NextGen@ICANN Presentations

Group I

14 June 2022

ICANN POLICY FORUM 74

THE HAGUE

Welcome to a rare opportunity to learn about the future of the Internet directly from the next generation of Internet leaders.

Members of the NextGen@ICANN program will be delivering rapid-fire presentations that are 5-10 minutes in length. Each presentation showcases the impressive work being done by members of the program. Thank you for your support!

Tuesday 14 June

Joel Christoph	Country of Residence	Italy
Mirabella Knoben	Country of Residence	Germany
Jan Batzner	Country of Residence	Germany
Nadezhda Arteeva	Country of Residence	France
Liubomir Nikiforov	Country of Residence	Spain

Joel Christoph, Italy

Charting Growth of the Internet in 2022

Charting the Growth of the Internet: The Latest Data as of 2022

Joel Christoph, joelchristoph@outlook.com

PhD Researcher in Economics, European University Institute (EUI)

ICANN74 NextGen, The Hague, June 2022

3 Questions for each of you

1. What % of the population in **low-income** countries **uses the internet**?

2. In **low-income** countries, how many **mobile cellular subscriptions** are there per 100 people?

3. How many **secure internet servers** are there per 1000 people in **North America**?

- "**Low-income**": gross national income (GNI) per capita of $1,045 or less in 2018 calculated using the World Bank Atlas method, i.e. living on average on less than $2.87 (≈ € 2.70) per day.

- "**Use the internet**": used the Internet (from any location) in the last 3 months via a computer, mobile phone, personal digital assistant, games machine, digital TV etc.

- "**Mobile cellular subscriptions**": subscriptions to a public mobile telephone service that provide access to the public-switched telephone network (PSTN) using cellular technology.

- "**North America**": U.S., Canada, and Bermuda are all high-income countries with GNI/capita > $12,695 i.e. ≥ $35/day (World Bank, 2020).

- "**Secure internet servers**": number of distinct, publicly-trusted TLS/SSL certificates using encryption technology in internet transactions.
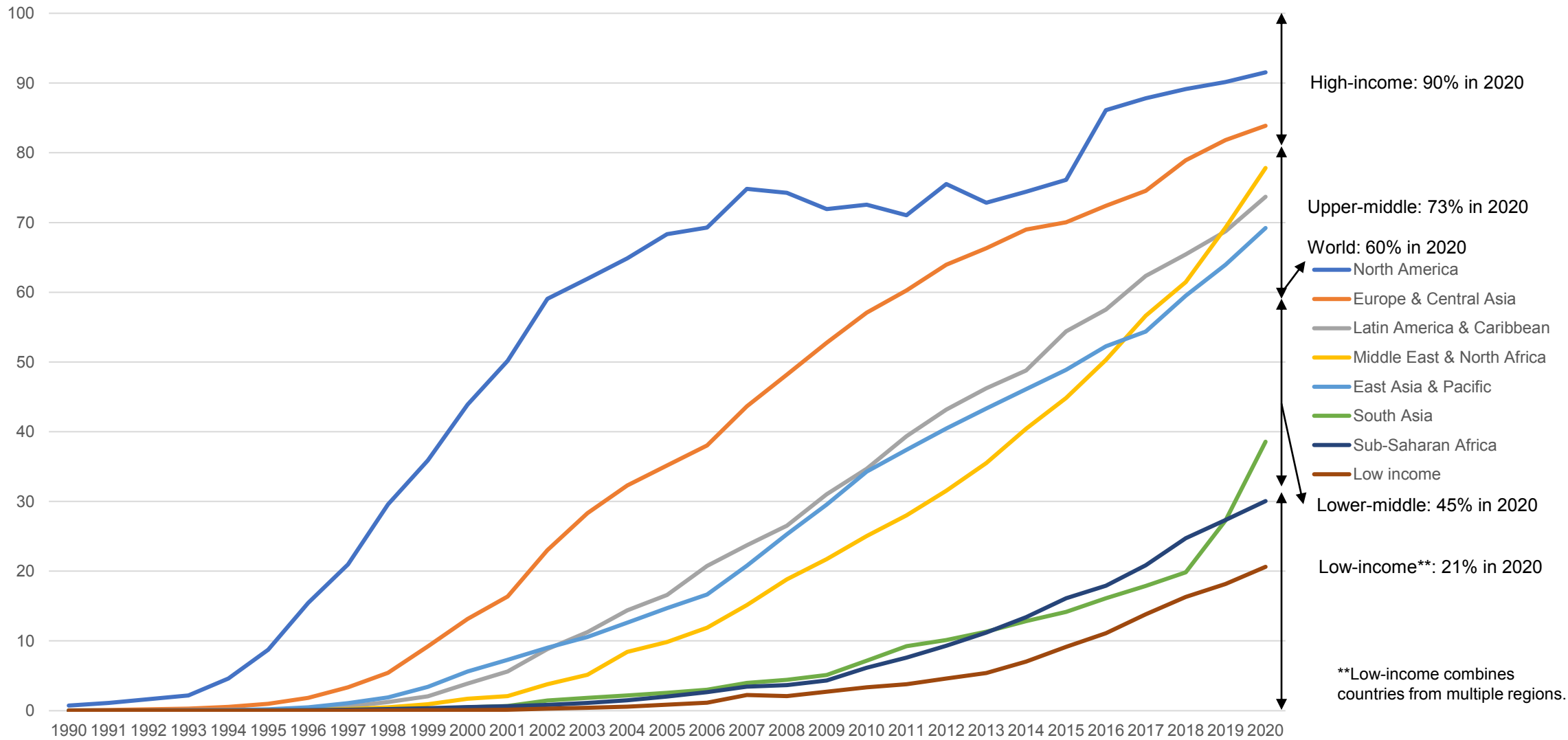
Frequency of "internet", "social media", "email", "facebook" in Google Ngram Viewer's corpus of English texts printed in 1980-2019

internet (All)

