



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

The Youth Forum 2021

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

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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



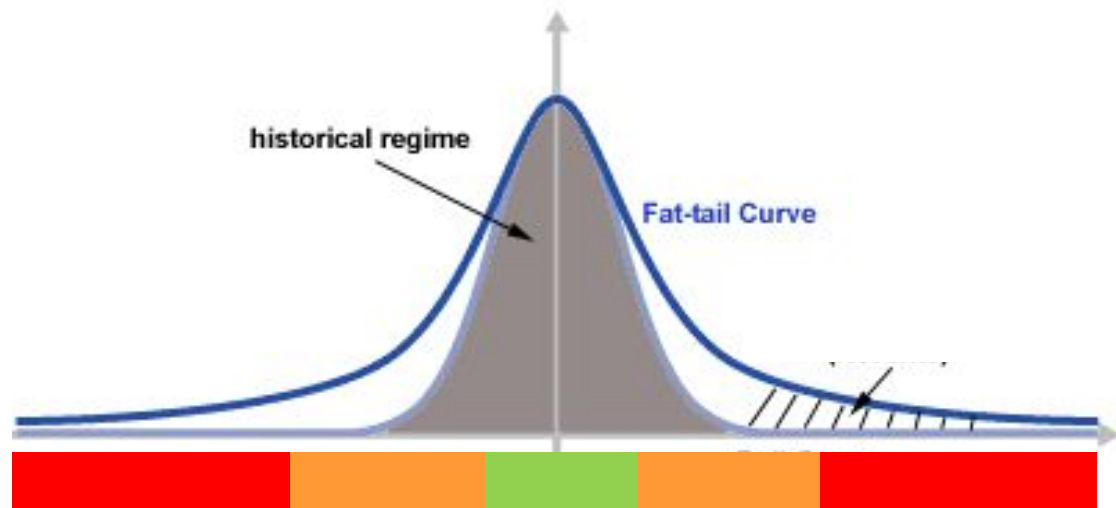
– Xevents

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).



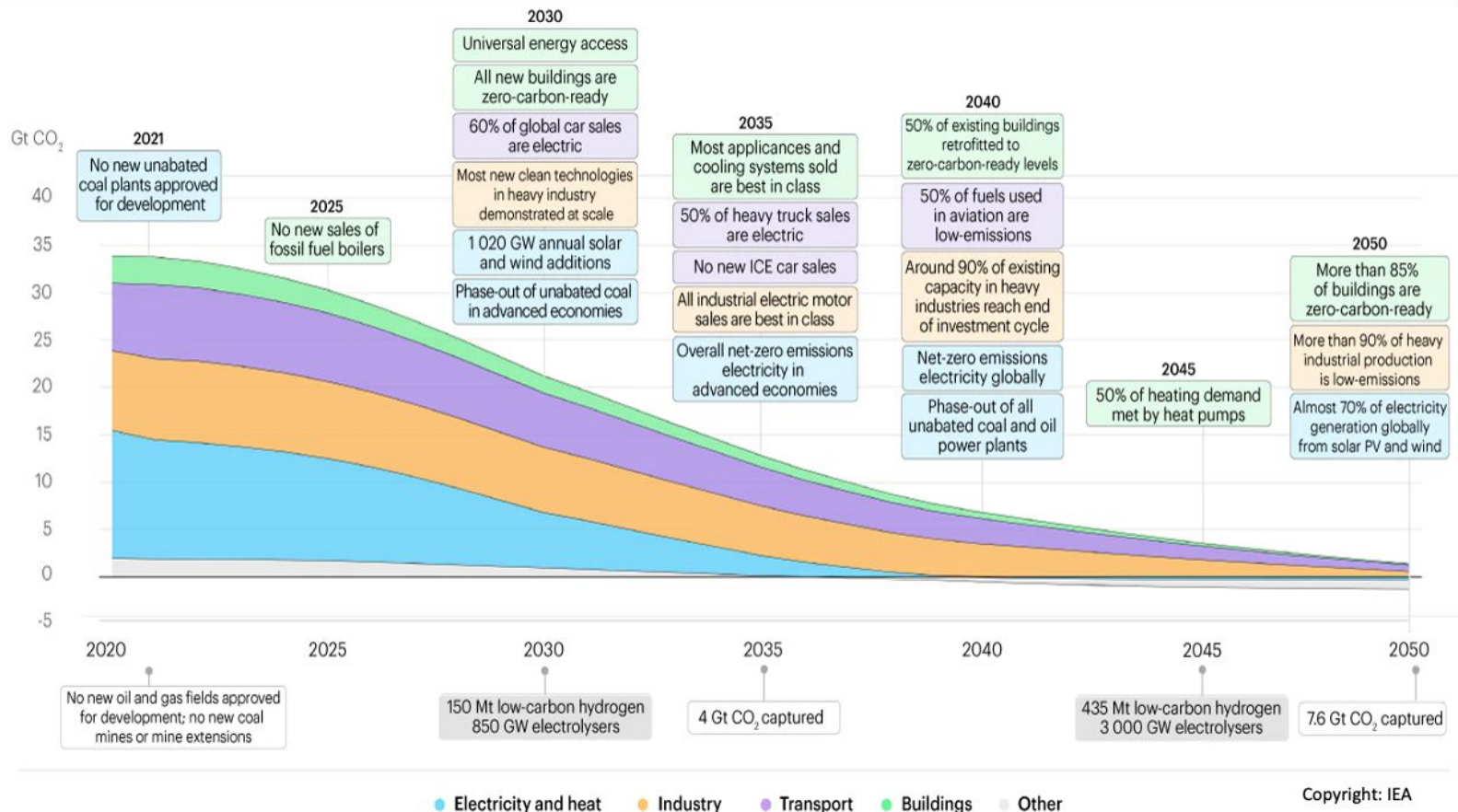
Strategic planning
Risk
Resilience
building

