

OSLOMET

A few statistics on A.I

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INTRODUCTION TO A.I - UMAIR M.I

OSLO METROPOLITAN UNIVERSITY
STORBYUNIVERSITETET

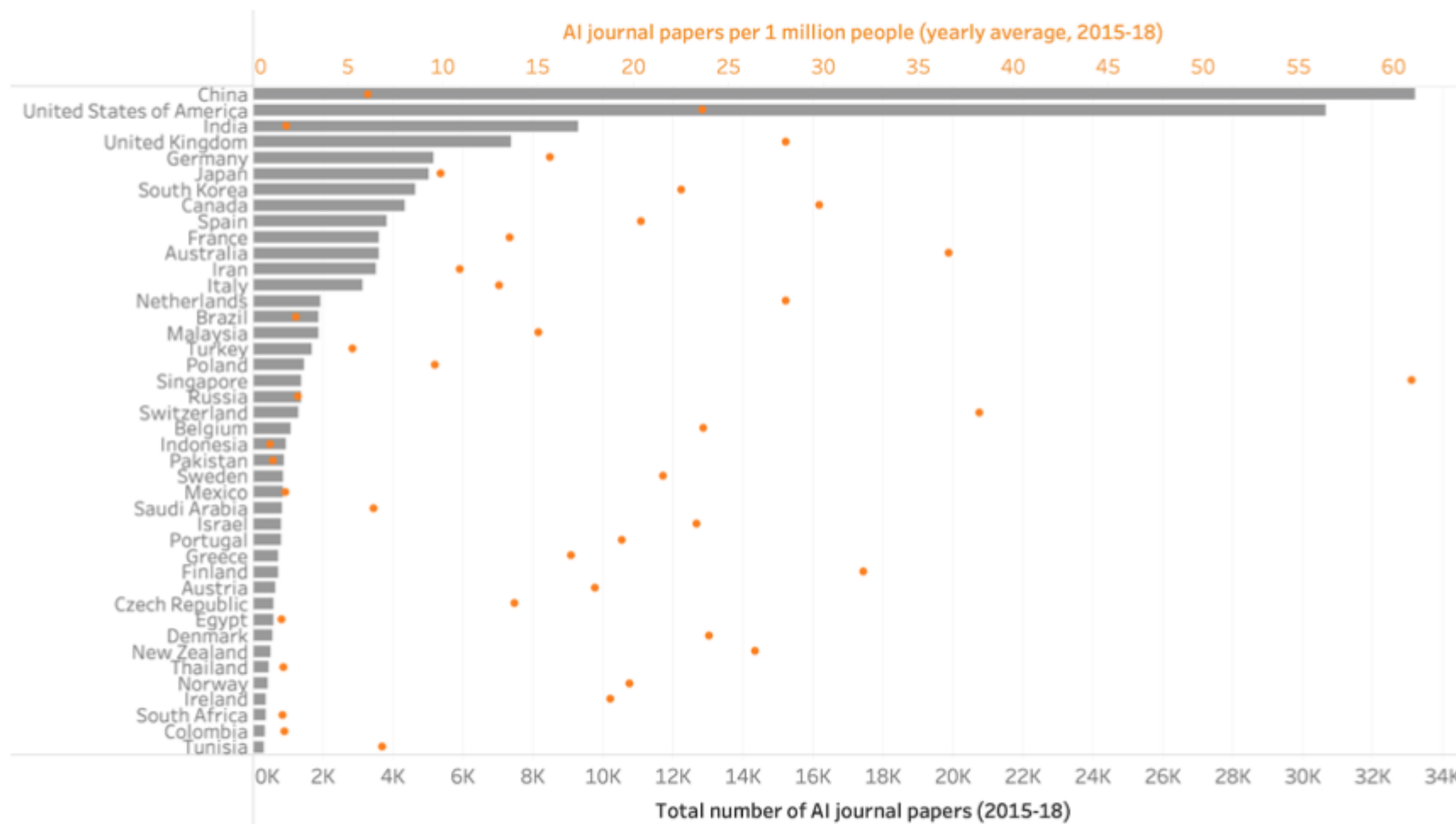


Research in A.I

Published Papers: AI Journal Publications

Total Volume and average annual per capita AI Journal Publications, 2015-2018

Source: MAG, 2019.



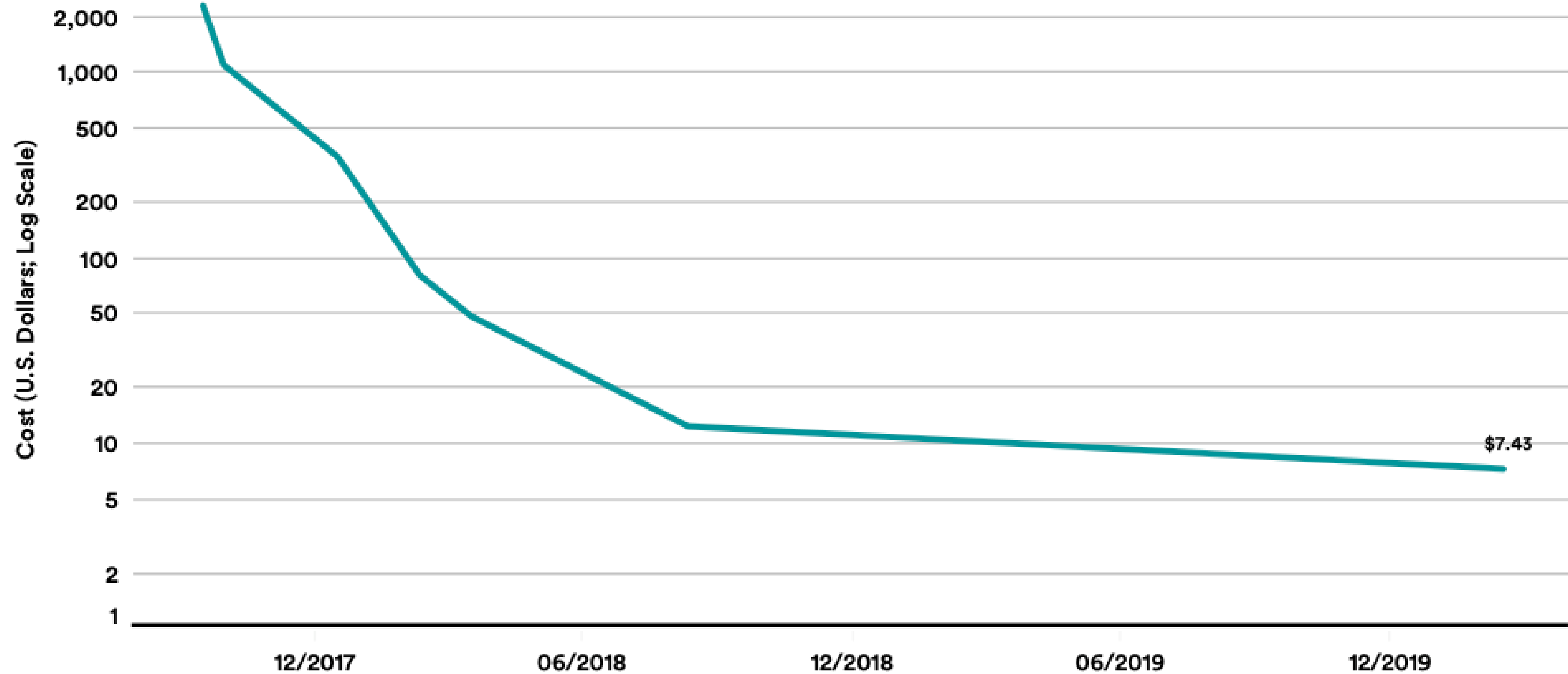
In a year and a half, the time required to train a network on cloud infrastructure has fallen from about three hours in October 2017 to about 88 seconds in July, 2019.



Fig. 3.2a.
Note: [DAWNBench](#) will migrate to [MLperf](#). The latest point estimate (not shown) from ML Perf is from July, 2019 at 1 minute and 28 seconds uses Top-1 accuracy versus Top-5 accuracy benchmark shown in the graph above.

IMAGENET: TRAINING COST (to 93% ACCURACY)

Source: DAWNBench, 2020 | Chart: 2021 AI Index Report



Source: Ai index 2021 report by Stanford HAI

Image Generation

GAN PROGRESS ON FACE GENERATION

Source: Goodfellow et al., 2014; Radford et al., 2016; Liu & Tuzel, 2016; Karras et al., 2018; Karras et al., 2019; Goodfellow, 2019; Karras et al., 2020; AI Index, 2021



Hiring in A.I

Global Hiring in AI

AI Hiring Index by Country (2019)

Source: LinkedIn, 2019.

