

TECHNOLOGY and SECURITY in the INDO-PACIFIC

**VIRGINIA B. WATSON, Ph.D.
DKI Asia-Pacific Center for Security Studies**

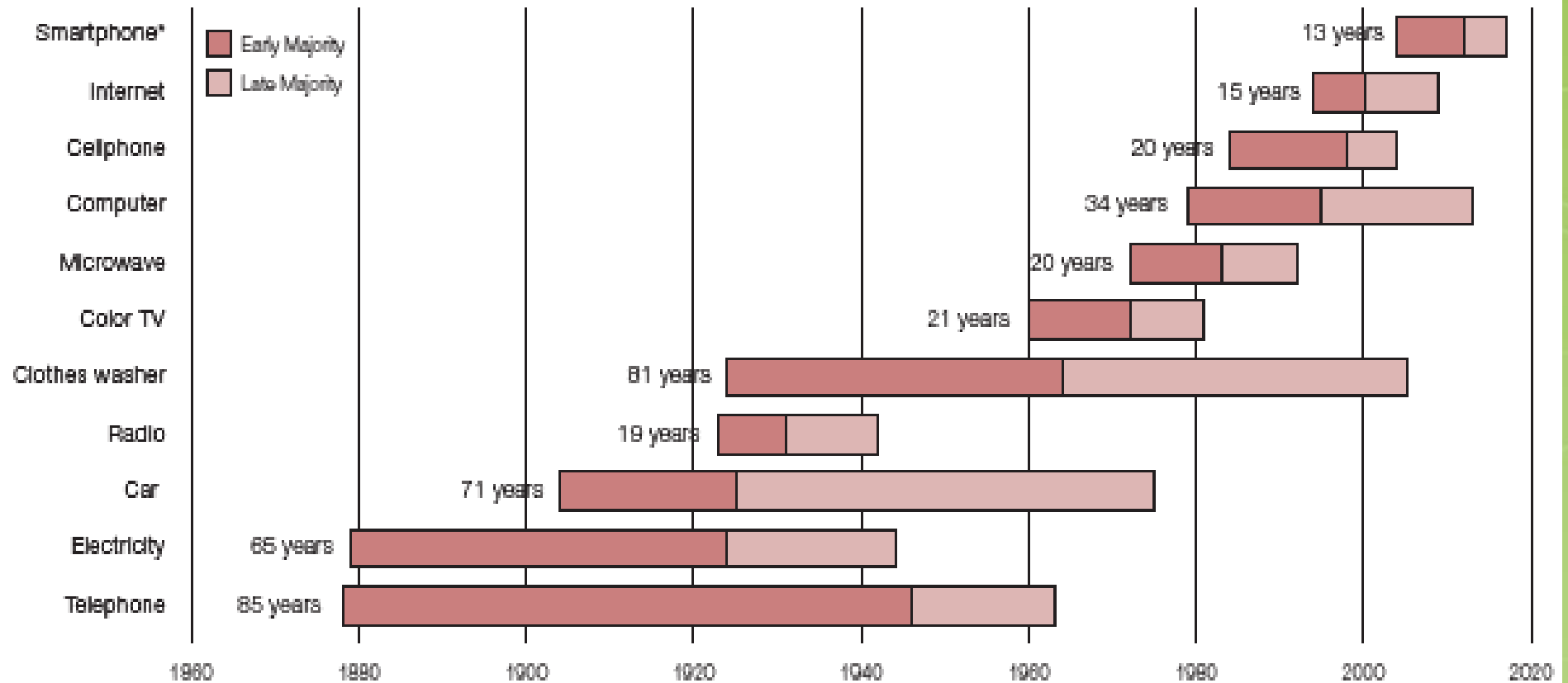
Industrial Revolutions

- ◆ First Industrial Revolution – steam, water to mechanize production
- ◆ Second Industrial Revolution – electric power to create mass production
- ◆ Third Industrial Revolution – electronics and information technology to automate production

The Fourth Industrial Revolution

- ◆ **Digital revolution (hyperconnectivity)**
- ◆ **Technology fusion (metaconvergence)**
- ◆ **Ubiquitous (superintelligence)**
- ◆ ****Speed, scope, scale of advance**

Adoption of Novel Technologies 1860-2020



SOURCES: Bell Telephone System, 1953; Cox and Alm, 2008; Hartig, 1998; Kirby et al., 1990; U.S. Census Bureau, 2014.

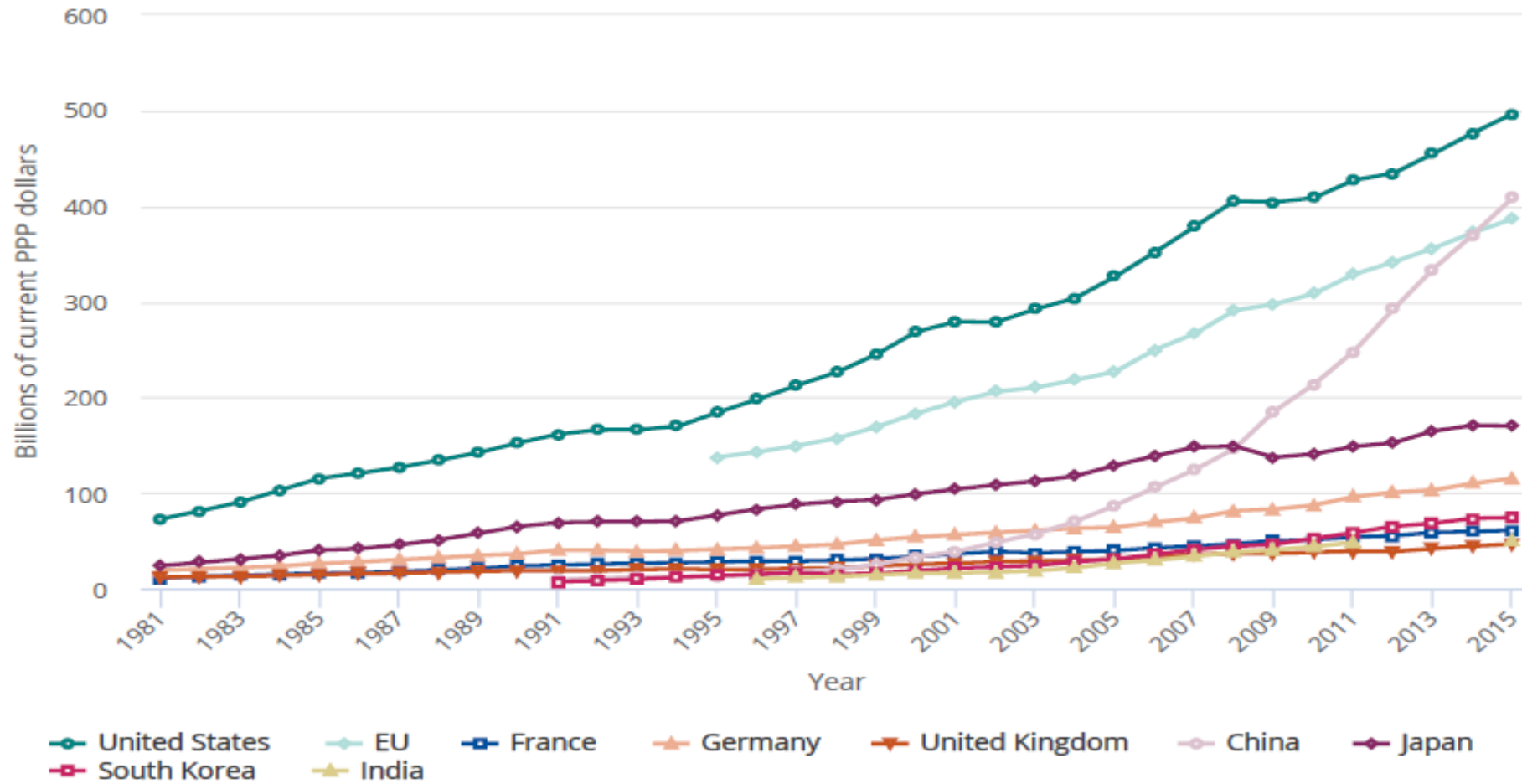
* Smartphone Late Majority is estimated based on current trends.

A traditional Chinese pavilion with a multi-tiered, dark roof and ornate details, situated on a rocky mountain peak. The scene is set during a vibrant sunset or sunrise, with a warm orange and yellow sky filled with soft, wispy clouds. A full moon is visible in the upper right portion of the sky. The foreground shows dark green foliage and a wooden staircase leading up to the pavilion. The overall atmosphere is serene and majestic.

