

Evolução e Desafios Futuros do Ciberespaço

Arnaut Moreira

<https://www.itworldcanada.com>

A Importância da Infraestrutura Física

Ukraine is furious with Elon Musk for thwarting an attack on Russia's navy

The tech billionaire said Thursday that he had told his engineers not to turn on the Starlink satellite network over Crimea to prevent a planned attack on the Black Sea fleet last year.



Agenda

1. A Evolução do Ciberespaço
2. Visões e Actores
3. Estratégias de Poder
4. Desafios Futuros

Agenda

- 1. A Evolução do Ciberespaço**
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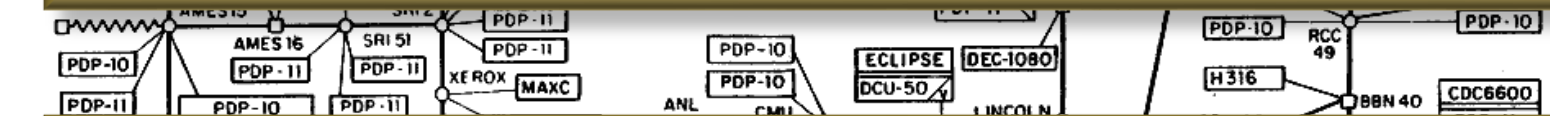
Agenda

CIBERESPAÇO

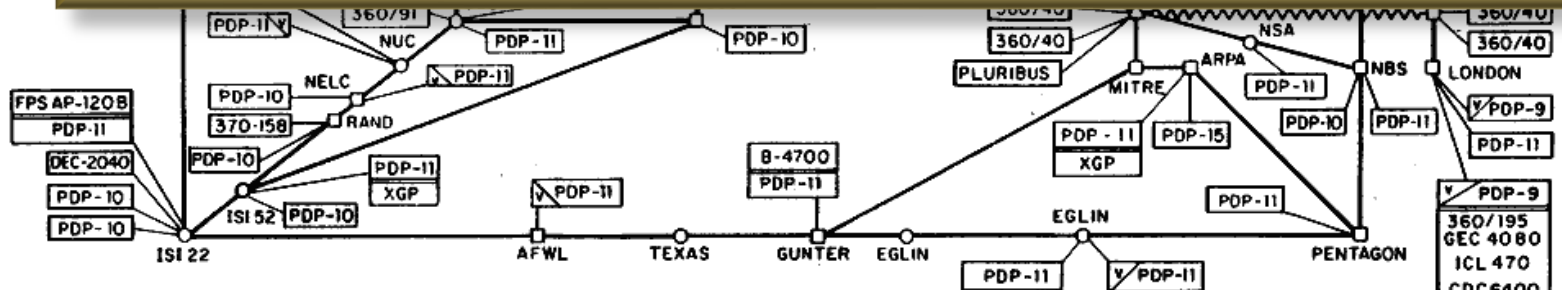
Conjunto de Actores e de Sistemas Físicos e Aplicacionais que permite a conexão em rede a uma escala global.

Evolução da ARPANET

1969 – A ARPA (Advanced Research and Projects Agency) cria a ARPANET para fins militares