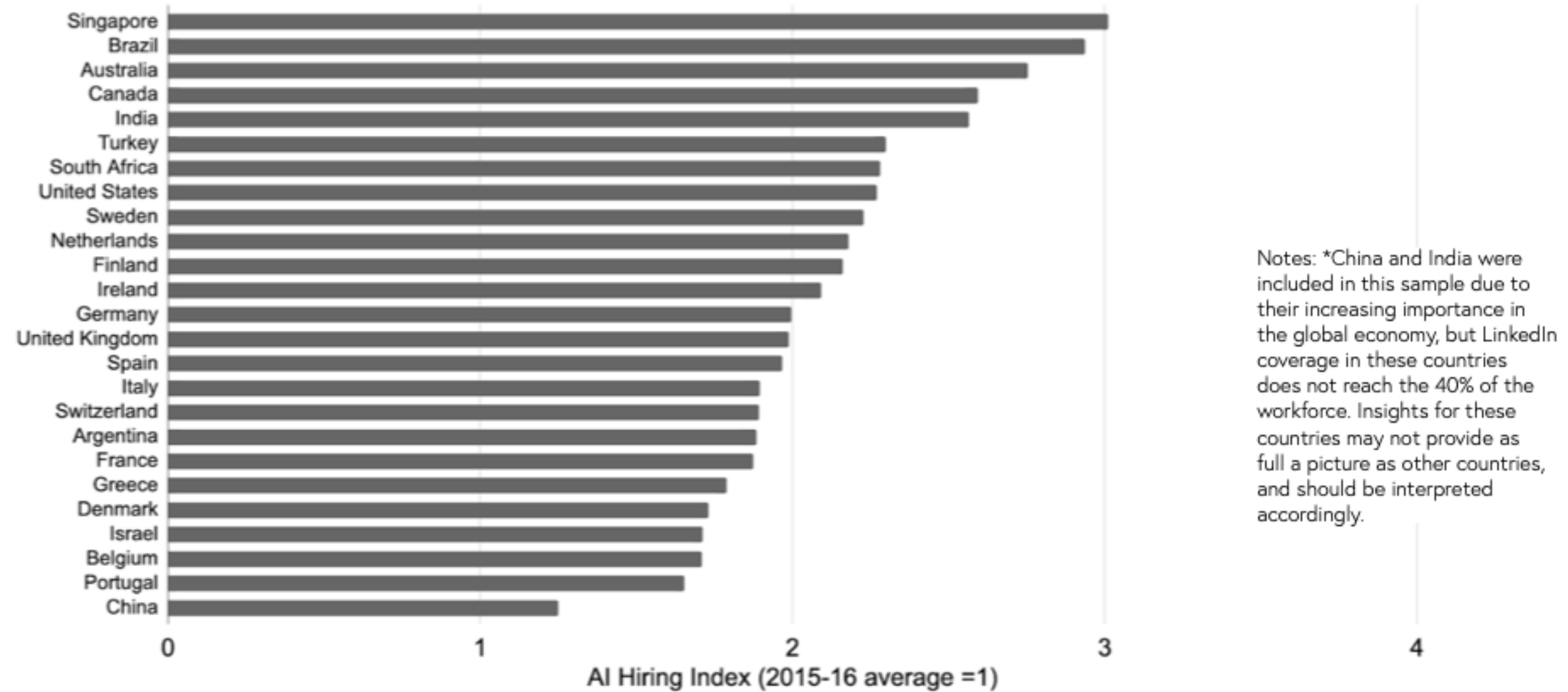
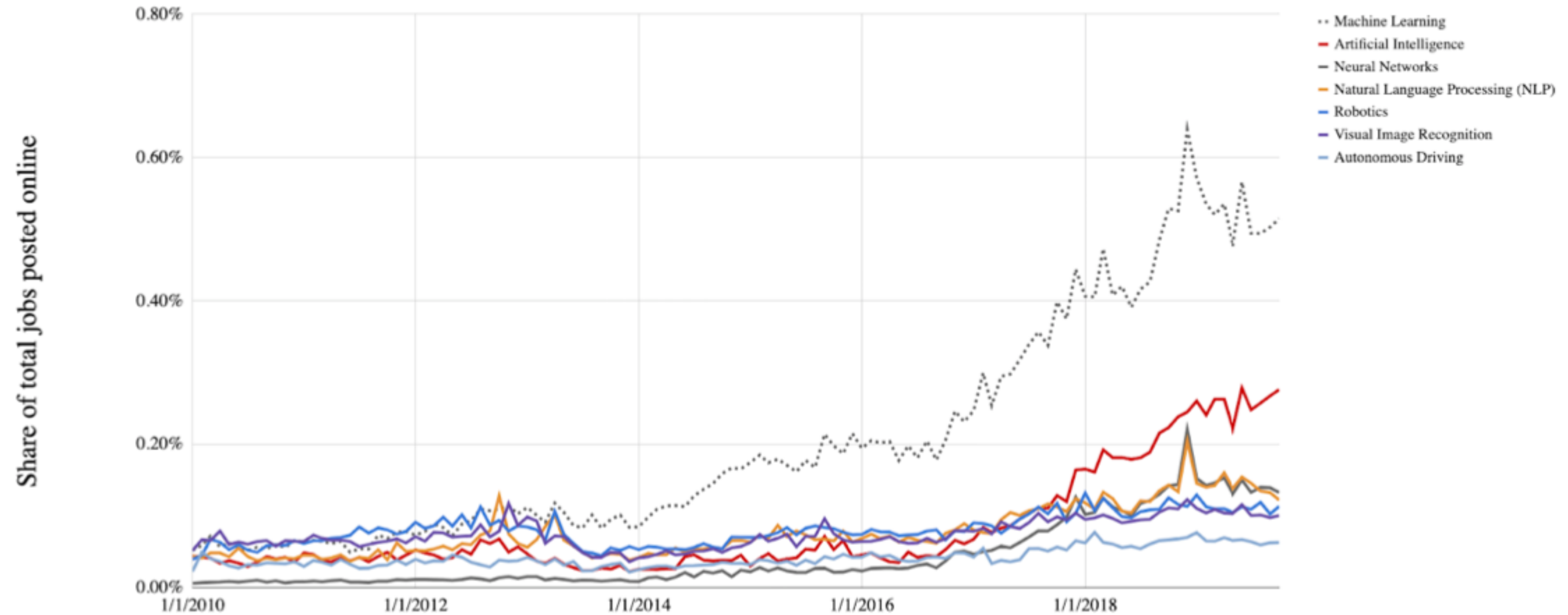


Fig. 4.1.1.

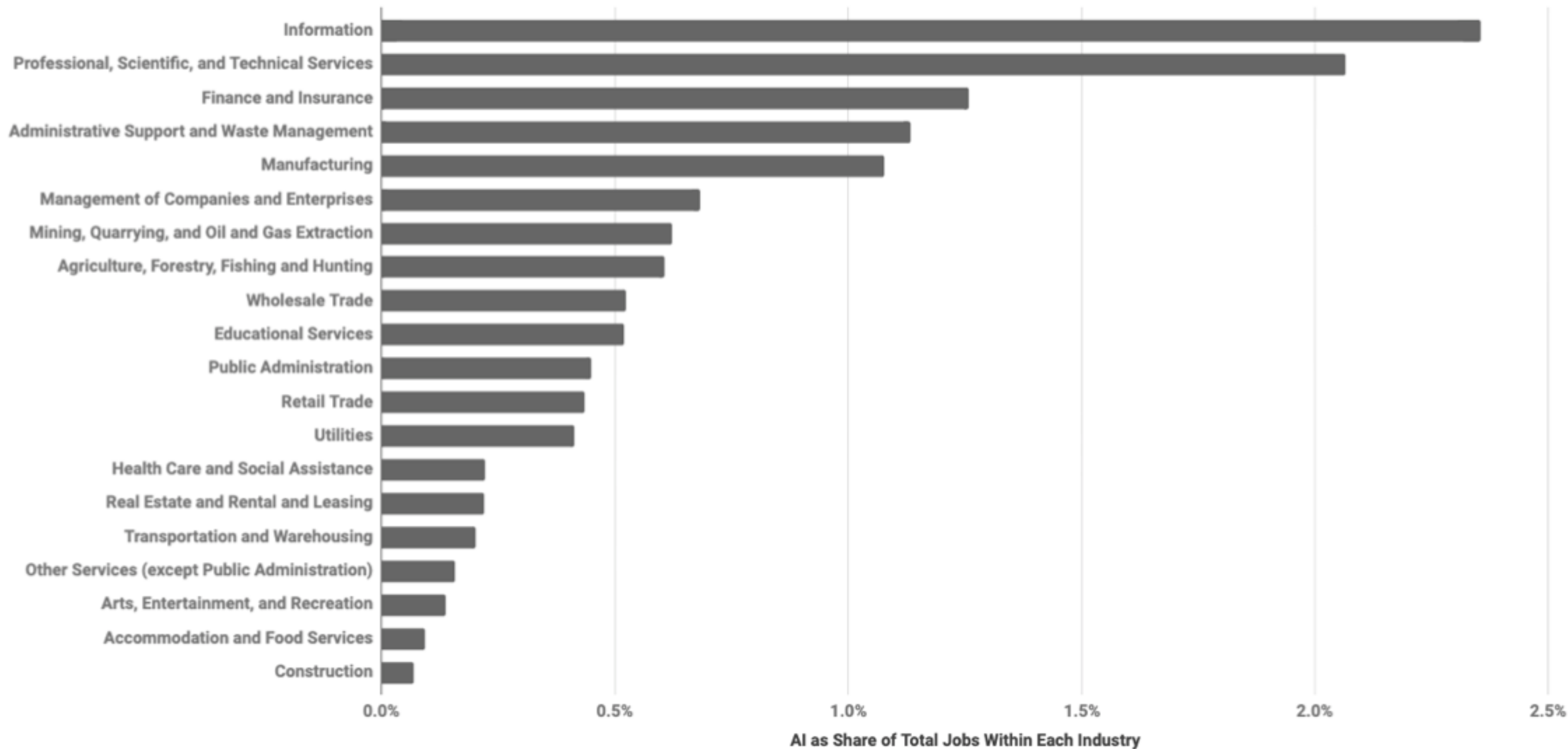
Share of Total Online Job Postings, USA, 2010-2019 monthly

Source: BurningGlass, 2019.



Share of AI jobs posted (% of total) by sectors in the USA, 2019

Source: BurningGlass, 2019.



