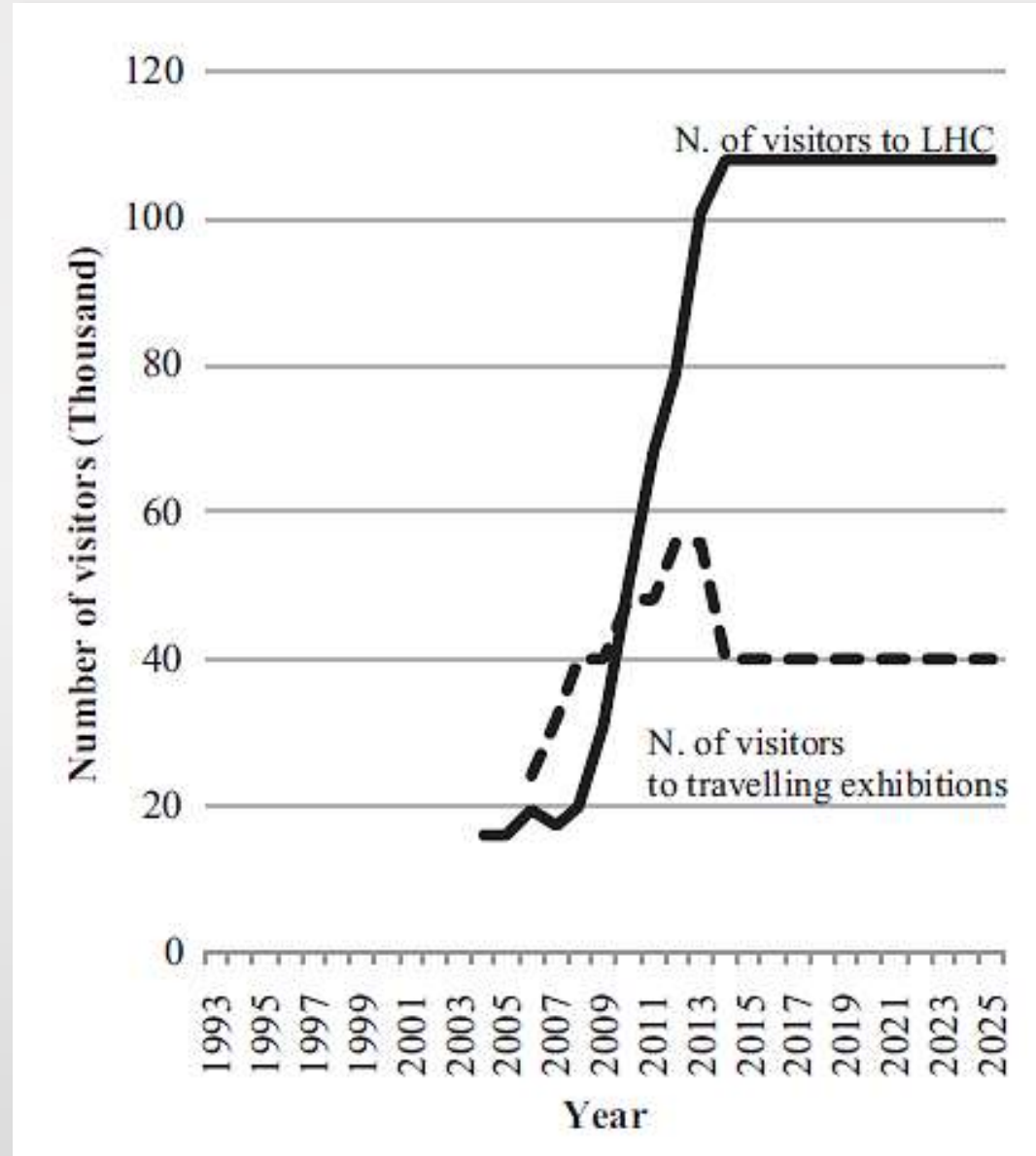
*WTP<sub>g</sub>*: Willingness to pay for cultural goods produced by the Research Infrastructure