Rise of Asia

New World Order Emerging

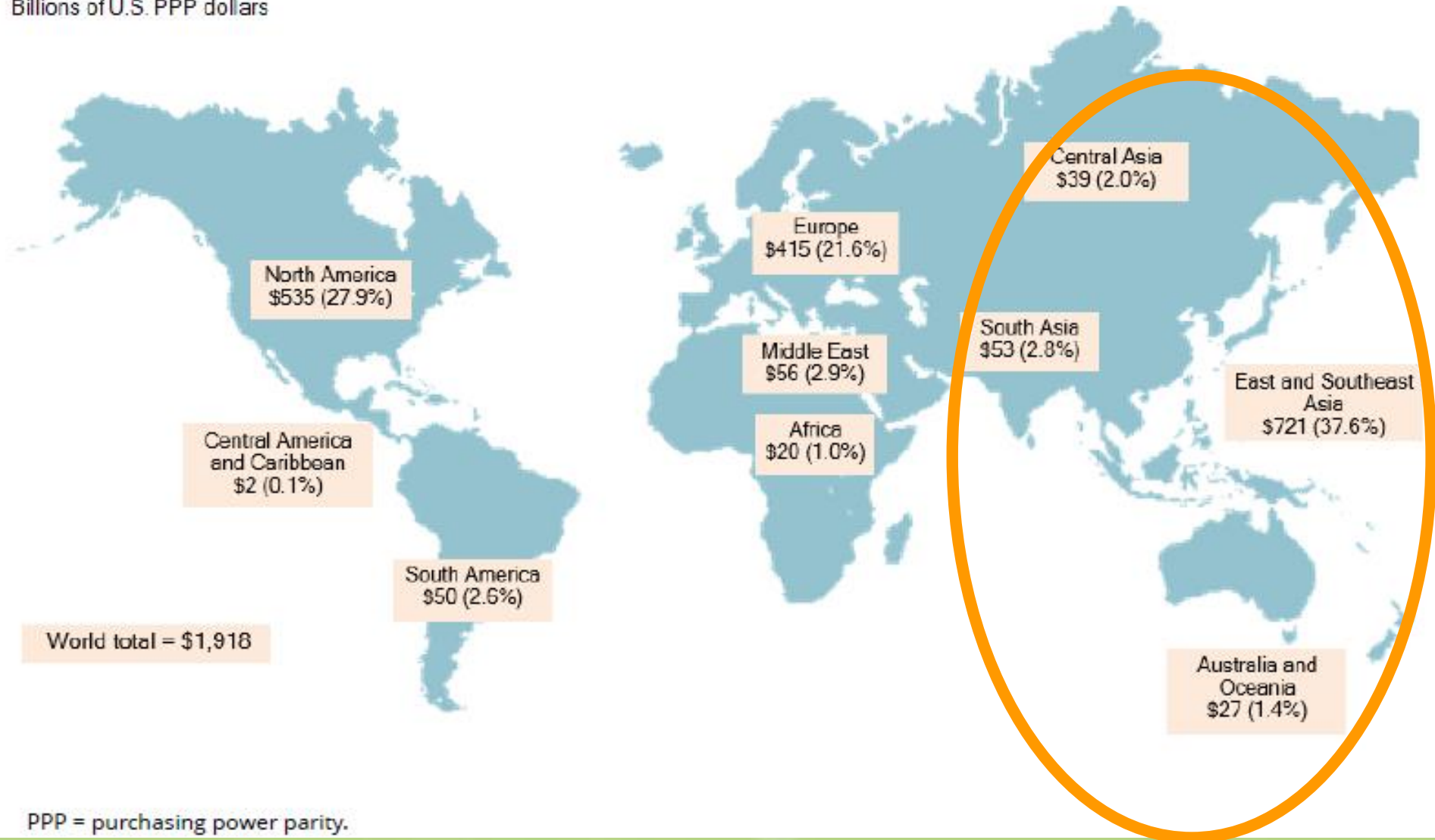
Gross domestic expenditures on R&D, by the United States, the EU, and selected other countries: 1981–2015



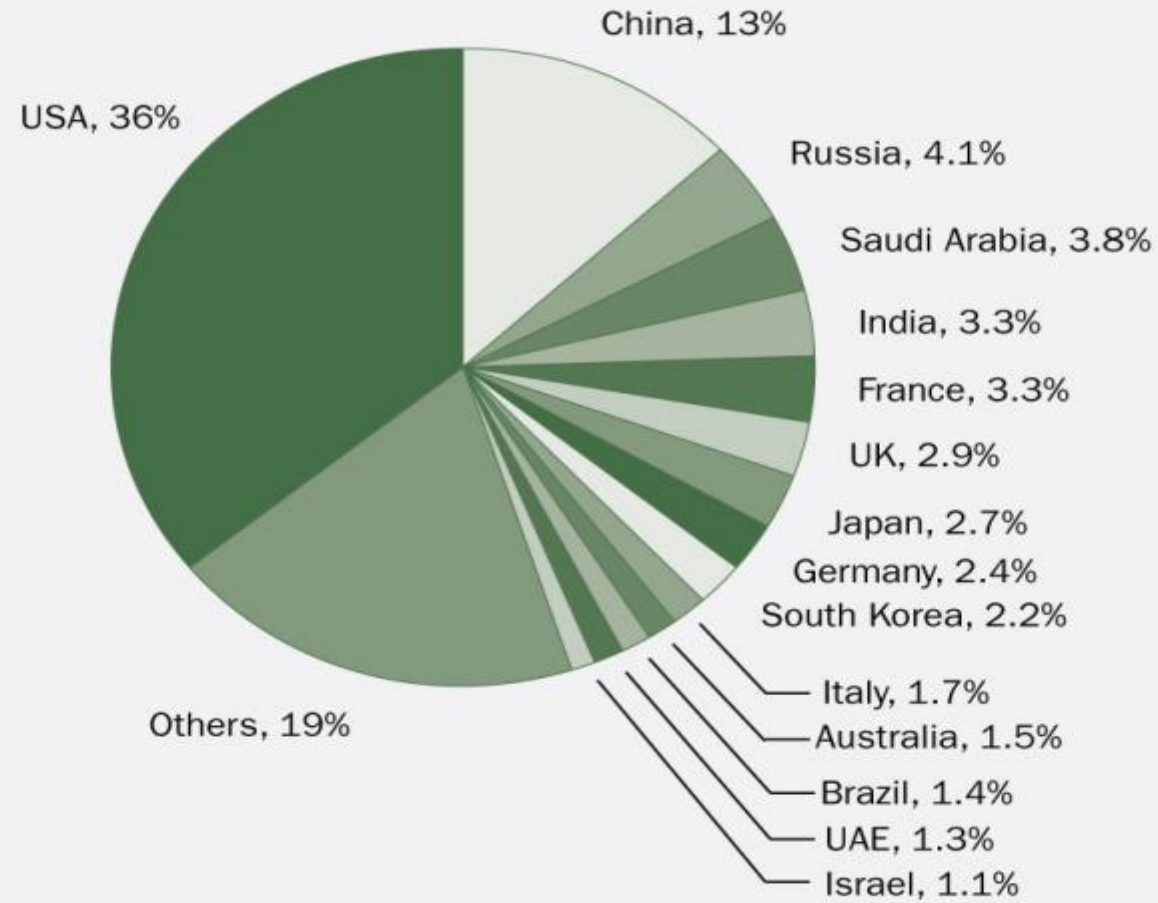
EU = European Union; PPP = purchasing power parity.

Global R&D expenditures, by region: 2015

Billions of U.S. PPP dollars



Share of world military expenditure of the 15 states with the highest spending in 2016



Data: SIPRI Military Expenditure Database (24 April 2017)