ENERGY TRANSITION

IEA May 2021

Net Zero by 2050 A Roadmap for the Global Energy Sector

International Energy Agency



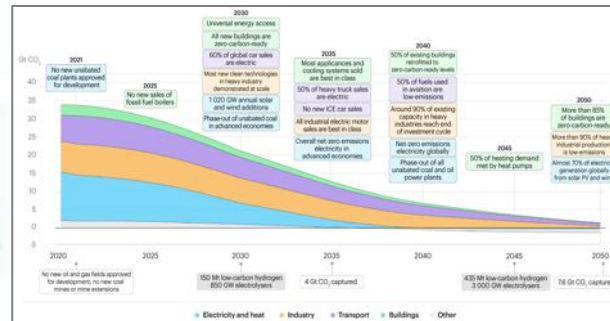
Energy Transition: Uncertainties....

Coal rich countries

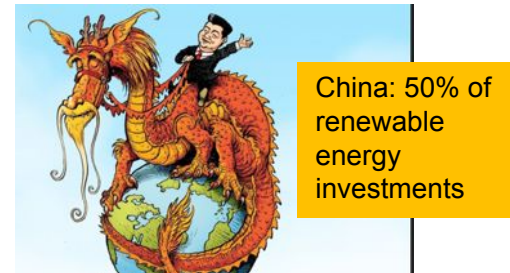
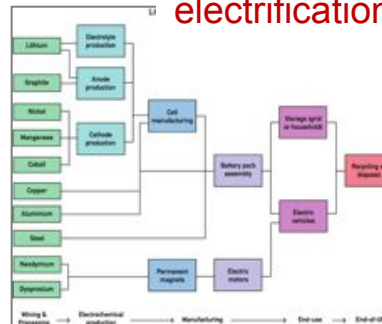
Country	Coal reserves (t, 2016)	Share %
1 United States	254,197,000,000	22.3%
2 Russia	176,770,840,800	15.5%
3 Australia	159,634,329,600	14.0%
4 China	149,818,259,000	13.1%
5 India	107,726,551,700	9.5%
6 Germany	39,802,209,480	3.5%
7 Ukraine	37,891,906,250	3.3%
		3.1%
		2.5%
		2.5%
		2.2%
		1.1%

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

Huge investment requirements



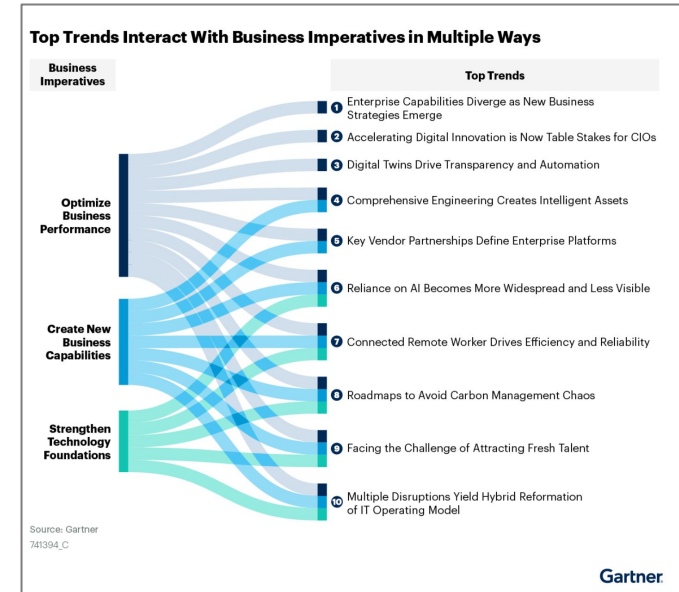
Limits of electrification



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?



