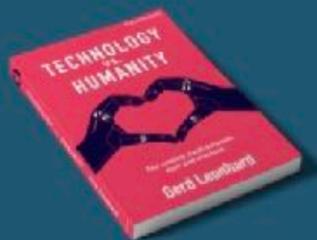


GLOBAL TRANSPORT DEVELOPMENT CHALLENGES



Exponential technological change and the future of humanity



techvshuman.com



[@gleonhard](https://twitter.com/gleonhard)



gerdtube.com



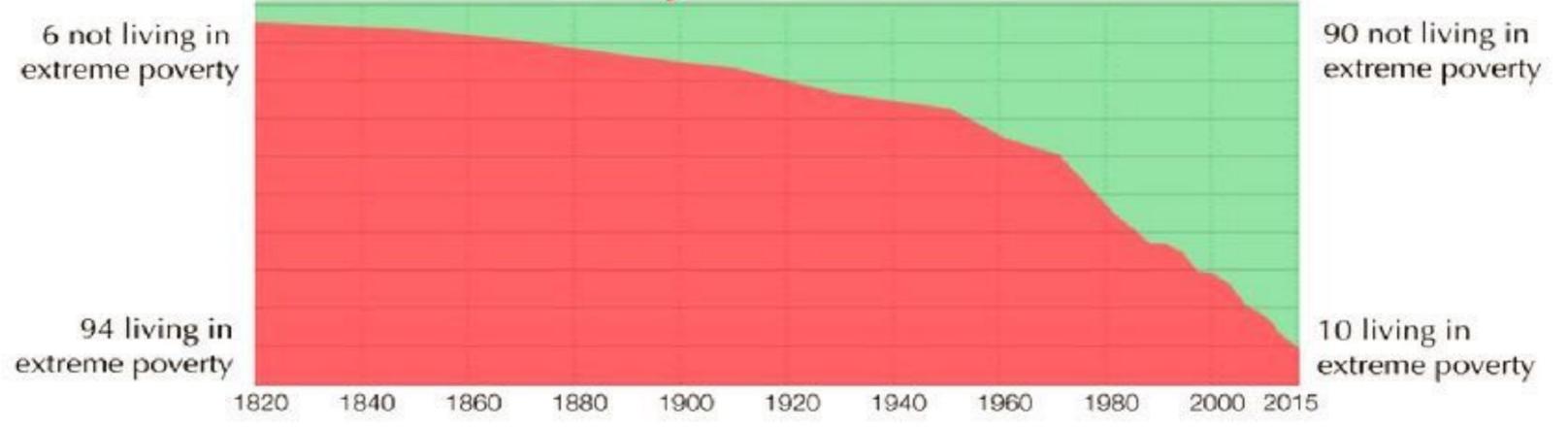
gerdcloud.com



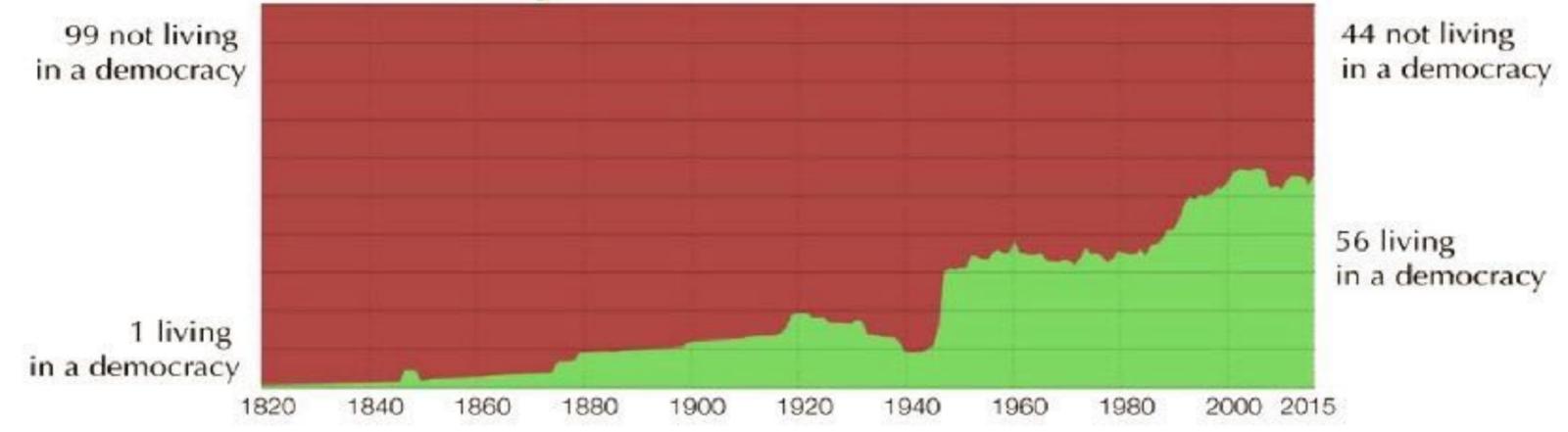
futuristgerd.com

The World as 100 People over the last two centuries

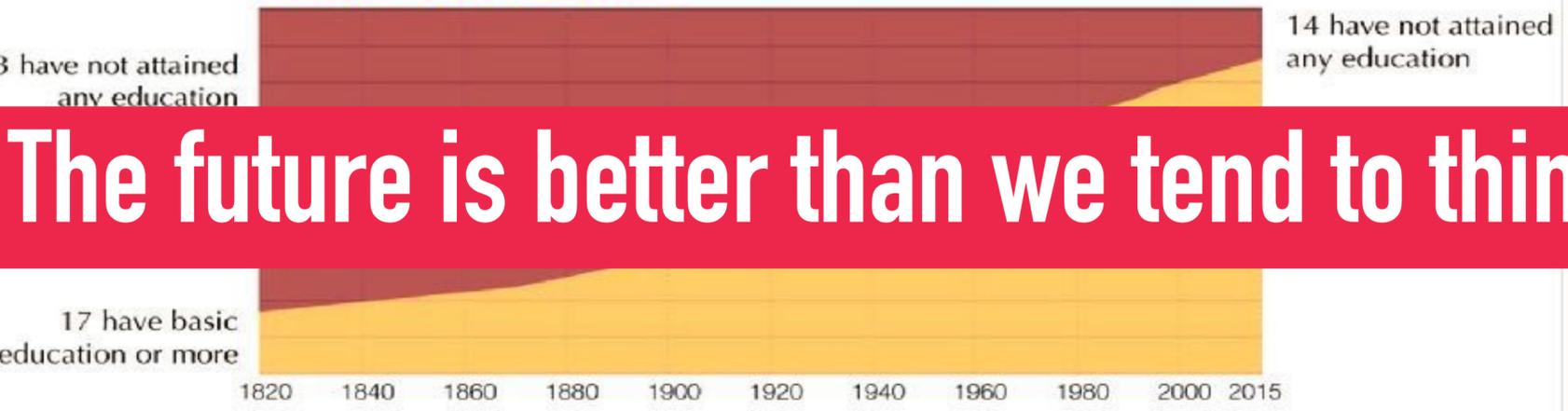
Extreme Poverty



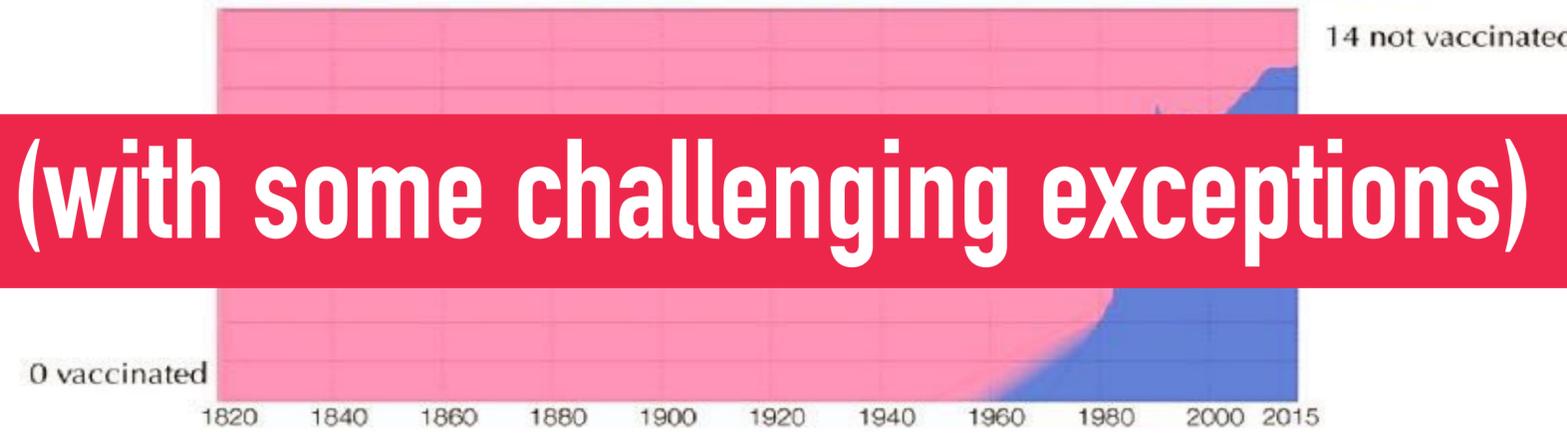
Democracy



Basic Education

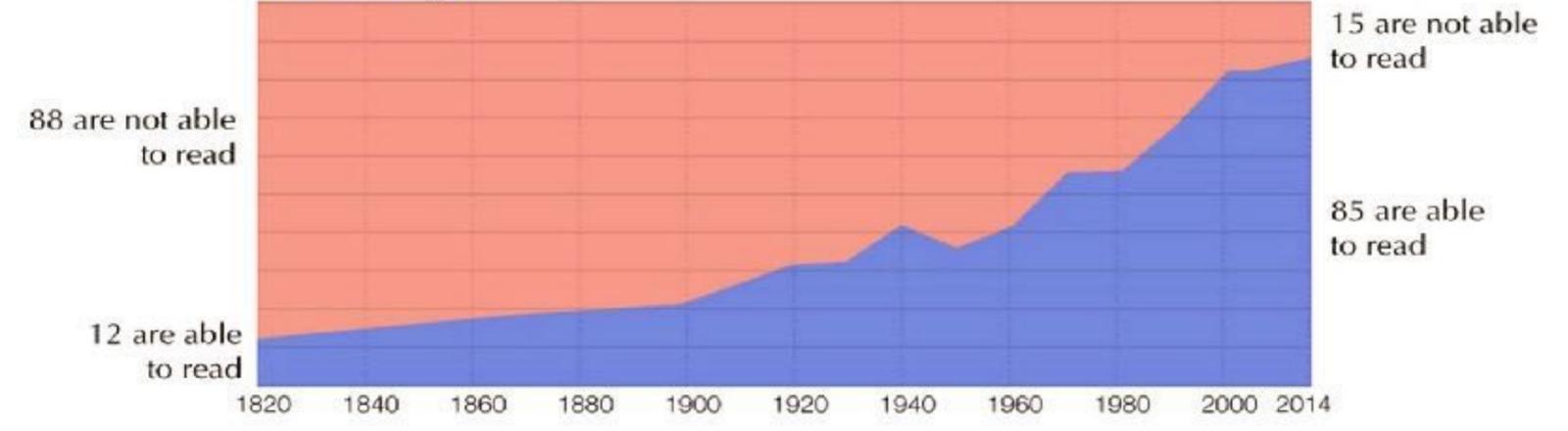


Vaccination against diphtheria, pertussis (whooping cough), and tetanus

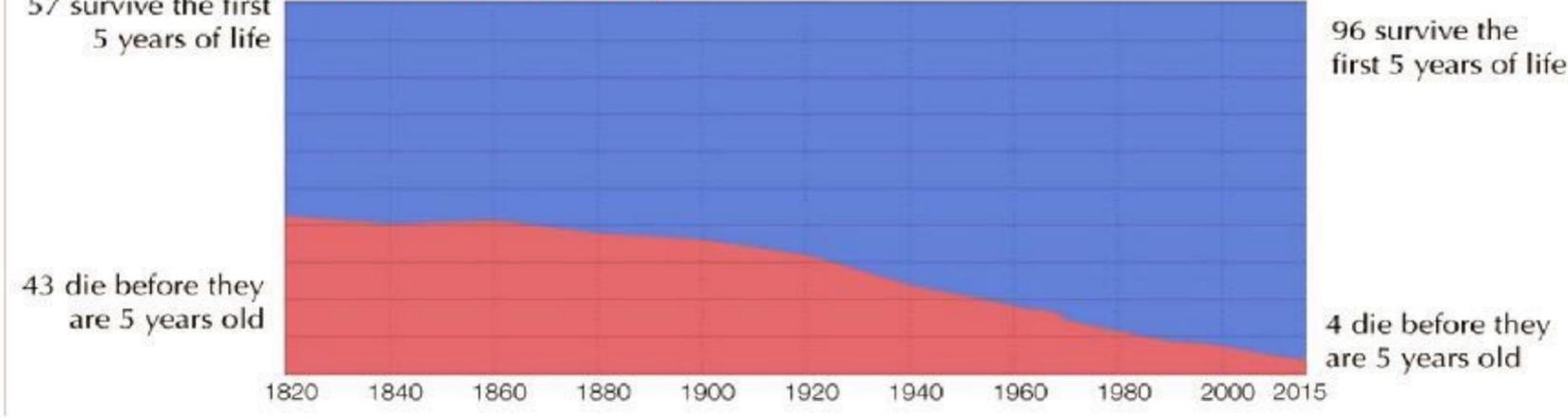


The future is better than we tend to think (with some challenging exceptions)