Follow the money

Total Private Investment in AI (in billions of nominal USD)

Source: CAPIQ, Crunchbase, Quid, 2019.

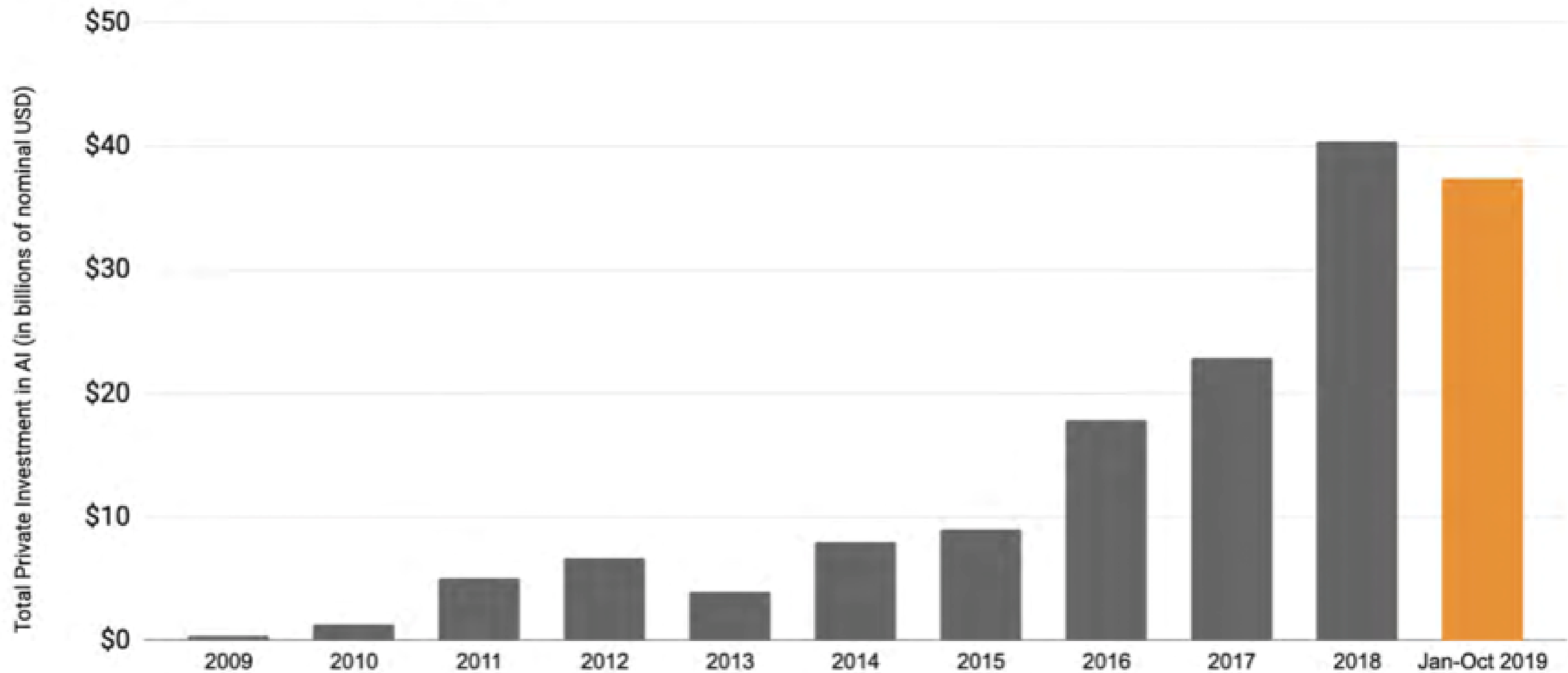
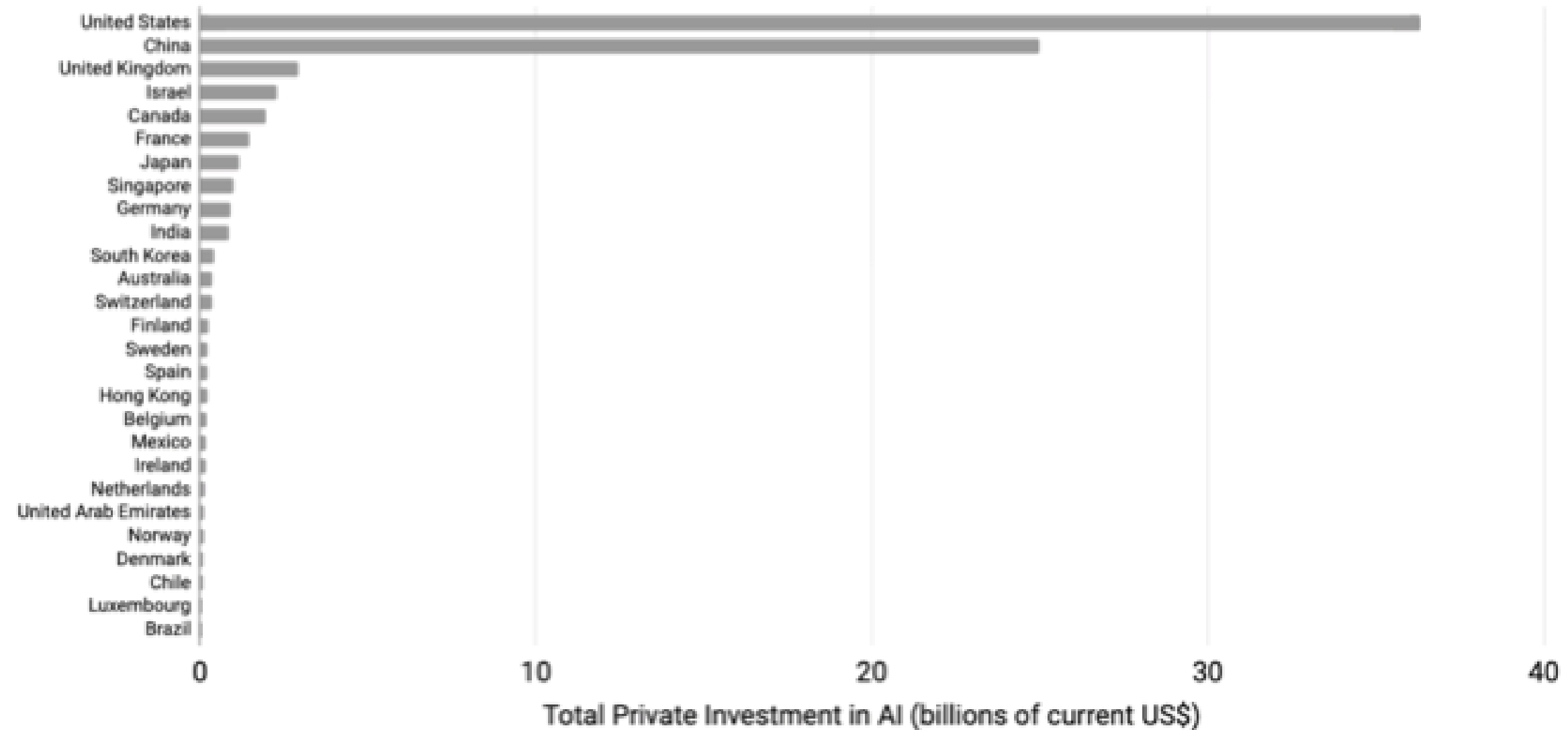


Fig. 4.2.1a.

Total Private Investment in AI (billions of current US\$), sum of January 2018 - October, 2019

Source: CAPIQ, Crunchbase, Quid, 2019.



Percent of World AI Private Investment, Startup Cluster (2018-19)

Source: CAPIQ, Crunchbase, Quid, 2019.

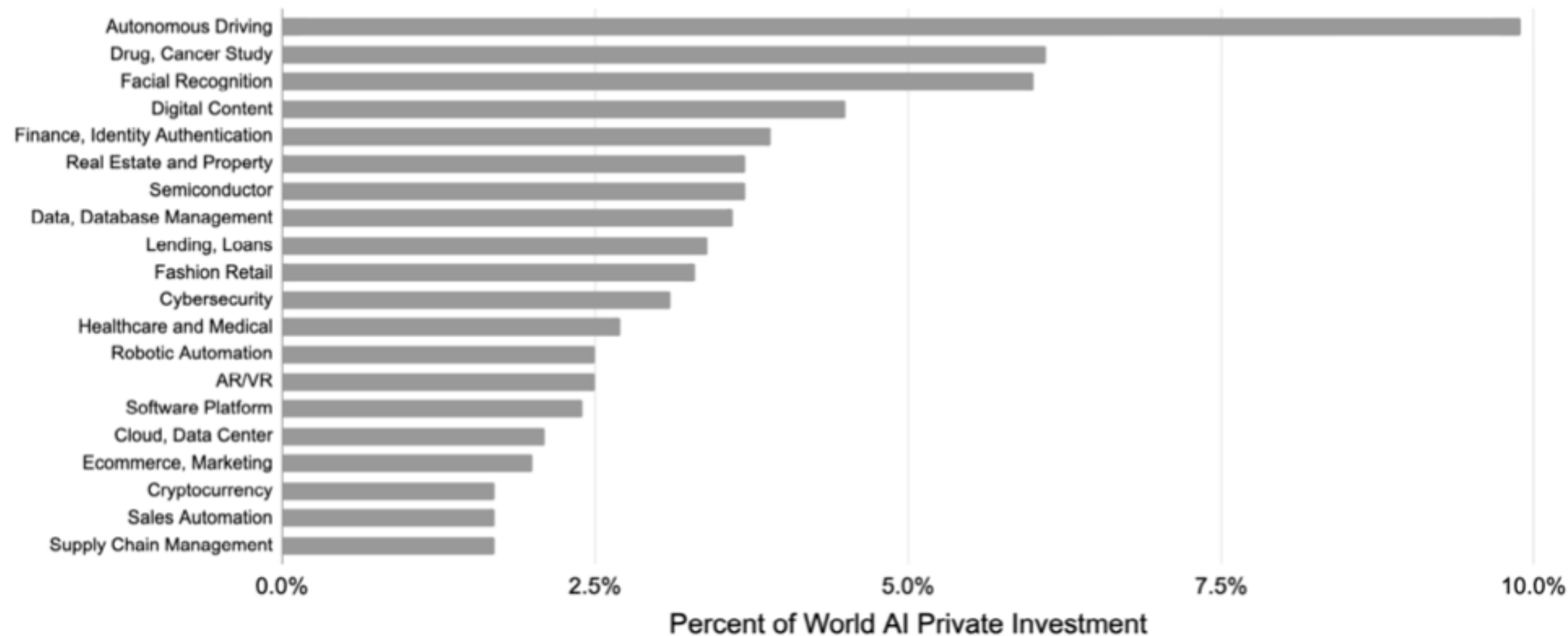


Fig. 4.2.4.

