

# THE GOOD FUTURE: Beyond<sup>X</sup>



Gerd Leonhard, Futurist



@gleonhard



gerdtube.com



futuristgerd.com



thegoodfuturefilm.com



thegoodfutureproject.com

futureworld

create tomorrow together

Gerd

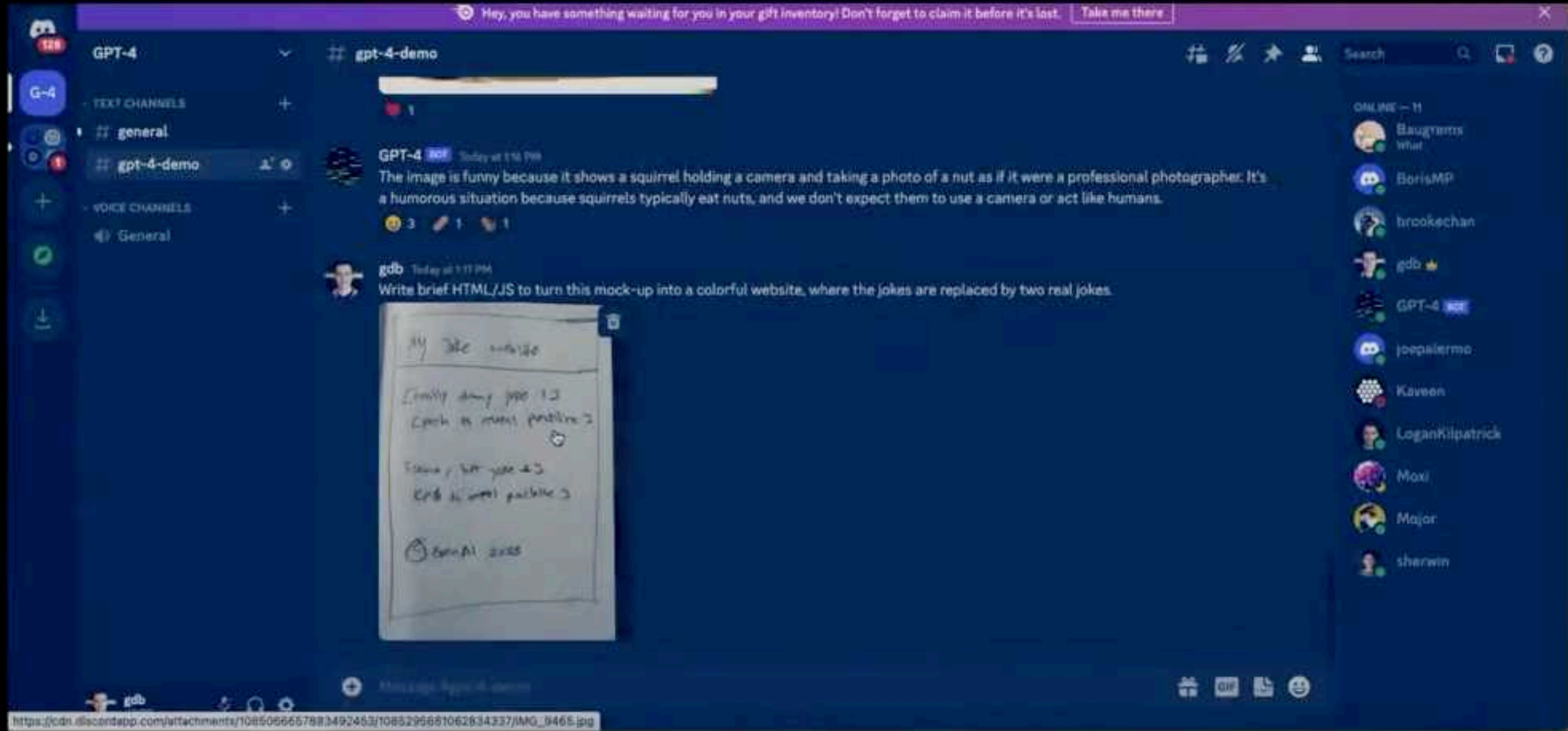
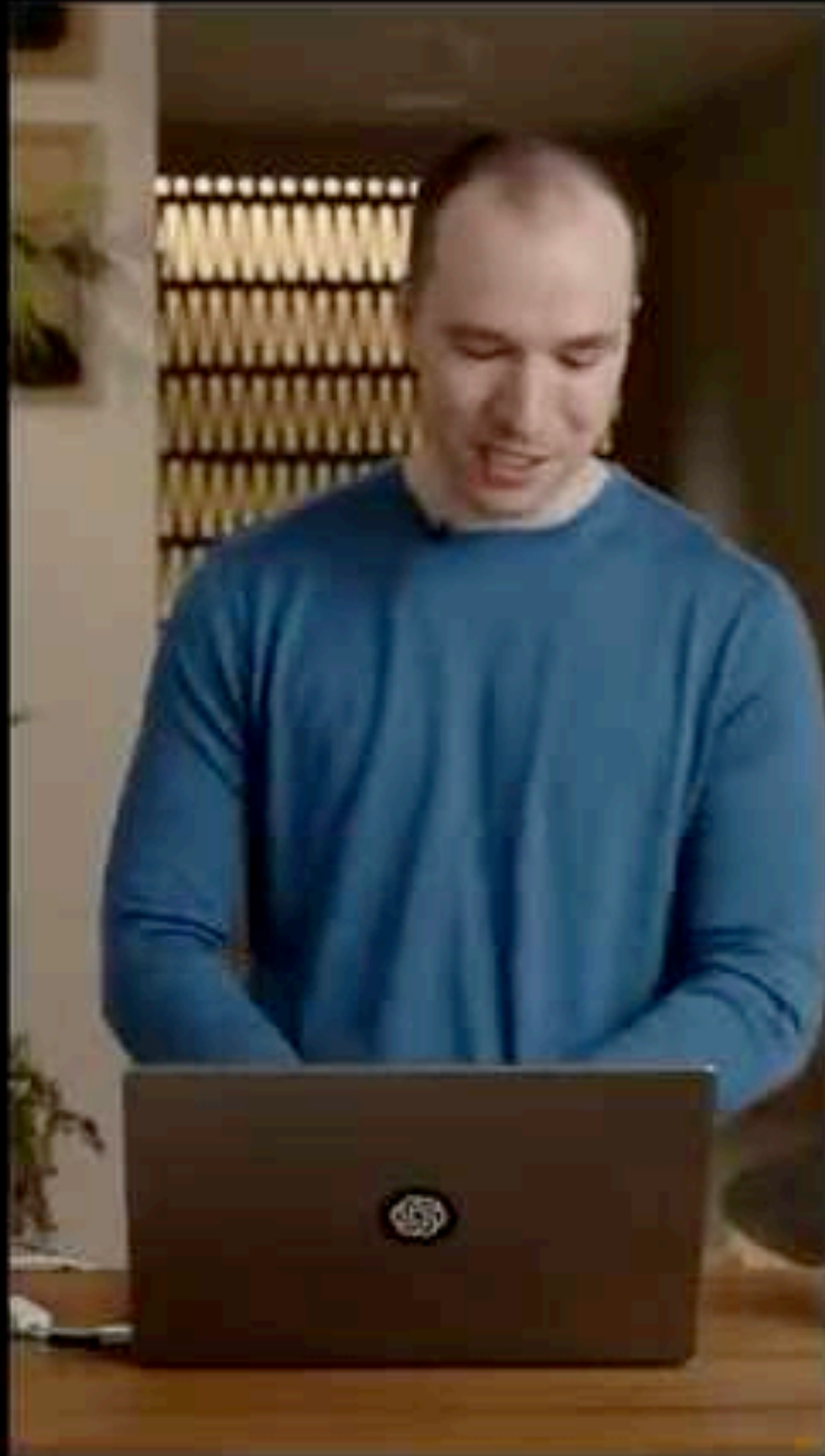
# SCIENCE FACT





Simon Høiberg @SimonHoiberg · 8h

GPT-4 takes a hand-drawn mockup of a website as input and produces perfect HTML, CSS, and JavaScript code 🤖





Simon Høiberg @SimonHoiberg · 8h

GPT-4 takes a hand-drawn mockup of a website as input and produces perfect HTML, CSS, and JavaScript code 🤖



```
Untitled - Captain Anonymous
Save Settings Sign Up Log In

HTML CSS JS

document.getElementById("punchline1").style.display
= "block";
}

function revealPunchline2() {

document.getElementById("punchline2").style.display
= "block";
}
</script>
</body>
</html>
```

## My Joke Website

Joke 1: Why don't scientists trust atoms?

