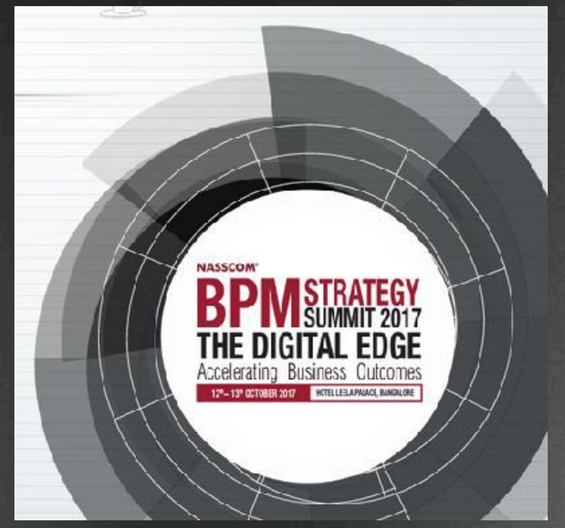
NASSCOM®



Technology and Humanity: the next 10 years

techvshuman.com

@gleonhard

gerdtube.com

gerdcloud.com

futuristgerd.com

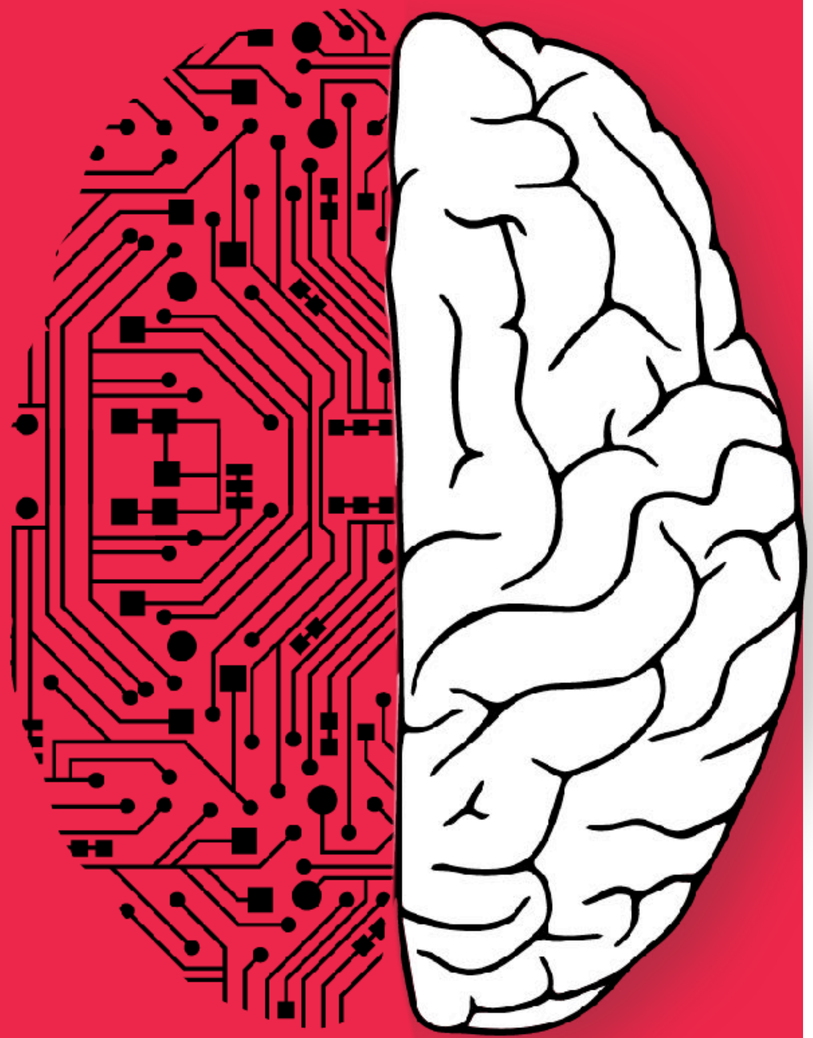
"Imagination is more important than knowledge"
Albert Einstein

Gerd

The future is no longer a timeframe, it's a mindset!
SALE
BANK
Gerd

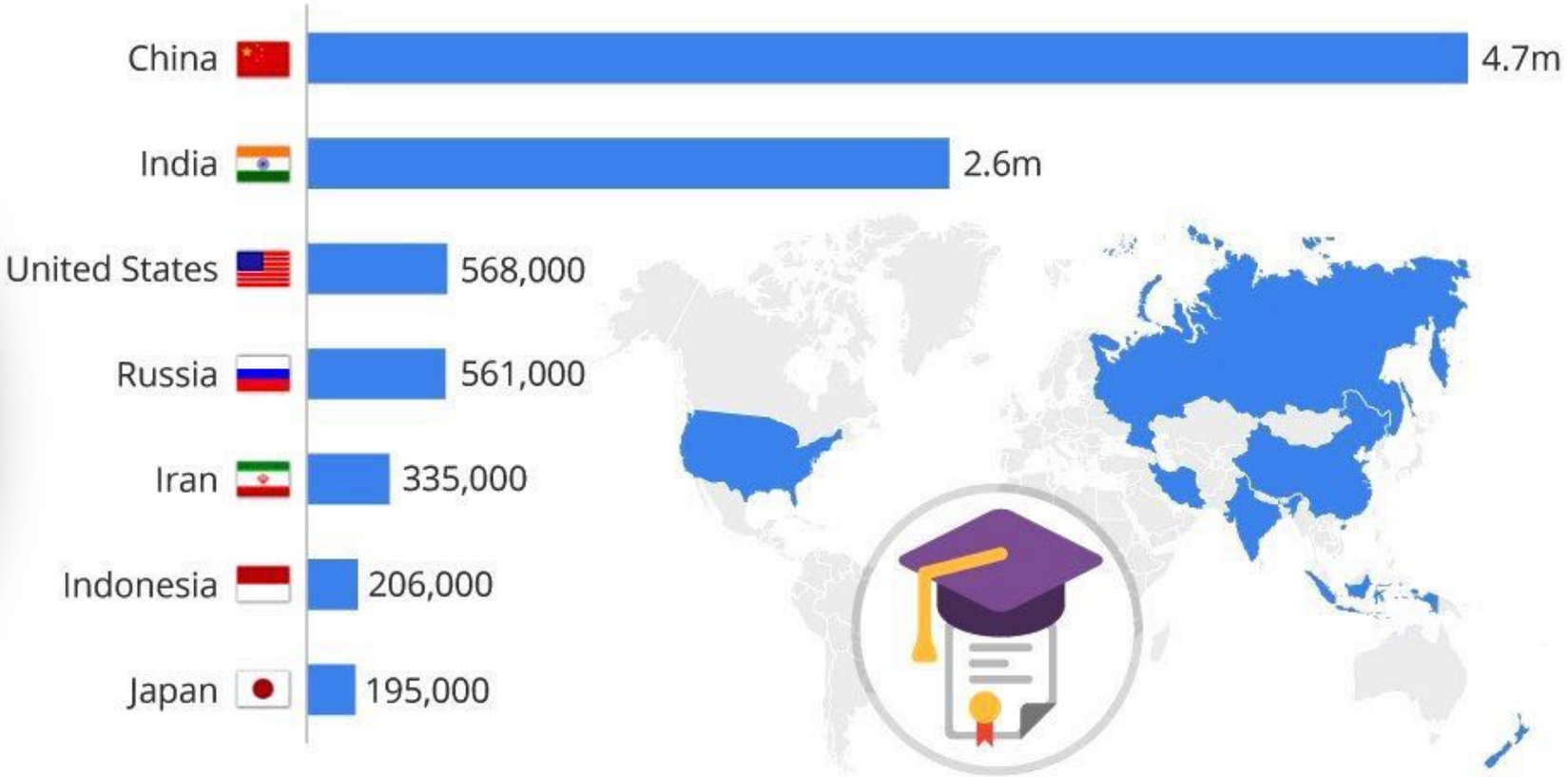
Both men and women!

Gerd



The Countries With The Most STEM Graduates

Recent graduates in Science, Technology, Engineering & Mathematics (2016)



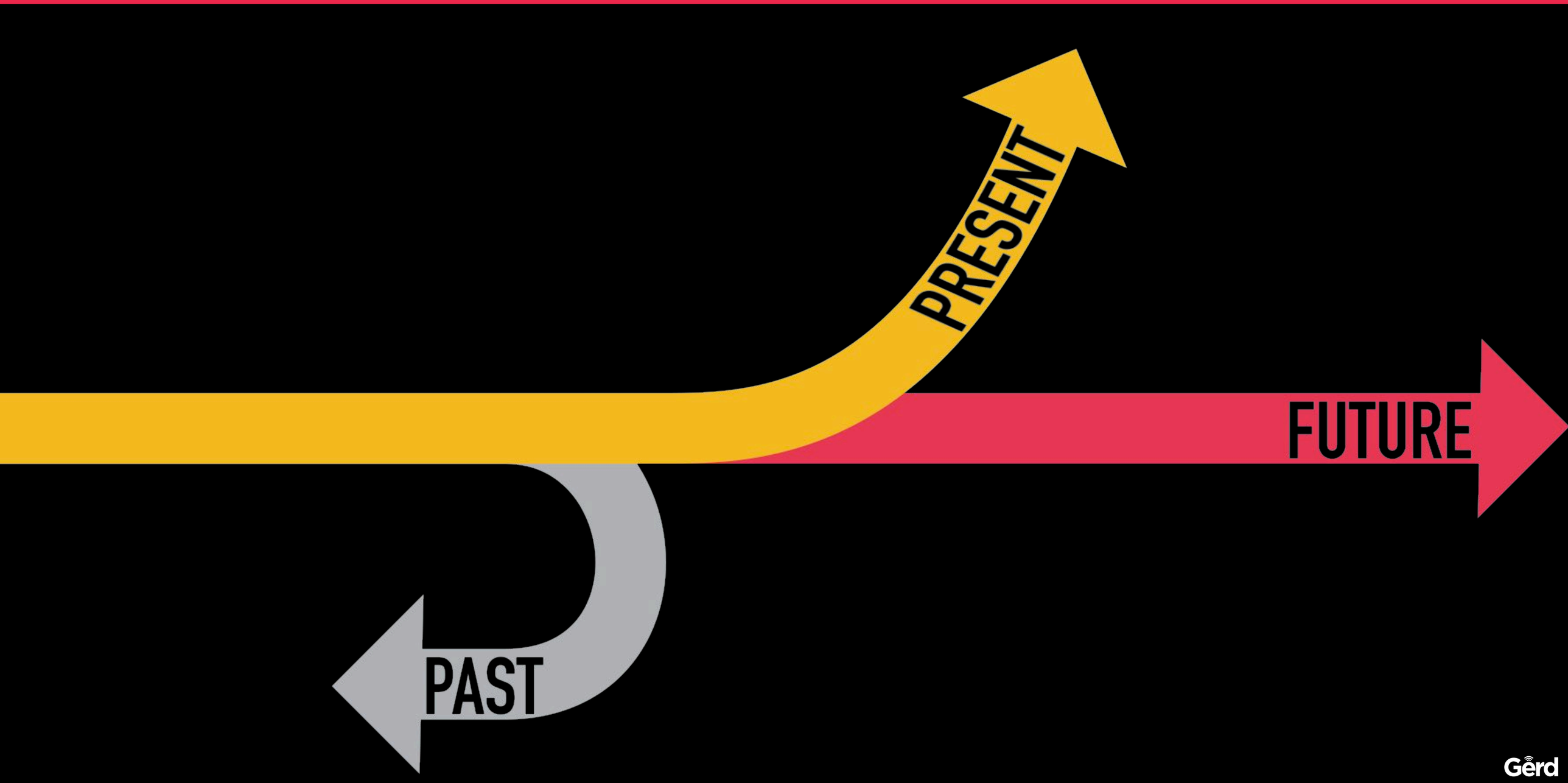
@StatistaCharts

Source: World Economic Forum

statista

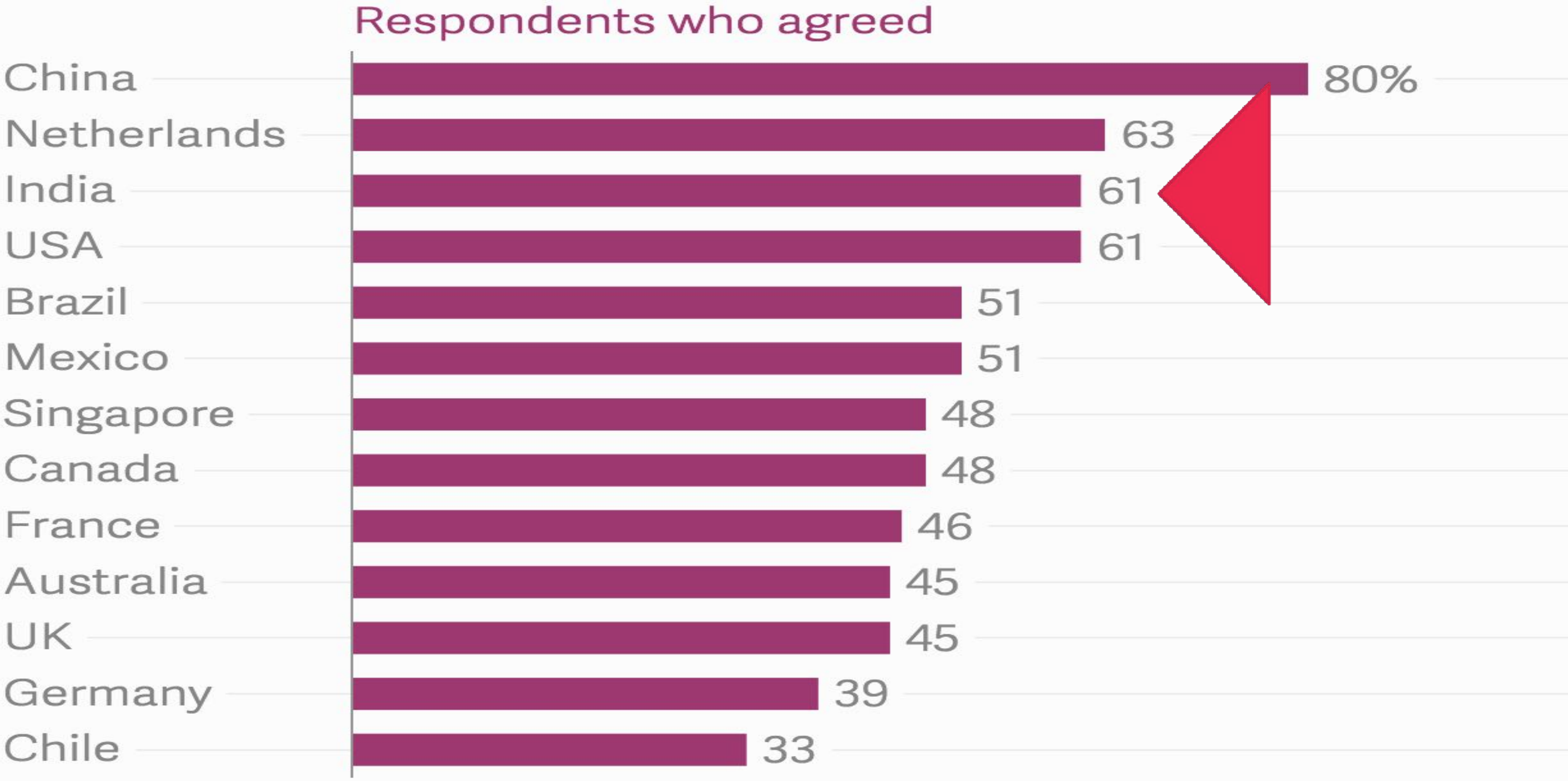
Gerd

Beware: the future is no longer an extension of the present!



Gerd

AI and other tech will replace people for repetitive work



ATLAS | Data: ADP Research Institute Evolution of Work 2016

Are humans the horses of the coming digital era?

Gerd

Catalogue of fears

Probability of computerisation of different occupations, 2013
(1 = certain)

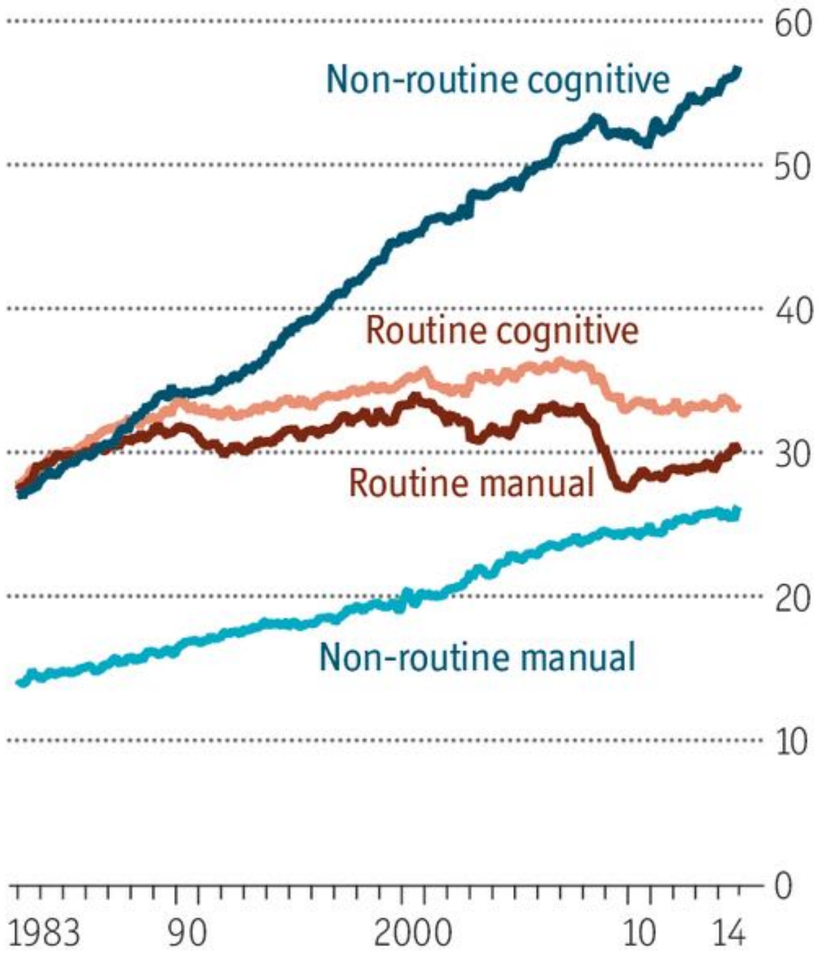
Job	Probability
Recreational therapists	0.003
Dentists	0.004
Athletic trainers	0.007
Clergy	0.008
Chemical engineers	0.02
Editors	0.06
Firefighters	0.17
Actors	0.37
Health technologists	0.40
Economists	0.43
Commercial pilots	0.55
Machinists	0.65
Word processors and typists	0.81
Real-estate sales agents	0.86
Technical writers	0.89
Retail salespeople	0.92
Accountants and auditors	0.94
Telemarketers	0.99

Source: "The Future of Employment: How Susceptible are Jobs to Computerisation?", by C. Frey and M. Osborne (2013)

