

Global perspective on the information society

I. Europe at the periphery of the information society?

April 17, 2013

II Information society in China, the Beijing consensus?

Stéphane Grumbach
INRIA



Digital Revolution



Turn 20th-21st century

digitalization, modeling

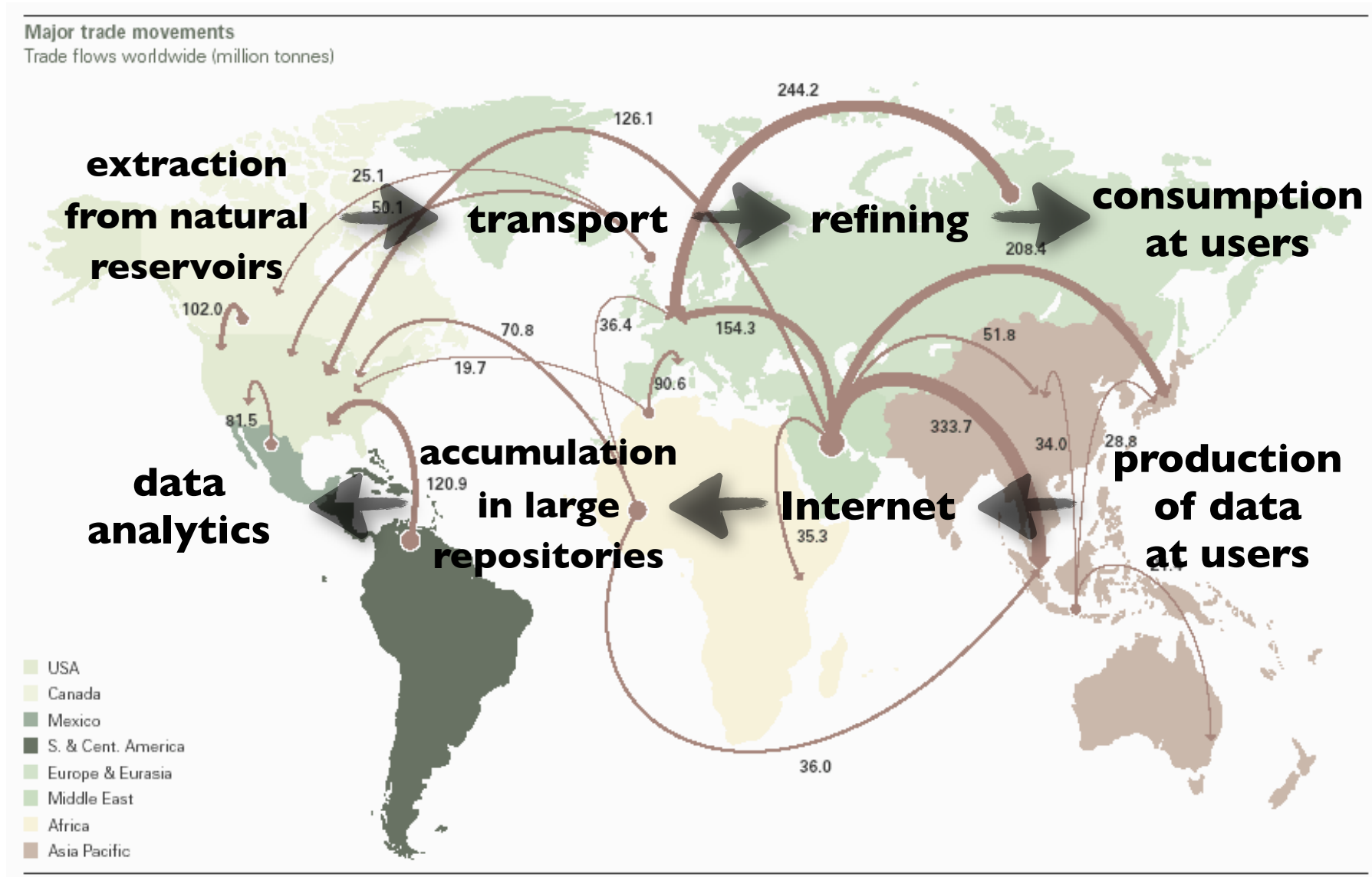
communication, social networking

“Every two days we create as much information as we did up to 2003”

Eric Schmidt



Data: raw material of the 21st century much like crude oil



The Top 50 websites worldwide

- USA: 72 %
- China: 16 % (Baidu: 5; QQ: 8; Taobao: 13; Sina: 17; 163: 28; Soso:29; Sina weibo:31; Sohu:43)
- Russia: 6 % (Yandex: 21; kontakte:30; Mail: 33;)
- Israel: 2 % (Babylon: 22)
- UK: 2 % (BBC: 46)
- Netherlands: 2 % (AVG: 47)

Diversity of search engines

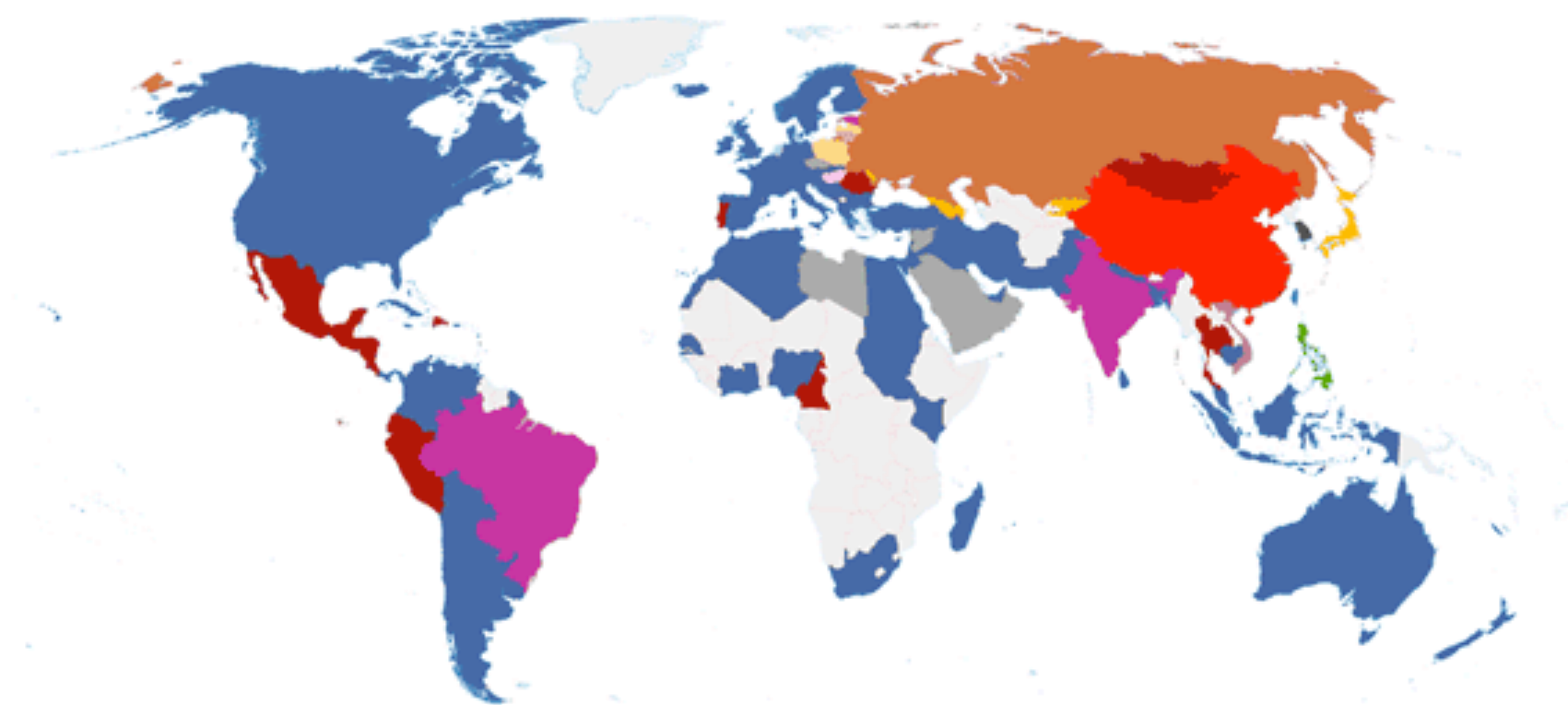
- USA: Google: 65 % ; Bing: 15% ; Yahoo: 15%
- China: Baidu: 73% ; Google: 5%
- Russia: Yandex: 60% ; Google: 25%
- UK: Google: 91 % ; Bing: 5%
- France: Google: 92 % ; Bing: 3%

In France,

- Google has a de facto monopoly
- Google knows more about France than INSEE

WORLD MAP OF SOCIAL NETWORKS

June 2009



Internet giants as Extraterritorial powers

No real binding to the place of operation

Regulation, taxation: optimal use of national differences

Own access to raw material and human resources
harvested without borders

Own legal systems
contracts users/corporations

Own monetary systems
emerging virtual currencies



Chapters

- I Asia in the info Society
- II China's Web giants
- III Designed by China, R&D
- IV A universal Internet?

Chapters

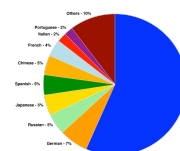
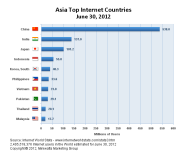
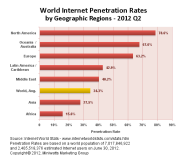
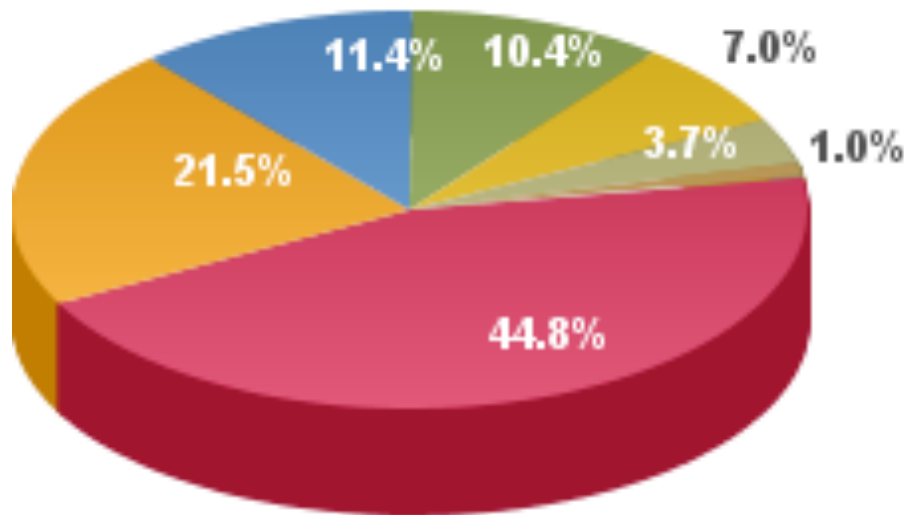
I Asia in the info Society

II China's Web giants

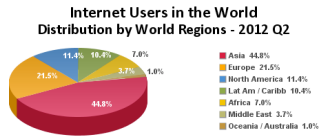
III Designed by China, R&D

IV A universal Internet?