Reveal Punchline

Because they make up everything!

Joke 2: What's a skeleton's least favorite room in the house?

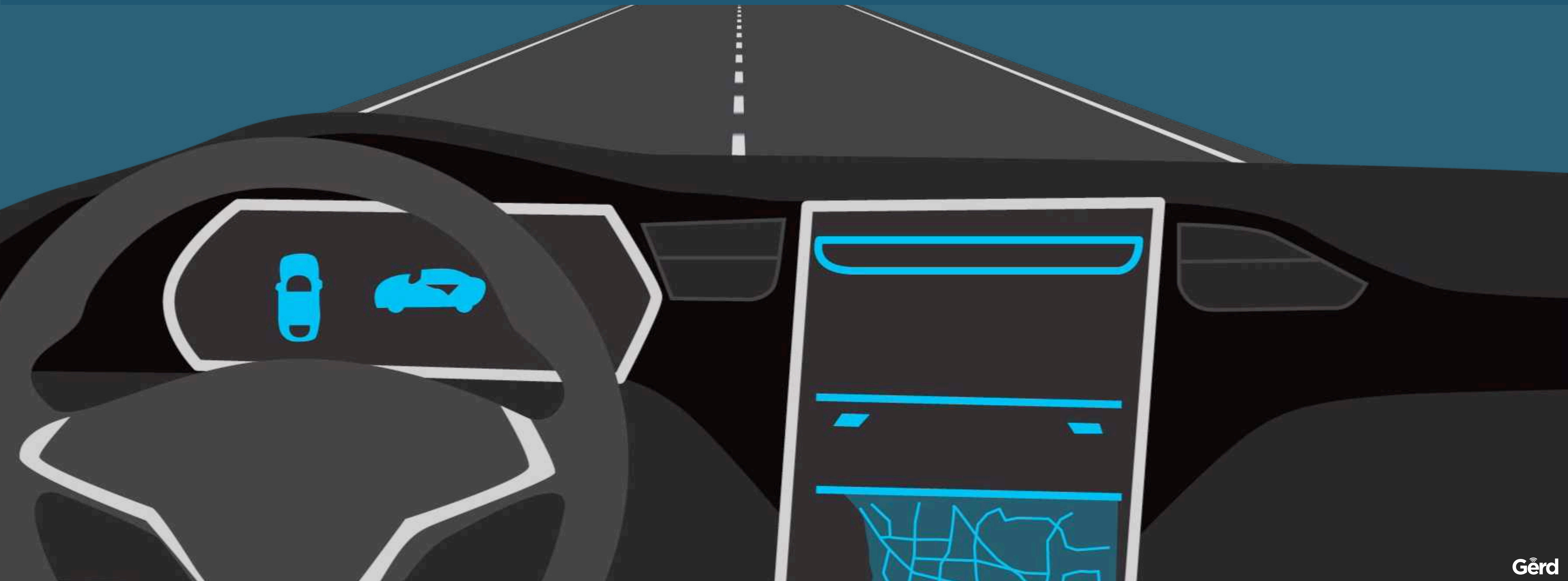
# Human (100%) | Simulation (3%)



Mick Jagger & Spot Robot (Boston Dynamics on Youtube)

The purpose of looking at the future is not prediction...

...it is to be **BETTER PREPARED**



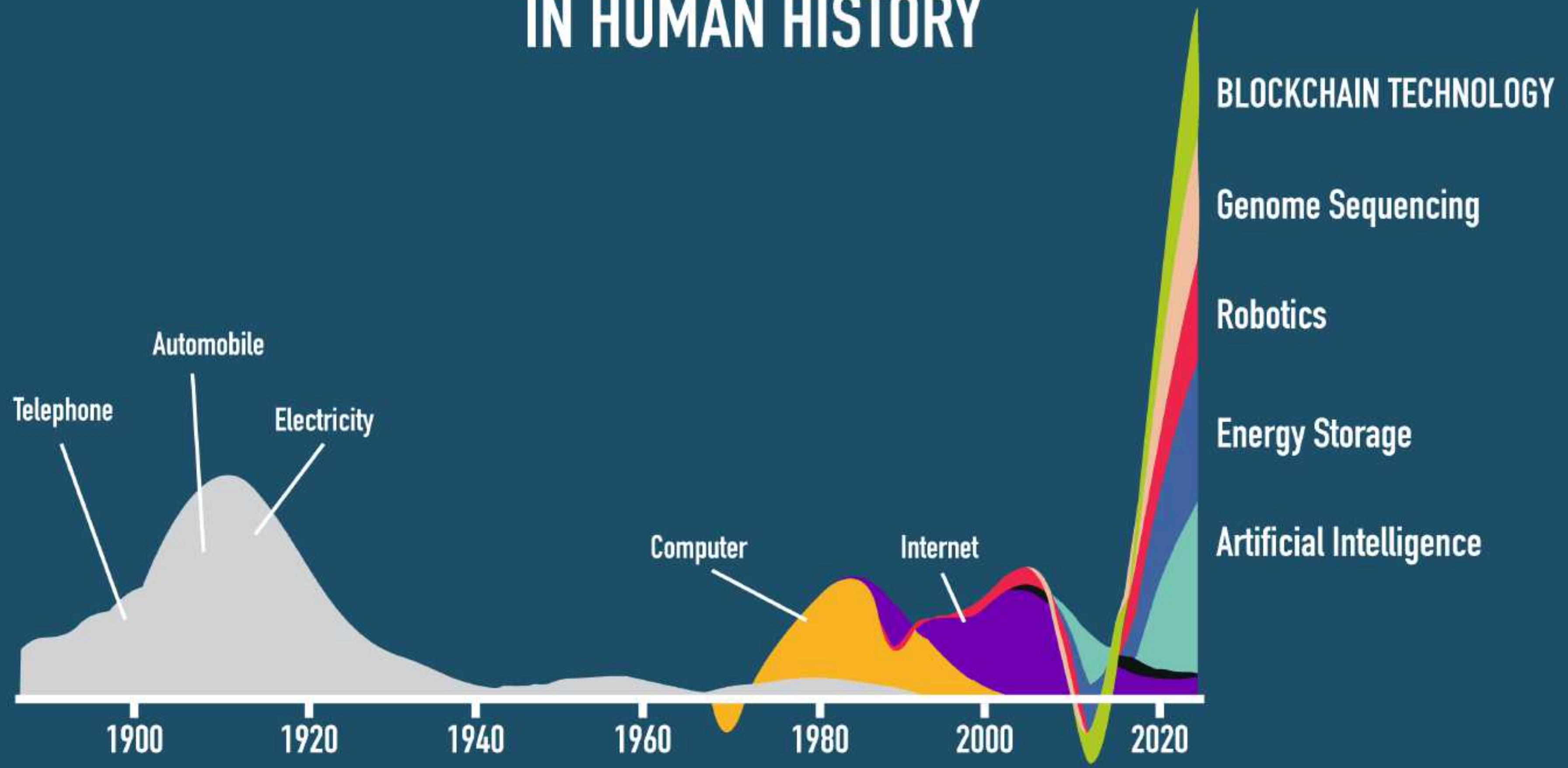
# The Future is better than we think !