Economist.com

Think

United States employment, by type of work, m



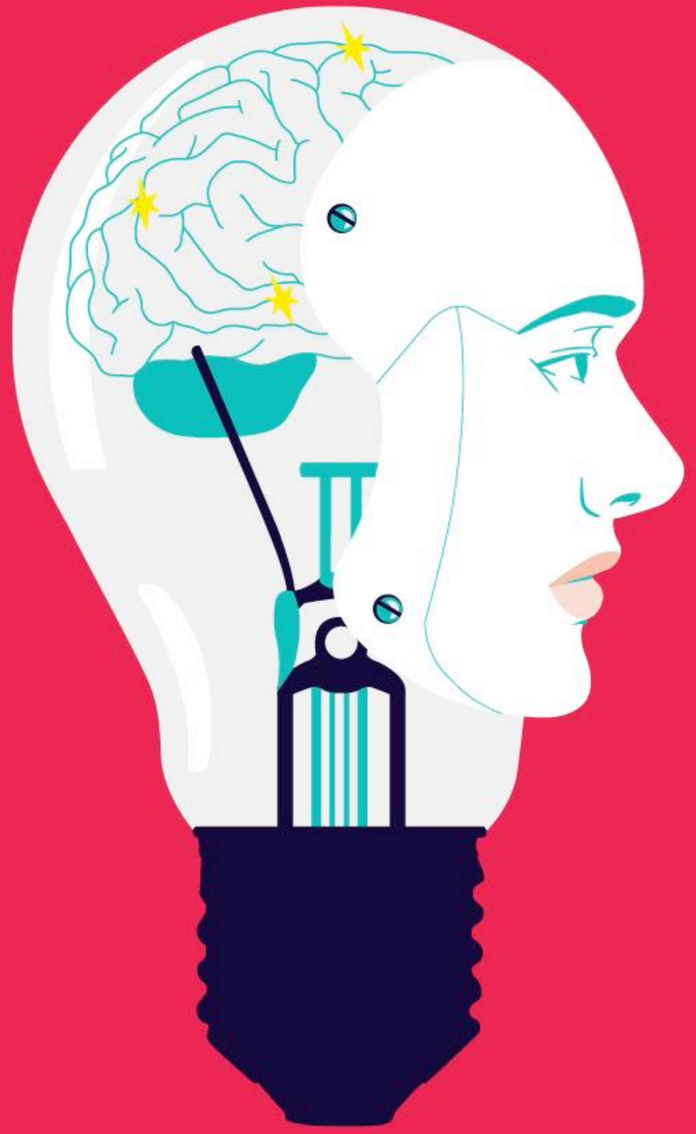
Sources: US Population Survey; Federal Reserve Bank of St. Louis

Economist.com

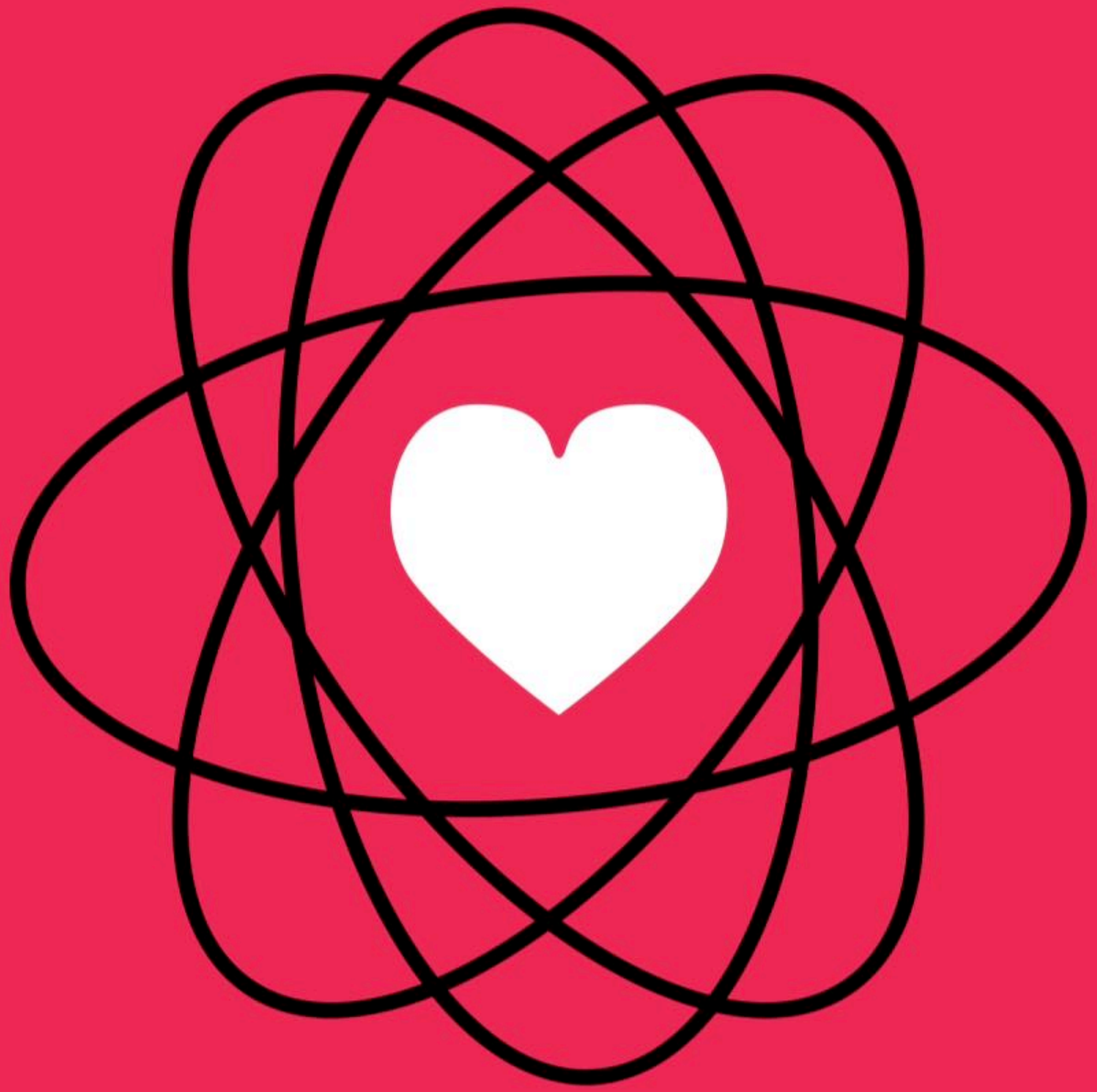
Smart machines may end up taking many of our routines and tasks – but not our occupations, our 'work' and our purpose

Gerd

Technology | Algorithms



Humanity | Androrithms



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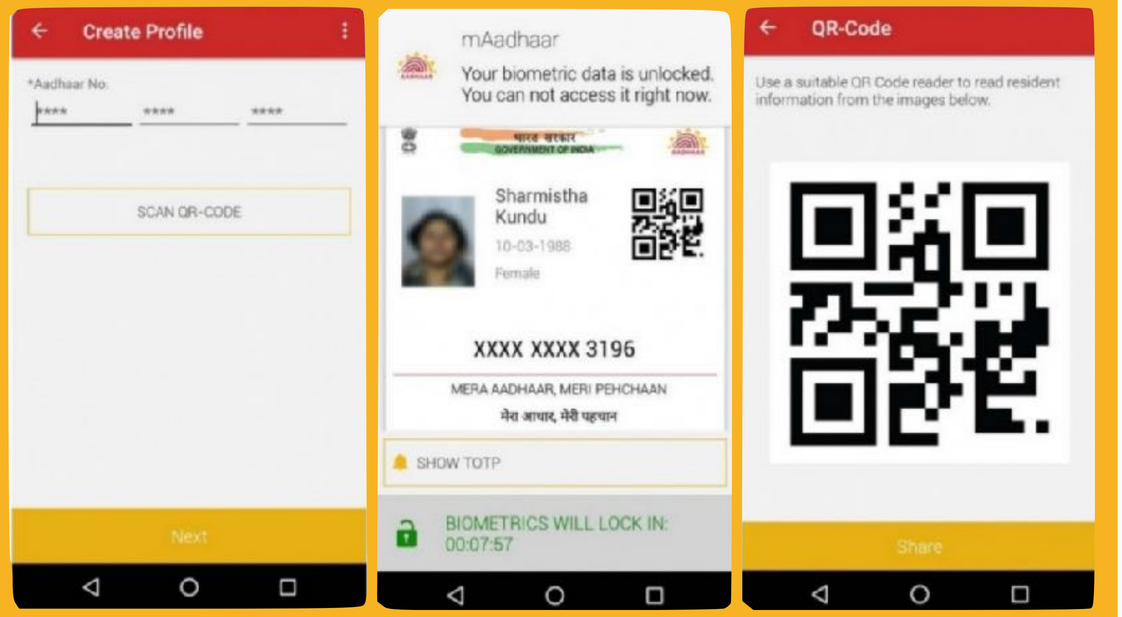
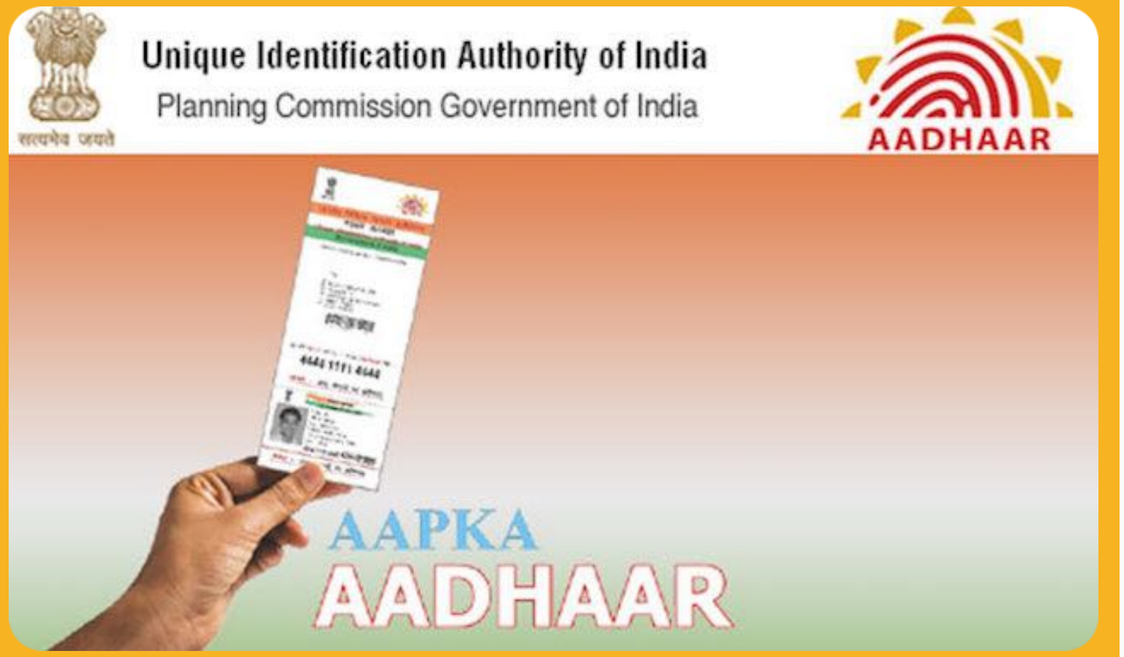




India Supreme Court rules privacy a 'fundamental right' in landmark case

*New Delhi (CNN)*In a sign of the digital times we live in, India's top court found itself deliberating a fittingly new-age question: Is privacy a fundamental legal right for 1.34 billion people?

The answer is yes.

On Thursday in the Indian capital, a rare nine-member bench of the Supreme Court issued a historic ruling with potentially widespread consequences, decreeing that a right to privacy is part of the fundamental rights to life and liberty enshrined in the country's constitution.

We're at the pivot point of exponential change

The end of oil

Intelligent Machines (AI, ML)

Quantum Computing

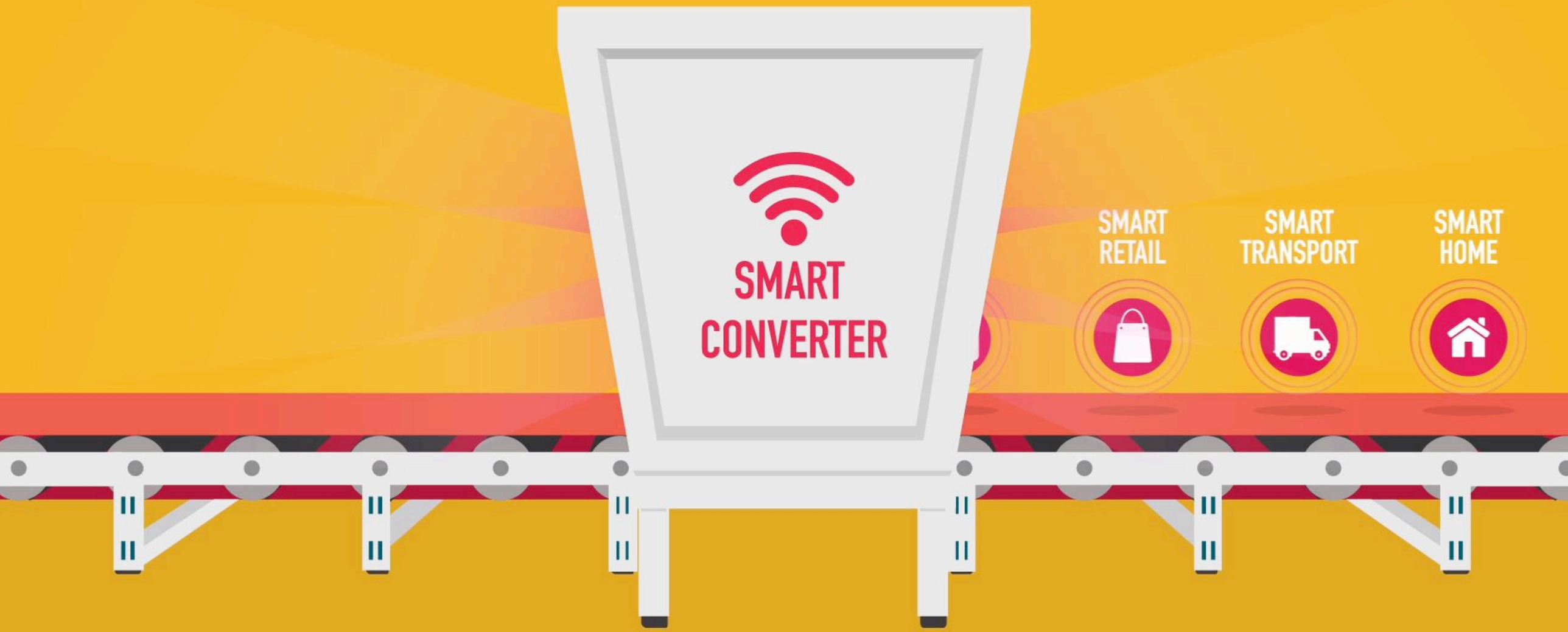
Smart-everything

The Internet of Things

Hyper-connectivity

1 2 4 8 16 32 64 128

Smart everything



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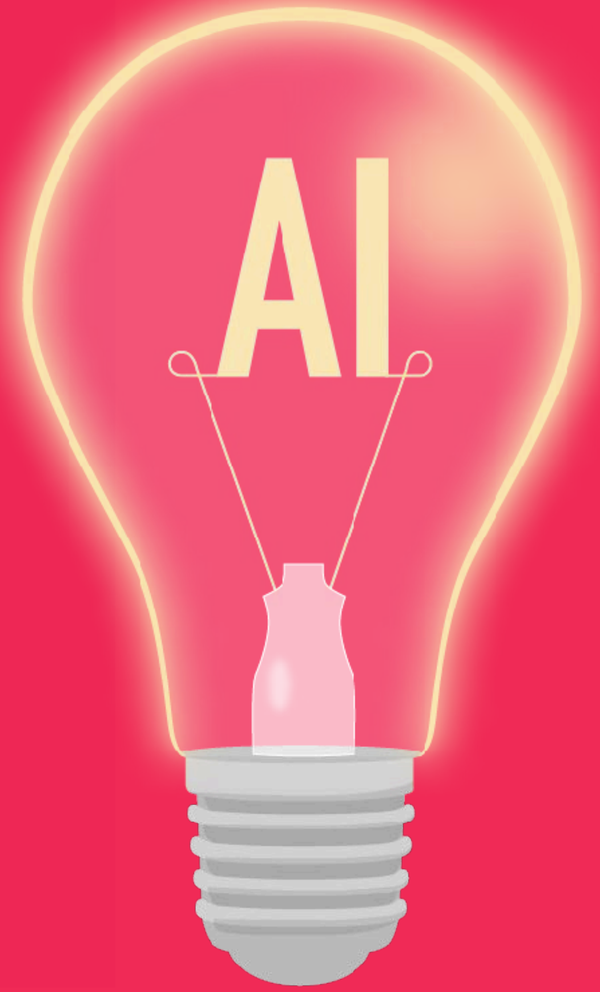
Business as usual is dead or dying

‘Gradually, then suddenly’ is the new normal

Gerd

Data is the new oil, and AI is the new electricity!



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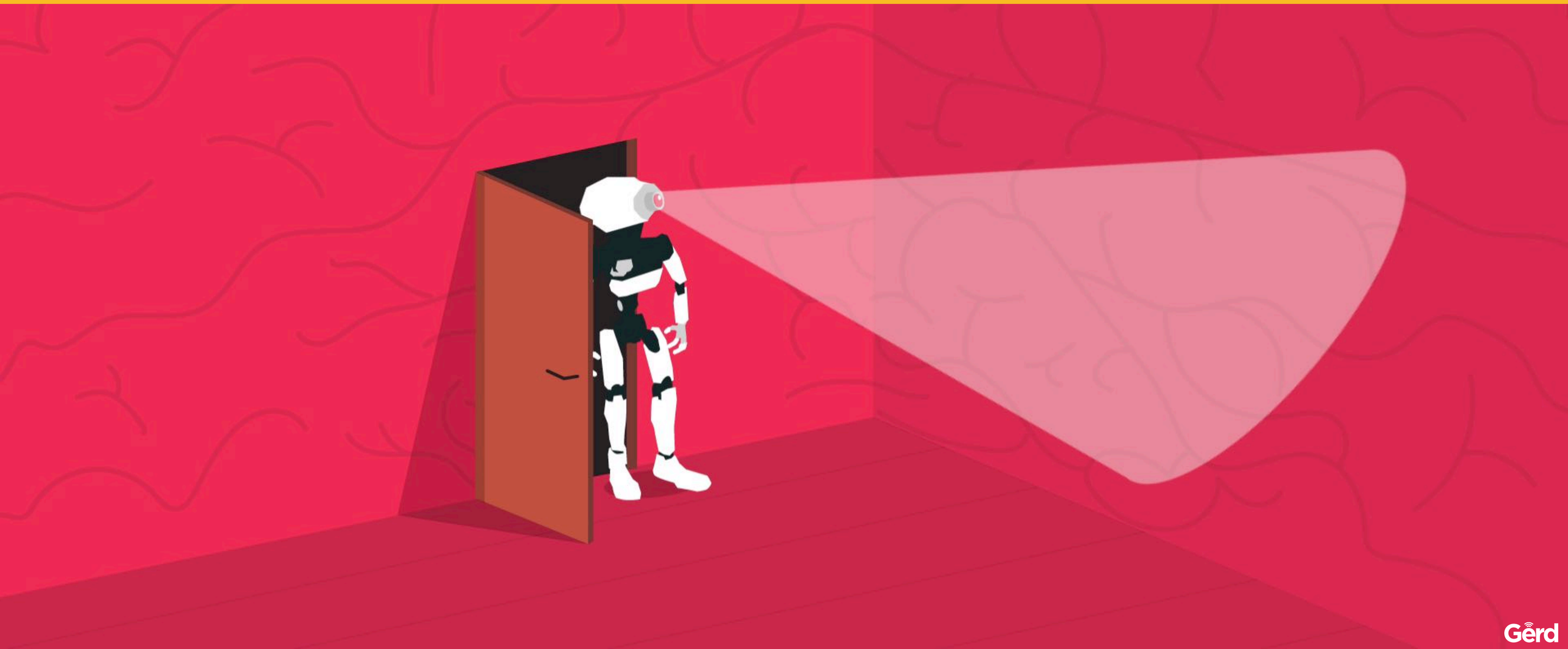
“Artificial intelligence would be the ultimate version of Google. It would understand everything on the Web. It would understand exactly what you wanted, and it would give you the right thing. We’re nowhere near doing that now. However, we can get incrementally closer to that, and that is basically what we work on.”

