


August 2018

Credit rating agency, Moodys maintained a negative outlook for US universities, estimating that only 10% of providers would survive large economic, technical or demographic shifts.

Clayton Christensen re-iterated his prediction that half of US Universities would be bankrupt in 10 to 15 years.



Digital models for international education have arrived

Are you ready?

1. Global trends impacting education

- **Globalization and Economic Growth**
- **Population Growth**
- **Future of Work and Skills**
- **Technology Outlook**

2. Responses and themes emerging in different markets

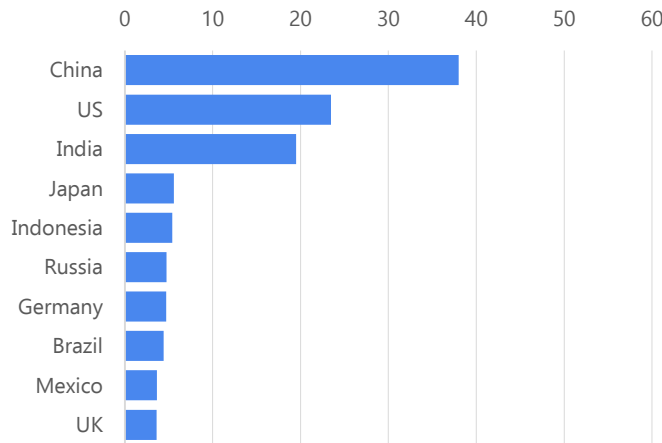
The global economic growth outlook has a profound influence on where and how we deliver learning.

The world economy could more than double in size by 2050.

Emerging markets will continue to be the growth engine of the global economy. By 2050, the E7 economies could have increased their share of world GDP from around 35% to almost 50%.

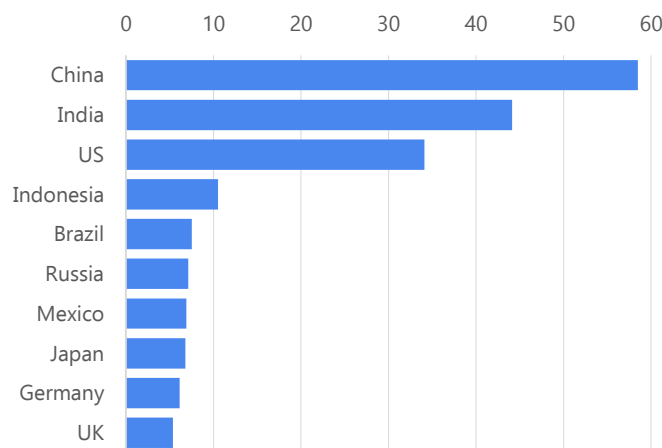
China could be the largest economy in the world, accounting for around 20% of world GDP in 2050, with India in second place and Indonesia in fourth place (based on GDP at PPPs).

Forecast 2030 GDP at PPP (constant 2016 \$Trillion USD)



