



**News & Views on
Exponential Technologies
&
Global Grand Challenges**



Acknowledgements

DGTAL acknowledges the contribution of these esteemed organizations towards open source tech knowledge sharing for the benefit of the world at large





12 Global Grand Challenges

As per UN convention these grand challenges need to be addressed for achieve Sustainable Development Goals



Disaster Resilience



Energy



Environment



Food



Global Health



Governance



Learning



Prosperity



Shelter



Security



Space



Water



3D printing and digital fabrication

Blockchain

Nanotechnology

Digital medicine

Robotics

Autonomous vehicles

Digital biology and biotechnology

Artificial intelligence (AI)

Augmented and virtual reality (AR, VR)

Networks and computing systems

Drone technology

Data Science

Internet of things

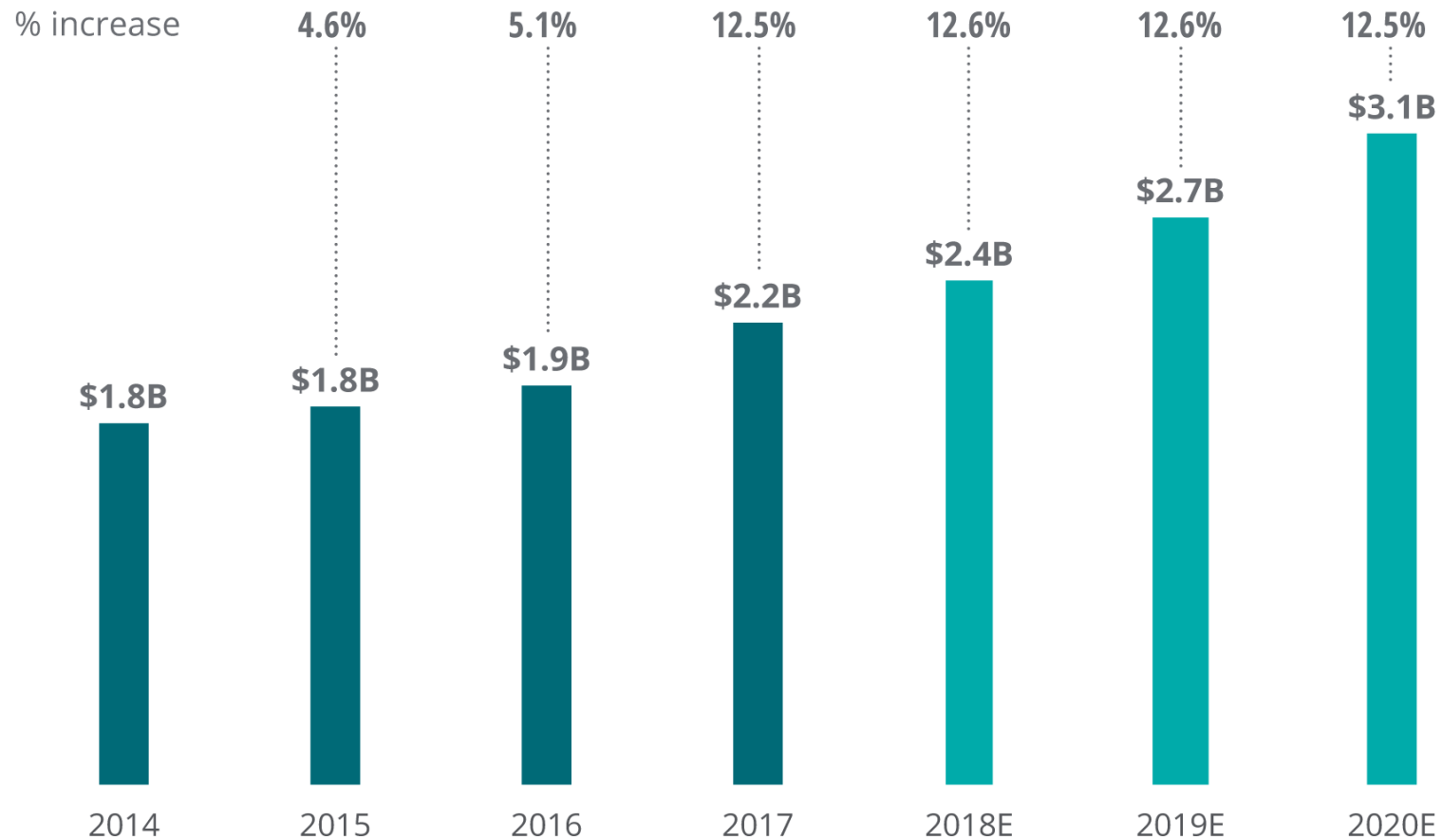
Quantum computing



Growth in the 3D printing market has more than doubled

Global 3D printing revenues among large public companies, US\$ billion, 2014–2020

3D Printing or Additive Manufacturing



Source: Deloitte analysis of public company filings and analyst estimates.

Deloitte Insights | deloitte.com/insights



Dubai creates world's largest 3D printed building

The project stands almost 10 metres tall and requires half as many people to build as conventional construction



3D Printing



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NEWS & FOX / DIGITAL

SA is home to the world's largest 3D printer

With state-of-the-art 3D printer – the largest in the world – the CSIR plans to secure contracts with international aircraft makers

26 SEPTEMBER 2019 - 05:00 by NAFISA AKABOR



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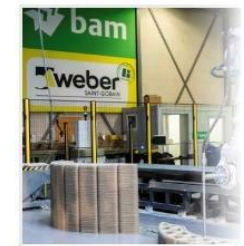
Aug 2, 2019
2019 Greatest 3D Printed Houses, Buildings & Structures



May 13, 2019
3D Printed Community for Homeless Coming to Latin America



Feb 20, 2019
3D Printed Homes – 4 Most Fascinating Projects in 2019



Jan 18, [>](#)
Europe's First Concrete Print Opens in Eind

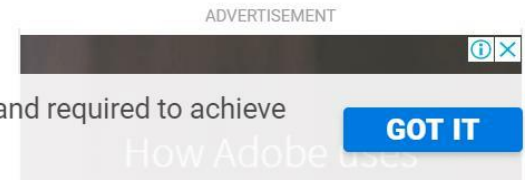


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Watch the world's biggest 3D printer make a 25-foot boat

By Darren Allan 21 hours ago Printers And Scanners

5,000-pound boat named '3Dirigo' is the largest object ever printed



3D Printing



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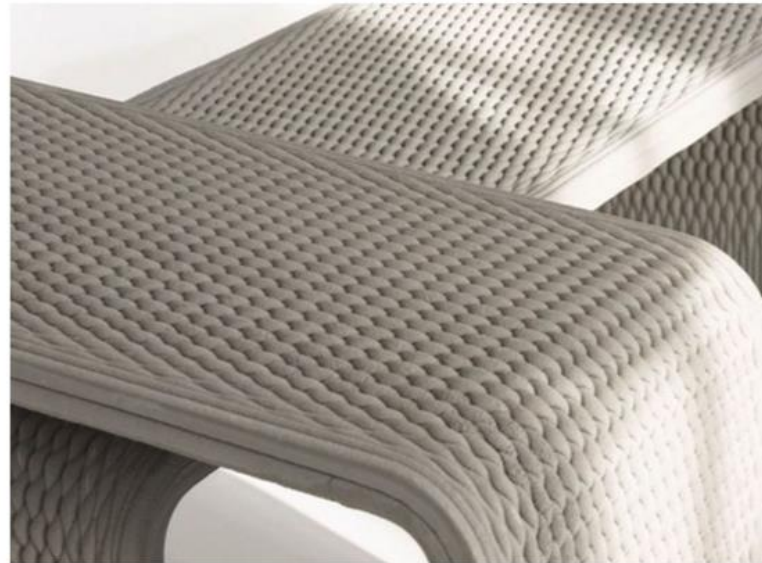
Huge 3D printers could produce Mars-bound rockets soon

By [Darren Allan](#) a day ago [Printers And Scanners](#)

Machine learning tricks will theoretically mean rockets can be made on Mars, eventually



3D Printing



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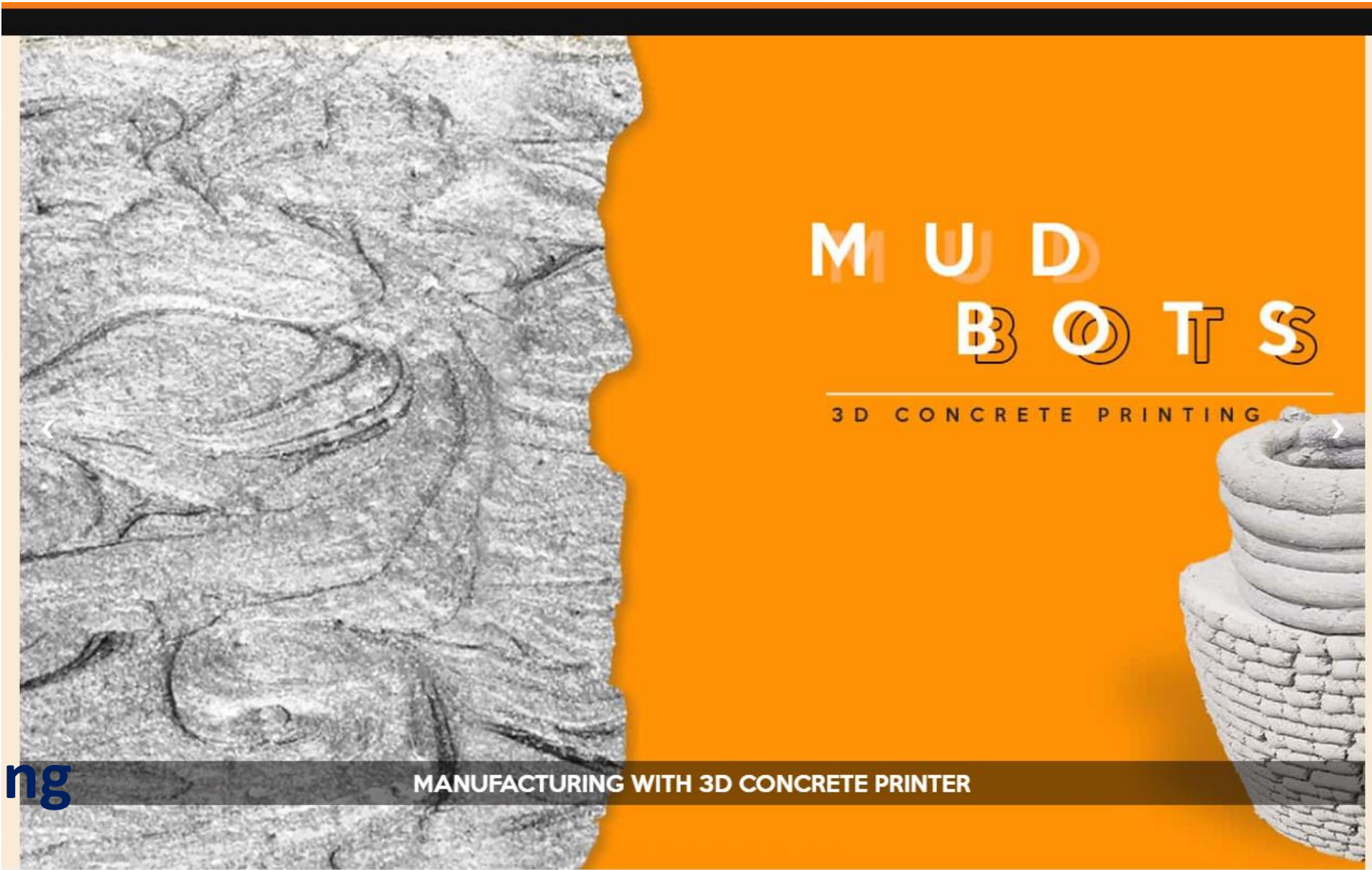
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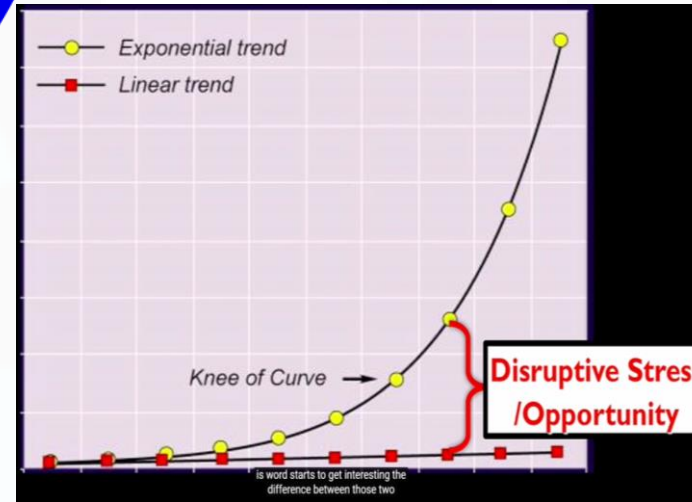
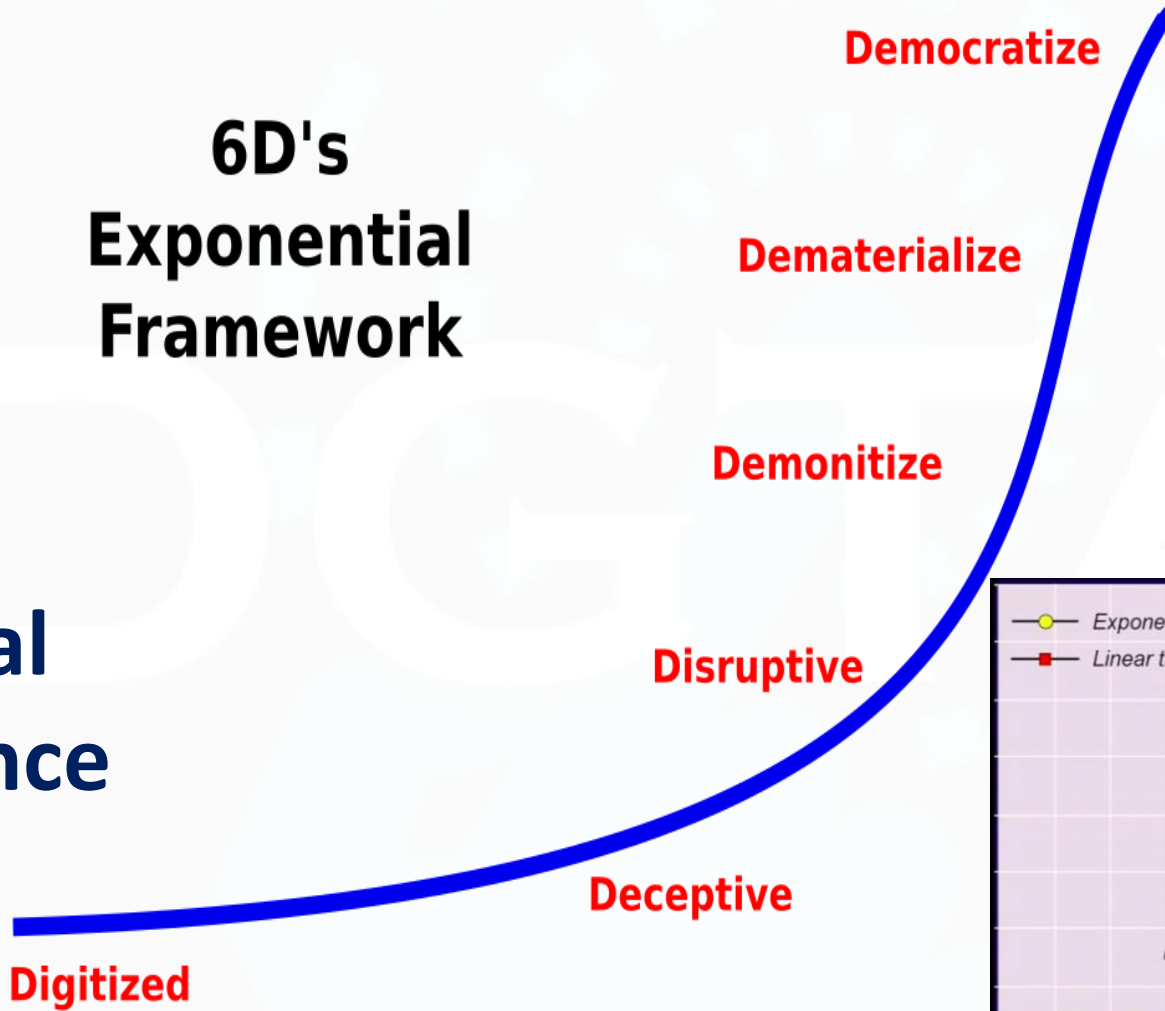
Artificial Intelligence