Note: The chart shows the sum of total private AI investments between January, 2018 - October, 2019.

Global AI startups that have received funding within the last year (July 2018-July 2019)

Source: CAPIQ, Crunchbase, Quid, 2019.

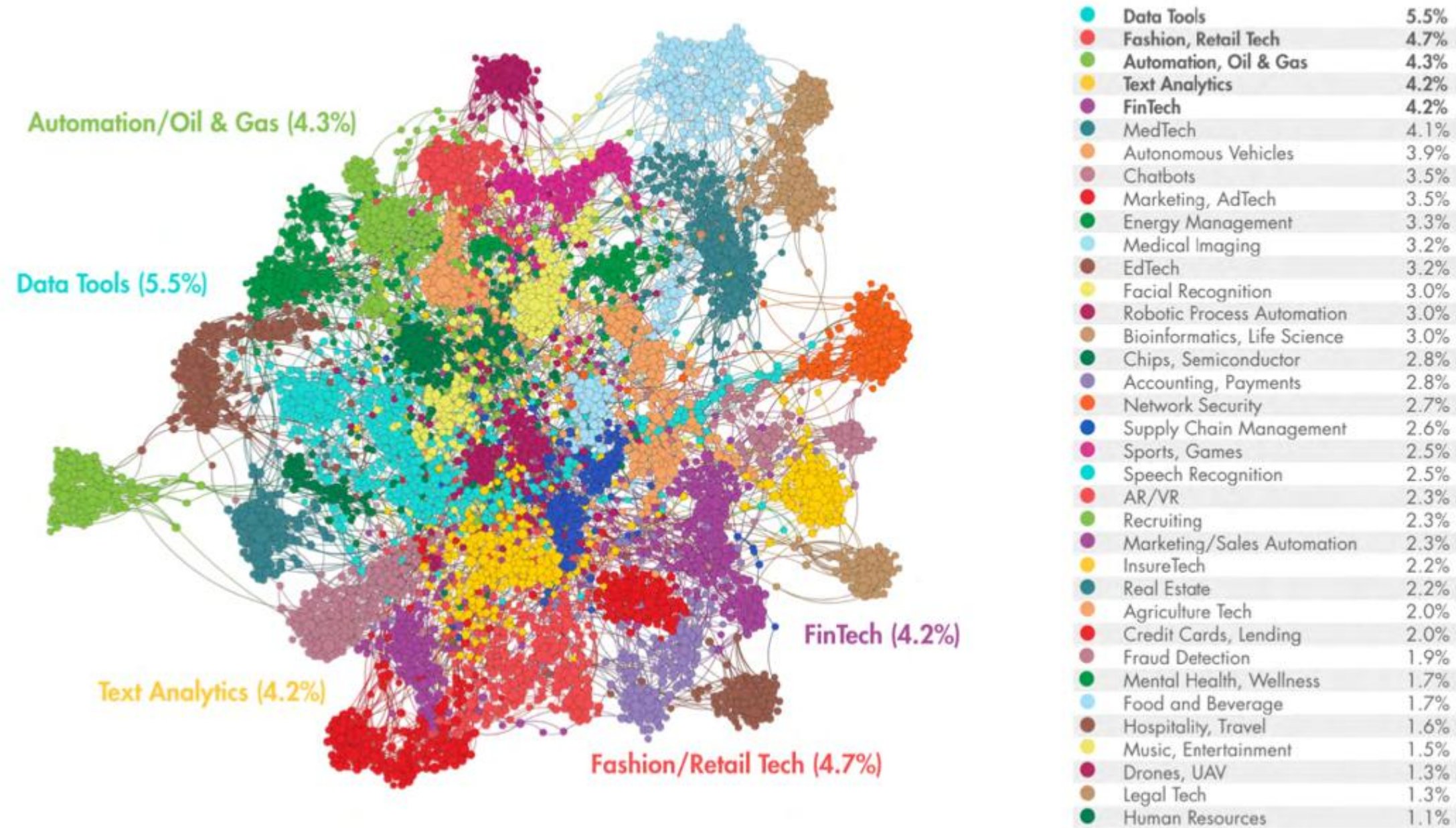


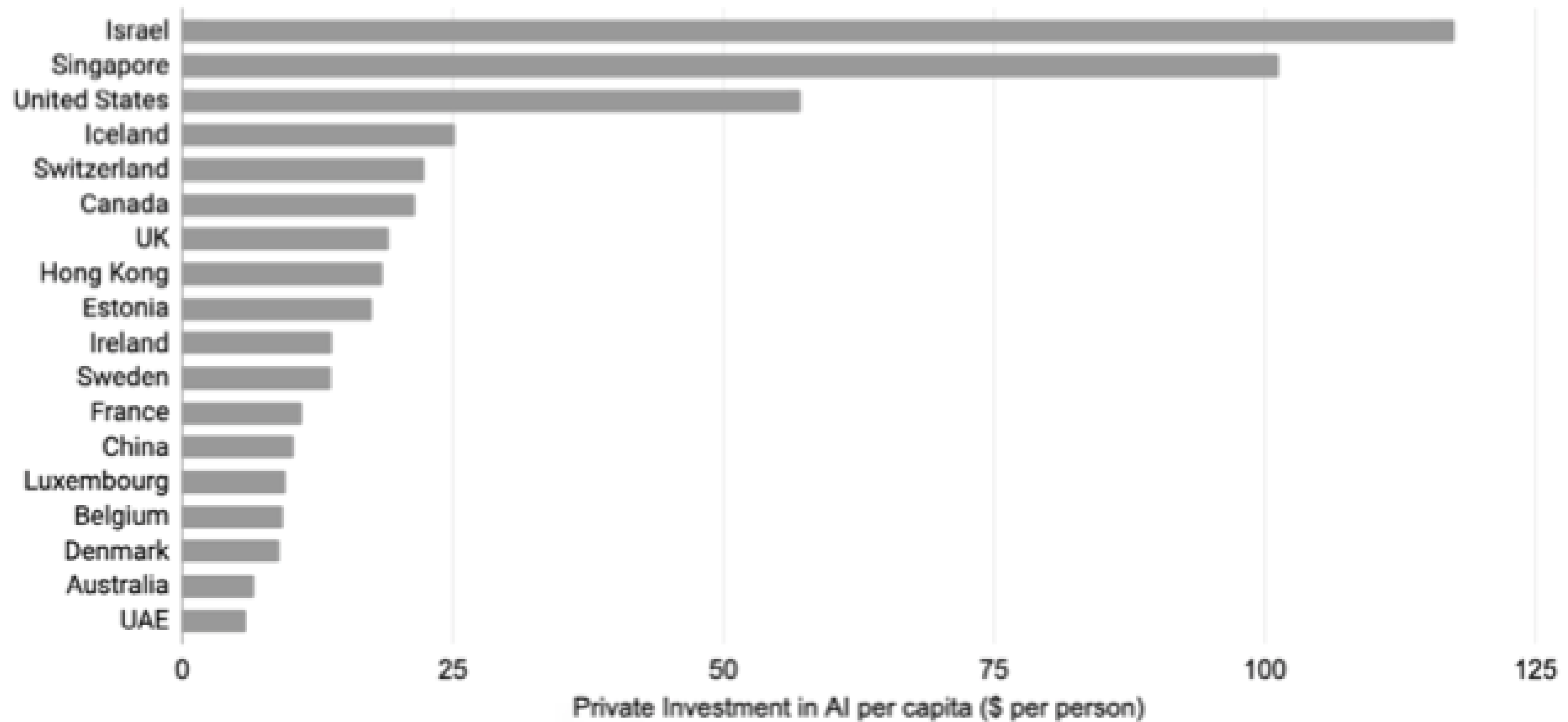
Fig. 4.2.6a.

Network showing 4,403 global AI startups that received investment between July 2018 and July 2019. Colored by sector with top five highlighted.

US, Europe, and China take the lion's share of global AI private investment, while Israel, Singapore, and Iceland invest substantially in per capita terms.

Private Investment in AI startups in per capita terms (\$ per person), 2018

Source: CAPIQ, Crunchbase, Quid, 2019.



Corporate perception of A.I

Corporate perception (data from 3000 publicly traded companies)

Total Number of AI mentions in earnings calls

Source: Prattle, 2019.