Larry Page, Google, October 2000



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“We will move from mobile first to an AI-first world” (Sundar @ Google, 2016)

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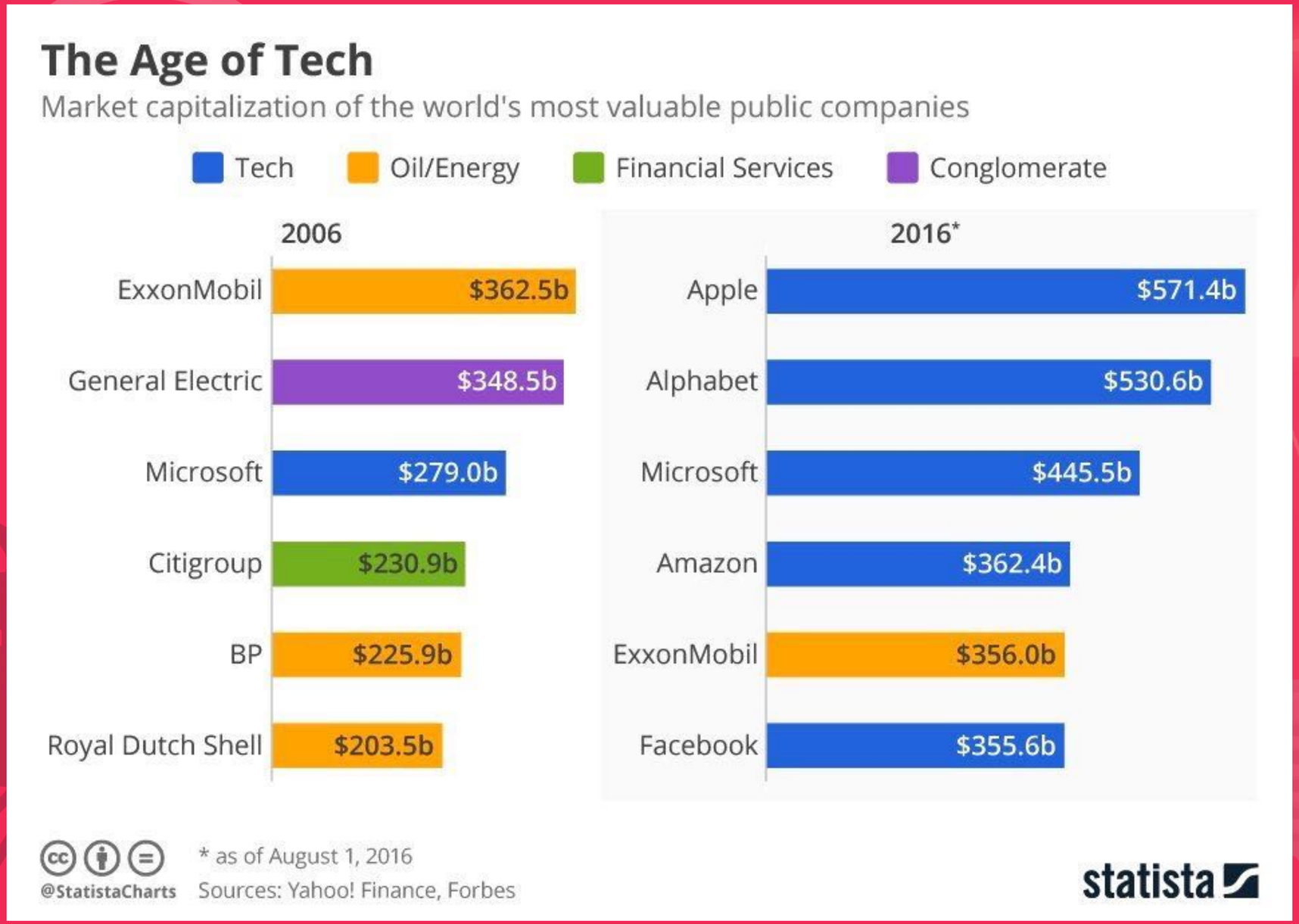
Technology already has more power than oil or banking ever did. Ethics? Regulation? Stewardship?



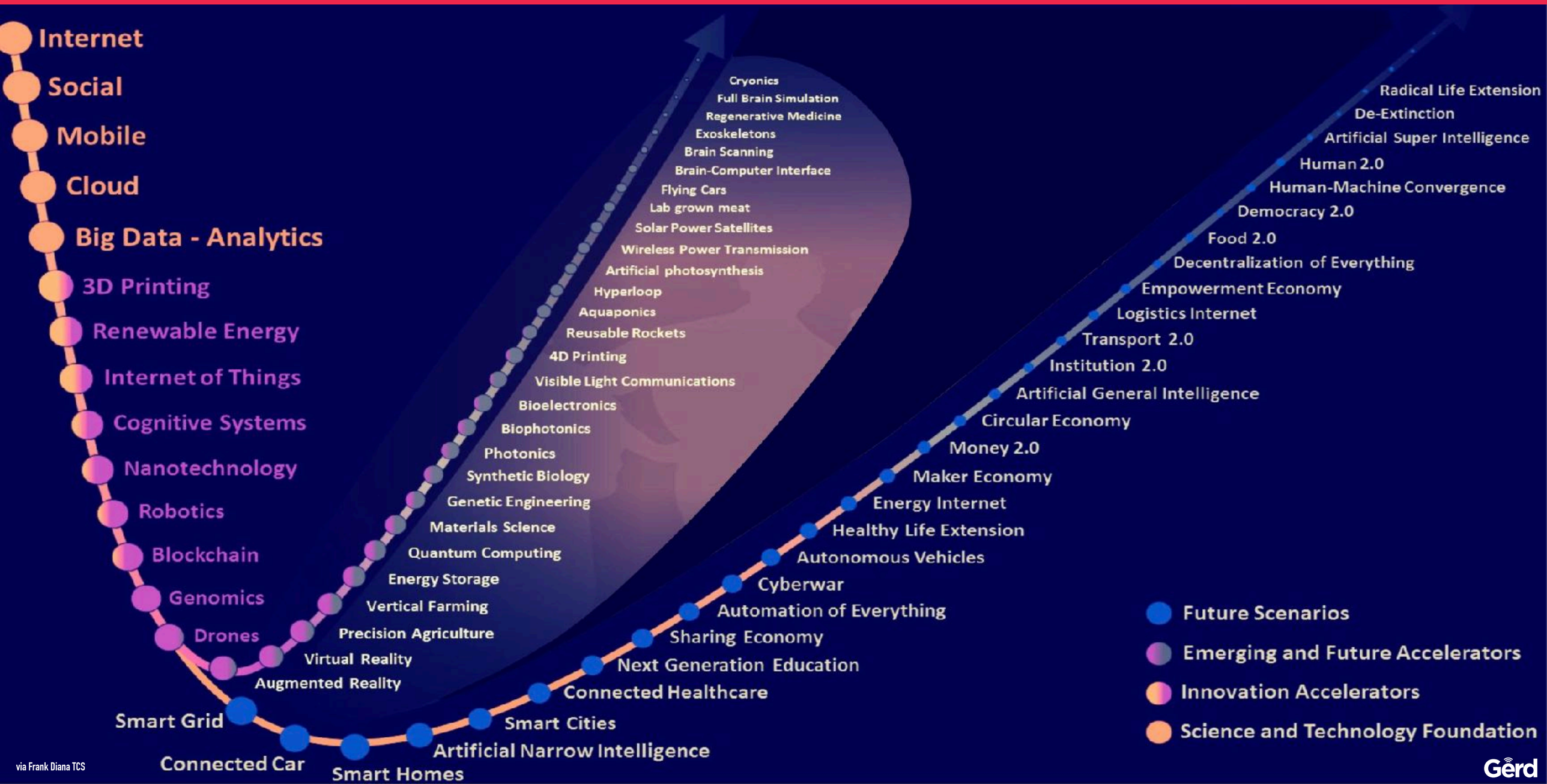
Gerd

Technology already has more power than oil or banking ever did. Ethics? Regulation? Stewardship?

Rank	Company	Region	Current Market Value ($B)
1	Apple	USA	$801
2	Google - Alphabet	USA	680
3	Amazon	USA	476
4	Facebook	USA	441
5	Tencent	China	335
6	Alibaba	China	314
7	Priceline	USA	92
8	Uber	USA	70
9	Netflix	USA	70
10	Baidu	China	66
11	Salesforce	USA	65
12	Paypal	USA	61
13	Ant Financial	China	60
14	JD.com	China	58
15	Didi Kuaidi	China	50
16	Yahoo!	USA	49
17	Xiaomi	China	46
18	eBay	USA	38
19	Airbnb	USA	31
20	Yahoo! Japan	Japan	26
Total			$3,827

KPCB

Unprecedented opportunities will require responsible and wise actors



via Frank Diana TCS

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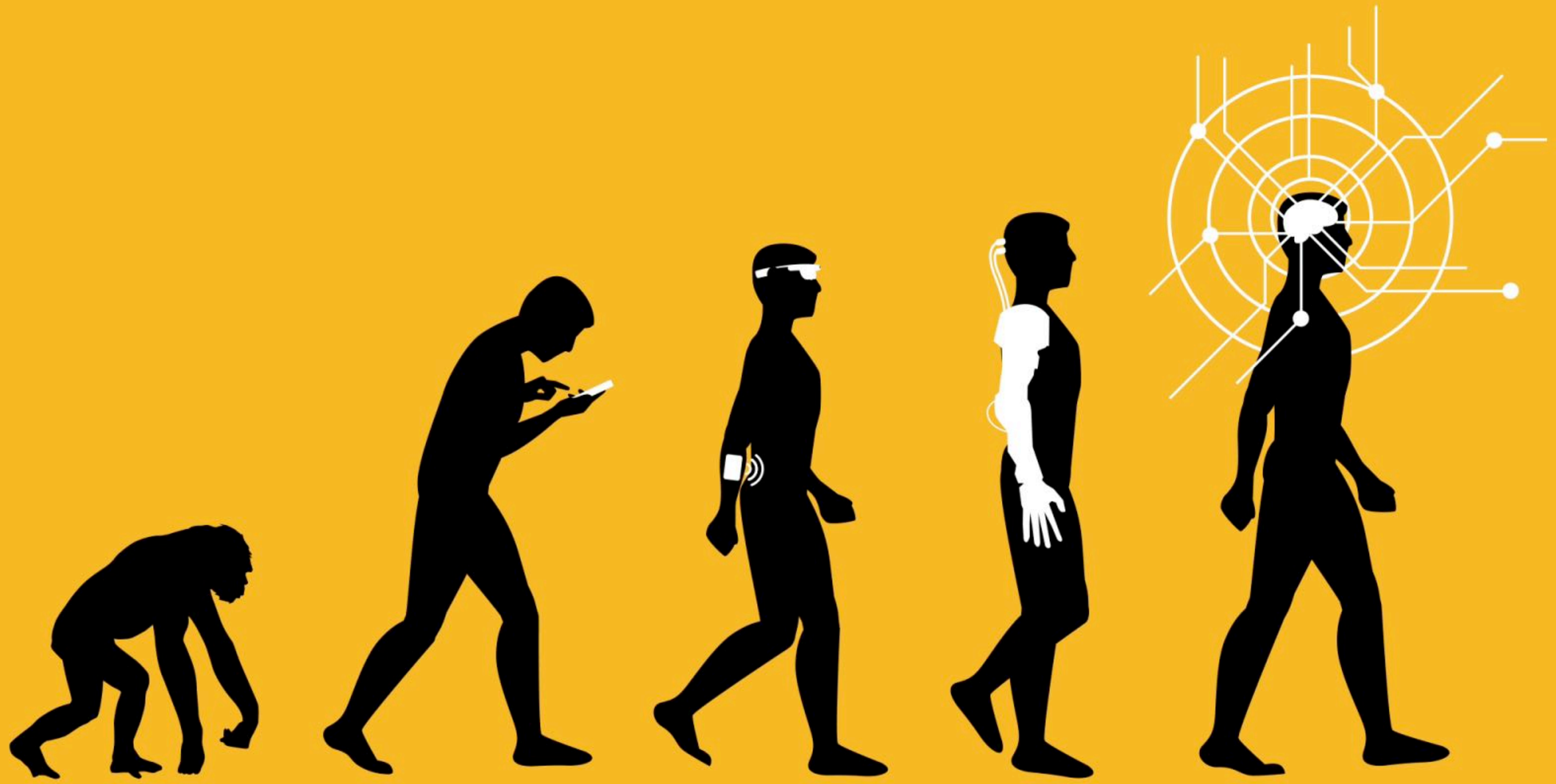
Humanity will change more in the next 20 years than the previous 300 years



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Humans machines: new relationships

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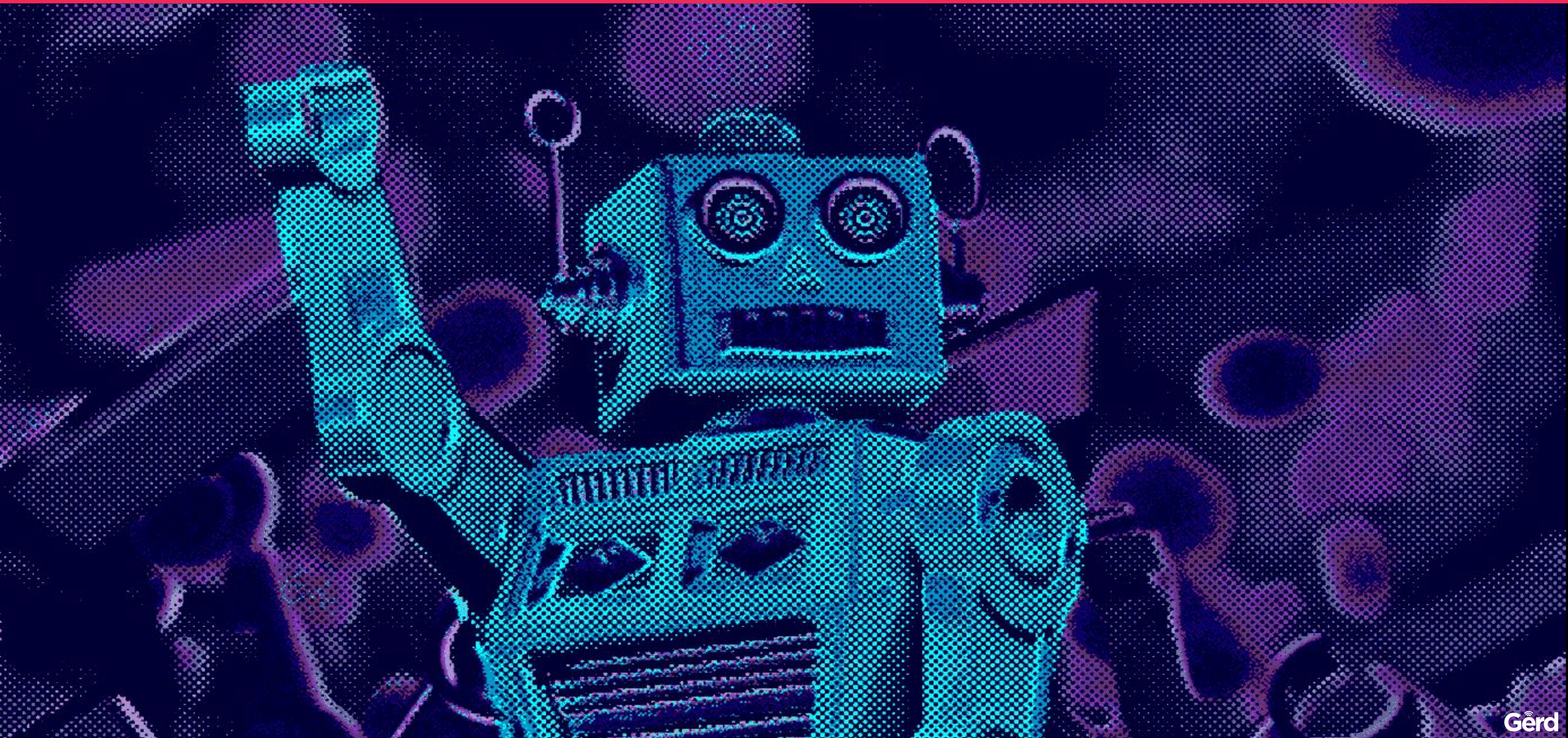
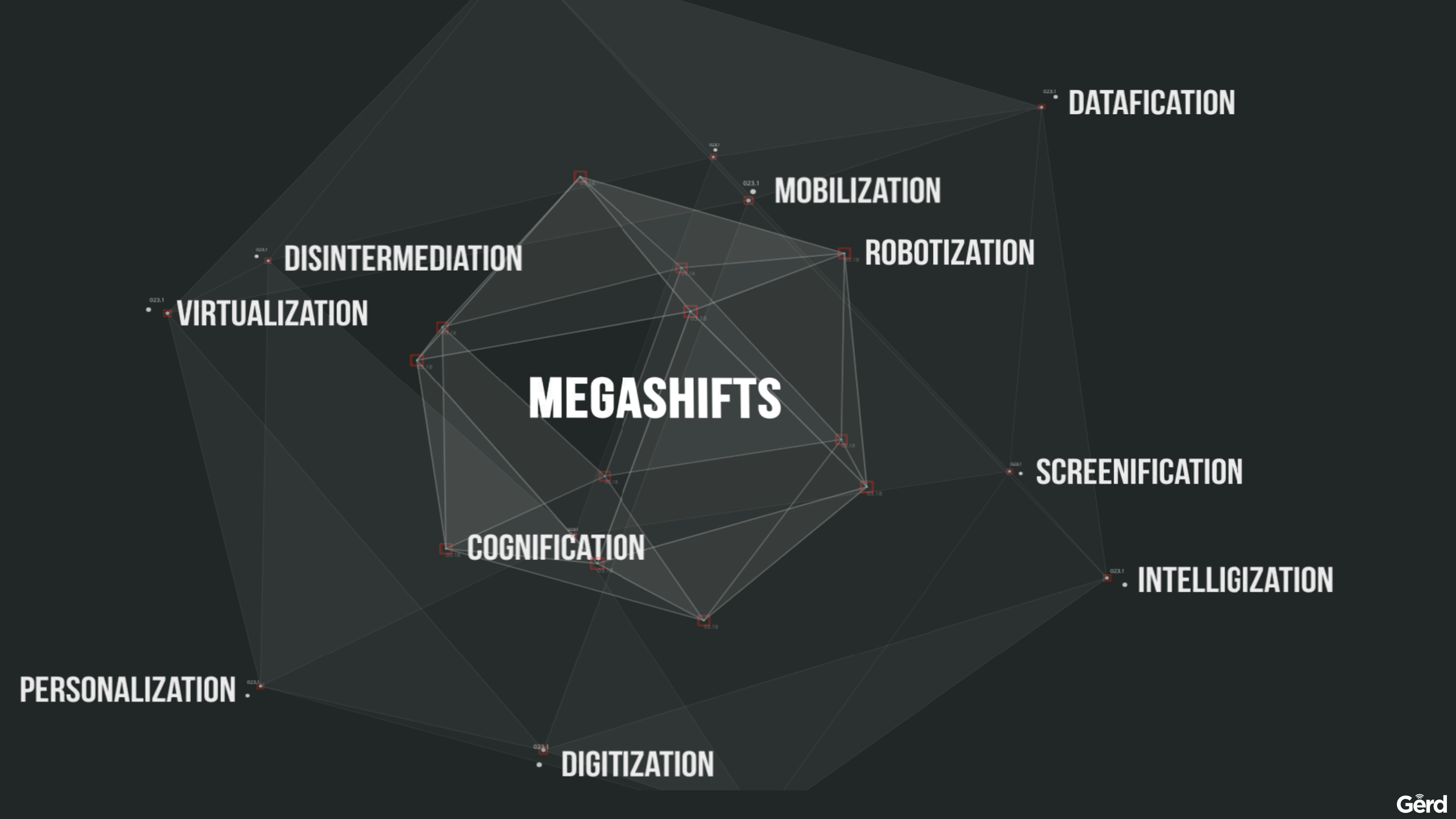
Humans machines: new relationships