Literacy

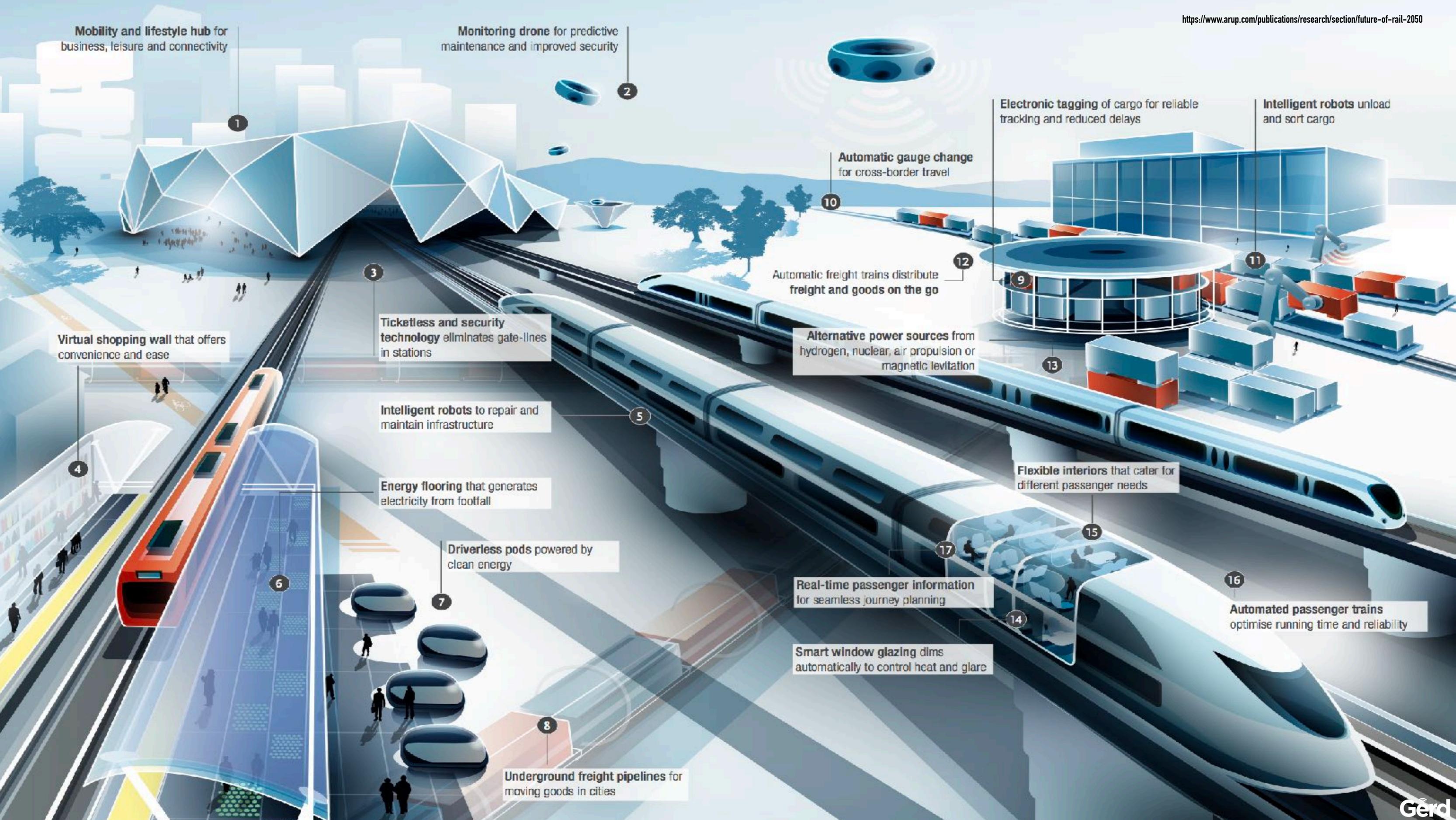


Child Mortality



Hyper-connectivity changes everything





1 Mobility and lifestyle hub for business, leisure and connectivity

2 Monitoring drone for predictive maintenance and improved security

10 Automatic gauge change for cross-border travel

9 Electronic tagging of cargo for reliable tracking and reduced delays

11 Intelligent robots unload and sort cargo

4 Virtual shopping wall that offers convenience and ease

3 Ticketless and security technology eliminates gate-lines in stations

12 Automatic freight trains distribute freight and goods on the go

13 Alternative power sources from hydrogen, nuclear, air propulsion or magnetic levitation

5 Intelligent robots to repair and maintain infrastructure

14 Flexible interiors that cater for different passenger needs

6 Energy flooring that generates electricity from footfall

7 Driverless pods powered by clean energy

15 Real-time passenger information for seamless journey planning

16 Automated passenger trains optimise running time and reliability

8 Underground freight pipelines for moving goods in cities

17 Smart window glazing dims automatically to control heat and glare



Science fiction is increasingly becoming science fact





amazon

We're at the
pivot point
of exponential
change

THE SINGULARITY

(the inflection point towards infinite computing power)

The end of oil

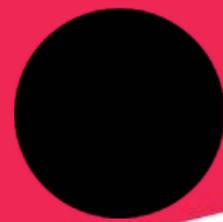
Artificial Intelligence (AI)

Quantum Computing

Smart-everything

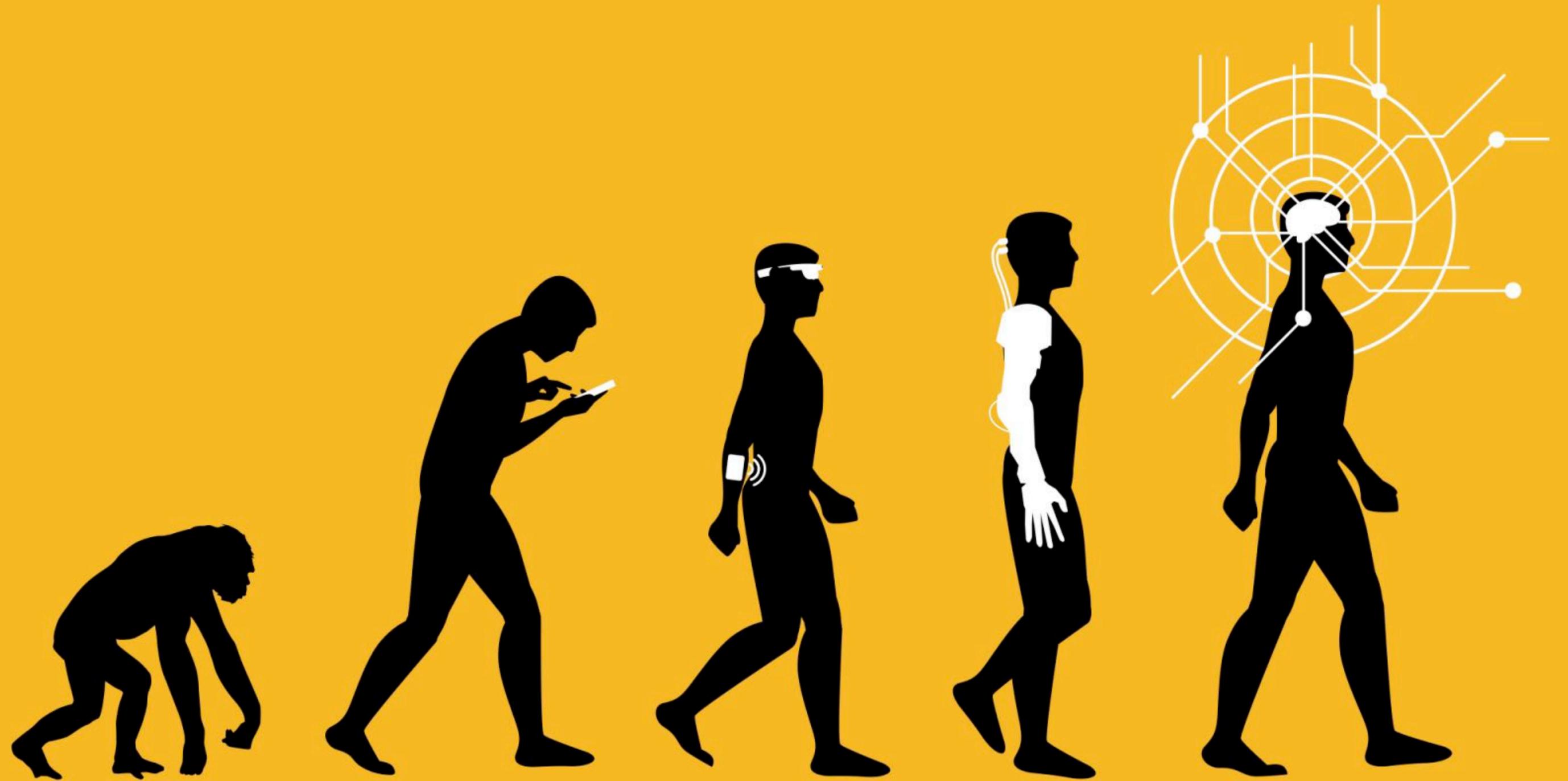
The Internet of Things

Hyper-connectivity

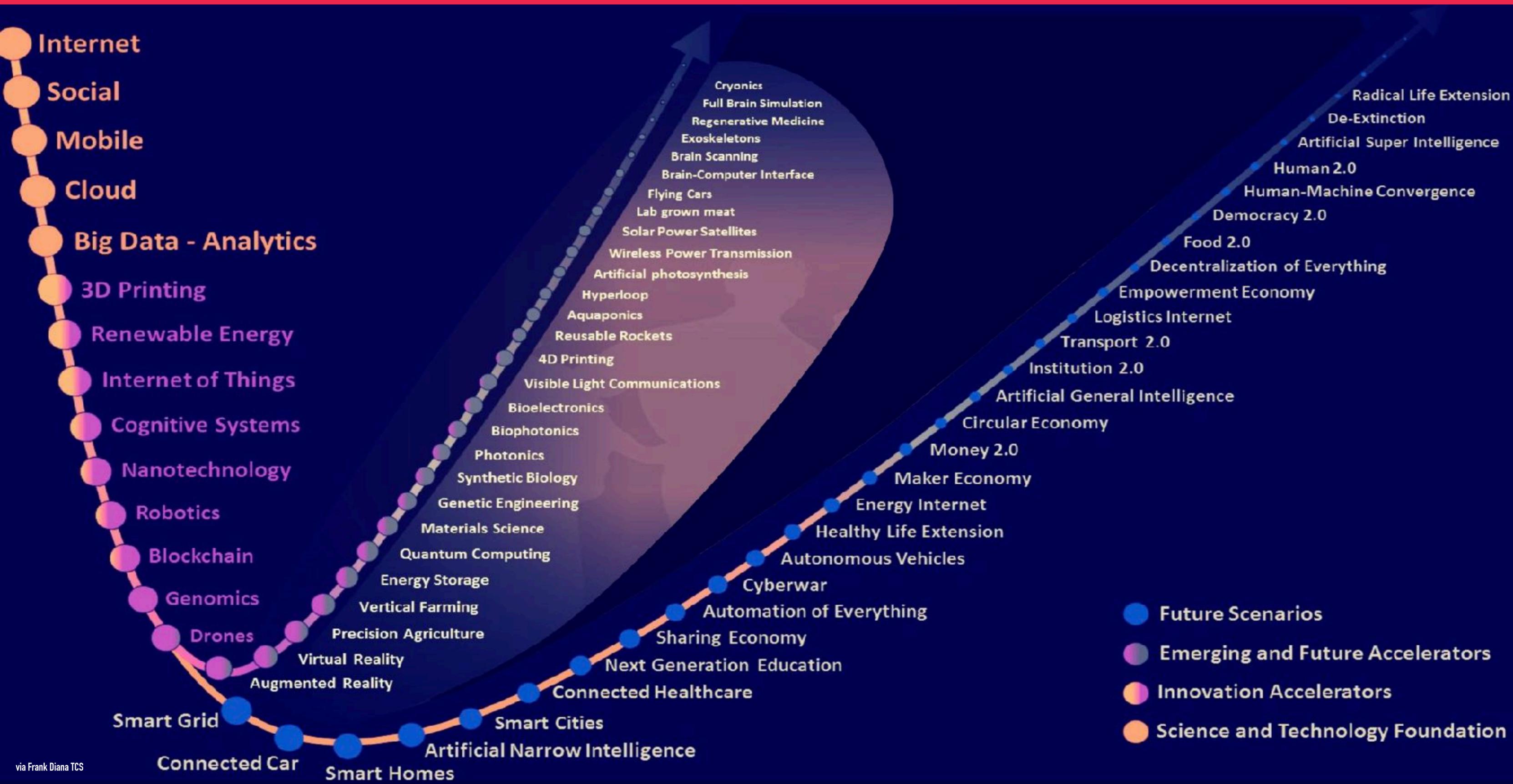


1 2 **4** 8 16 32 64 128

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

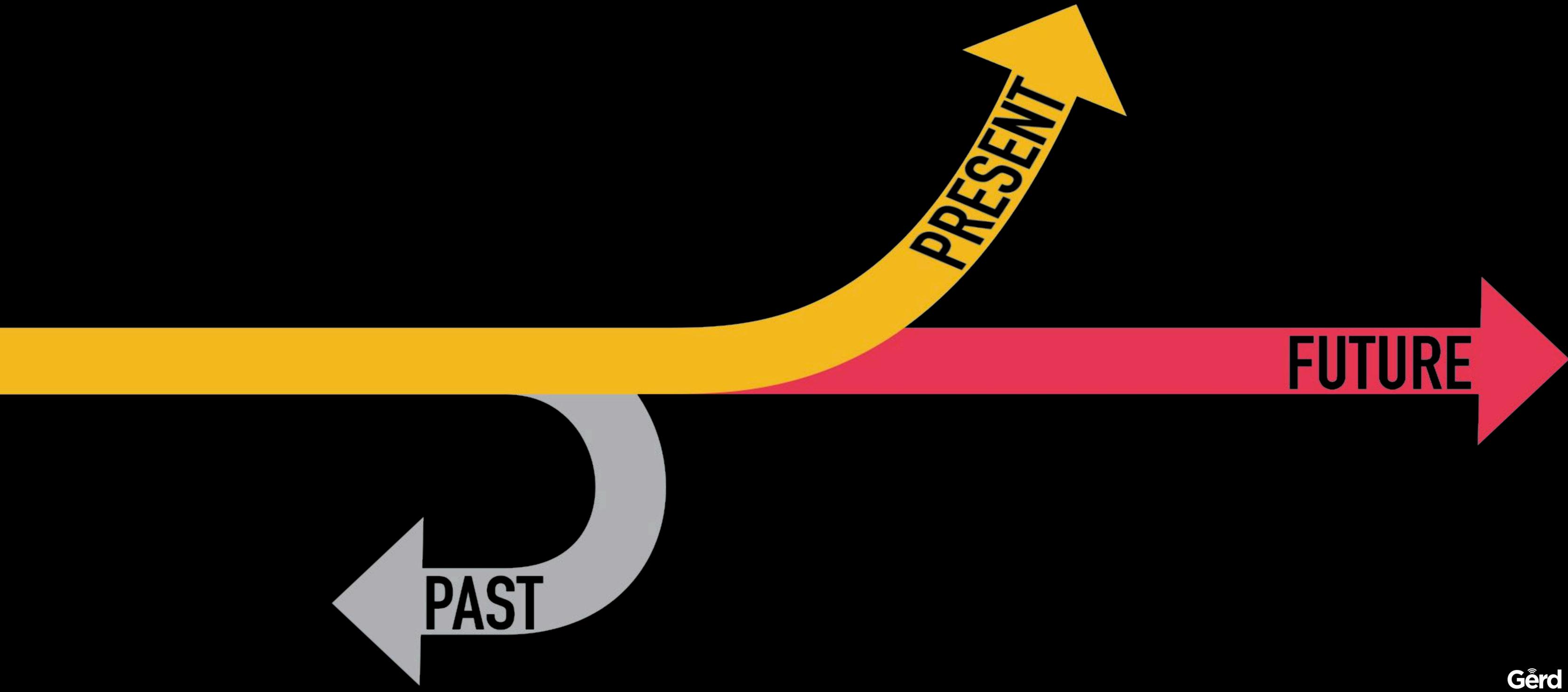


Everything is connected: we must take a wider view to realize new opportunities



The ability to think 'from the future' as opposed to 'about the future' is crucial

The future is no longer an extension of the present



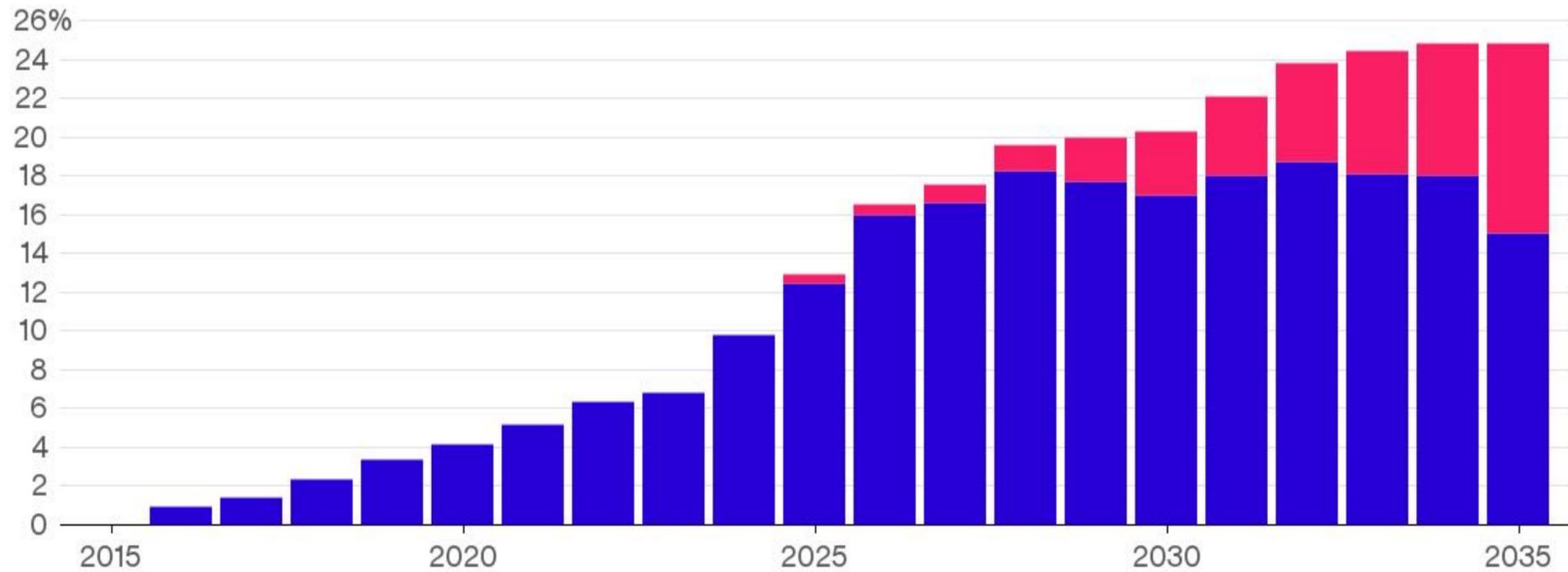
**Business
as usual
is dead
(or dying)**