THE GOOD FUTURE

[www.thegoodfuturefilm.com](http://www.thegoodfuturefilm.com)

“We should be optimistic not because our problems are smaller than we thought, **but because our capacity to solve them is larger than we thought**”

## THE LARGEST TECHNOLOGICAL TRANSFORMATION IN HUMAN HISTORY



Source: ARK Investment Management



“We should be optimistic not because our problems are smaller than we thought, **but because our capacity to solve them is larger than we thought**”

## FIVE MULTI-TRILLION DOLLAR INNOVATION PLATFORMS

CONVERGENCE ACCELERATES – INNOVATION ADVANCES

Each of these platforms will create multiple trillions in market capitalization over the next decade, enabling further innovation.

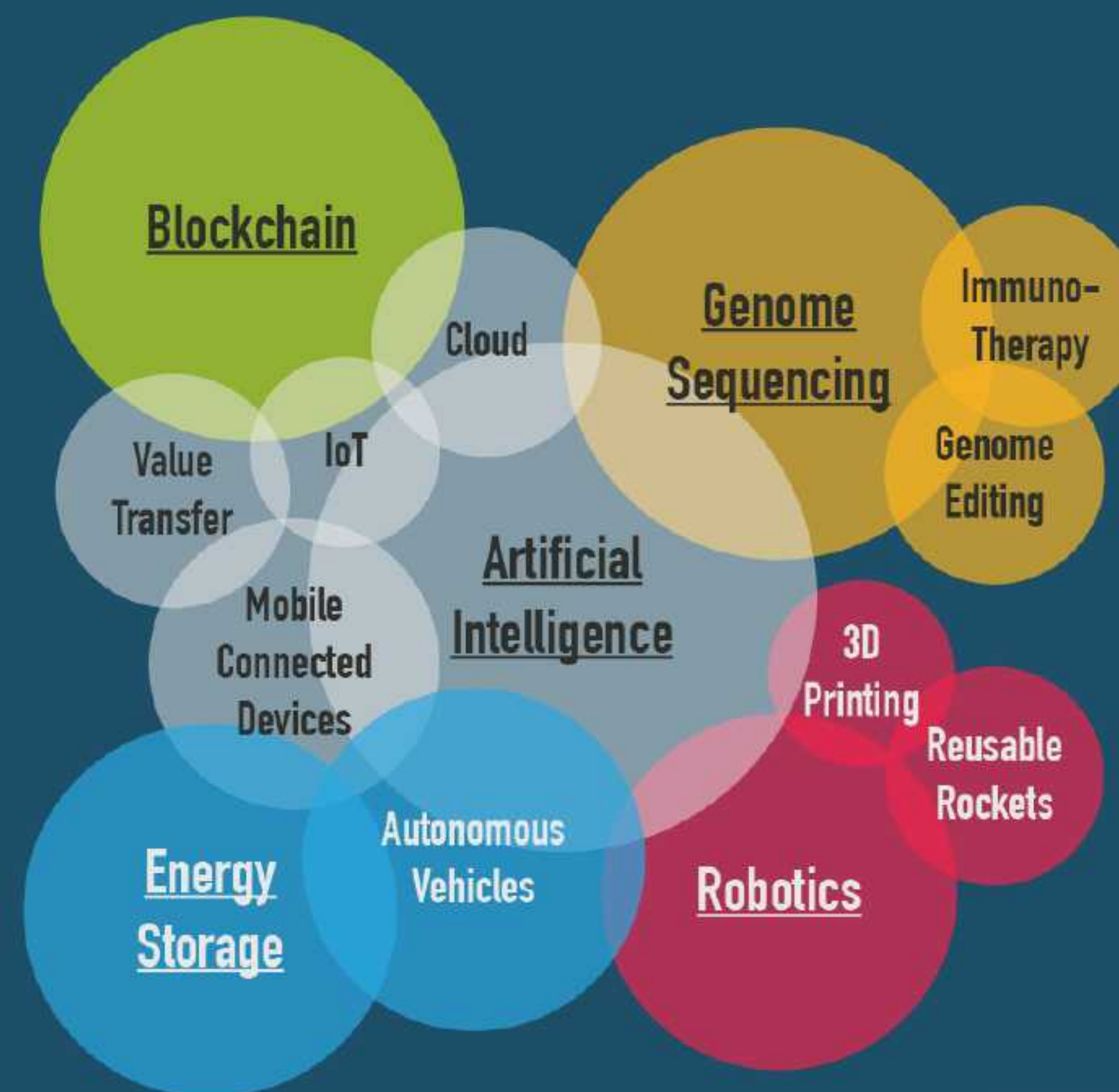
**Blockchain Technology**

**Genome Sequencing**

**Artificial Intelligence**

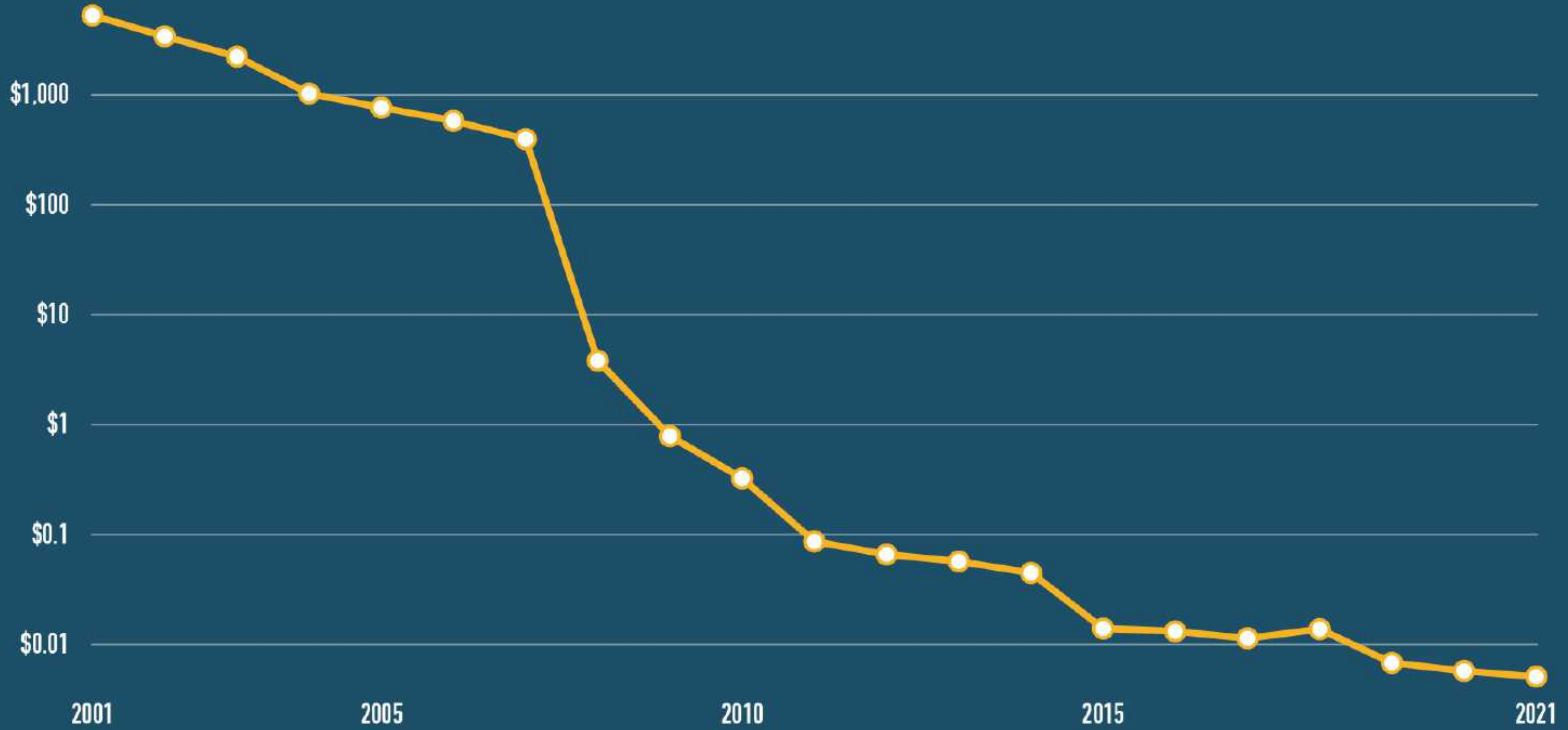
**Robotics**

**Energy Storage**



“We should be optimistic not because our problems are smaller than we thought, **but because our capacity to solve them is larger than we thought**”