Humans machines: new relationships



Humans machines: new relationships


DATAFICATION
MOBILIZATION
DISINTERMEDIATION
ROBOTIZATION
VIRTUALIZATION
MEGASHIFTS
SCREENIFICATION
COGNIFICATION
INTELLIGIZATION
PERSONALIZATION
DIGITIZATION

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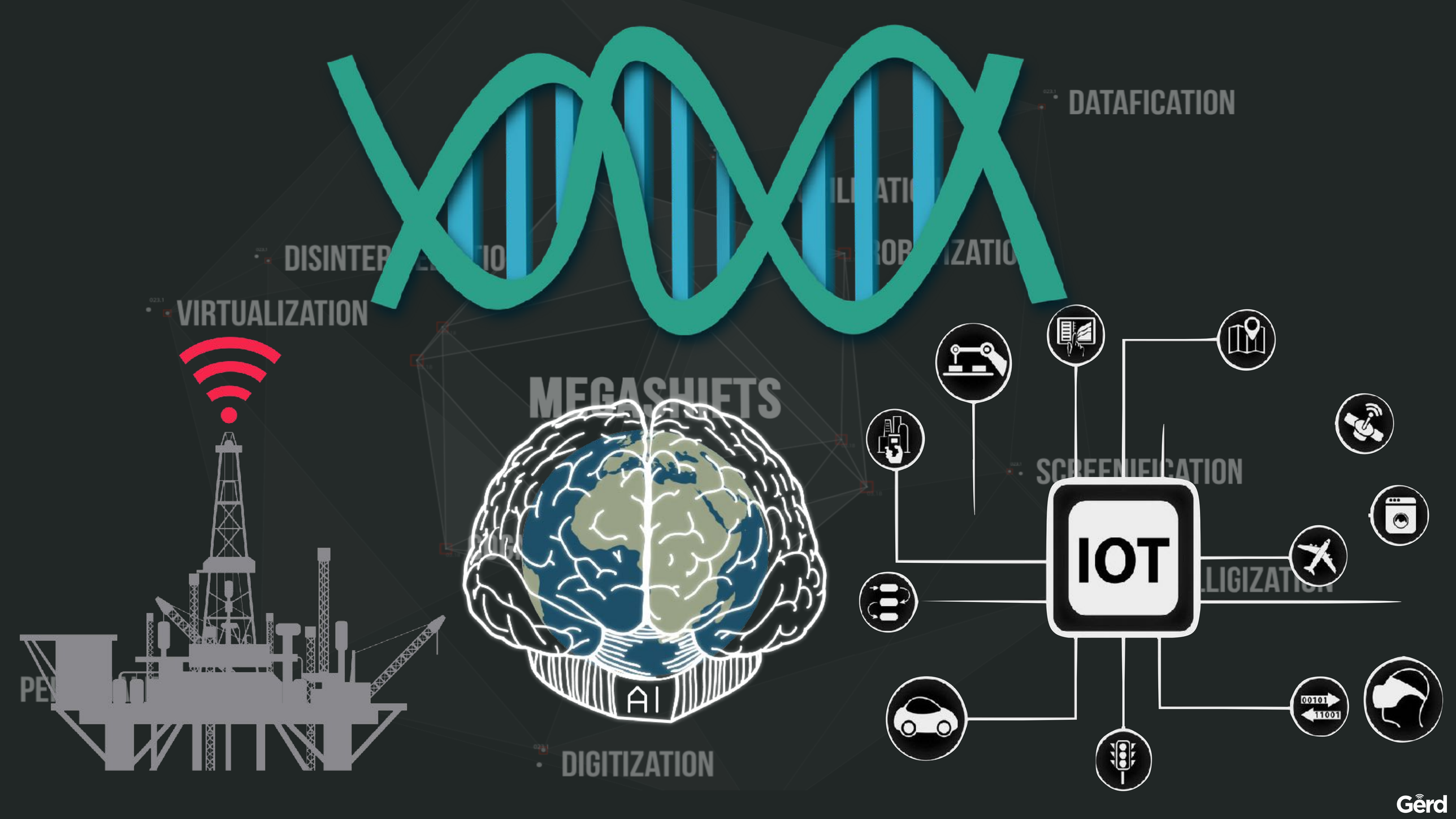
DATAFICATION
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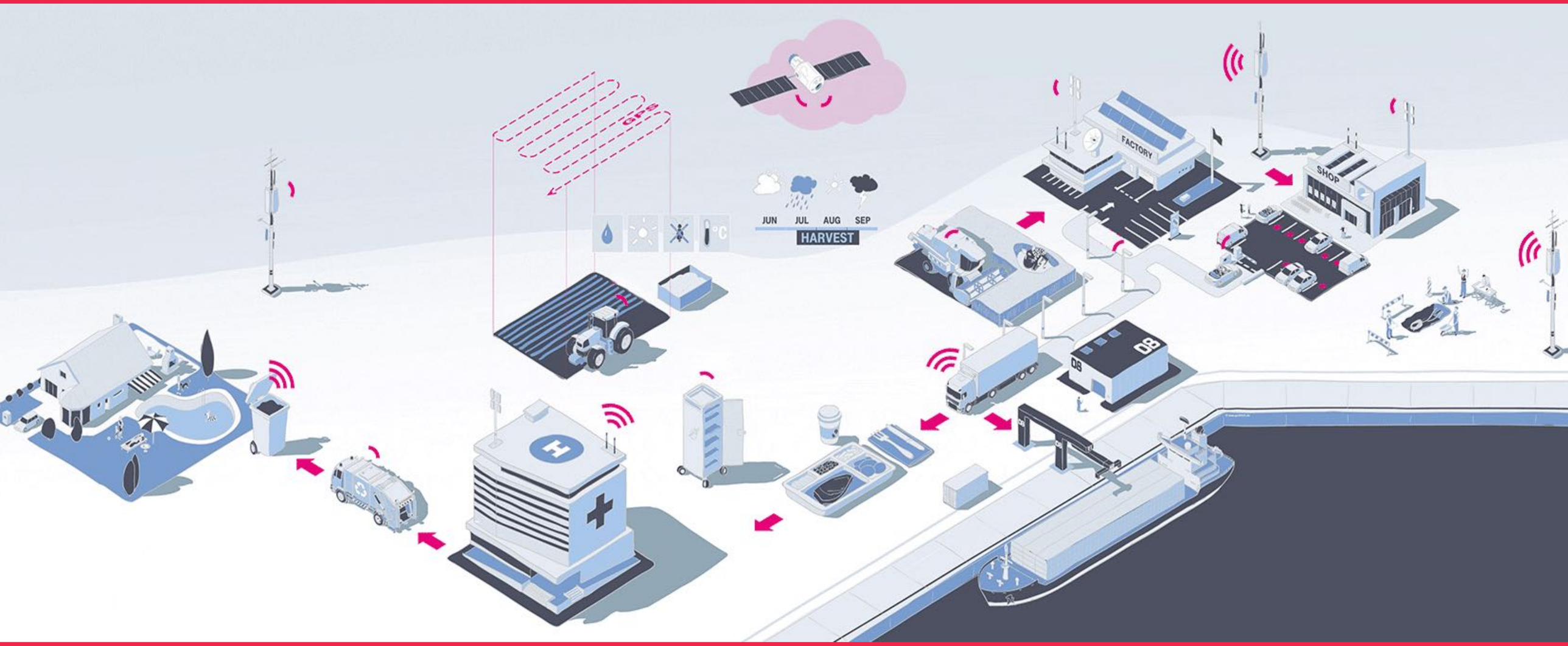
The Cloud + IoT + AI: we're building a new meta-intelligence



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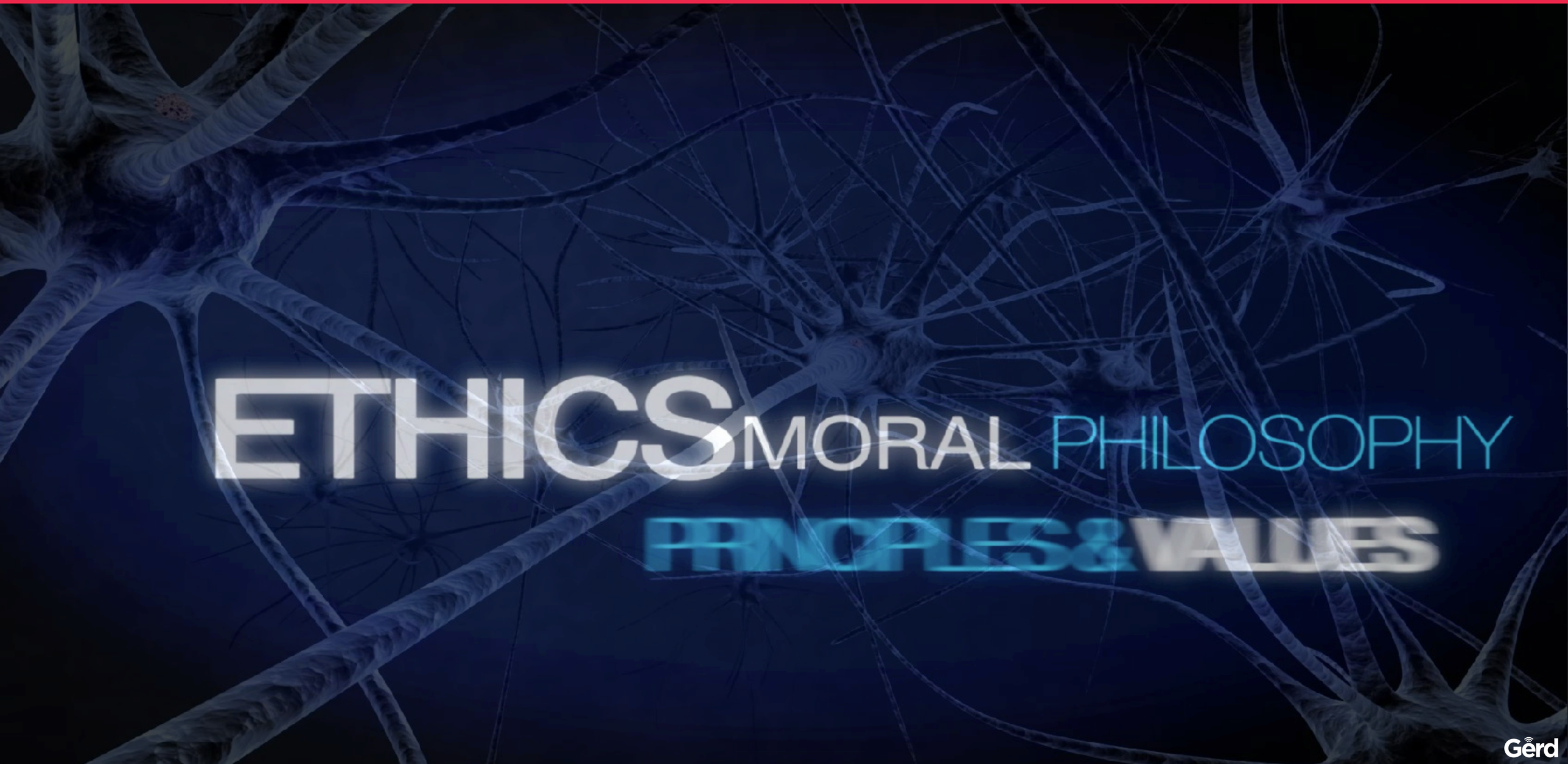
The Cloud + IoT + AI: we're building a new meta-intelligence

The Cloud + IoT + AI: we're building a new meta-intelligence



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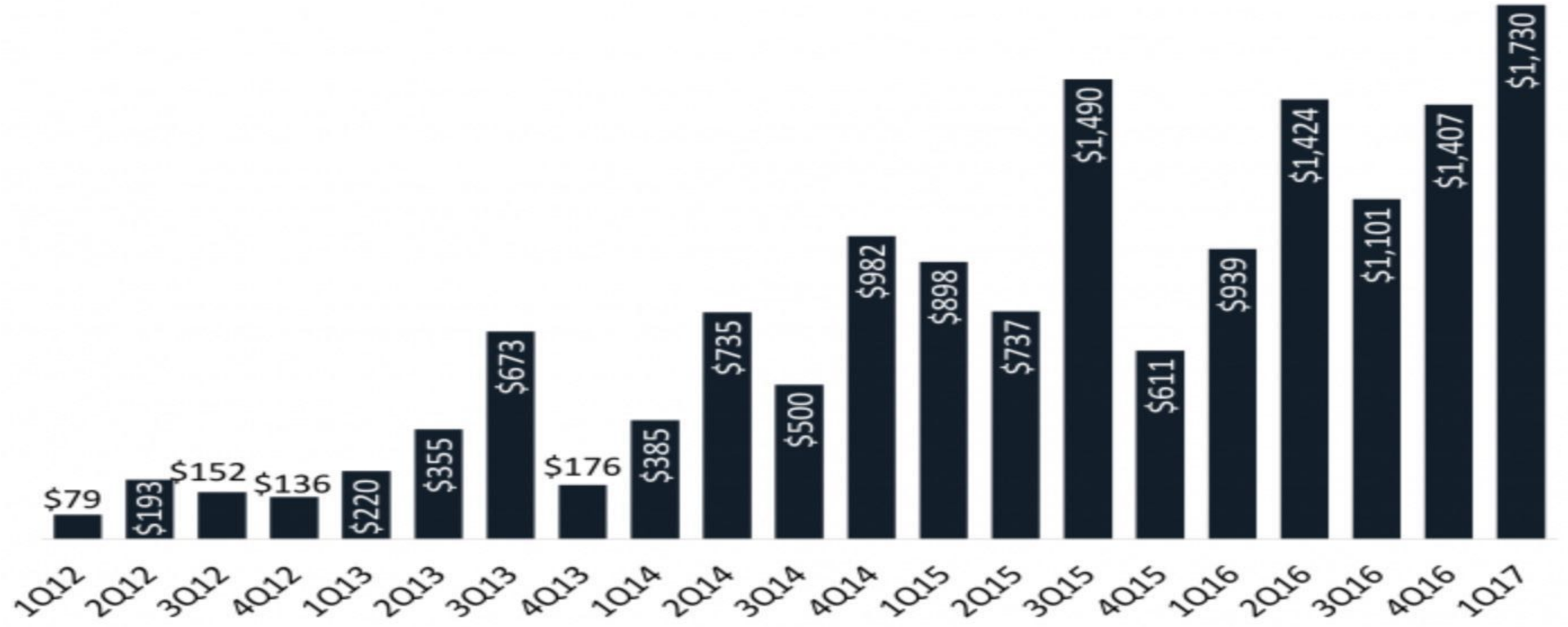
Global Quarterly Artificial Intelligence Funding

Millions ($)



BI INTELLIGENCE

Source: CB Insights, 2017

BI Intelligence

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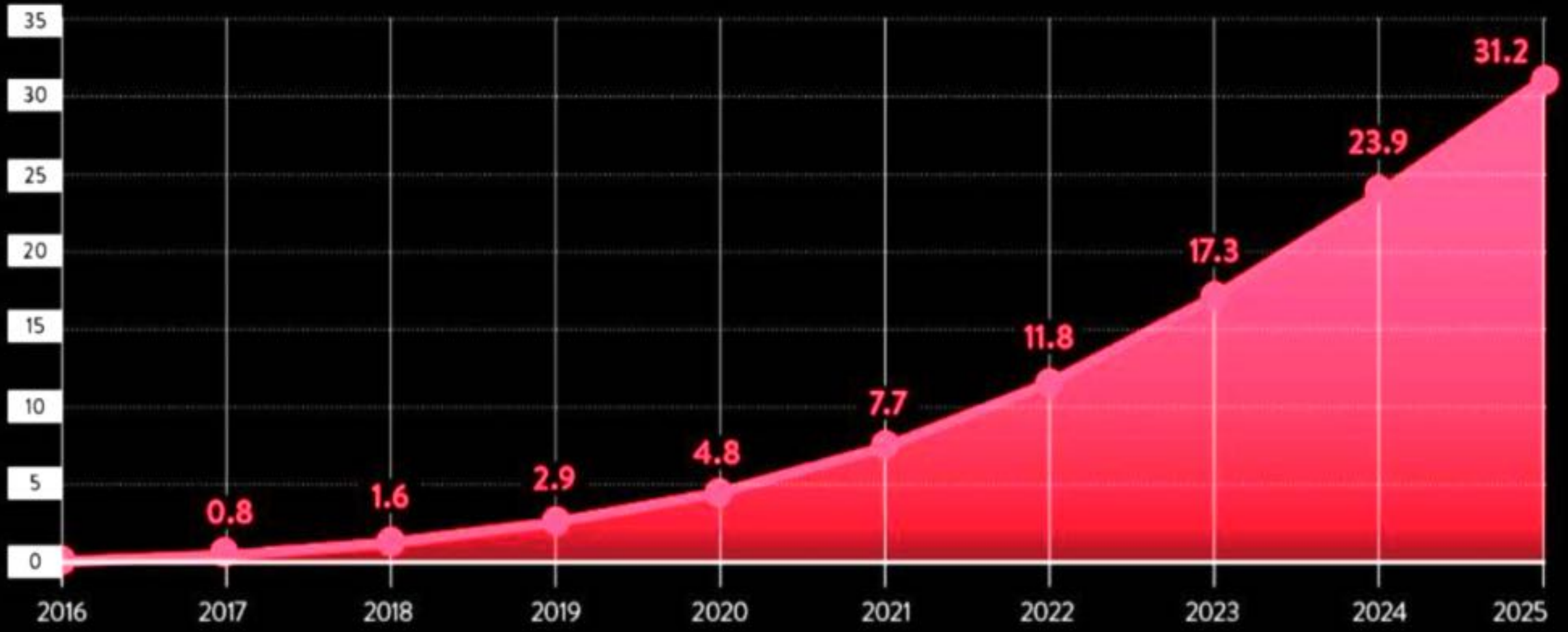
GLOBAL REVENUES FOR ENTERPRISE ARTIFICIAL INTELLIGENCE MARKET ($BN)



Source: Tractica 2016

0.4

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An arms-race of AI and human genome editing would be detrimental

Putin says the nation that leads in AI 'will be the ruler of the world'

James Vincent

Photo by Lintao Zhang/Pool/Getty Images

Russian president Vladimir Putin has joined the war of words concerning the international race to develop artificial intelligence. Speaking to students last Friday, Putin predicted that whichever country leads the way in AI research will come to dominate global affairs.