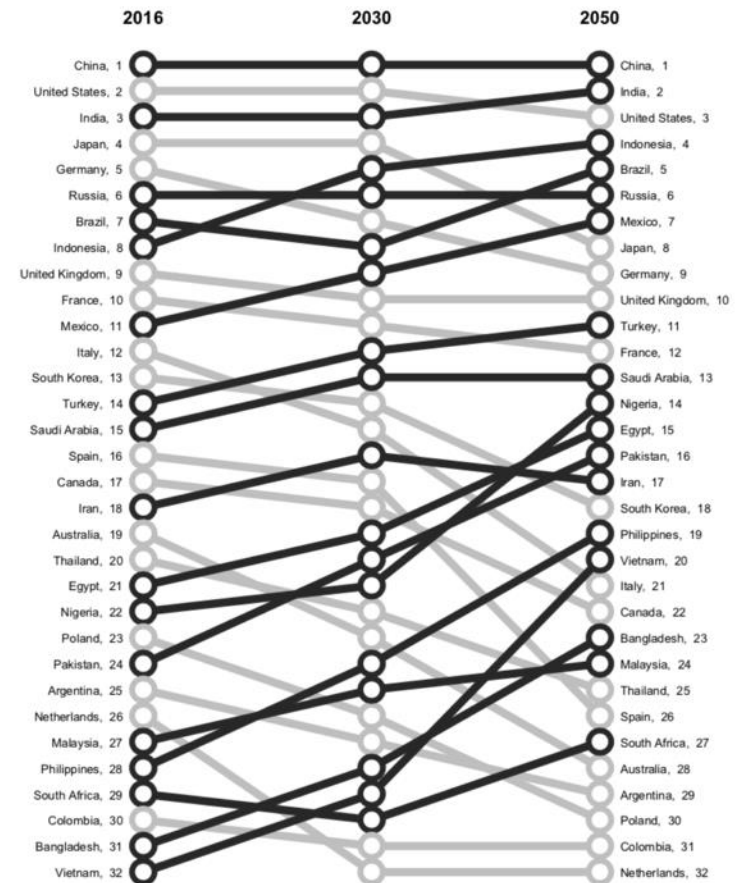
Source: PwC - The World in 2050

Forecast 2050 GDP at PPP (constant 2016 \$Trillion USD)