Autonomous Car Sales Will Surge By 2035

The cars will represent 25 percent of the global market

■ Partially autonomous cars ■ Fully autonomous cars



Source: The Boston Consulting Group

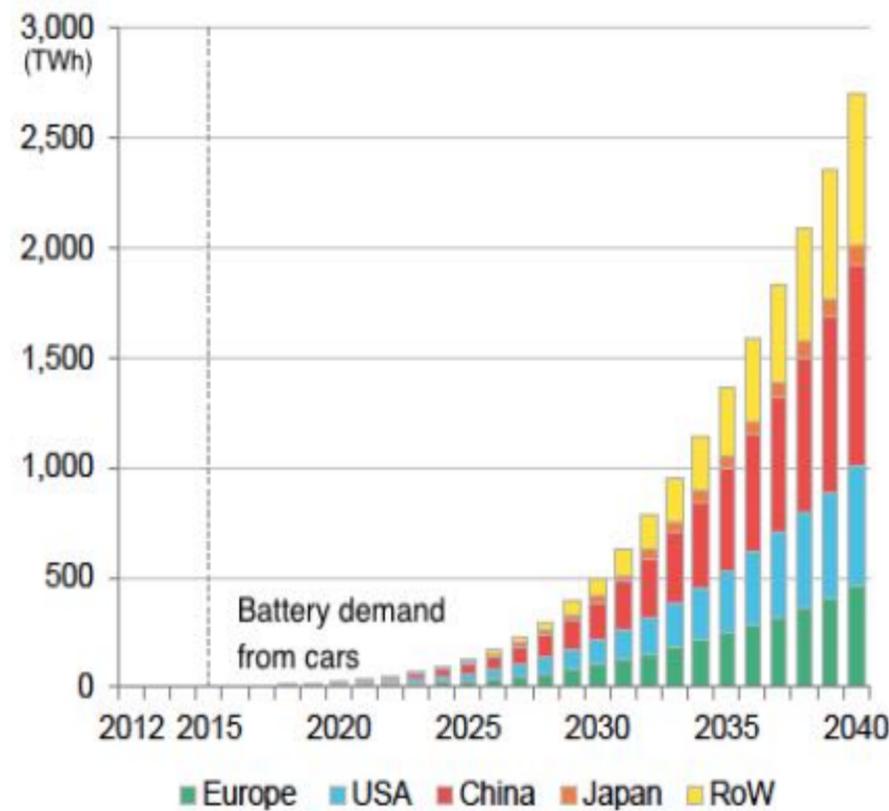
Note: 2015 data

Bloomberg

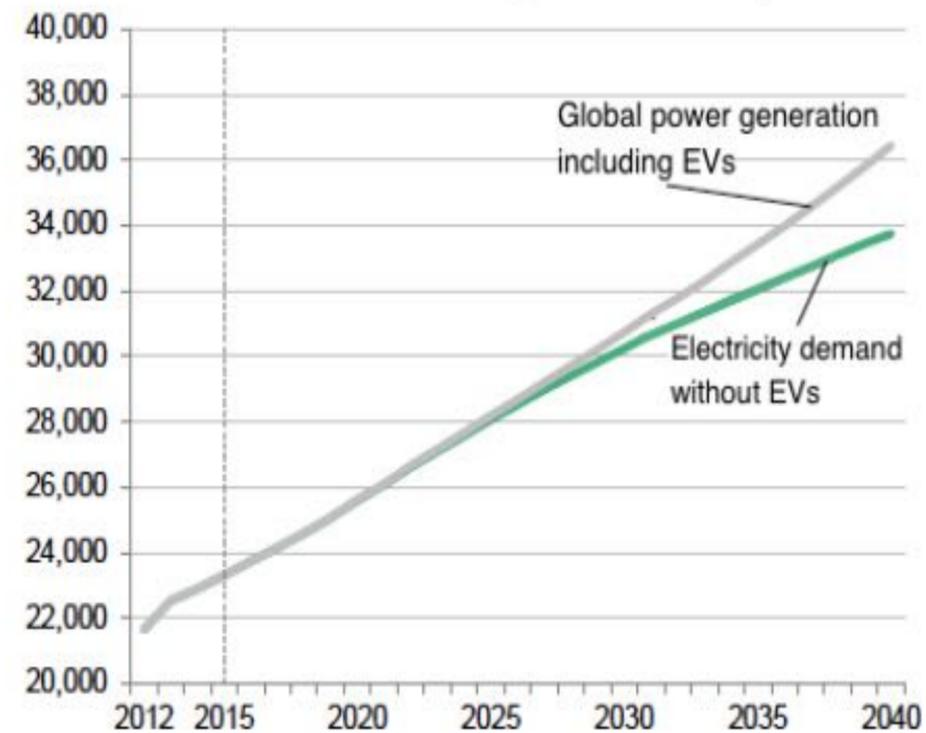
Business
as usual
is dead
(or dying)

Electric Cars Go Mainstream

Plug-in vehicles hit the accelerator



EVs boost electricity demand by 8%



Bloomberg New Energy Finance

**Business
as usual
is dead
(or dying)**



Business . . .

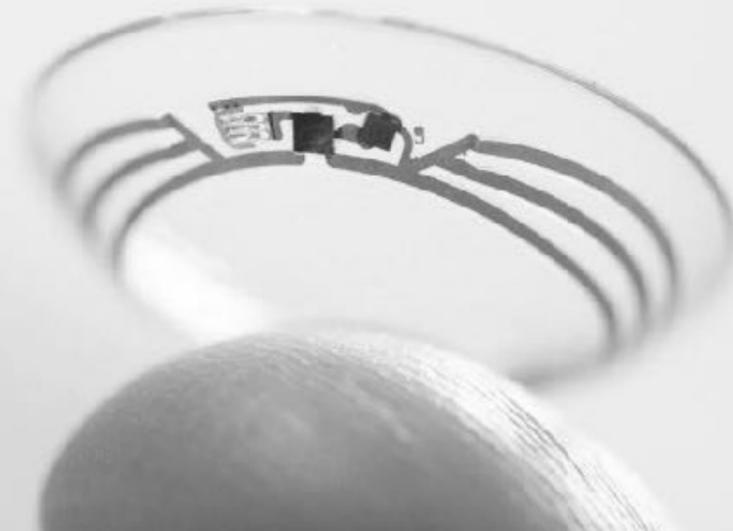
. . . unusual



**Build Your Own Electric Car:
Now All Of Tesla's Patents Are
Open Source**

Google Partners With Novartis To Make Smart Contact Lenses

The partnership could have huge implications in the development of tiny, invisible computers.



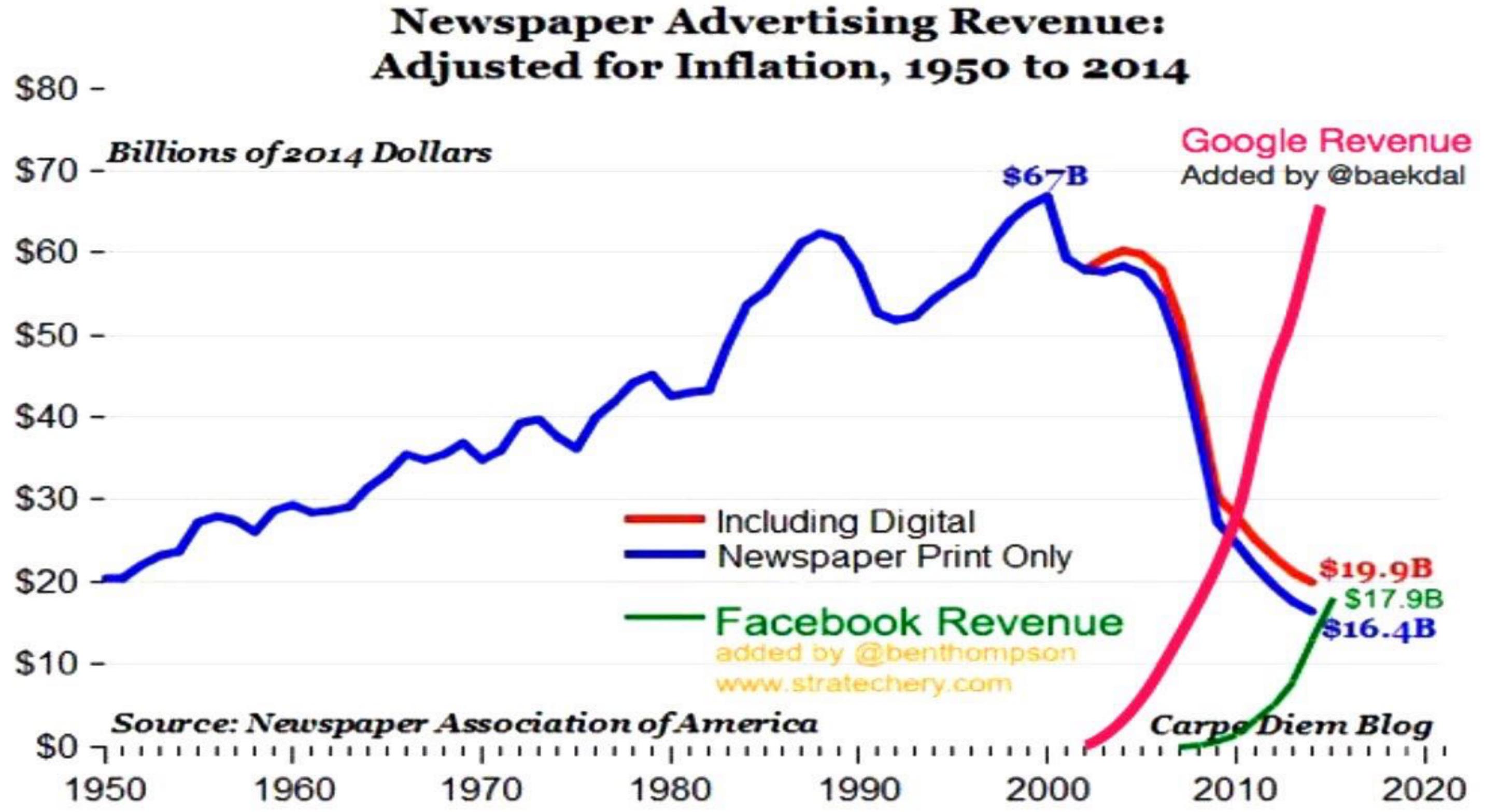
Source: Mary Meeker / KPCB 2017

2017 Global Internet Market Capitalization Leaders = Most Extending Leads

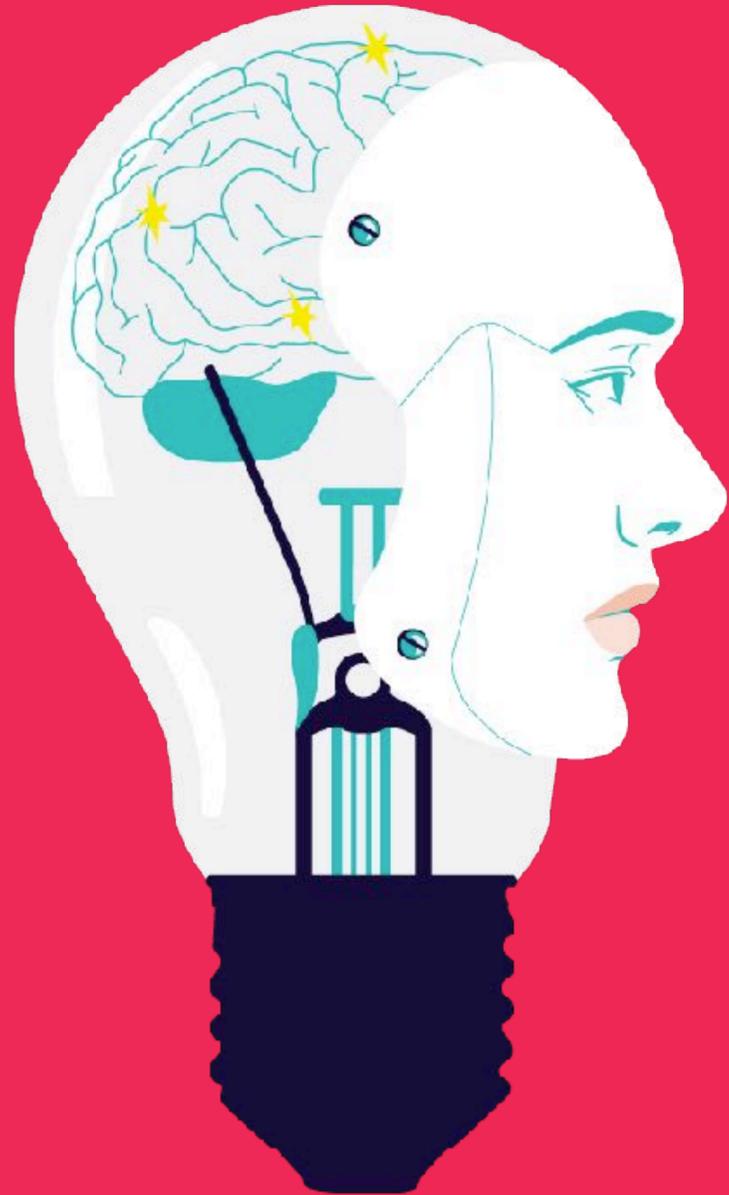
Apple / Google-Alphabet / Amazon / Facebook / Tencent / Alibaba