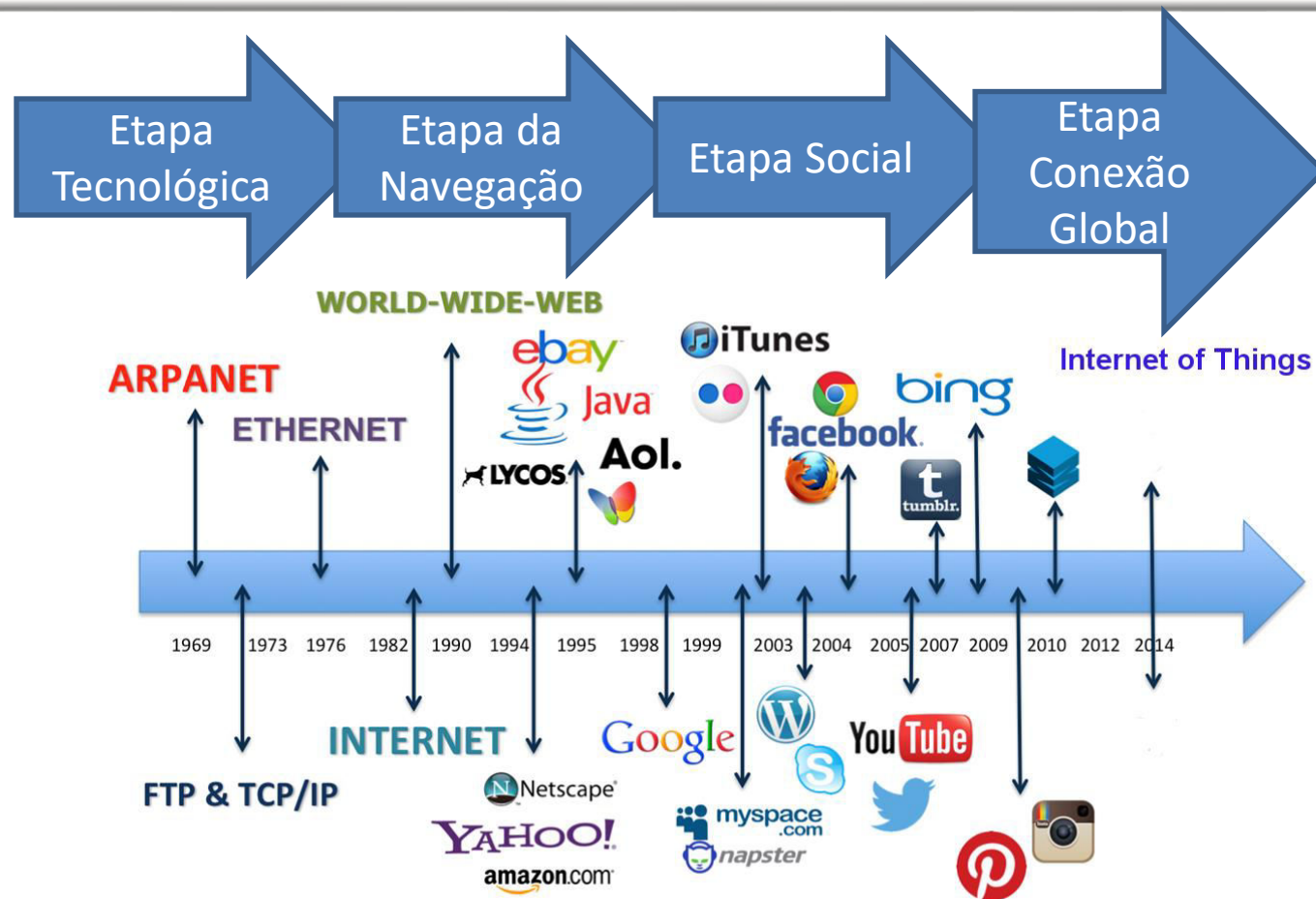


Objectivo: Ligar bases militares a centros de investigação através de uma rede com múltiplas conexões e sem um centro de controlo definido. Estamos na Guerra Fria



Anos 80 – A ARPA dá origem à MILNET (para fins militares) e à INTERNET (para finalidades civis)

A evolução da Internet em 4 etapas



Um Planeta (quase) todo Digital

JAN
2023

ESSENTIAL DIGITAL HEADLINES

OVERVIEW OF THE ADOPTION AND USE OF CONNECTED DEVICES AND SERVICES



TOTAL
POPULATION



we
are
social

8.01
BILLION

URBANISATION

57.2%

UNIQUE MOBILE
PHONE USERS



Meltwater

5.44
BILLION

vs. POPULATION

68.0%

INTERNET
USERS



KEPIOS

5.16
BILLION

vs. POPULATION

64.4%

ACTIVE SOCIAL
MEDIA USERS



4.76
BILLION

vs. POPULATION

59.4%

10

SOURCES: UNITED NATIONS; GOVERNMENT BODIES; GSMA INTELLIGENCE; ITU; WORLD BANK; EUROSTAT; CNNIC; APJII; IAMA & KANTAR; CIA WORLD FACTBOOK; COMPANY ADVERTISING RESOURCES AND EARNINGS REPORTS; OCDH; BETA RESEARCH CENTER; KEPIOS ANALYSIS. **ADVISORY:** SOCIAL MEDIA USERS MAY NOT REPRESENT UNIQUE INDIVIDUALS. **COMPARABILITY:** SIGNIFICANT REVISIONS TO SOURCE DATA, INCLUDING COMPREHENSIVE REVISIONS TO POPULATION DATA. FIGURES ARE NOT COMPARABLE WITH PREVIOUS REPORTS. ALL FIGURES USE THE LATEST AVAILABLE DATA, BUT SOME SOURCE DATA MAY NOT HAVE BEEN UPDATED IN THE PAST YEAR. SEE **NOTES ON DATA** FOR FULL DETAILS.

we
are
social

Meltwater

<https://datareportal.com/reports/digital-2023-global-overview-report>

Mobile Phones lideram o acesso

JAN
2023

OVERVIEW OF INTERNET USE

ESSENTIAL INDICATORS OF INTERNET ADOPTION AND USE



TOTAL
INTERNET
USERS



5.16
BILLION



INTERNET USERS AS
A PERCENTAGE OF
TOTAL POPULATION



64.4%
YOY: +1.1% (+70 BPS)



YEAR-ON-YEAR CHANGE
IN THE TOTAL NUMBER
OF INTERNET USERS



+1.9%
+98 MILLION



PERCENTAGE OF THE
TOTAL FEMALE POPULATION
THAT USES THE INTERNET



61.6%
YOY: +1.4% (+87 BPS)



PERCENTAGE OF THE
TOTAL MALE POPULATION
THAT USES THE INTERNET



67.2%
YOY: +0.8% (+53 BPS)

AVERAGE DAILY TIME
SPENT USING THE INTERNET
BY EACH INTERNET USER



6H 37M
YOY: -4.8% (-20M)



PERCENTAGE OF USERS
ACCESSING THE INTERNET
VIA MOBILE DEVICES



92.3%
YOY: +0.2% (+20 BPS)



PERCENTAGE OF USERS
ACCESSING THE INTERNET
VIA COMPUTERS AND TABLETS



65.6%
YOY: -7.9% (-560 BPS)



PERCENTAGE OF THE
TOTAL URBAN POPULATION
THAT USES THE INTERNET



78.3%



PERCENTAGE OF THE
TOTAL RURAL POPULATION
THAT USES THE INTERNET



45.8%

28

SOURCES: KEPIOS ANALYSIS; ITU; GSMA INTELLIGENCE; EUROSTAT; WORLD BANK; GOOGLE'S ADVERTISING RESOURCES; CIA 'WORLD FACTBOOK'; CNNIC; APJII; KANTAR & IAMAI; LOCAL GOVERNMENT AUTHORITIES; UNITED NATIONS. TIME SPENT AND MOBILE SHARE DATA FROM GWI (Q3 2022). SEE [GWI.COM](https://www.gwi.com) FOR MORE DETAILS. **NOTES:** GENDER DATA ARE ONLY AVAILABLE FOR "FEMALE" AND "MALE". PERCENTAGE CHANGE FIGURES IN THE BOTTOM ROWS OF DATA SHOW RELATIVE YEAR-ON-YEAR CHANGE. "BPS" FIGURES REPRESENT BASIS POINTS, AND SHOW ABSOLUTE YEAR-ON-YEAR CHANGE. **COMPARABILITY:** SOURCE AND BASE CHANGES. ALL FIGURES USE THE LATEST AVAILABLE DATA, BUT SOME SOURCE DATA MAY NOT HAVE BEEN UPDATED IN THE PAST YEAR. SEE [NOTES ON DATA](#) FOR DETAILS.