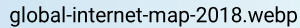
**)

<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



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



A key trend coming out of the pandemic is digital independence. More people are working remotely, using digital-first models for services, and embracing IoT edge computing for consumer and industrial use. We'll 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



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

<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

+33.1%	Denmark	26,386	66,419	+16.4%
+26.9%	Norway	18,533	38,769	+13.5%
+20.5%	Romania	9,798	35,863	+25.0%
+8.3%	Slovakia	9,154	23,662	-1.2%
+5.9%	Latvia	1,483	3,957	-5.4%
+4.9%	Hungary	13,407	34,369	+8.5%
+4.5%	Luxembourg	5,620	14,866	+4.0%
+1.4%	Switzerland	28,727	71,839	-1.2%
-0.6%	Germany	345,521	880,080	+0.2%
-2.8%	Spain	125,814	324,566	-6.4%
-2.8%	France	223,741	549,212	-1.1%
-3.0%	Poland	50,125	139,812	0.0%
-3.4%	UK	458,054	701,036	-2.4%
-4.2%	Estonia	2,236	6,151	-9.9%
-5.6%	Ireland	16,734	64,156	-10.6%
-5.9%	Belgium	54,988	156,165	-5.7%
-6.3%	Netherlands	39,321	117,431	-14.1%
-9.2%	Italy	194,768	538,910	-6.3%
-9.5%	Slovenia	7,108	19,692	-3.5%
-9.6%	Portugal	24,992	59,543	-5.2%
-9.7%	Austria	31,957	80,854	-10.6%
-12.1%	Czech Rep.	21,492	59,620	-12.2%
-13.8%	Greece	9,517	26,268	-1.8%
-18.7%	Sweden	30,256	73,880	-15.5%
-19.8%	Croatia	5,047	12,171	-12.3%
-20.9%	Finland	9,271	29,081	-15.5%
-33.4%	Lithuania	1,838	5,420	-16.2%