www.sipri.org

© 2017 SIPRI

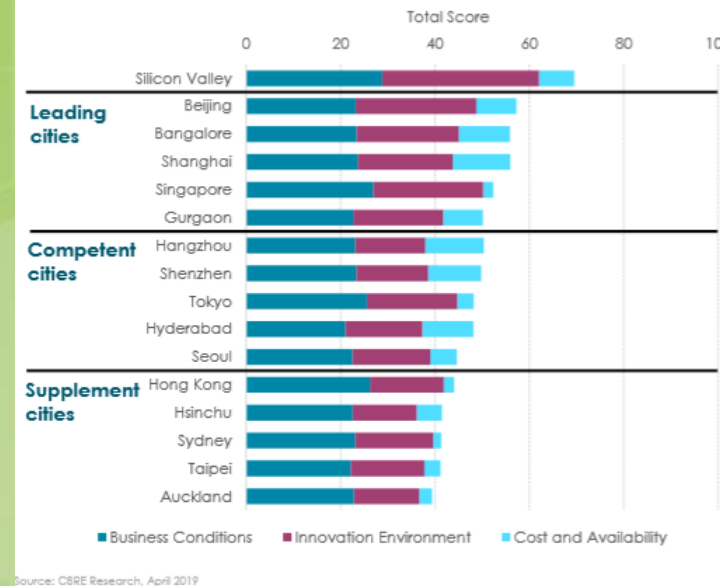


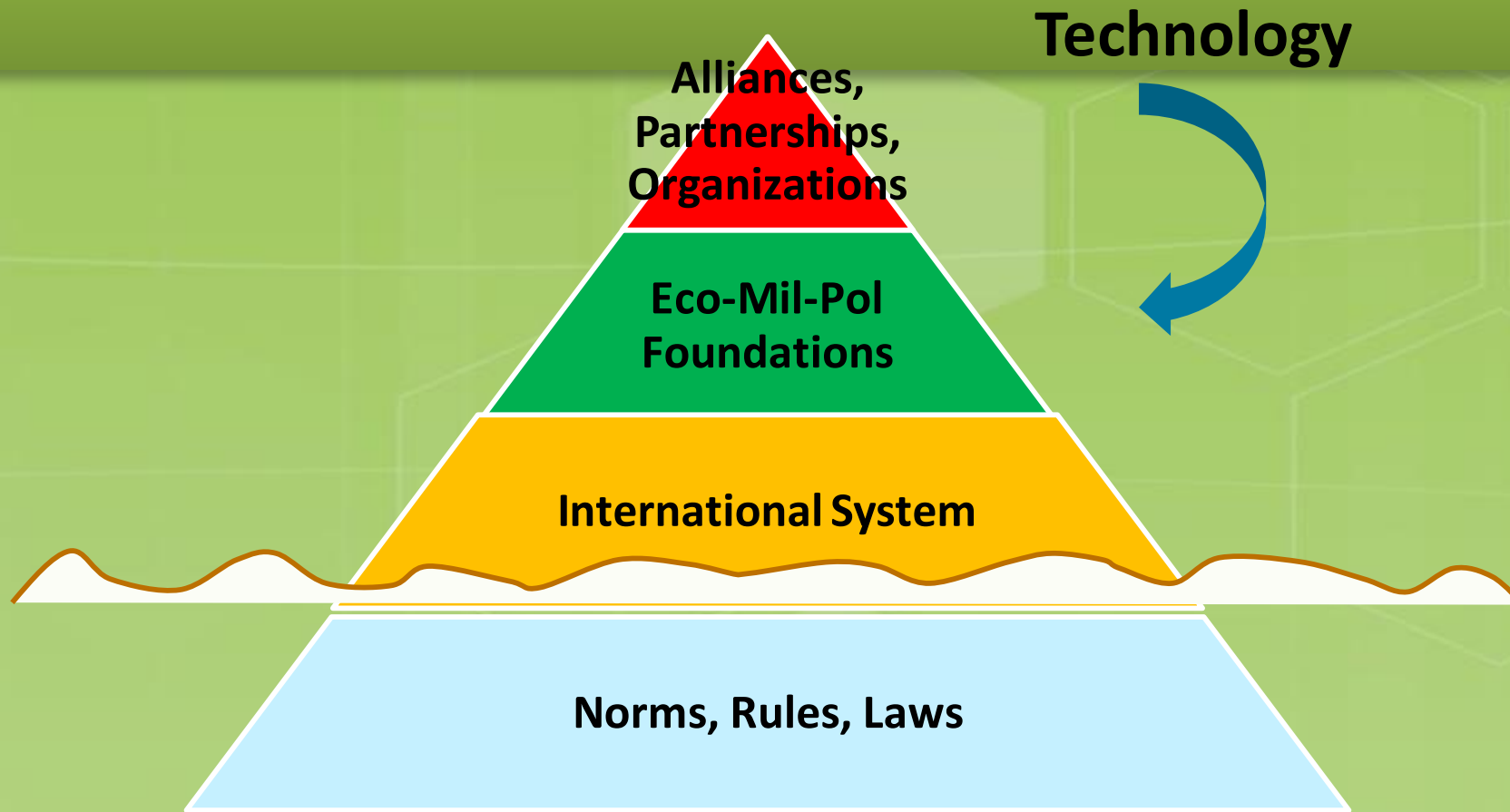
<https://www.sipri.org/research/armament-and-disarmament/arms-transfers-and-military-spending/military-expenditure>

ASIA'S TOP TECH CITIES

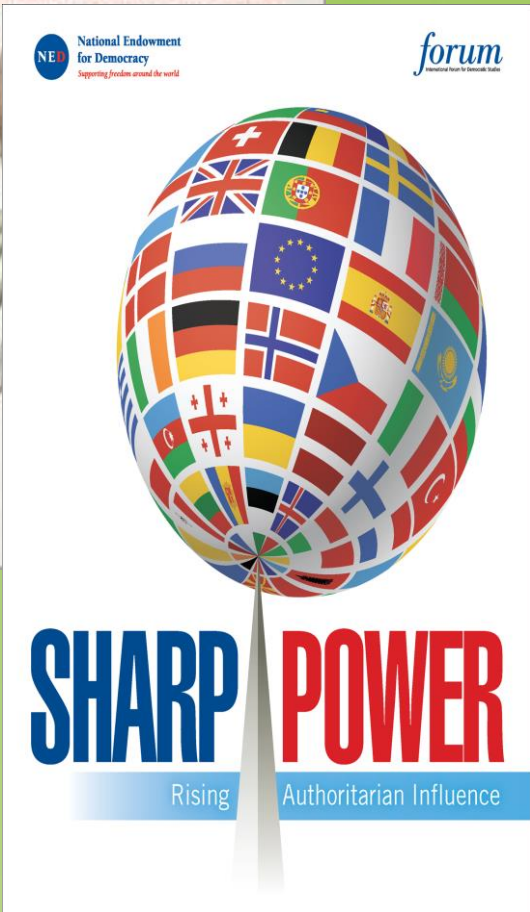
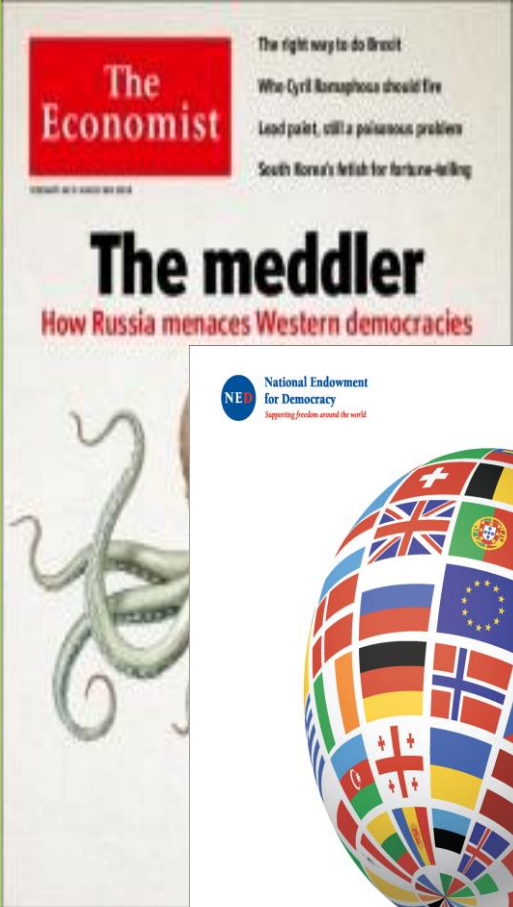


FIGURE 6: RANKING OF ASIA PACIFIC TECH CITIES





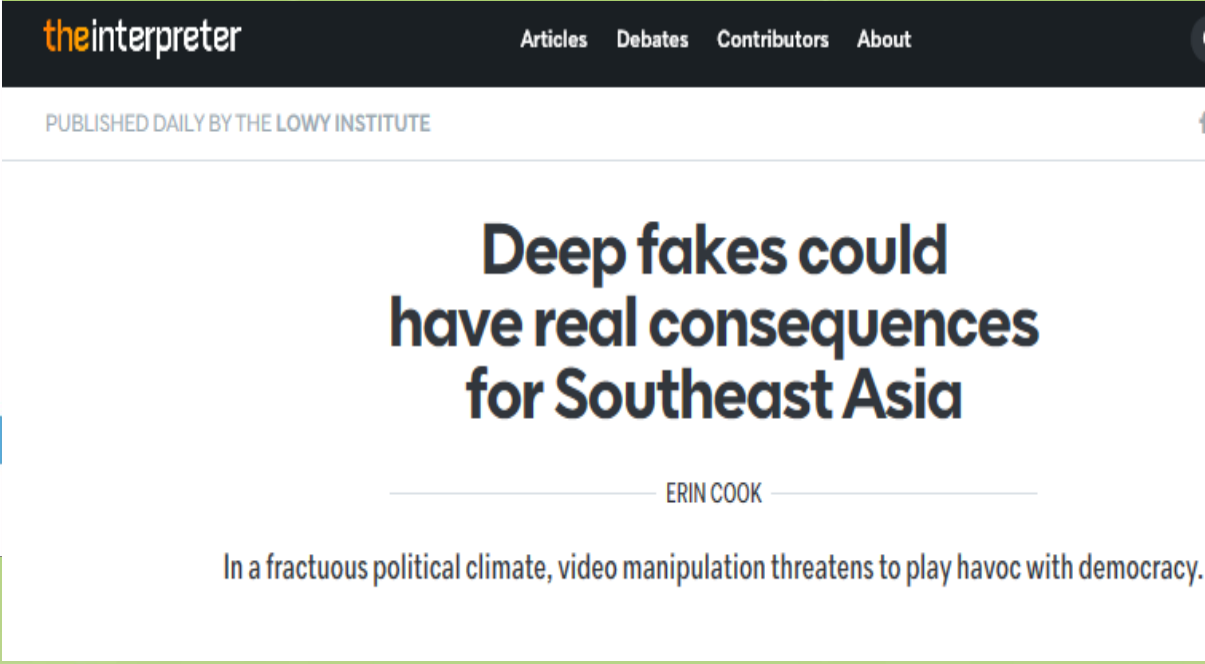
The "Iceberg" Model of Security Architecture