Internet Users in the World Distribution by World Regions - 2012 Q2

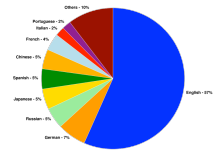
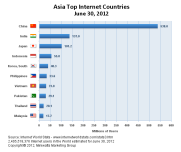
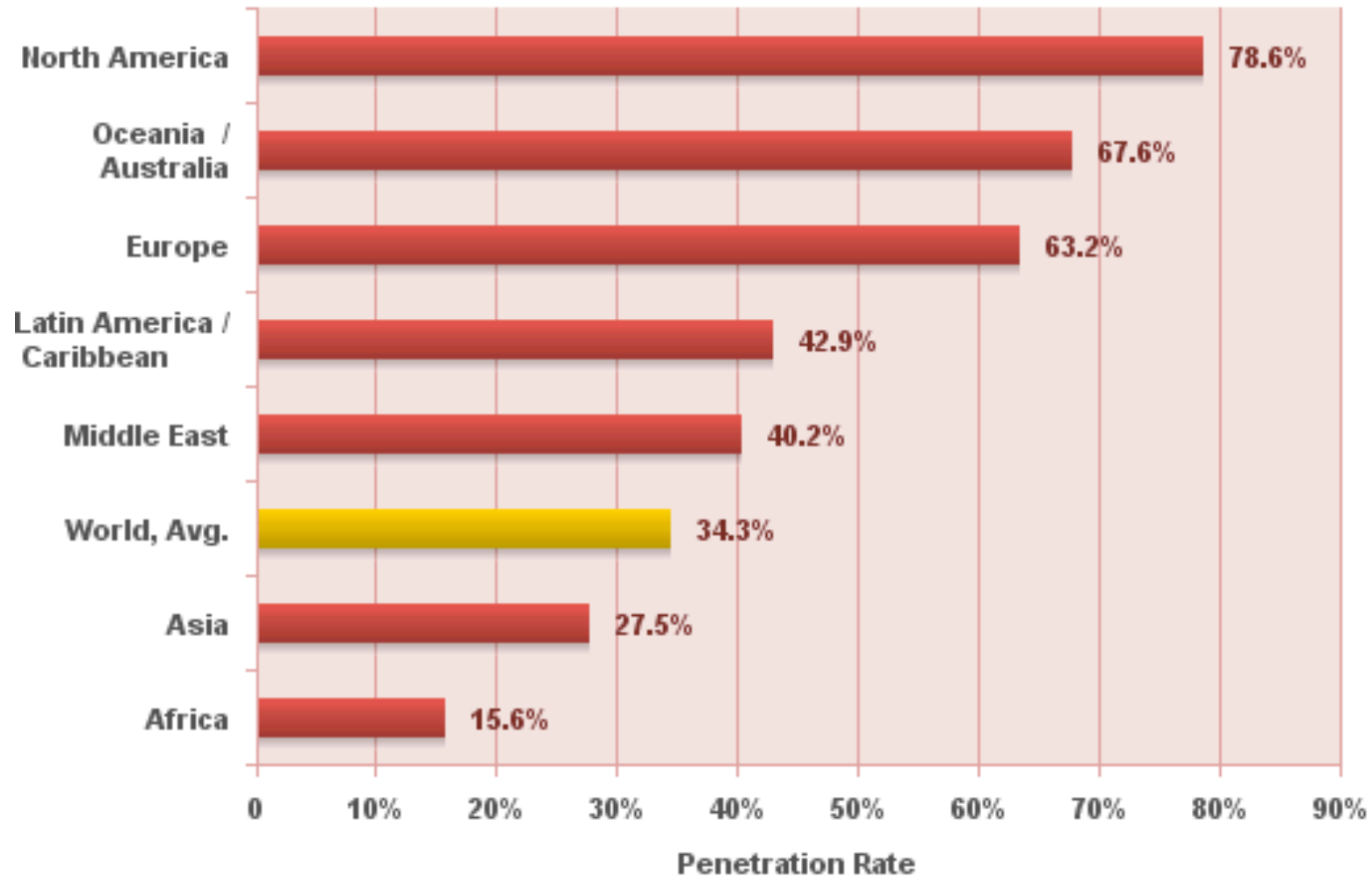


Source: Internet World Stats - www.internetworldstats.com/stats.htm
 Basis: 2,405,518,376 Internet users on June 30, 2012
 Copyright © 2012, Miniwatts Marketing Group



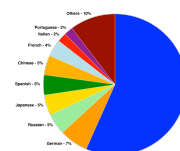
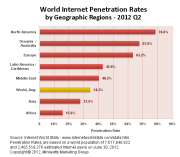
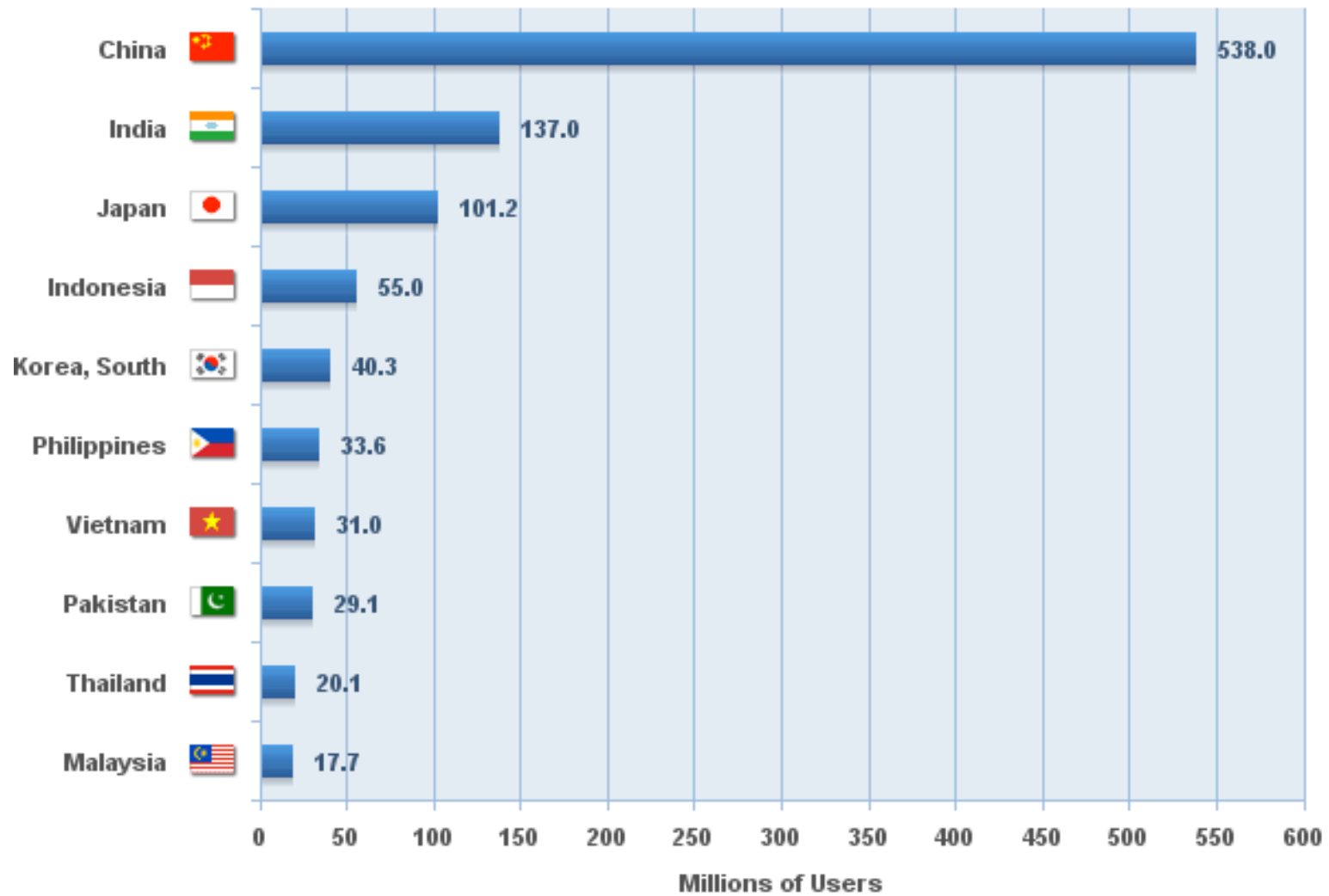
Source: Internet World Stats - www.internetworldstats.com/stats.htm
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 Copyright © 2012, Miniwatts Marketing Group

