



New technologies will transform the global markets - or will they?

The Youth Forum 2021

The Image of the Future we want: The Horizon - 2100

Leena Ilmola-Sheppard

Question

- How technology will change the structure of the global markets?
- What are the key uncertainties?
- Two examples:
 - Platform ecosystems
 - Energy transition



2100

How to plan the the different domains of the probability distribution

Duke GLOBAL HEALTH INSTITUTE

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global outbreaks.

Feb 2018

Published February 09, 2018 under **Research News**
Written by Gavin Yamey, professor of global health and public policy

Nigerian physicians being trained by the World Health Organization (WHO) on how to put on and remove personal protective equipment to treat Ebola patients during the 2014 Ebola outbreak. Photo by CDC Global via Wikimedia Commons.

A few days ago, I joined several thousand global health practitioners, researchers, activists and policymakers at a conference in Bangkok titled "Making the World Safe from the Threats of Emerging Infectious Diseases."

The audience was abuzz about a new **study** by a team of economists—including former U.S. Treasury Secretary Lawrence Summers—that shows the staggering economic costs of a future pandemic. They estimate the annual losses from a moderate to severe pandemic would be about \$500 billion, or 0.6 percent of global income. That's similar to the annual costs of global warming, double the cost of natural disasters and five times the cost of terrorism.

These new estimates are much higher than previous studies have suggested, and they point to the need for us to step up our efforts to prepare for the next pandemic. So it was troubling to learn that the Centers for Disease Control and Prevention (CDC) is planning to scale back efforts to prevent those very diseases.

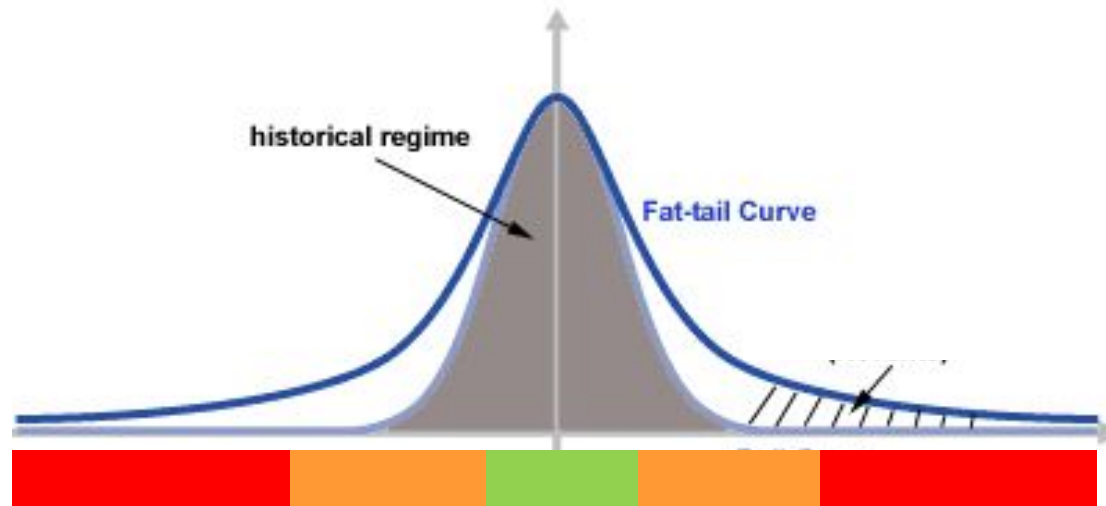
– Xevents

The Economist

THE ECONOMIC toll of the covid-19 pandemic is incalculable. But let's try anyway. A useful starting point is the semi-annual *Global Economic Prospects* report released this week by the World Bank. It calculates that the world economy probably shrank by 4.3% in 2020, a setback matched only by the Depression and the two world wars. But this dramatic figure still understates the cost. It measures the world economy's fall from where it was before the pandemic, not from where it would have been had the virus not spread.

Jan 2020

To calculate that bigger fall, economists need an estimate of how global GDP might have evolved in the absence of covid-19. One simple baseline is the World Bank's projection released this time last year, when it was still blissfully unaware of the lurking viral threat. Back then, it expected global GDP to expand by 2.5% in 2020 to \$86trn. Compared with that figure, the shortfall of global GDP last year was probably more like 6.6%. That is equivalent to about \$5.6trn (at the market exchange rates and prices prevailing in 2010, which the bank uses for analytical convenience).