we
are
social

Meltwater

<https://datareportal.com/reports/digital-2023-global-overview-report>

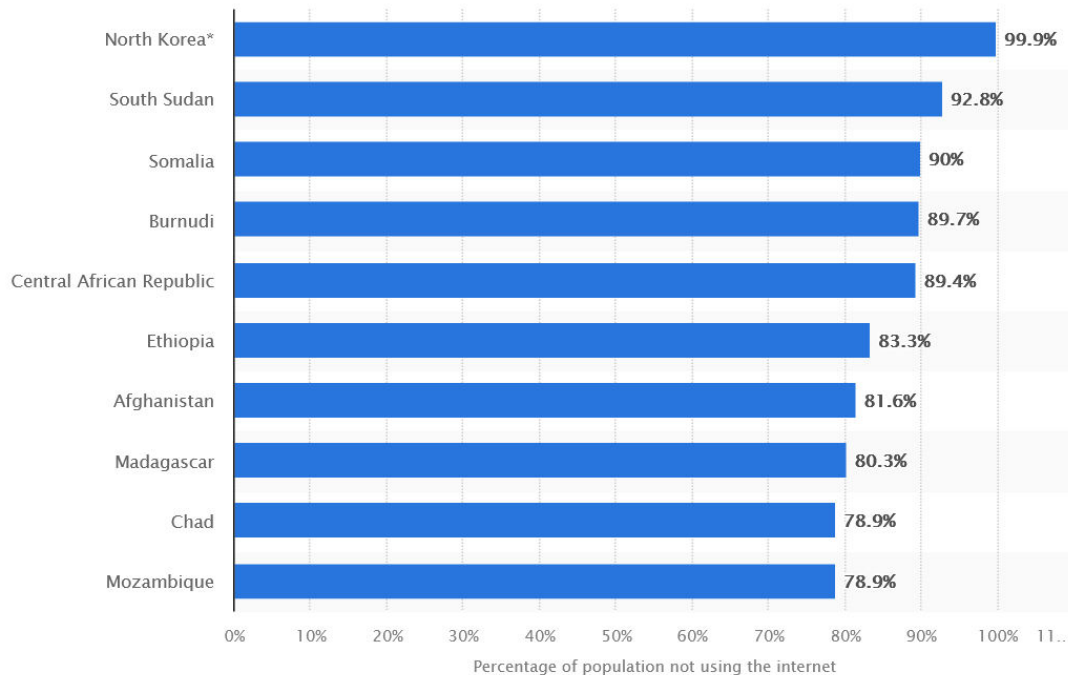
A Revolução do 5 G



- 4G accommodate a few thousand IoT devices per square mile,
- 5G will provide connectivity for millions of devices per square mile.
- 4G networks have latency rates between 50-100 milliseconds,
- 5G would reduce that to just 1-4 milliseconds, a crucial difference when it comes to systems that need instantaneous reaction, such as autonomous vehicles and remote surgery.

Desigualdades no acesso à Internet

Countries with the lowest internet penetration rate as of April 2023



Existe claramente
um problema em
África

[Additional Information](#)

© Statista 2023

[Show source](#)

Supplementary notes

*As of January 2023, the internet remains blocked

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4. Desafios futuros

A Visão Utópica do Ciberespaço

CIBERESPAÇO

Espaço virtual de liberdade, onde o Internauta pode obter, trocar e ceder conhecimento

A Visão Distópica do Ciberespaço




CIBERESPAÇO

Espaço virtual de afirmação e confrontação de poderes políticos, económicos, sociais e militares e de ocultação de actividades ilícitas e de crime organizado.



Actores do Ciberespaço

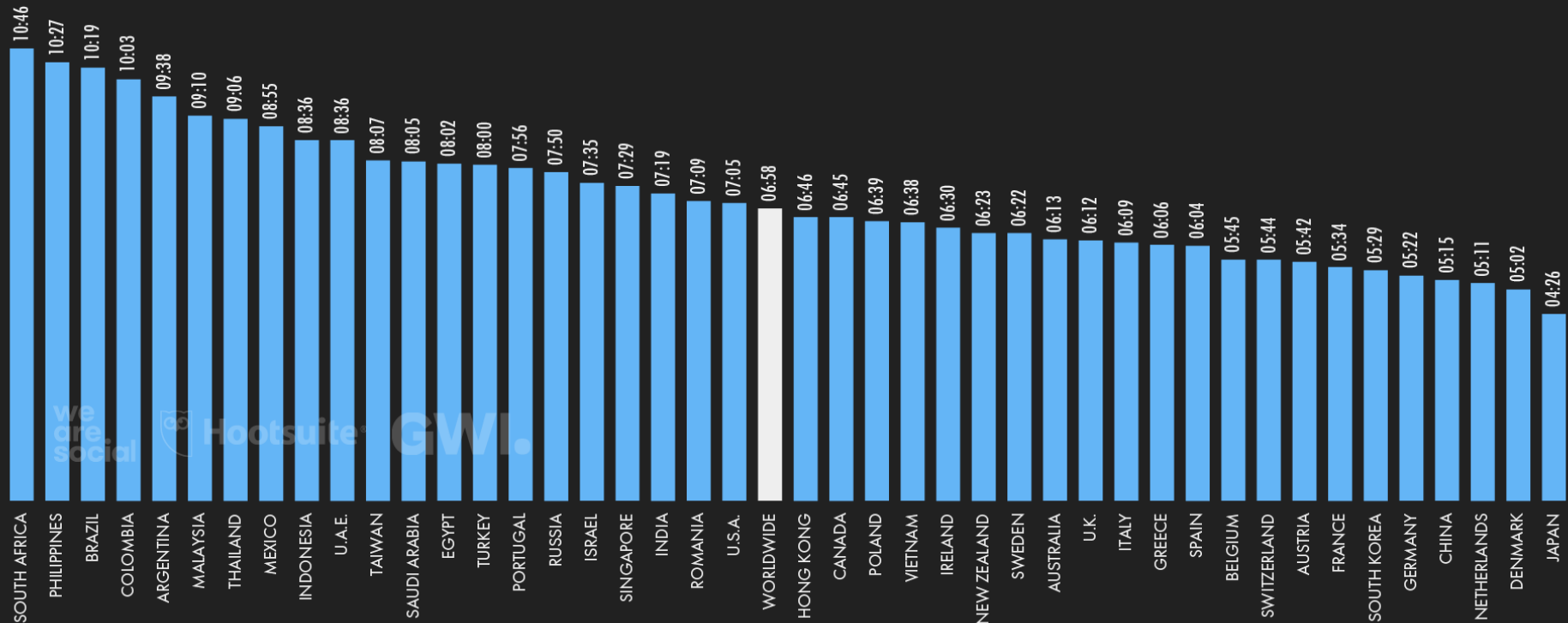
- 
- a. Os internautas
 - b. As empresas
 - c. As instituições
 - d. Os serviços de informações
 - e. As forças armadas
 - f. Os activismos
 - g. Os hackers
 - h. O crime organizado
 - i. As forças geoestratégicas