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

Transportation: get ready for similar 'gradually then suddenly' changes



Technology

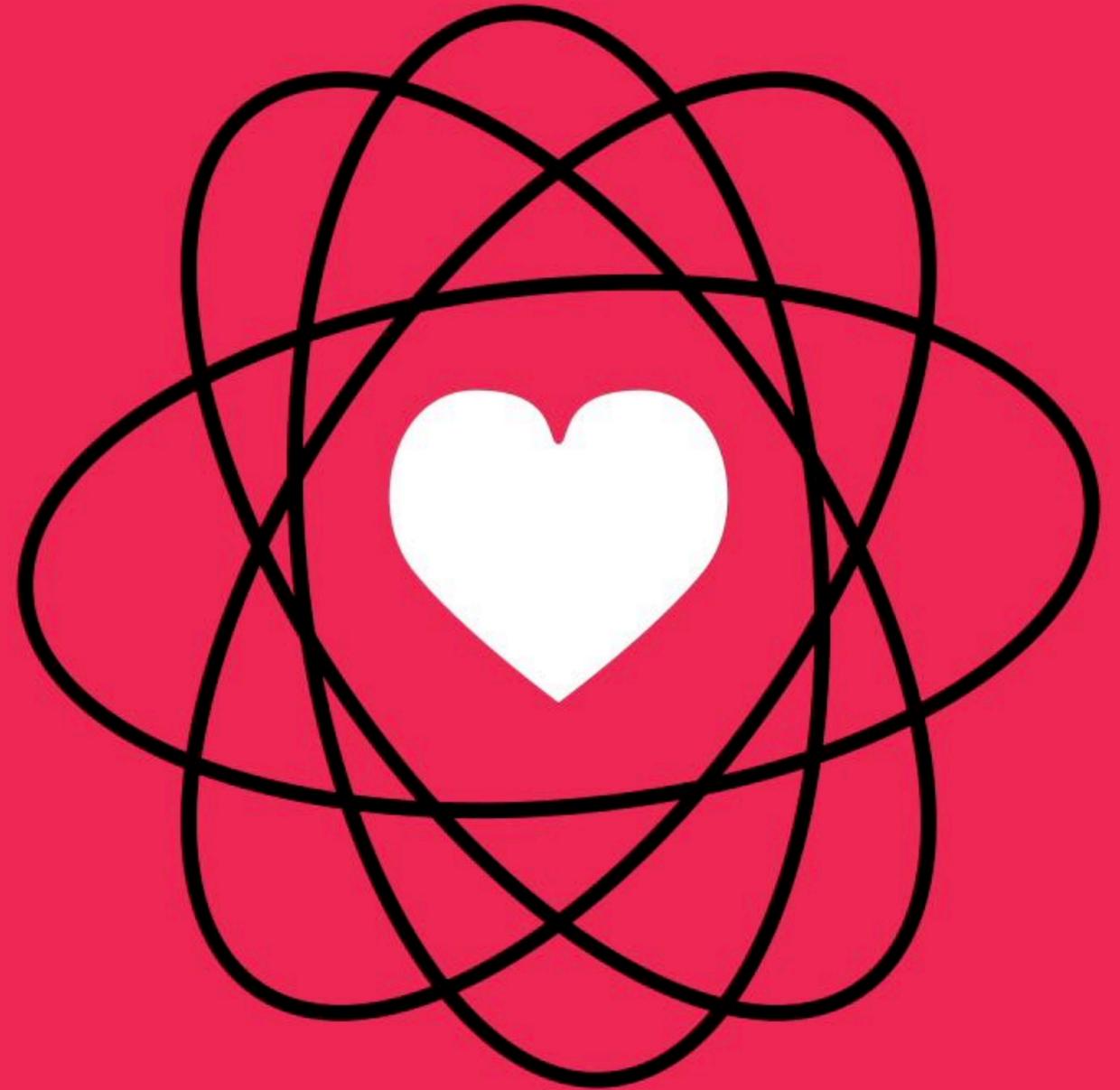


Algorithms



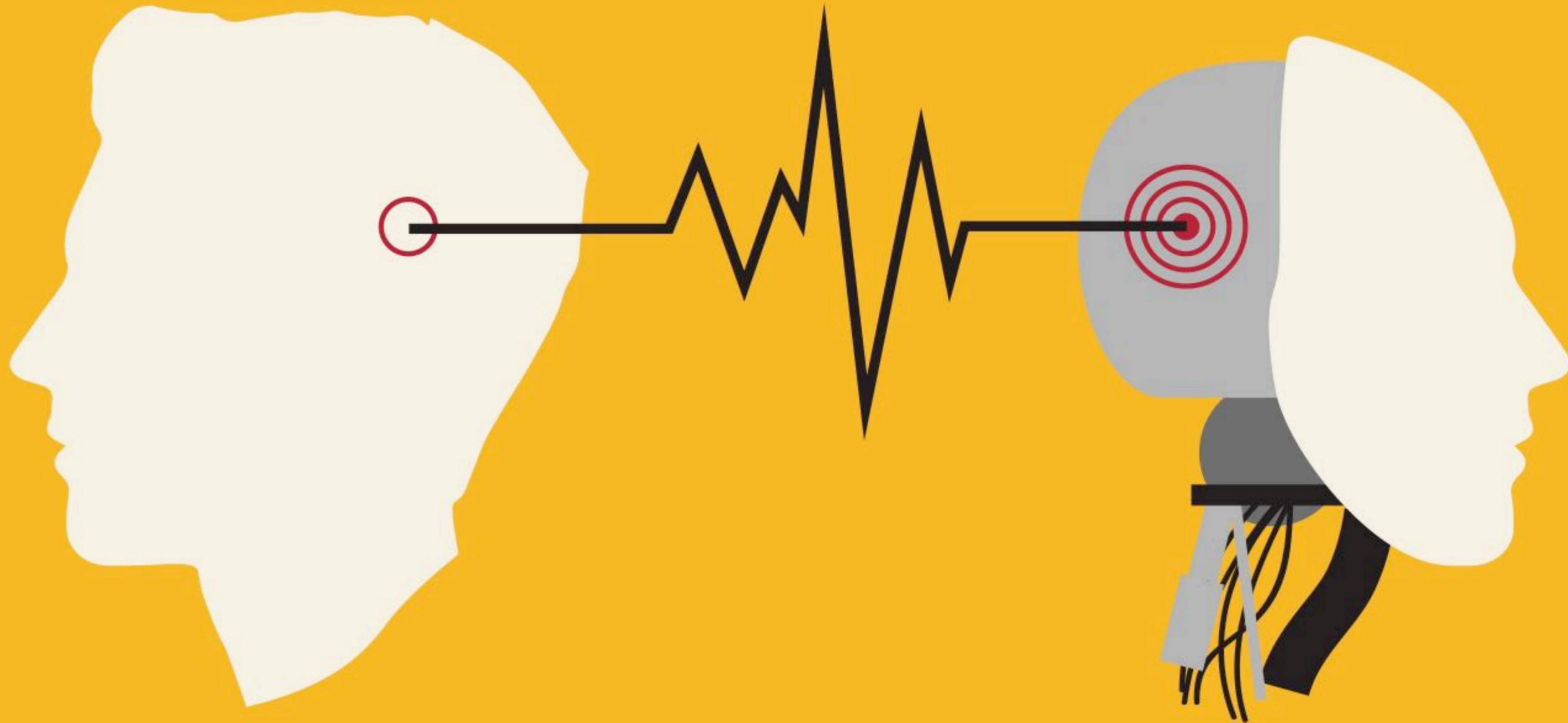
Humanity

Gerd

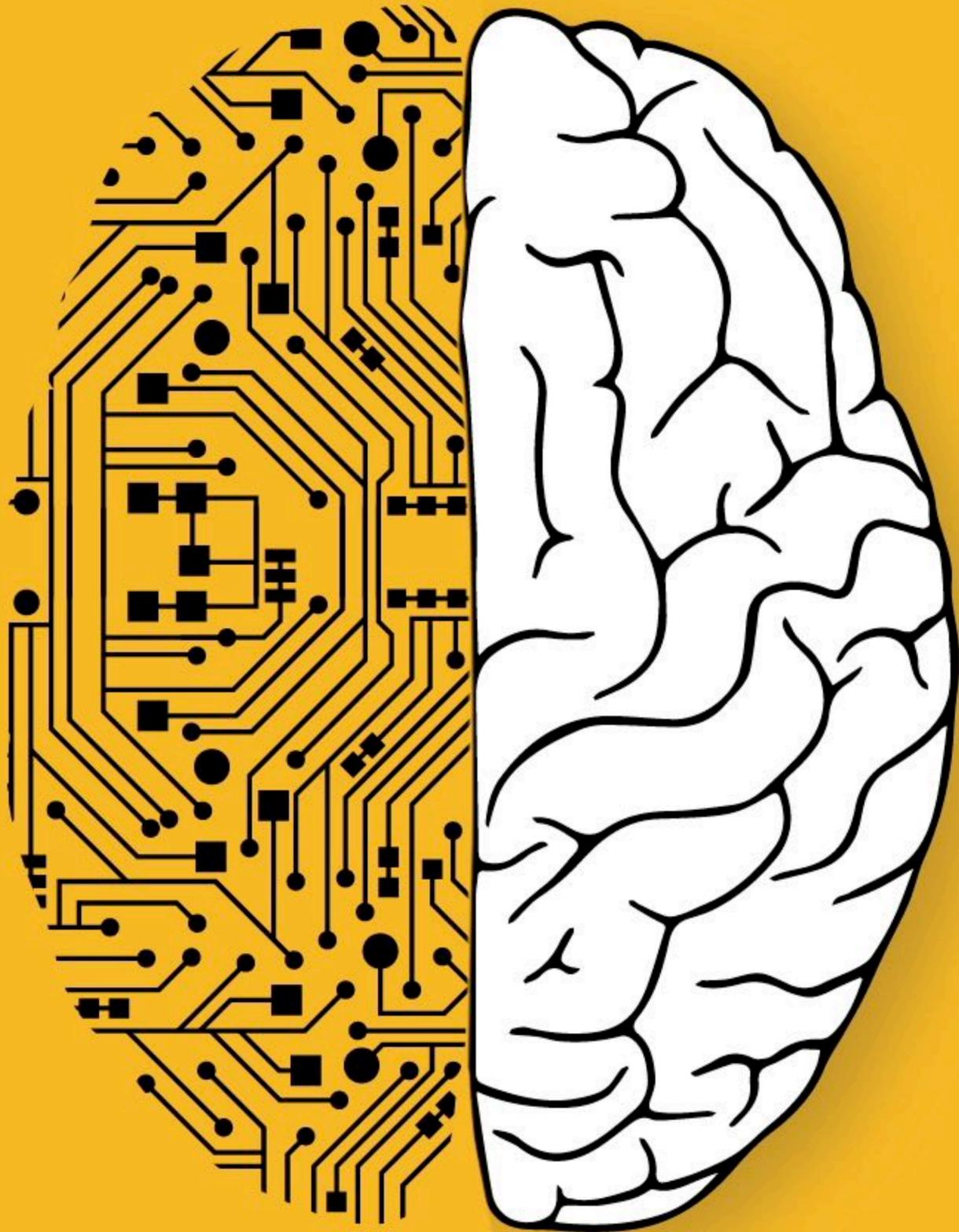


Androrithms

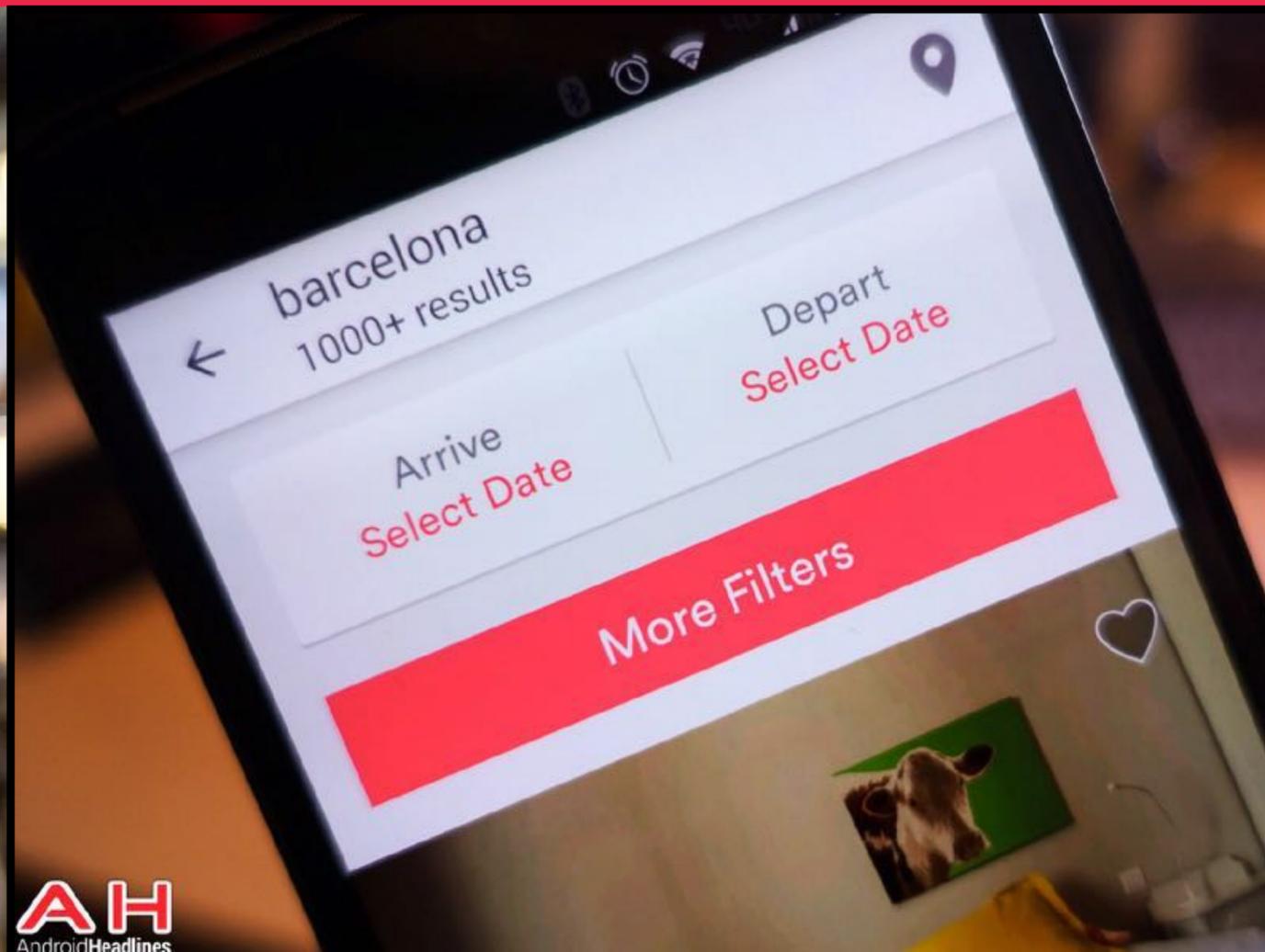
Years not decades: ethical issues are exploding



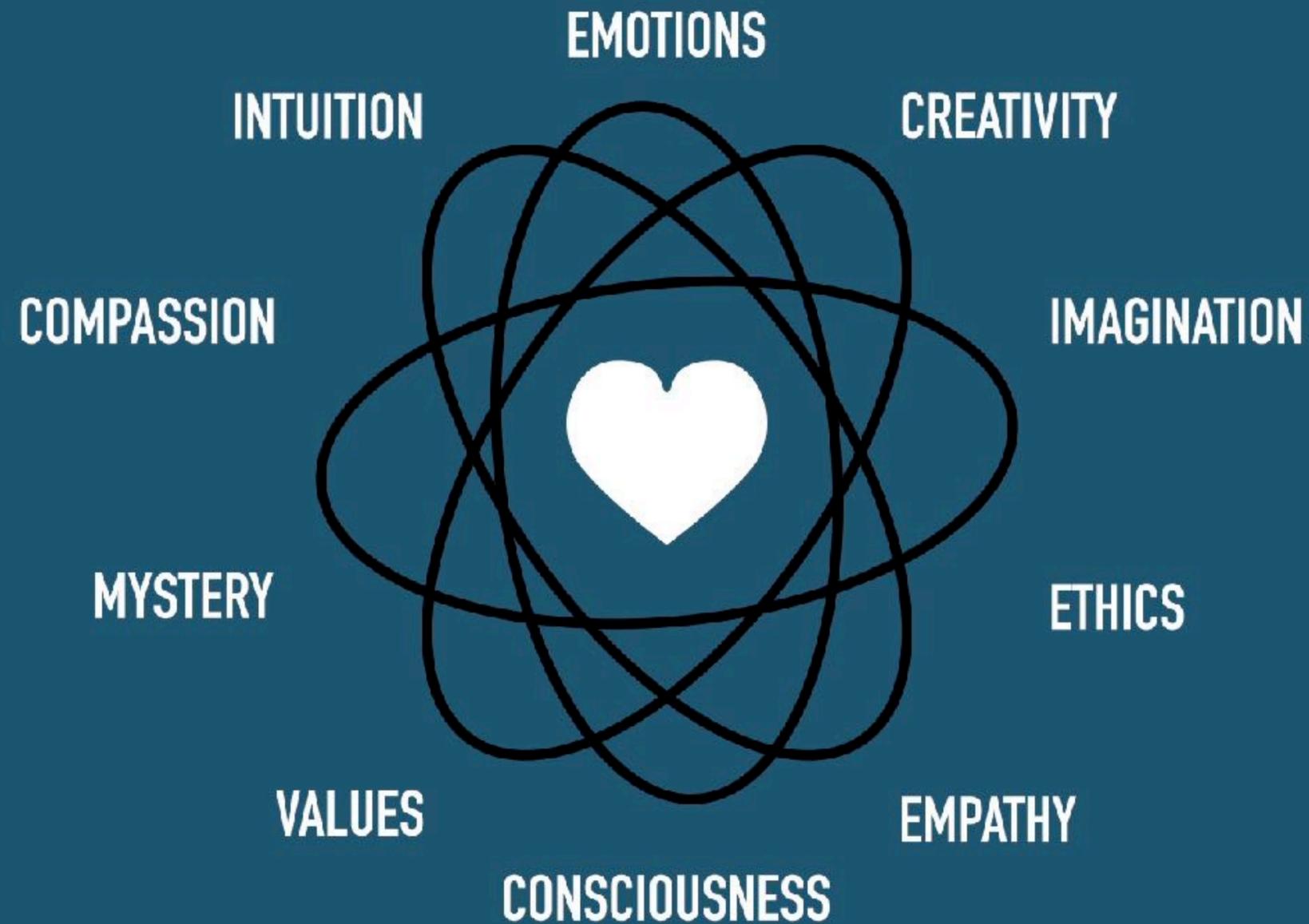
So how computable are we?