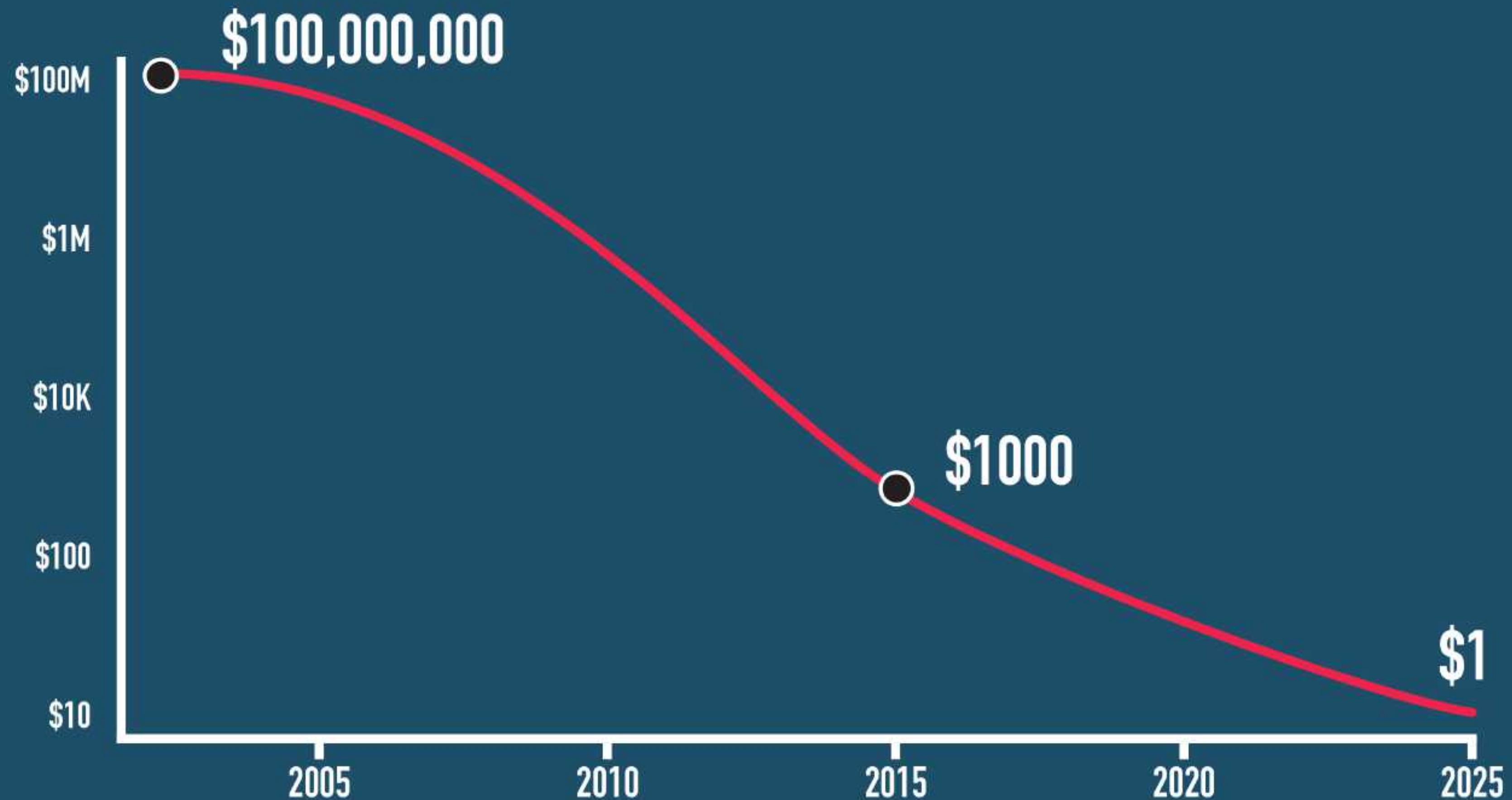
**COST PER MEGABASE (MB) OF HUMAN GENOME DNA SEQUENCING**  
THE COST OF SEQUENCING ONE MEGABASE (MB) OF HUMAN GENOME DNA, MEASURED IN US\$.



Source: Our World in Data

“We should be optimistic not because our problems are smaller than we thought, **but because our capacity to solve them is larger than we thought**”

## THE DECLINING COST OF SOLAR PANELS



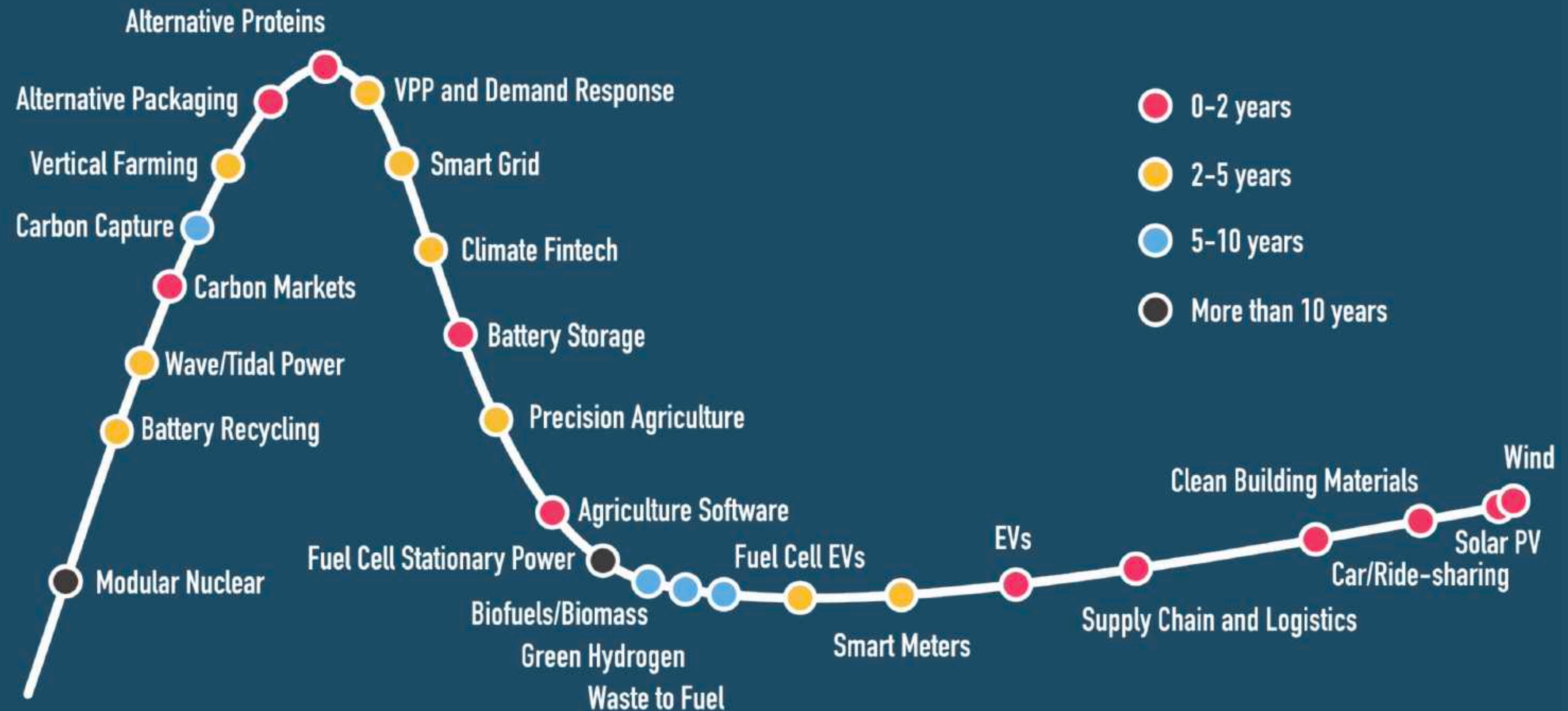
“We should be optimistic not because our problems are smaller than we thought, **but because our capacity to solve them is larger than we thought**”