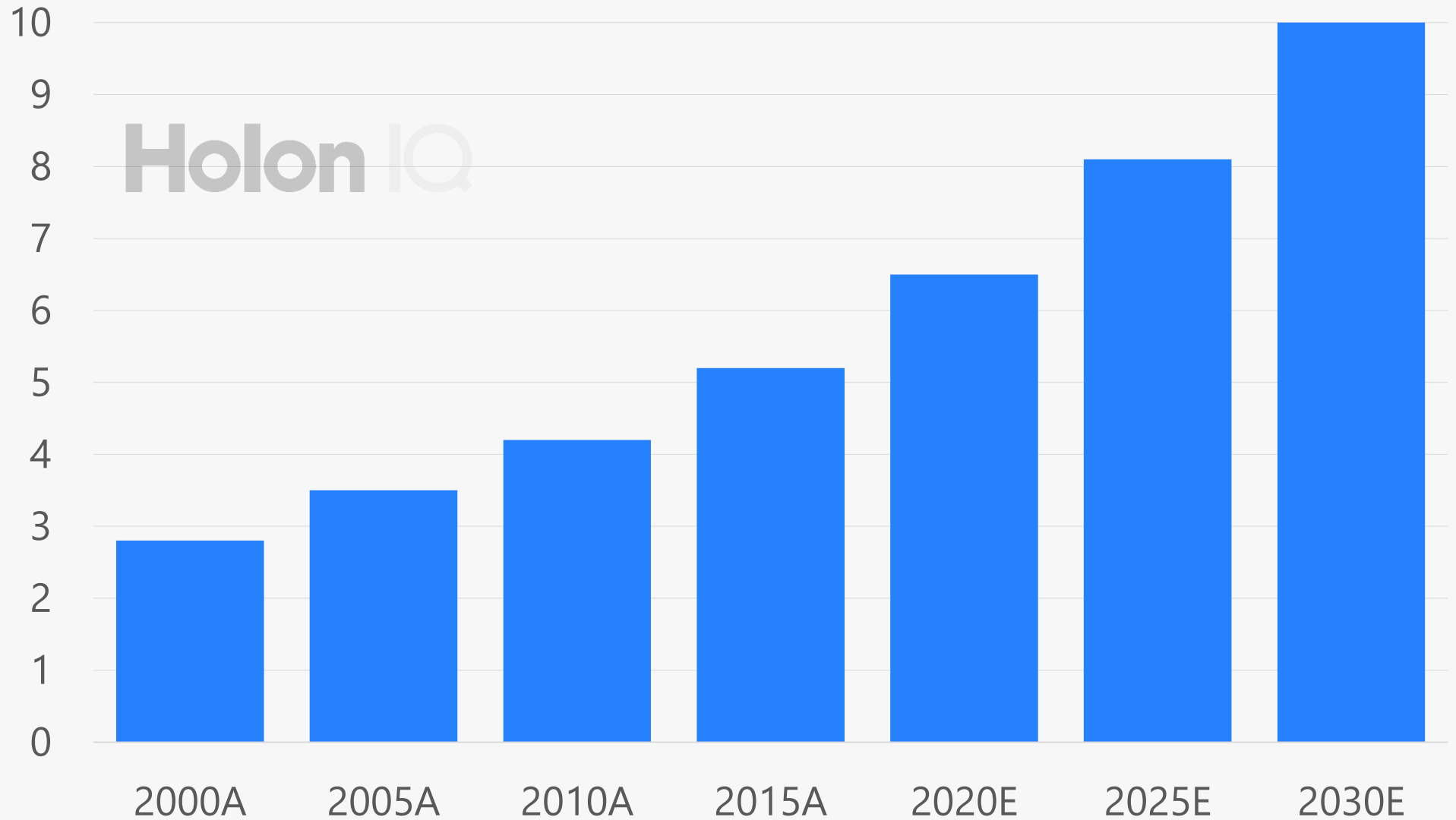
Source: PwC - The World in 2050

Projected GDP Rankings in 2030 and 2050 at PPP



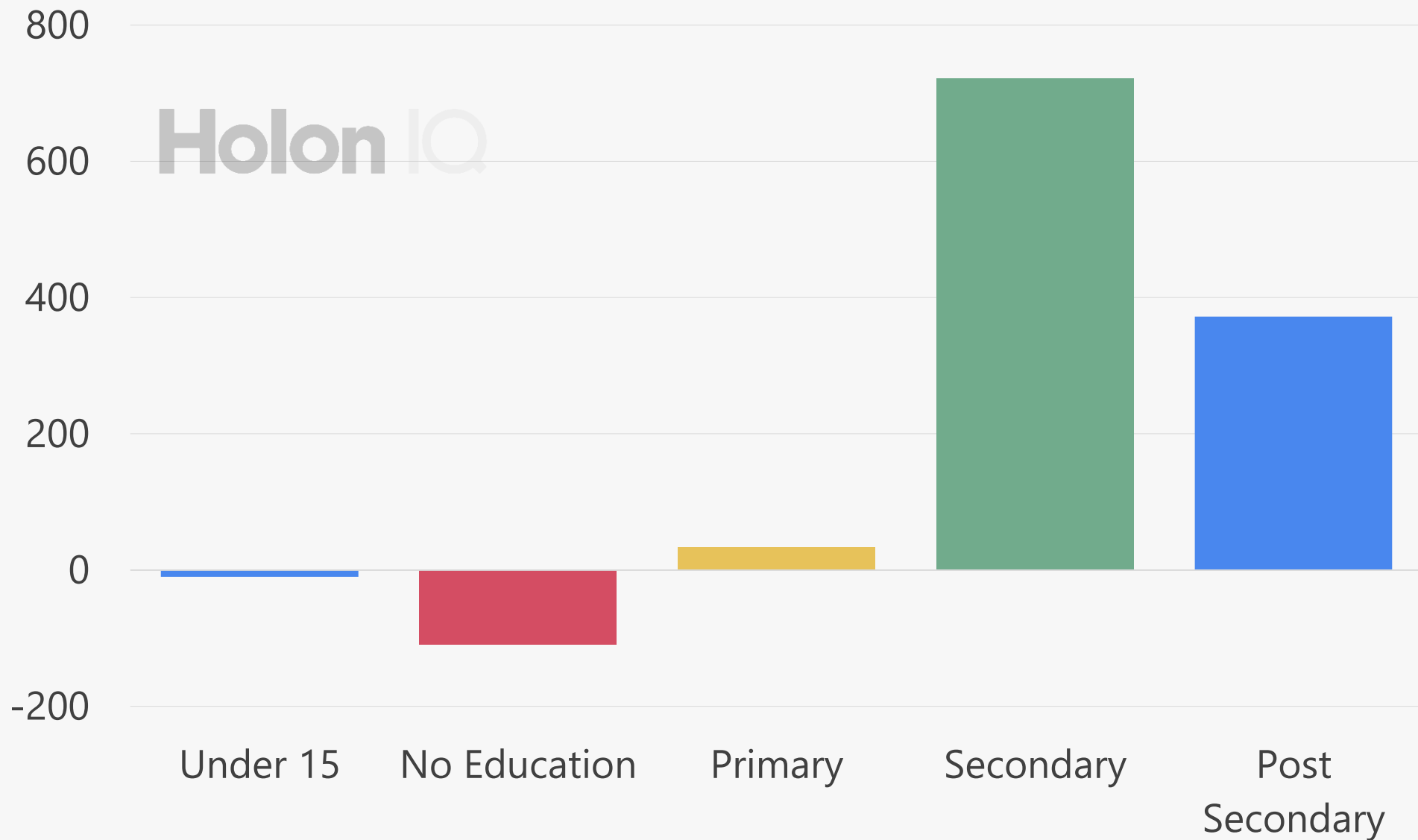
Source: PwC - The World in 2050

Global Education and Training Expenditure (Trillion USD)