# Values of leisure time



- Legend:** European Union countries plus Switzerland and Norway. AT: Austria, BE: Belgium, BG: Bulgaria, CH: Switzerland, CY: Cyprus, CZ: Czech Republic, DE: Germany, DK: Denmark, EE: Estonia, ES: Spain, FI: Finland, FR: France, GR: Greece, HR: Croatia, HU: Hungary, IE: Ireland, IT: Italy, LT: Lithuania, LU: Luxembourg, LV: Latvia, MT: Malta, NL: Netherlands, NO: Norway, PL: Poland, PT: Portugal, RO: Romania, SE: Sweden, SI: Slovenia, SK: Slovakia, UK: United Kingdom.

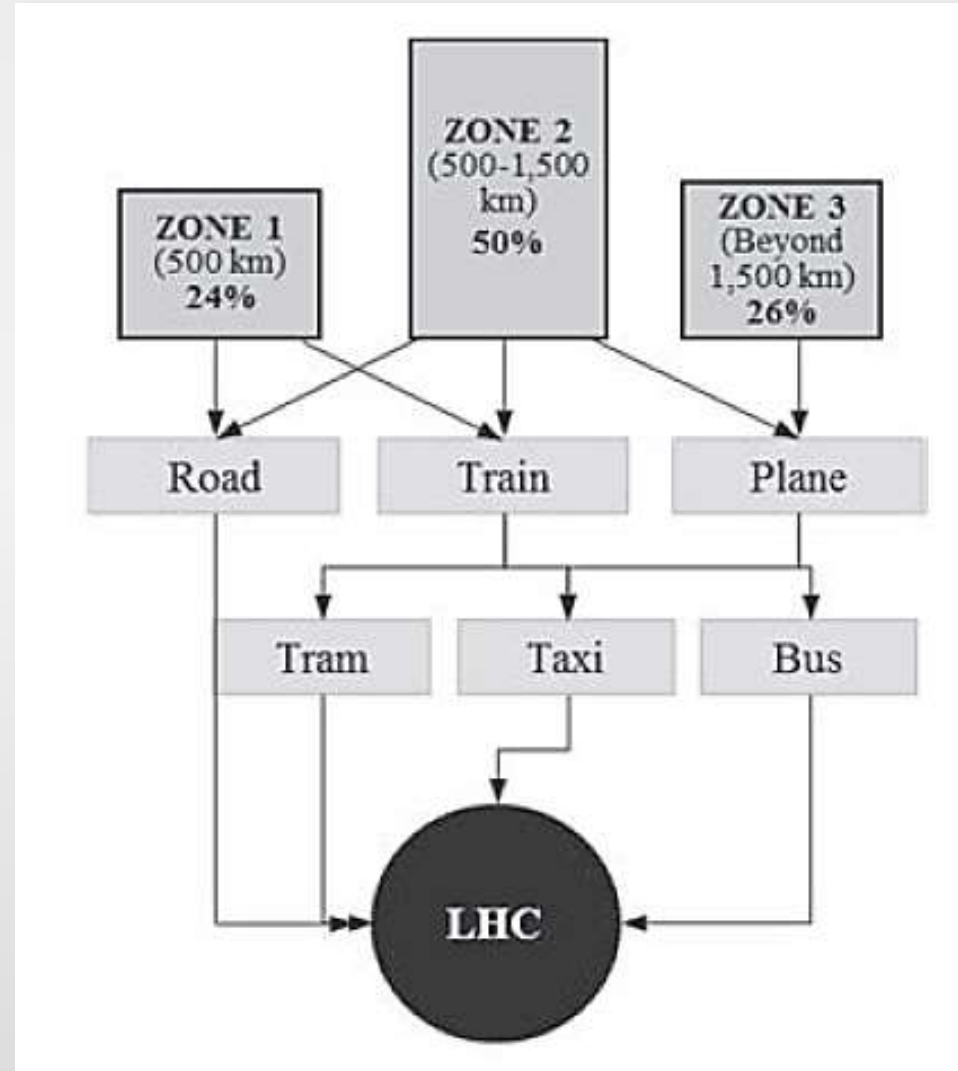
# Cultural impact of CERN: Number of visitors