“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)



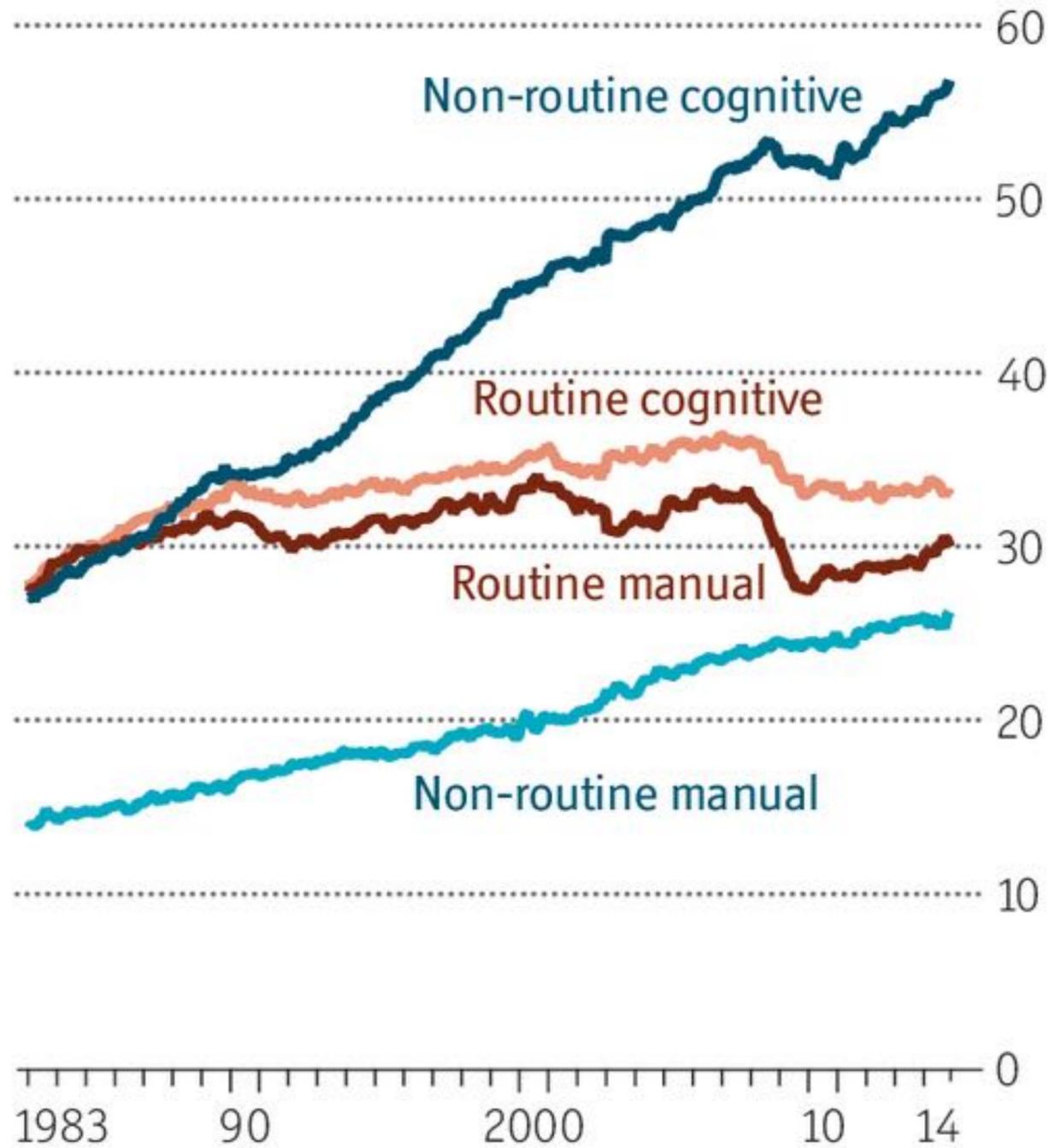
Anything that can be digitized or automated, will be...



But anything that cannot be digitized or automated will become much more valuable

Think

United States employment, by type of work, m



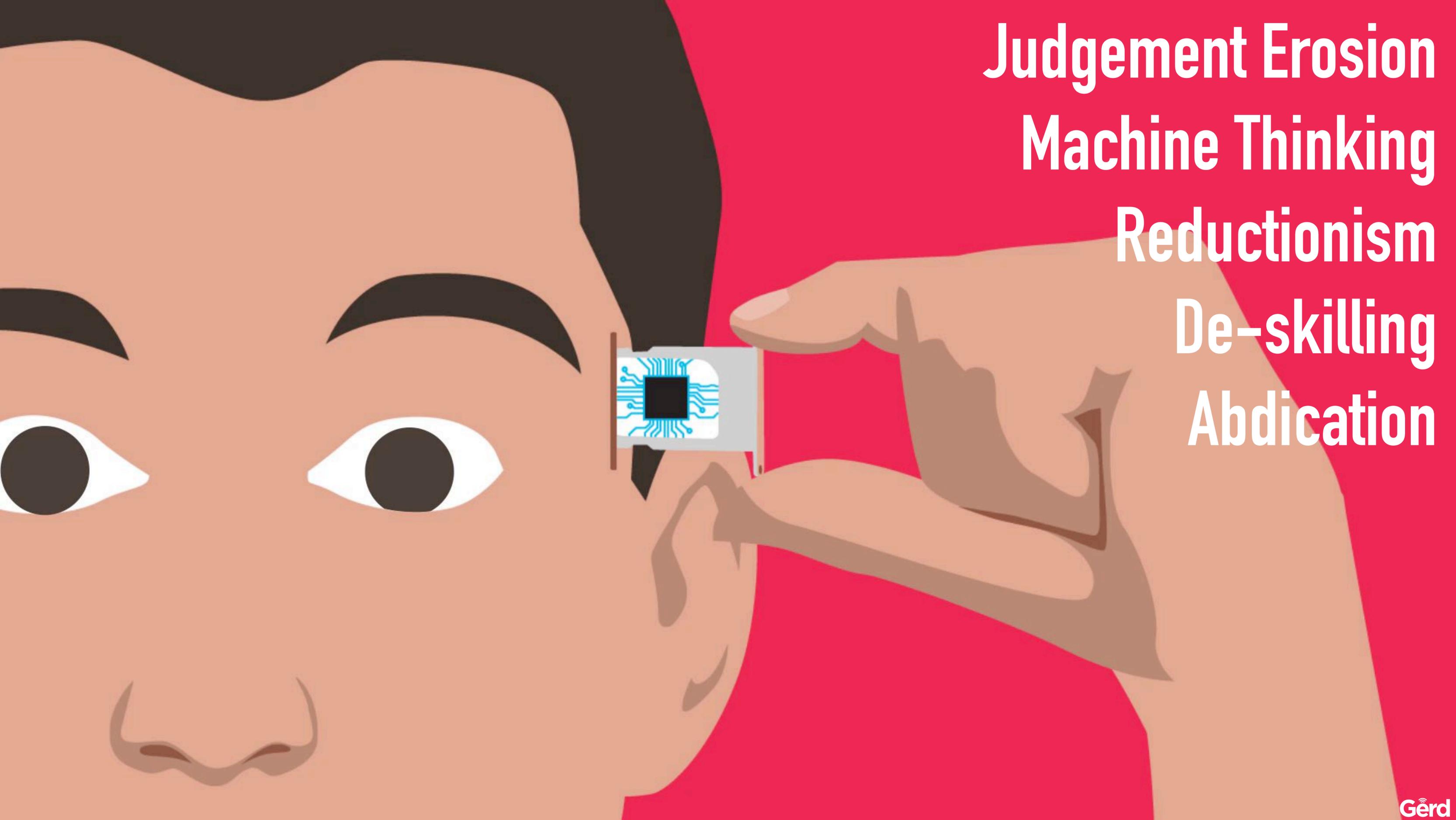
Sources: US Population Survey; Federal Reserve Bank of St. Louis

2020

- 1 Complex Problem Solving
- 2 Critical Thinking
- 3 Creativity
- 4 People Management
- 5 Coordinating with Others
- 6 Emotional Intelligence
- 7 Judgement and Decision Making
- 8 Service Orientation
- 9 Negotiation
- 10 Cognitive Flexibility

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





Judgement Erosion

Machine Thinking

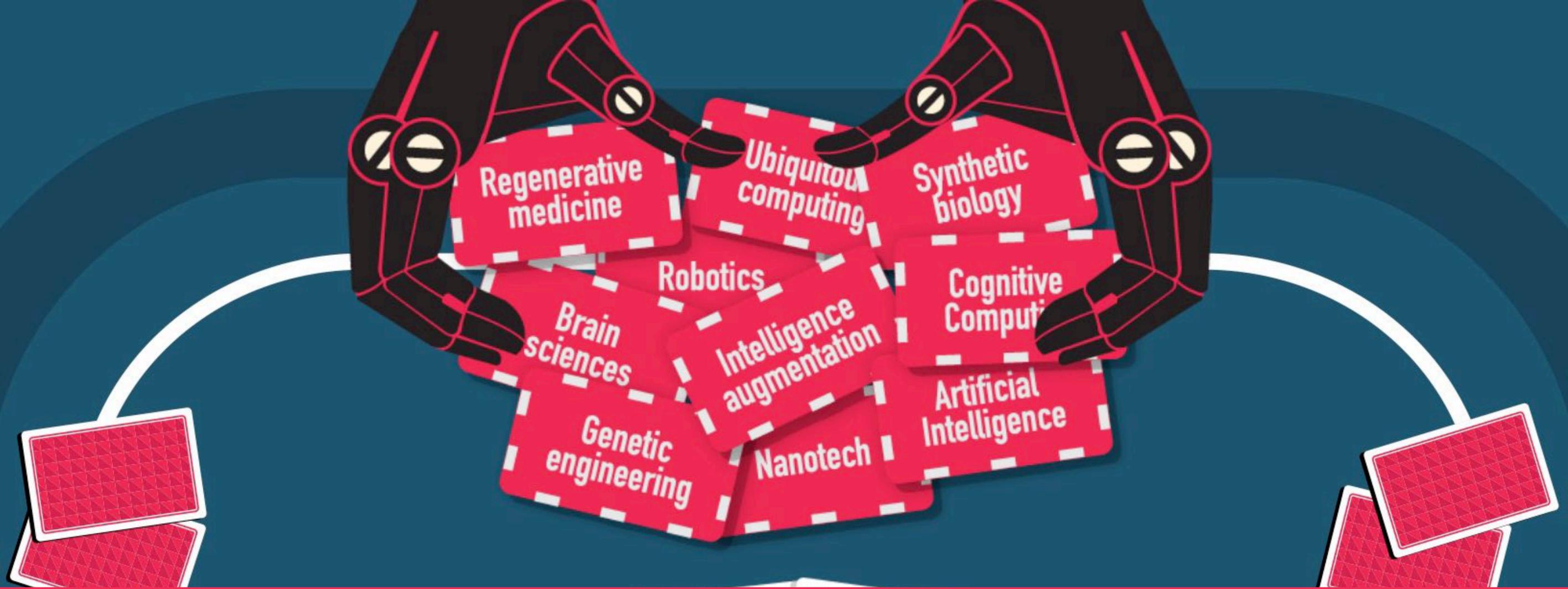
Reductionism

De-skilling

Abdication



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



Intelligent machines will change our world more than any other invention of the past 50 years







LEFT REARWARD VEHICLE CAMERA

MEDIUM RANGE VEHICLE CAMERA

RIGHT REARWARD VEHICLE CAMERA

MOTION FLOW
LANE LINES
LANE LINES
ROAD FUTURE
OBSTACLE OBJECTS
ROAD CURVES
OBJECTS
ROAD SIGNS



Robit can help you
to maintain your diet



- MAIN
- Browse
- Activity
- Radio

- YOUR MUSIC
- Songs
- Albums
- Artists
- Local Files

- PLAYLISTS
- Starred
- Discover Weekly by Spotify
- The Verge Playlist - Have a Chill...
- The Verge Playlist - Rihanna is a Ge...

+ New Playlist

 True Trans Soul Rebel
Against Me! +



PLAYLIST

Discover Weekly

Your weekly mixtape of fresh music. Enjoy new discoveries and deep cuts chosen just for you. Updated every Monday, so save your favourites!

Created by: **Spotify** - 30 songs, 1 hr 53 min

PAUSE FOLLOWING ...

Available Offline

	SONG	ARTIST	
◀ +	True Trans Soul Rebel <small>EXPLICIT</small>	Against Me!	n day ago
+	Still Hurting	Jason Robert Brown	a day ago
+	Thought Of You	Justin Bieber	a day ago
+	Just Another Night	Icona Pop	a day ago
+	Bind Your Love	Cher Lloyd	a day ago
+	Tell Her You Love Her	Echosmith	a day ago
+	Popular Song	MIKA	a day ago



IGN
((NEWS))