Utilização Média por Dia : 6H 58 M

JAN
2022

DAILY TIME SPENT USING THE INTERNET

AVERAGE AMOUNT OF TIME (IN HOURS AND MINUTES) THAT INTERNET USERS AGED 16 TO 64 SPEND USING THE INTERNET EACH DAY ON ANY DEVICE



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A INTERNET Não Pertence a Ninguém

WHO RUNS THE INTERNET?

NO ONE PERSON, COMPANY, ORGANIZATION OR GOVERNMENT RUNS THE INTERNET.

The Internet itself is a globally distributed computer network comprised of many voluntarily interconnected autonomous networks. Similarly, its governance is conducted by a decentralized and international multi-stakeholder network of interconnected autonomous groups drawing from civil society, the private sector, governments, the academic and research communities, and national and international organizations. They work cooperatively from their respective roles to create shared policies and standards that maintain the Internet's global interoperability for the public good.

WHO IS INVOLVED:

IAB **A C P S R**

INTERNET ARCHITECTURE BOARD
Oversees the technical and engineering development of the IETF and IRTF.
www.iab.org

ICANN **C O P V**

INTERNET CORPORATION FOR ASSIGNED NAMES AND NUMBERS
Coordinates the Internet's systems of unique identifiers: IP addresses, Protocol-Parameter registries, top-level domain space (DNS root zone).
www.icann.org

IETF **C P S**

INTERNET ENGINEERING TASK FORCE
Develops and promotes a wide range of Internet standards dealing in particular with standards of the Internet protocol suite. Their technical documents influence the way people design, use, and manage the Internet.
www.ietf.org

IGF **A C P**

INTERNET GOVERNANCE FORUM
A multi-stakeholder open forum for debate on issues related to internet governance.
www.intgovforum.org

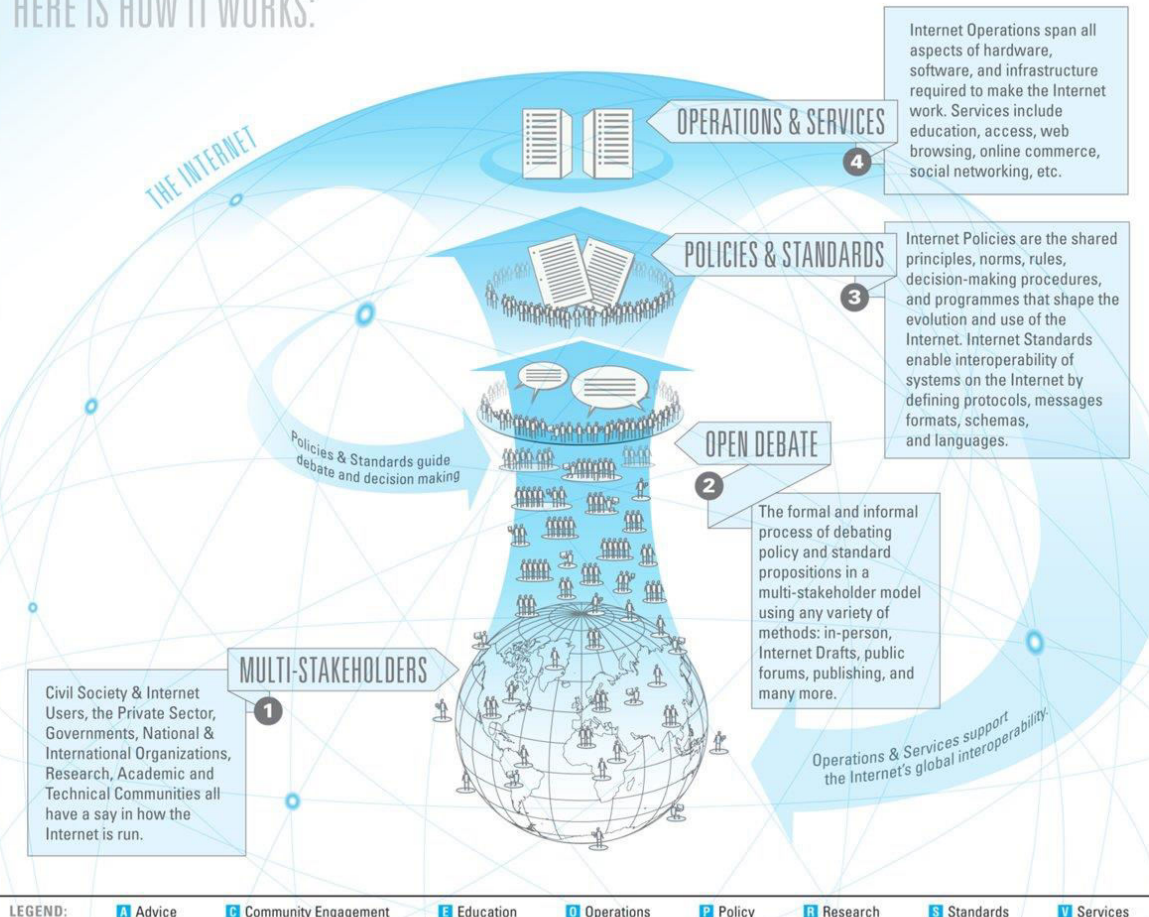
IRTF **R**

INTERNET RESEARCH TASK FORCE
Promotes research of the evolution of the Internet by creating focused, long-term research groups working on topics related to Internet protocols, applications, architecture and technology.
www.irtf.org

GOVERNMENTS AND INTER-GOVERNMENTAL ORGANIZATIONS **C P**

Develop laws, regulations and policies applicable to the Internet within their jurisdictions; participants in multilateral and multi-stakeholder regional and international fora on Internet Governance.