Beijing Wants A.I. to Be Made in China by 2030

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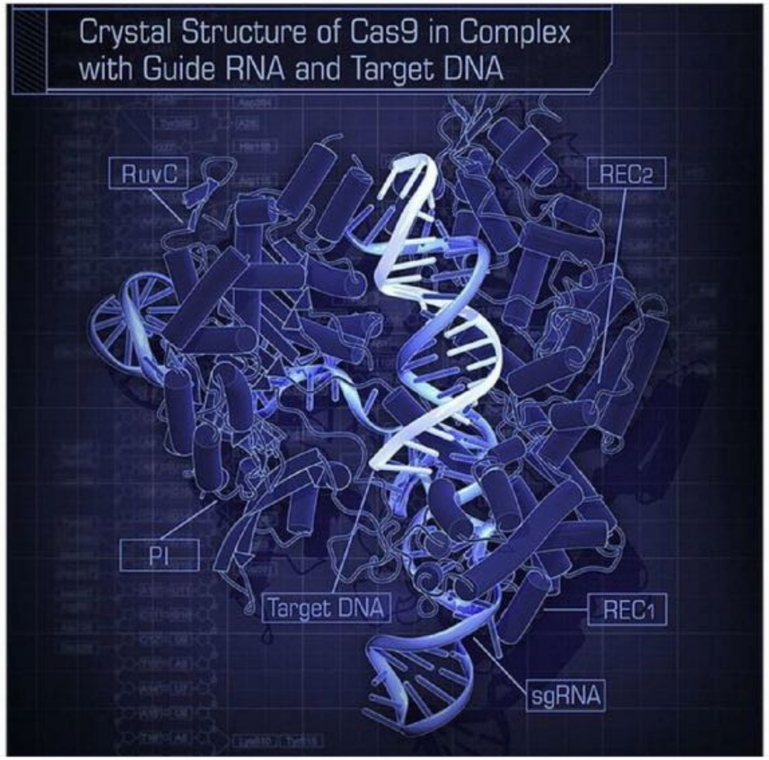
By PAUL MOZUR JULY 20, 2017

An arms-race of AI and human genome editing would be detrimental

Human patient treated with CRISPR gene editing for the first time

Chinese researchers hope the tool will help fight cancer



Beijing Wants A.I. to Be Made in China by 2030

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By PAUL MOZUR JULY 20, 2017

"Ethics is knowing the difference between what you have a right (or the power) to do and what is the right thing to do" adapted from Potter Stewart

TECHNOLOGY HAS NO ETHICS

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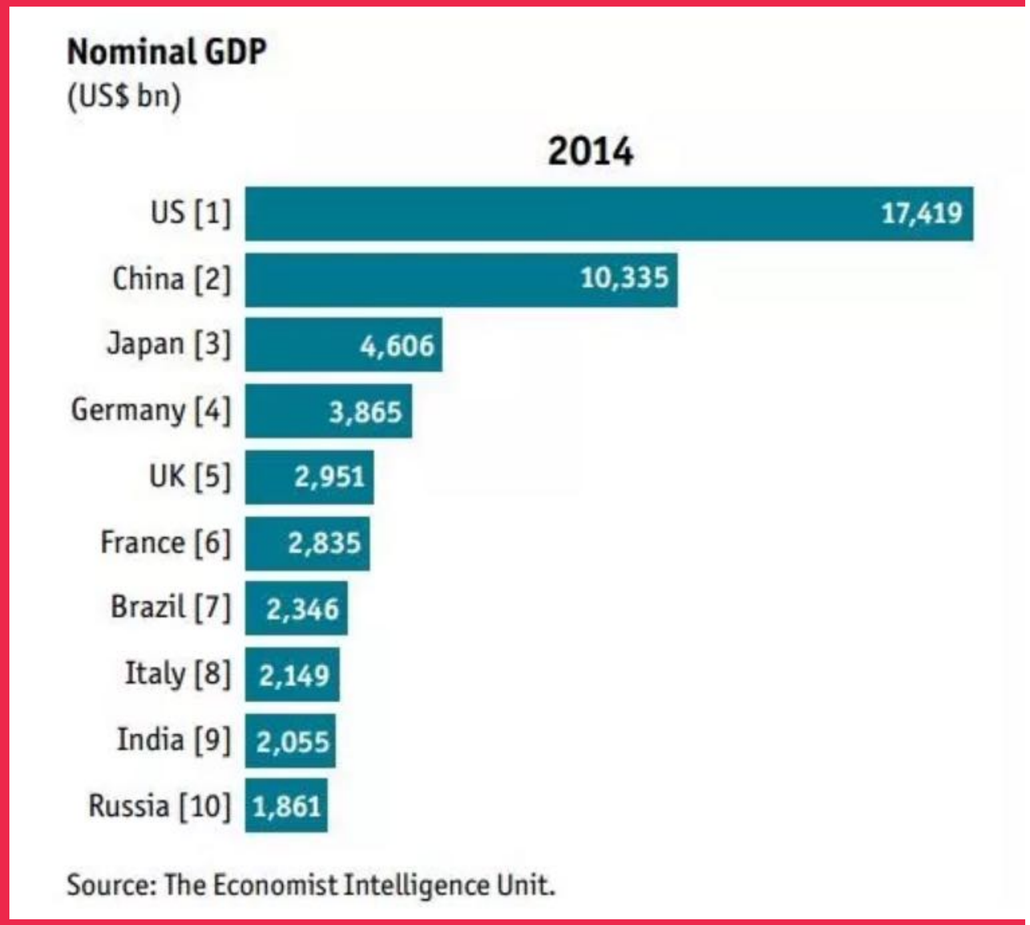
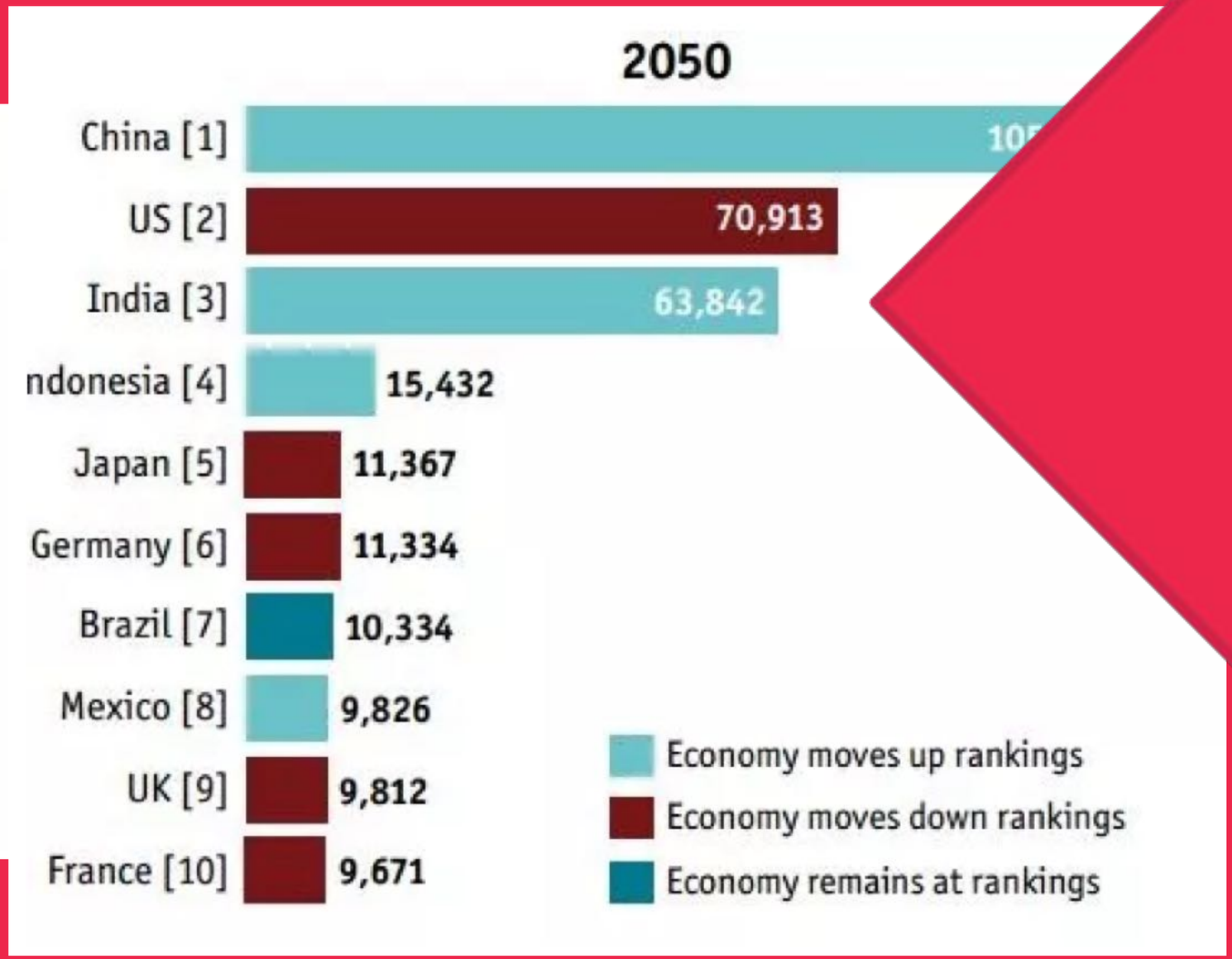
The coming economic power shifts will bring huge opportunities – and require thoughtful leadership





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The coming economic power shifts will bring huge opportunities – and require thoughtful leadership

Global economic power will shift to the E7 economies

In...

1995 E7 *were* ***half*** *the size of* G7

By...

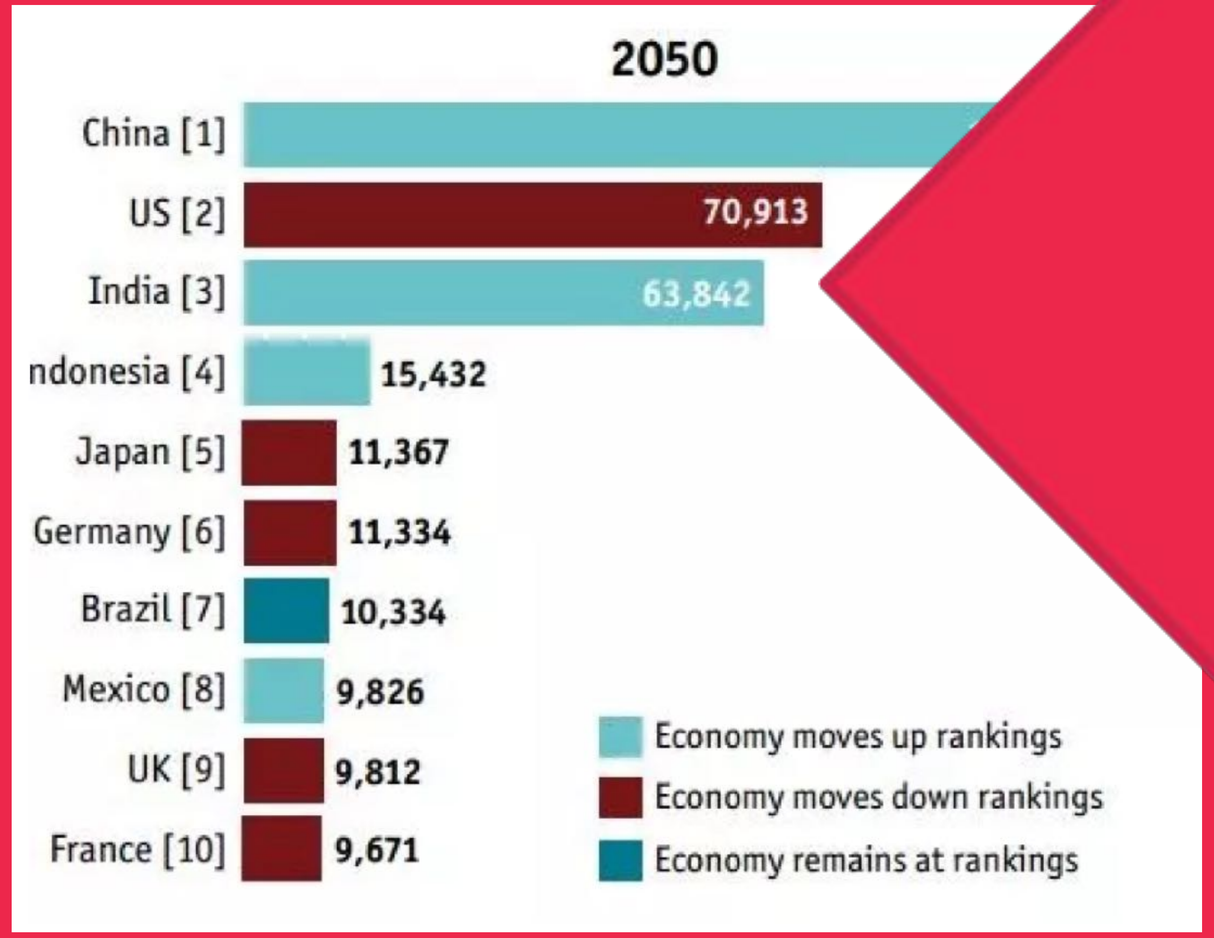
2015 E7 *were around the* ***same*** *size as* G7

And in just 25 years...

2040 E7 *could be* ***double*** *the size of*

G7: US, UK, France, Germany, Japan, Canada and Italy
E7: China, India, Indonesia, Brazil, Russia, Mexico and Turkey

Sources: IMF for historical GDP, PwC analysis for projections to 2050



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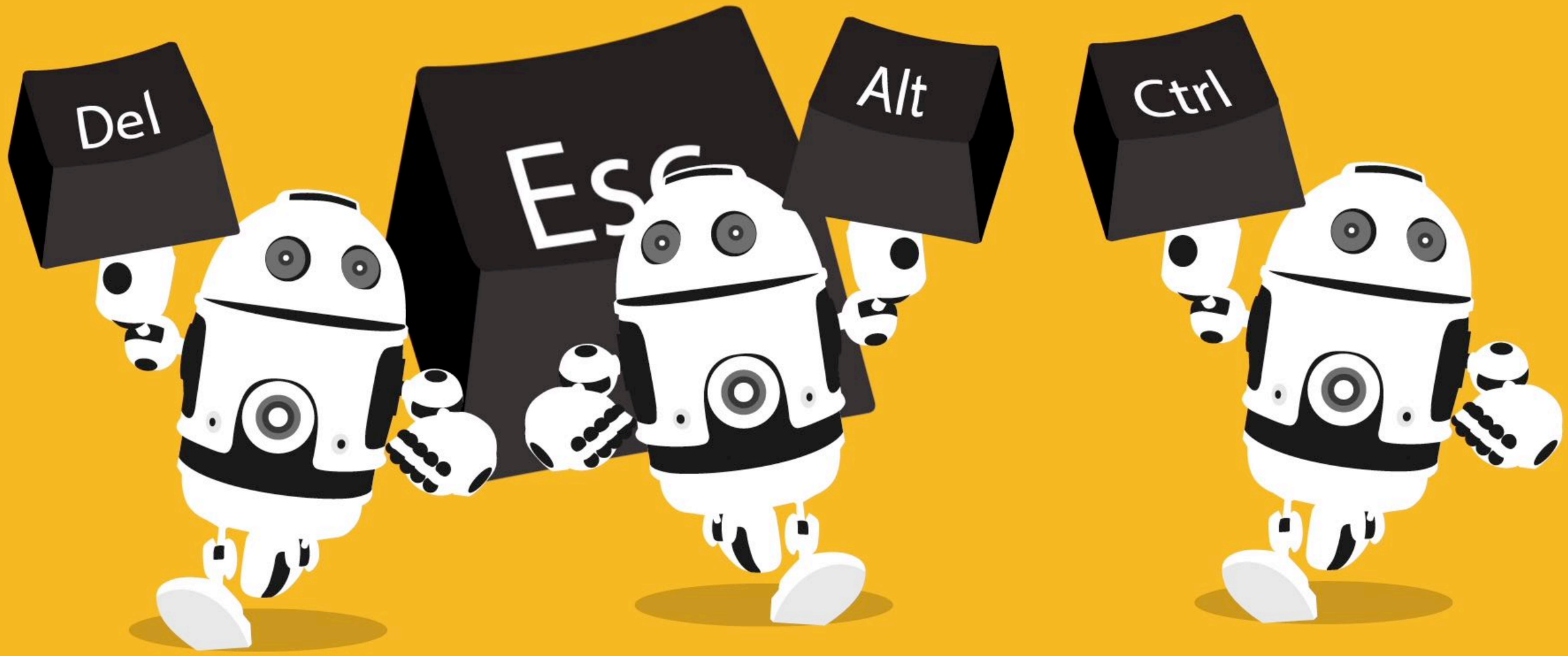
Beware: sustainable success will not just be about efficiency, productivity and GDP growth – it will be about a holistic view as far as the future of humanity is concerned

Gerd

Who will be ‘mission control’ for humanity?



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Who will be ‘mission control’ for humanity?