<https://www.ned.org/sharp-power-rising-authoritarian-influence-forum-report/>

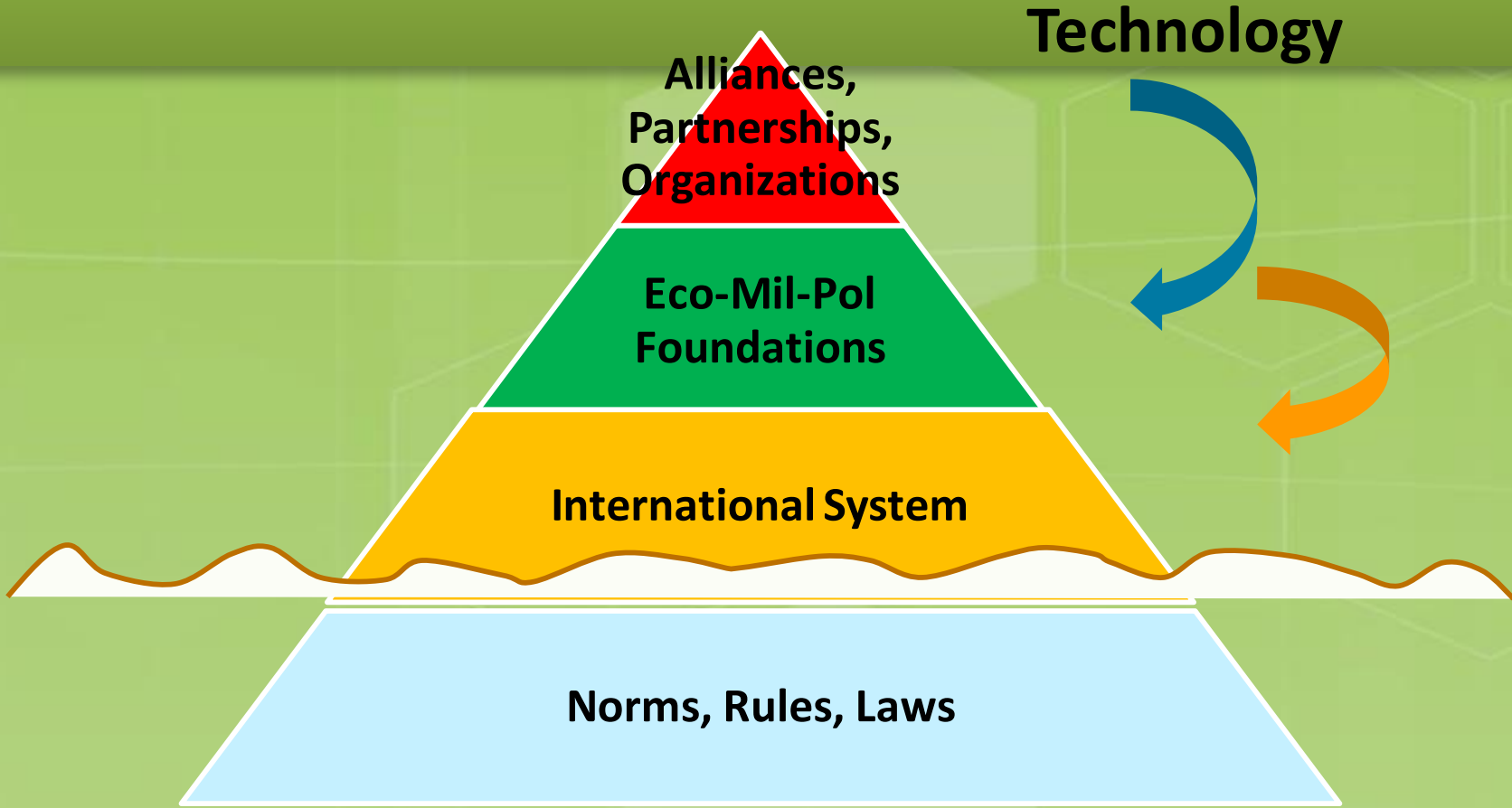


<https://moderndiplomacy.eu/2017/11/29/india-s-naval-modernization-implications-for-indo-pacific-and-south-asian-region/>



<https://www.lowyinstitute.org/the-interpreter/deep-fakes-could-have-real-consequences-southeast-asia>

DISRUPTION



The "Iceberg" Model of Security Architecture

U.S. – China Relations

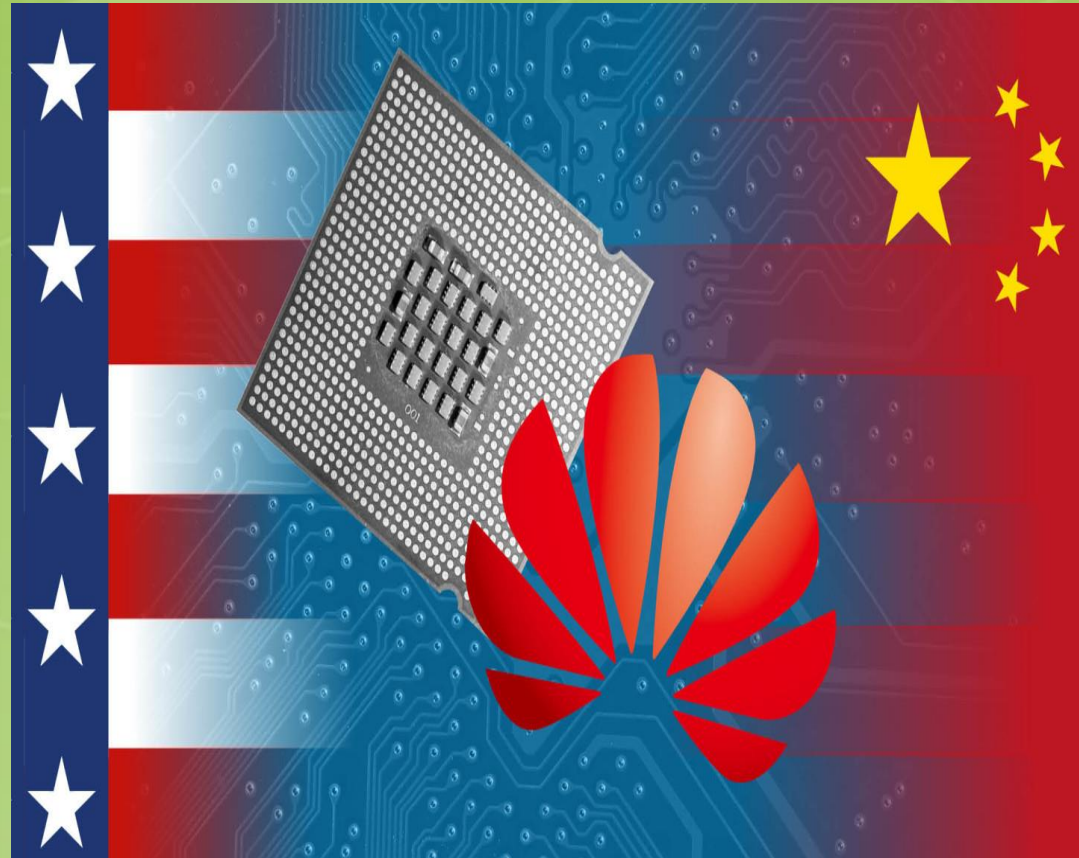
“When they are stable, the region is calm; when they are roiled, the region is uneasy.”

- *Bilahari Kausikan*
(*Singaporean diplomat*)