Peter Diamandis 6D Framework



6D's Exponential Framework

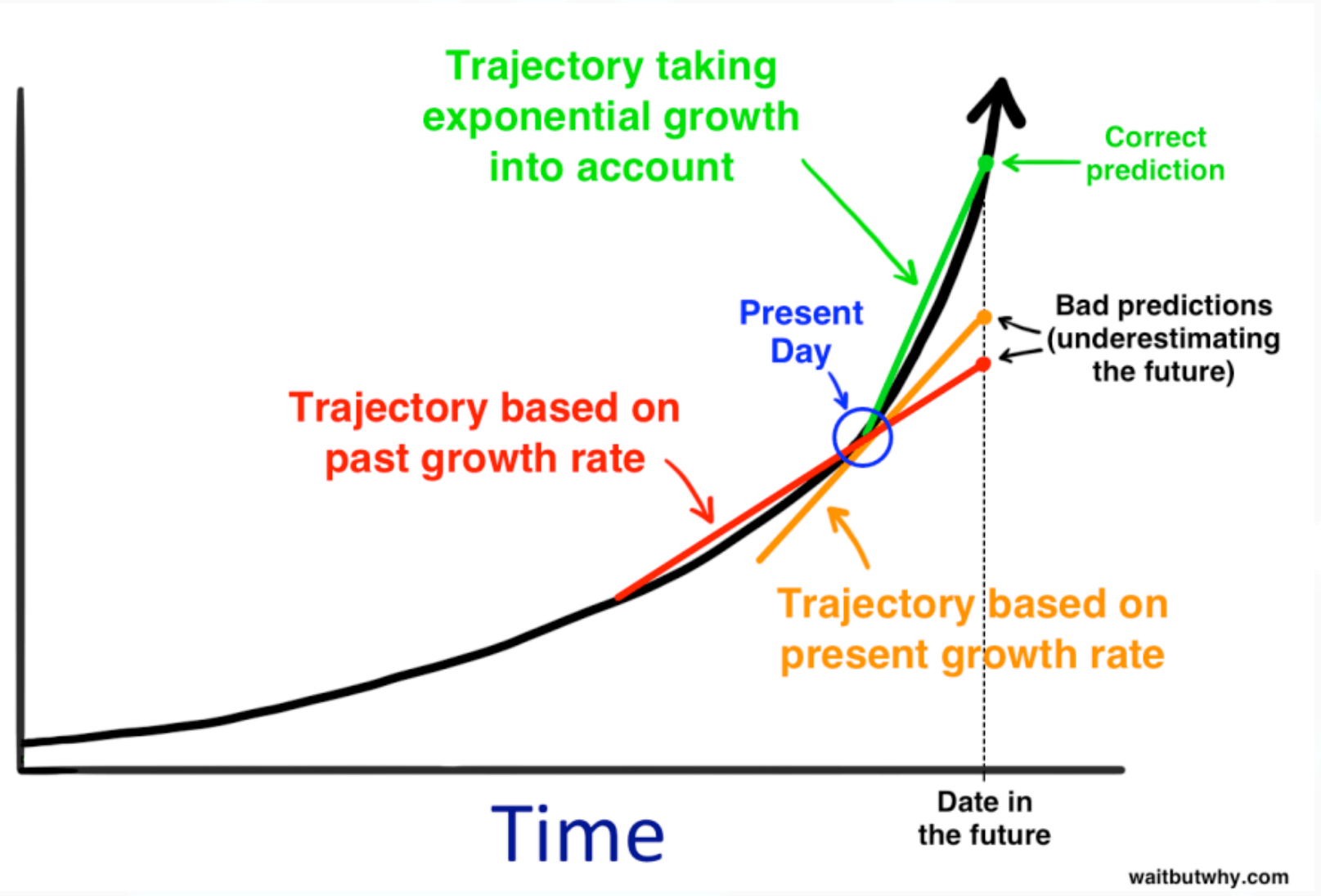
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Artificial Intelligence

Human Progress





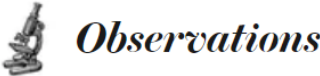
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Artificial
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Creativity and AI: The Next Step

Combining two types of machine intelligence could open new frontiers of art

By Arthur I. Miller on October 1, 2019



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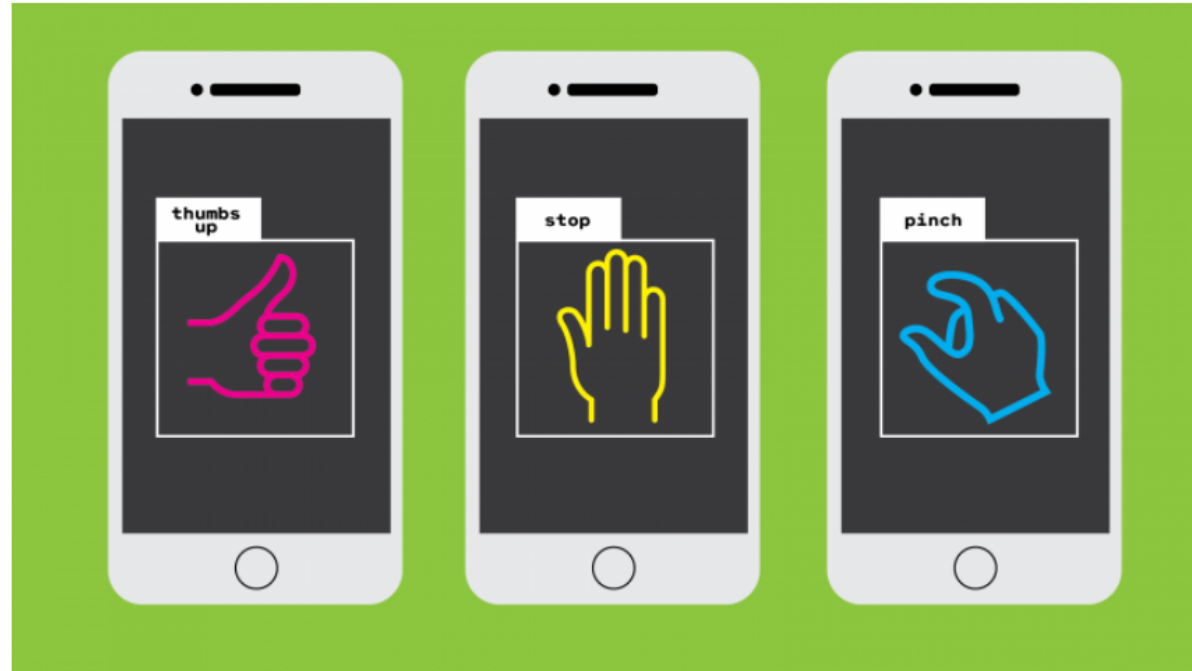
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Artificial Intelligence Could Be a \$14 Trillion Boon to the Global Economy—If It Can Overcome These Obstacles

**Artificial
Intelligence**

Artificial Intelligence Oct 11

Powerful computer vision algorithms are now small enough to run on your phone



Researchers have shrunk state-of-the-art computer vision models to run on low-power devices.