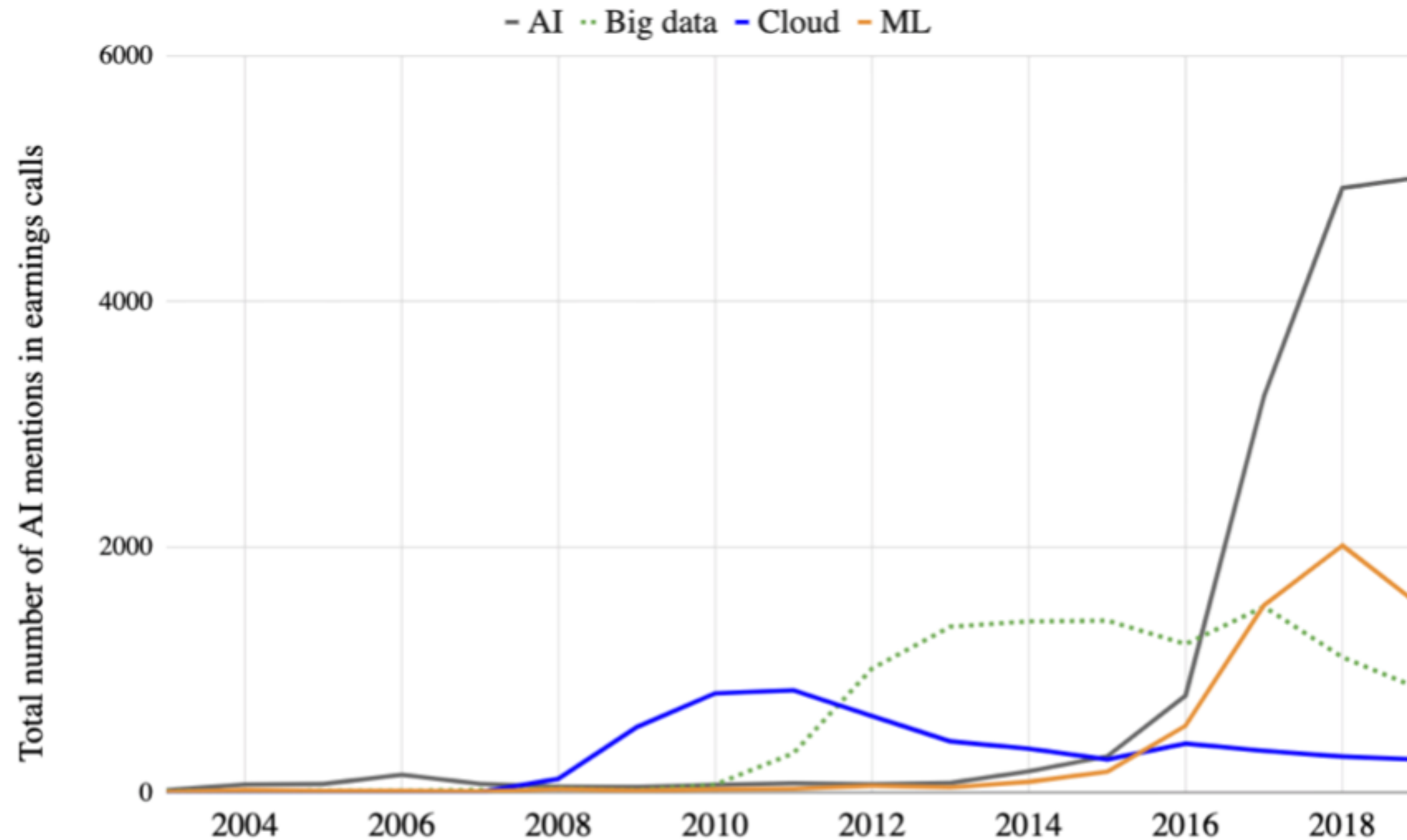


Fig. 7.4a.

AI Total Earnings Calls Mentions by sectors, 2018-19

Source: Prattle, 2019.

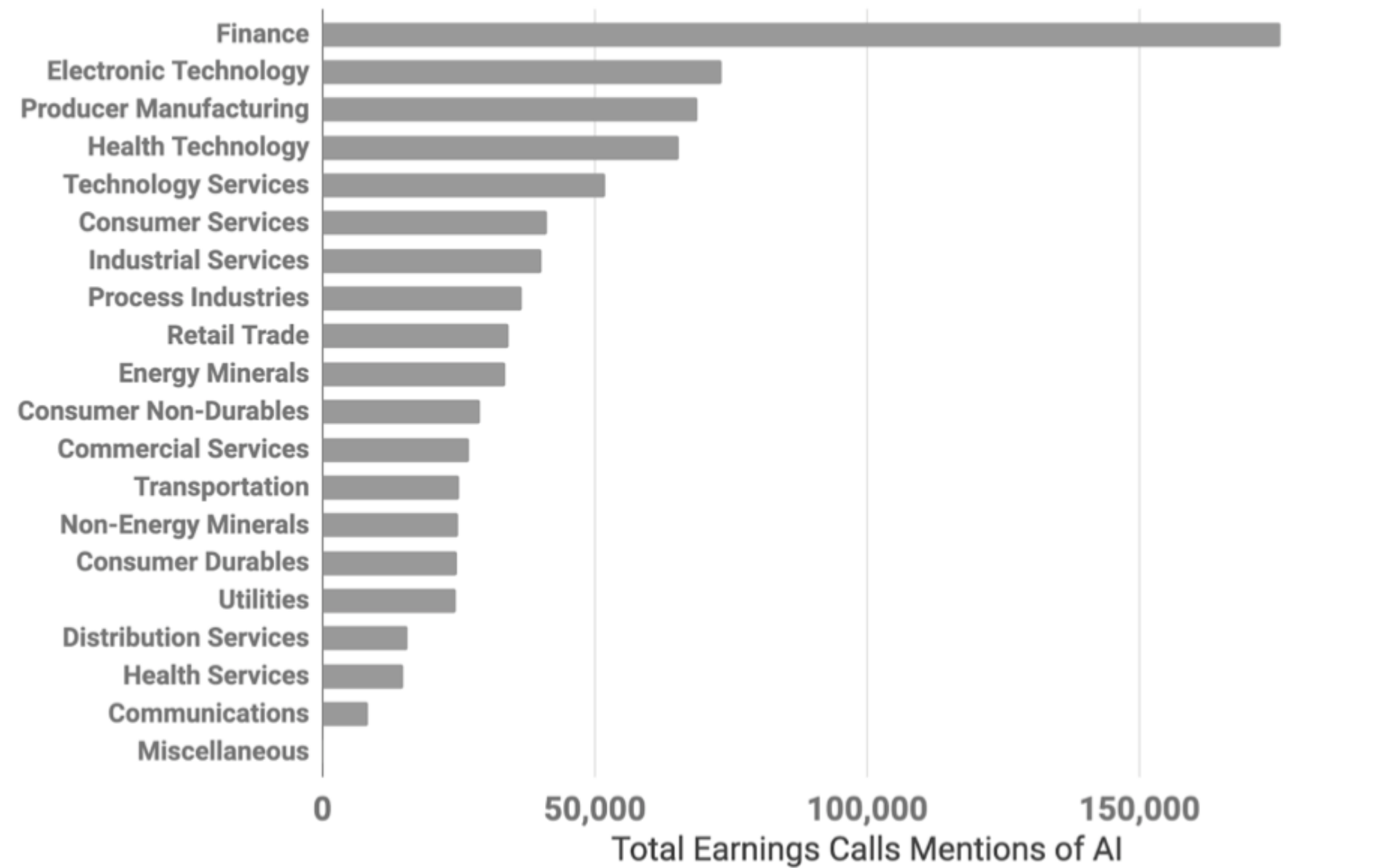


Fig. 7.4b.

Autonomous Vehicles (self driving cars)

World Map of Countries Testing AVs

Source: Online searches on nations testing AV's.