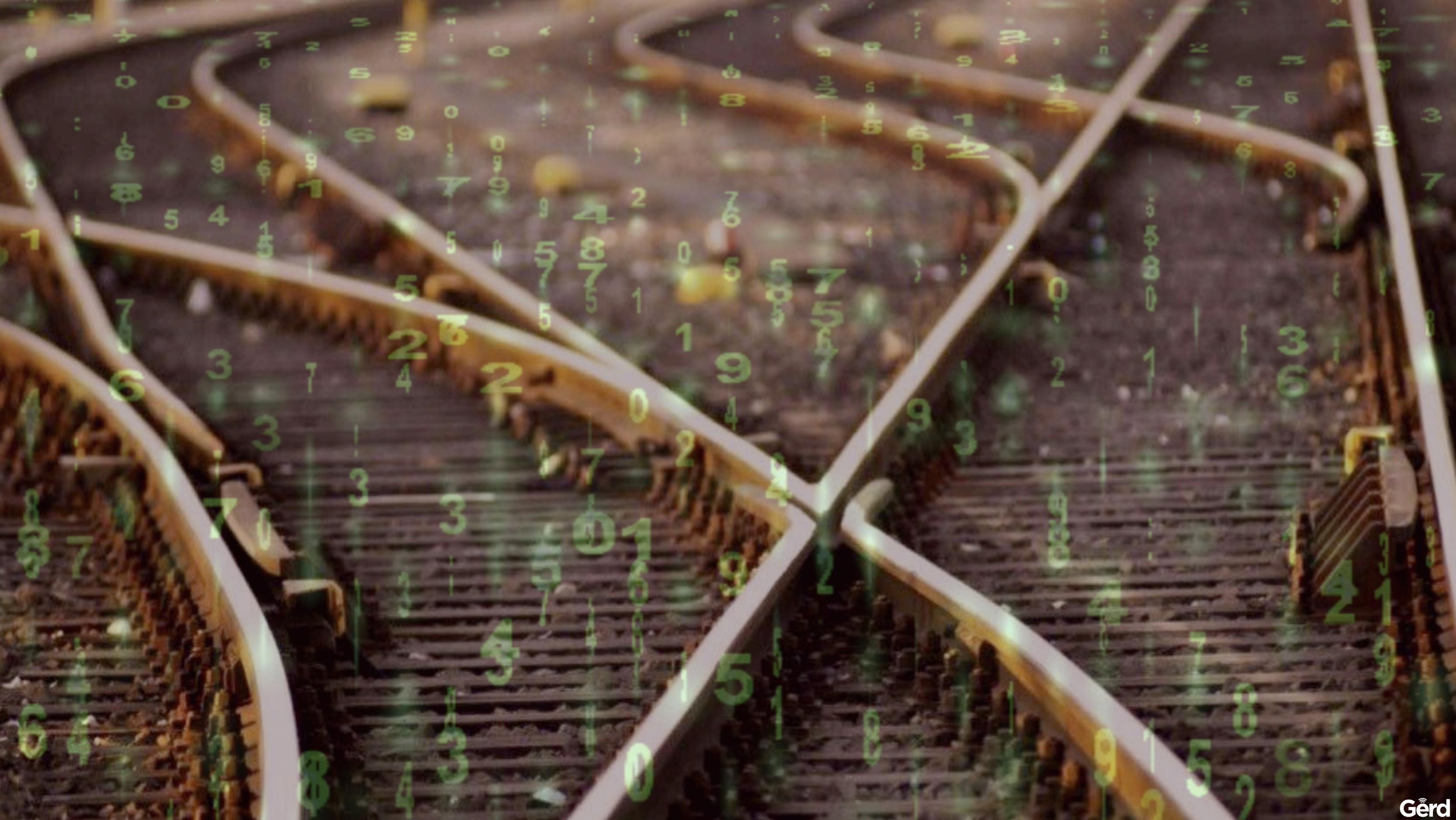
04.NOV.15



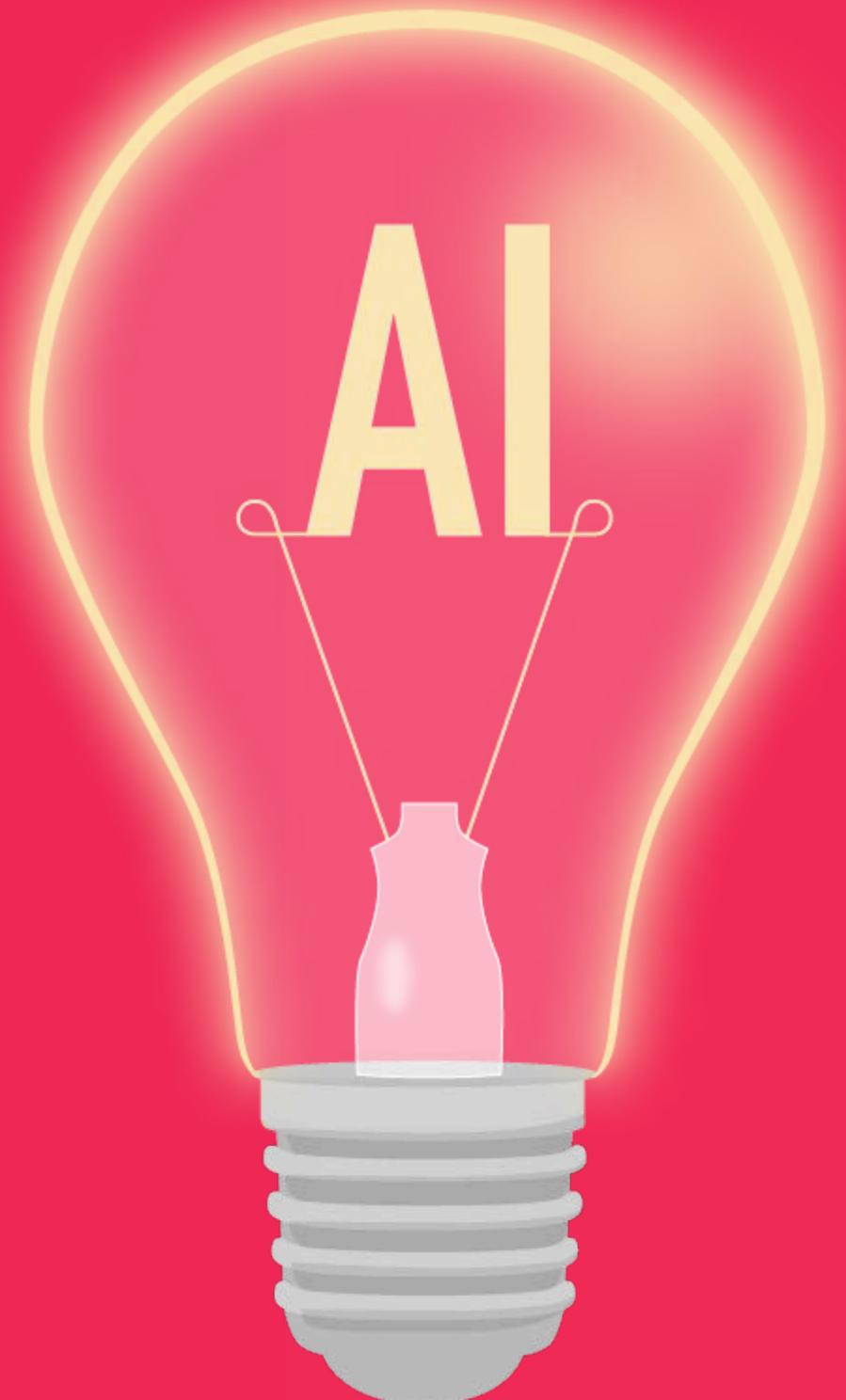
**TECH
NEWS**

EMAIL'S NEW AI WILL ANSWER YOUR EMAILS

Scans your emails and generates responses



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



The Future Of A.I.

Forecasted cumulative global artificial intelligence revenue 2016-2025, by use case (U.S. dollars)



@StatistaCharts

* From geospatial images

Source: Tractica

statista

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.

“Artificial intelligence is the future, not only for Russia, but for all humankind,” said Putin, reports *RT*. “It comes with colossal opportunities, but also threats that are difficult to predict. Whoever becomes the leader in this sphere will become the ruler of the world.”

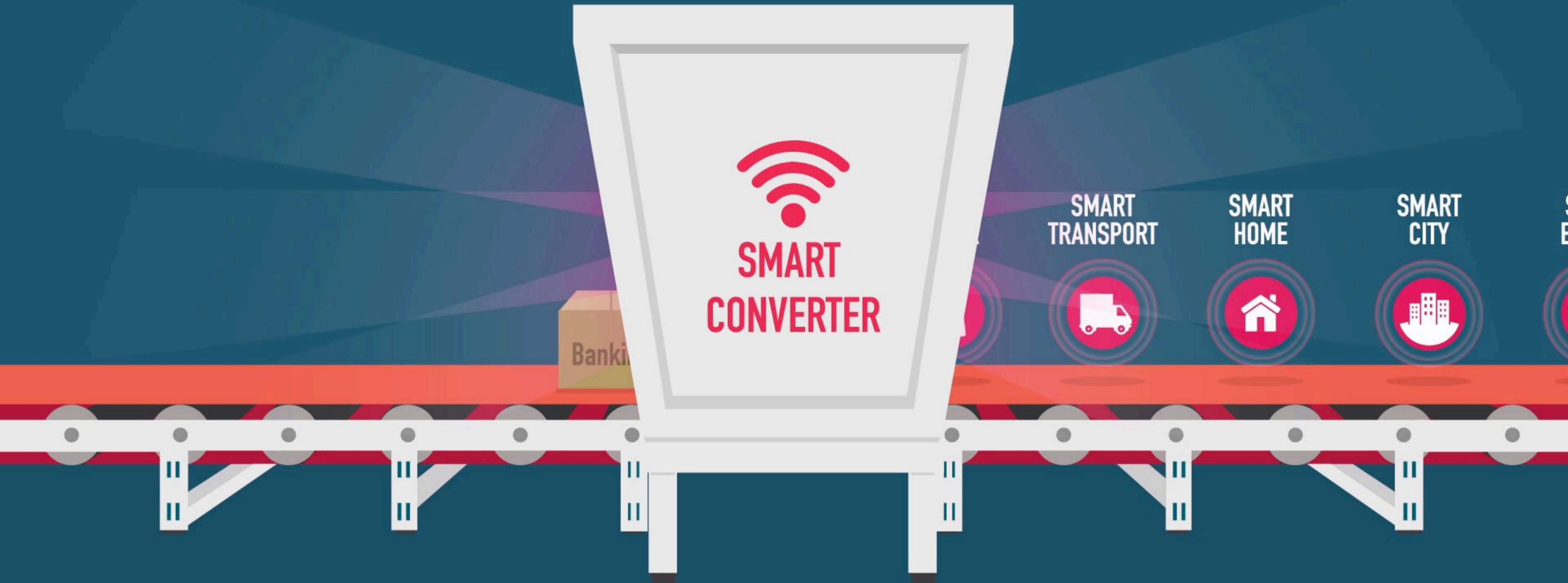
Beijing Wants A.I. to Be Made in China by 2030

[点击查看本文中文版](#)

By PAUL MOZUR JULY 20, 2017



Everything is becoming networked, intelligent and real-time:
huge impact on transportation, shipping, logistics, supply-chain



Data^x + Cloud + IoT + AI: a new Meta-Intelligence



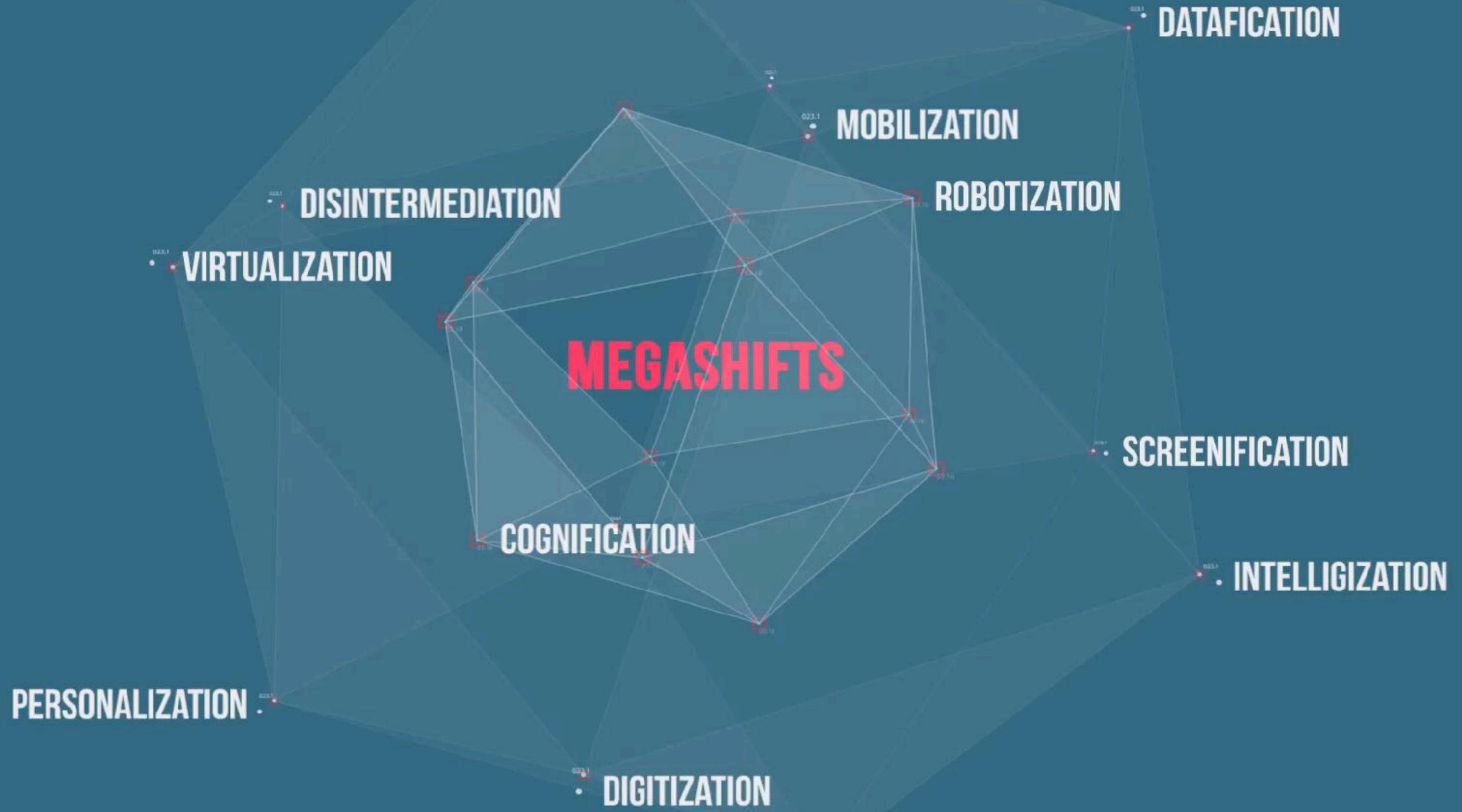
Data^x + Cloud + IoT + AI: a new Meta-Intelligence



Efficiency is only the first step: use technology to do
NEW THINGS not just to do better or cheaper things