World Internet Penetration Rates by Geographic Regions - 2012 Q2



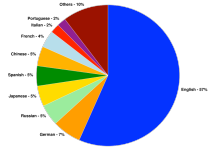
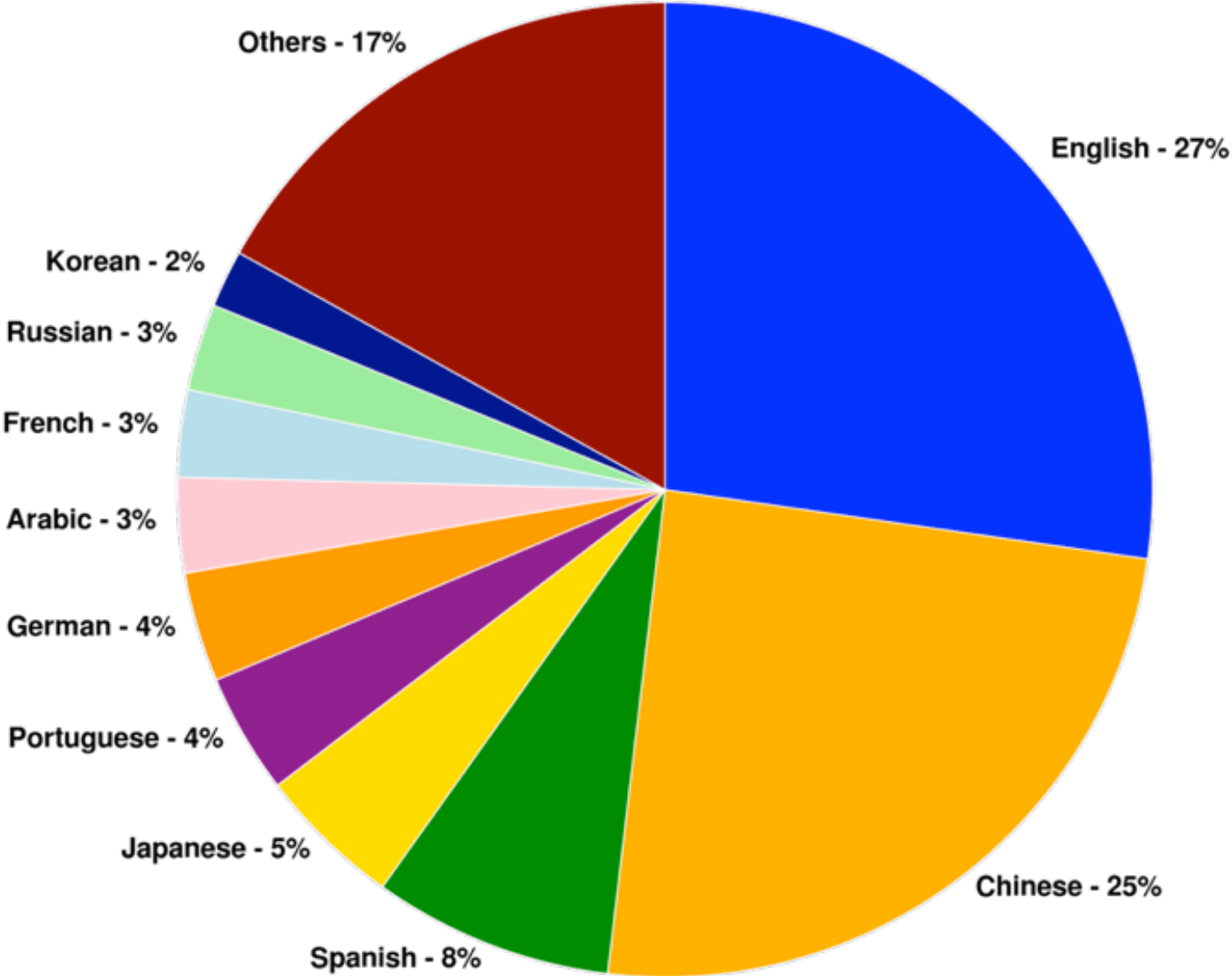
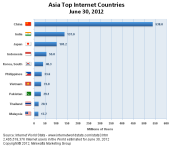
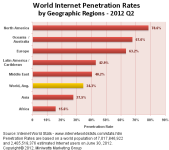
Source: Internet World Stats - www.internetworldstats.com/stats.htm
 Penetration Rates are based on a world population of 7,017,846,922
 and 2,405,518,376 estimated Internet users on June 30, 2012.
 Copyright © 2012, Miniwatts Marketing Group

Asia Top Internet Countries June 30, 2012

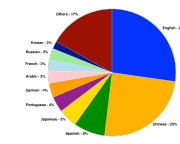
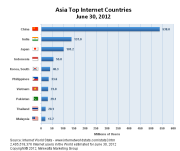
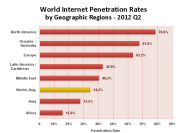
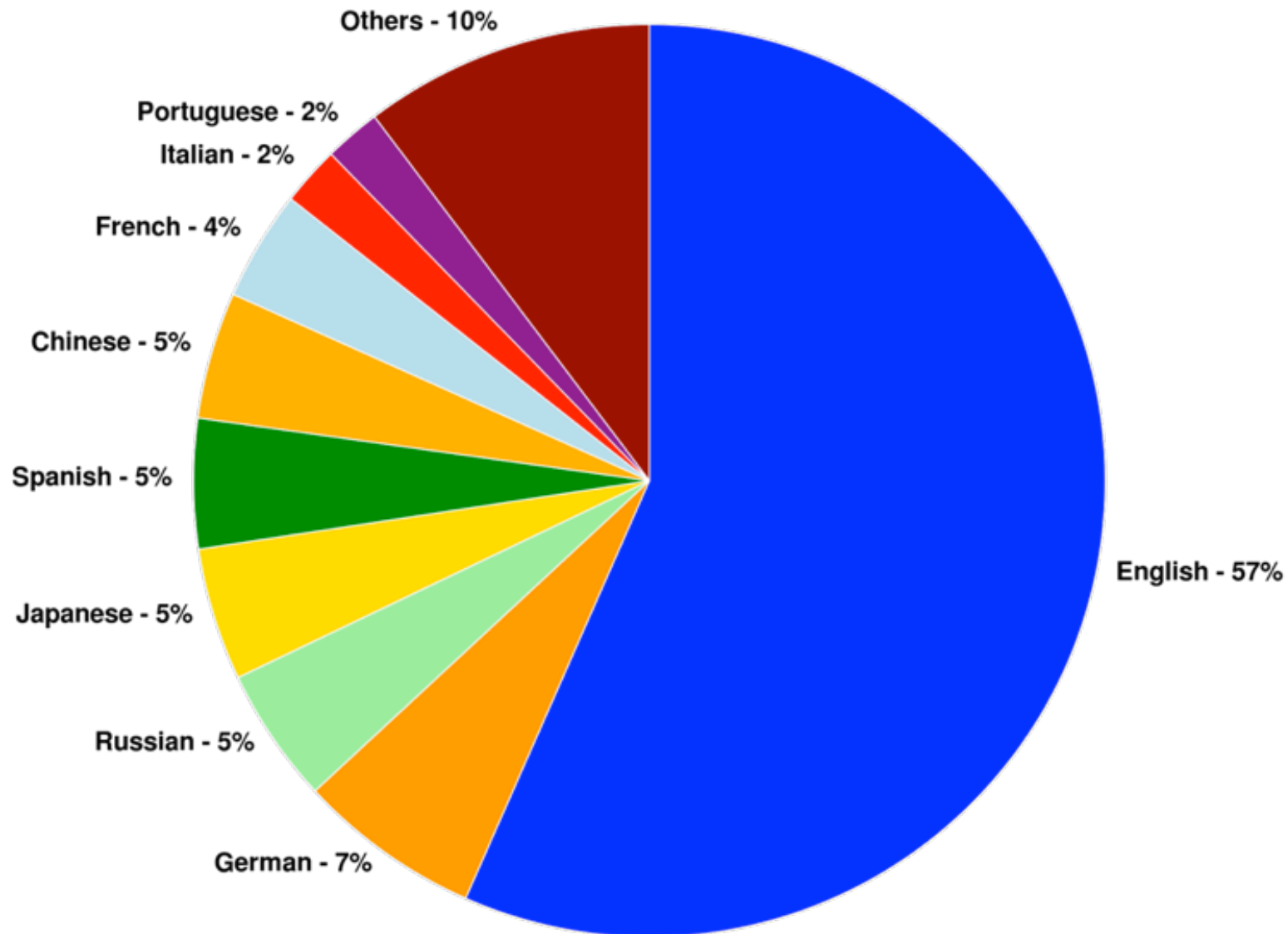


Source: Internet World Stats - www.internetworldstats.com/stats3.htm
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Online Population



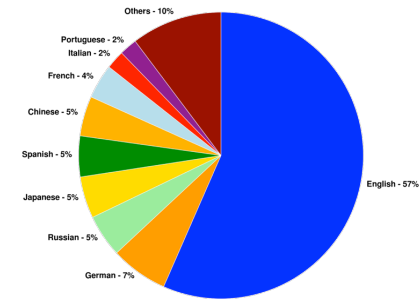
Web content language



High penetration and impact

Sweden (1)
Singapore (2)
USA (8)
Canada (9)
Taiwan (11)
South Korea (12)
Hong Kong (13)
Japan (18)

...
China (51)
Russia (56)
Brazil (65)
India (69)





Systems and contents online

- Baidu, China search eng.
- Naver, Korea search eng.
- QQ, China inst message, games, ...
- Rakuten, Japan e-commerce
- Alibaba, China e-commerce
- Cyworld, Korea soc net
- me2DAY, Naver, Korea microblog



Top Sites in China 🇨🇳
The top 500 sites in China. ?



Top Sites in Japan 🇯🇵
The top 500 sites in Japan. ?



Top Sites in South Korea 🇰🇷
The top 500 sites in South Korea. ?



Top Sites in India 🇮🇳
The top 500 sites in India. ?





Top Sites in China 🇨🇳

The top 500 sites in China. ?

- 1 **Baidu.com**
baidu.com
The leading Chinese language search engine, provides "simple and reliable" search exp... [More](#)
★★★★★ Search Analytics ▶ Audience ▶

- 2 **QQ.COM**
qq.com
China's largest and most used Internet service portal owned by Tencent, Inc founded in Nov... [More](#)
★★★★★ Search Analytics ▶ Audience ▶

- 3 **Taobao.com**
taobao.com
Launched in 2003, Taobao Marketplace (www.taobao.com) is a popular consumer-to-consumer (C2C) o...
[More](#)
★★★★★ Search Analytics ▶ Audience ▶

- 4 **新浪新闻中心**
sina.com.cn
包括即日的国内外不同类型的新闻与评论, 人物专题, 图库。
★★★★★ Search Analytics ▶ Audience ▶

- 5 **网易**
163.com
中国最大的网络社区和门户网站
★★★★★ Search Analytics ▶ Audience ▶

- 6 **新浪微博-随时随地分享身边的新鲜事儿**
weibo.com
新浪微博是全中国最主流, 最具人气, 当前最火爆的微博产品。用一句话随意记录生活, 用手机随时随地发微博, 迅速获取最热最火最快最酷最新的资讯。... [More](#)
★★★★★ Search Analytics ▶ Audience ▶

- 7 **Google谷歌**
google.com.hk
谷歌搜索在中国的官方网站。
★★★★★ Search Analytics ▶ Audience ▶

- 8 **Tmall.com**
tmall.com
Tmall.com is the leading online shopping landmark in China with the most comprehensive brand se... [More](#)
★★★★★ Search Analytics ▶ Audience ▶

- 9 **搜狐网**
sohu.com
资源导航为主要业务的门户网站, 经营综合性业务, 社区, 无线等增值服务。... [More](#)
★★★★★ Search Analytics ▶ Audience ▶

- 10 **Hao123**
hao123.com
Baidu
★★★★★ Search Analytics ▶ Audience ▶



Top Sites in Japan 🇯🇵

The top 500 sites in Japan. ?