HERE IS HOW IT WORKS:



LEGEND: **A** Advice **C** Community Engagement **E** Education **O** Operations **P** Policy **R** Research **S** Standards **V** Services

WHO IS INVOLVED:

ISO 3166 MA **S**

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION, MAINTENANCE AGENCY
Defines names and postal codes of countries, dependent territories, special areas of geographic significance.
www.iso.org/iso/country_codes.htm

ISOC **C E P V**

INTERNET SOCIETY
Assure the open development, evolution and use of the Internet for the benefit of all people throughout the world. Currently ISOC has over 90 chapters in around 80 countries.
www.internetsociety.org

RIRs **O P V**

5 REGIONAL INTERNET REGISTRIES
Manage the allocation and registration of Internet number resources, such as IP addresses, within geographic regions of the world.

www.afrinic.net Africa
www.apnic.net Asia Pacific
www.arin.net Canada & United States
www.lacnic.net Latin America & Caribbean
www.ripe.net Europe, the Middle East & parts of Central Asia

W3C **S**

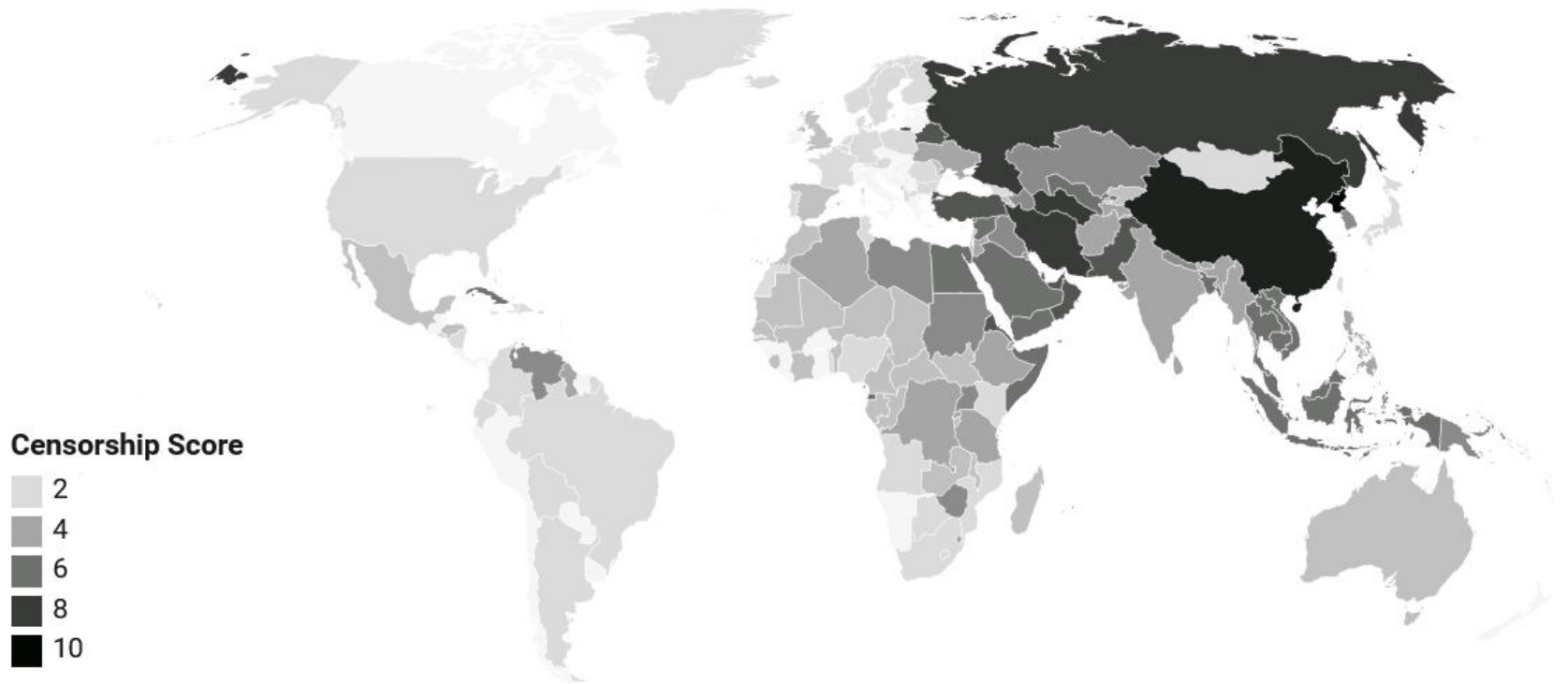
WORLD WIDE WEB CONSORTIUM
Create standards for the world wide web that enable an Open Web Platform, for example, by focusing on issues of accessibility, internationalization, and mobile web solutions.
www.w3.org

INTERNET NETWORK OPERATORS' GROUPS **A O V**

Discuss and influence matters related to Internet operations and regulation within informal fora made up of Internet Service Providers (ISPs), Internet Exchange Points (IXPs) and others.