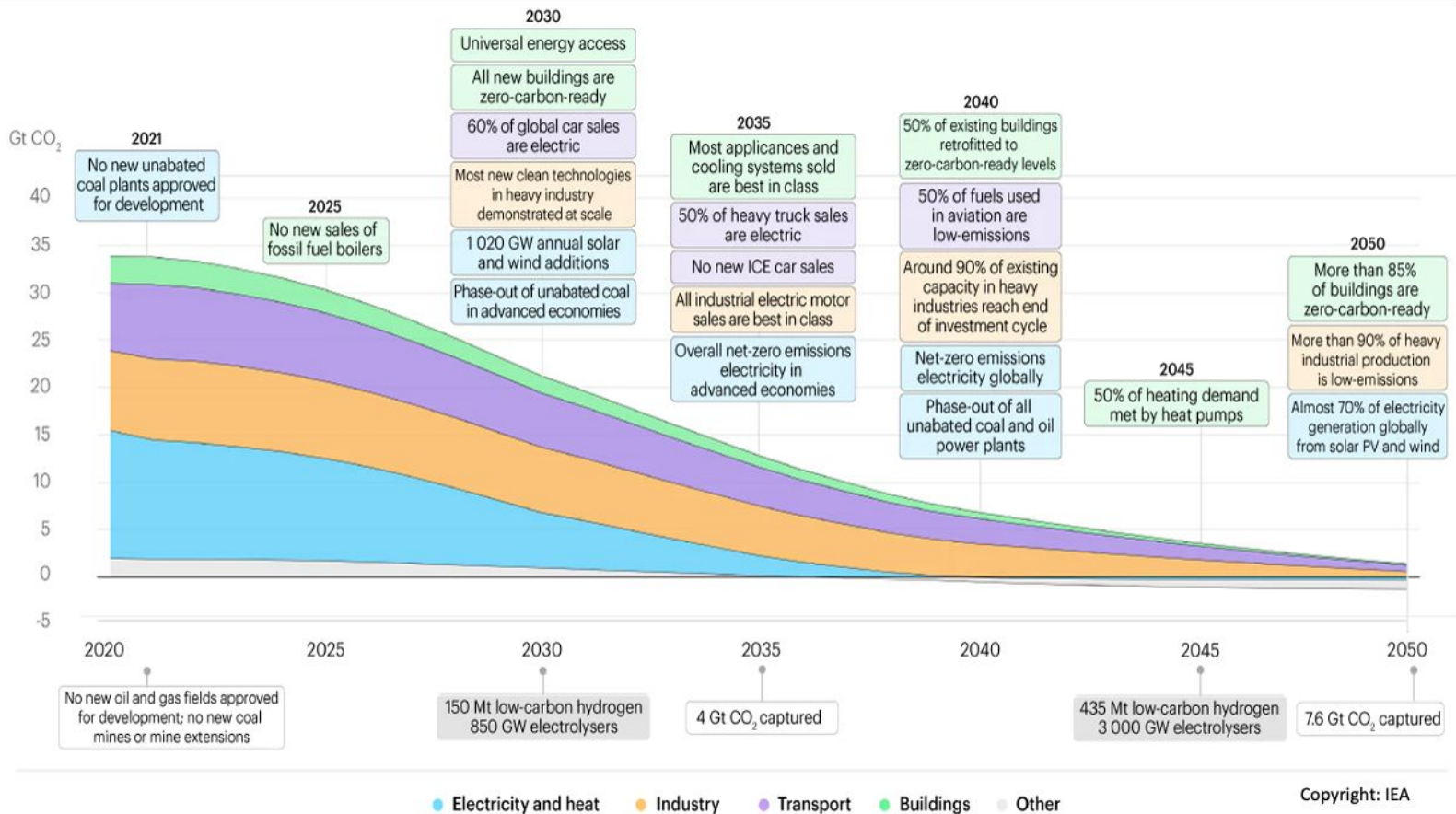
Strategic planning
Risk
Resilience
building