Top Sites in South Korea 🇰🇷

The top 500 sites in South Korea. ?



Top Sites in India 🇮🇳

The top 500 sites in India. ?



Top Sites in Japan 🇯🇵

The top 500 sites in Japan. ?

- 1 **Yahoo! Japan**
yahoo.co.jp
Japanese version of popular portal site.
★★★★★ Search Analytics ▶ Audience ▶

- 2 **Google 日本**
google.co.jp
多言語対応サーチエンジンの日本版。ウェブ、イメージおよびニュース検索、Usenet掲示板。... More
★★★★★ Search Analytics ▶ Audience ▶

- 3 **YouTube**
youtube.com
YouTube is a way to get your videos to the people who matter to you. Upload, tag and share your... More
★★★★★ Search Analytics ▶ Audience ▶

- 4 **FC2**
fc2.com
無料ブログ(blog)、ホームページサービス、ウェブアプリケーション各種など... More
★★★★★ Search Analytics ▶ Audience ▶

- 5 **Amazon.co.jp**
amazon.co.jp
Amazon in Japan. Article descriptions are in Japanese, but account setup, shopping, and checkou... More
★★★★★ Search Analytics ▶ Audience ▶

- 6 **Google**
google.com
Enables users to search the world's information, including webpages, images, and videos. Offers... More
★★★★★ Search Analytics ▶ Audience ▶

- 7 **楽天市場**
rakuten.co.jp
各種の通販サイトをバーチャル店舗として入居させているショッピングモール。オークションや共同購入も開催。... More
★★★★★ Search Analytics ▶ Audience ▶

- 8 **Facebook**
facebook.com
A social utility that connects people, to keep up with friends, upload photos, share links and ... More
★★★★★ Search Analytics ▶ Audience ▶

- 9 **livedoor**
livedoor.com
ライブドアが運営。ブログ、ニュース、無料メール、天気など。
★★★★★ Search Analytics ▶ Audience ▶

- 10 **アメーバブログ**
ameblo.jp



Top Sites in China 🇨🇳

The top 500 sites in China. ?



Top Sites in South Korea 🇰🇷

The top 500 sites in South Korea. ?



Top Sites in India 🇮🇳

The top 500 sites in India. ?



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- 2 **Facebook**
facebook.com
A social utility that connects people, to keep up with friends, upload photos, share links and ... More
★★★★★ Search Analytics ▶ Audience ▶

- 3 **YouTube**
youtube.com
YouTube is a way to get your videos to the people who matter to you. Upload, tag and share your... More
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Enables users to search the world's information, including webpages, images, and videos. Offers... More
★★★★★ Search Analytics ▶ Audience ▶

- 5 **QQ.COM**
qq.com
China's largest and most used Internet service portal owned by Tencent, Inc founded in Nov... More
★★★★★ Search Analytics ▶ Audience ▶

- 6 **네이버**
naver.com

★★★★★ Search Analytics ▶ Audience ▶

- 7 **구글**
google.co.kr
웹문서, 이미지, 뉴스그룹, 디렉토리 검색, 한글 페이지 검색
★★★★★ Search Analytics ▶ Audience ▶

- 8 **Taobao.com**
taobao.com
Launched in 2003, Taobao Marketplace (www.taobao.com) is a popular consumer-to-consumer (C2C) o... More
★★★★★ Search Analytics ▶ Audience ▶

- 9 **다음daum**
daum.net
No. 1 우리 인터넷. 무료 이메일 서비스, 온라인 쇼핑, 동호회 서비스
★★★★★ Search Analytics ▶ Audience ▶

- 10 **Yahoo!**
yahoo.com
A major internet portal and service provider offering search results, customizable content, cha... More
★★★★★ Search Analytics ▶ Audience ▶



Top Sites in China 🇨🇳

The top 500 sites in China. ?



Top Sites in Japan 🇯🇵

The top 500 sites in Japan. ?



Top Sites in India 🇮🇳

The top 500 sites in India. ?



Top Sites in India 🇮🇳

The top 500 sites in India. ?

- 1 **Google**
google.com
Enables users to search the world's information, including webpages, images, and videos. Offers... [More](#)
★★★★★ Search Analytics ▶ Audience ▶

- 2 **Google India**
google.co.in
Indian version of this popular search engine. Search the whole web or only webpages from India.... [More](#)
★★★★★ Search Analytics ▶ Audience ▶

- 3 **Facebook**
facebook.com
A social utility that connects people, to keep up with friends, upload photos, share links and ... [More](#)
★★★★★ Search Analytics ▶ Audience ▶

- 4 **YouTube**
youtube.com
YouTube is a way to get your videos to the people who matter to you. Upload, tag and share your... [More](#)
★★★★★ Search Analytics ▶ Audience ▶

- 5 **Yahoo!**
yahoo.com
A major internet portal and service provider offering search results, customizable content, cha... [More](#)
★★★★★ Search Analytics ▶ Audience ▶

- 6 **blogspot.in**
blogspot.in
★★★★★ Search Analytics ▶ Audience ▶

- 7 **Wikipedia**
wikipedia.org
A free encyclopedia built collaboratively using wiki software. (Creative Commons Attribution-Sh... [More](#)
★★★★★ Search Analytics ▶ Audience ▶

- 8 **LinkedIn**
linkedin.com
A networking tool to find connections to recommended job candidates, industry experts and busin... [More](#)
★★★★★ Search Analytics ▶ Audience ▶

- 9 **googleusercontent.com**
googleusercontent.com
★★★★★ Search Analytics ▶ Audience ▶

- 10 **Indiatimes**
indiatimes.com
Portal site; includes news stories under subject headings, and links to other information sources.
★★★★★ Search Analytics ▶ Audience ▶



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Top Sites in South Korea 🇰🇷

The top 500 sites in South Korea. ?

Chapters

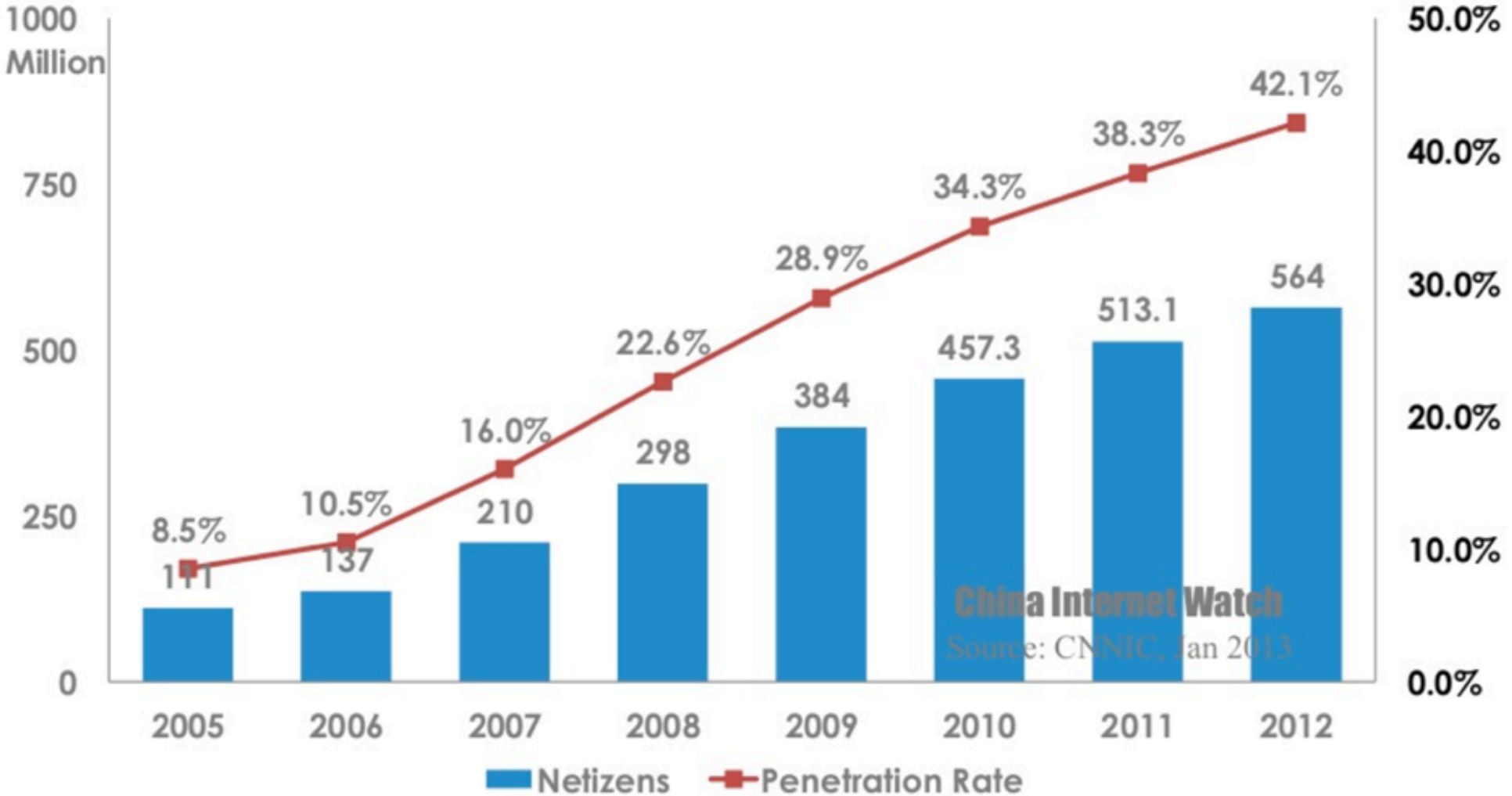
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Overall Internet Users and Penetration Rate