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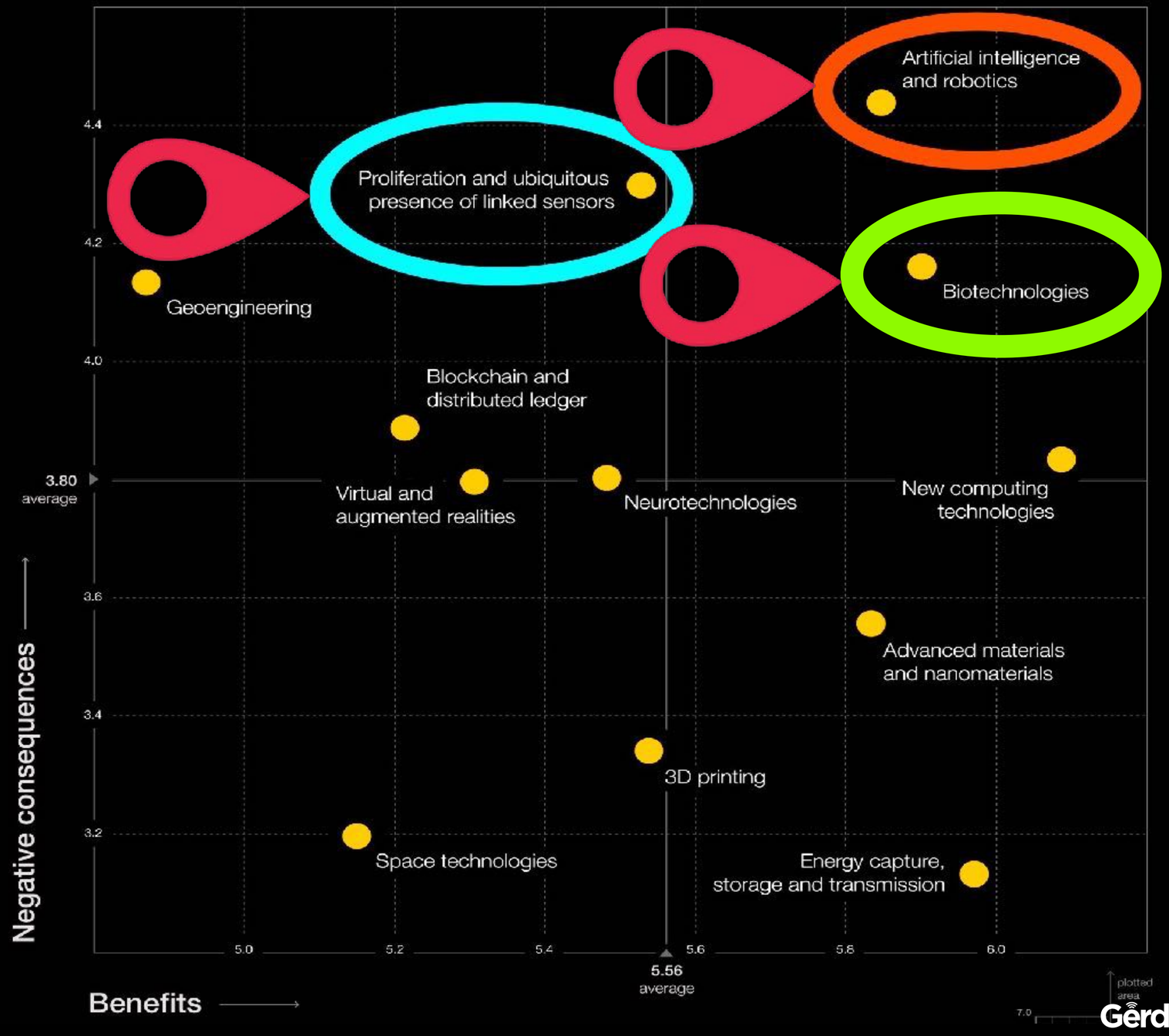
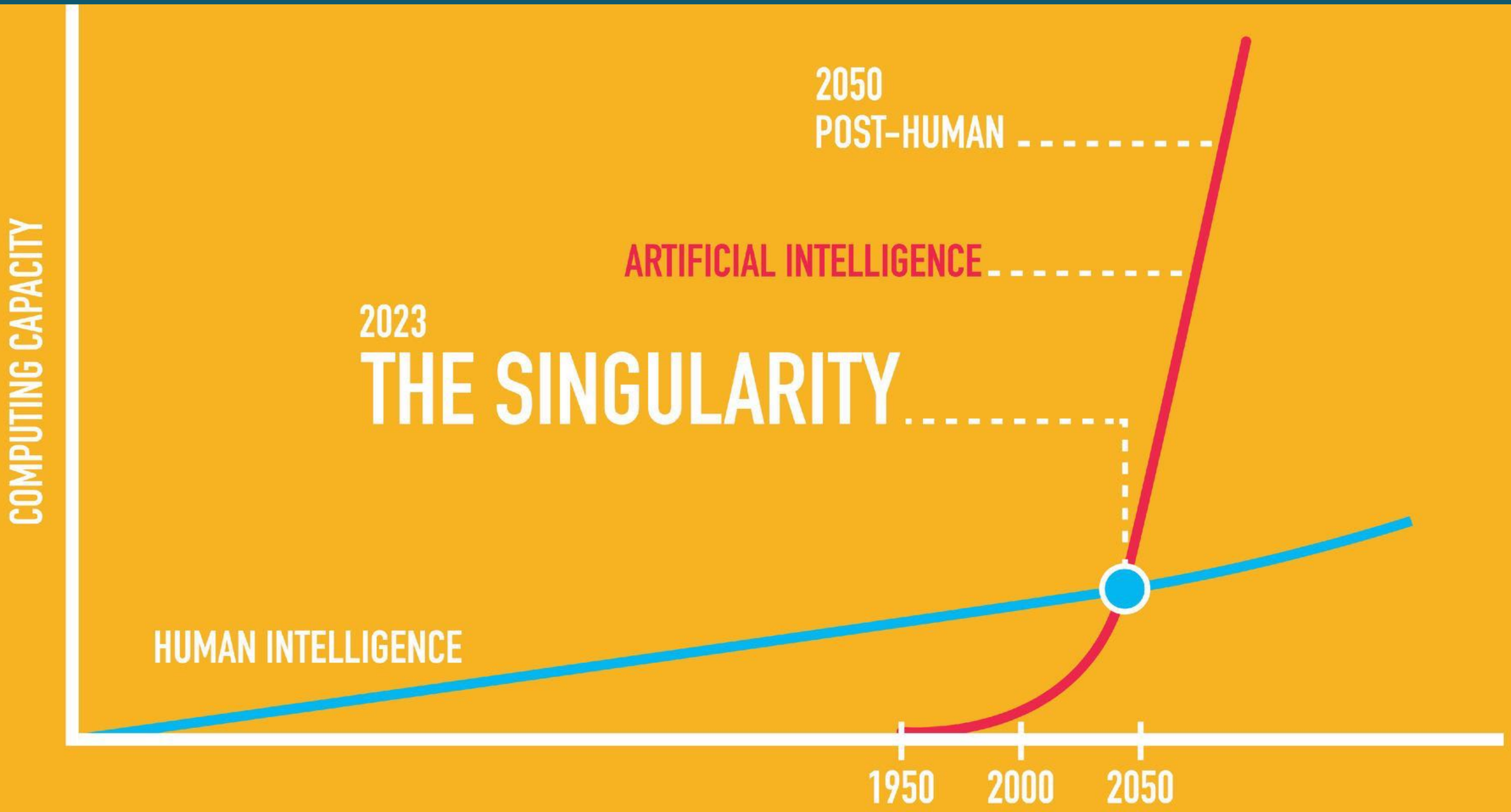
Perceived benefits and negative consequences of 12 emerging technologies (via WEF Global Risk Study 2016)

Do you agree that we have an **ethical imperative** to harness the power of exponential technologies for the **collective good of mankind?**



Soon, the question is no longer if technology can do something but why? and who?



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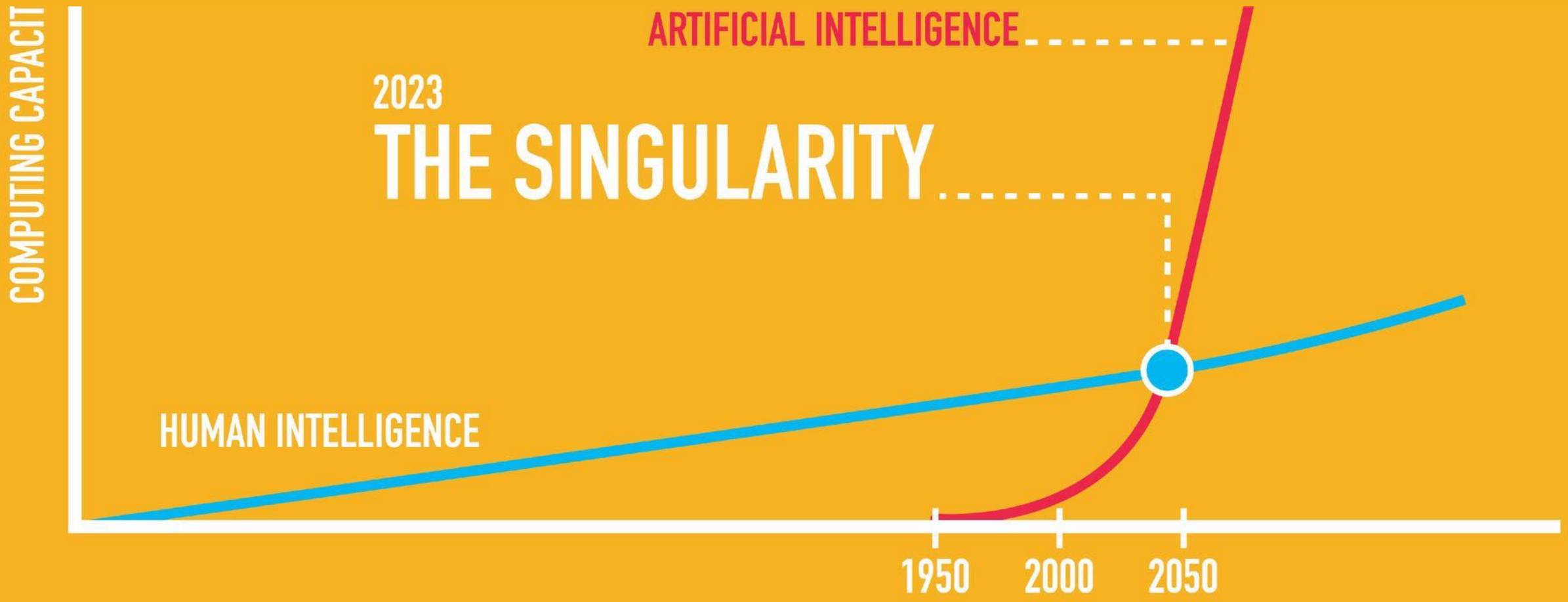
From feasibility and efficiency to reason and purpose

All great technological innovation should result in human flourishing, first and foremost



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GOOGLE | TECH | ARTIFICIAL INTELLIGENCE

DeepMind launches new research team to investigate AI ethics

The Google-owned company will publish research on the effects of AI on society

by James Vincent | @jjvincent | Oct 4, 2017, 6:46am EDT

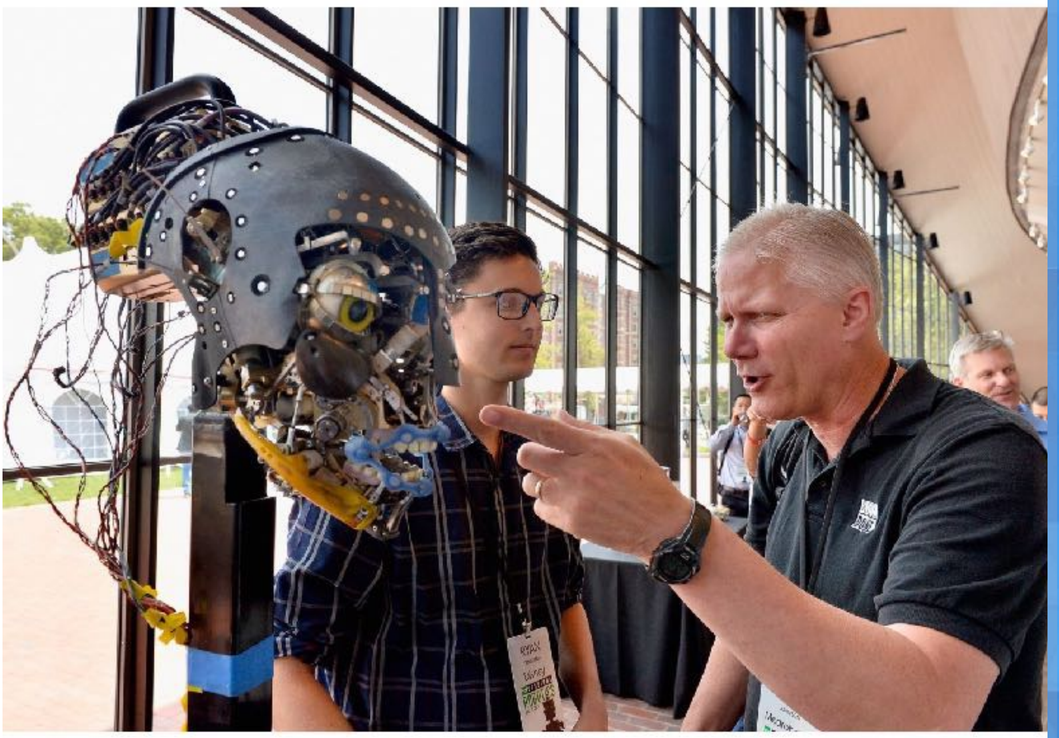

Photo by Paul Marotta/Getty Images for TechCrunch

Partnership on AI

to benefit people and society

Established to study and formulate best practices on AI technologies, to advance the public's understanding of AI, and to serve as an open platform for discussion and engagement about AI and its influences on people and society.

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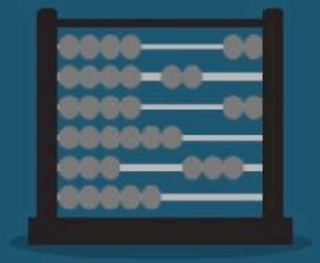
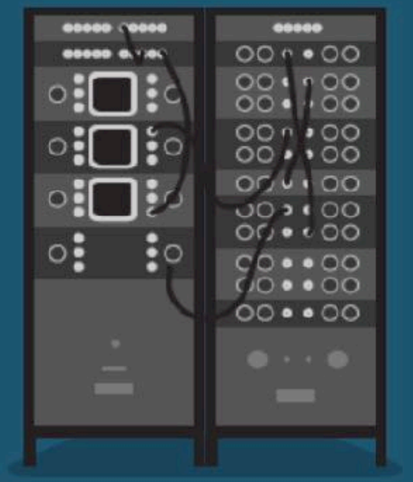
Computers that can hear us, see us, understand us.
No longer programmed but taught!





Tabulating Systems Era

1900

Programmable Systems Era

1950

Cognitive Systems Era

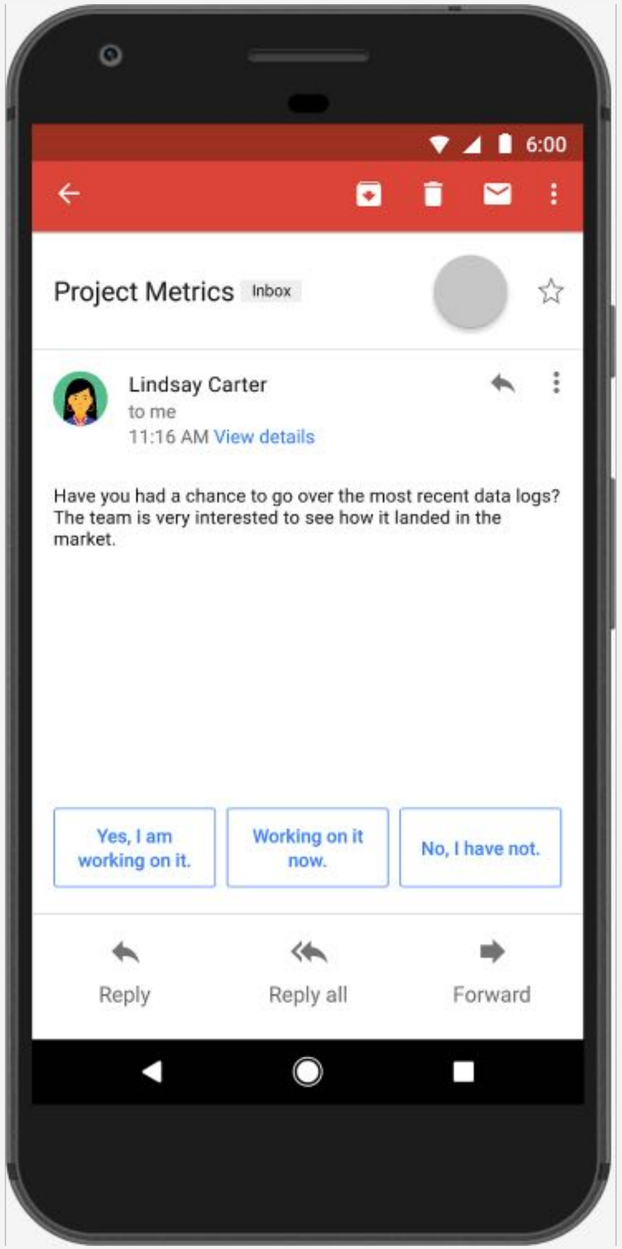
2011

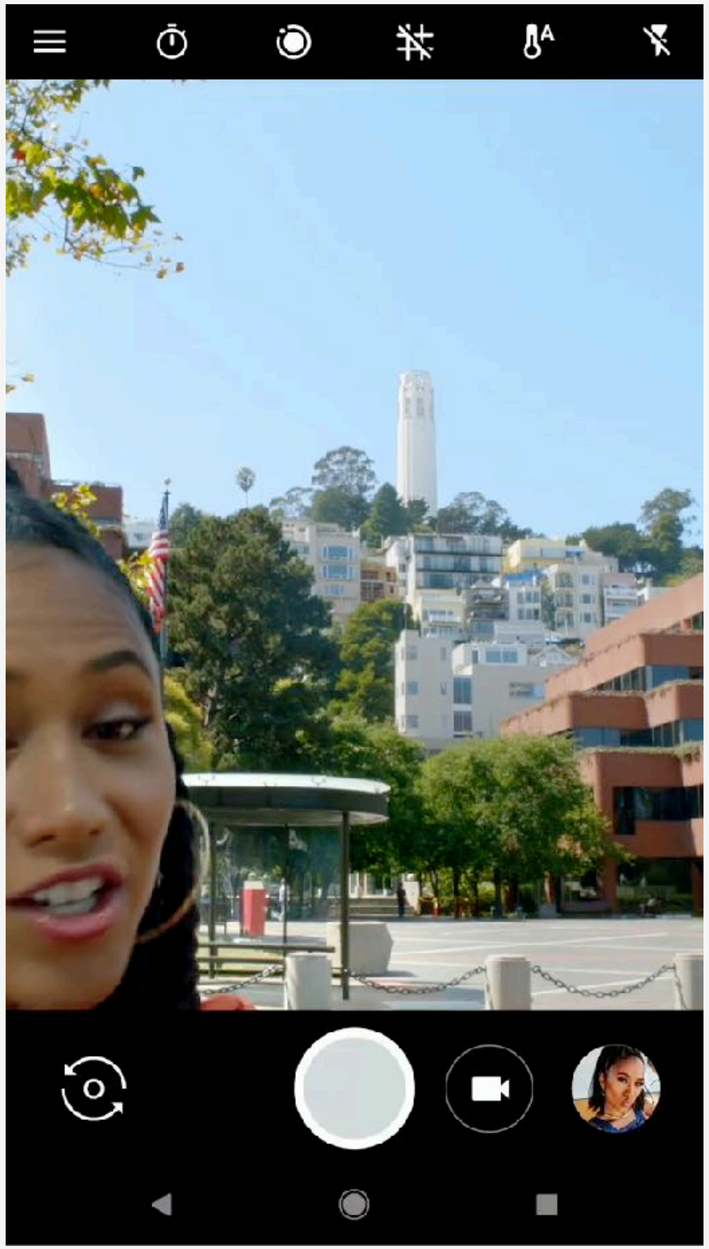
Gerd

Speaking to machines ‘like speaking to a friend’

Artificial Intelligence: “Computer systems able to perform tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages”

Massively scaleable narrow AI / IA (intelligent assistance) is changing all industries





Massively scaleable narrow AI / IA (intelligent assistance) is changing all industries

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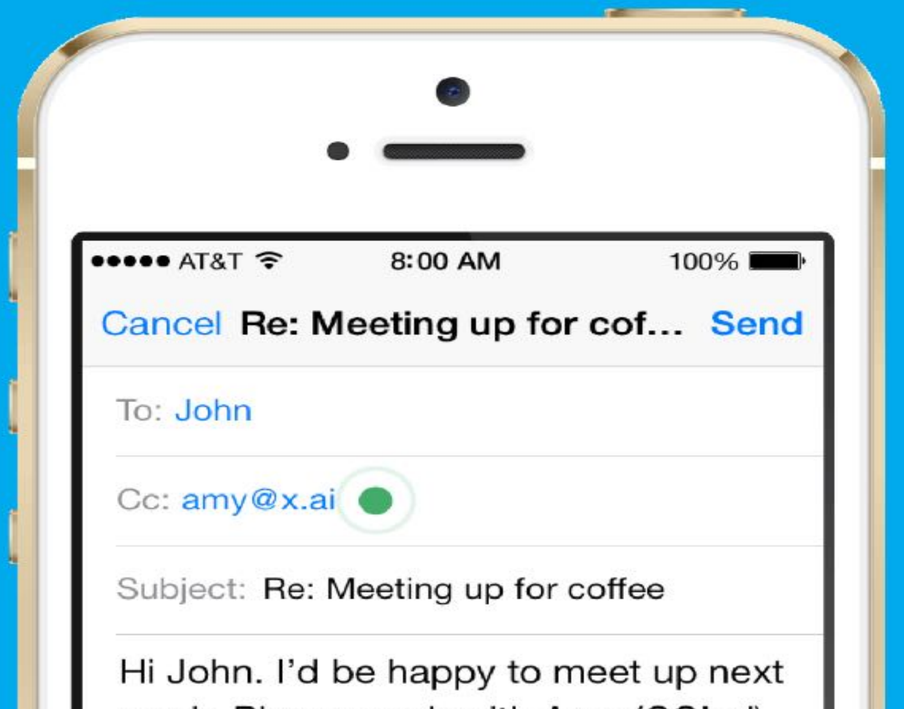
Massively scaleable narrow AI / IA (intelligent assistance) is changing all industries

x.ai is a personal assistant
who schedules meetings for you.