social media (All)
email (All)
facebook (All)
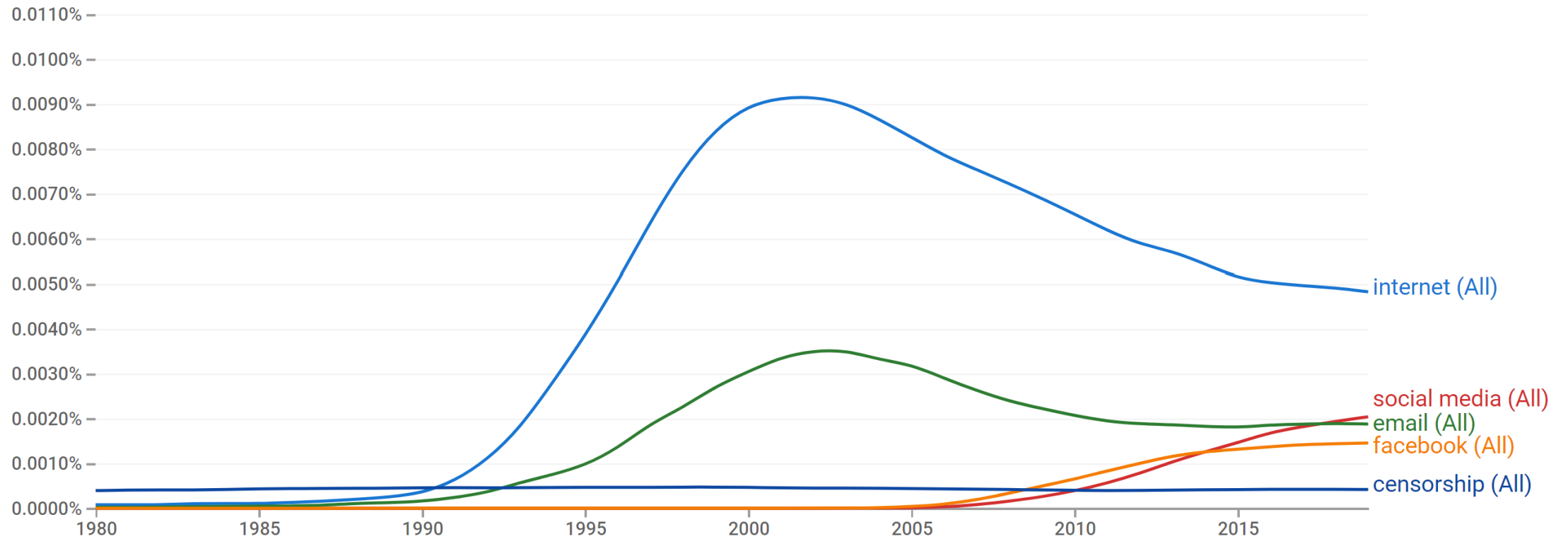
censorship (All)

Google Books Ngram Viewer: internet,social media,email,facebook,censorship from 1980-2019, case-insensitive
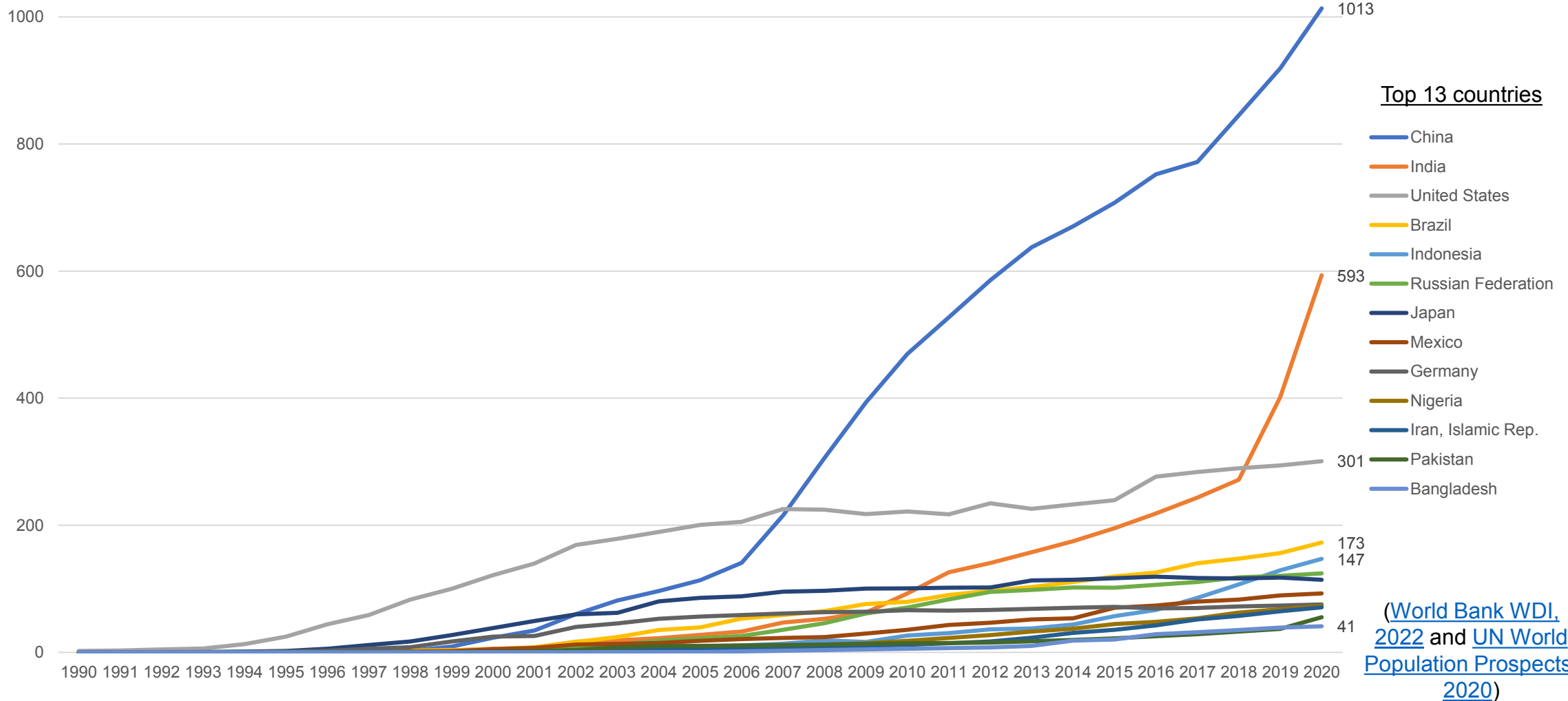
(Google Ngram Viewer, 2022)

Individuals using the Internet* (% of population) by region

High-income: 90% in 2020

Upper-middle: 73% in 2020

World: 60% in 2020

— North America
— Europe & Central Asia
— Latin America & Caribbean
— Middle East & North Africa
— East Asia & Pacific
— South Asia
— Sub-Saharan Africa
— Low income