The largest Internet space

560 million online people
(60% under 30)
19% growth in 2010

1 billion mobile
300 millions mobile surfer
30% annual growth

Very active online world

China leading in terms of usage penetration of web 2.0 applications

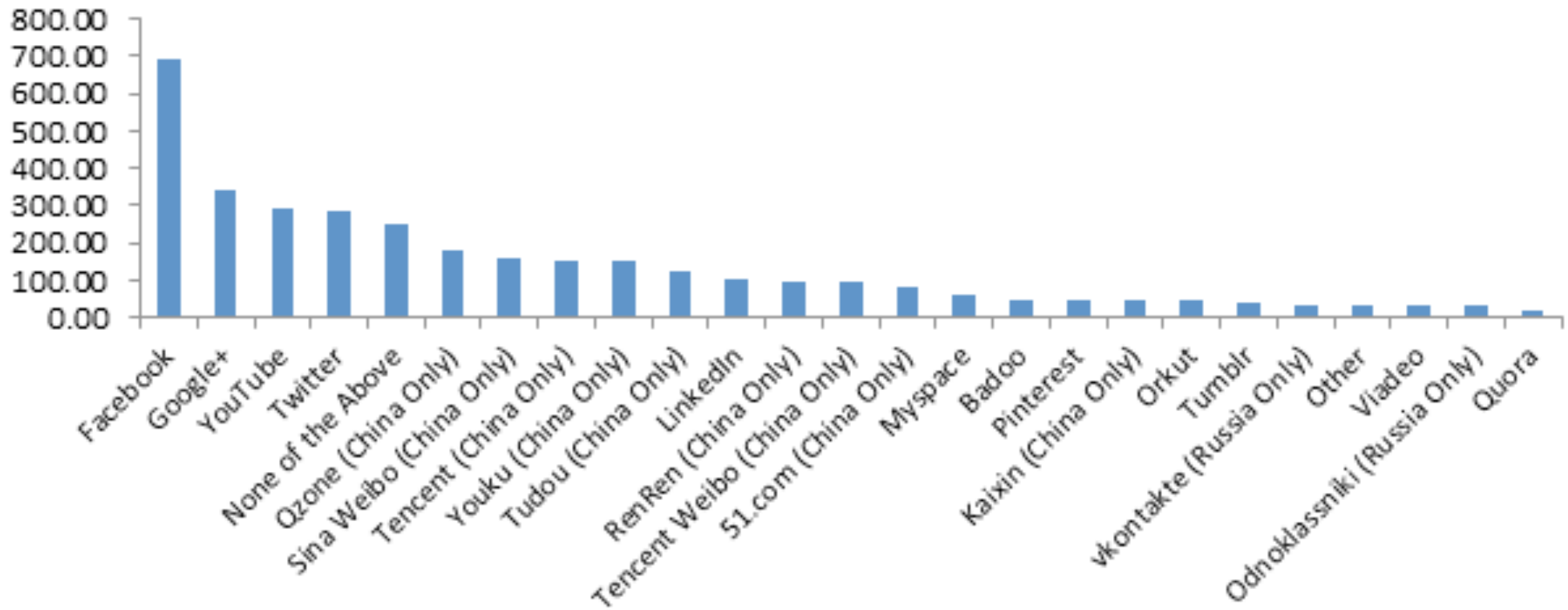


(McKinsey)



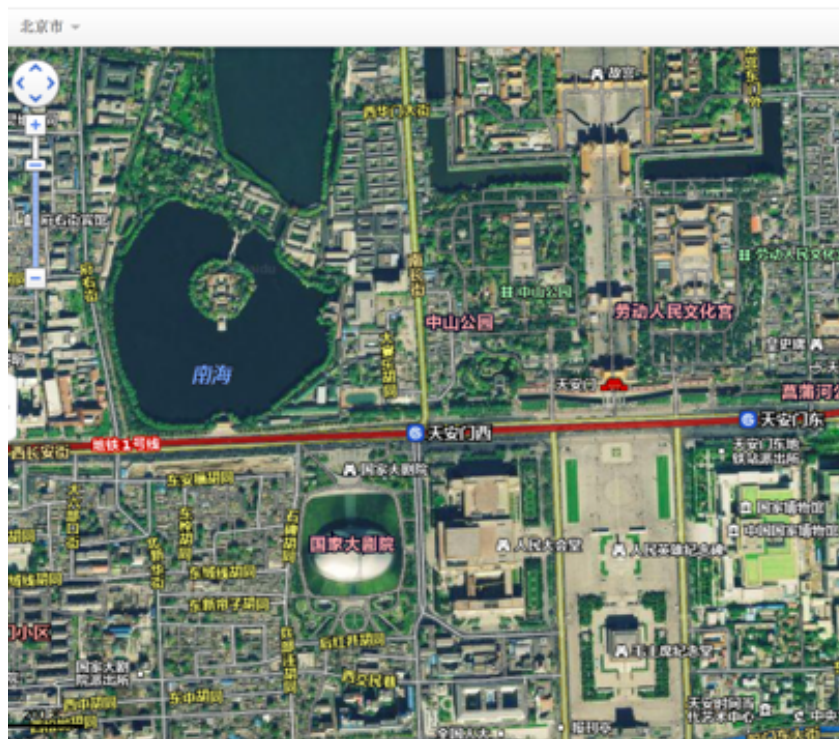
Top social networks

Top 25 Services by Active Users December 2012



Zhongguancun, Beijing Silicon Valley





Search engine

Japanese search

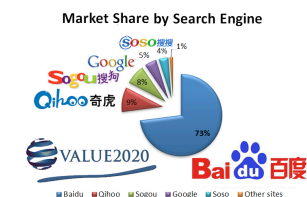
images & videos

Encyclopedia

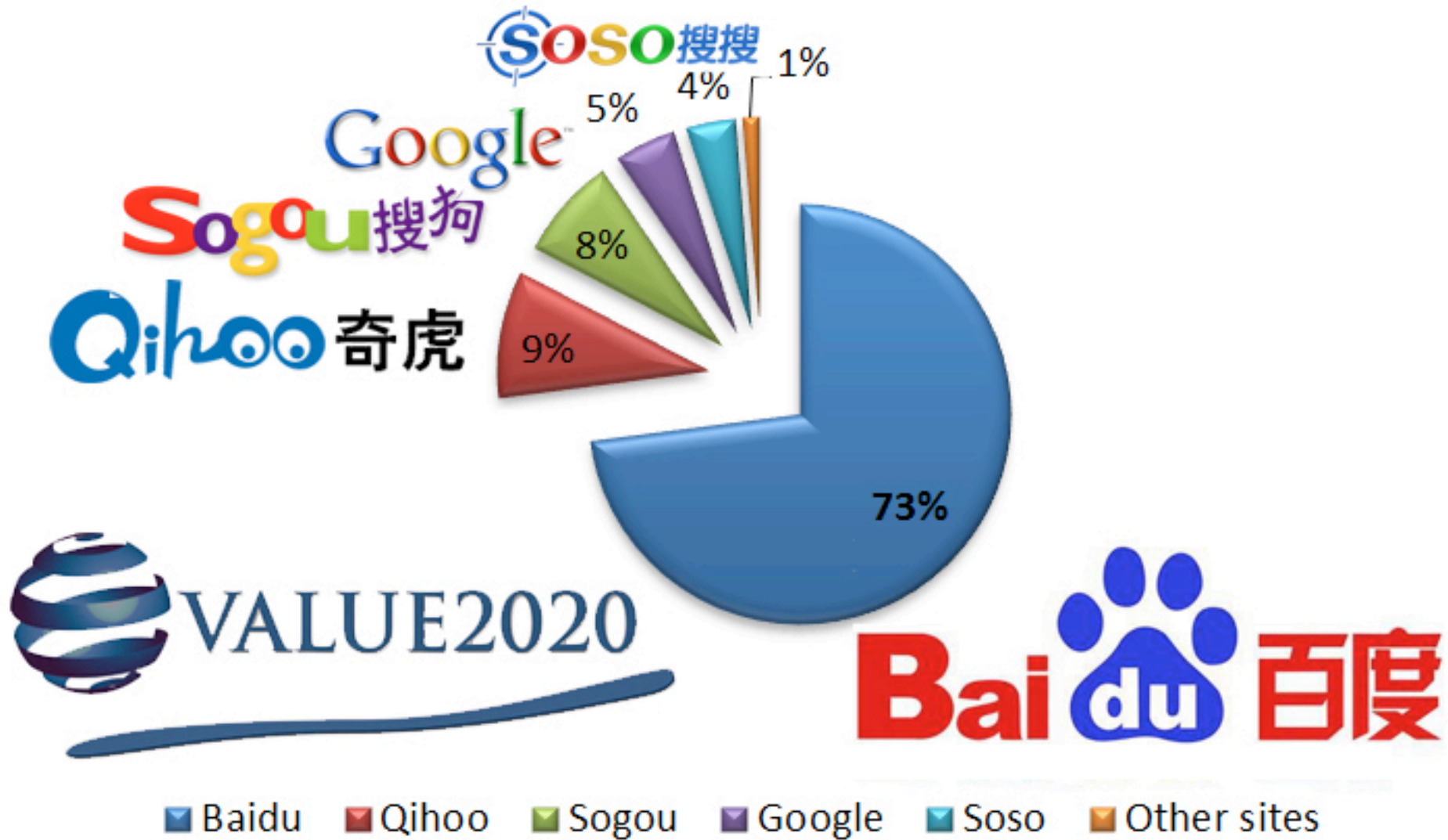
Maps

Baidu Eye

Legal search (regulations)