ENERGY TRANSITION

IEA May 2021

Net Zero by 2050 A Roadmap for the Global Energy Sector

International Energy Agency



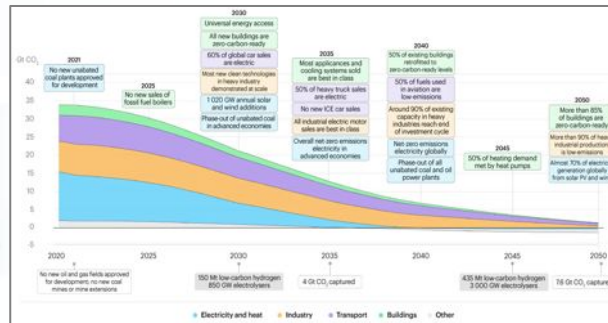
Energy Transition: Uncertainties....

Coal rich countries

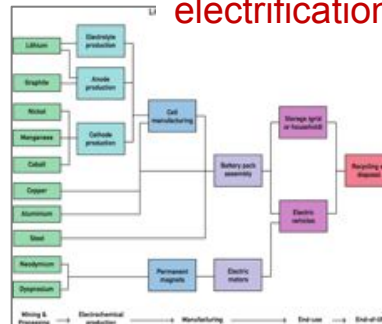
Country	Coal reserves (t, 2016)	Share %
1 United States	254,197,000,000	22.3%
2 Russia	176,770,840,000	15.5%
3 Australia	159,634,329,600	14.0%
4 China	149,818,259,000	13.1%
5 India	107,726,551,700	9.5%
6 Germany	39,802,209,480	3.5%
7 Ukraine	37,891,906,250	3.3%

'Oil producing countries will lose 75% of their income per capita!'

Huge investment requirements



Limits of electrification

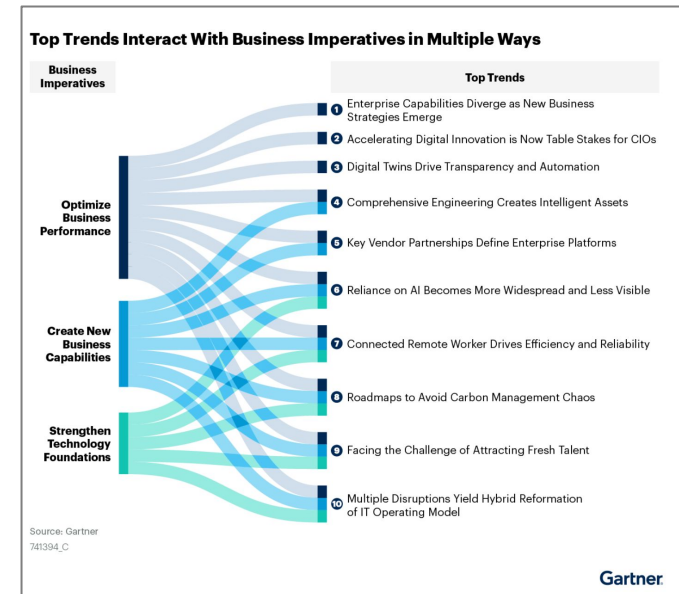


China: 50% of renewable energy investments

Energy Transition: Examples of Enablers

- Crowdfunding of **local micro-grids** or off-grid solutions, community ownership models
- **The smart grid software** market reach a market size of US\$23.180 billion by the year 2026. *)
- **Distributed** energy resources (DERs) &
- The Gartner reports in May 21** that the oil and gas companies are developing **new business models**, that digitally integrate different forms of energy
- By applying **AI enhanced digitalization of their downstream plant operations**, BP had been able to improve efficiency by 8-12% (Forbes Nov 16, 2020)

New businesses of utilization of carbon emissions - DAC technology
Energy is a public good?