A Censura no Ciberespaço

Countries with the Worst Online Censorship in the World



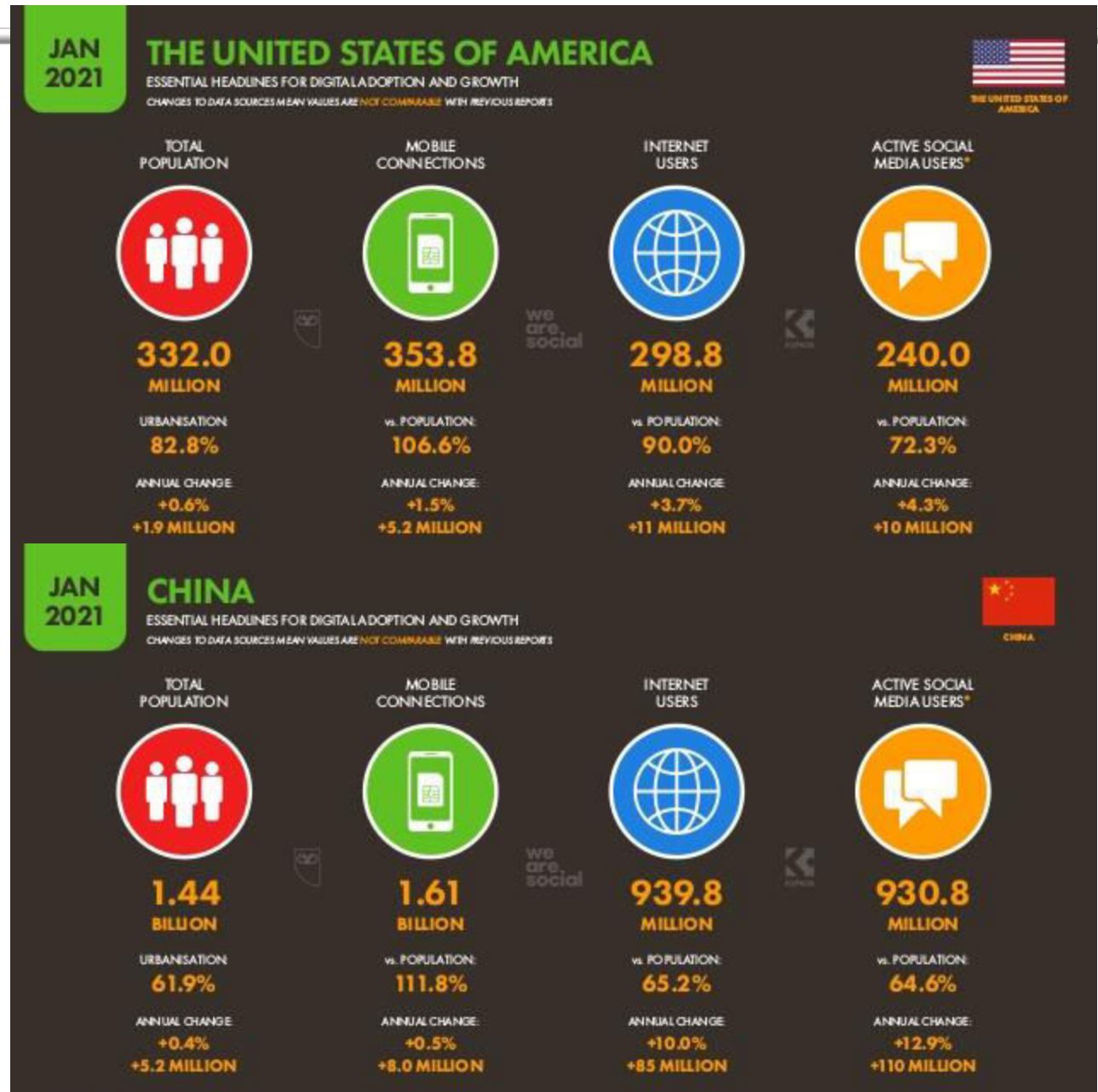
Map: Comparitech • [Get the data](#) • Created with [Datawrapper](#)

<https://www.comparitech.com/blog/vpn-privacy/internet-censorship-map/>

USA vs CHINA na Internet





Arnaut Moreira



























Os EUA e o Ciberespaço

Largest Companies by Market Cap

companies: **7,973** total market cap: **\$88.960 T**  

Rank by **Market Cap** Earnings Revenue Employees P/E ratio Dividend % Market Cap gain More +

Rank	Name	Market Cap	Price	Today	Price (30 days)	Country
1	 Apple AAPL	\$2.796 T	\$178.85	▼ 1.03%		 USA
2	 Microsoft MSFT	\$2.434 T	\$327.73	▼ 1.04%		 USA
3	 Saudi Aramco 2222.SR	\$2.174 T	\$8.99	▲ 0.45%		 S. Arabia
4	 Alphabet (Google) GOOG	\$1.738 T	\$138.58	▼ 1.22%		 USA
5	 Amazon AMZN	\$1.339 T	\$129.79	▼ 1.92%		 USA
6	 NVIDIA NVDA	\$1.122 T	\$454.61	▼ 3.16%		 USA
7	 Meta Platforms (Facebook) META	\$809.74 B	\$314.69	▼ 2.92%		 USA
8	 Tesla TSLA	\$797.05 B	\$251.12	▼ 2.99%		 USA

CHINA: The Great Firewall

Deng Xiaoping in the early 1980s, "If you open the window, both fresh air and flies will be blown in"

Censura de Conteúdos

Bloqueio selectivo de Websites

Retarda tráfico internacional

GLOBAL CHINA vs HONG KONG CHINA

JAN
2021

CHINA

ESSENTIAL HEADLINES FOR DIGITAL ADOPTION AND GROWTH
CHANGES TO DATA SOURCES MEAN VALUES ARE **NOT COMPARABLE** WITH PREVIOUS REPORTS



TOTAL
POPULATION



1.44
BILLION

URBANISATION
61.9%

ANNUAL CHANGE
+0.4%
+5.2 MILLION

MOBILE
CONNECTIONS



1.61
BILLION

vs. POPULATION:
111.8%

ANNUAL CHANGE:
+0.5%
+8.0 MILLION

INTERNET
USERS



939.8
MILLION

vs. POPULATION:
65.2%

ANNUAL CHANGE
+10.0%
+85 MILLION

ACTIVE SOCIAL
MEDIA USERS*



930.8
MILLION

vs. POPULATION:
64.6%

ANNUAL CHANGE:
+12.9%
+110 MILLION

JAN
2021

HONG KONG

ESSENTIAL HEADLINES FOR DIGITAL ADOPTION AND GROWTH
CHANGES TO DATA SOURCES MEAN VALUES ARE **NOT COMPARABLE** WITH PREVIOUS REPORTS