The Asian Century

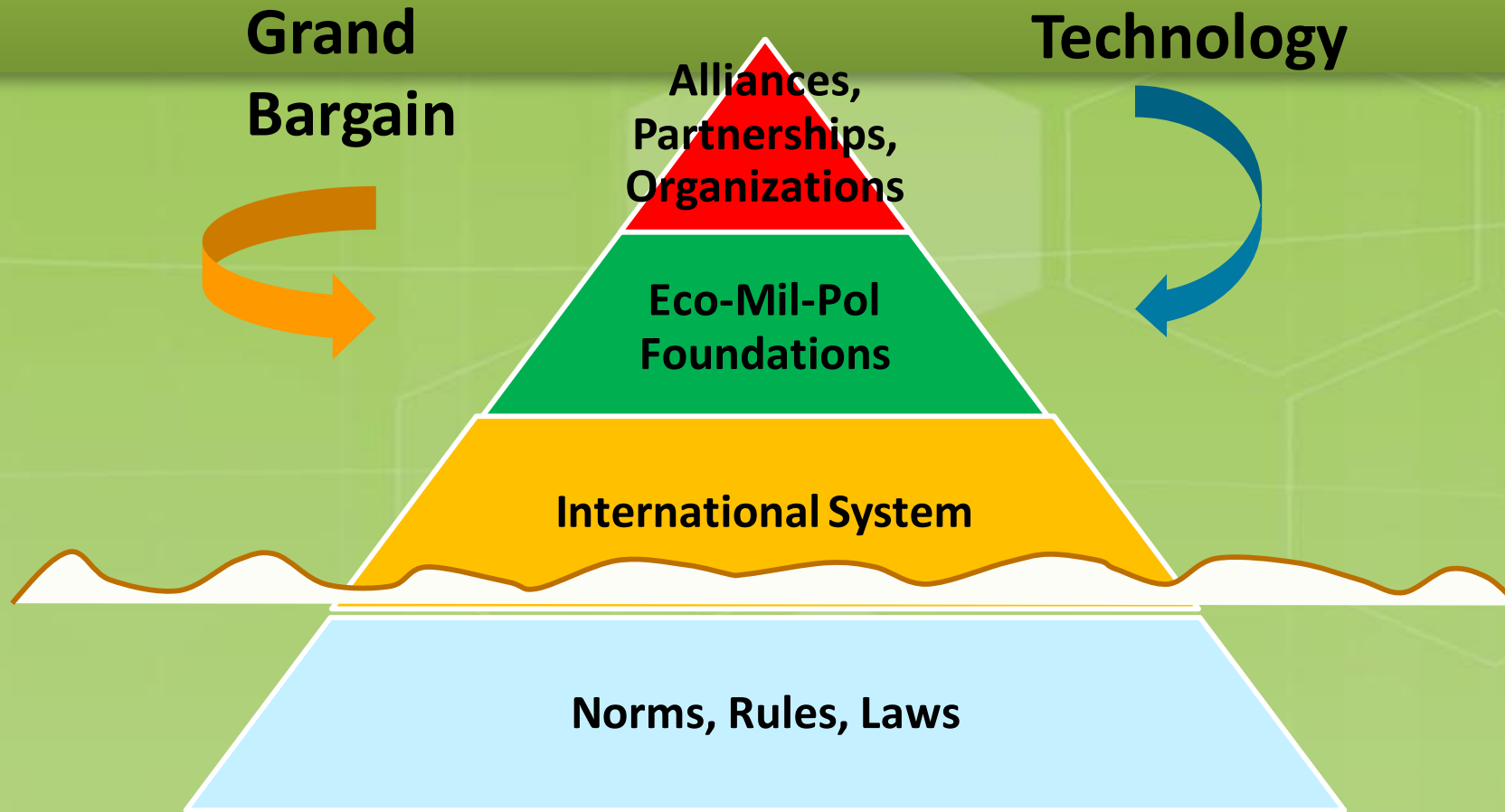
U.S. – PRC Strategic Competition

- Digital
- Military
- Industrial/Eco





- ◆ **Defense Innovation Initiative (2014)**
- ◆ **FOIP (2017), NSS (2018)**
- ◆ **NDS (2018)**
- ◆ **Defense Innovation Unit (2018)**
- ◆ **Joint AI Center (2018)**
- ◆ **DoD AI Strategy (2018)**
- ◆ **Executive Order on Maintaining American Leadership in AI (2019)**
- ◆ **Export Control Reform Act (2019)**
- ◆ **FY 2020 R&D Budget Priorities (2019)**
- ◆ **“Techno-nationalism” (1990s)**
- ◆ **OBOR (2013), Digital Silk Rd**
- ◆ **Made in China 2025**
- ◆ **Military-Civil Fusion (2015)**
- ◆ **Natl Informatization Development Strategic Guideline (2016)**
- ◆ **Nat; Strategic Guidelines for Innovation-Driven Devt (2016)**
- ◆ **New Generation Artificial Intelligence Devt Plan (2017)**
- ◆ **China Natl Defense in the New Era (2019)**



The "Iceberg" Model of Security Architecture

Shifts in the Economic-Military-Political Foundations

Key elements	Shifts
U.S. as market of last resort	<ul style="list-style-type: none">• China replaced U.S. as top trading partner of most regional countries
U.S. air & naval superiority in Western Pacific	<ul style="list-style-type: none">• China's rise as sea power in East China Sea and South China Sea
U.S. military preponderance	<ul style="list-style-type: none">• China's rise as an indispensable power

U.S. as unrivaled global Science & Tech leader

China as an emerging global tech leader



Chinese Blockchain Company Targets Maritime Silk Road

China's plans for stronger
LOMMES/WIKIMEDIA COMMONS

China's belt includes sci

By Dennis Normile | May

[https://www.science
infrastructure-plan-a](https://www.science
infrastructure-plan-a)



file photo: China's maritime silk road

BY [THE MARITIME EXECUTIVE](https://www.maritime-executive.com) 2018-08-21

<https://www.maritime-executive.com>
targets-maritime-silk-road

Zimbabwe: The New Normal - Zimbabwe Leverages On China's Global Science and Technology Leadership



Photo: Joseph Nyadzayo/The Herald

President Emmerson Mnangagwa and his Chinese counterpart President Xi Jinping in Beijing, China (file photo).

<https://allafrica.com/stories/201910250491.html>

DEFENDING OUR DATA: HUAWEI, 5G AND THE FIVE EYES

BY BOB SEELY MP, DR PETER VARNISH OBE
& DR JOHN HEMMINGS



DEMOCRACY | FREEDOM | HUMAN RIGHTS

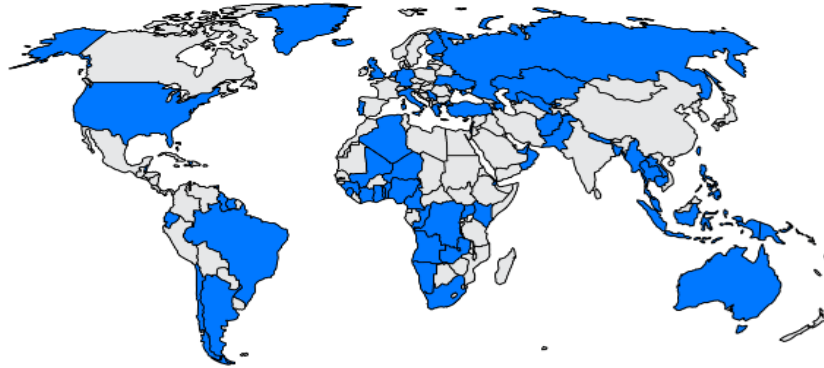


May 2019

China's Digital 'Belt and Road'

Chinese companies are expanding their global footprint, installing fiber-optic cable, surveillance systems, and telecommunications equipment in dozens of countries around the world.

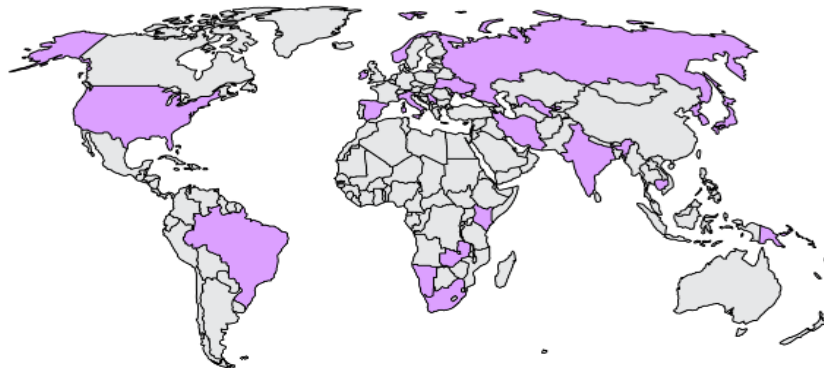
● Internet cables (fiber)
Number of countries: 76



● "Smart city" initiatives; surveillance
Number of countries: 56



● Telecom equipment
Number of countries: 21



● Internet-connected appliances
Number of countries: 27



Data compiled by RWR Advisory Group, a Washington-based research firm that tracks Chinese investments abroad. Only projects completed or initiated outside China since 2012 that involve the sale or installation of telecommunications equipment or technology to enhance the digital infrastructure of the target country have been included. As RWR research reflects what has been publicly reported, errors and omissions are possible.

The Washington Post

Japan effectively bans China's Huawei and ZTE from government contracts, joining U.S.

https://www.washingtonpost.com/world/asia_pacific/japan-effectively-bans-chinas-huawei-zte-from-government-contracts-joining-us/2018/12/10/748fe98a-fc69-11e8-ba87-8c7facdf6739_story.html

Los Angeles Times

<https://www.latimes.com/world/la-fg-philippines-huawei-southeast-asia-20190610-story.html>

Why a ban on Huawei is being ignored by some of the oldest U.S. allies in Asia

By SHASHANK BENGALI, DAVID PIERSON | JUNE 10, 2019 | 3 AM

TheStreet.