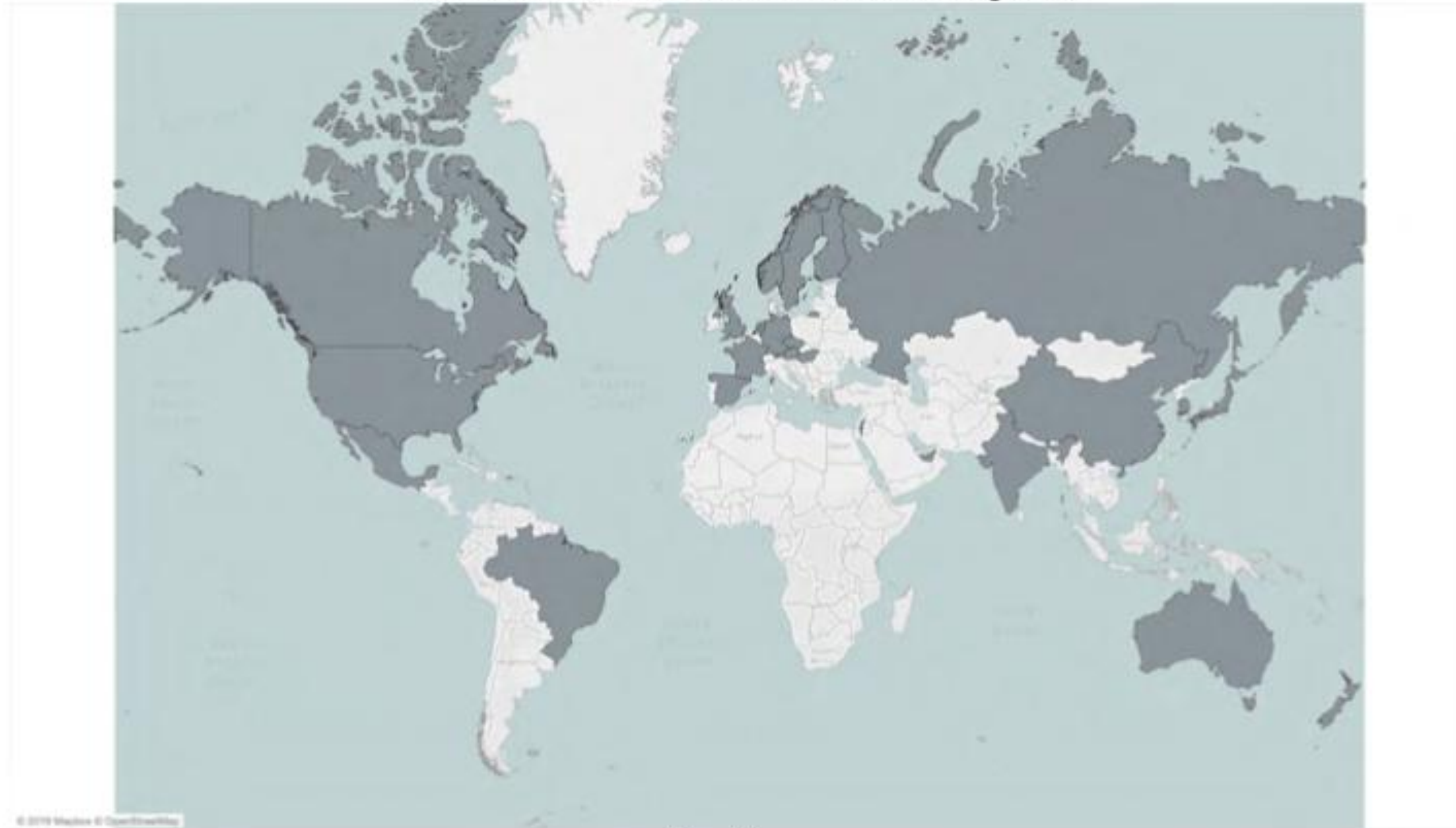
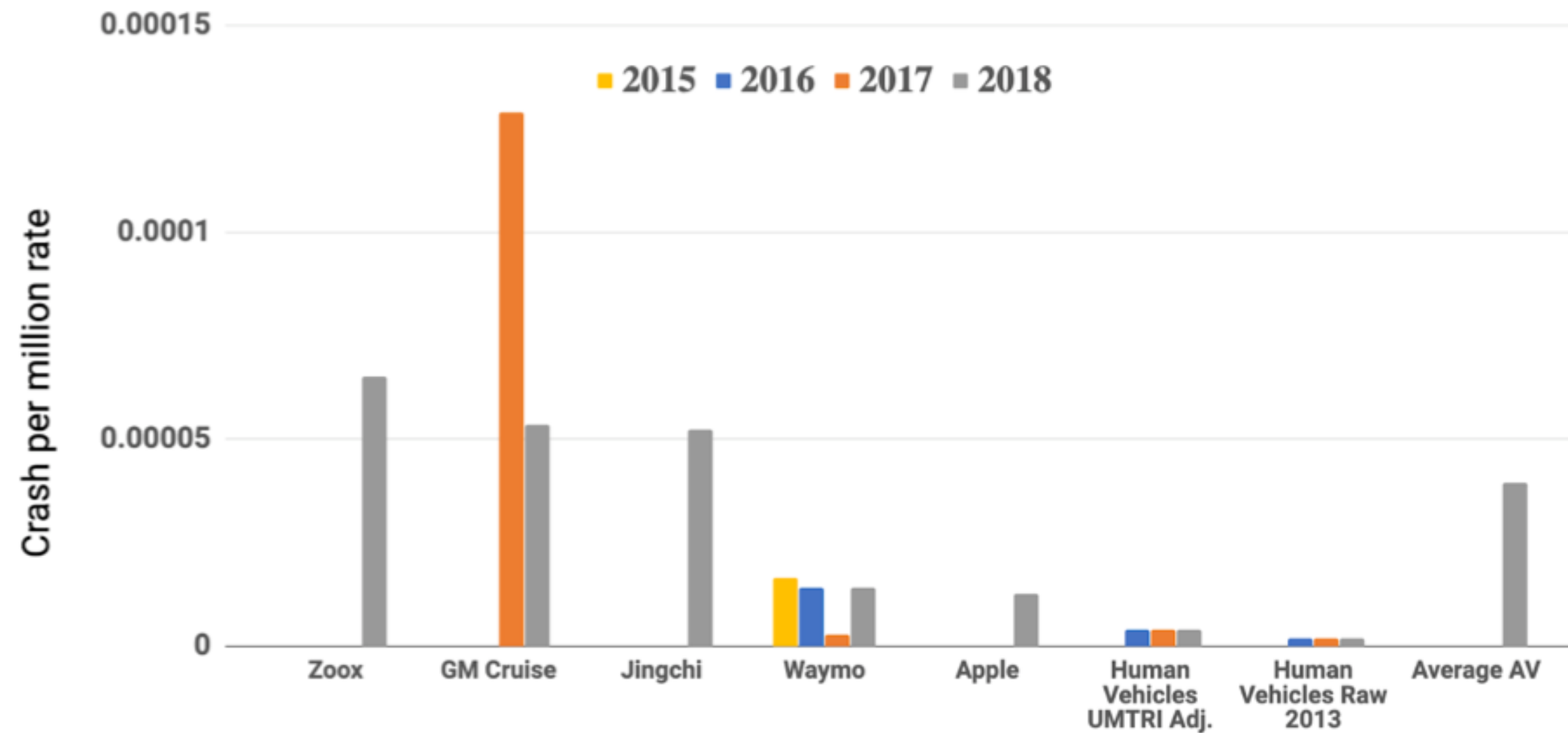


Fig. 6.1a.

California coded autonomous crashes per autonomous mile 2015-18

Source: Roger McCarthy based on Collision Report.



Autonomous Weapons

Autonomous Military Systems Developed Worldwide, 1970-2016

Since 2000, development of systems for **combat**, **targeting**, and **other** purposes has sharply increased.