The Megashifts impacting transportation, railways and logistics



Digitization

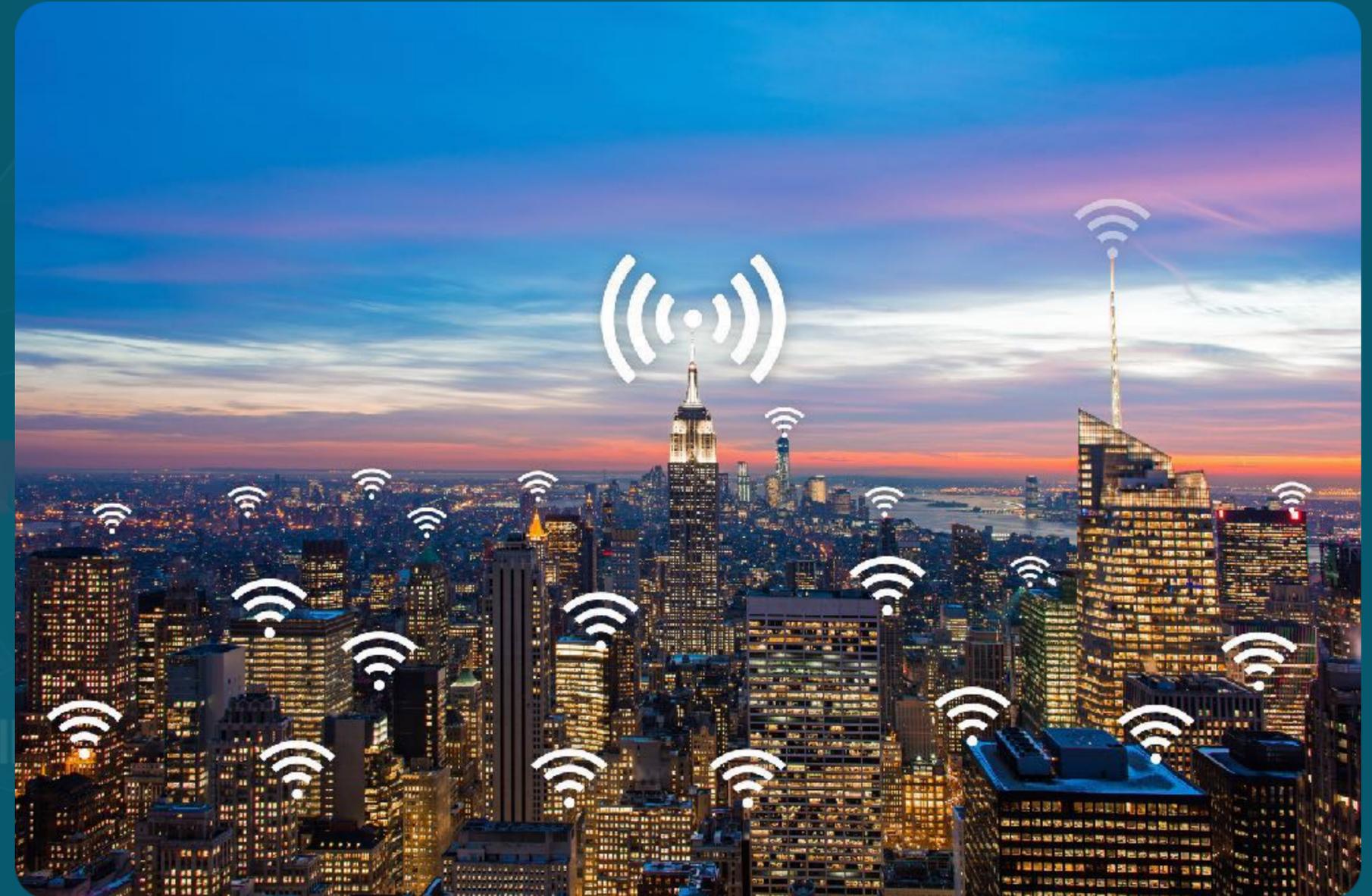
Datafication

Cognification

Virtualization

Disintermediation

Personalization



DATAFICATION

DISINTERMEDIATION

COGNI

PERSONALIZATION

DIGITIZATION

Digitization

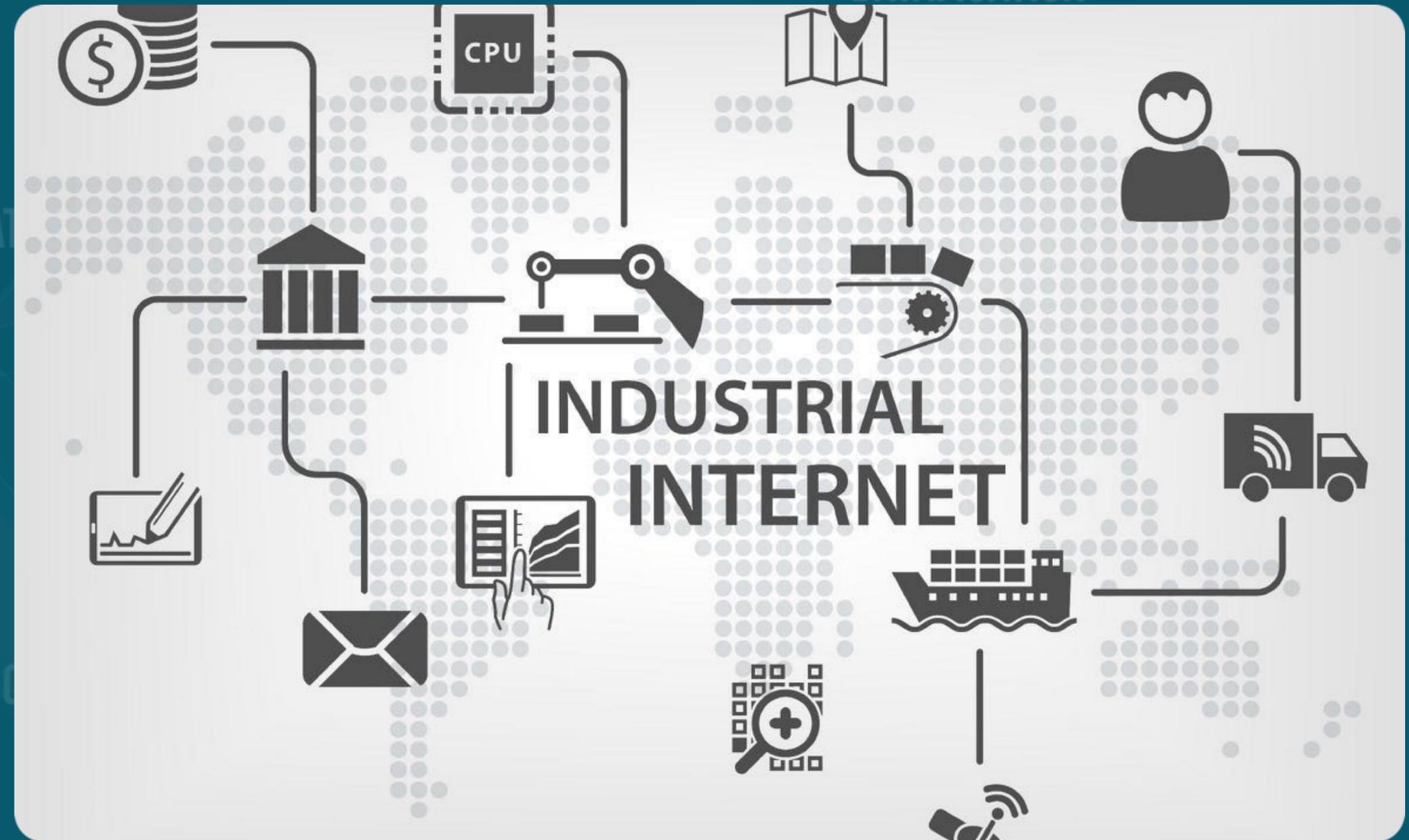
Datafication

Cognification

Virtualization

Disintermediation

Personalization



Digitization

Datafication

Cognification

Virtualization

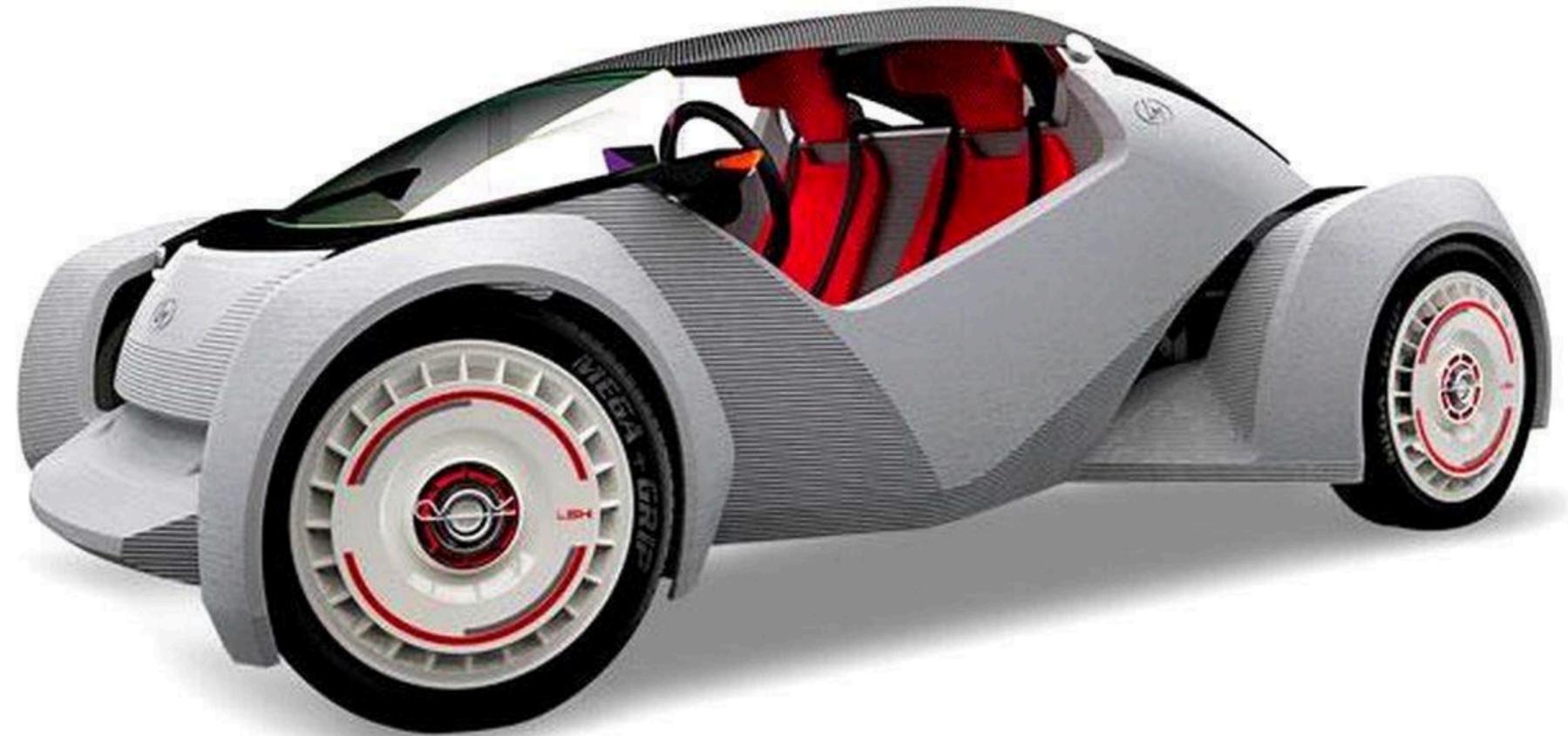
Disintermediation

Personalization

Pop
Mech

Popular Mechanics @PopMech · 8h

Introducing the world's first ever 3-D printed car: popme.ch/6016UWjw #BTA2014



Digitization
Datafication
Cognification
Virtualization
Disintermediation
Personalization



Datafication, Automation, Cognification

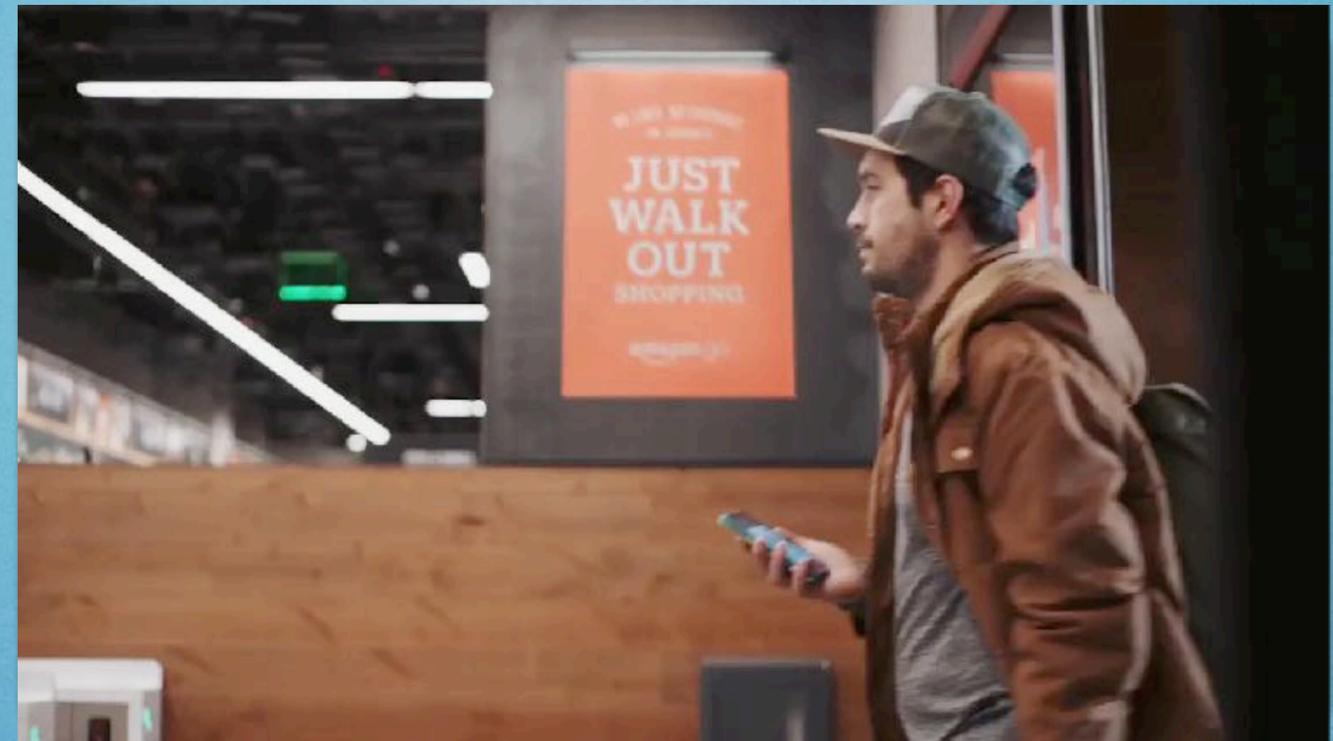


What should (not) be automated?

Virtualization, Disintermediation, Platformization

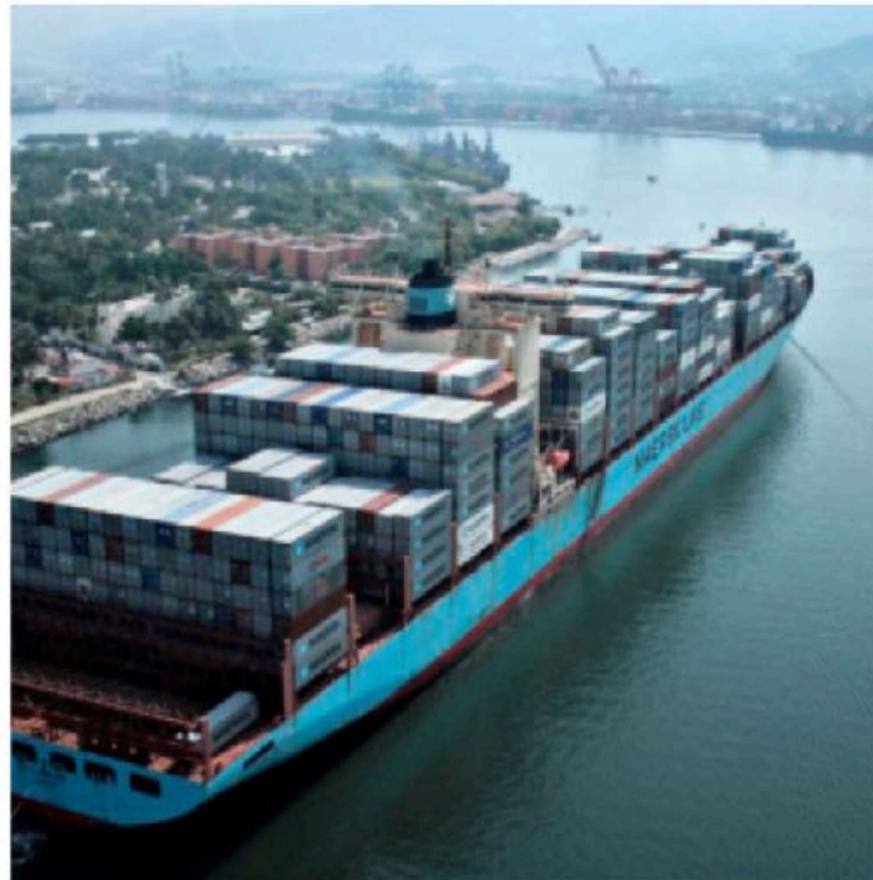


amazon



BLOCKCHAIN

Blockchain technology for the shipping industry



The Danish shipping logistics company Maersk will streamline its office procedures using Blockchain technology. The company is collaborating with the IT giant IBM and has developed a Blockchain tool that can locate shipping containers at any time and give all involved parties access to the shipping papers. This will reduce the presently enormous paper trail as well as lower costs and the workload of employees. Customers and customs authorities will also remain informed when shipments arrive in port.

The future is #HellVen

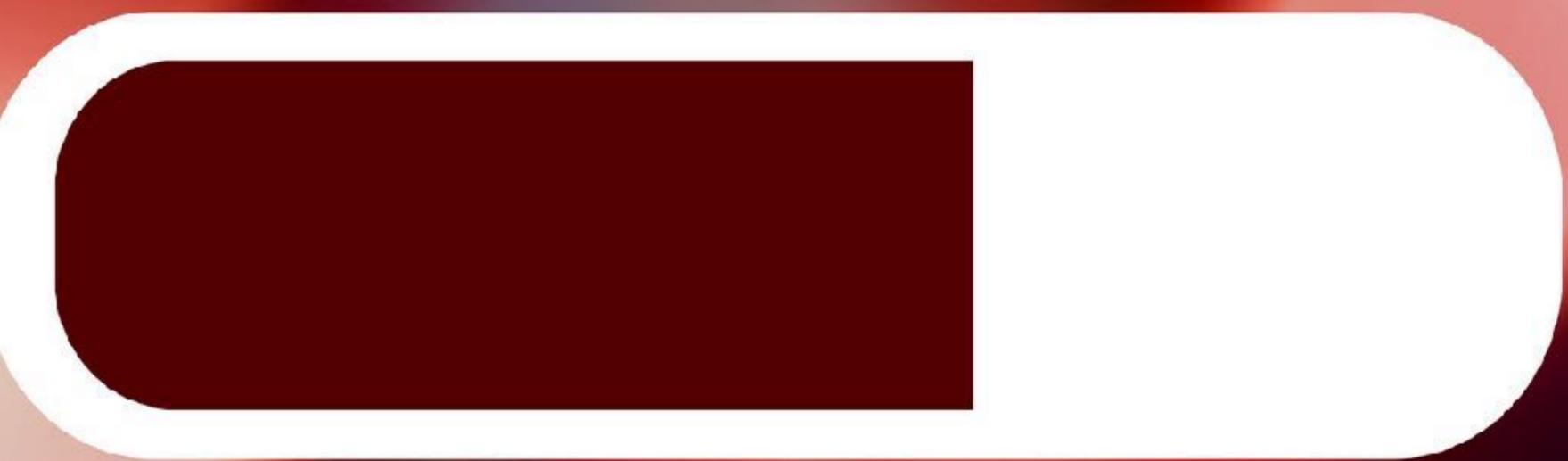
- we will need wisdom and stewardship

10%

90%

H

FEAR



uninstalling . . .