Source: HolonIQ and various underlying estimates from Goldman Sachs, GSV, IBIS Capital, Citi

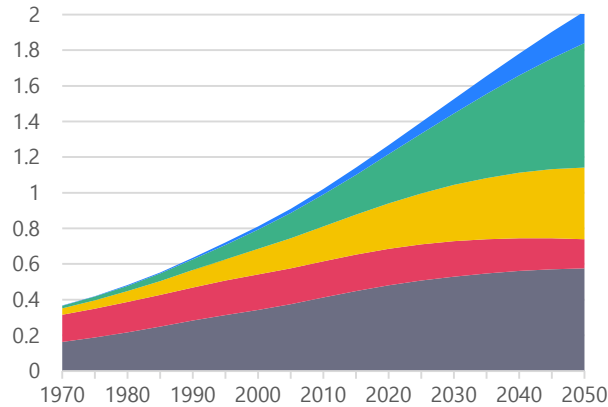
Global Population by Highest Education Attainment. Change from 2015 to 2030. (Millions)



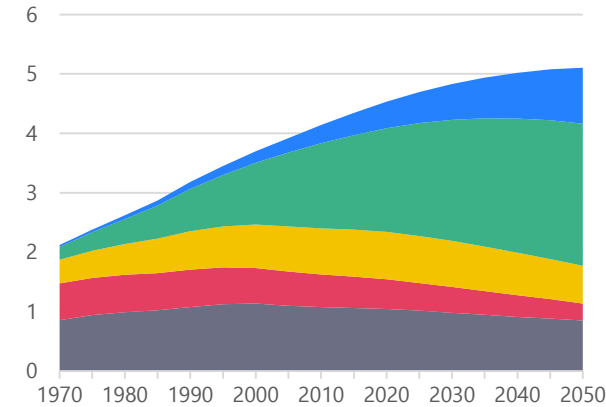
Holon IQ

By 2050, we have 2.4 billion more secondary and post secondary graduates. On average, ~60 million from Asia and Africa per year.

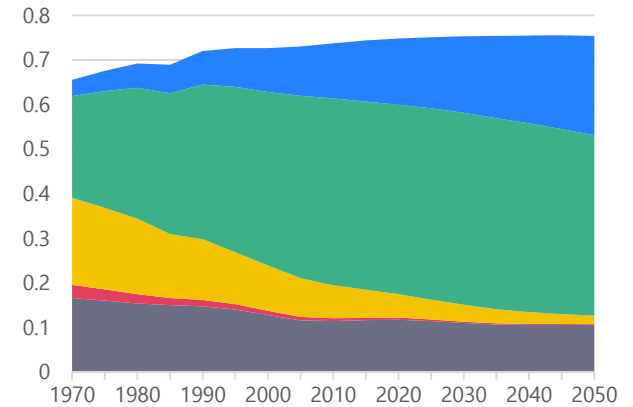
Africa Population by Education Attainment 1970-2050 (Billions)



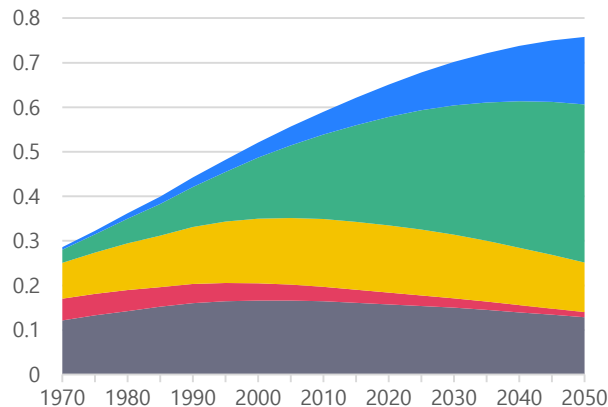
Asia Population by Education Attainment 1970-2050 (Billions)