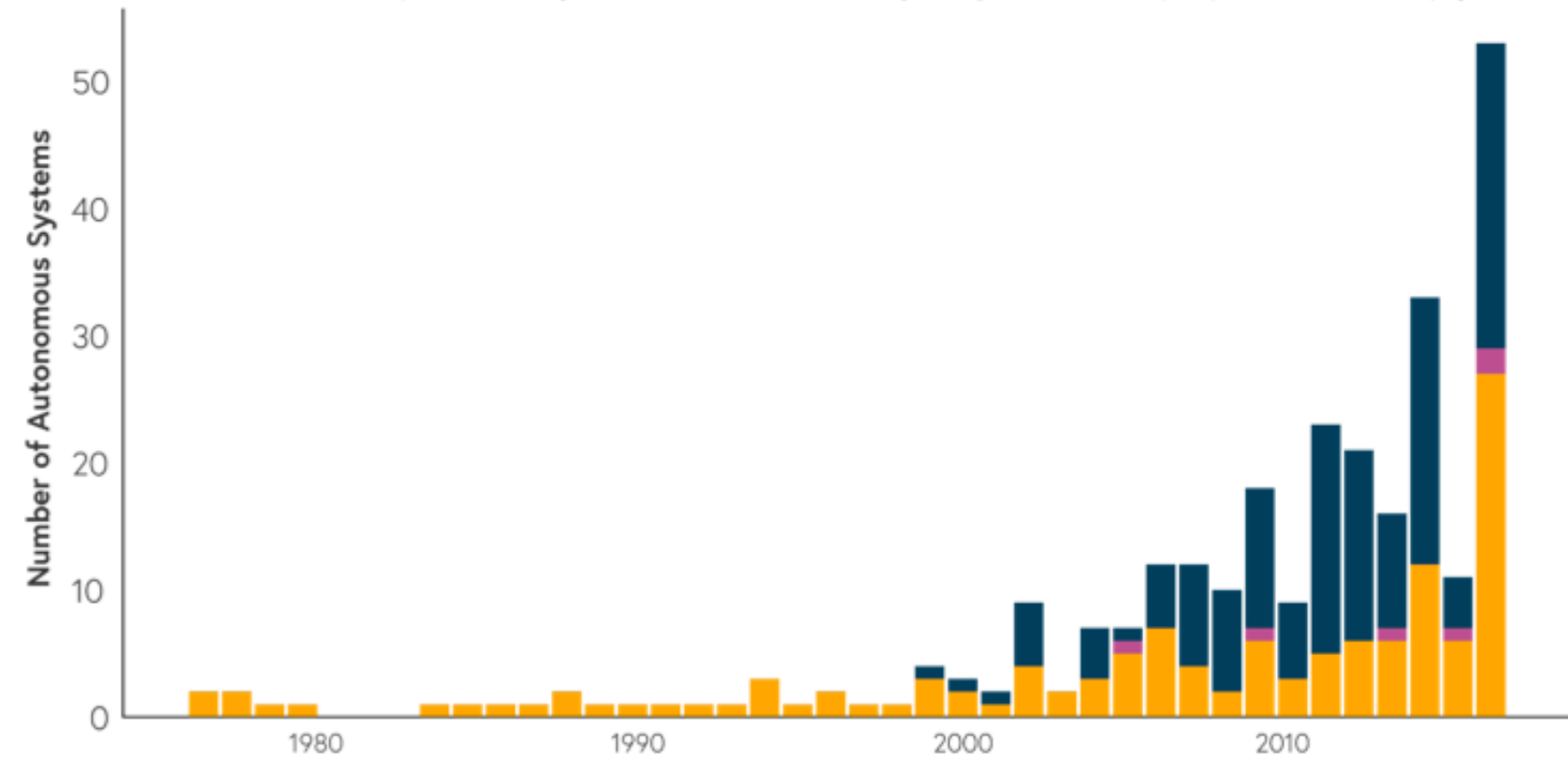
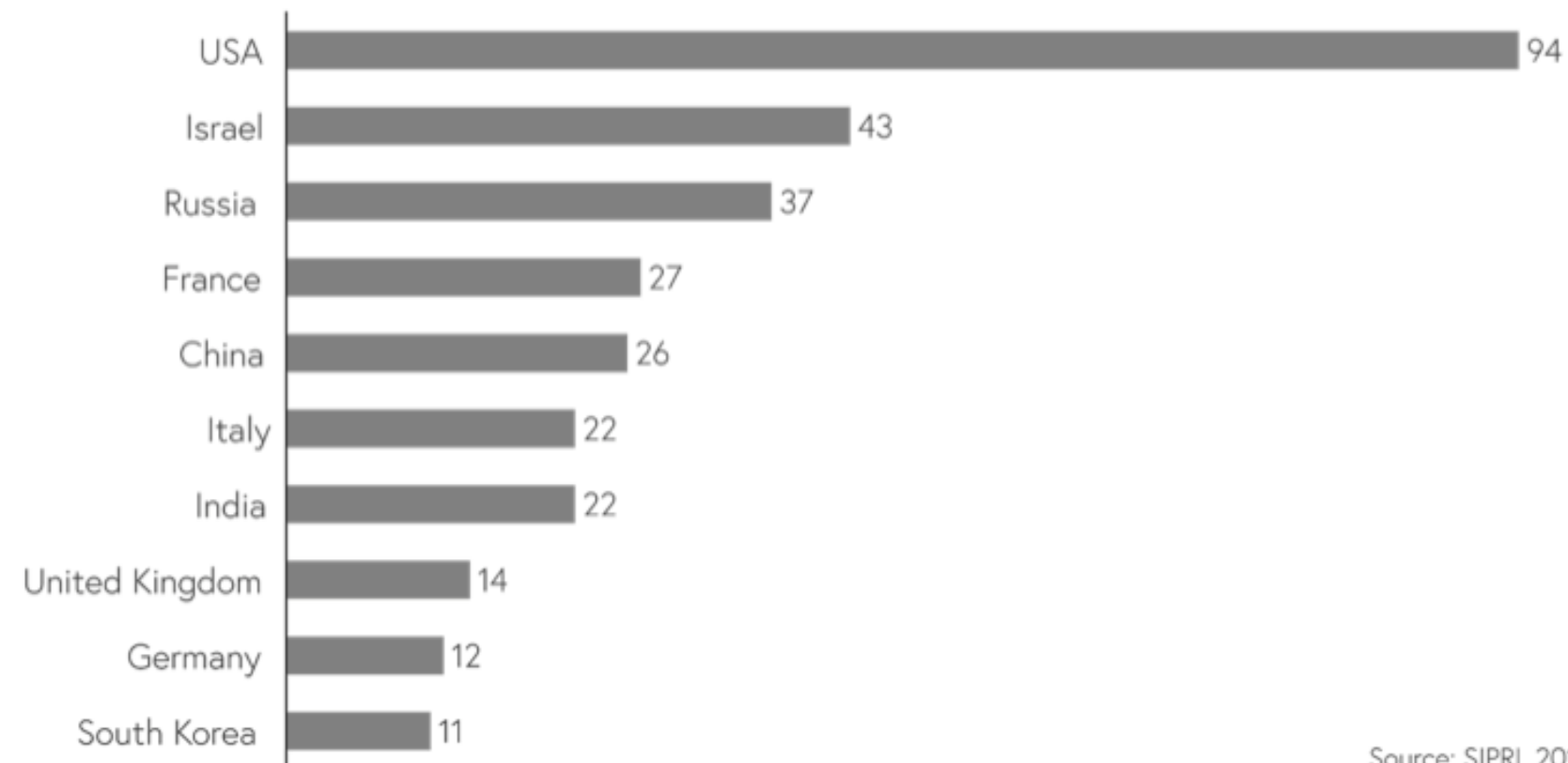


Fig. 6.7a.

Source: SIPRI, 2017

Number of Autonomous Military Systems Developed, 1950-2017



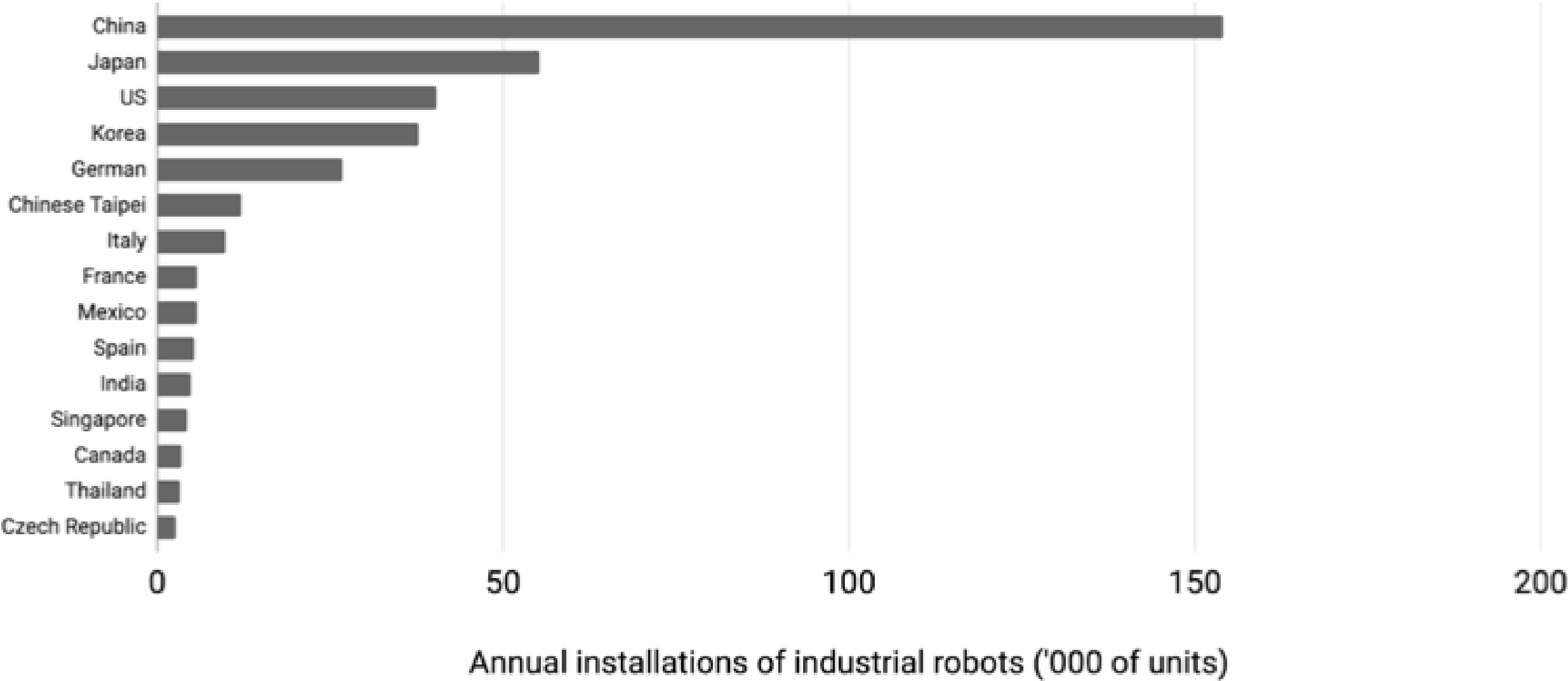
Source: SIPRI, 2017

Robots

Global Robot installations: 74% of global robot installations concentrated in five countries

Annual installations of industrial robots ('000 of units), 2018

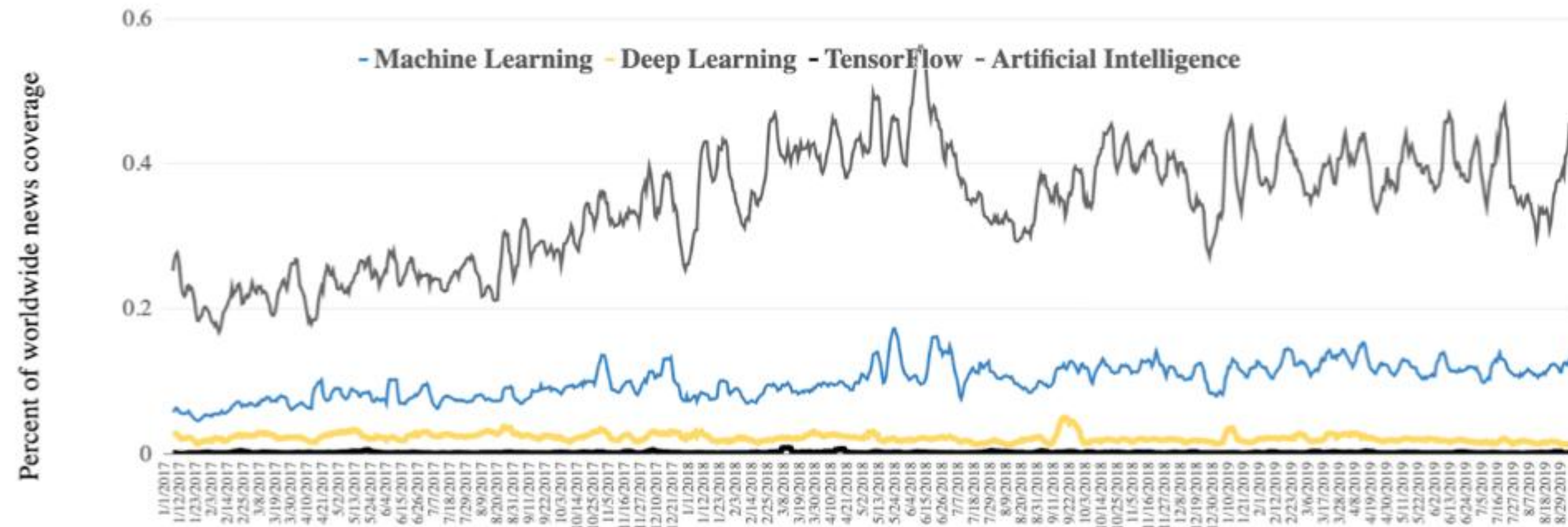
Source: World Robotics, 2019.