TOTAL
POPULATION



7.52
MILLION

URBANISATION
100.0%

ANNUAL CHANGE
+0.8%
+58 THOUSAND

MOBILE
CONNECTIONS



13.80
MILLION

vs. POPULATION:
183.4%

ANNUAL CHANGE:
-2.2%
-306 THOUSAND

INTERNET
USERS



6.92
MILLION

vs. POPULATION:
92.0%

ANNUAL CHANGE
+1.9%
+128 THOUSAND

ACTIVE SOCIAL
MEDIA USERS*



6.44
MILLION

vs. POPULATION:
85.6%

ANNUAL CHANGE:
+1.7%
+110 THOUSAND

China: Perfis financeiros, sociais e morais

Perfis Financeiros

Este sistema também existe no sistema bancário ocidental.

A pessoa é de confiança para receber um crédito?

Na China existe uma Lista Negra online de pessoas não confiáveis

Sistemas de Crédito Social (consoante as cidades)

Atravessa a rua fora da passadeira?

Não vai visitar os seus pais idosos?

Ouve música muito alto?

Não recicla adequadamente ?

Castigos:

Humilhação pública em outdoors electrónicos

Não aceitação de reservas em restaurantes e hotéis

Proibição de andar de avião ou em comboios rápidos

A Formatação no Ciberespaço

The Moscow Times
INDEPENDENT NEWS FROM RUSSIA

≡ NEWS OPINION BUSINESS MEANWHILE ARTS AND LIFE PODCASTS VIDEOS IN-DEPTH

Russia Plans Its Own Version of Wikipedia by 2023

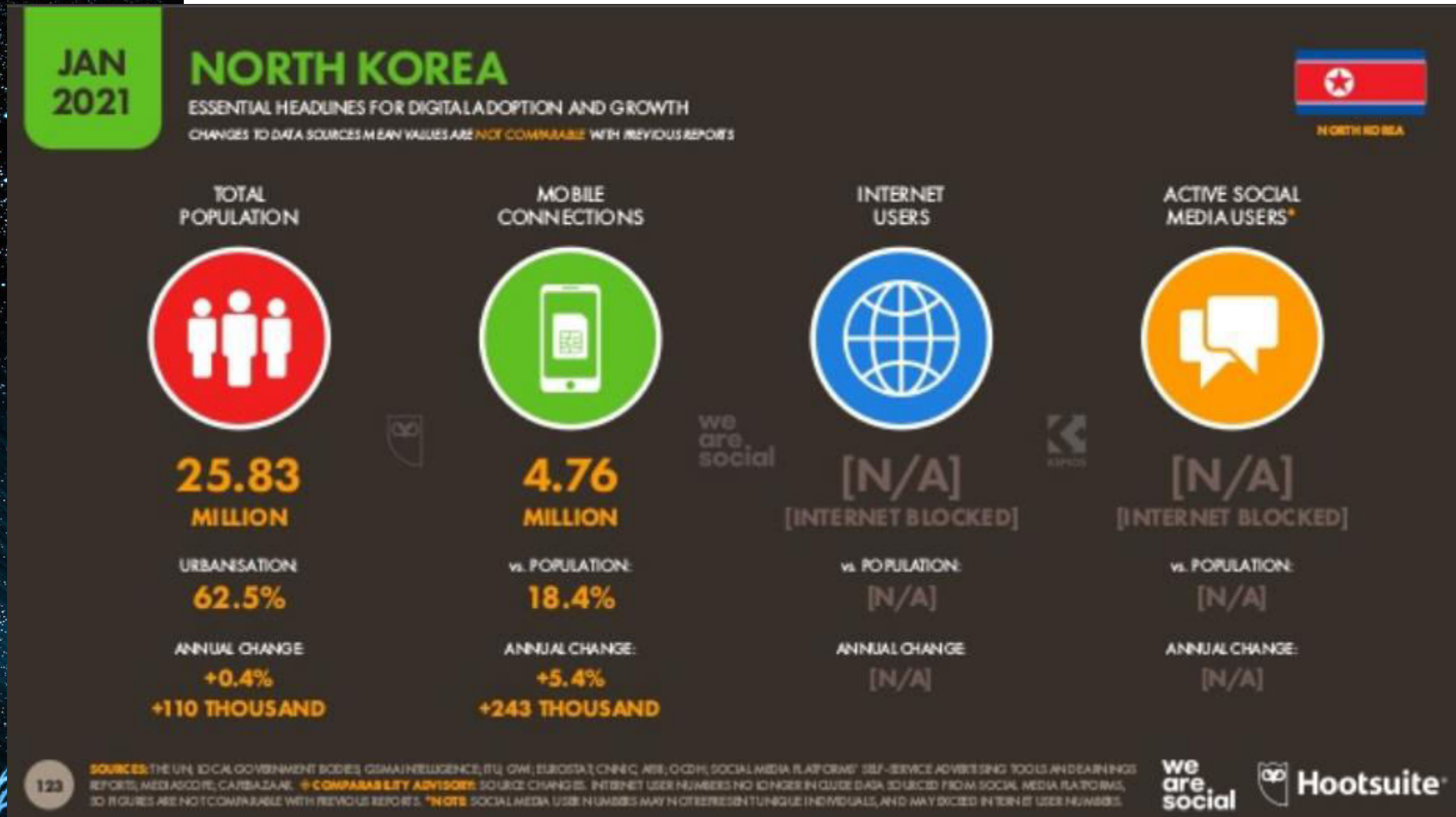
The project aims to attract three times as much traffic as Wikipedia.org.

Oct. 9, 2019



under 3 million Russian users visited Wikipedia.org every day in July 2019.