Growing pains: Visual recognition is deep learning's strongest skill. Computer vision



Kelsey Warner
Oct 16, 2019

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World's first artificial intelligence university to open in Abu Dhabi

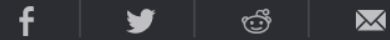
► The Mohamed bin Zayed University of Artificial Intelligence is accepting applications for its first masters and PhD programmes to begin in September 2020





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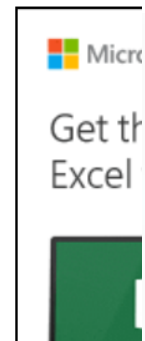
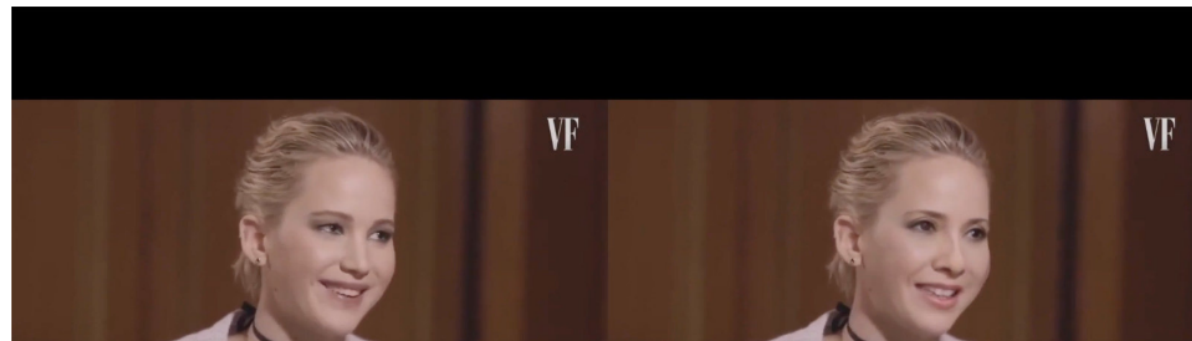
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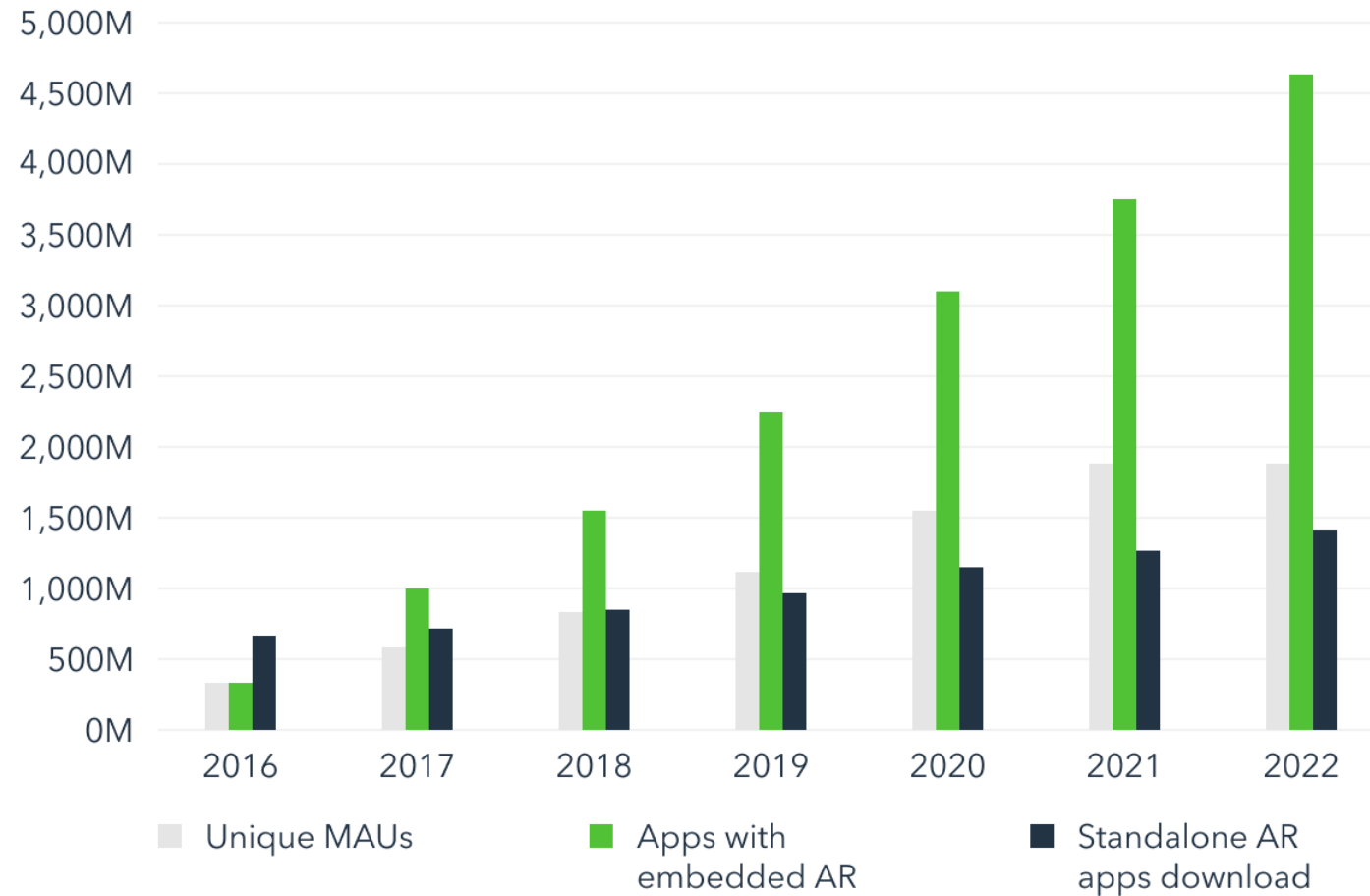


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Augmented Reality and Virtual Reality

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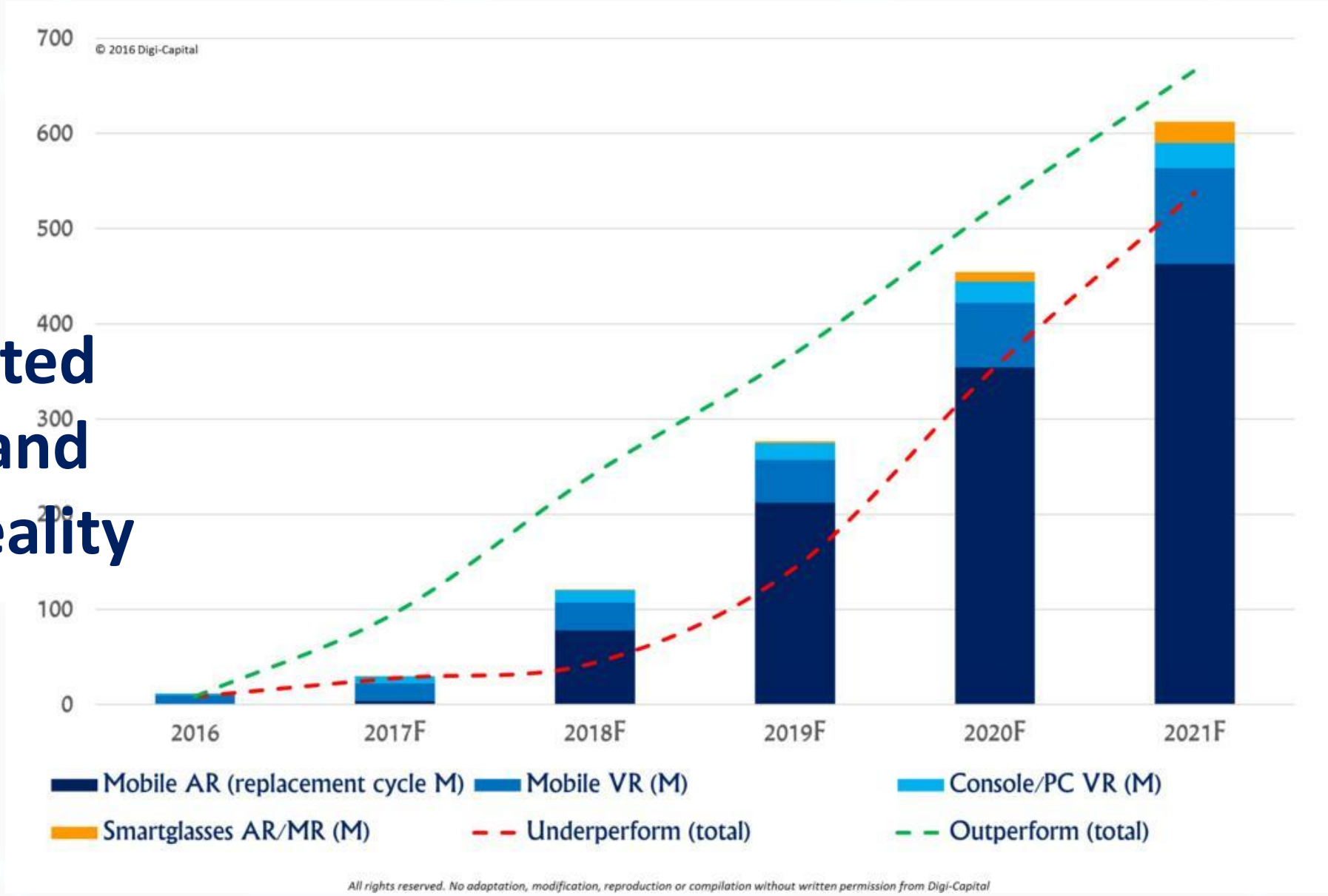


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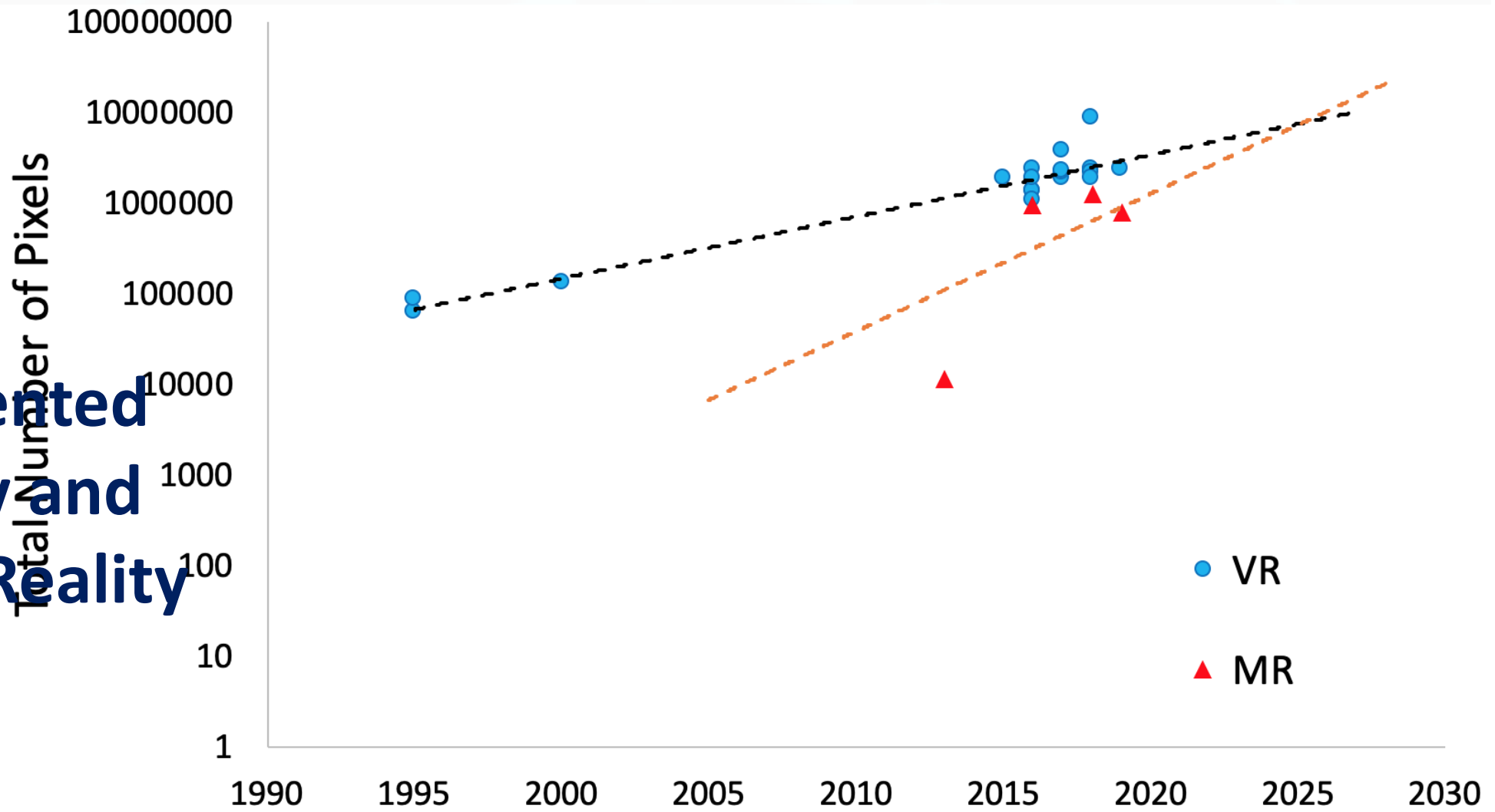


Augmented Reality and Virtual Reality





Augmented Reality and Virtual Reality





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By [David Meyer](#) October 17, 2019