**)

<https://emtemp.gcom.cloud/ngw/globalassets/en/information-technology/documents/trends/741394-top-10-trends-driving-the-oil-and-gas-industry-in-2021.pdf>

*)

<https://www.researchandmarkets.com/reports/5317971/smart-grid-software-market-forecasts-from-2021>

DIGITAL ECOSYSTEMS

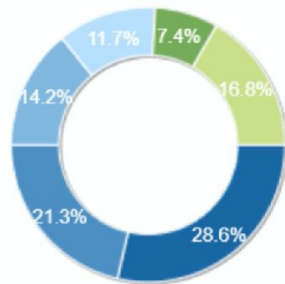


How digitalization will change the structure of the global markets 1

https://www.idc.com/tracker/showproductinfo.jsp?containerId=IDC_P29475



Top Technology Category Based on 2020 Market Share (Value (Constant Annual))



Trend Highlight

A key trend coming from digital-first models, IoT edge services. IoT edge consumer and in get there.

- Module/Sensor
- Ongoing Service or Content as ...
- IT and Installation Services
- Application Software
- Other Connectivity
- Others

Source: IDC Worldwide Internet of Things Spending Guide 2020 | May (V1 2020)

AUGUST 17, 2021 BY ADMIN

Rise in IoT And Machine Learning Is Driving Industry 4.0 Market



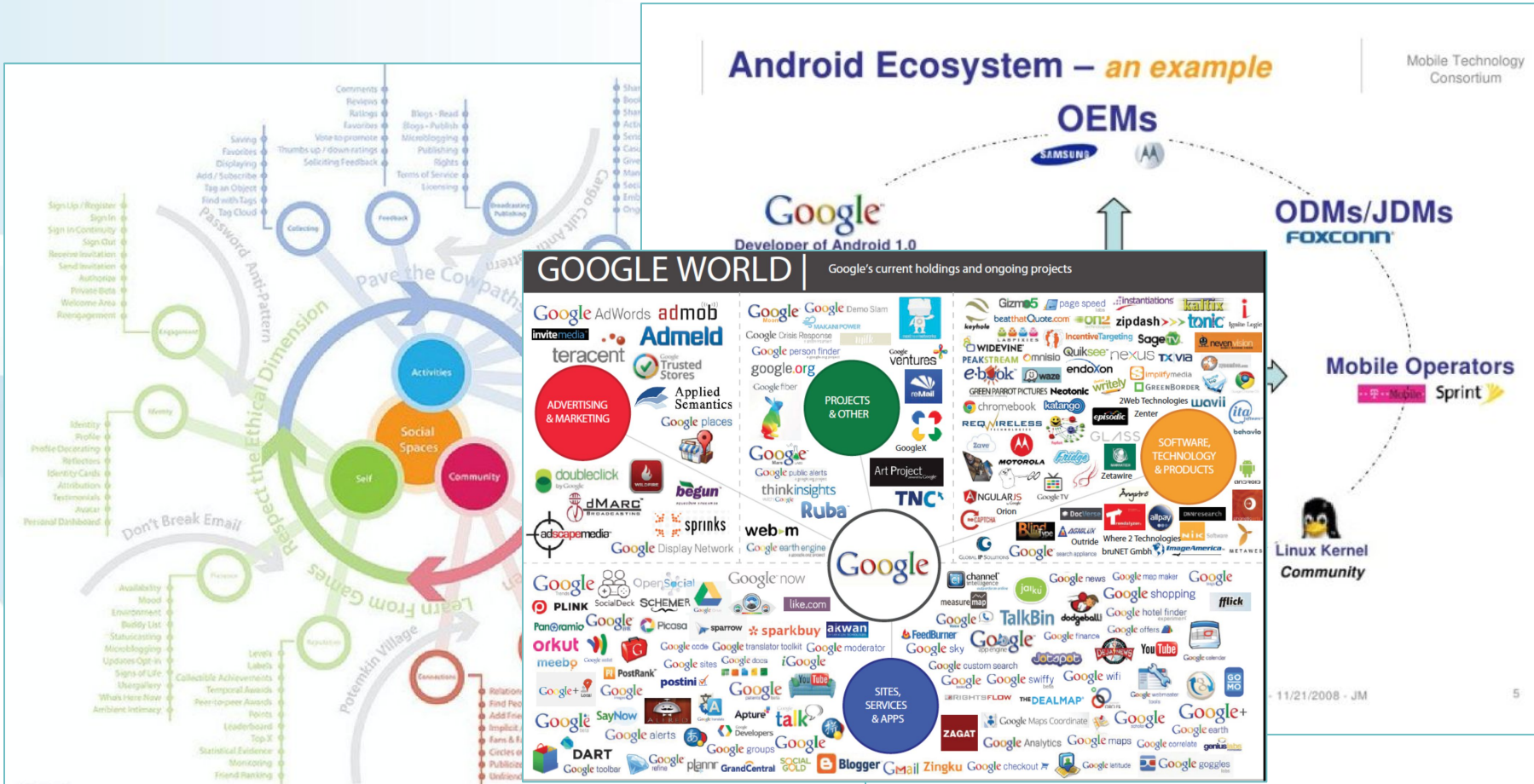
“Industry 4.0 Market”