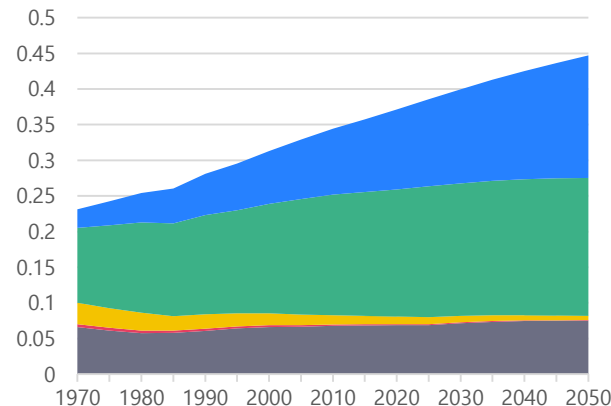
Europe Population by Education Attainment 1970-2050 (Billions)



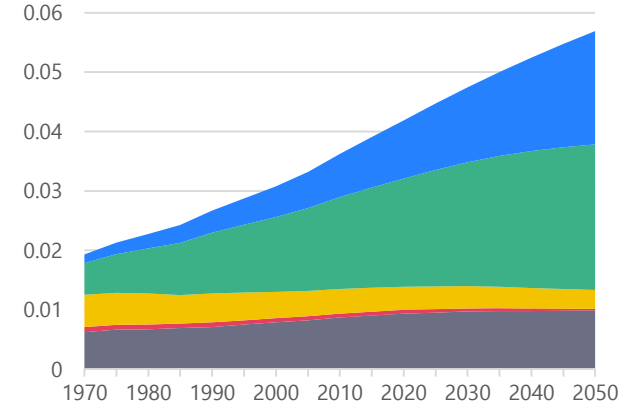
Latin America Population by Education Attainment 1970-2050 (Billions)



North America Population by Education Attainment 1970-2050 (Billions)



Oceania Population by Education Attainment 1970-2050 (Billions)



Source: IIASA and Wittgenstein Centre

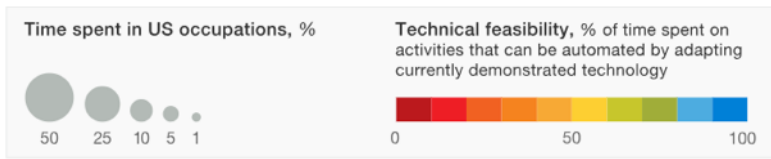
Automation's double threat to education - training people for jobs that won't exist and the automation of education services.

Education needs to ensure it is training people for the skills, knowledge and jobs of the future, or face redundancy.

As an industry, automation could deliver huge productivity gains through enable better data and decision-making.

While the level of automation in education is far from clear, automation of simple computational tasks from structured data (algorithm wave) will be first, followed by a change to jobs that are routine and repeatable (augmentation wave).

Finally, the 'autonomy wave' will deliver automation that incorporates problem solving in dynamic real-world situations.



Source: McKinsey Global Institute

AI investment and R&D activity is accelerating as its disruptive potential becomes clear.

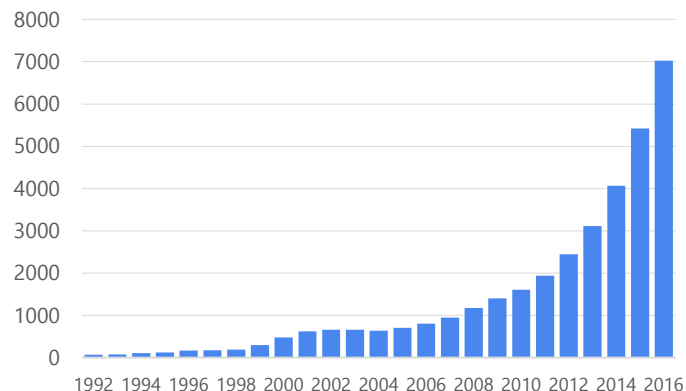
According to a recent Tencent report, there are around 300,000 qualified AI researchers, however, this falls significantly short of demand, which is in the millions.

China's access to data from its 700m internet users will assist with its ambition to lead the world in AI.

VC investment in AI reached \$10.8 billion in 2017, almost doubling from the year before and up from just \$500m in 2010

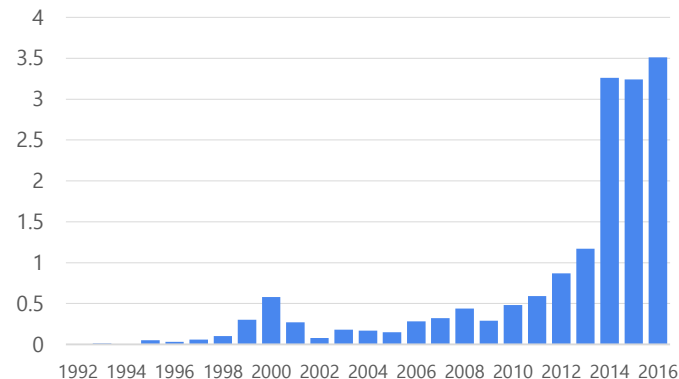
Tech giants including Baidu and Google spent between \$20b and \$30b on AI in 2016, with 90% of this spent on R&D and deployment, with the remaining 10% on AI acquisitions.