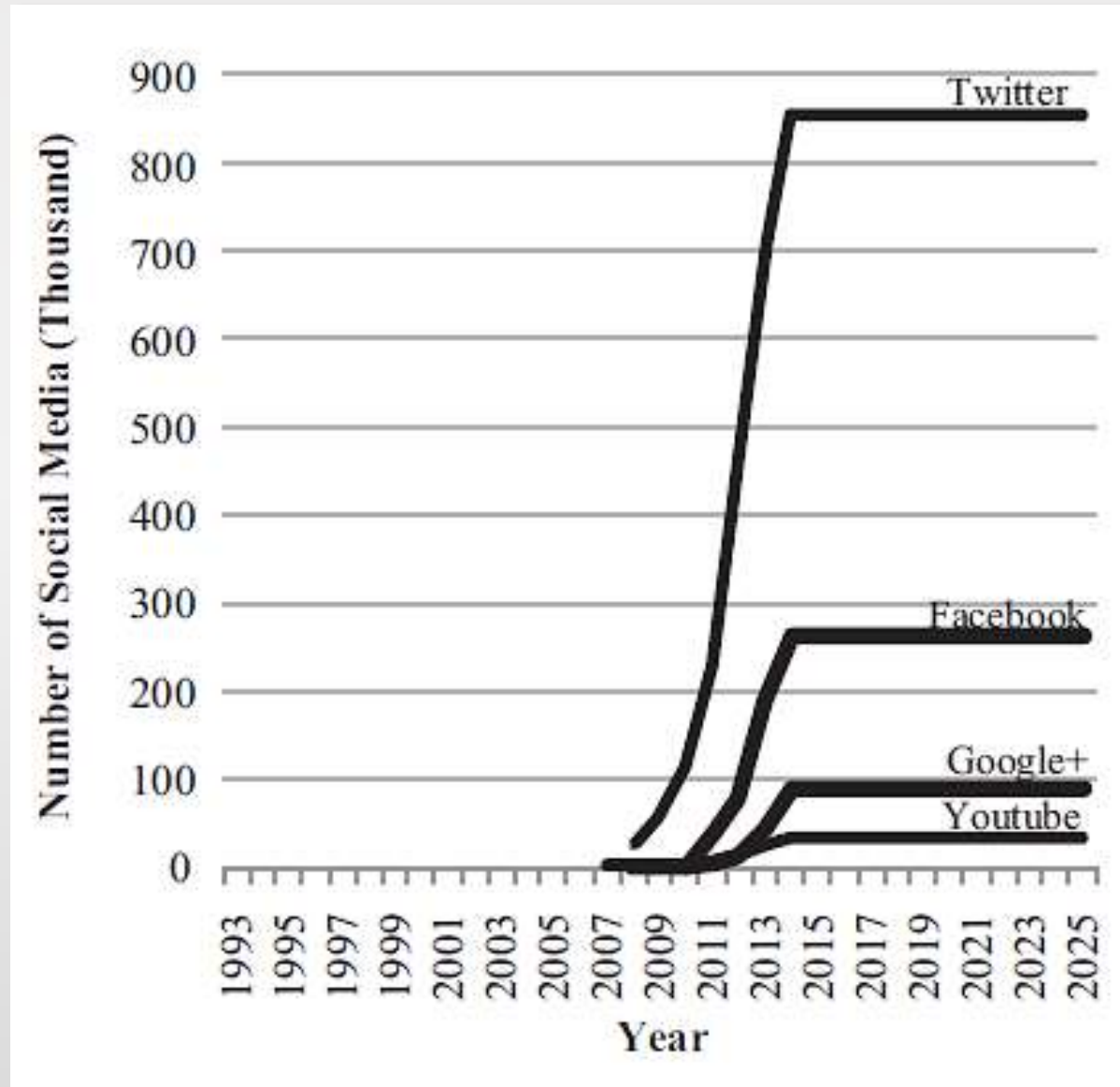


# Cultural impact of CERN. Valuation through the TCM: origins