Rapid adoption of Internet of Things and Machine Learning in the steady shift towards robotics and industrial automation are some key factors fueling market revenue growth

Industry 4.0, also refer to as fourth industrial revolution that focuses on deep learning, automation, machine learning (ML), Artificial Intelligence (AI), edge computing, digital twin and data analytics. **Industry 4.0** revolutionize the way business operates by offering access to real-time insights across products, processes, partners, and people. It connects physical with digital for better control of business operations.

The global industry 4.0 market is expected to register fastest revenue growth rate over the forecast period due to rapid adoption of Internet of Things (IoT), cloud computing and analytics into production facilities. The increasing demand for industrial robotics in manufacturing units to reduce production costs is resulting in the advent of additional opportunities for further

How digitalization will change the structure of the global markets 2



<https://churchm.ag/android-apple-ecosystems/>

How digitalization will change the structure of the global markets 3



Est. 2004

Monthly Active Users

2.4 Billion

Daily Active Users

1.6 Billion

By Market

Mar-19



Δ YoY

Q1-19

Country	Δ YoY	Q1-19	Q1-19 Change
Denmark	+33.1%	26,386	+16.4%
Norway	+26.9%	18,533	+13.5%
Romania	+20.5%	9,798	+25.0%
Slovakia	+8.3%	9,154	-1.2%
Latvia	+5.9%	1,483	-5.4%
Hungary	+4.9%	13,407	+8.5%
Luxembourg	+4.5%	5,620	+4.0%
Switzerland	+1.4%	28,727	-1.2%
Germany	-0.6%	345,521	+0.2%
Spain	-2.8%	125,814	-6.4%
France	-2.8%	223,741	-1.1%
Poland	-3.0%	50,125	0.0%
UK	-3.4%	458,054	-2.4%
Estonia	-4.2%	2,236	-9.9%
Ireland	-5.6%	16,734	-10.6%
Belgium	-5.9%	54,988	-5.7%
Netherlands	-6.3%	39,321	-14.1%
Italy	-9.2%	194,768	-6.3%
Slovenia	-9.5%	7,108	-3.5%
Portugal	-9.6%	24,992	-5.2%
Austria	-9.7%	31,957	-10.6%
Czech Rep.	-12.1%	21,492	-12.2%
Greece	-13.8%	9,517	-1.8%
Sweden	-18.7%	30,256	-15.5%
Croatia	-19.8%	5,047	-12.3%
Finland	-20.9%	9,271	-15.5%
Lithuania	-33.4%	1,838	-16.2%

3

Daily New Users

Million

Messages Daily

0 Billion



Open platform ecosystems and resilience

- ...from Complex Adaptive Systems perspective
- Uncertainties such as user behavior, technology, institutional environment

This screenshot shows a Slack interface with several key features highlighted:

- Run a poll to collect ideas**: A prominent action button at the top left.
- Send email to Slack**: Another action button at the top right.
- Slack navigation menu**: Includes links for Why Slack?, Solutions, Resources, Enterprise, and Pricing.
- works with**: A section displaying integrations with other services, represented by icons and arrows.
- Search your company's internal wiki**: A feature for accessing internal knowledge bases.
- Loop in subject matter experts to resolve customer support issues**: A feature for involving experts in support workflows.