Start-ups Developing AI systems



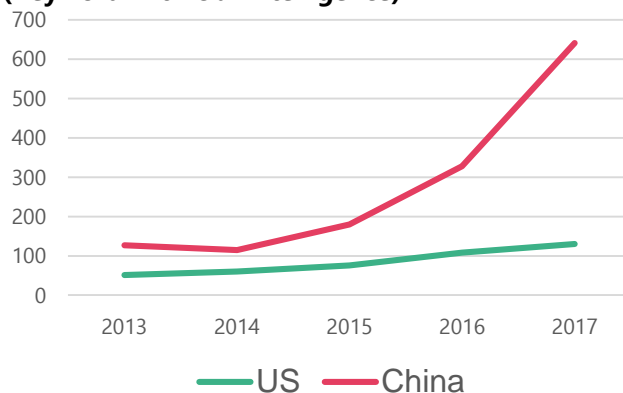
Source: AI Index, Crunchbase

Venture Investment in AI Start-ups (Billions USD)



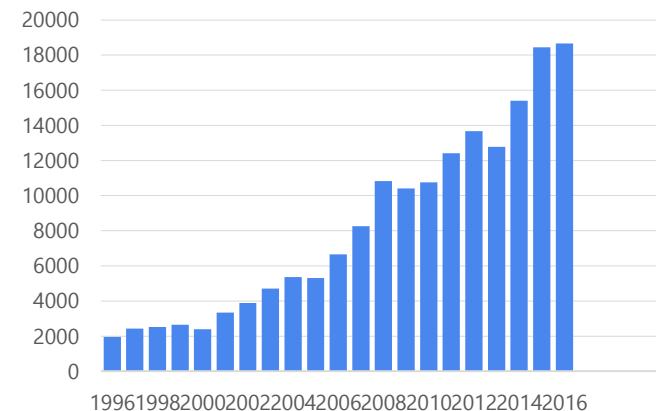
Source: AI Index, Crunchbase

AI Related Patent Publications (Keyword Artificial Intelligence)