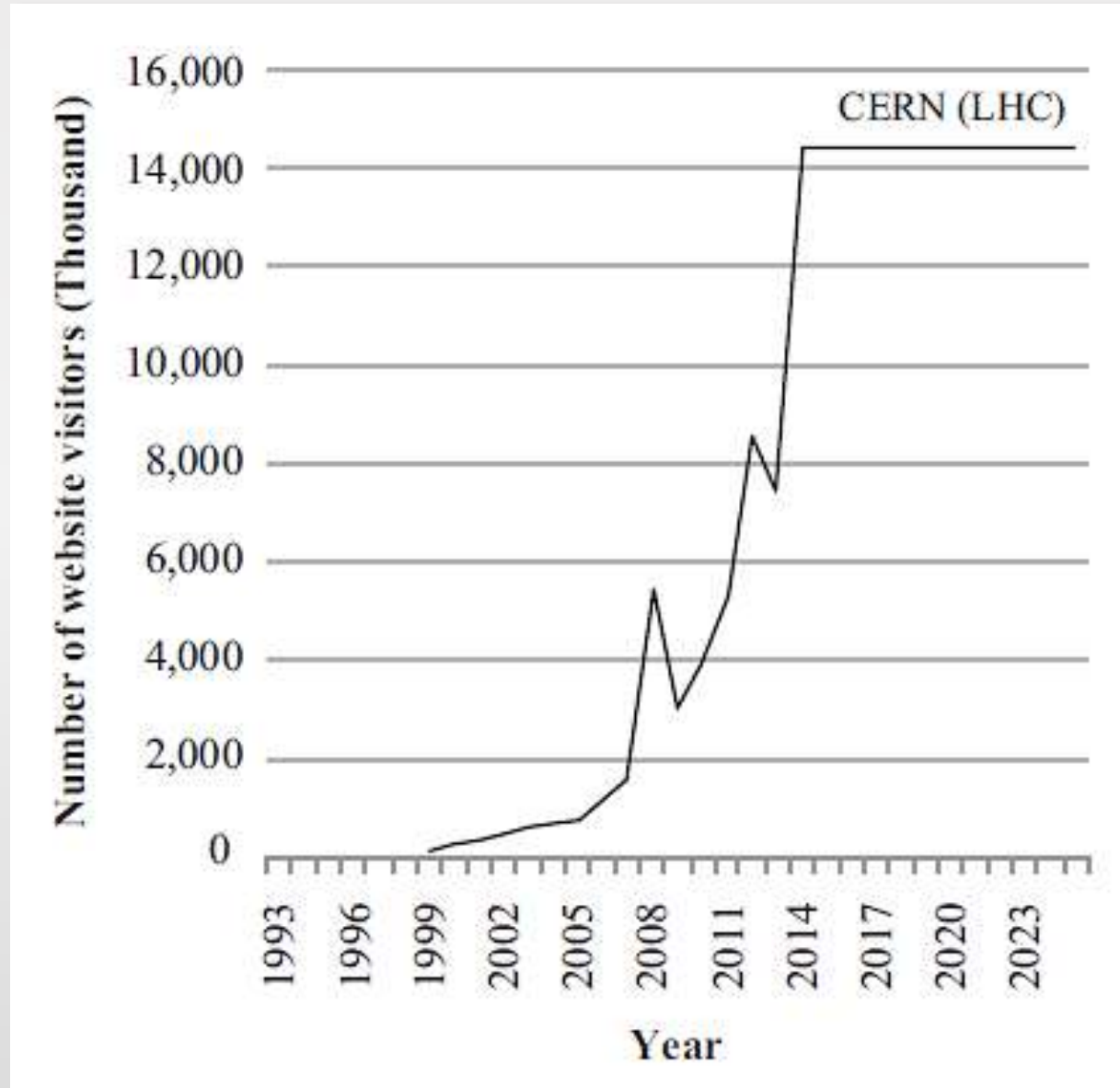
Origin zone 1, 2, and 3: Radius distance from CERN—share of visitors