Lower-middle: 45% in 2020

Low-income**: 21% in 2020

**Low-income combines countries from multiple regions.

*individuals who have used the Internet (from any location) in the last 3 months via a computer, mobile phone, personal digital assistant, games machine, digital TV etc.
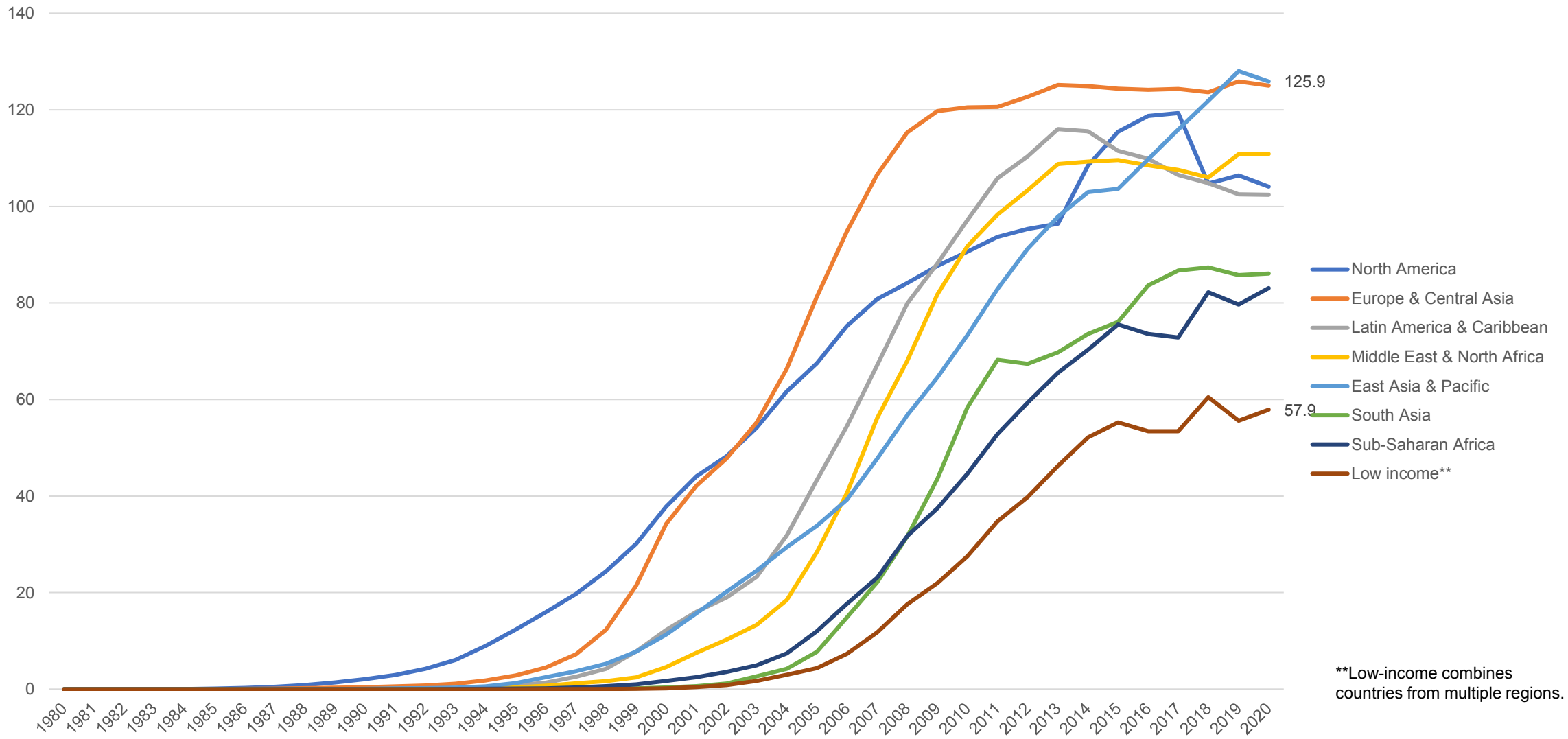
(World Bank WDI, 2022)

Internet users (millions) by country

Top 13 countries

China — 1013
India — 593
United States — 301
Brazil — 173
Indonesia
Russian Federation — 147
Japan
Mexico
Germany
Nigeria
Iran, Islamic Rep.
Pakistan
Bangladesh — 41

(World Bank WDI, 2022 and UN World Population Prospects, 2020)

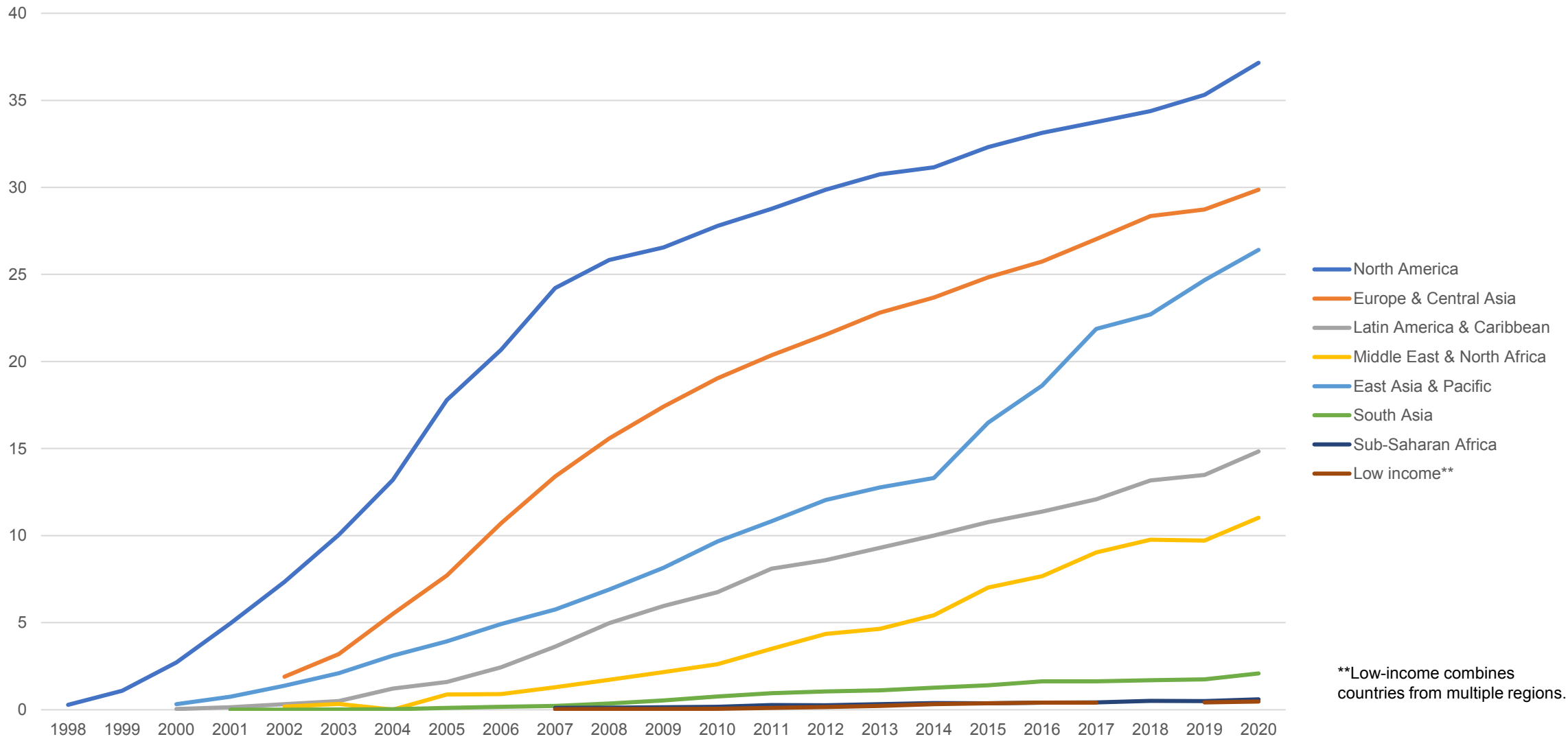Joel Christoph | Charting Internet Growth, 2022

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Mobile cellular subscriptions* (per 100 people)

*subscriptions to a public mobile telephone service that provide access to the PSTN using cellular technology

(World Bank WDI, 2022)

Fixed broadband subscriptions* (per 100 people)