Augmented Reality and Virtual Reality



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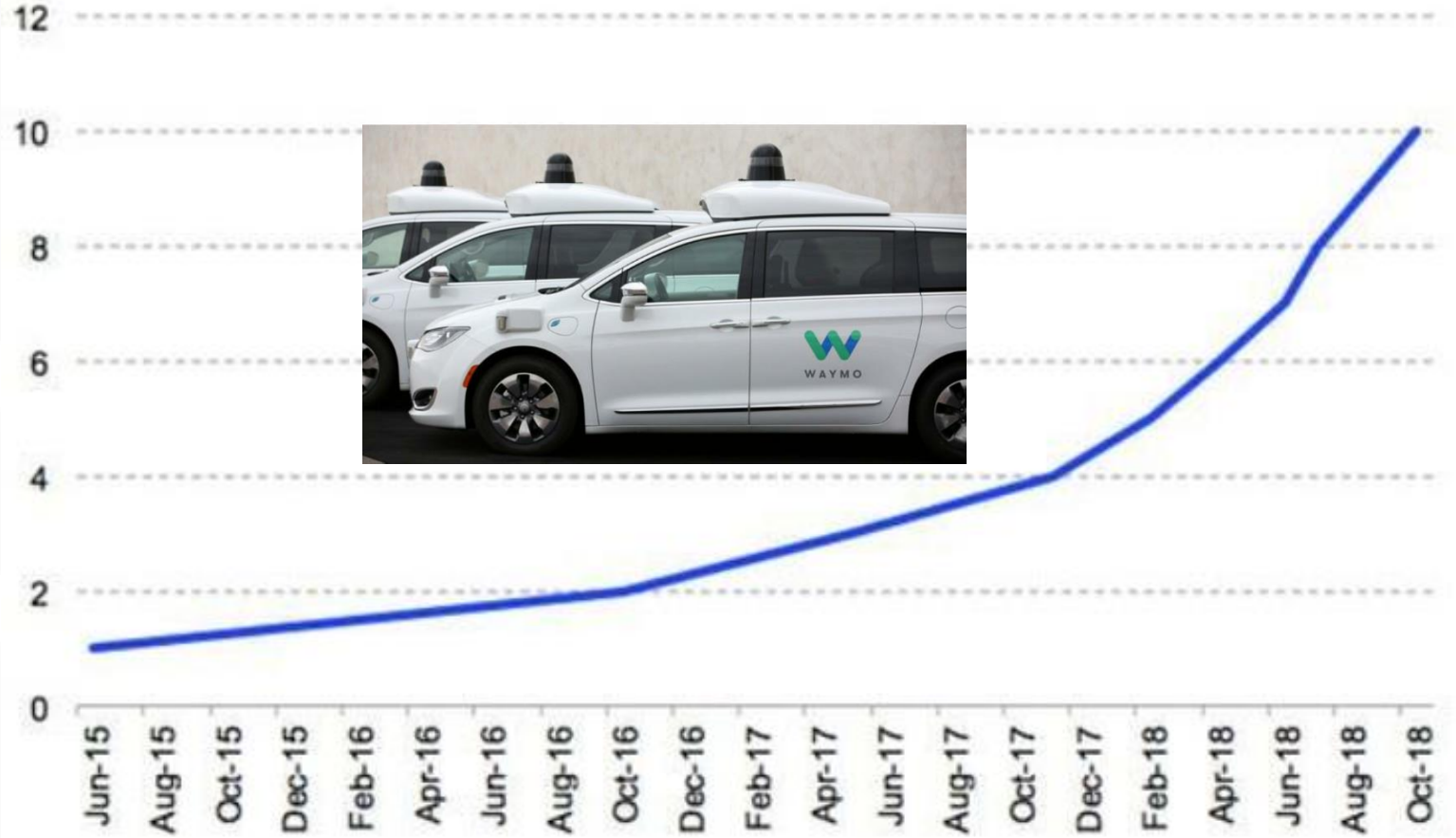
**Augmented
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Autonomous Vehicle

Waymo's Self-Driving Experience on Public Roads (in Millions)



MARKET REALIST

Source: Waymo



Autonomous Vehicle

AARIAN MARSHALL

TRANSPORTATION 09.09.2019 12:38 PM

Cities Are Trying—Again—to Plan for Autonomous Vehicles

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Kirsten Korosec @kirstenkorosec / 12:38 am SAST • October 10, 2019

 Comment



Autonomous Vehicle



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By [Julia Horowitz](#) and [Sherisse Pham](#), CNN Business

Updated 1431 GMT (2231 HKT) October 15, 2019

Autonomous Vehicle



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By Ben Morris
Technology of Business editor

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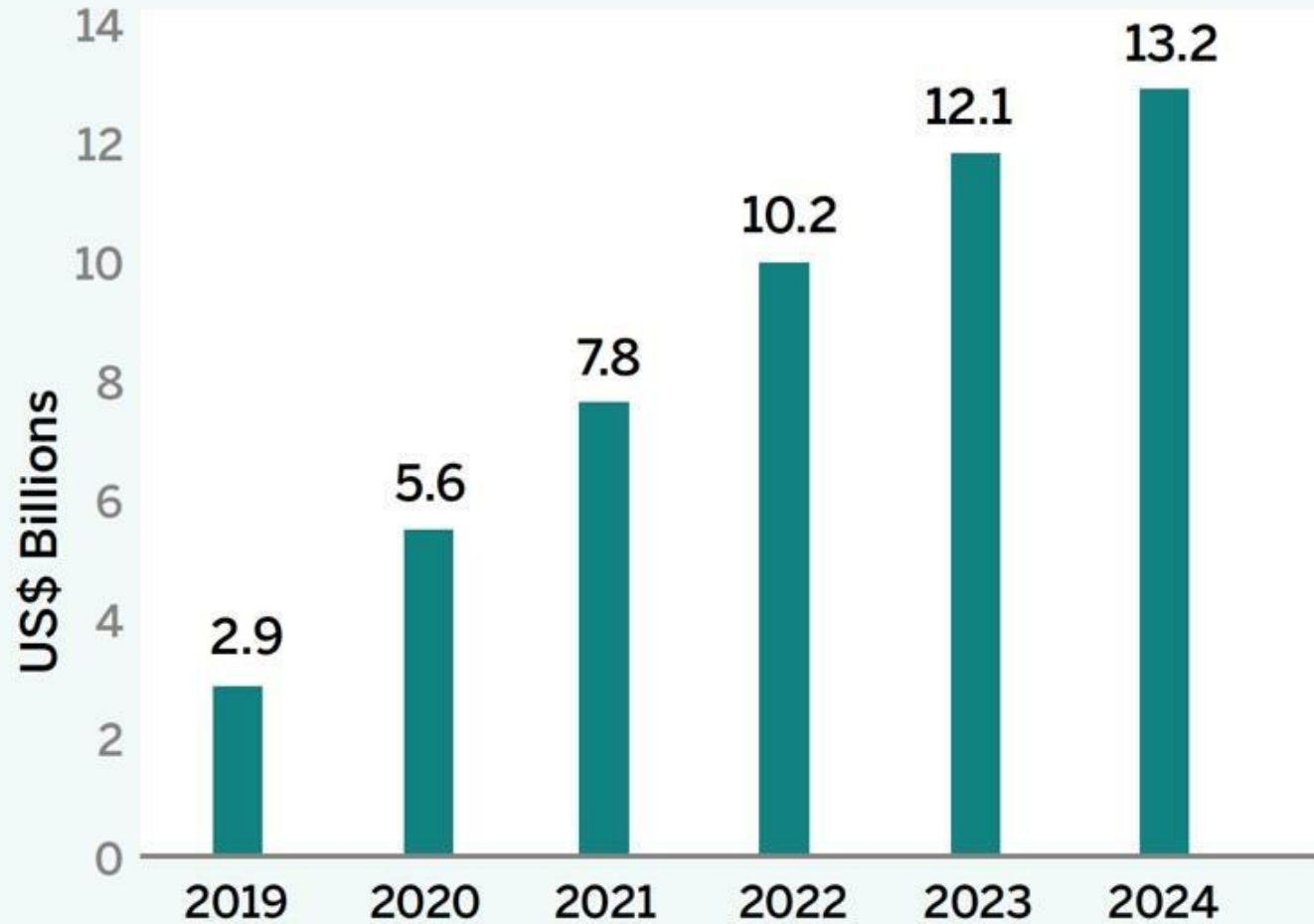
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Enterprise Blockchain market growth, 2019-2024





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Blockchain

Should central banks issue digital currency? Suddenly, it's an urgent question.

Stable digital currencies — and particularly Facebook's plans to launch one — have central bankers playing defense.

by **Mike Orcutt**

Oct 3, 2019



A Revolutionary Blockchain Solution for Cross-Border Business

Blockchain

NEWS PROVIDED BY
[OpenExO](#)
Oct 11, 2019, 18:18 ET

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MIAMI, Oct. 11, 2019 /PRNewswire/ -- We were fortunate enough to catch up with Salim Ismail, a serial entrepreneur who has helped companies like TD Ameritrade, Black & Decker, HP, and Visa move leadership, culture, and management thinking three years ahead in just ten weeks by implementing his methodology for exponential growth.

In our discussion with Salim, we learned about his blockchain-related venture, OpenExO. [OpenExO](#) gives individuals, businesses, and governments the tools they need to succeed in today's world by immersing them in a community of thought-leaders, innovators, futurists, coaches, speakers, and entrepreneurs that help them grow exponentially—just like the companies Salim has assisted.



Blockchain

Blockchain Oct 11

The wheels may be coming off Facebook's digital currency project Libra



Facebook's digital currency plans took a major hit today as Visa, Mastercard, eBay, and Stripe have followed PayPal's example and backed out of the nonprofit Facebook set up to manage the currency.



Blockchain Oct 16



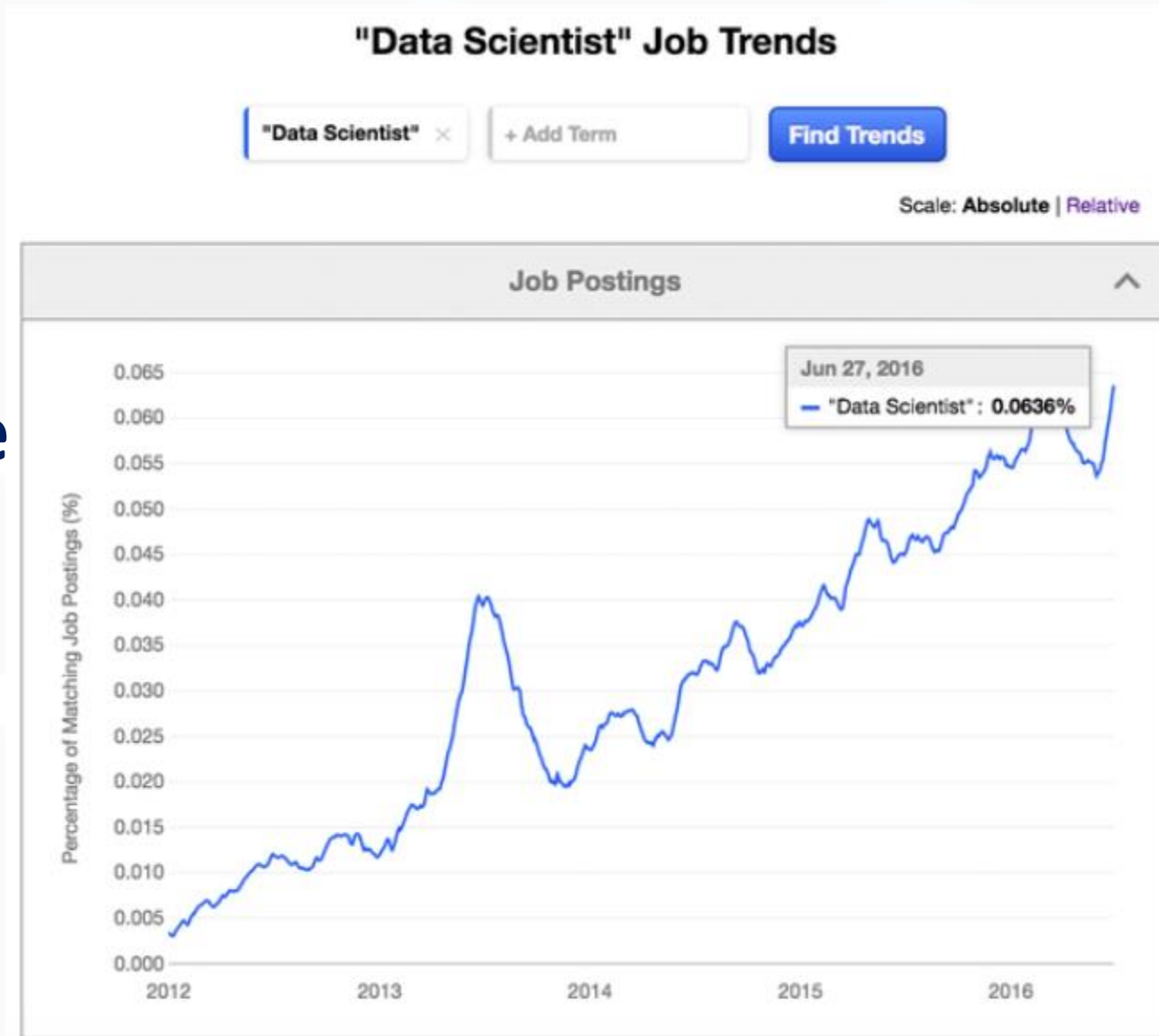
Bitcoin surveillance helped feds take down a massive child abuse site