<https://www.thestreet.com/investing/stocks/u-s-firms-may-get-ok-to-sell-to-huawie-soon-says-u-s-official-bloomberg-15151054>

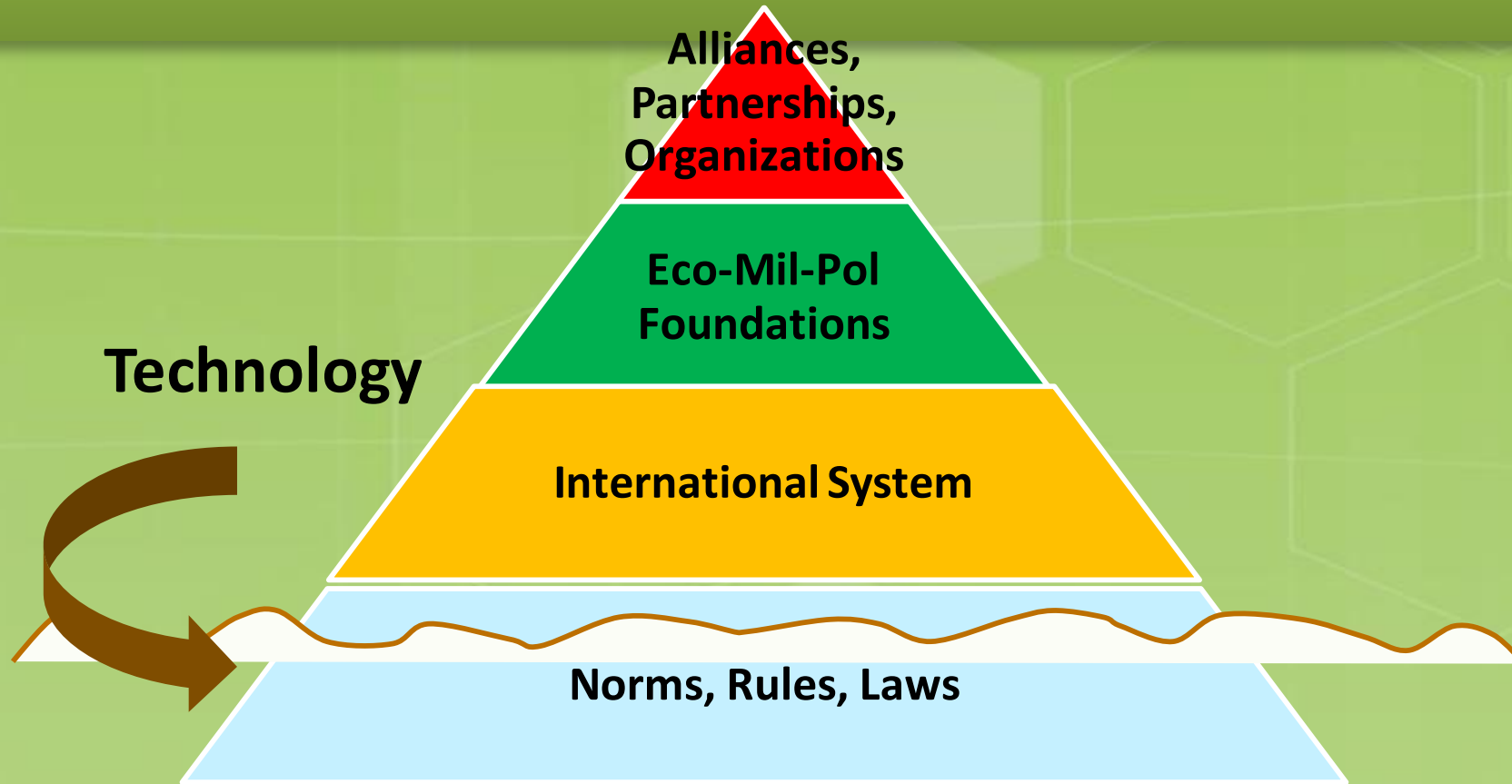
U.S. Firms May Get OK to Sell to Huawei Soon, Says U.S. Official: Bloomberg

Commerce Secretary Wilbur Ross said that licenses to sell to the Chinese tech company 'will be forthcoming very shortly' in an interview with Bloomberg.

By Adam Smith 

Nov 3, 2019 1:16 PM EST

REVISION

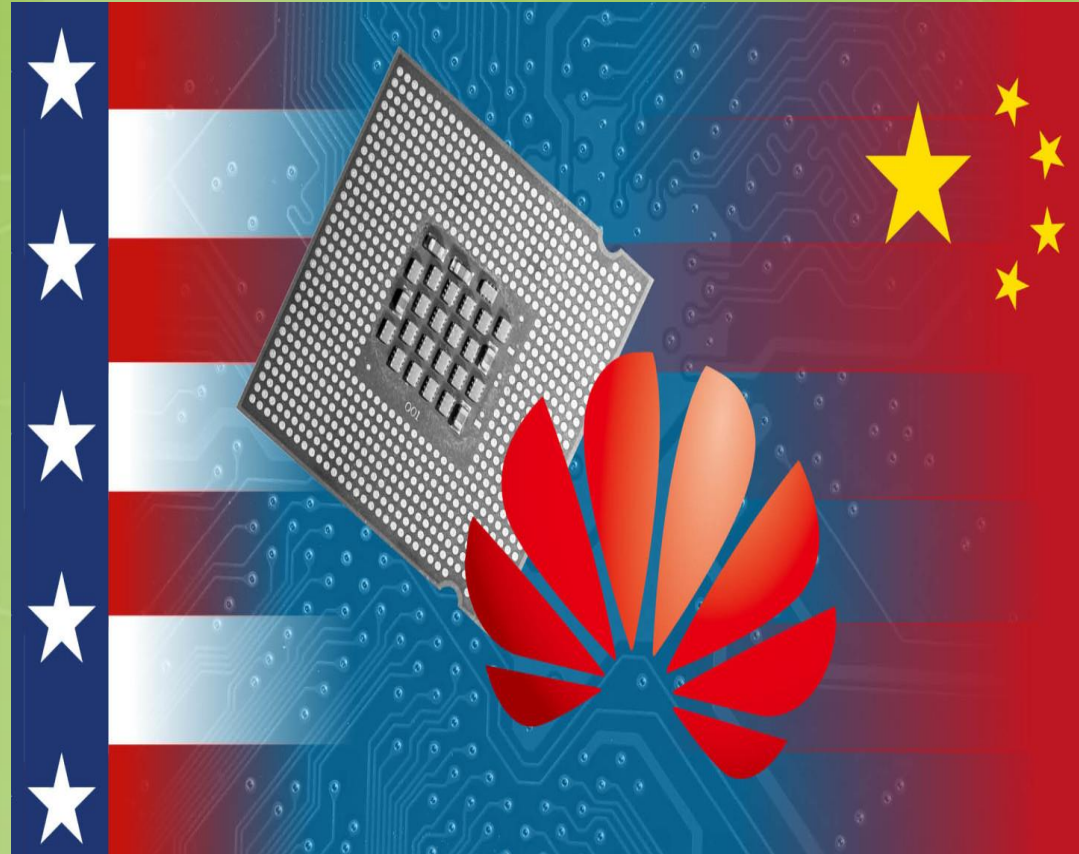


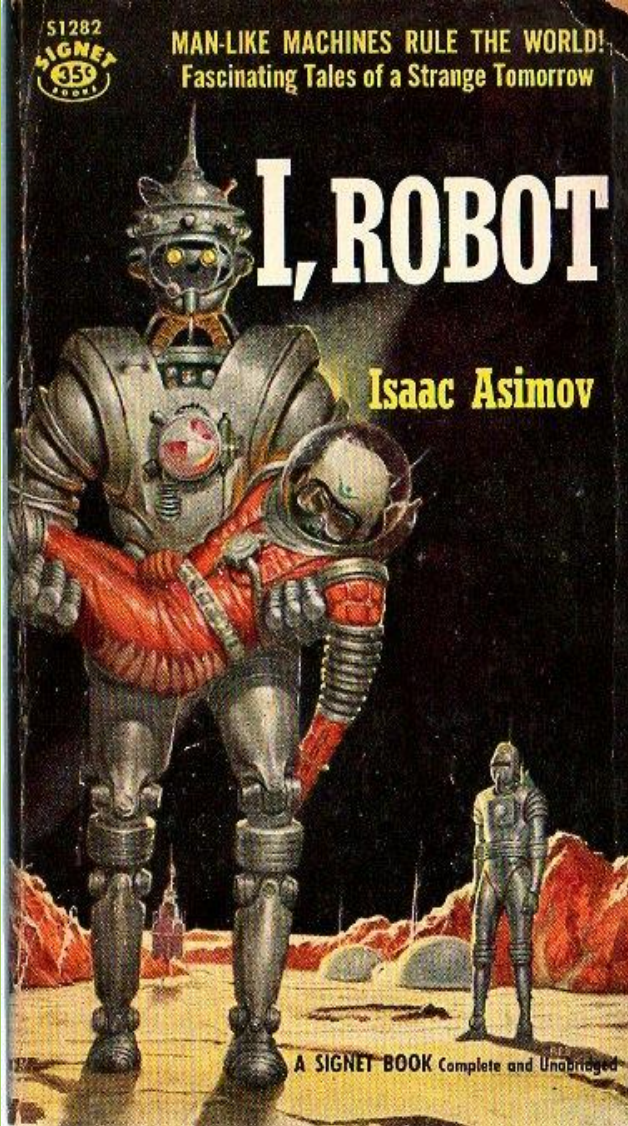
**The “Iceberg” Model of
Security Architecture**