Legend:
- North America
- Europe & Central Asia
- Latin America & Caribbean
- Middle East & North Africa
- East Asia & Pacific
- South Asia
- Sub-Saharan Africa
- Low income**
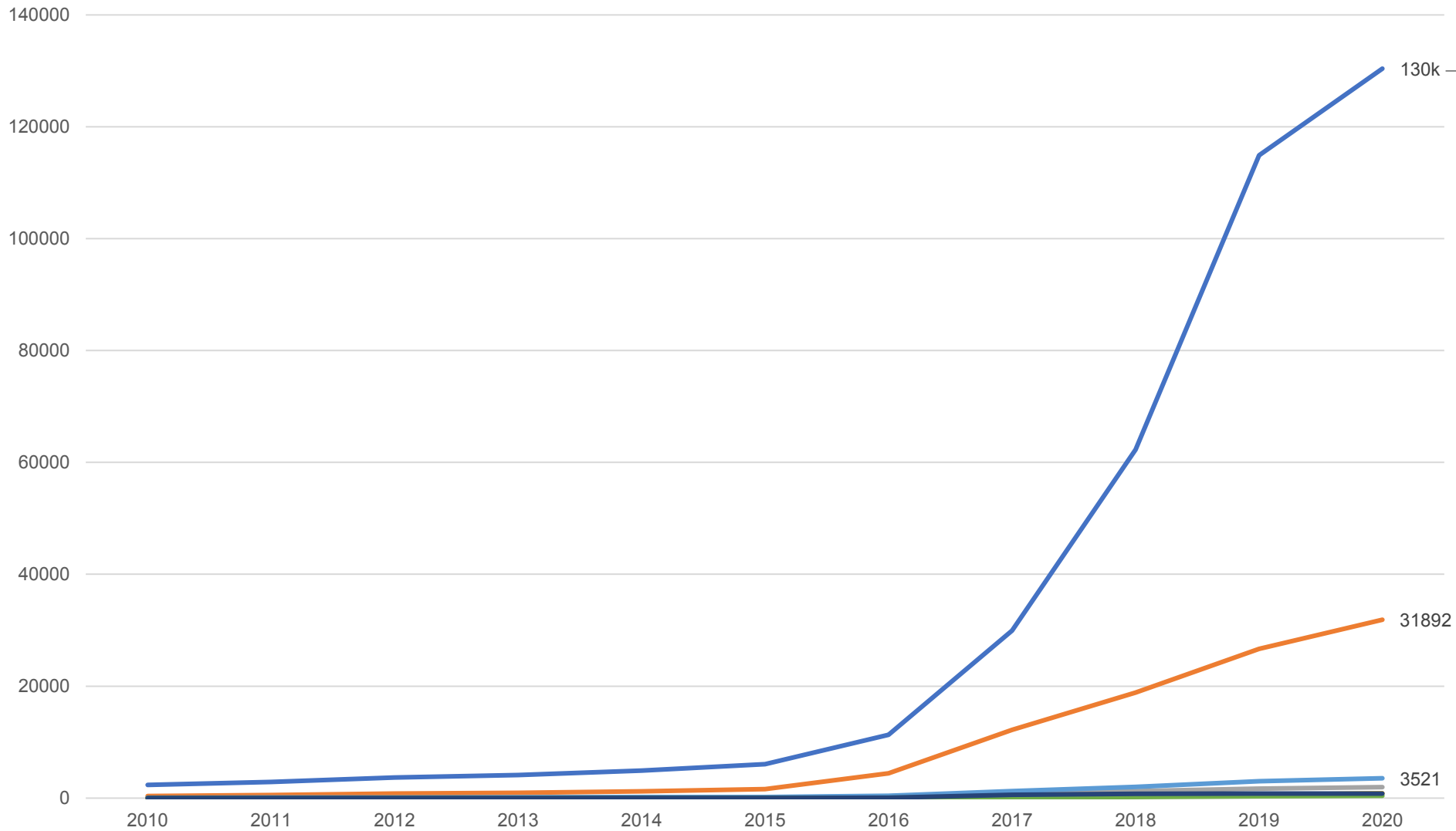
**Low-income combines countries from multiple regions.

*fixed subscriptions to high-speed access to the public Internet (a TCP/IP connection), at downstream speeds equal to, or greater than, 256 kbit/s.

(World Bank WDI, 2022)

Secure Internet Servers* (per 1 million people)

Top 9
1. British Virgin Islands, 741k
2. Denmark, 277k
3. USA, 142k
4. Netherlands, 137k
5. Belize, 131k
6. Singapore, 128k
7. Switzerland, 120k
8. Ireland, 116k
9. Germany, 97k

130k → 13.0395%

— North America
— Europe & Central Asia
— Latin America & Caribbean
— Middle East & North Africa
— East Asia & Pacific
— South Asia
— Sub-Saharan Africa

31892

3521

*number of distinct, publicly-trusted TLS/SSL certificates using encryption technology in internet transaction found in the Netcraft Secure Server Survey.
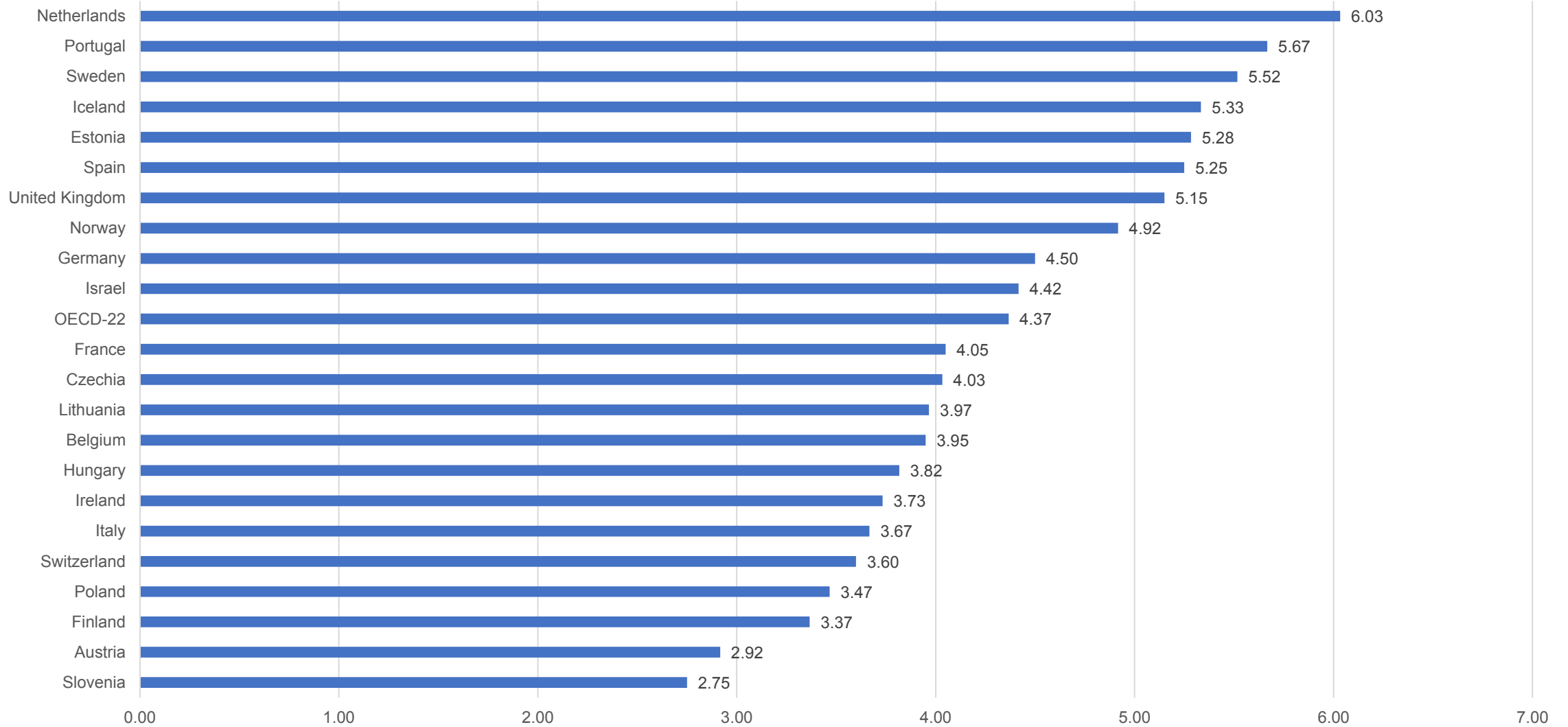
(World Bank WDI, 2022)