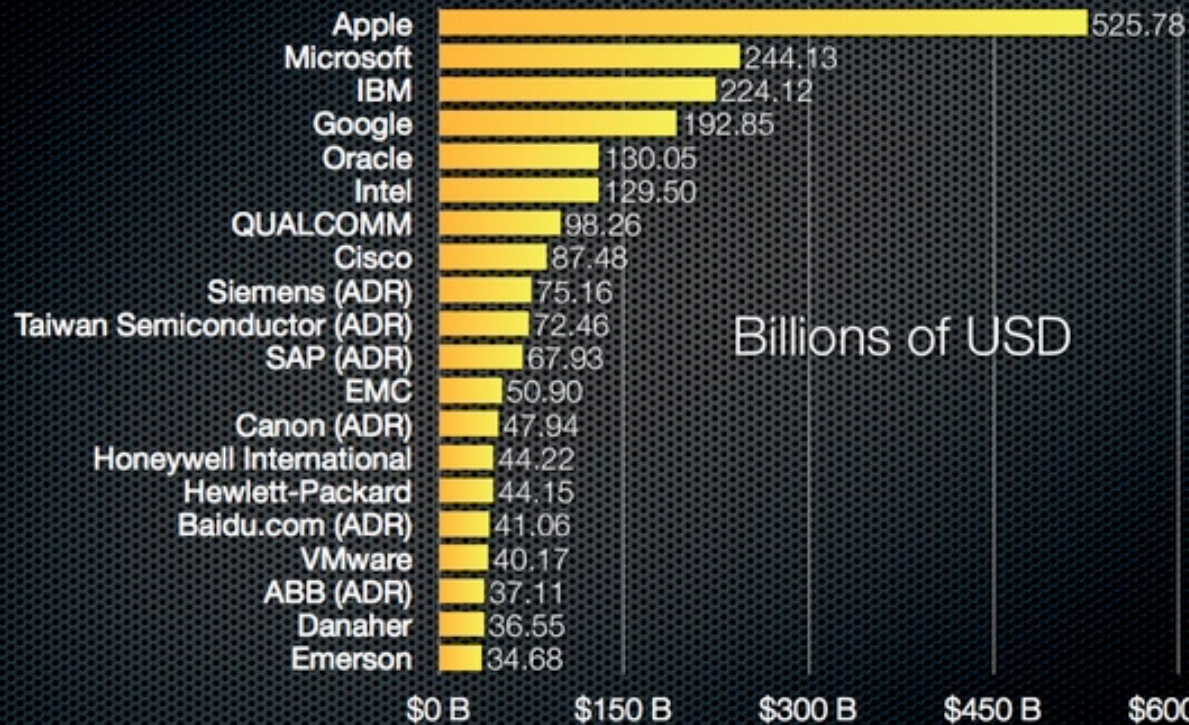
Market Share by Search Engine





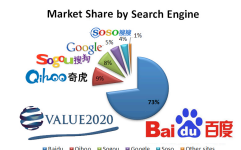
The 20 most valuable tech companies

Market Cap



Data source: Google Finance, May 29, 2012.

www.Pingdom.com





Tencent



Shenzhen

The southern Silicon Valley
Tencent, Huawei, ...

From social media and messaging to paying gamers

Weixin (WeChat) Jan 2011

Multimedia communication, social networking, location-based services

Extremely rapid growth

300 million users (Jan 2013)

Qzone, social network

QQ games

Weibo

SOSO, search engine

Revenue: \$2 billions in 2012



China 2012:

200 million online shoppers
who spent \$200 billion



Hangzhou, capital of Zhejiang, close to Shanghai

More transactions than Amazon + eBay

Strategic partnership with Yahoo (40% stake in Alibaba \$1bn in 2005, \$7.6bn in 2013)

Recent combination e-commerce / social networks
18% stake in Sina Weibo for \$586 million



Mobile and always localized



Mobile and always localized



“Google threatened to pull its Android support from Acer if Acer pursued Alibaba's Aliyun operating system”

Ranking	App Names	Downloads
1	Weixin 	117,597,012
2	Sina Weibo 	74,052,986
3	Mobile QQ2012 	67,447,720
4	Q-zone 	33,894,901
5	Renren.com 	28,085,009
6	Youni Messenger 	21,853,568
7	Fetion 	19,896,834
8	Tencent Weibo 	12,327,922
9	Kaixin001.com 	11,515,126
10	MiTalk 	11,159,867
11	YY Voice 	8,991,065
12	Ganji Life 	7,117,457
13	Facebook 	6,723,422
14	Wangxin 	5,045,671
15	Momo 	4,571,172
16	Shiji Jiayuan 	2,813,603
17	Google+ 	2,809,161
18	Twitter 	2,737,117
19	Jiepang.com 	2,590,021
20	Pengyou.com 	2,134,840



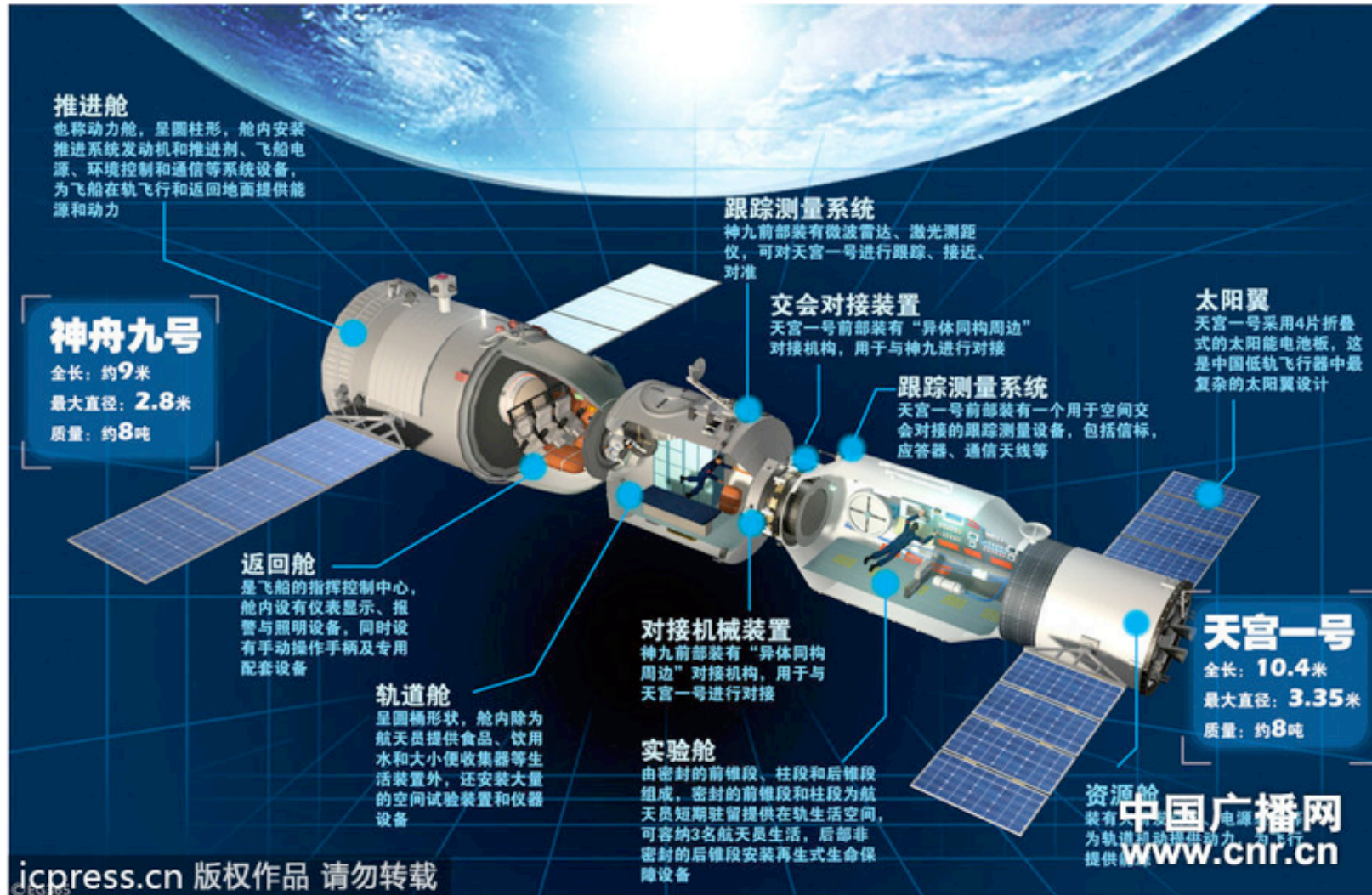
Android has more than
80% marketshare

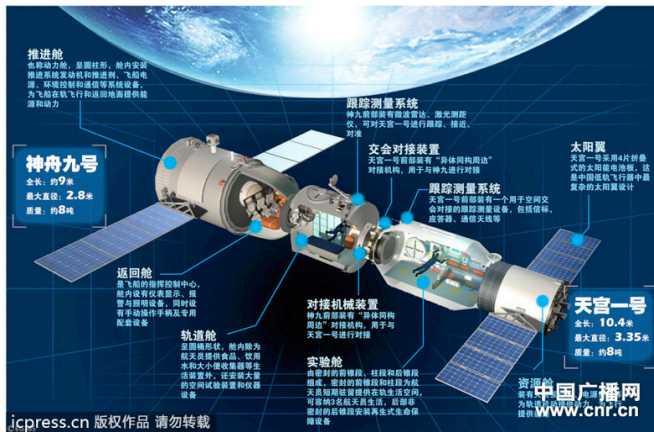
But most of the Apps
are Chinese

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China's top 10 S&T progress of 2012