Blockchain



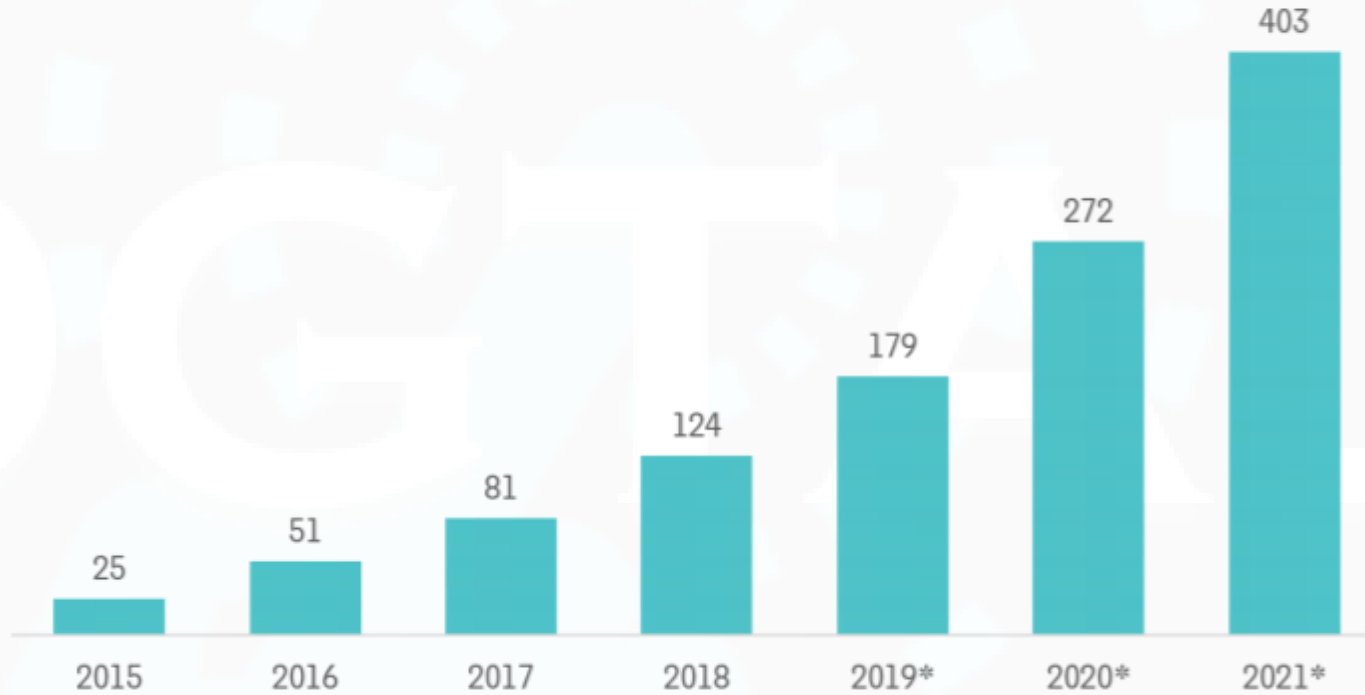
Data Science





Data Science

Volume of Big Data in Data Center Storage, in Exabytes,
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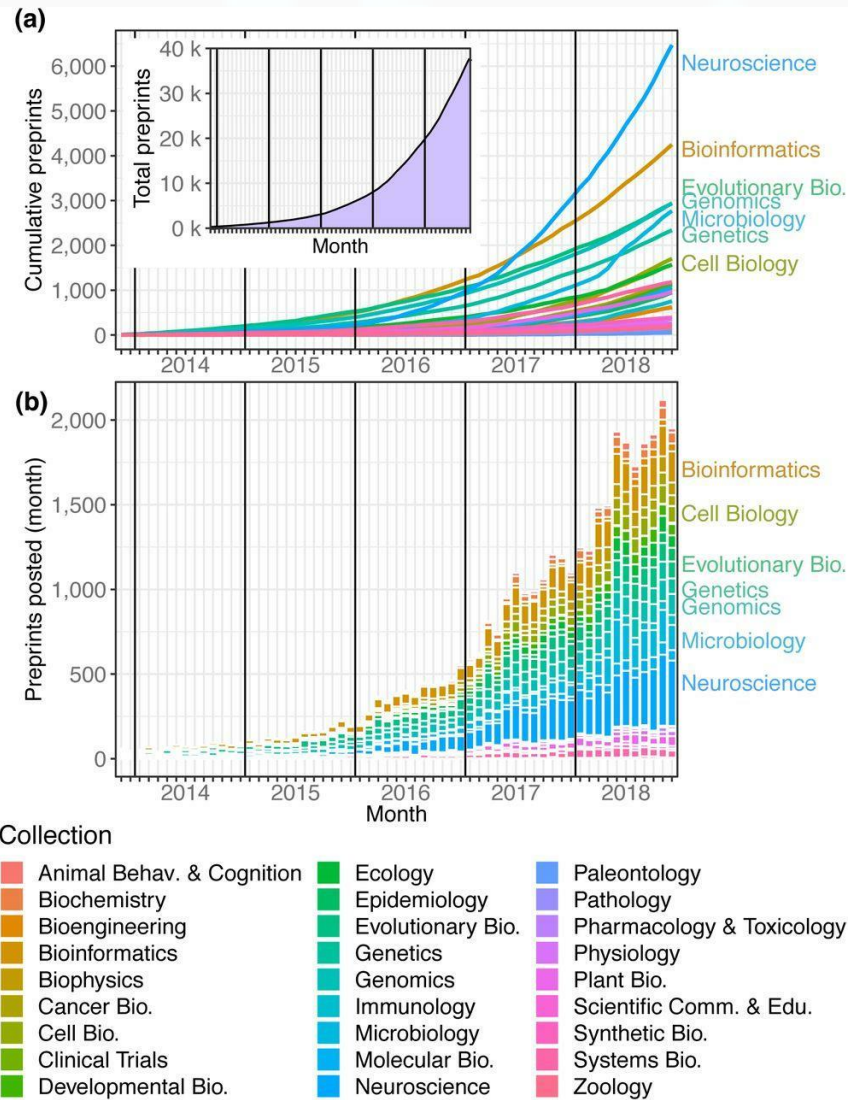


*Forecast
Source: Cisco Systems





Digital Biology and Biotechnology





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Maulana Bachtiar, Brandon Nick Sern Ooi, Jingbo Wang, Yu Jin, Tin Wee Tan, Samuel S. Chong & Carolyn G. Lee ✉

The Pharmacogenomics Journal (2019) | [Download Citation](#) ↓

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Abstract

Introduction

Materials and methods

Results

Discussion

Code availability

Digital Biology and Biotechnology



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By James Gallagher
Health and science correspondent

🕒 4 October 2019

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by University of Sydney

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**International
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Heidi Ledford

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SCIENCE 10.22.2019 08:00 AM

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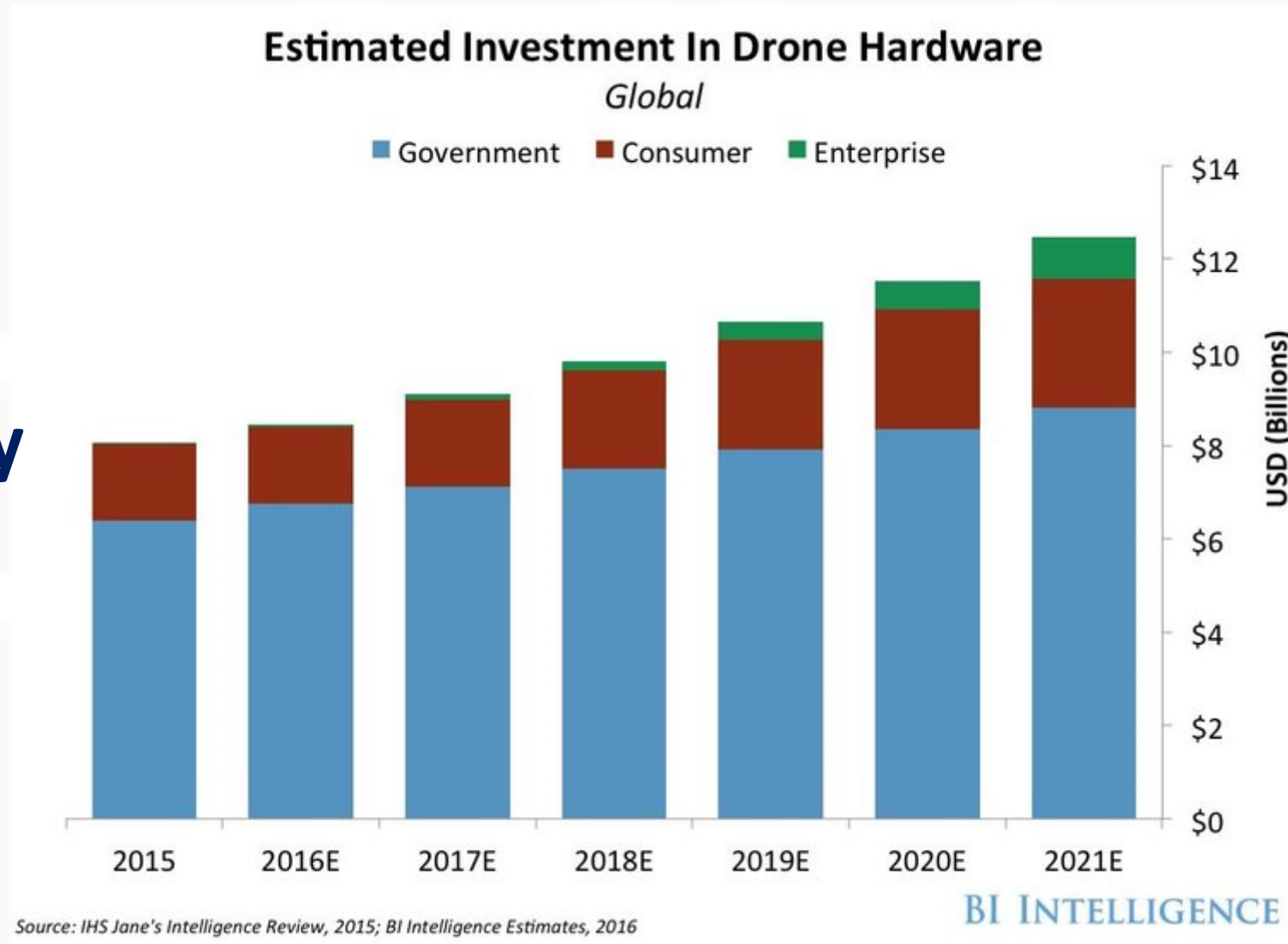
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Drone Technology





Drone Technology

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Drone Technology

BUSINESS INSIDER | TRENDING

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Jay Caboz , Business Insider SA
Sep 30, 2019, 04:25 PM



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China's stealth drones and hypersonic missiles surpass – and threaten – the U.S.

Despite starting technologically well behind America, China has developed new systems faster and more cheaply to fend off the U.S. in East Asia.