3

Daily New Users

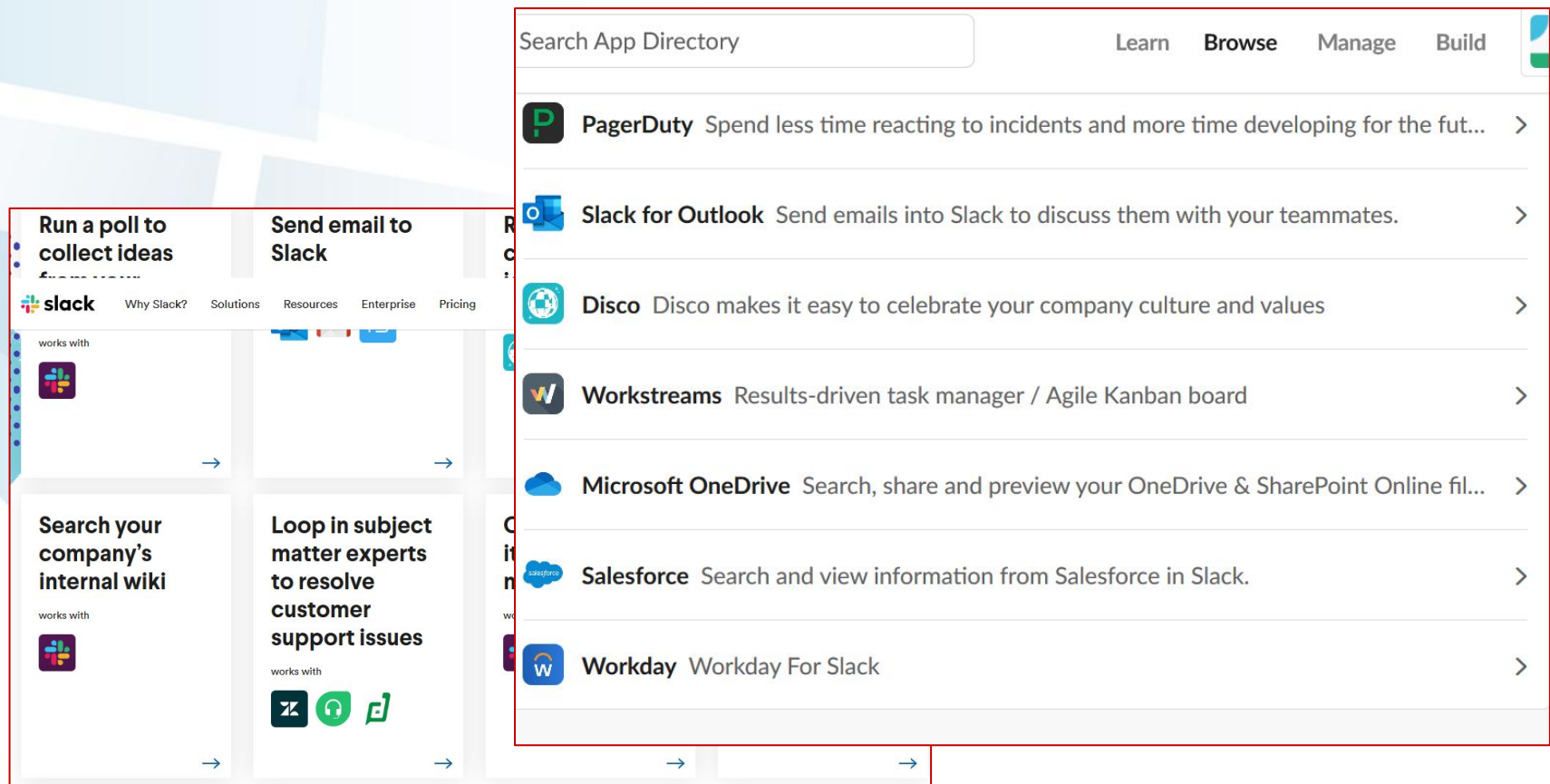
Million

Messages Daily

0 Billion

Open platform ecosystems and resilience

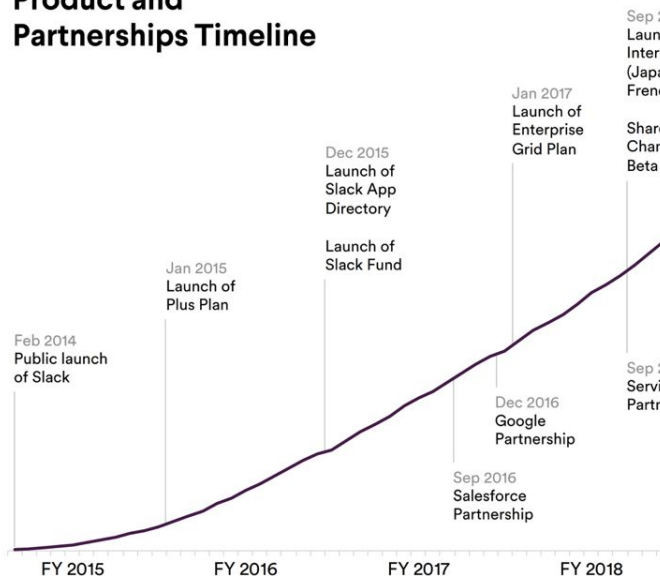
- ...from Complex Adaptive Systems perspective
- Uncertainties such as user behavior, technology, institutional environment



Open platform ecosystem

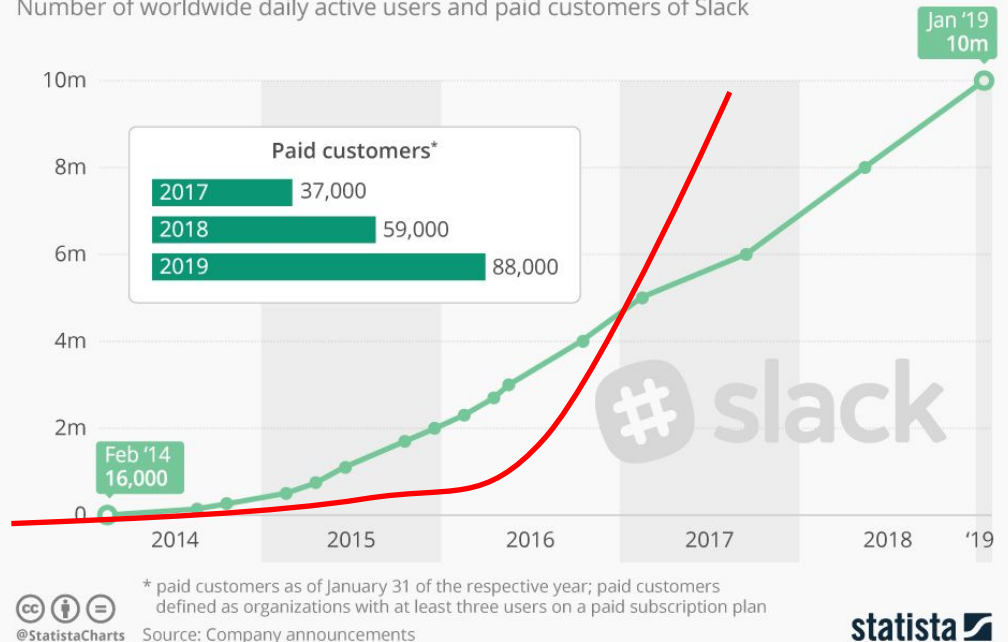
- No centralized control, anyone can join
- Network externalities grow exponentially ; fast growth,
- Integrated innovation

Product and Partnerships Timeline



Slack's Growth Shows No Signs of Slacking

Number of worldwide daily active users and paid customers of Slack



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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