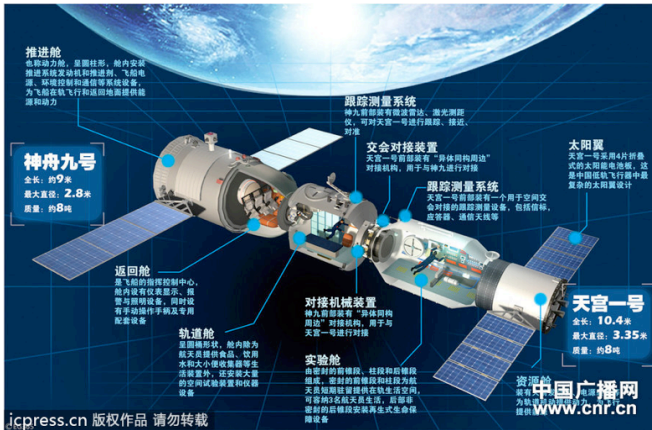




China's top 10 S&T progress of 2012

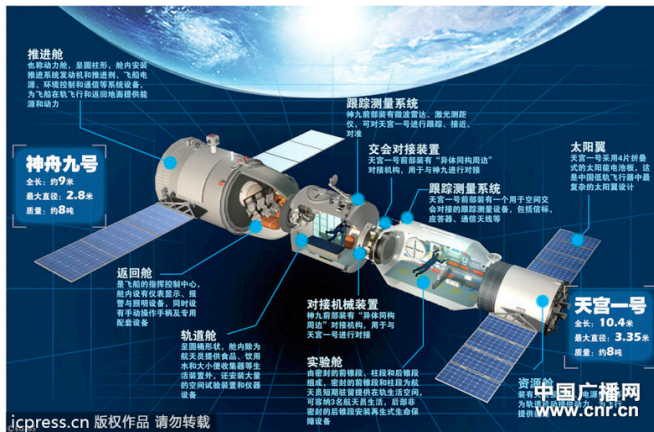
- Shenzhou-9 spacecraft and orbiting Tiangong-1 lab module
- manned submersible, Jiaolong, 7000 meters below sea level
- high-speed railway in areas with extremely low temperatures, Harbin-Dalian
- moon orbiter, the Chang'e-2, and moon cartography
- Sunway BlueLight supercomputer, Shenwei microprocessors, 1070.2 TFlop/s
(Rank 28 Top500 11/2012)
- 120-ton-thrust liquid oxygen and kerosene engine for new carrier rocket, Long March-5
- quantum information processing
- third type of neutrino oscillation
- hepatitis E vaccine
- Asia's biggest radio telescope, Shanghai

China's top 10 S&T progress of 2012



- Shenzhou-9 **spacecraft** and orbiting Tiangong-I lab module
- manned **submersible**, Jiaolong, 7,000 meters below sea level
- **high-speed railway** in areas with extremely low temperatures, Harbin-Dalian
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China's top 10 S&T progress of 2012

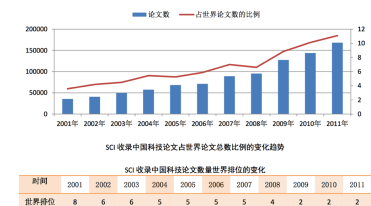
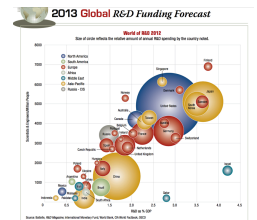


- Shenzhou-9 spacecraft and orbiting Tiangong-I lab module
- manned submersible, Jiaolong, 7,000 meters below sea level
- high-speed railway in areas with extremely low temperatures, Harbin-Dalian
- moon orbiter, the Chang'e-2, and moon cartography
- Sunway BlueLight **supercomputer**, Shenwei microprocessors, 1070.2 TFlop/s
(Rank 28 Top500 11/2012)
- 120-ton-thrust liquid oxygen and kerosene engine for new carrier rocket, Long March-5
- **quantum information processing**
- third type of neutrino oscillation
- hepatitis E vaccine
- Asia's biggest **radio telescope**, Shanghai

What's at stake in China?

Plan 2020 in Science and Technology

- increase R&D intensity to 2% of GDP in 2010, and to 2.5% in 2020;
- increase S&T contribution to growth to 60%;
- reduce dependence on foreign technology to 30%;
- position China as number 5 for patents and citations of publications worldwide.

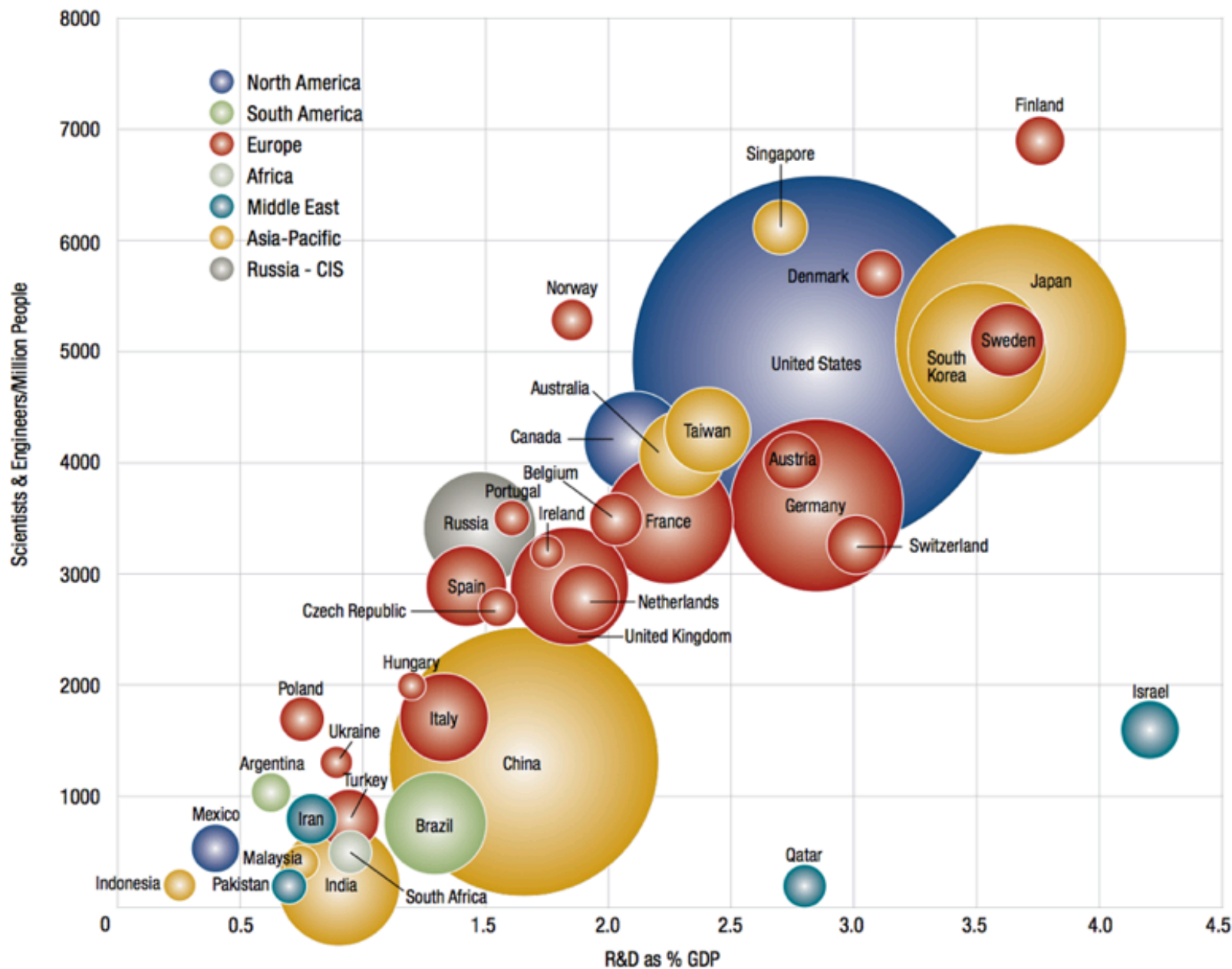




2013 Global R&D Funding Forecast

World of R&D 2012

Size of circle reflects the relative amount of annual R&D spending by the country noted.

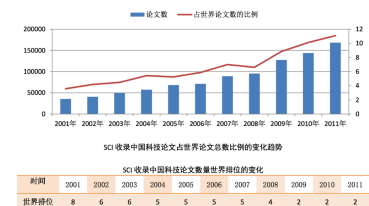
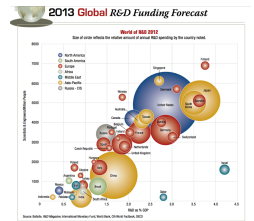


Source: Battelle, R&D Magazine, International Monetary Fund, World Bank, CIA World Factbook, OECD

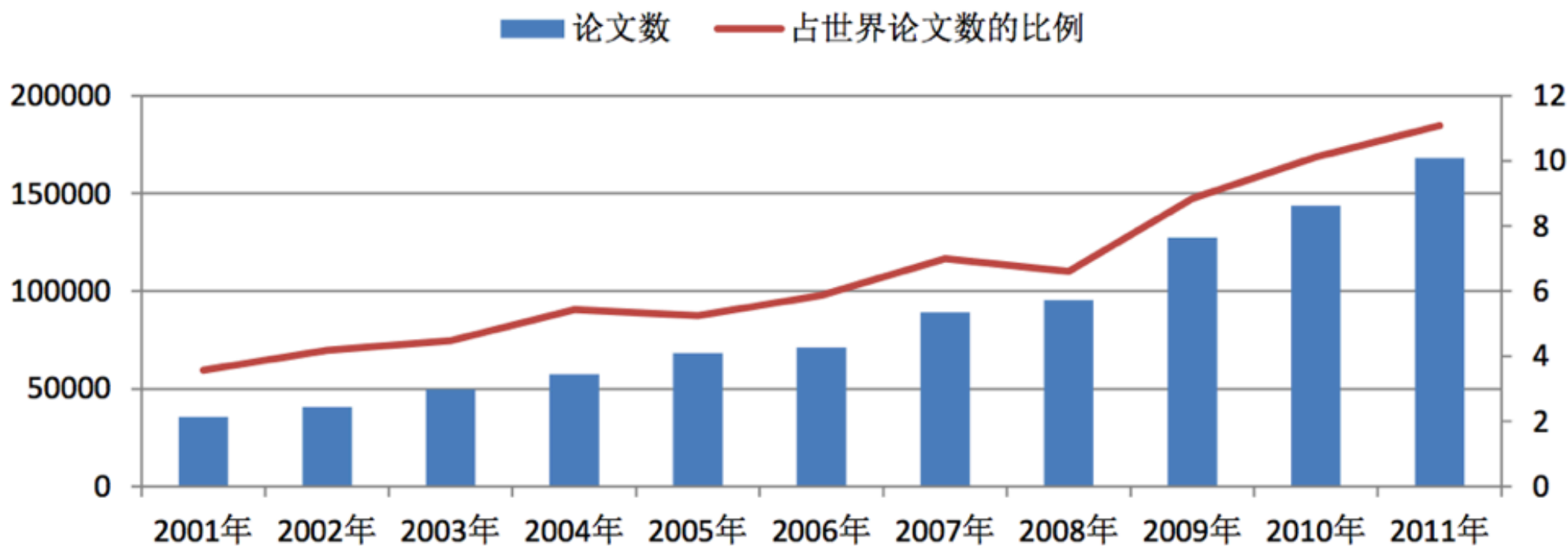
What's at stake in China?