The Asian Century

U.S. – PRC Strategic Competition

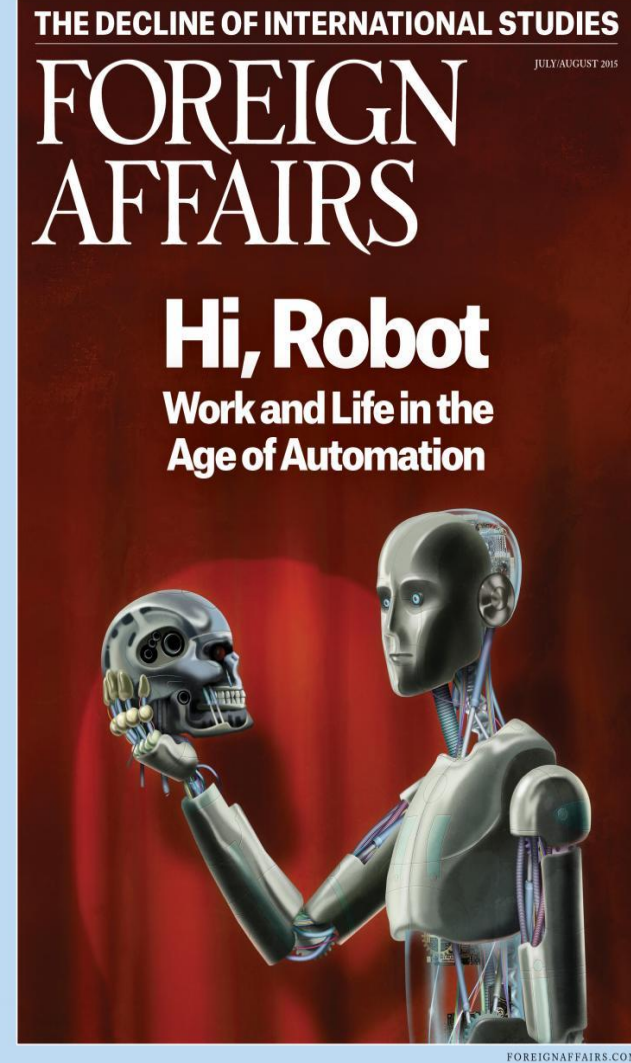
- Digital
- Military
- Industrial/Eco
- “Ideological”
- Moral order



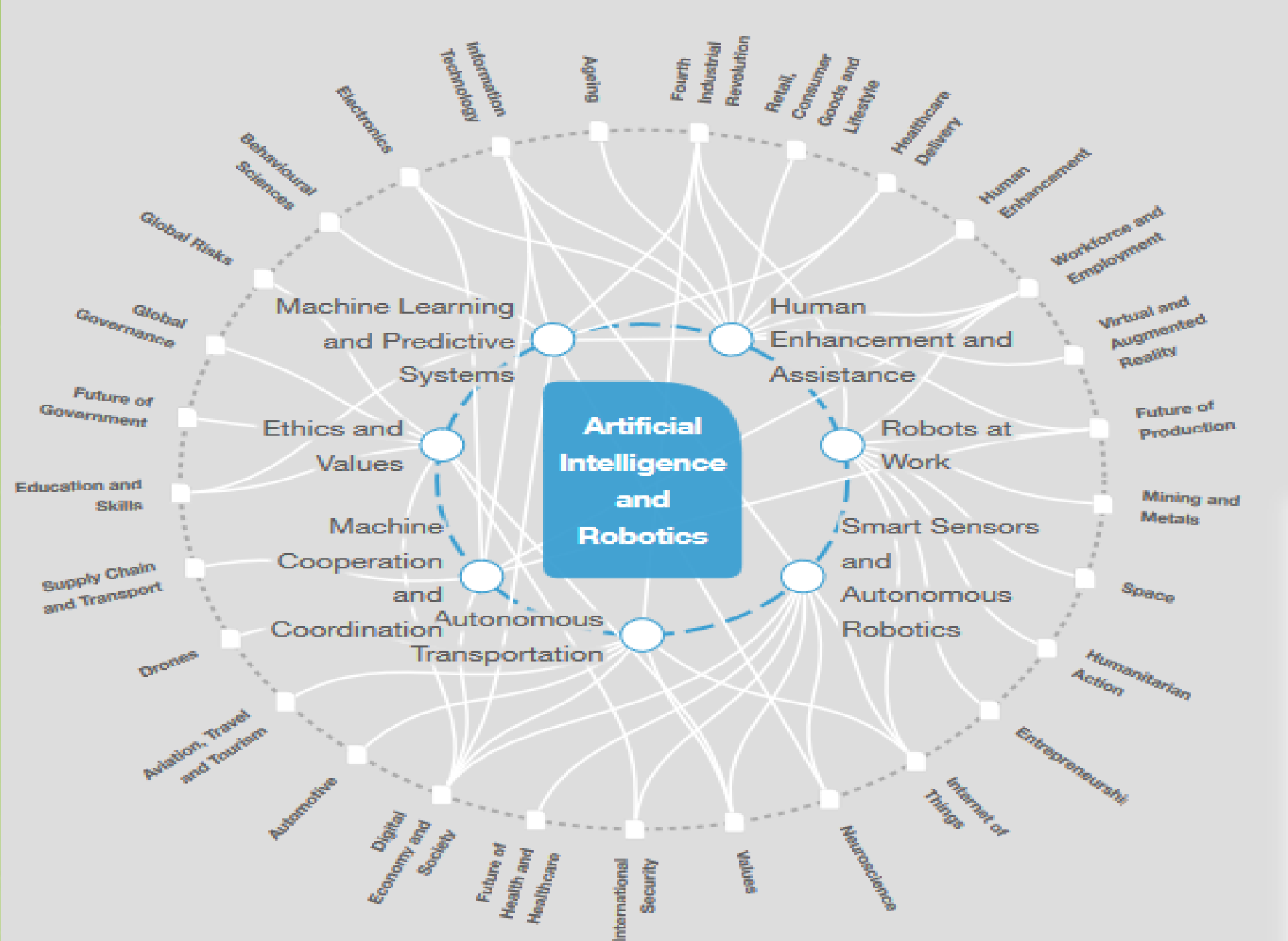


**Published
1950**

OF HUMANS, ROBOTS, AND MORALITY



[https://www.foreignaffairs.com/
articles/2015-06-15/hi-robot](https://www.foreignaffairs.com/articles/2015-06-15/hi-robot)

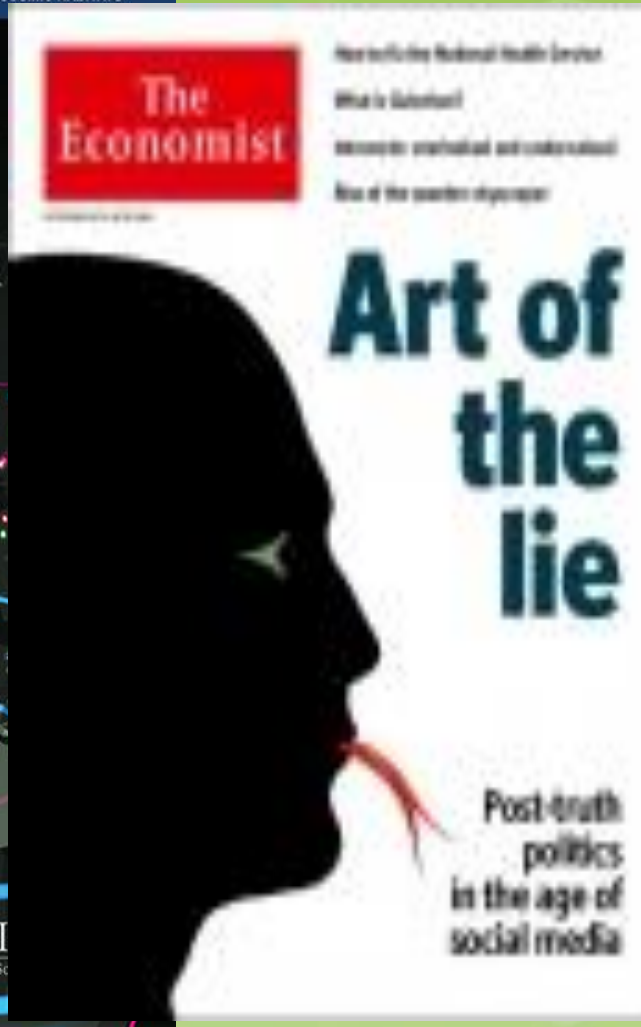




Europeans are arguing over whether robots should have rights

European lawmakers are trying to sort out the legal future of AI and robots. Easier said than done.

Background: A 2017 European Parliament report suggested that advanced robots could be granted “electronic personalities.” This status could give robots... **Read more**



Evan Williams- Twitter Founder



“I thought once everybody could speak freely and exchange information and ideas, the world is automatically going to be a better place...I was wrong about that.”

https://www.nytimes.com/2017/05/20/technology/evan-williams-medium-twitter-internet.html?smid=tw-share&_r=0&referrer=https://t.co/qWkEgTMz8z



ALTERED STATES
The Rise of the
Corporate
Superpowers

**THE “FANG of
FOUR” in Wall
Street—
Facebook,
Amazon,
Netflix,
Google**

These 25 Companies Are More Powerful Than Many Countries

Going stateless to maximize profits, multinational companies are vying with governments for global power. Who is winning?