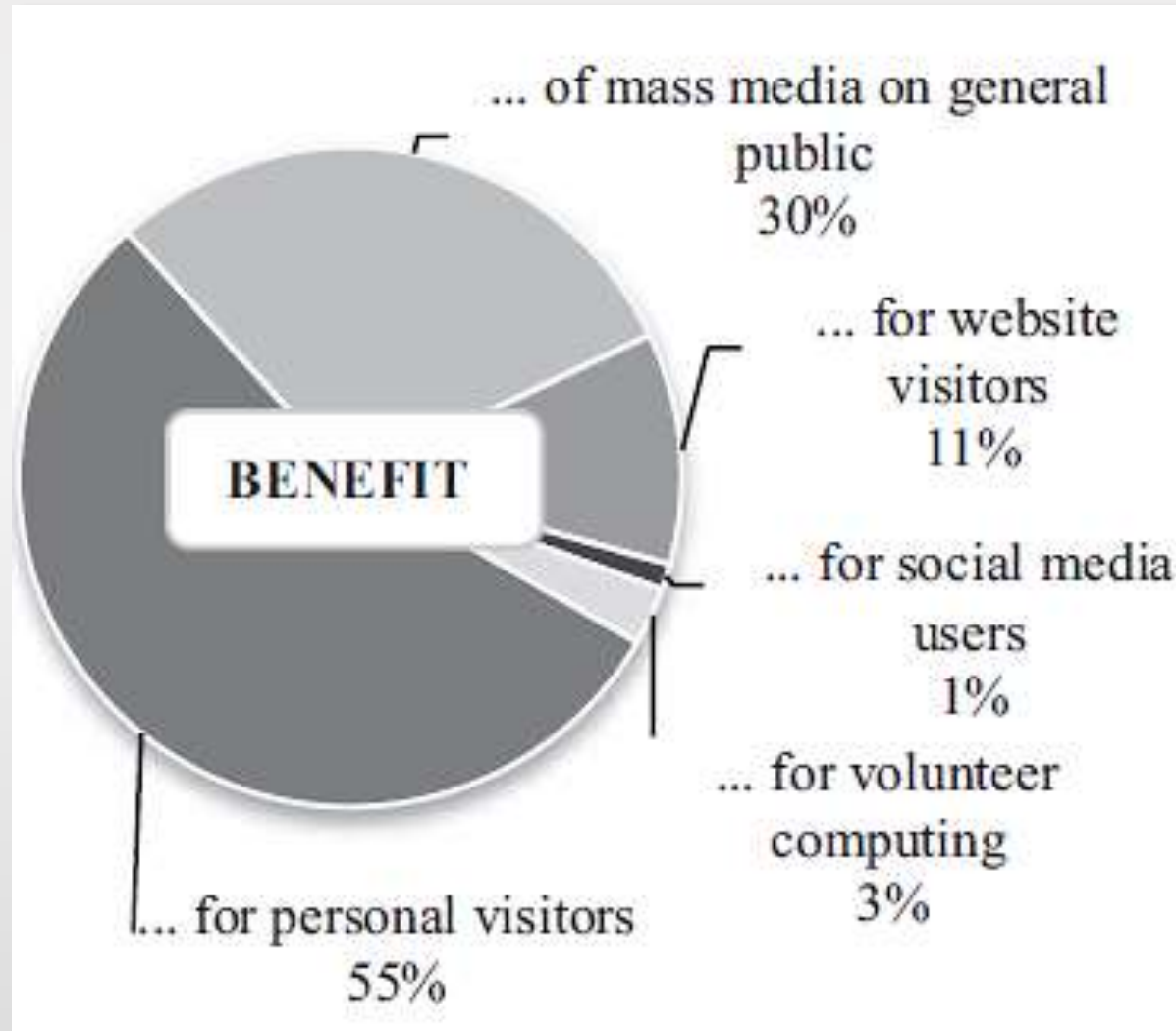
# Cultural impact of CERN: Number of social media users