Correlation between internet users (as a share of the population) and GDP per capita*, 2020
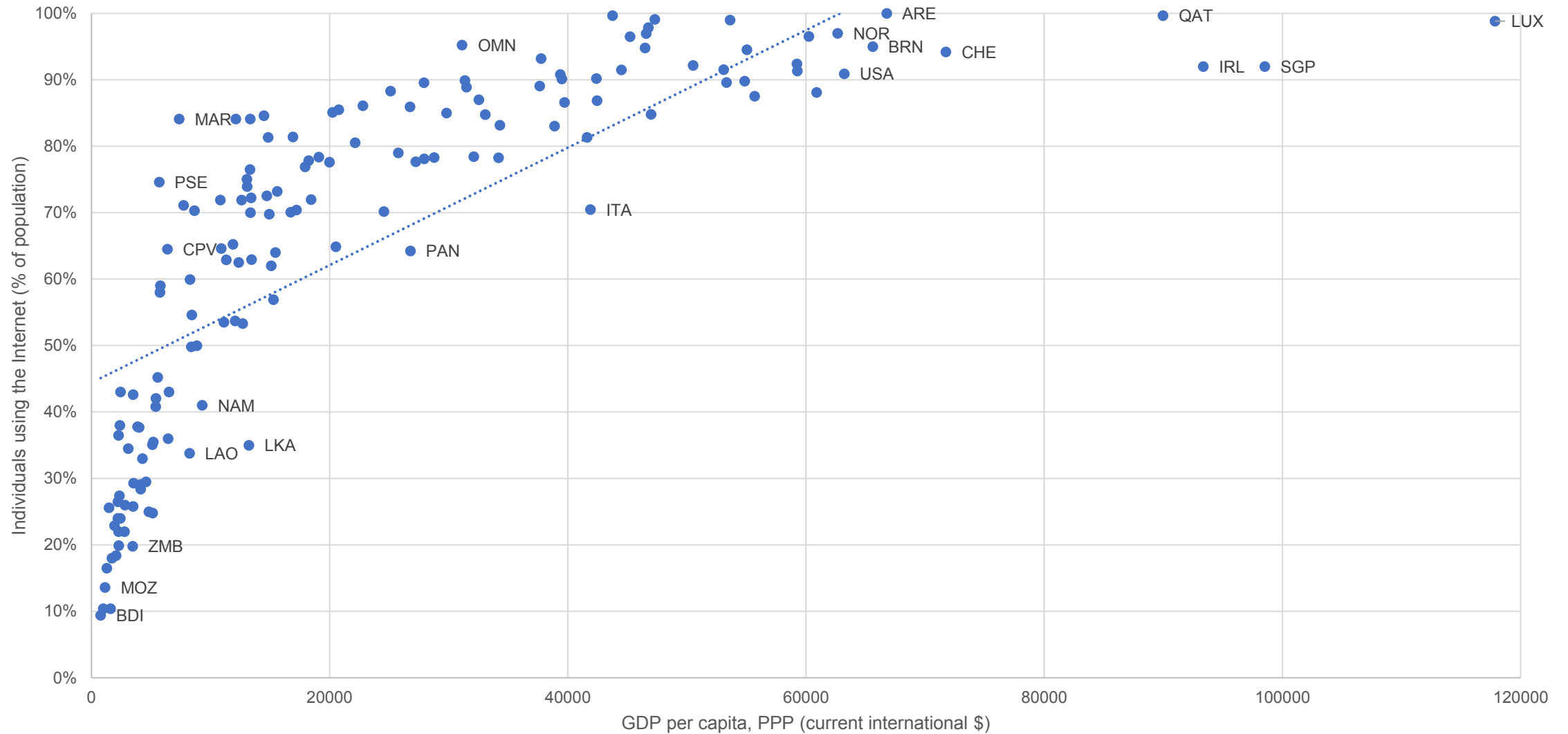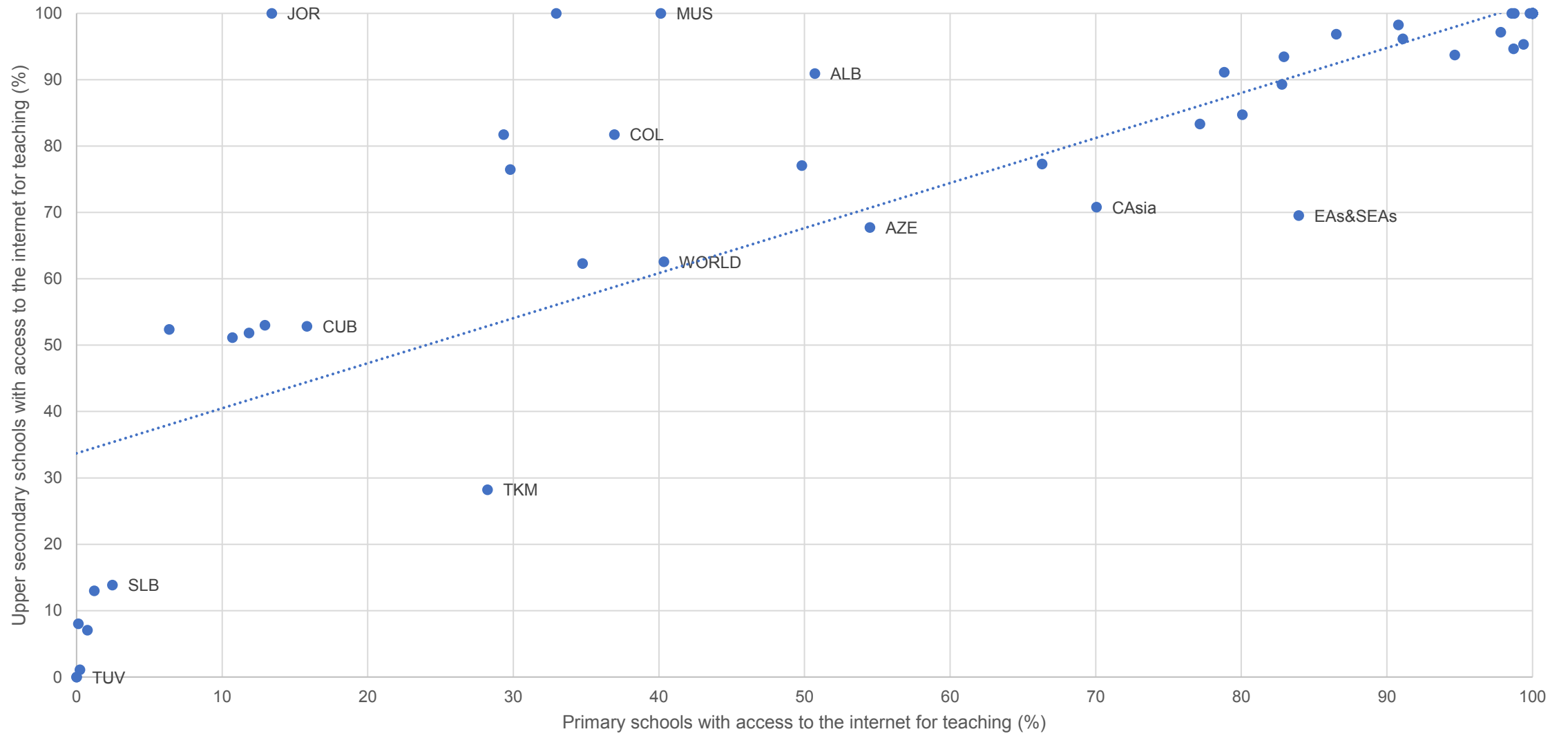
*for 148 countries in the World Bank database without missing data; 68 out of 217 dropped due to missing internet user or GDP per capita data
GDP per capita is adjusted for price differences between countries (PPP-adjusted) and expressed in constant international dollars.