Add email to waiting list →



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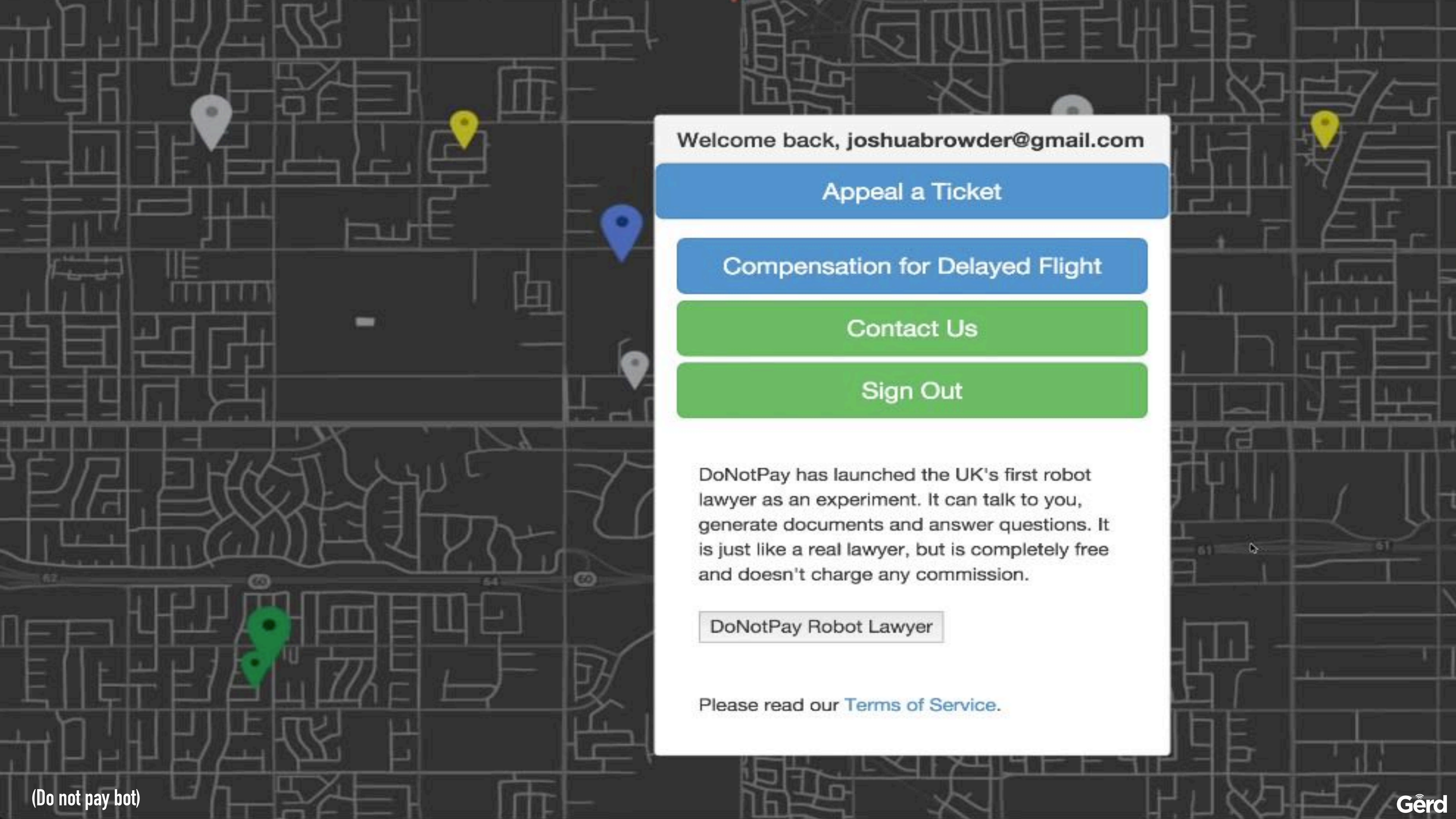

(Do not pay bot)

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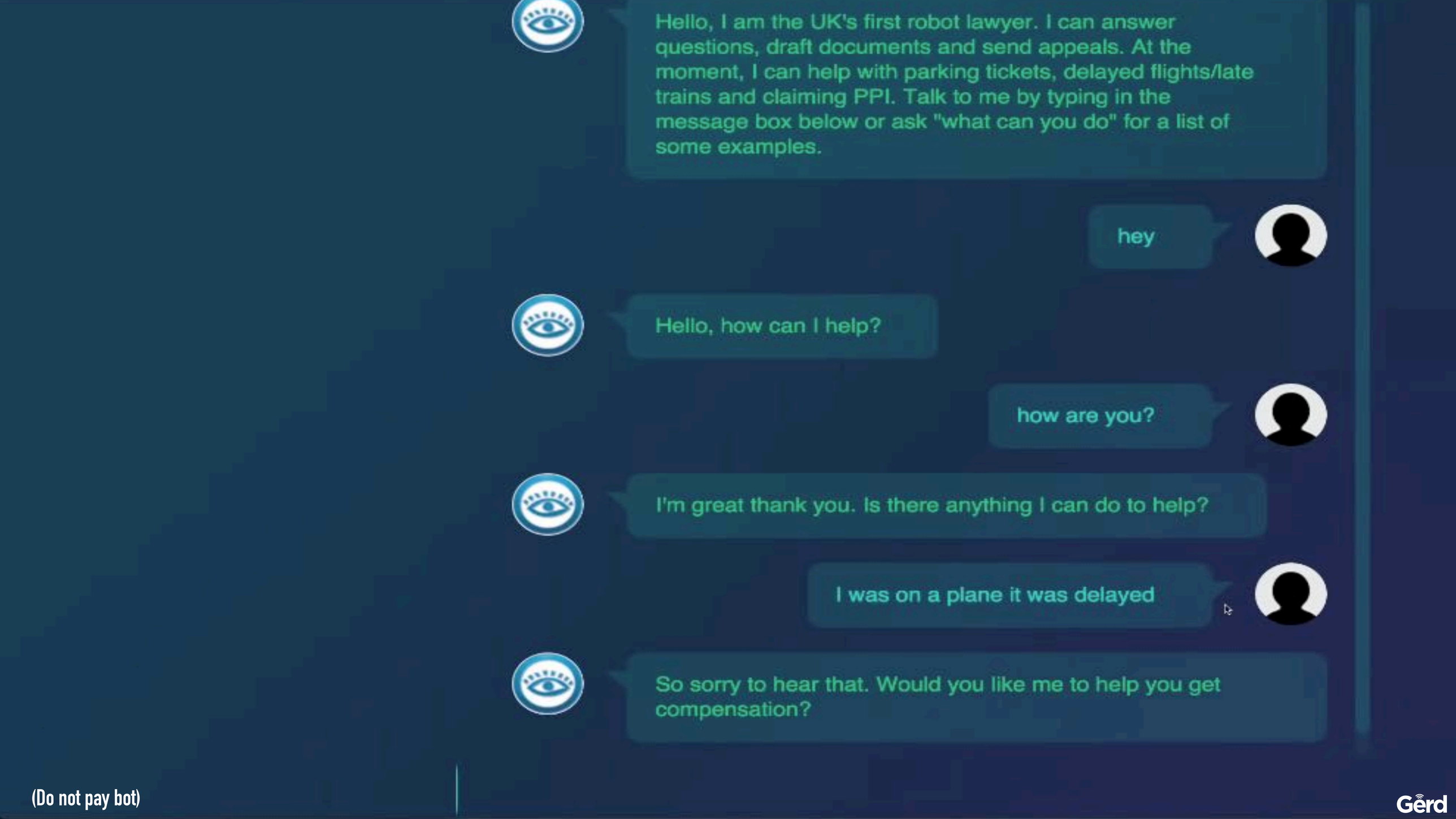
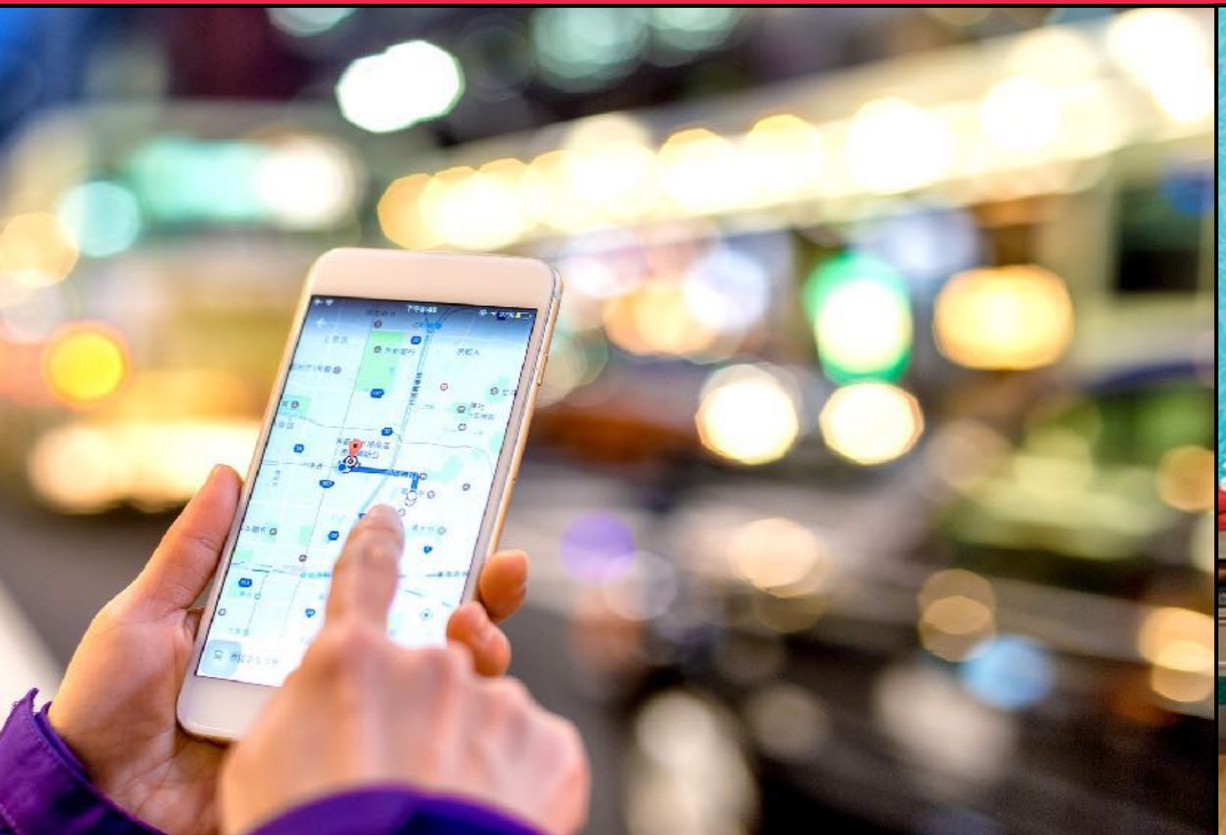


(Do not pay bot)

Gerd

“Algorithms outperform human intelligence when it is not about understanding, mental or emotional states, intentions, interpretations, deep semantic skills, consciousness, self-awareness and flexible intelligence* (via Luciano Floridi)



Gerd

Social intelligence (human)

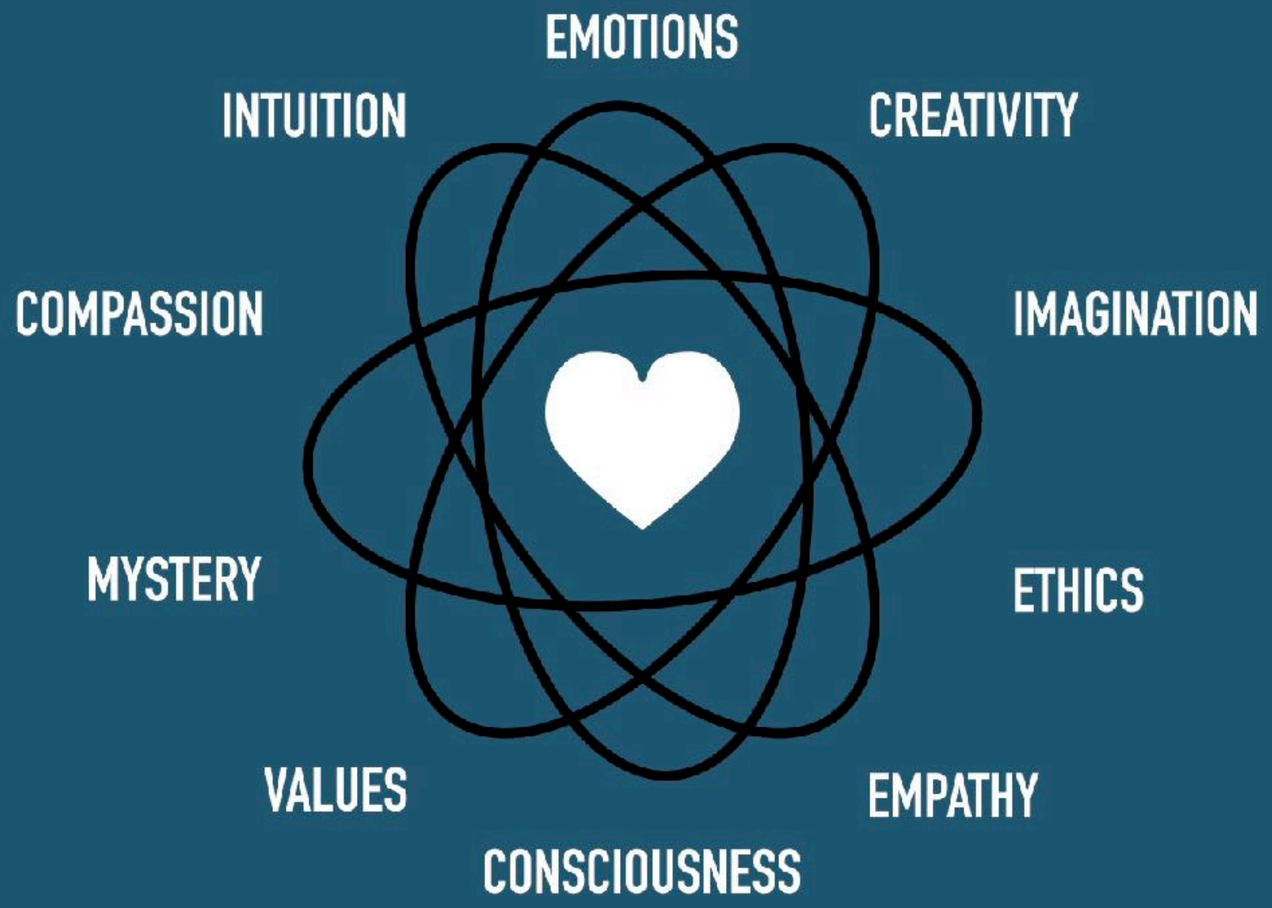
Emotional intelligence (human)

Intellectual intelligence (human)

Artificial intelligence (machines)

Gerd

Anything that can be digitized or automated, will be...