Source: epo.org

AI Research Papers Published

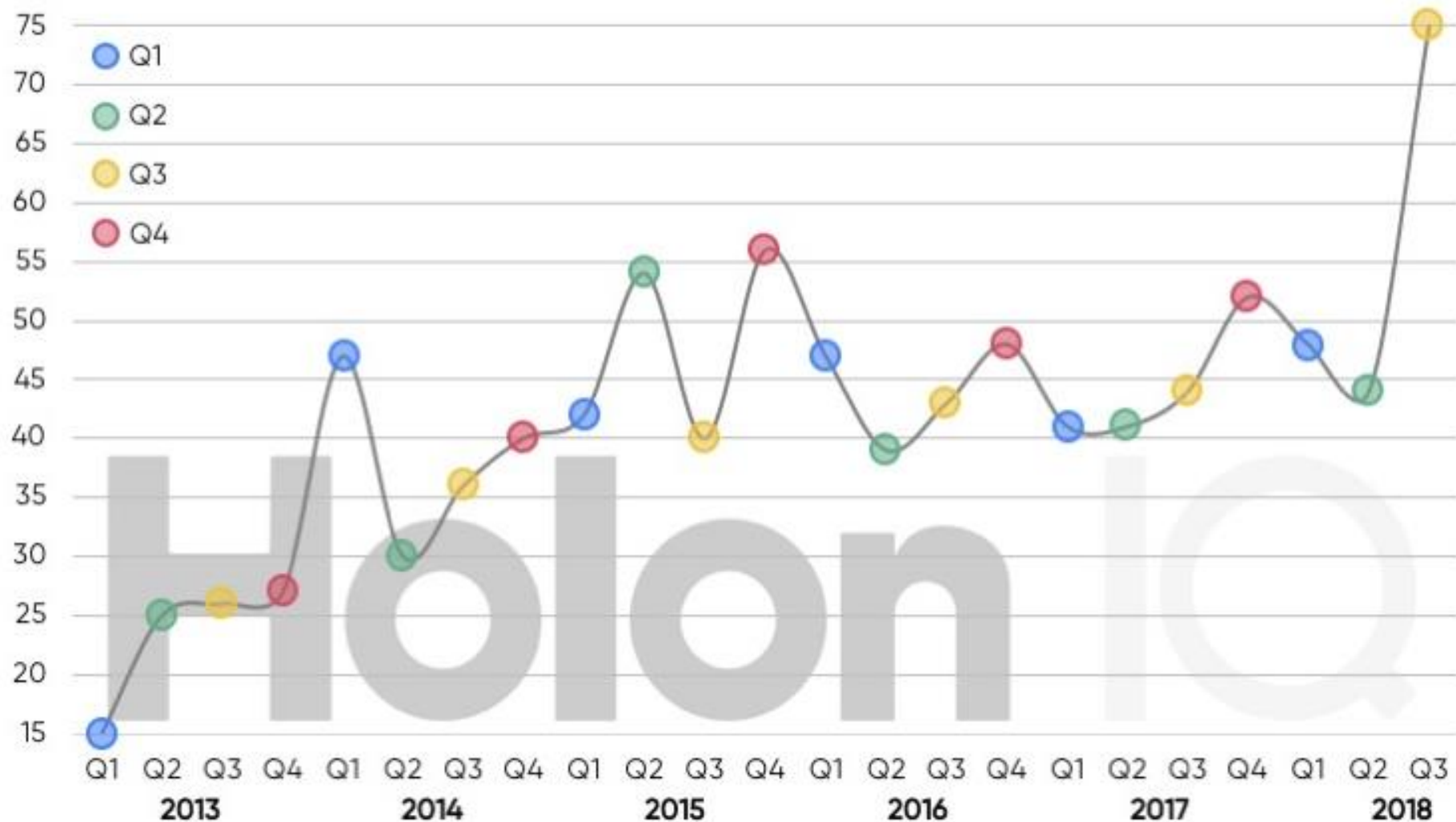


Source: Scopus, AI Index

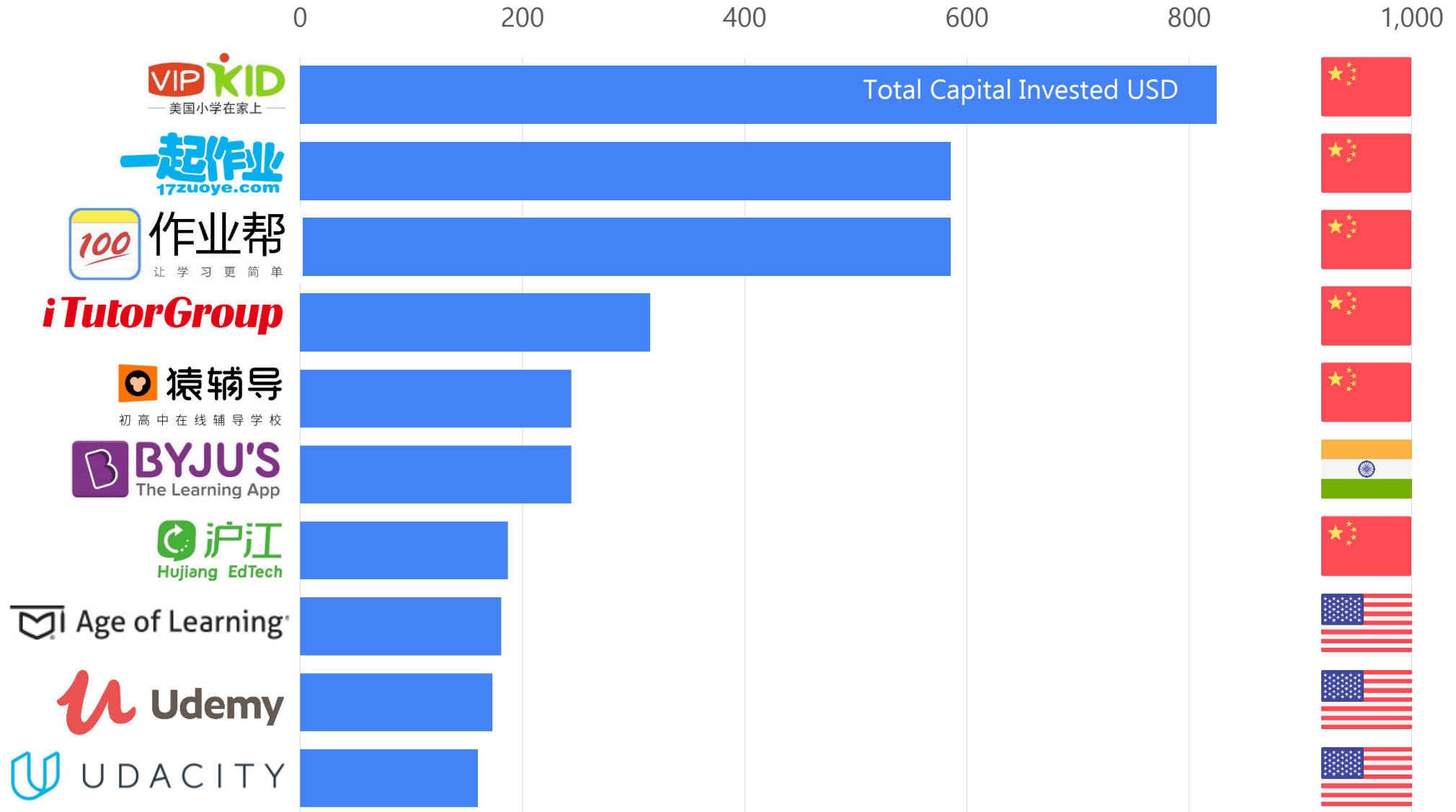
Source: McKinsey. AI the next digital frontier