## THE RACE TO BUILD A COMMERCIAL FUSION REACTOR HOTS UP

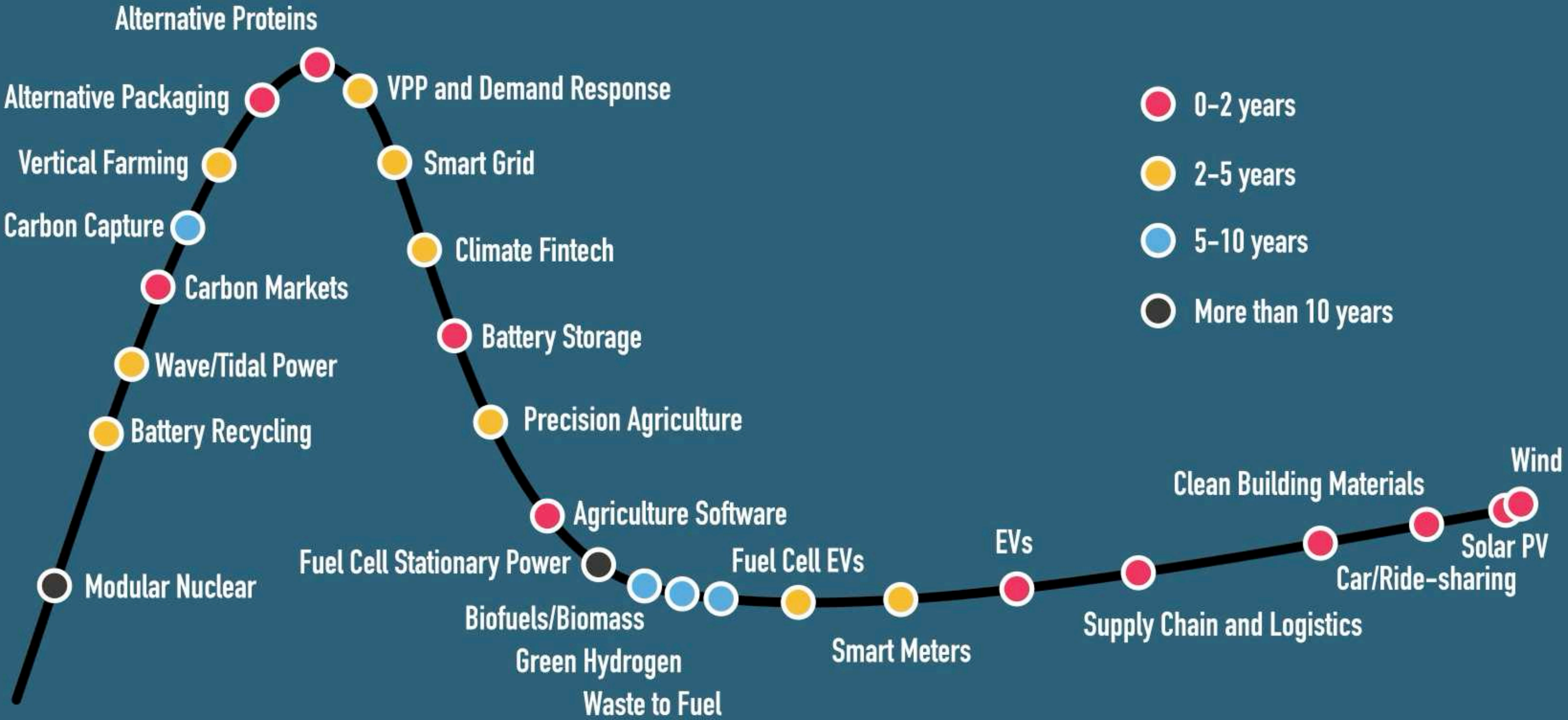
Fusion-energy companies, investment, \$bn (2021 or latest available)



“We should be optimistic not because our problems are smaller than we thought, **but because our capacity to solve them is larger than we thought**”



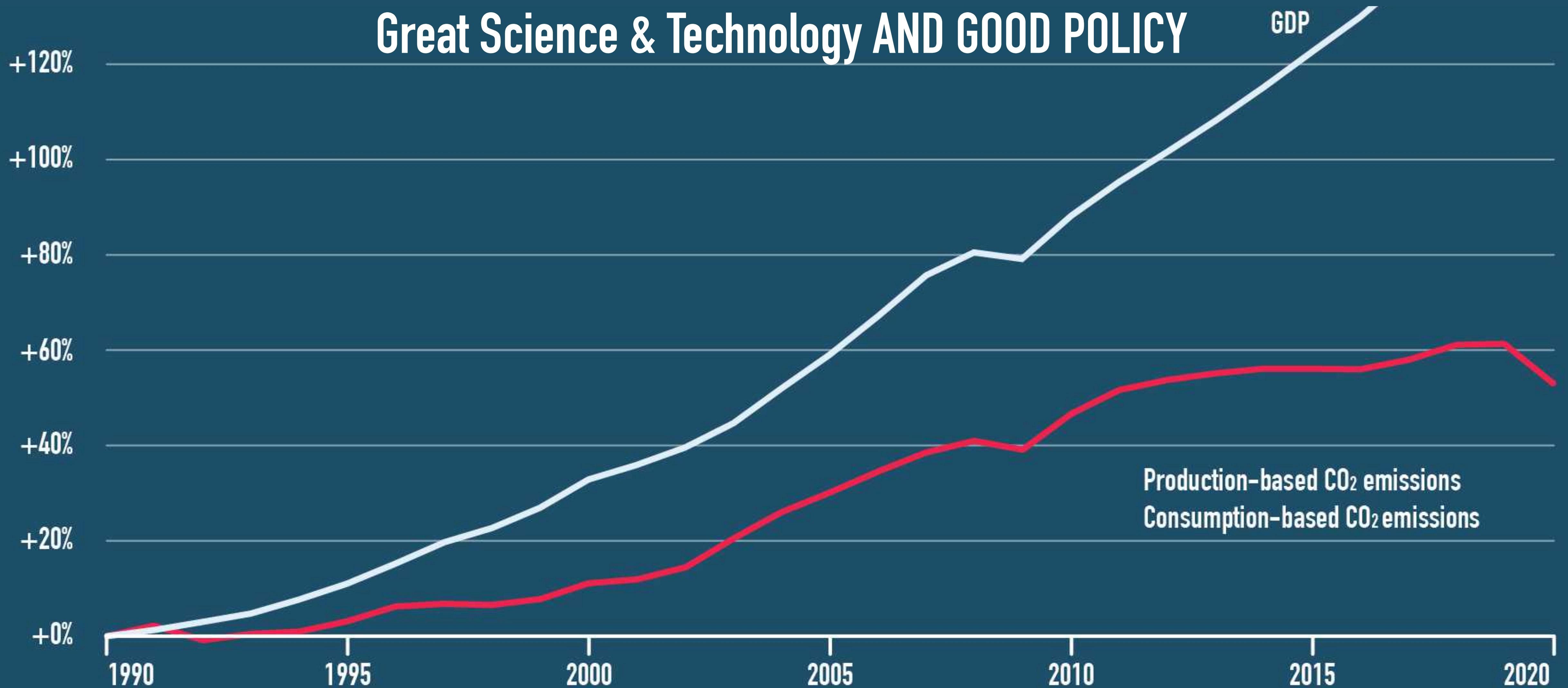
# Tools & Telos: Great Science & Technology AND GOOD POLICY