Drone Technology

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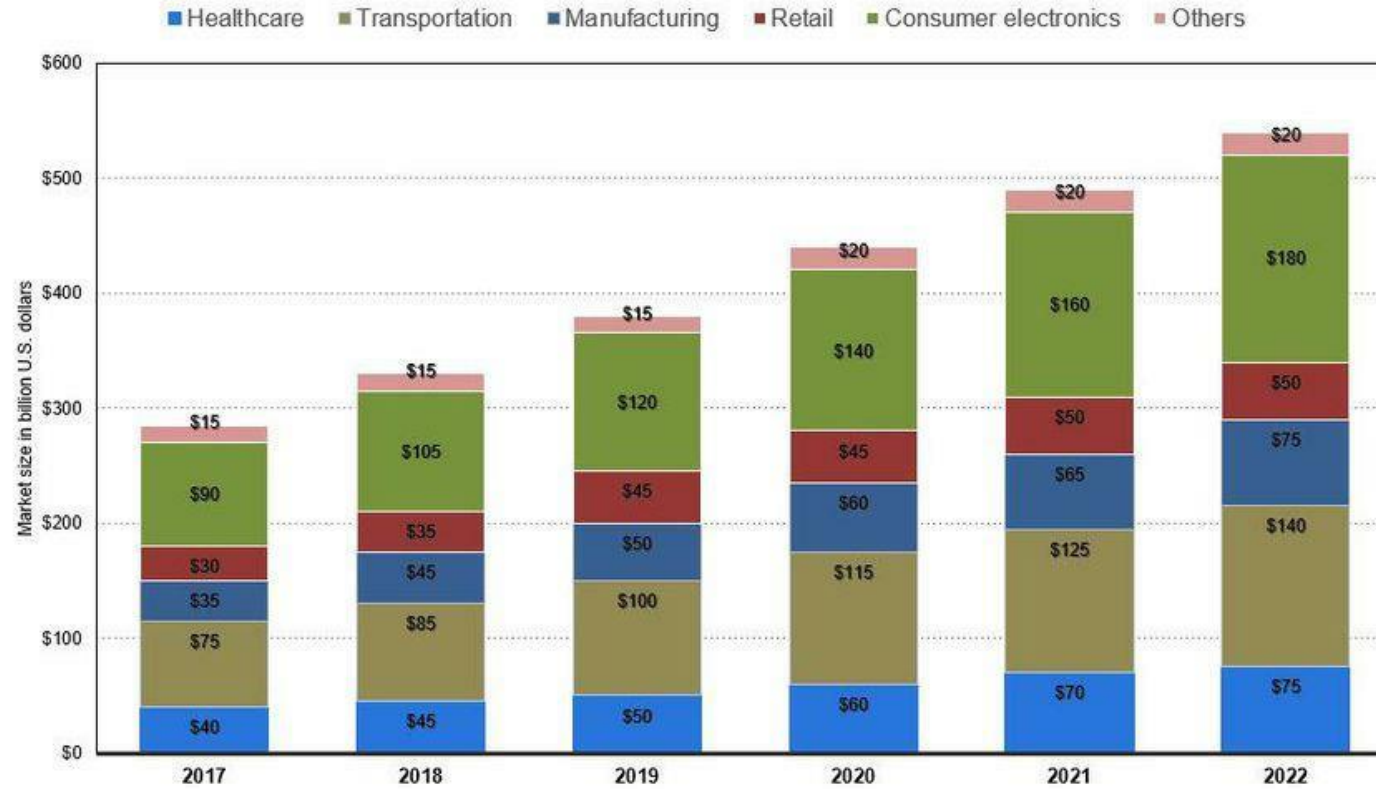




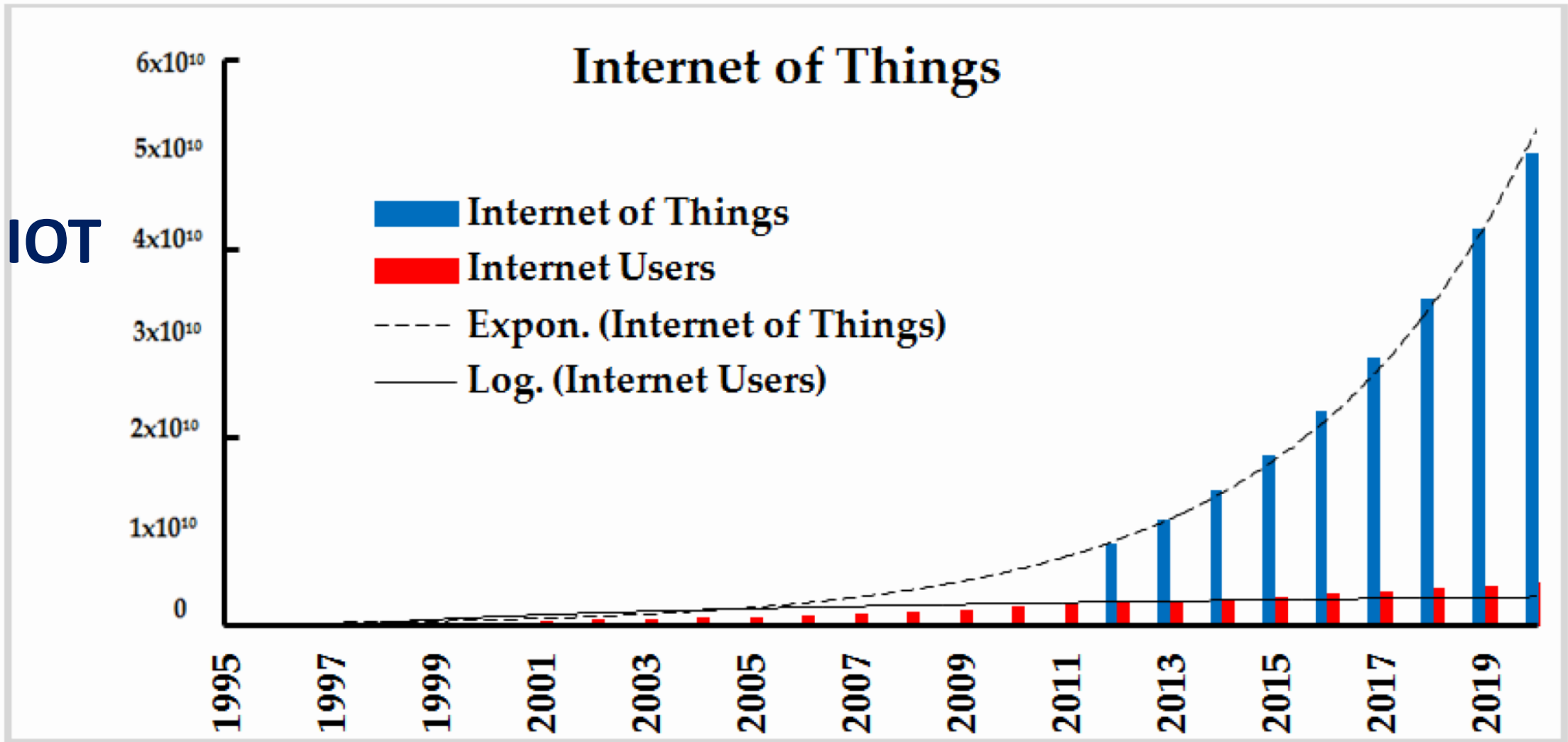
IOT

IoT Market Revenue by Application in North America 2017-2022

Size of the Internet of Things (IoT) Market by Application in North America from 2017 to 2022 (in billions of U.S. dollars)



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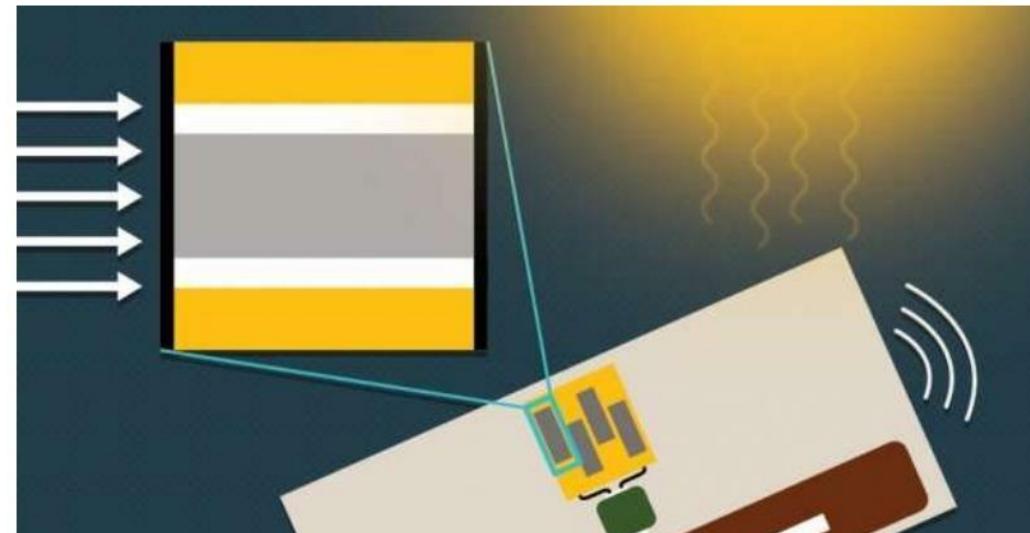


🕒 SEPTEMBER 27, 2019

Photovoltaic-powered sensors for the 'Internet of Things'

by Rob Matheson, Massachusetts Institute of Technology

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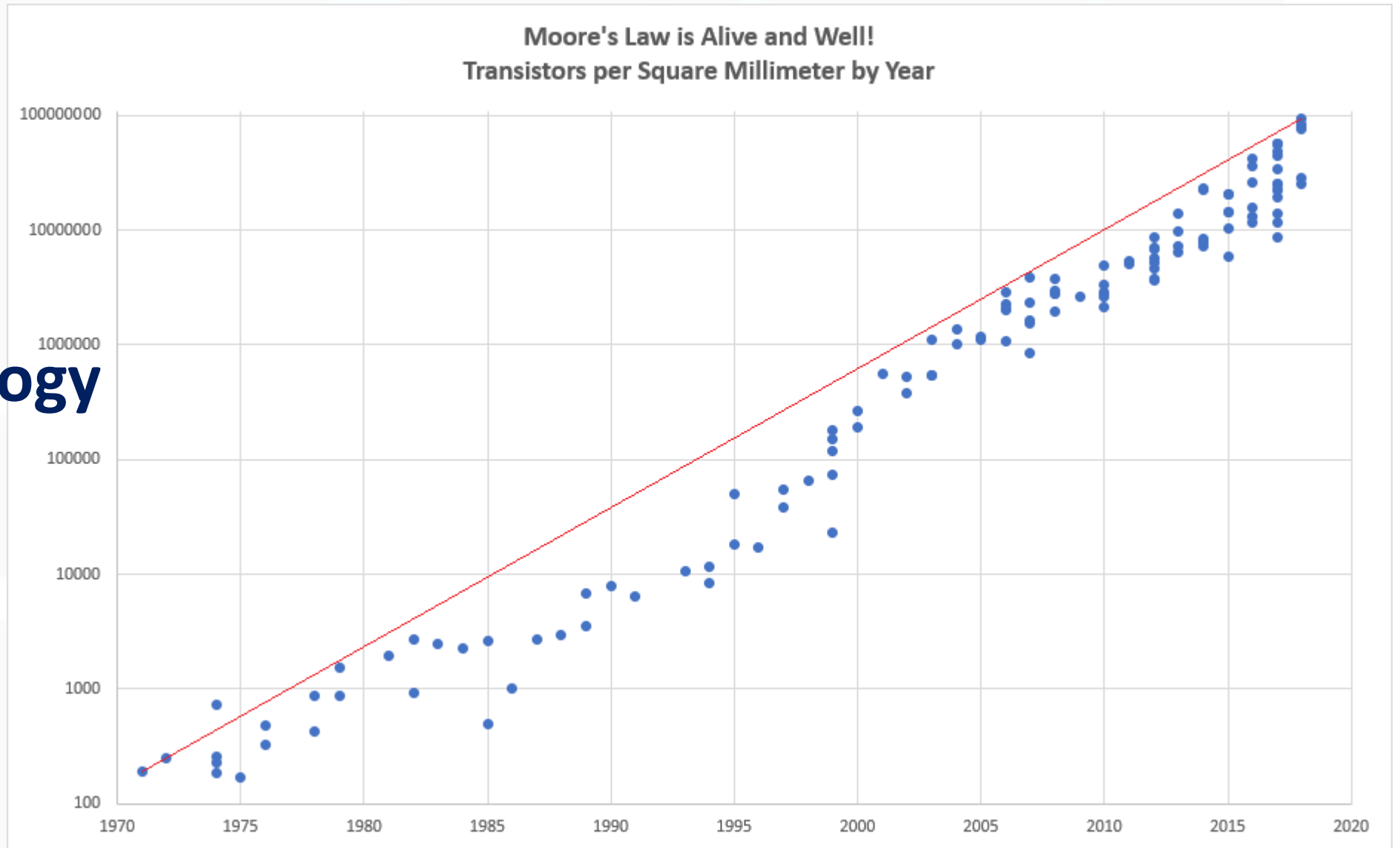
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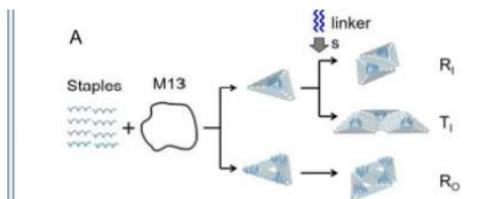
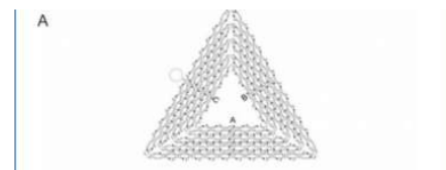
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by Thamarasee Jeewandara , Phys.org