(World Bank WDI, 2022)

Daily time spent on the internet by young people (hours) in 2016

Country	Hours
Netherlands	6.03
Portugal	5.67
Sweden	5.52
Iceland	5.33
Estonia	5.28
Spain	5.25
United Kingdom	5.15
Norway	4.92
Germany	4.50
Israel	4.42
OECD-22	4.37
France	4.05
Czechia	4.03
Lithuania	3.97
Belgium	3.95
Hungary	3.82
Ireland	3.73
Italy	3.67
Switzerland	3.60
Poland	3.47
Finland	3.37
Austria	2.92
Slovenia	2.75

Share of schools with access to the internet for teaching, 2019

Mirabella Knoben, Germany

Regulation of Content Through Algorithms

Regulation of content through algorithms:

What principles are necessary to respect human rights in the digital sphere?
- Art. 29 DSA-E/Recommendation systems

Mirabella Knoben

Digital Services Act

- In order to update the now outdated regulations of the E-Commerce Directive (2000)

- December 2020

- Sets out stricter regulations for social media platforms (among other things)

Recommendation systems in the sense of the DSA

- Art. 2 lit. o) DSA

- Fully or partially automated systems that suggest specific content to the user on the user interface

- Transferable to digital platforms

Possible interference with human rights

- Freedom of information from Art. 11 I 2 GRCh
    - ➤ One-sided reporting
    - ➤ Filter bubble effect

- Freedom of speech from Art. 11 I 1 GRCh
    - ➤ Freedom to form opinions (based on freedom of information)
    - ➤ Freedom of expression

Necessary principles

- Participatory Design
  - ➢ More human participation

- ICANN Multistakeholder Model
  - ➢ Making the voices of all stakeholders heard

Demands in Art. 29 DSA

- Transparency
    - ➤ Disclosure of the most important parameters

- Opt-Out-possibility
    - ➤ Possibility with and without recommendation system
    - ➤ Prevention of encroachment on fundamental rights
    - ➤ Concrete implementation still unclear

Sources

- Seminar paper, „Regulation of content through algorithms: What principles are necessary to respect human rights in the digital sphere? - Art. 29 DSA-E/Recommendation systems"
- ICANNWiki, Multistakeholder Model.
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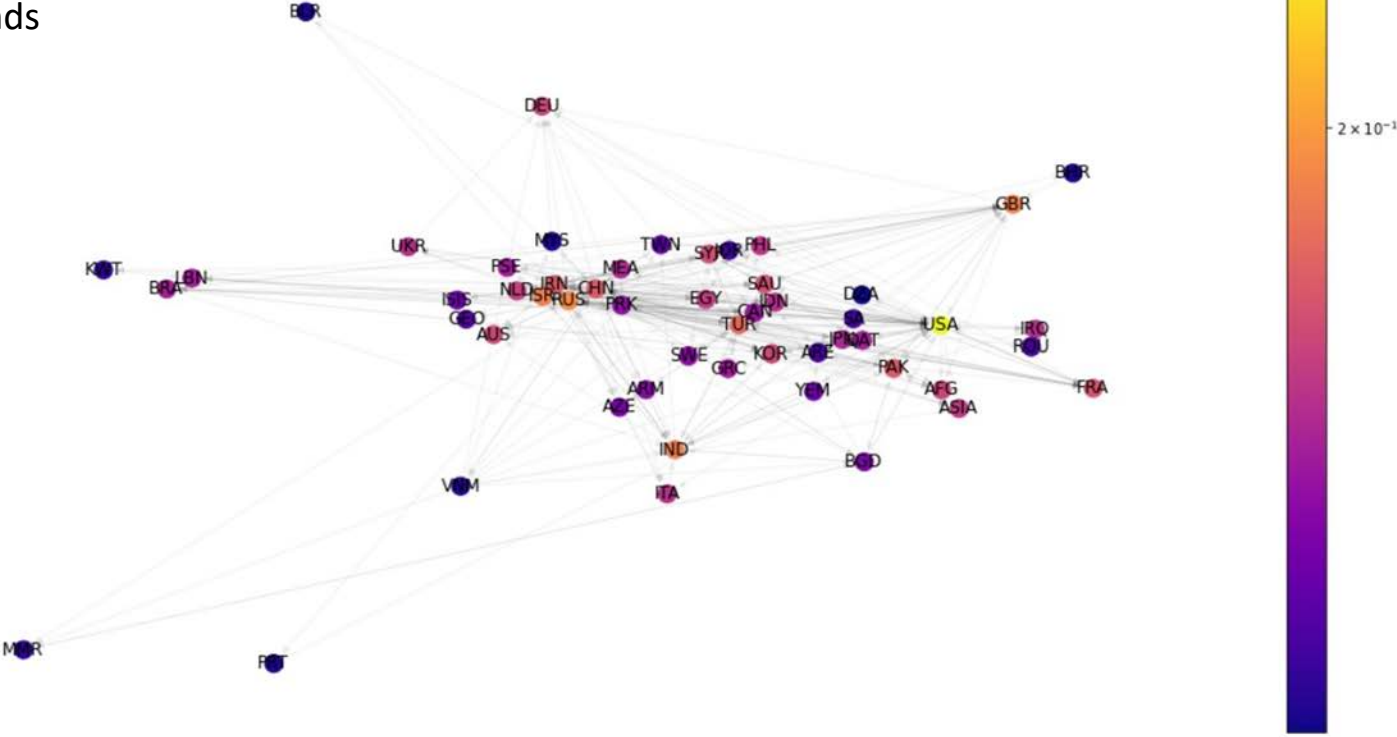
Thank you for listening!