# CHANGE IN CO<sub>2</sub> EMISSIONS AND GDP, WORLD

## UNCOUPLING GROWTH from CO<sub>2</sub> emissions is the key

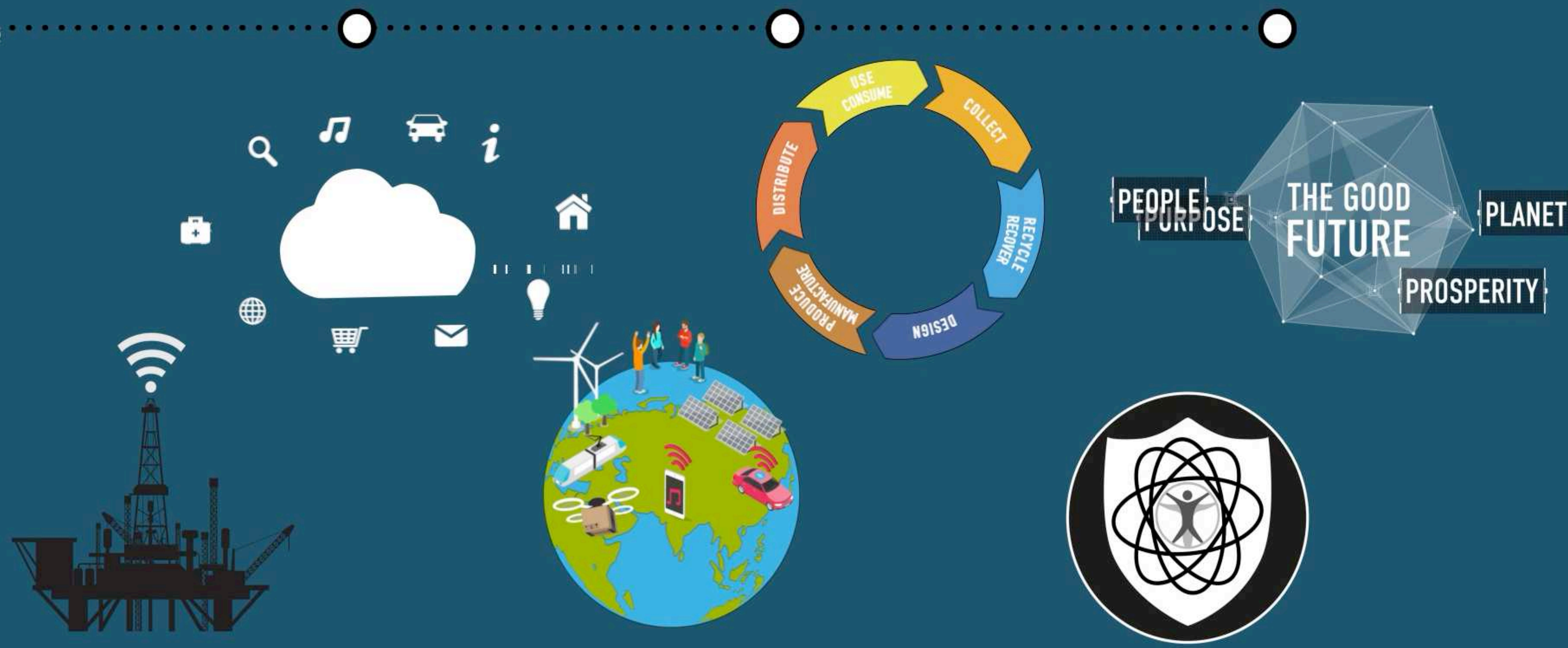
Great Science & Technology AND GOOD POLICY