Source: Ptichbook

Quarterly Global Count of EdTech VC Deals Raising US\$5 million or more



www.holoniq.com/edtech-unicorns



The total population of Asia is

4.4 billion

(60%+ of the world's population)

There are 600 million K12 student enrolments in Asia

10x > US

(96% of K12 students in the world are outside of the US)

More English language learners than the English-speaking American population

>400 million

English language learners in China alone

Massive eLearning user base with over


150 million

eLearning users in China at any one time. This is around 50% of the American population

By 2020, China's college-educated talent pool is expected to number

195 million

more than the entire US labour force that year



Asia presents the largest market for education and training. The region is the host to massive populations, increasing middle class income, increasing spend on education, wide diversity of levels of economic and skill development, greater barriers to physical distribution, government driven programmes and a high propensity to use technology in daily life. This has driven investment in the sector to greater levels than those observed in the US

2 out of the top 5

highest country spends on education globally are from Asia (China and Japan)

There are over

6,000

(2.0x that of Europe)

eLearning companies in China alone (in 2013, over 1,000 new online education companies were opened)

By 2020, Chinese families are projected to spend

>6.0x more

on education (spending grew 13.0x between 1985 to 2012)

Large revenue opportunities for eLearning suppliers with

only c.11%

of the population in China currently accessing eLearning

South East Asia is a **mobile-first market** with penetration expected to

grow **5.0x** between 2013 and 2019, and mobile data consumption is expected to grow

> 8.0x

- **Governments** in emerging markets actively seeking alternate solutions
- **Vocational education** priority for governments worldwide
- **Global and Regional Alliances** strengthening networks
- **Tech Giants** building global brands, perfecting business models and embarking on vertical value chain plays
- **Corporate** training solutions scaling use of advanced technology

Education-as-Usual

Traditional education institutions remain the trusted source of learning and the most effective vehicle for jobs and prosperity. Higher Education consolidates, global talent platforms emerge and government remains the core source of funding around the world.

Regional Rising

Regional alliances dominate the competitive education landscape, supported by strategic and political cooperation. Cooperative blended delivery and regional talent hubs cross-load labor supply and demand to strengthen regions.

Global Giants

This global free market environment has fostered the emergence of 'mega-organisations' with ubiquitous brand recognition and the scale to achieve significant efficiencies and industry power.

Peer to Peer

Learning online through rich, personalized human to human experiences dominates the post-secondary and skills training sectors. Blockchain technology fundamentally reconfigures credentialing and unlocks the collective creativity and IP of teachers.

Robo Revolution

AI drives a complete reversal in 'who leads learning', with virtual tutors and mentors structuring learning paths, providing assessment tasks, giving feedback, adjusting according to progress and organizing human tutoring when needed.