WWU
MÜNSTER

Jan Batzner, Germany

Evaluating Prevalent Designs
of Public Cyber Incident Data Sources

Evaluating prevalent Designs of public Cyber Incident Data Sources

ICANN74 NextGen Presentations
The Hague, Netherlands
14th of June 2022

Overview of selected Cyber Incident Data Sources

Name of Data Collection

ICANN Cybersecurity Incident Log

Dyadic Cyber Incident and Dispute Dataset

Cyber Operations Tracker

Targeted Cyberattacks Logbook

Significant Cyber Incidents

Heidelberg Cyber Conflict Dataset

Publisher

ICANN

Valeriano, B. & Maness, R. C.

Council of Foreign Relations

Kaspersky Lab

Center for Strategic and Int. Studies

Heidelberg University

ICANN Cybersecurity Incident Log



https://www.icann.org/cybersecurityincidentlog

This cybersecurity incident log is part of the ICANN organization's commitment to transparency.

Cybersecurity Incident Log

Announcement Date	Issue or Incident	Status	Related Information
3 June 2022	Atlassian Confluence Server and Data Center Vulnerability	Closed	As we informed you on 3 June, ICANN's Engineering and Information Technology (E&IT) team became aware of a vulnerability affecting Atlassian's Confluence Server and Data Center products on 2 June. This vulnerability affected the ICANN Community

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Comparison of Incident Amounts among Datasets over Time
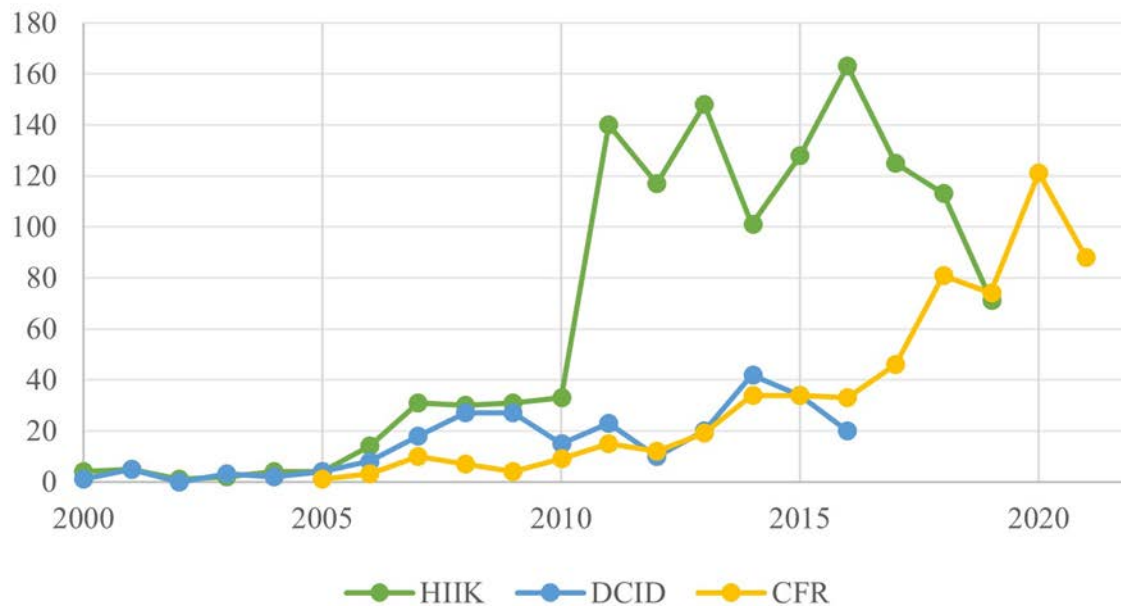
**Graph 1:** The Heidelberg Dataset (HIIK) is the most inclusive incident collection

Reciprocity of countries with the highest conflict degree

Country	Degree	In-Degree	Out-Degree	Reciprocity
China	92	14	78	0.282
USA	80	34	46	0.500
Russia	80	20	60	0.300
Iran	61	12	49	0.360
Turkey	41	15	26	0.439
UK	37	20	17	0.324
North Korea	37	3	34	0.162
India	36	15	21	0.555
Israel	36	17	19	0.388
Pakistan	28	12	16	0.642

Graph 2: Even among the top ten conflicting countries the reciprocity stays low
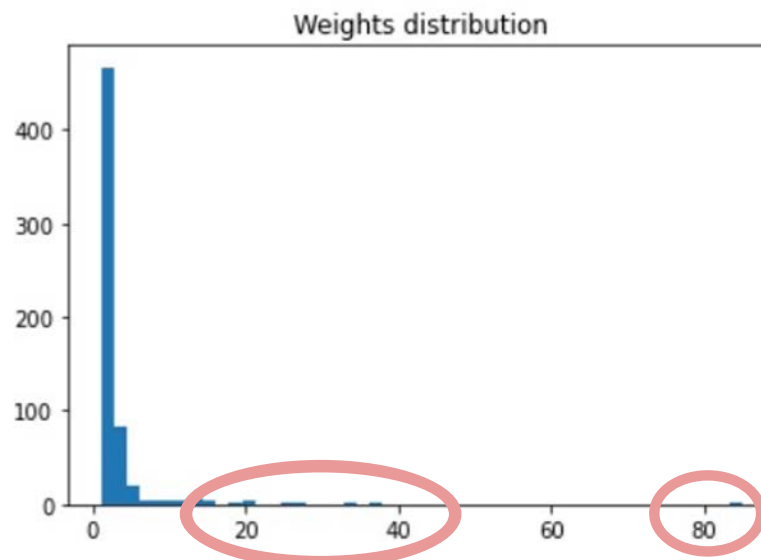
Limitations of traditional political science methodologies
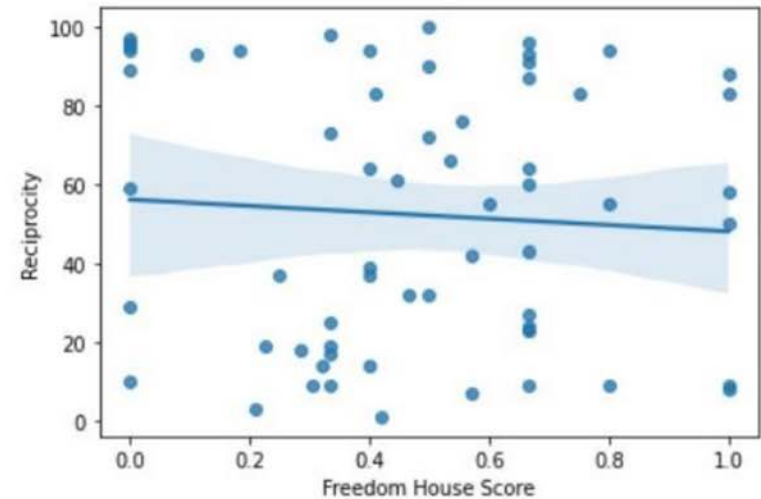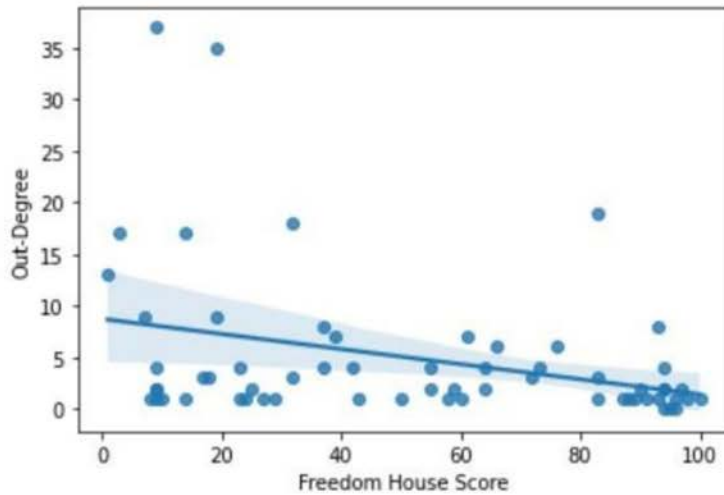
Graphs 3 & 4: No identifiable relationship between regime freedom score and cyber conflict measures