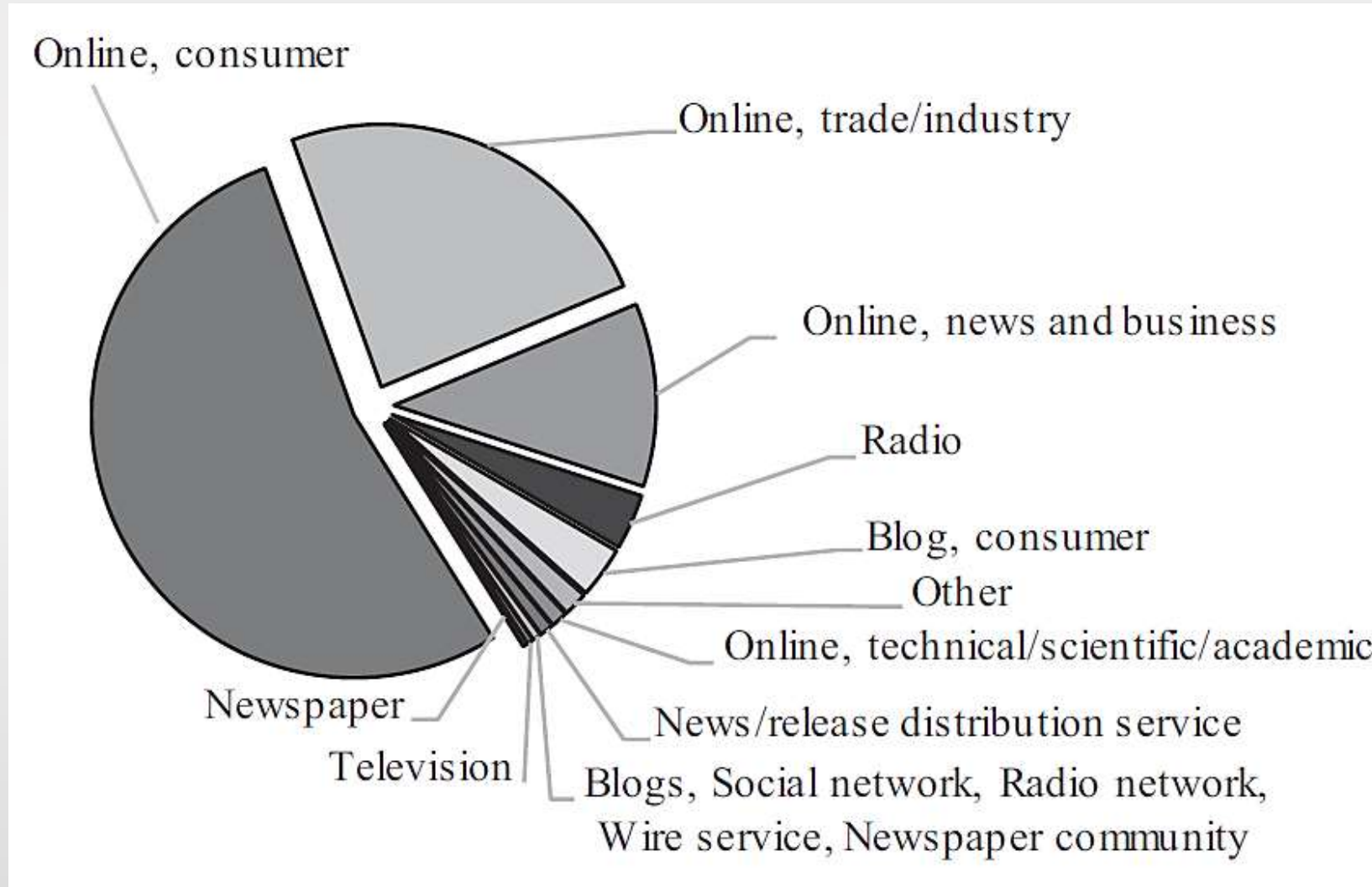
# Cultural impact of CERN: Number of website visitors



# Cultural impact of CERN: Share of benefits by type



# CERN visibility through specified media



# CNAO Case Study

Estimated values of time (per passenger hour)

	Air	Bus	Car, Train
Working time	35.80	20.90	26.00
Nonworking time; short distance	13.81	6.66	9.26
Nonworking time; long distance	17.76	8.55	11.90

Note: 2013 Adjusted values of time (EUR).