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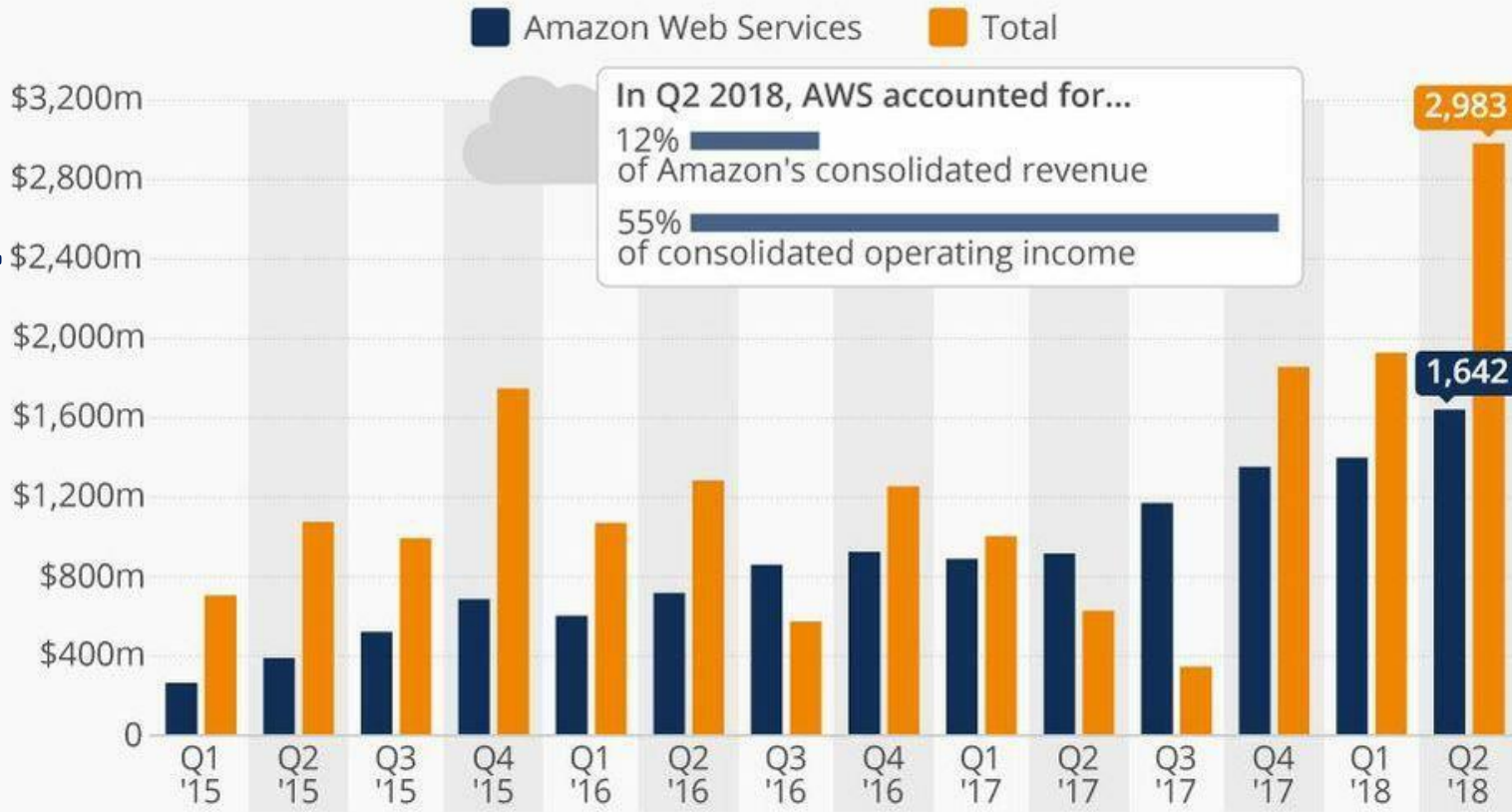
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Networking & Computing

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Amazon's quarterly operating profit (in million U.S. dollars)



@StatistaCharts Source: Amazon

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Donald Trump said in August his administration would 'take a very long look' at contract, after public swipes at Amazon

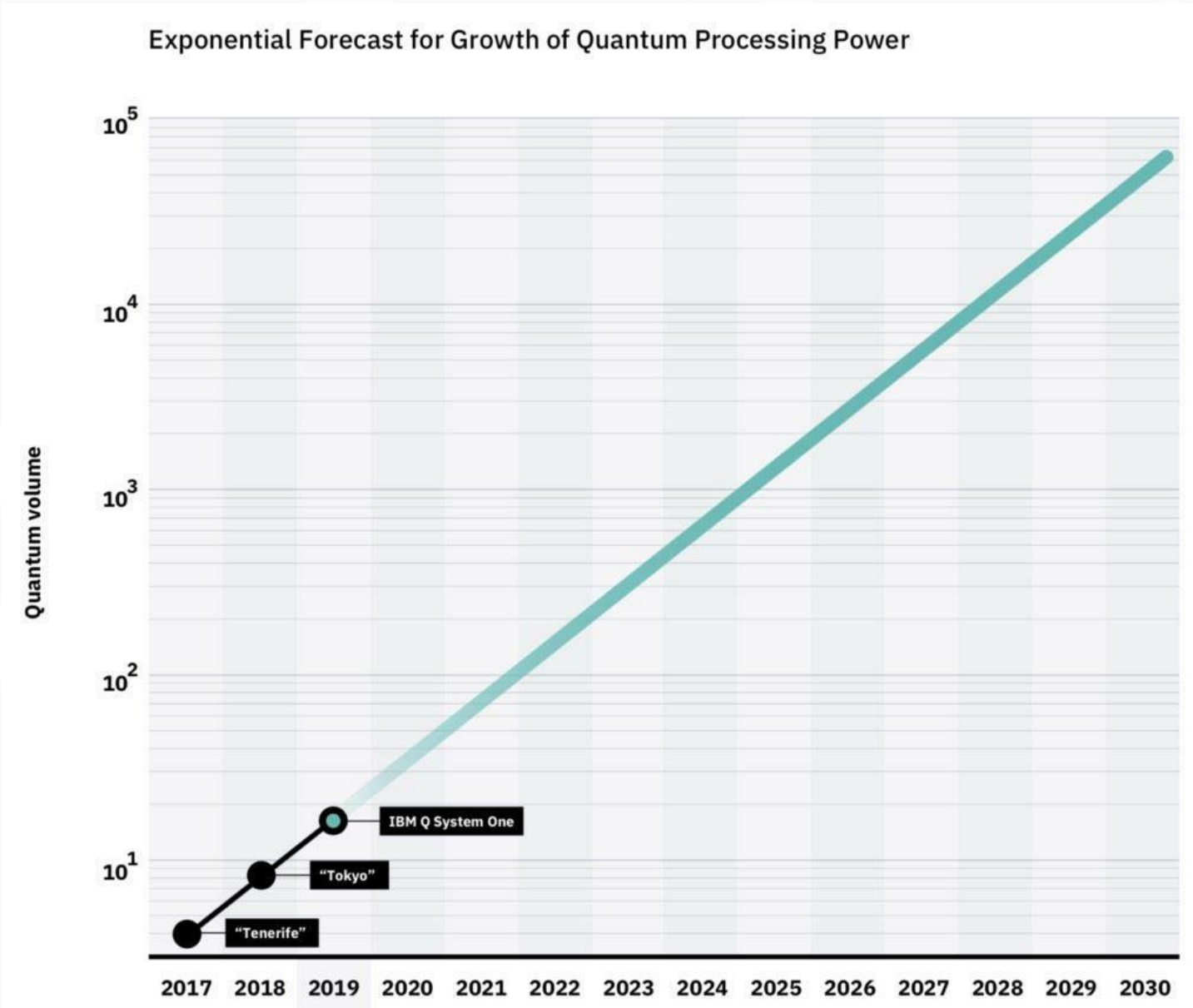
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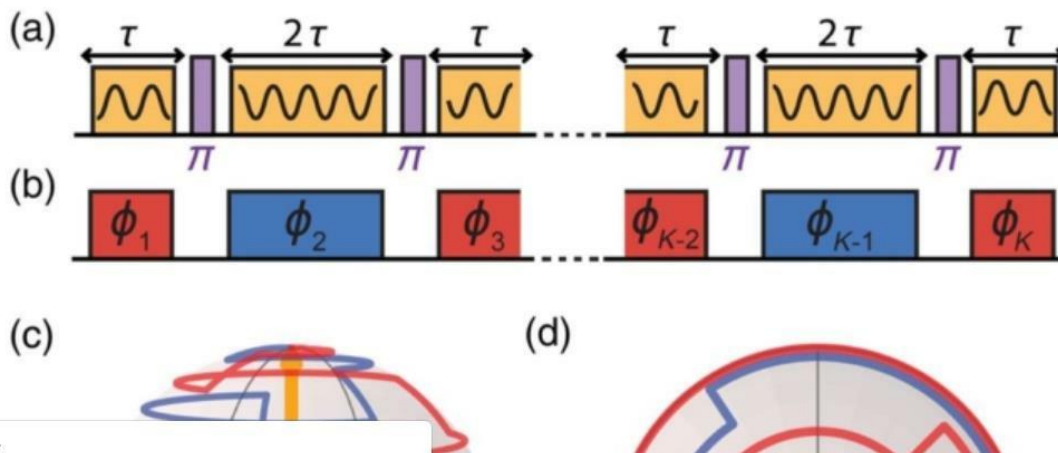
Quantum Computing