Data: Heidelberg Cyber Conflict Dataset

Small number of relevant conflicting states

Graph 5: Highly unbalanced weights distribution of conflict edges

Data: Heidelberg Cyber Conflict Dataset
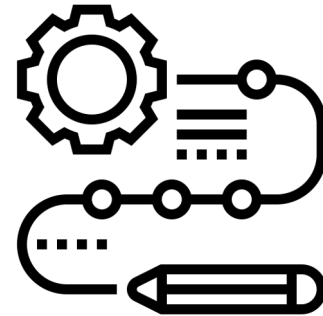
Conclusion and Brief Summary

Transparency

Cooperation

Methodology

Selected References

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between   Rival Antagonists, 2001–11. Journal of Peace Research, 51

(3), 347–360.

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Nadezhda Arteeva, France

DNS Abuse in the EU

**Nadezhda Arteeva,
ICANN@NextGen**

DNS ABUSE IN THE EU

Why is it important and how to tackle it?

WHAT IS DNS ABUSE?

- Difficult to define because "New types of abuse are commonly created, and their frequency waxes and wanes over time." (ICANN Security and Stability Advisory Committee, 2021)
- Recent EU report suggests it "is any activity that makes use of domain names or the DNS protocol to carry out harmful or illegal activity."

THE EVOLUTION OF THE ISSUE

- The contractual provisions governing DNS abuse originally came from policy work done by the ICANN community in 2009 and 2010 through the Registration Abuse Prevention Working Group (RAPWG).
- More than six years ago, in SAC077, the SSAC wrote about ICANN's proposed marketplace health index:
  - "To develop and maintain effective metrics of security and stability of the gTLD ecosystem, ICANN will have to undertake auditing activity, including mandating future disclosure of aspects of registry and registrar operations and behavior, in a form that emphasizes consumer protection over industry norms."
- Not much has been done in the following years, the response has been critiqued, especially during the pandemic (see Krebs, 2020), however, now the issue is one of the top ICANN's agendas.

WHAT LETS DNS ABUSE HAPPEN?

- 2021 study suggests that:
  - Registration contact data is redacted for 57% of all generic Top-level Domain (gTLD) names
  - Only around 11.5% of domains may belong to natural persons who are subject to GDPR
  - 85% of gTLD domain registrants can no longer be identified
- Long lifetime of a DNS abuse report - 32 days (Forsberg, 2022)
- Lack of knowledge about DNS abuse and required actions if encountered

HOW TO TACKLE DNA ABUSE IN THE EU?

- Selecting providers with more validation standards for domain registrations (ex.: customer validation approach)
- Initiate prevention and remediation solutions (ex.: proactive detection of suspicious domain names containing targeted brand keywords)
- Increase adoption of security controls (ex.: registry locks)
- Better standards in top-level domains (TLDs) (ex.: blocking programs — leveraged by the Donuts DPML program)

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Liubomir Nikiforov, Spain

Consent: A Tool to Enhance Trust on the Internet

CONSENT: A TOOL TO ENHANCE TRUST ON THE INTERNET

Liubomir NIKIFOROV

NEXTGEN@ICANN74

ICANN Policy Forum
June 13-16, 2022
The Hague

About the speaker

Liubomir Nikiforov, **PhD** **student,** **University** **of** **Barcelona**

Focus **on** **consent,** **transparency** **and** **Internet** **governance**

I like long walks, longer talks and amateur theater.

ICANN

INTRODUCTION

Presentation aims: outline findings on Registry-Registrar Base Agreements.
Lack of definition of consent.

Consequence: transparency challenges and credibility risks for ICANN and its stakeholders.

Solutions?

CURRENT STATE

Registry-Registrar Agreements: contractual procedure for registration of a generic top-level domain name.

Registrar, Registrant, Registry operator

Art. 2 (18): only article on Personal Data

Definition of personal data, notification requirement for the data purposes as well as data recipients' identification, and consent.

ART. 2.(18) BASE RRA

2.18 Personal Data.

Registry Operator shall (i) notify each ICANN-accredited registrar that is a party to the Registry-Registrar Agreement for the TLD of the purposes for which data about any identified or identifiable natural person ("Personal Data") submitted to Registry Operator by such registrar is collected and used under this Agreement or otherwise and the intended recipients (or categories of recipients) of such Personal Data, and (ii) require such registrar to obtain the consent of each registrant in the TLD for such collection and use of Personal Data. Registry Operator shall take reasonable steps to protect Personal Data collected from such registrar from loss, misuse, unauthorized disclosure, alteration or destruction. Registry Operator shall not use or authorize the use of Personal Data in a way that is incompatible with the notice provided to registrars.

ICANN

- Art. 2 (18) Registry Operators have to require from Registrars "to obtain the consent of each Registrant in the Top-Level Domain"

- Lack of validity requirements for consent such as *specific, free, informed, and*

IMPORTANCE OF THE TOPIC

- Data-driven algorithmic world
- Data and information, new gold
- Need to ensure trust, credibility and reliability

Benefits:
- Openess and transparency,
- improved Data protection,
- reduced litigation cases,
- improved reputation and
- competitive advantage for stakeholders.

SOLUTIONS

- **Revision of the Registry-Registrar Base Agreements' Personal Data clause.**
- **More complex Data Protection mechanism.**
- **Lighter and clearer clauses**

Specifically on consent:
- **identify data processing cases where consent is needed,**
- **provisions on how and when consent should be given,**
- **specific requirements for a valid consent.**

THANK YOU!

Questions

Liubomir Nikiforov

lnikifni7@alumnes.ub.edu

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