# DIGITAL REVOLUTION

# SUSTAINABILITY REVOLUTION

# PURPOSE REVOLUTION





# DIGITAL REVOLUTION

# SUSTAINABILITY REVOLUTION

$e^x$   
EXPONENTIAL



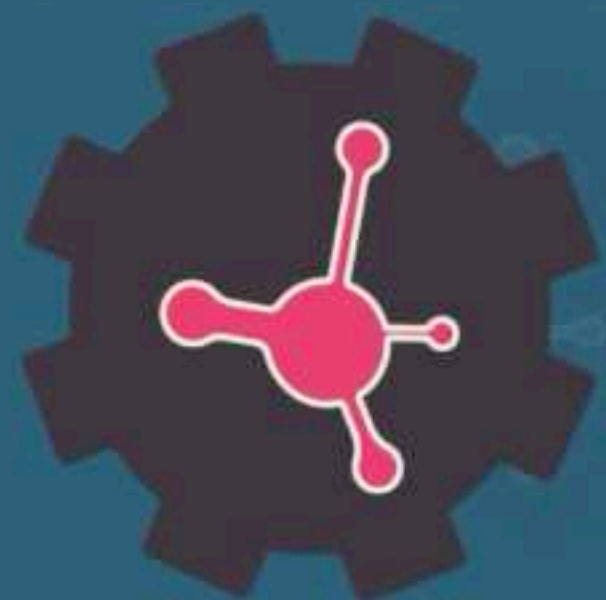


# INFO TECH

# ENERGY & CLIMATE TECH



CLIMATE TECH



# BIO TECH

---

BIO TECH

# AI TECH



AI TECH

# INFO TECH



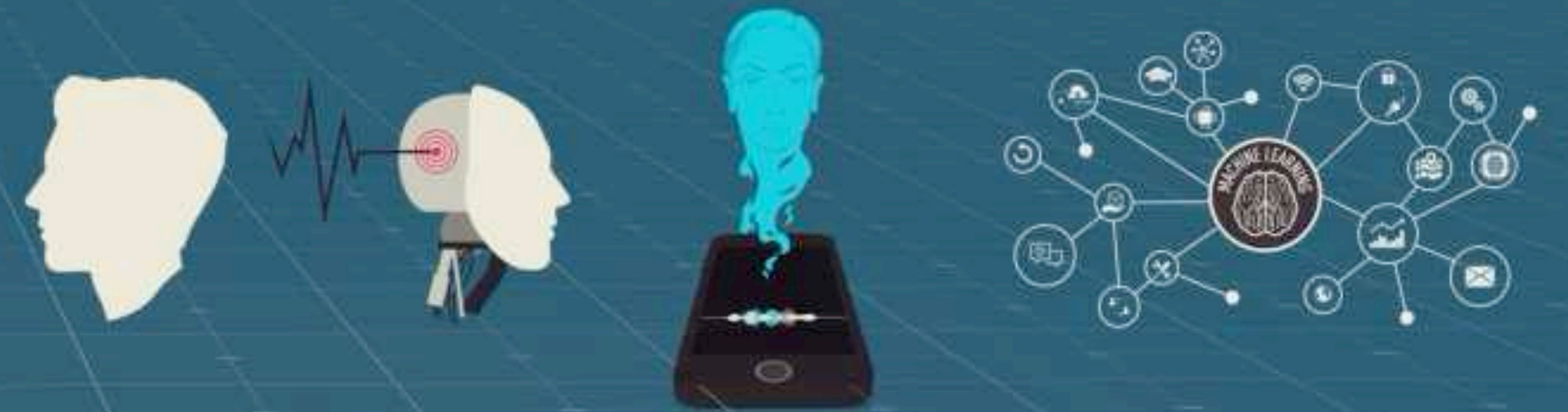
# BIO TECH



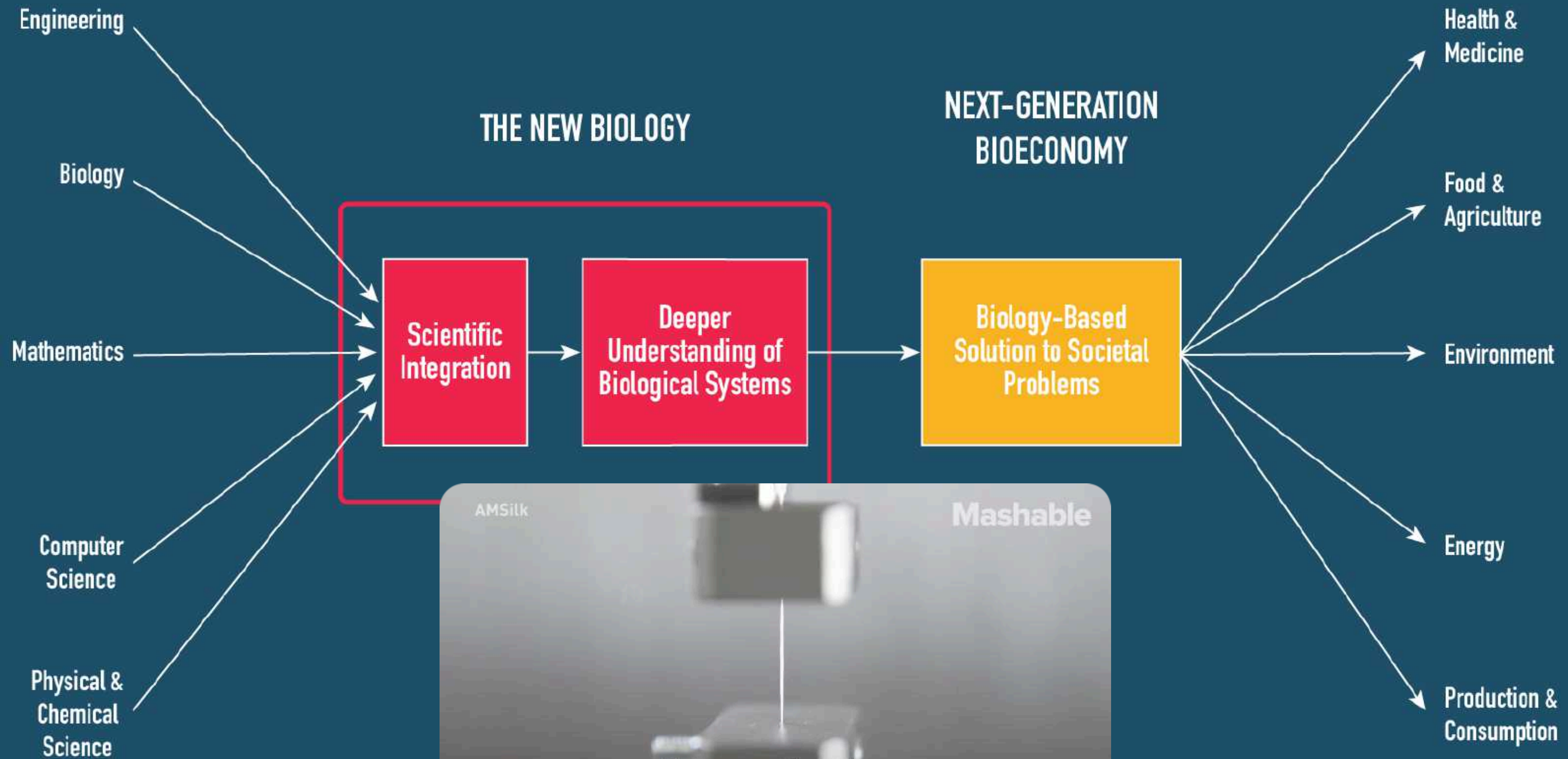
# ENERGY & CLIMATE TECH



# AI TECH

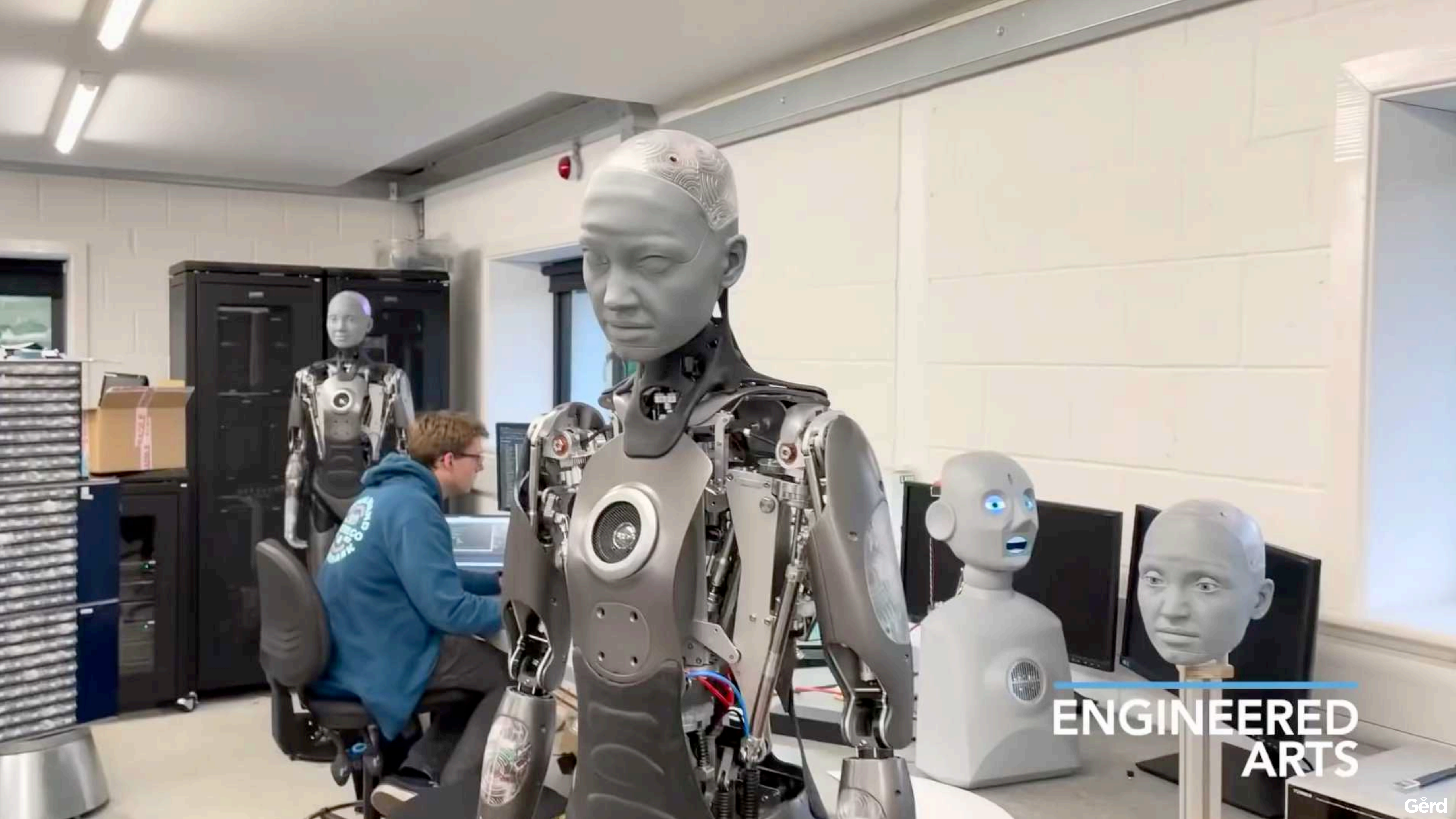


**SYNTHETIC BIOLOGY:** building artificial biological systems, using many of the same tools and experimental techniques. Taking parts of natural biological systems, analysing and simplifying them, and using them as components of engineered biological systems