Web search and world news

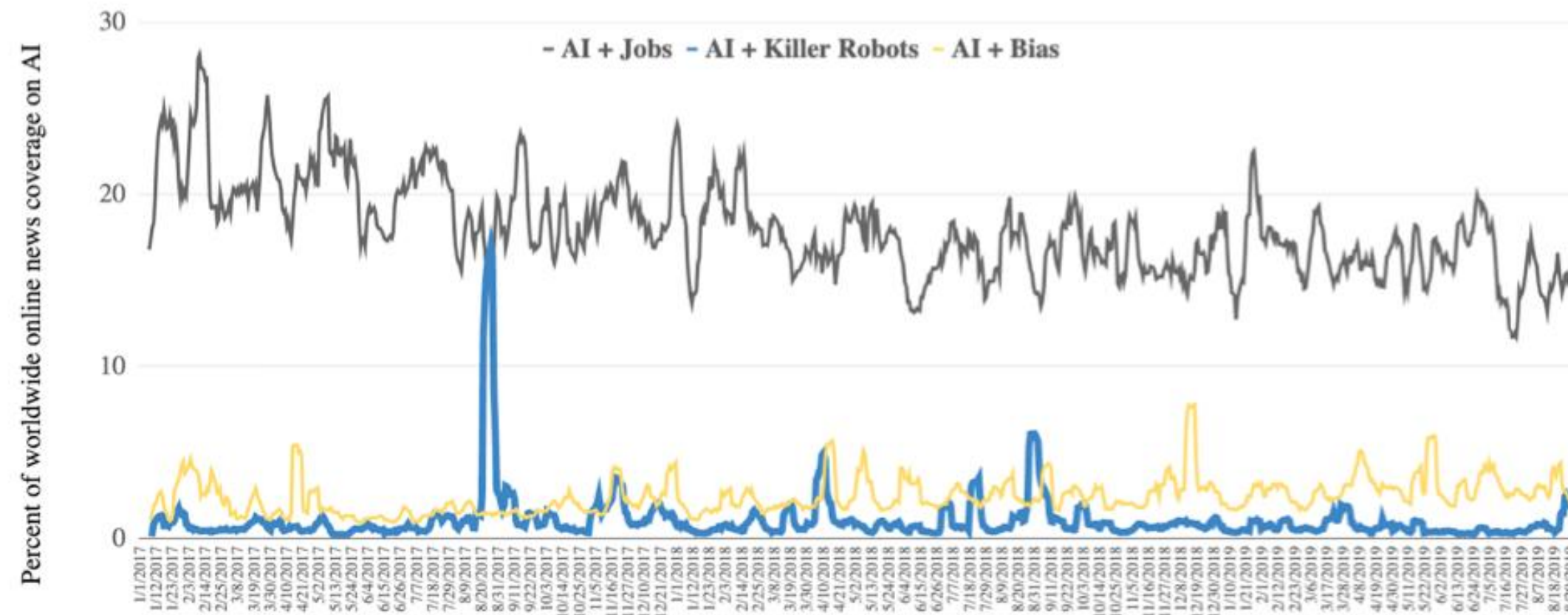
Percent of worldwide news coverage monitored by GDELT that mentioned “machine learning,” “deep learning,” “TensorFlow” and “artificial intelligence”

Source: GDELT, 2019.



Percent of worldwide online news coverage of AI monitored by GDELT that focused on jobs, autonomous weapons or bias by day.

Source: GDELT, 2019.



Ethics in AI

Number of Ethical AI Frameworks Produced 2016-2019, by Type of Organization

Source: PwC based on 59 Ethical AI Principle documents.

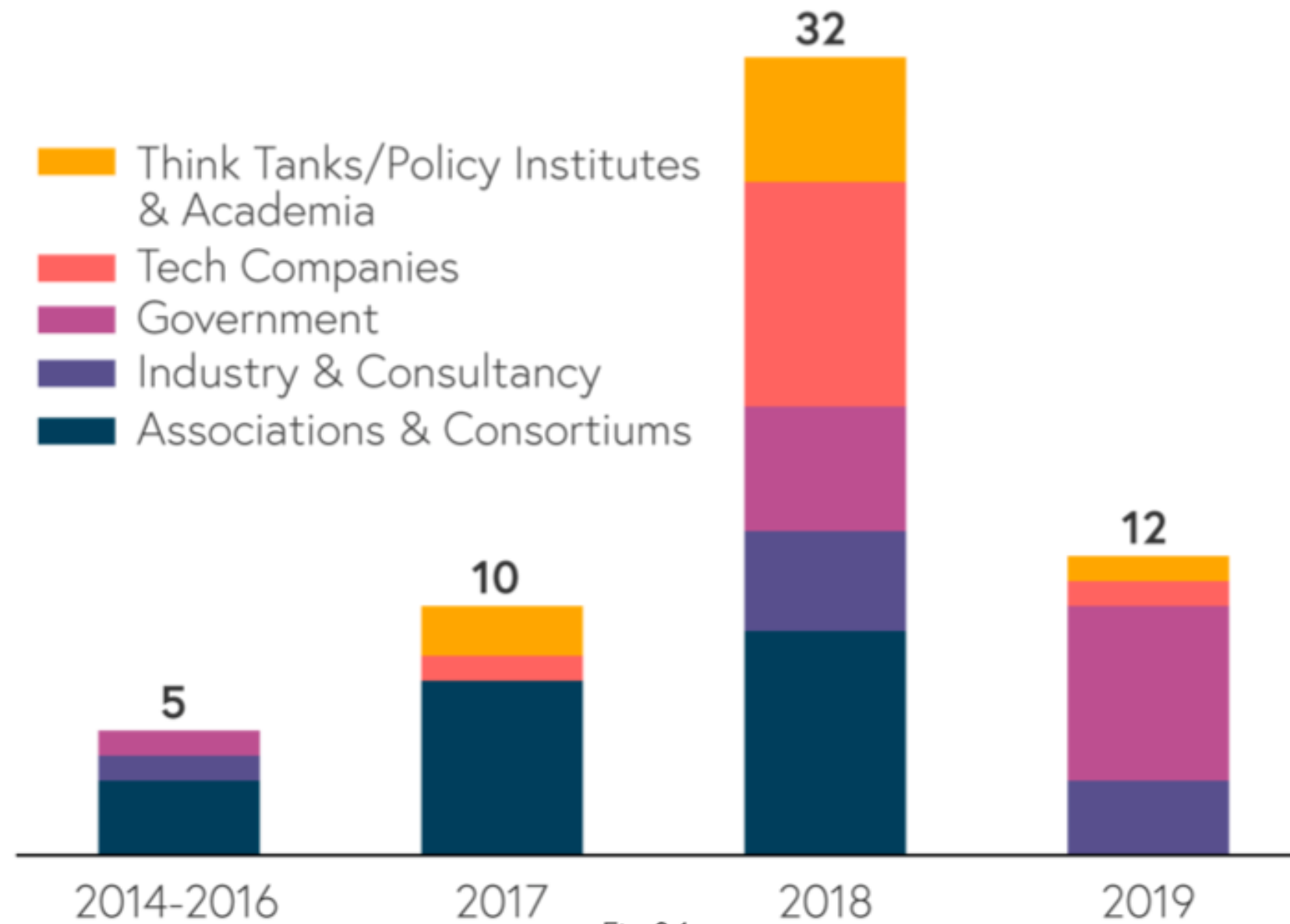


Fig 8.1a.

Ethical Challenges covered across AI Principle Documents

Source: PwC based on 59 Ethical AI Principle documents.



In other mentions

- Gartner Survey Shows 37 Percent of Organizations Have Implemented AI in Some Form
- The AI use cases that will see the most investment this year are automated customer service agents (\$4.5 billion worldwide), sales process recommendation and automation (\$2.7 billion), and automated threat intelligence and prevention systems (\$2.7 billion).
- Demand for AI talent has doubled in the last two years. And talent, which is increasing, remains in short supply with two roles available for every AI professional today. Technology and financial service companies are currently absorbing 60% of AI talent.
- AI-powered recommender algorithms are becoming a normal feature in most applications (Netflix, Amazon etc..)
- It is expected that the wearable artificial intelligence market will reach \$180 billion by 2025.
- Facial recognition, also powered by AI, is being widely used by most governments around the world