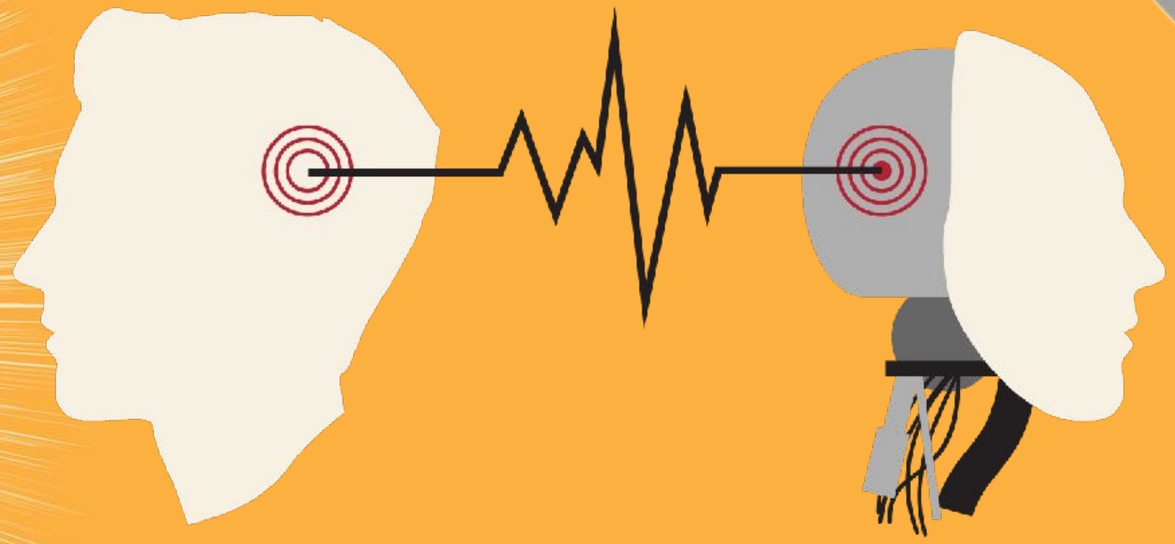


Anything that cannot be digitized or automated will become much more valuable

Gerd

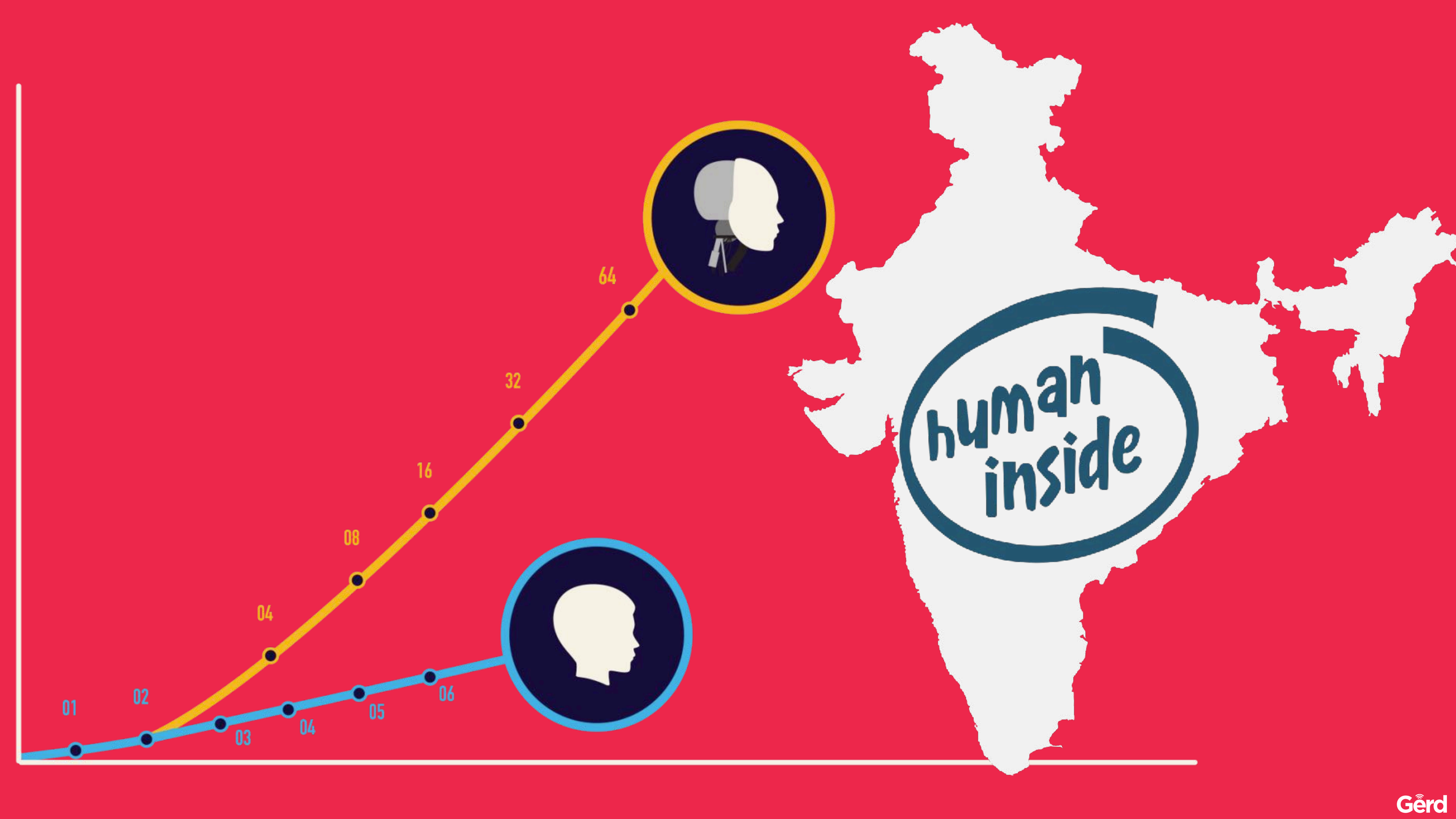
Smart is great but human is better!

A new era for education



The biggest challenge is not that machines will take over –but that we become too much like them!

Gerd



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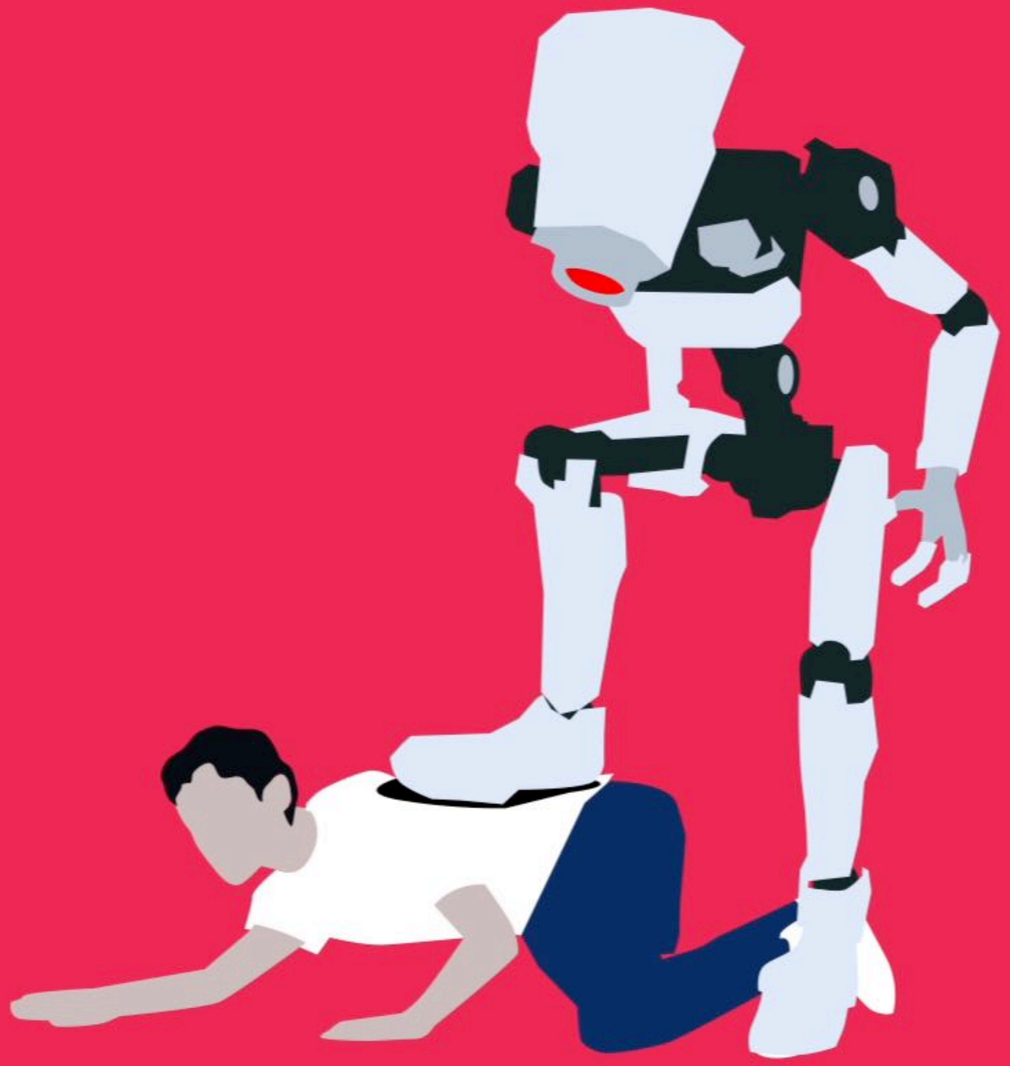


TEAM ROBOT

Being on

Team

Human

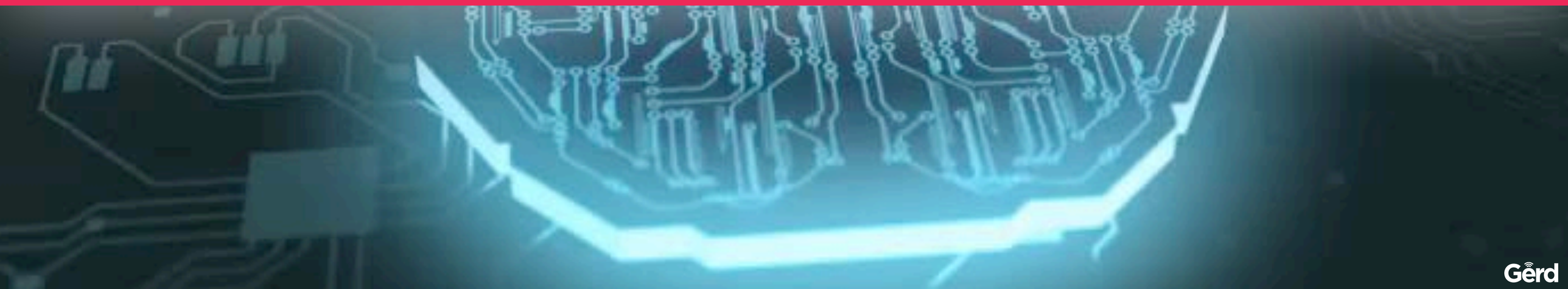
is a key

differentiator

Gerd

The 2017 FutureOfLife AI principles: how exponential technological change could remain humanly sustainable

- **Human values:** all systems should be designed and operated to be compatible with ideals of human dignity, rights, freedoms and cultural diversity
- **Shared benefit and prosperity:** to benefit & empower as many people as possible
- **Ecosystem thinking:** ethical, economical and societal issues need to be included
- **Responsibility:** those that design, build or run these systems are moral stakeholders



Gerd

Use technology for human purposes: focus on magic, discourage manic, ban the toxic!

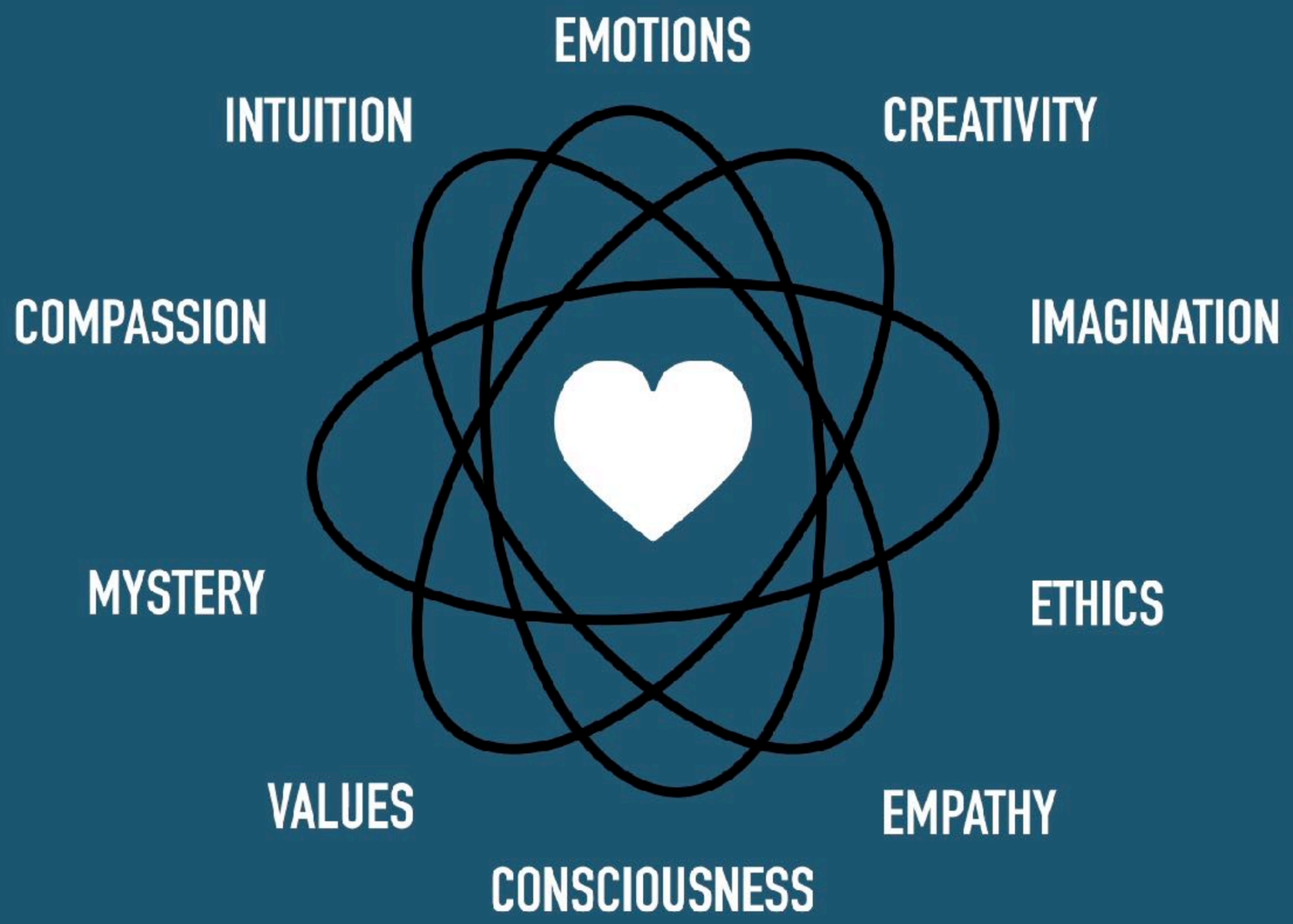
MAGIC

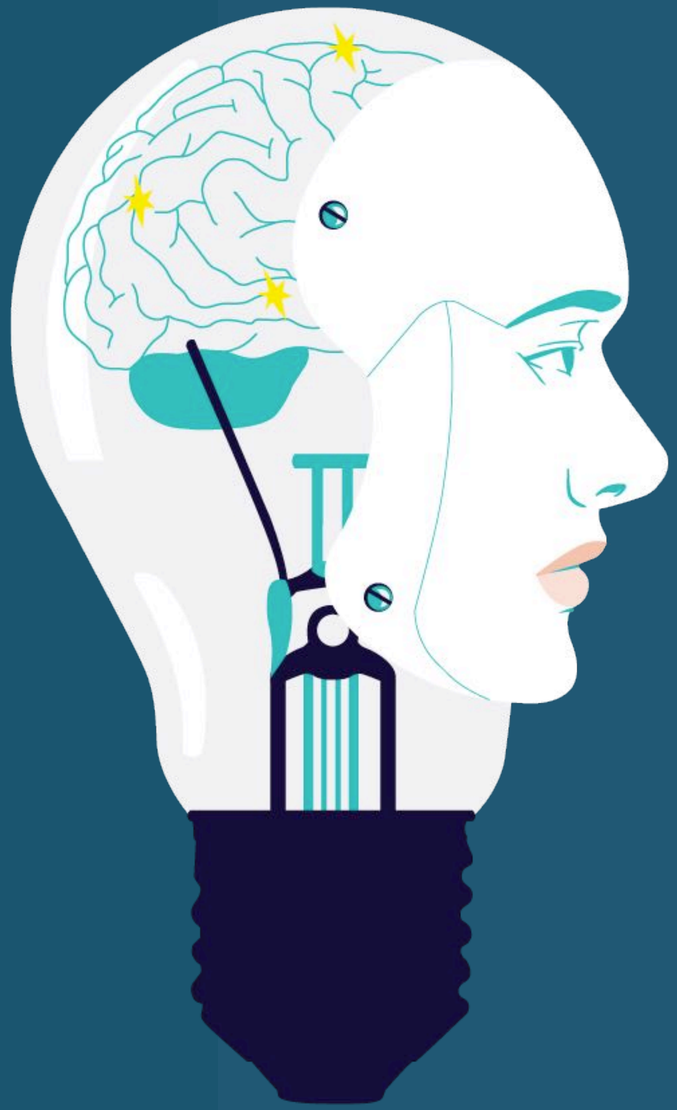
MANIC

TOXIC

Gerd

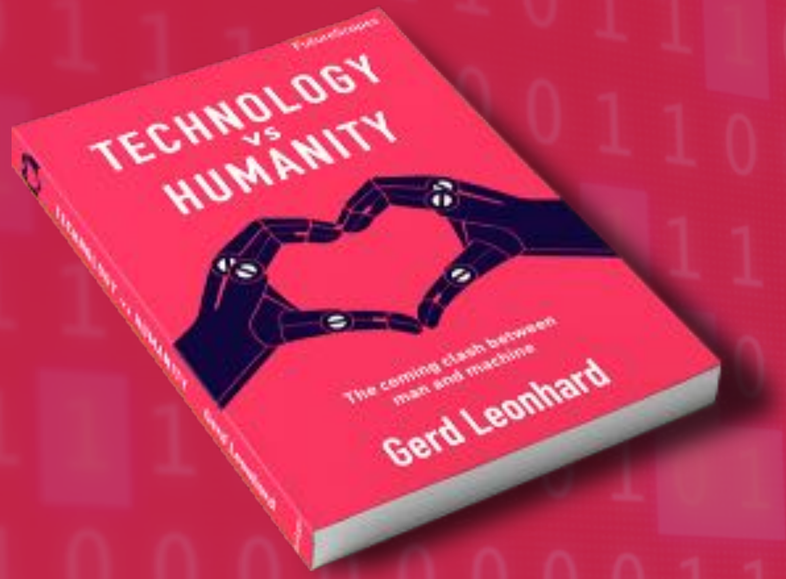
Invest as much in humanity (HI) than you invest in technology (AI)

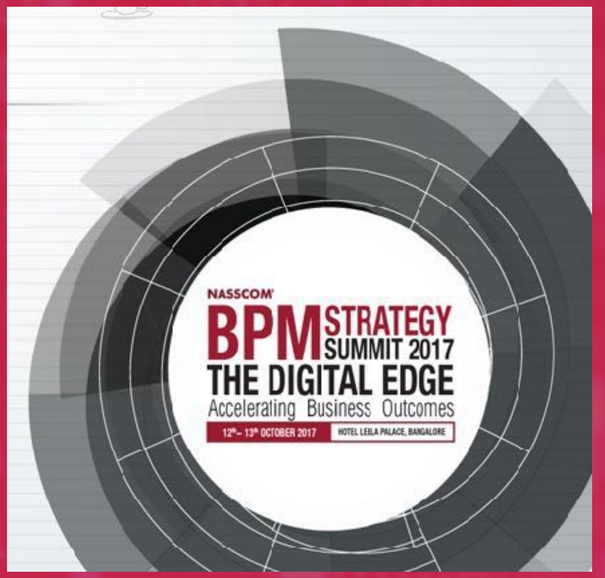




Gerd

Embrace technology
– but don’t become it





Thanks for your time and attention!

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