QUANTUM COMPUTING | RESEARCH UPDATE

127-qubit register breaks new ground in quantum computing

02 Oct 2019 Arso Ivanovic

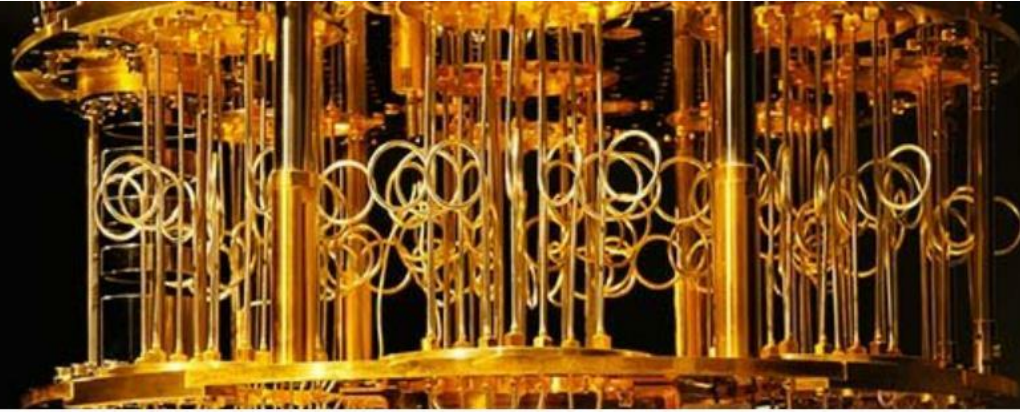


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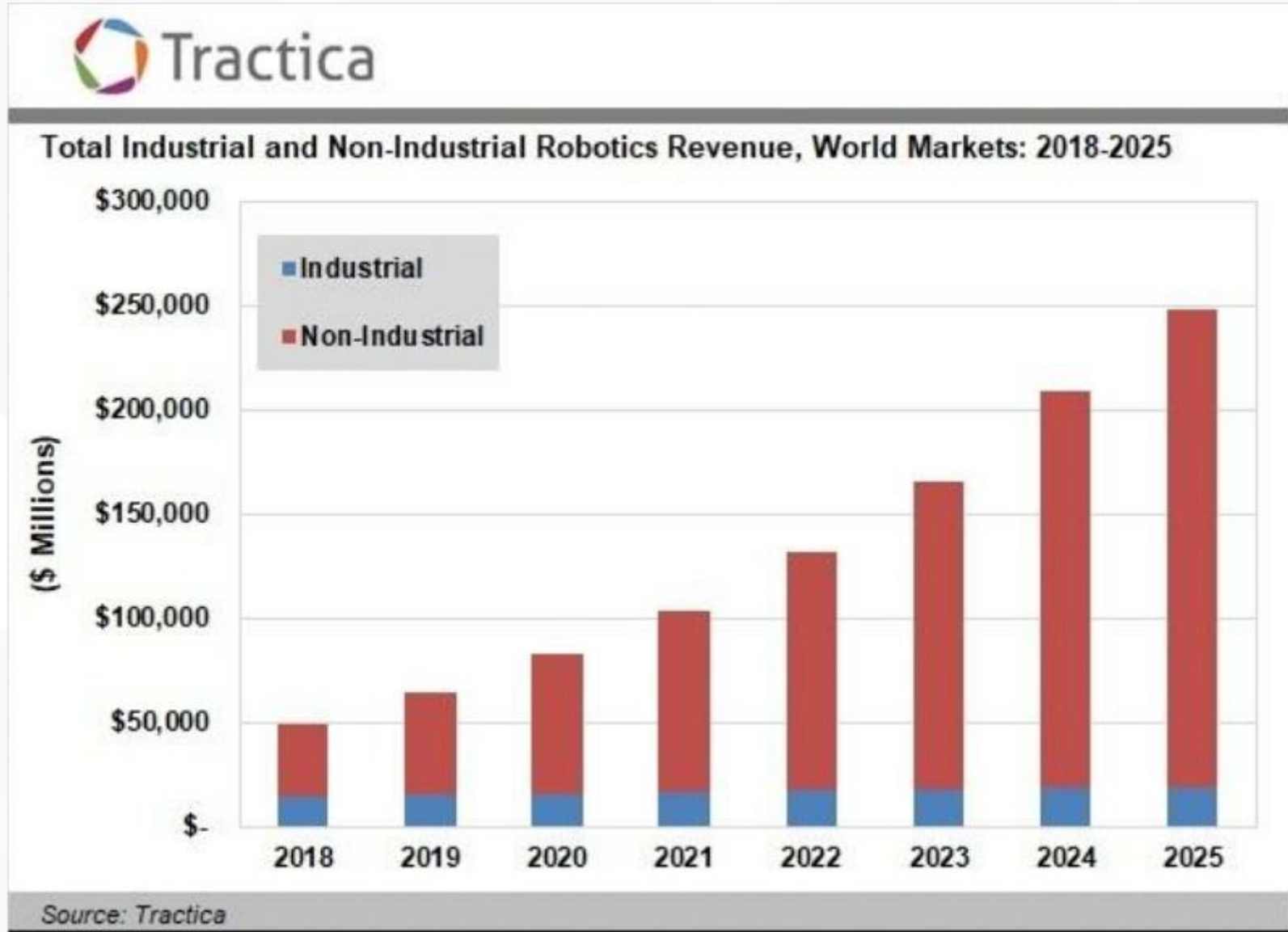
Barclays and IBM researchers publish paper on a quantum computing algorithm for securities transaction trading



Quantum Computing



Robotics

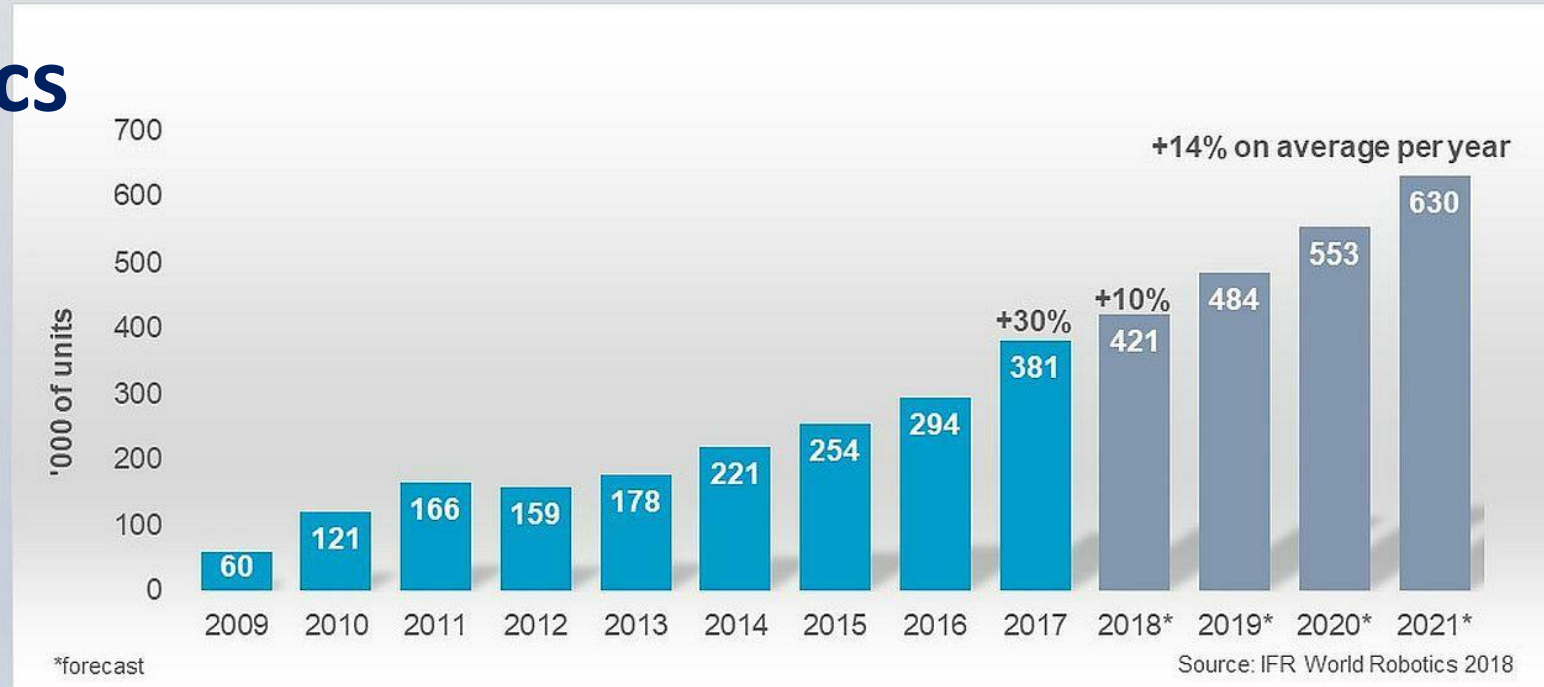




Estimated annual worldwide supply of industrial robots 2009-2017 and 2018*-2021*



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🕒 SEPTEMBER 30, 2019 **FEATURE**

SwarmTouch: A tactile interaction strategy for human-swarm communication

by Ingrid Fadelli , Tech Xplore





Robotics

Technology

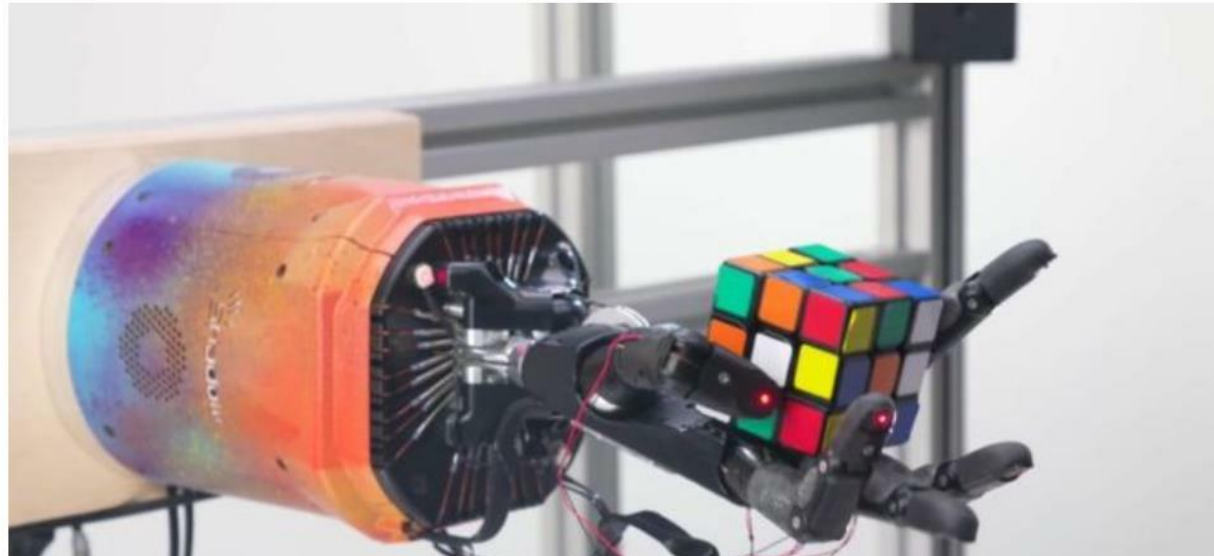
Robot hand solves Rubik's cube, but not the grand challenge



Dave Lee
North America technology reporter

🕒 15 October 2019

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MIT develops a way for robots to grasp and manipulate objects much faster

Darrell Etherington @etherington / 3 days

Robotics





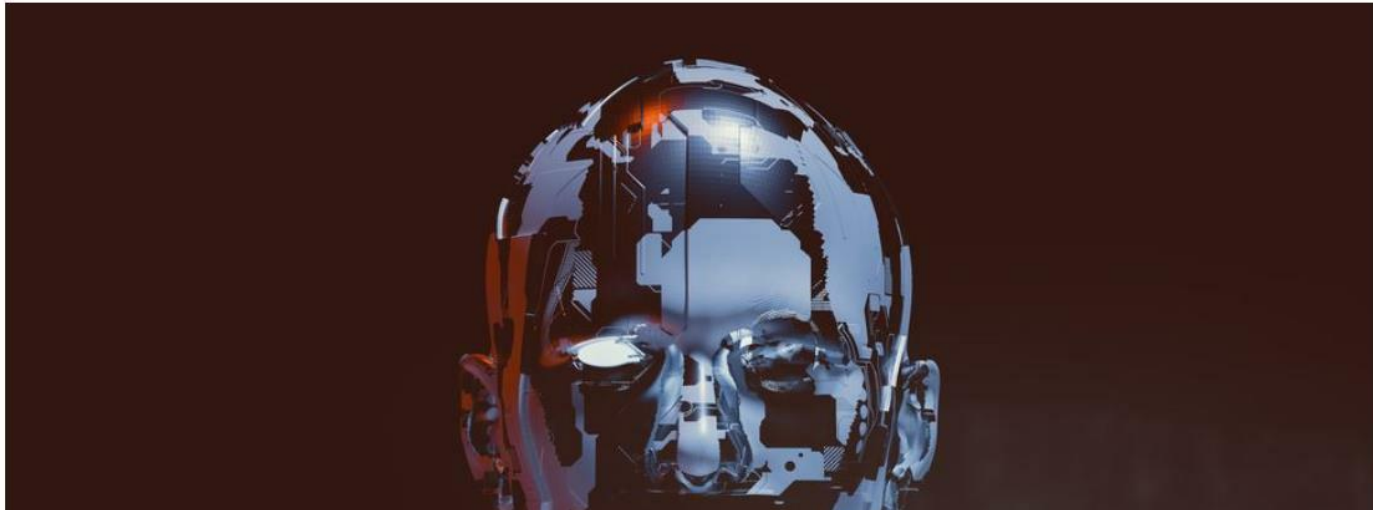
Want \$125k? Just Donate Your Face to Some Humanoid Robots

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By Courtney Linder Oct 18, 2019





MWC19 Los Angeles: First-ever humanoid robot powered by cloud artificial intelligence

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by **N.F. Mendoza** in **Artificial Intelligence** on October 23, 2019, 2:37 PM PST

CloudMinds XR-1 5G humanoid robots perform intricate manual tasks at the Sprint exhibit at MWC19 Los Angeles.

Who needs to use that delicate tiny sewing staple, when there's now a robot that can thread a needle for you? CloudMinds XR-1, 5G Humanoid Robots with vision-controlled grasping tech and intricate manual tasks, interacted with guests at the [Sprint](#) exhibit at the [Mobile World Congress 2019 Los Angeles \(MWC19\)](#) in Los Angeles

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