KEEP
CALM

AND

WORK ON
AI SAFETY

Transformative



Action Items

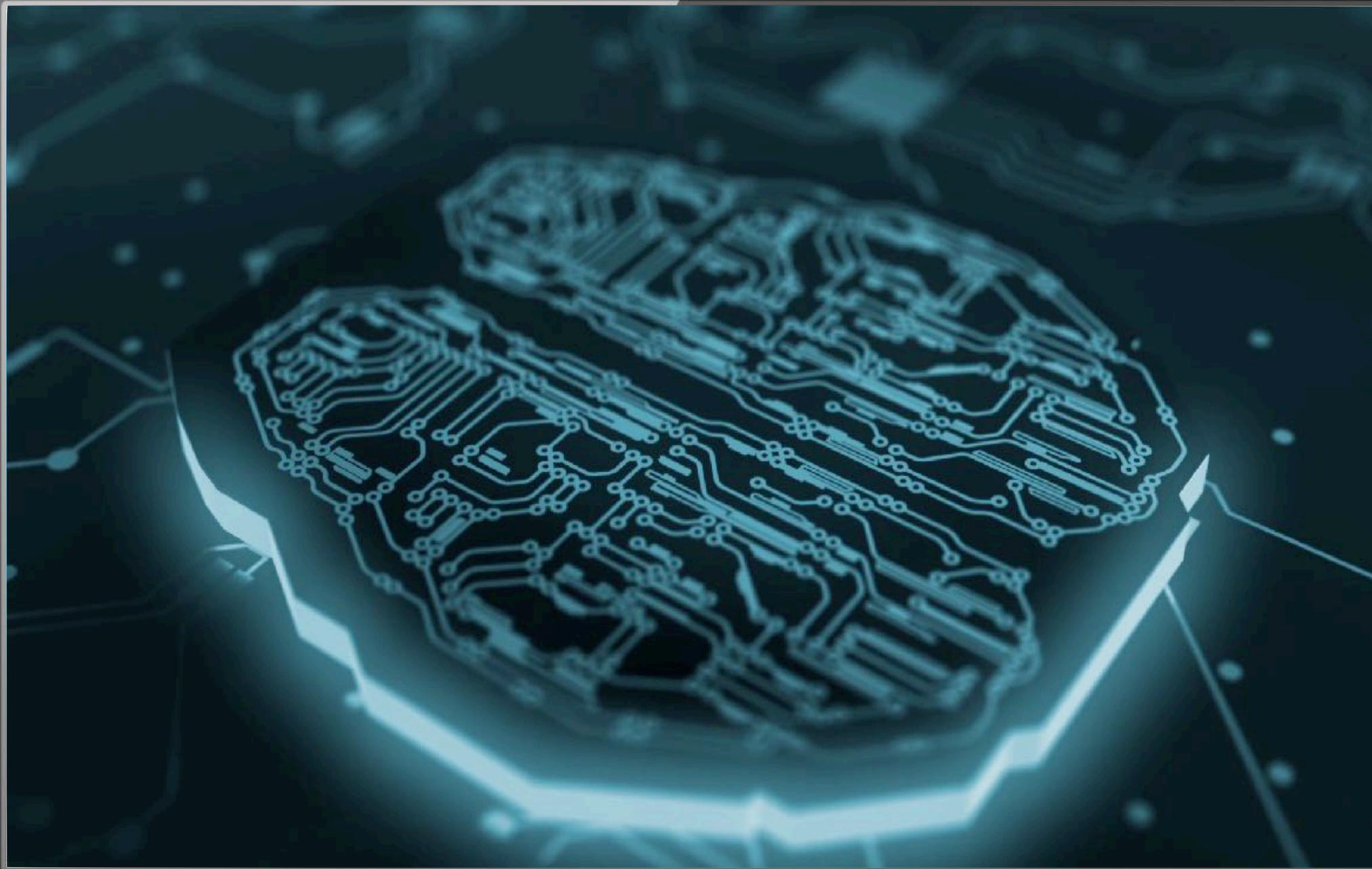


Digitize
Mobilize
Personalize
Datafy
Virtualize
Cognify
Humanize

Transformative



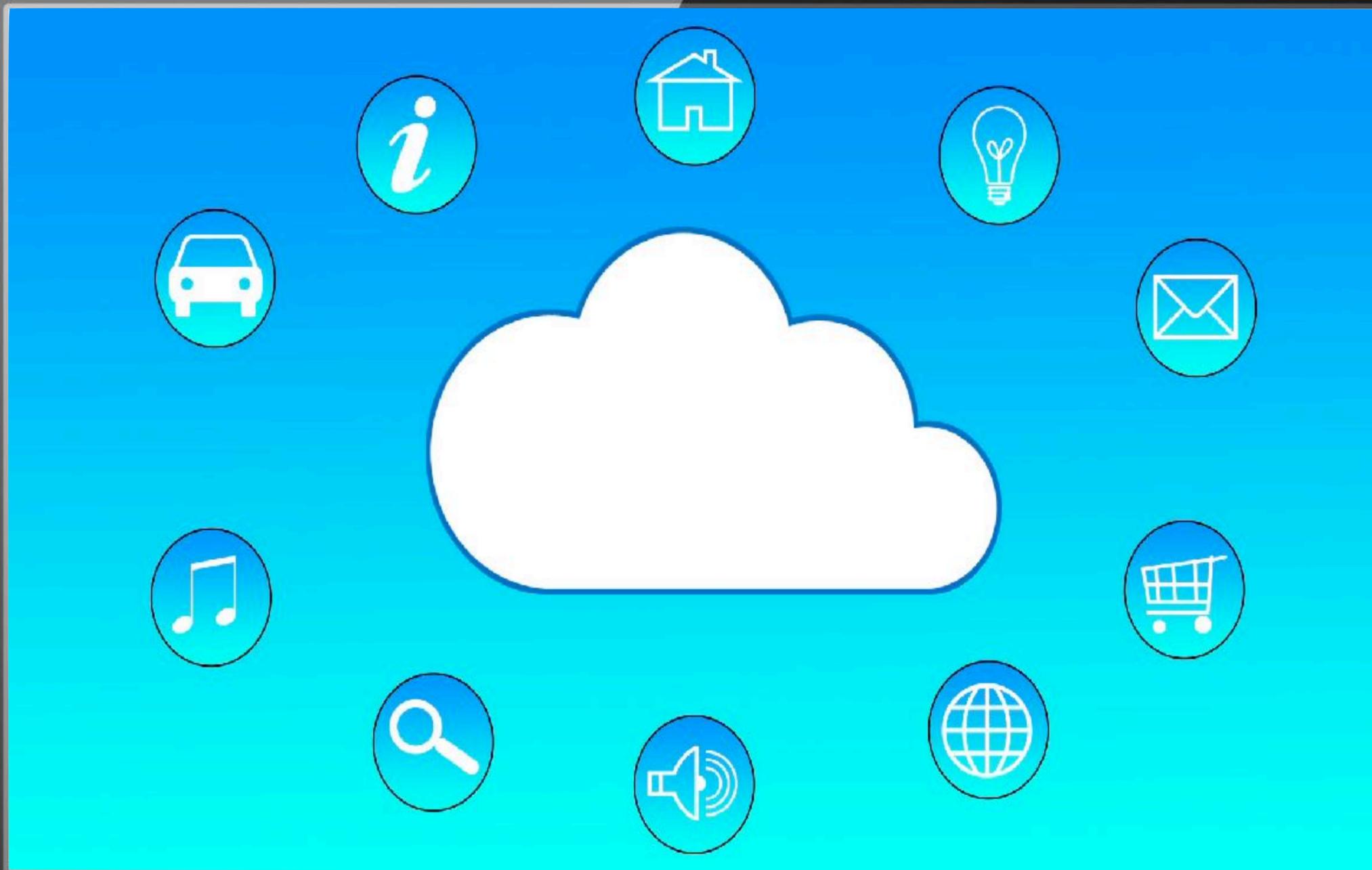
Action Items



Digitize
Mobilize
Personalize
Datafy
Virtualize
Cognify
Humanize

Transformative

Action Items



Digitize
Mobilize
Personalize
Datafy
Virtualize
Cognify
Humanize

Transformative

Action Items



Digitize
Mobilize
Personalize
Datafy
Virtualize
Cognify
Humanize

Transformative

Action Items



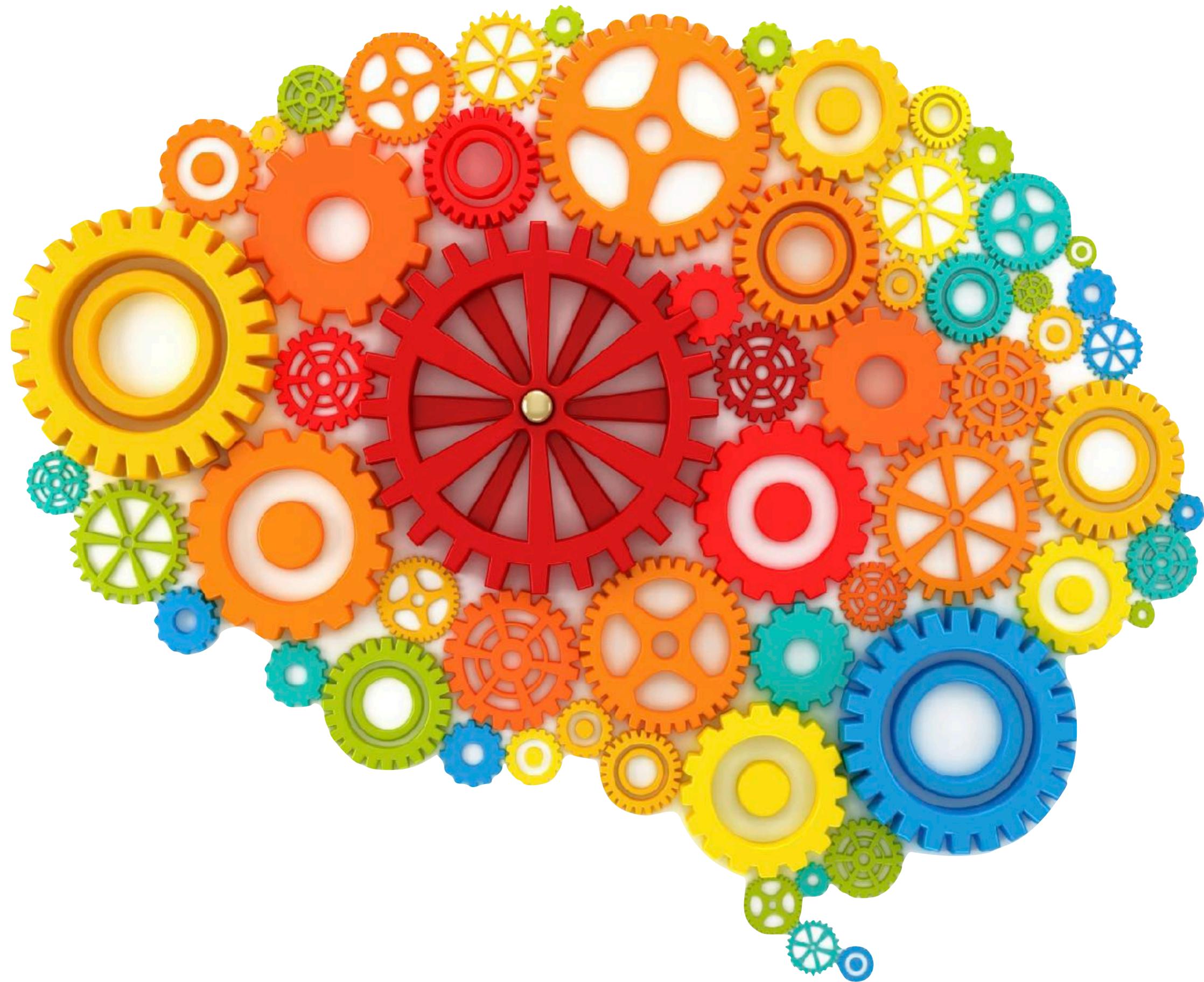
Digitize
Mobilize
Personalize
Datafy
Virtualize
Cognify
Humanize



“As the world becomes more digital, it will be our humanity that differentiates us and wins with customers”

Doug Mc Millon CEO, Walmart
via brandchannel.com

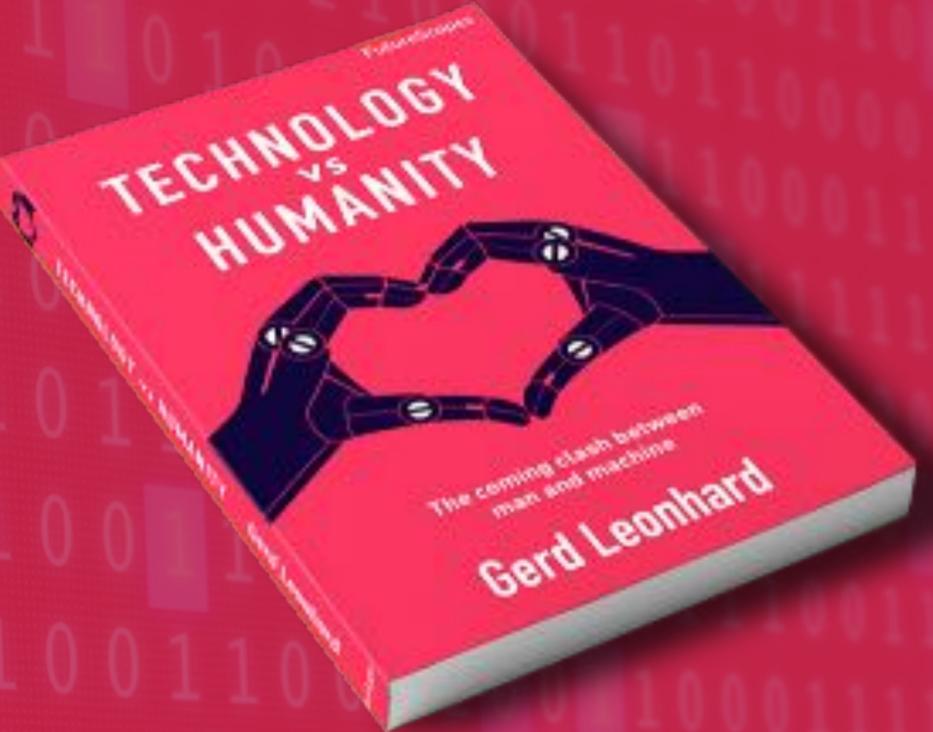
**Hyper-
Collaborate!**



The image features a stylized illustration of two robotic hands, one on the left and one on the right, rendered in a dark blue color with red outlines. The hands are positioned to hold a heart shape in the center. The heart is formed by the negative space between the fingers and the palms of the hands. The background is a solid, vibrant red. The text is centered within the heart shape.

**Embrace technology
– but don't become it**

GLOBAL TRANSPORT DEVELOPMENT CHALLENGES



Gerd



Thanks for your time and attention!



techvshuman.com



[@gleonhard](https://twitter.com/gleonhard)



gerdtube.com



gerdcloud.com



futuristgerd.com