O Ciberespaço na Coreia do Norte



<https://www.slideshare.net/DataReportal/digital-2021-local-country-headlines-report-january-2021-v03>

Actores não-estatais

IDF: Hamas hacked soldiers' phones by posing as pretty girls

In 'catfishing' attack, dozens of servicemen duped by fake accounts as terrorist group tries to extract intel from social media, smartphones

BY JUDAH ARI GROSS | January 11, 2017, 5:55 pm |

Tweet



2

Email

THE TIMES OF ISRAEL
11Jan2017



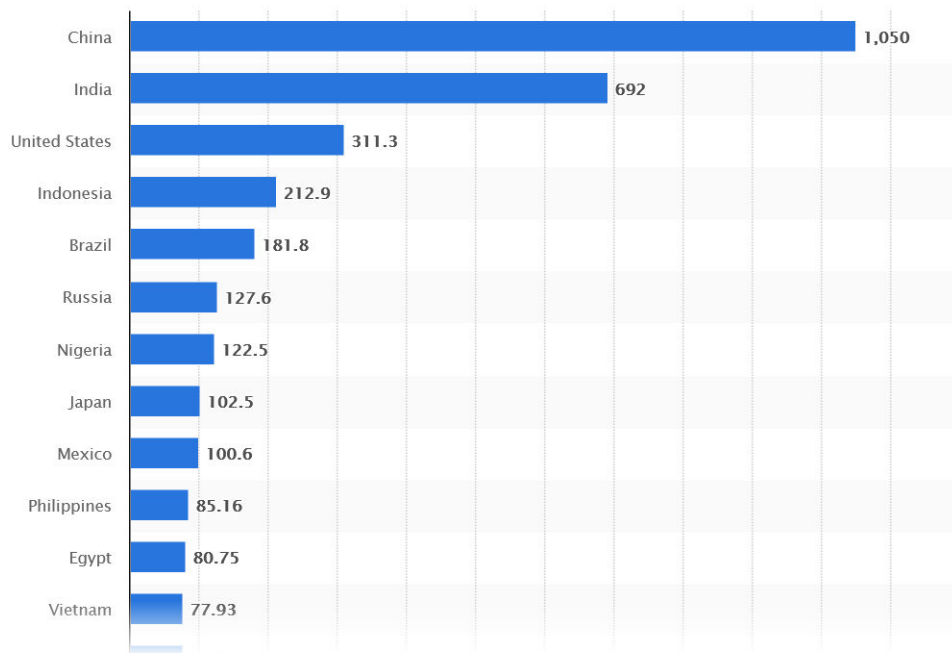
A Forças de Defesa de Israel revelaram que o HAMAS criou falsos perfis nas Redes Sociais, para interagir com soldados israelitas e obter informação sensível.

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Nenhum país europeu nos 12 maiores consumidores de Internet

Countries with the largest digital populations in the world as of January 2023
(in millions)



⊕ Expand statistic

[Additional Information](#)

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[Show source](#)

Em média cada cidadão chinês passou 6 horas e 25 minutos por dia na Internet

[→ Show publisher information](#)

[→ Use Ask Statista Research Service](#)

In cooperation with

KEPIOS

Release date

January 2022

Region

Worldwide

Survey time period

January 2023

Citation formats

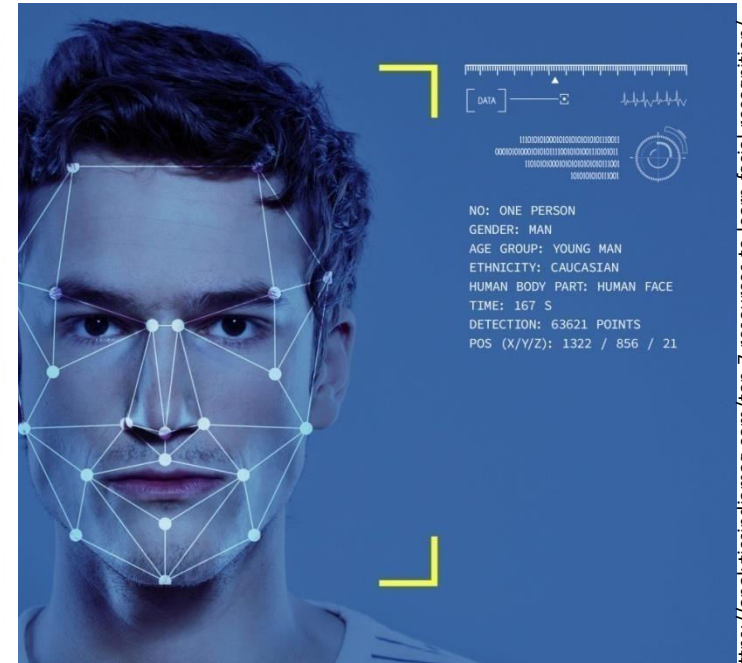
[→ View options](#)

Quem controla o fabricante?

Banned Chinese Security Cameras Are Almost Impossible to Remove



Source: Bloomberg



Several years ago the Department of Homeland Security tried to force all federal agencies to secure their networks by tracking every connected device. As of December 2018, only 35 percent of required agencies had fully complied with this mandate ... As a result, **most U.S. federal agencies still don't know how many or what type of devices are connected to their networks** (18Jul2019)

Segurança e Tecnologia vs. Liberdade



<https://techcrunch.com/2019/05/03/china-smart-city-exposed/>

« Todo aquele que estiver disposto a abdicar da sua Liberdade em nome de Segurança, não merece nem terá nenhuma das duas »

Benjamin Franklin

Esta Conferência já está na Web

1º Passo – Pesquisar no Google “Blog Arnaut”



Blog Arnaut

2º Passo – Entrar em “Geopolítica”

Quinta dos Arnaut

Uma quinta sobre a montanha

Blog / Arboreto / Fauna / Contacto / Documentos / **Geopolítica**

3º Passo – Procurar nas
“Conferências”

Conferências

2019_04_10 Universidade Nova: Uma Geopolítica Africana

Geopolítica de África v5

2019_04_03 Universidade Autónoma: O Crime Organizado Transnacional

Evolução e Desafios Futuros do Ciberespaço

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