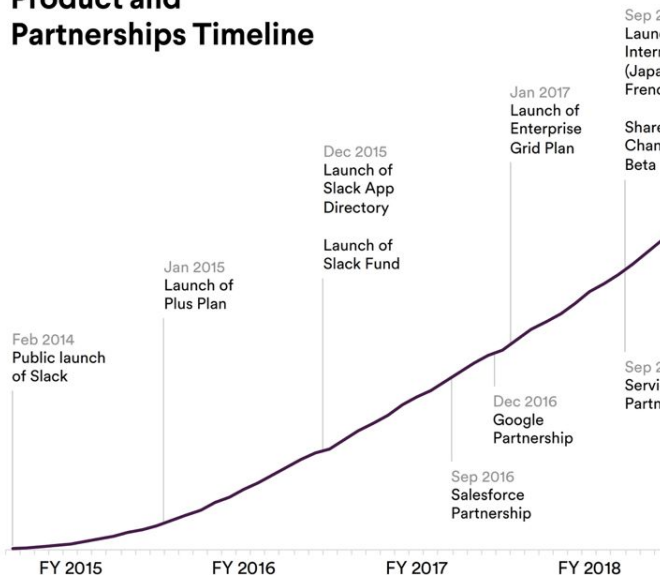
This screenshot displays the Slack App Directory with a search bar and navigation options (Learn, Browse, Manage, Build). The following integrations are listed:

- PagerDuty**: Spend less time reacting to incidents and more time developing for the fut...
- Slack for Outlook**: Send emails into Slack to discuss them with your teammates.
- Disco**: Disco makes it easy to celebrate your company culture and values
- Workstreams**: Results-driven task manager / Agile Kanban board
- Microsoft OneDrive**: Search, share and preview your OneDrive & SharePoint Online fil...
- Salesforce**: Search and view information from Salesforce in Slack.
- Workday**: Workday For Slack

Open platform ecosystem

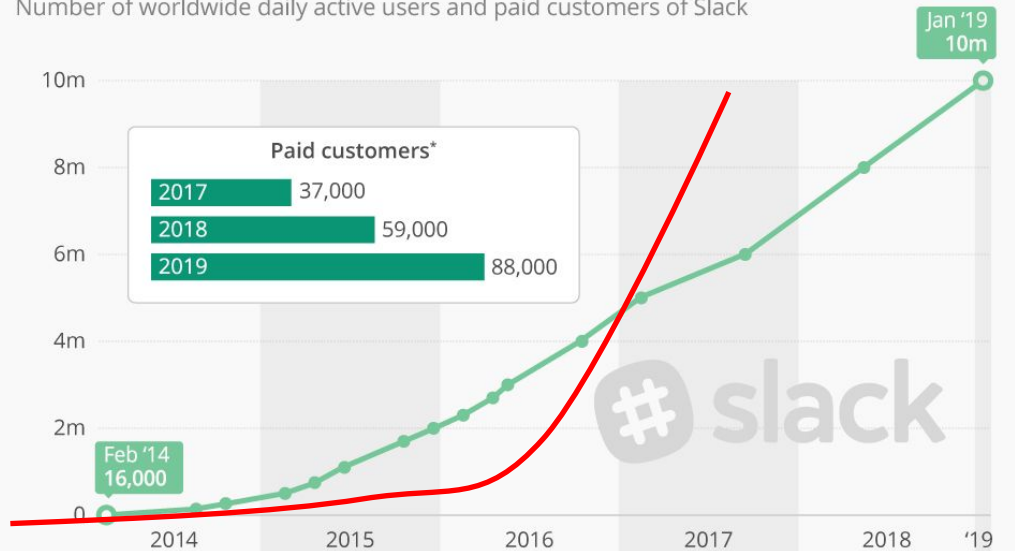
- No centralized control, anyone can join
- Network externalities grow exponentially ; fast growth,
- Integrated innovation

Product and Partnerships Timeline



Slack's Growth Shows No Signs of Slacking

Number of worldwide daily active users and paid customers of Slack



* paid customers as of January 31 of the respective year; paid customers defined as organizations with at least three users on a paid subscription plan
Source: Company announcements



statista

Adaptation..

- Open platform ecosystems are complex
 - Law of requisite variety $>$ same level of complexity, complexity mismatch
- Interaction is defining what is happening next
 - self-organization of structure and output
- Automatic feedback loops

Questions?



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