Plan 2020 in Science and Technology

- increase R&D intensity to 2% of GDP in 2010, and to 2.5% in 2020;
- increase S&T contribution to growth to 60%;
- reduce dependence on foreign technology to 30%;
- position China as number 5 for patents and citations of publications worldwide.



China in the Science Citation Index



SCI 收录中国科技论文占世界论文总数比例的变化趋势

SCI 收录中国科技论文数量世界排位的变化

时间	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
世界排位	8	6	6	5	5	5	5	4	2	2	2

What's at stake in China?

Towards a global player in R&D

2008: Huawei, ZTE, among the top 100 corporations for R&D

2010: WIPO 7.5% of international patents applications
(mostly in EE, Telcom, IT)

2010: Top World super computer

Tianhe-1 A, 2566 Tflops (trillions operations per seconds)



Supercomputers



National Supercomputing Center in Tianjin, China

Tianhe-1A - NUDT, Intel X5670, 186368 processors 2566 Tflops

Oak Ridge National Laboratory, USA,

Cray Inc., 224162 processors, 1759 Tflops

National Supercomputing Centre in Shenzhen (NSCS)

Nebulae - Dawning, Intel X5650, 120640 processors, 1271 Tflops

GSIC Center, Tokyo Institute of Technology, Japan

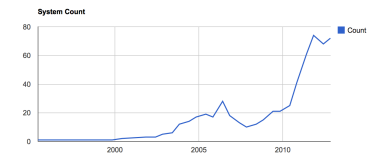
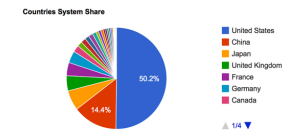
TSUBAME 2.0 - HP Xeon 6C X5670, 73278 processors 1192 Tflops

DOE/SC/LBNL/NERSC USA

Hopper - Cray XE6 153408 processors 1054 Tflops

CEA, France

Tera-100 – Bull 138368 processors 1050 Tflops

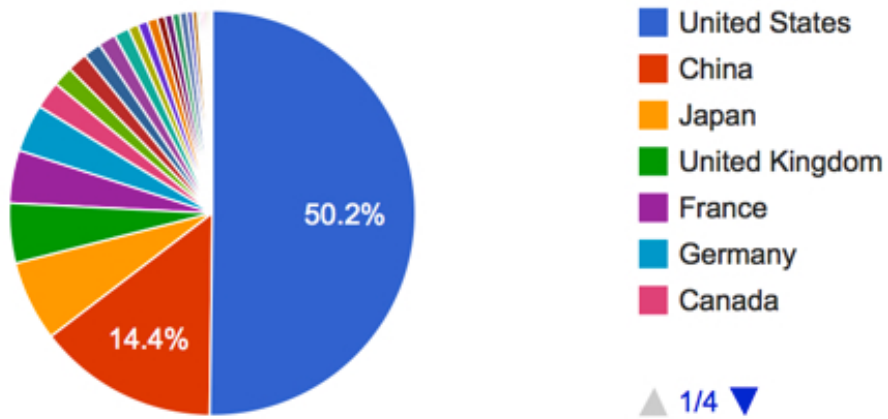


**Chinese systems:
2 in the TOP5
42 in the TOP500
Nov 2010**

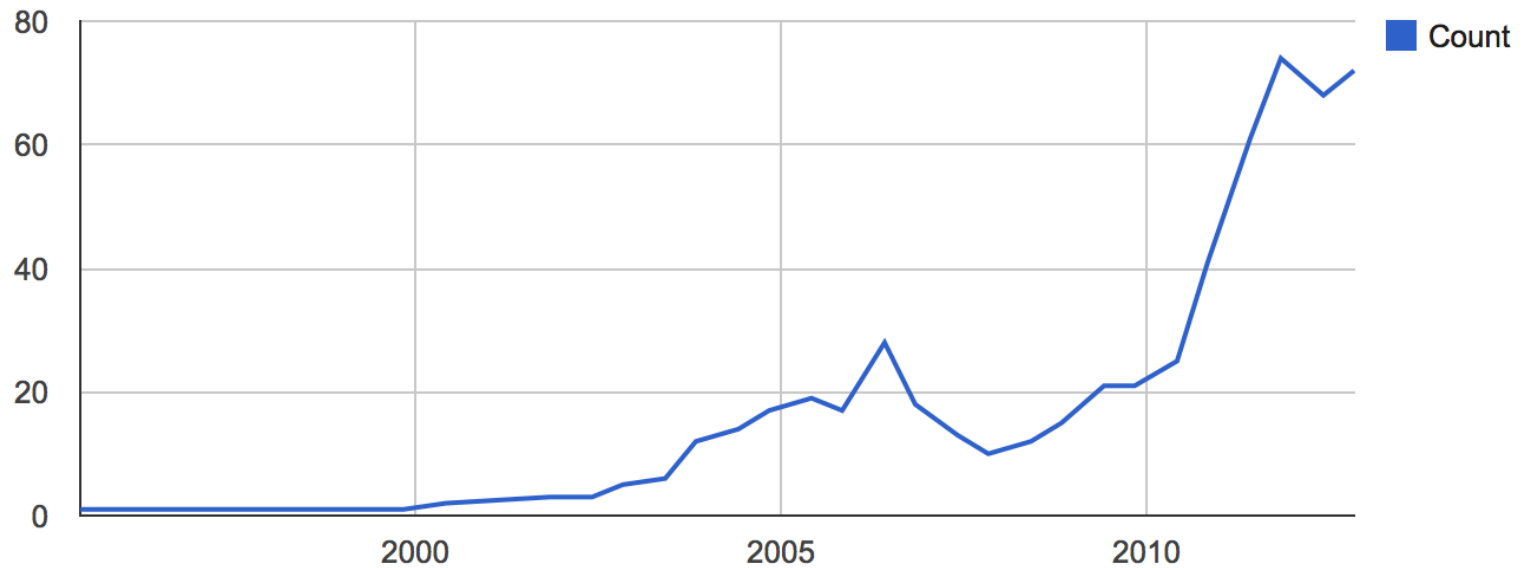
Supercomputers



Countries System Share



System Count



What's at stake in China?

IT as a top priority: from hardware to services

1980's: Strong support of Jiang Zemin

1994: Stable Internet connection IHEP - SLAC Stanford

2004: China first exporter of ICT product

2005: acquisition of IBM's PC division

2000's: Telecom equipment industry: Huawei, ZTE

2000's: Telecom operator: China Telecom, Unicom, Mobile,

2000's: Web 2.0 actors: Baidu, Tencent, Alibaba, ...

ICT in China: the industry

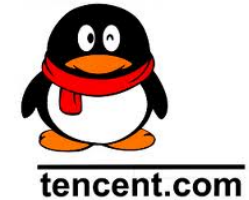
New ICT giants with strong export capacity

Lenovo

Spin-off of the Chinese Academy of Sciences

Bought IBM PC's for 1.75 Billions US\$ 2005

#1 PC market in Asia-Pacific region



ZTE and Huawei

Telecom equipment

Global research network



中国移动通信
CHINA MOBILE

China Mobile, China Unicom, China Telecom

Telecom operators

Baidu, Tencent, Alibaba

Internet



Proprietary standards

Priority of the 12th 5 year plan (2011-2015)

TD-SCDMA is China's 3G standard



FutURE Forum to prepare China's upcoming "Beyond 3G" standard

未来移动通信论坛
www.future-forum.org

AVS is China's standard for Audio & Video (competitor of MPEG-4 AVC)



数字音视频编解码技术标准工作组
Audio Video coding Standard Workgroup of China

SCDMA, China's standard that could compete with Wimax



Enhanced Versatile Disk, China's standard for HD DVD



Ministry of Industry and Information Technology



Ministry of Science and Technology



IGRS is China's home networking standard

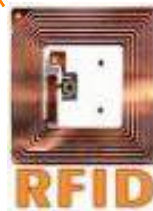


DMB-T
China's national standard for Digital Terrestrial TV

China Communications Standard Association



Internet 2 & IPv6 technologies



RFID
China's national standard for RFID under discussion



China BroadBand Wireless IP Standard Working Group, promoter of WAPI, China's WLAN standard



GM-U Code, China National Standard for 2D barcodes



SARFT announced China's National Standard for Mobile TV & interactive multimedia services (STiMi & CMMB)



America the Innovative?

The New York Times

China may pass the United States
in R&D spending by 2023

The Battelle Institute

Chapters

I Asia in the info Society

II China's Web giants

III Designed by China, R&D

IV A universal Internet?

Special Report on China and the Internet *april 6 2013*

“If this special report were about the internet in any Western country, it would have little to say about **the role of the government**; instead, it would focus on the companies thriving on the internet, speculate about which industries would be disrupted next and look at the way the web is changing individuals’ lives.”

What global governance for the Internet?

Internet is an unregulated international service
running on top of telecoms systems
managed by stakeholders

ICANN, generic top-level domains (gTLDs)
based in the US

IETF, Internet protocol standards (TCP/IP)

W3C, Standards for the Web (HTML, XML)

ITU, International Telecom Union
UN regulation body for Telecom (initially telegraph)
not involved in Internet

What global governance for the Internet?



- World Summit on the Information Society, 2003 / 2005
50 percent of the world's population online by 2015
China supports the creation of an international Internet organization
- World Conference on International Telecommunications, Dubai 2012
Proposition of a new ITR treaty
signed by 89 countries: China,
rejected by 55 countries: USA, EU members



WCIT-12 decisions

“have the potential to put government handcuffs on the Net. To prevent that —and keep the Internet open and free for the next generations— we need to prevent a fundamental shift in how the Internet is governed.”

Vint Cerf, Google

Conclusion

The leadership of the information society is in the US and Asia

design of concepts and tools

domination of the industry

concentration of the business

While Europe seems to be at the periphery

no sustainable local systems

complete dependency on foreign systems

stuck in political incapacity