By Parag Khanna



<https://www.economist.com/printedition/2018-01-20>



<http://mediashift.org/2016/12/frances-proposed-youtube-tax-isnt-going-away/>

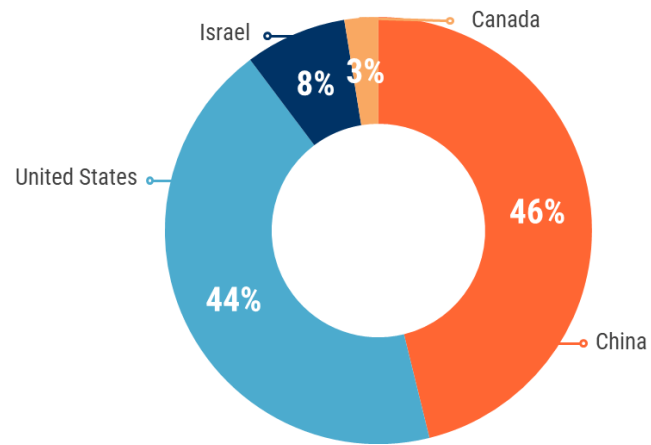
Chinese Healthcare & BATX (Baidu, Alibaba, Tencent, Xiaomi):



<http://innovatedinchina.cn/2016/12/24/batx-chinese-healthcare/>

Baidu, Alibaba, Tencent eye global AI startups

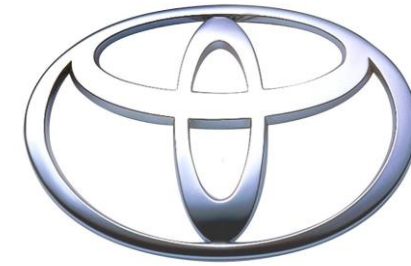
BAT-backed equity deal share by country, 2014 – 2018 (as of 4/20/18)



Source: cbinsights.com

 CBINSIGHTS

<https://www.cbinsights.com/research/china-baidu-alibaba-tencent-artificial-intelligence-dominance/>



TOYOTA



TATA





THE DEVIL YOU DON'T KNOW

TO SPIES, DAVID VINCENZETTI IS A SALESMAN. TO TYRANTS, HE IS A SAVIOR. HOW THE ITALIAN MOGUL BUILT A HACKING EMPIRE



April 18, 2018



Bill Gates and Masayoshi Son are backing a plan to have video cameras watch every inch of Earth from space

EarthNow, a new satellite project with some high-profile benefactors, aims to cover our entire planet in detailed, real-time video surveillance.

<https://www.technologyreview.com/the-download/>

“A loose alliance of about 115 gangs, with around 500 members each and numerous associates, they can swiftly assemble a workforce of whatever size is needed, or shift from one line of business to another in a flash. They are best-in-class when it comes to renewing talent and ideas.”



Mafia management:
The crime families of Naples are remarkably good at business



'THIS



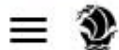
ROUTE



DOESN'T



EXIST



THE NEW REPUBLIC

[MAGAZINE](#) [SUBSCRIBE](#)



ON THE MAP

CHANGE



FINAL THOUGHTS

- ◆ Technology is an extension of the geopolitical logic that defines the Indo-Pacific region;
- ◆ Technological advances are generating and/or facilitating game-changing conditions that inform geopolitical realities;
- ◆ Information/data: the “new oil”; and
- ◆ Governance gap

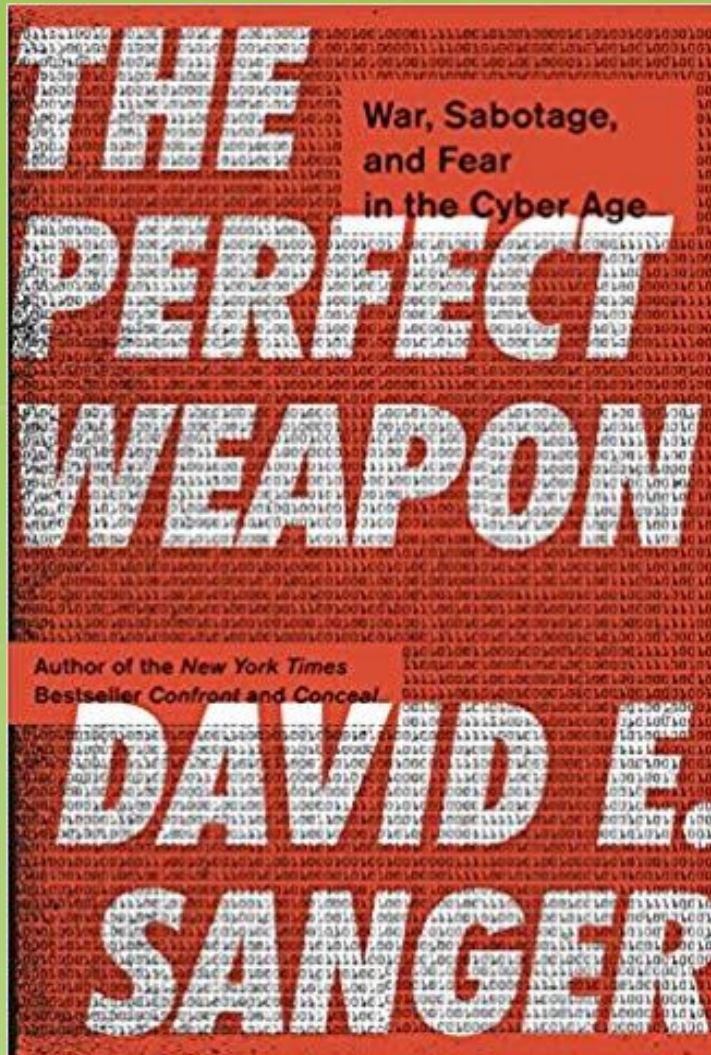


THANK YOU!

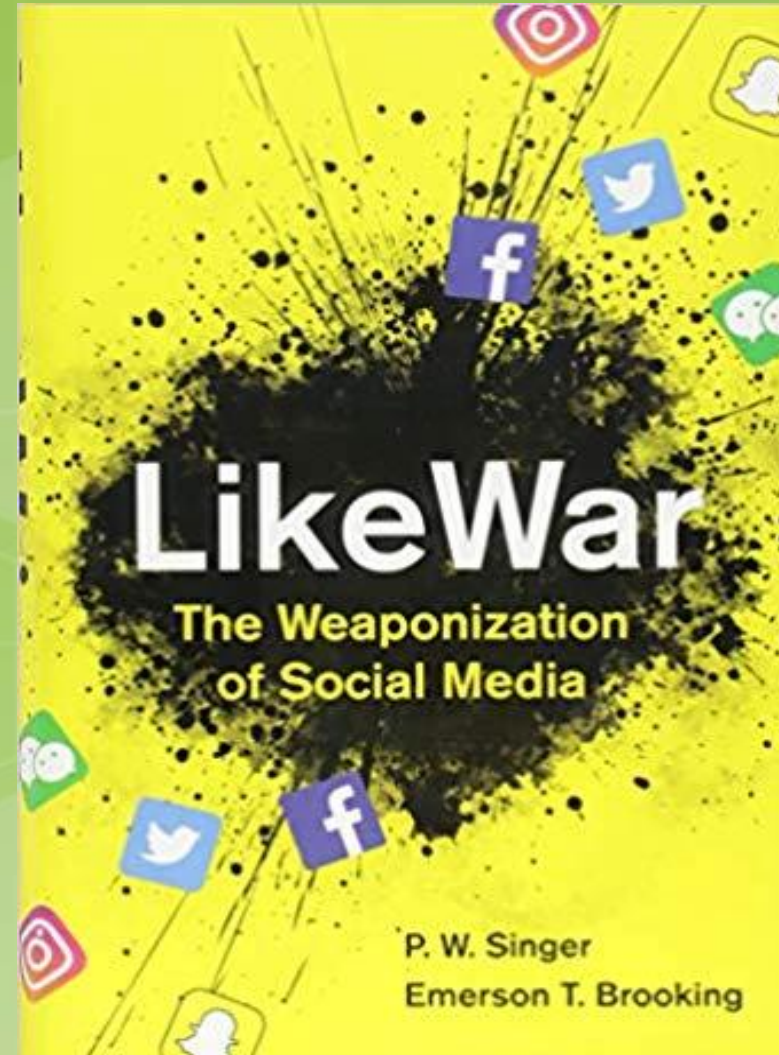
<https://www.nytimes.com/2017/10/22/technology/artificial-intelligence-experts-salaries.html>

DISCUSSION

- What kind of challenges does the Technology-Security nexus present to you as a senior leader/security practitioner of your country? To the region?



<https://www.amazon.com/Perfect-Weapon-Sabotage-Fear-Cyber/dp/0451497899>



<https://www.amazon.com/LikeWar-Weaponization-P-W-Singer/dp/1328695743>