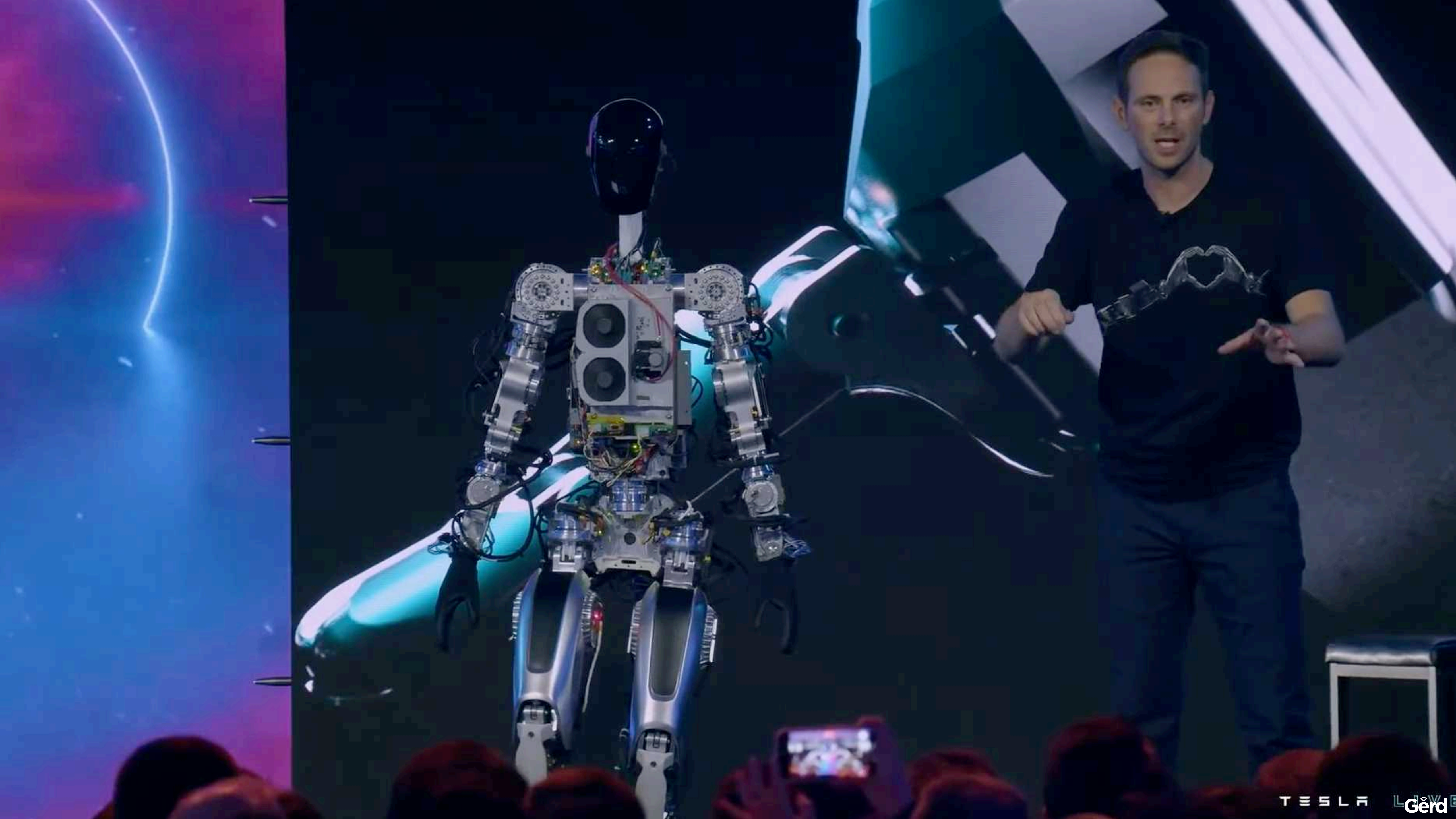








ENGINEERED  
ARTS



Balance | Safety | Security | Ethics | Control | TRUST

THE GOOD FUTURE



**“Automation is good for growth and bad for equality”  
(Christine Lagarde, the IMF)**



# UNTHINKABLE... NEW NORMAL

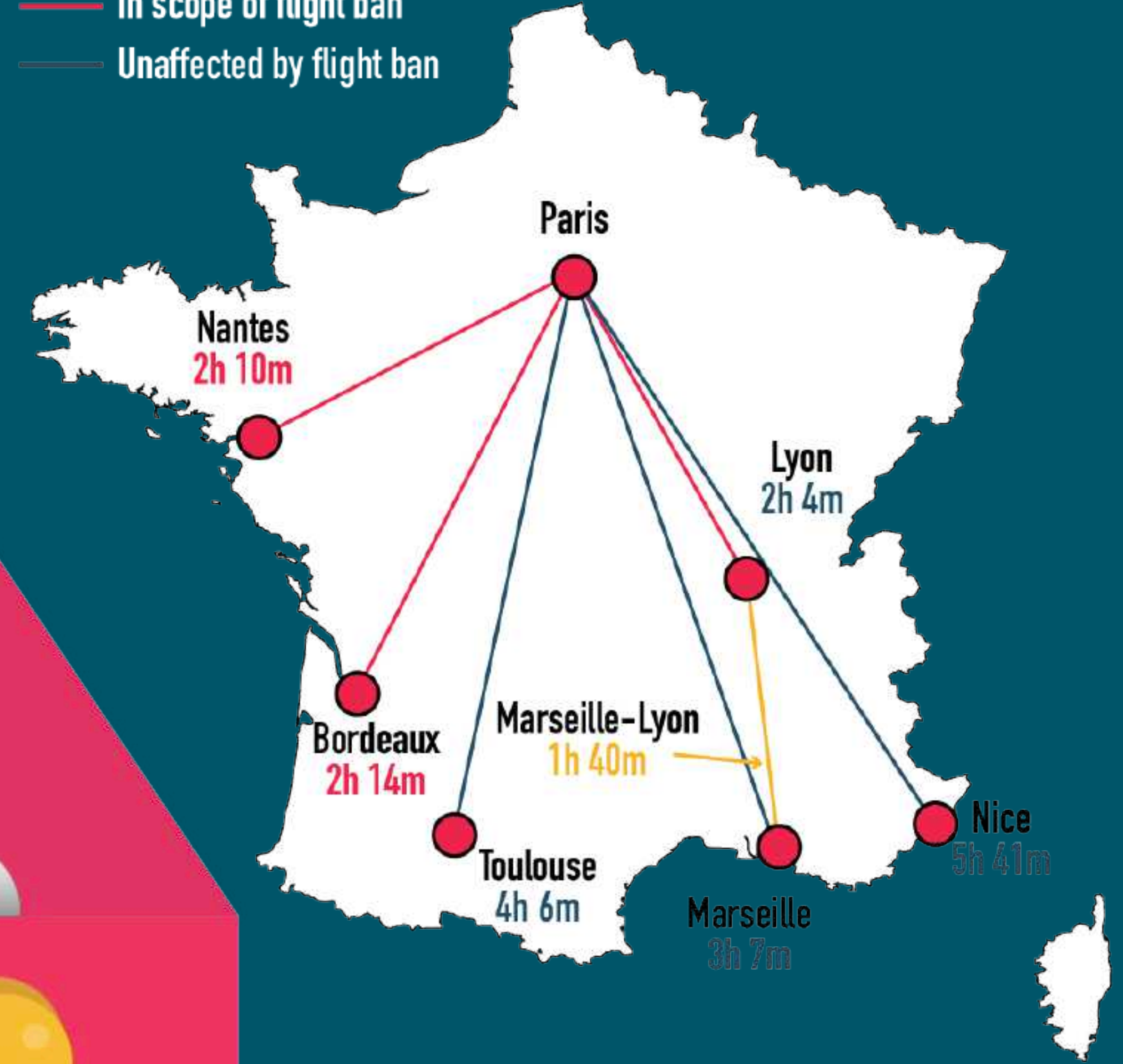
## RAIL ALTERNATIVES TO FRENCH DOMESTIC FLIGHTS



CARBON TAX



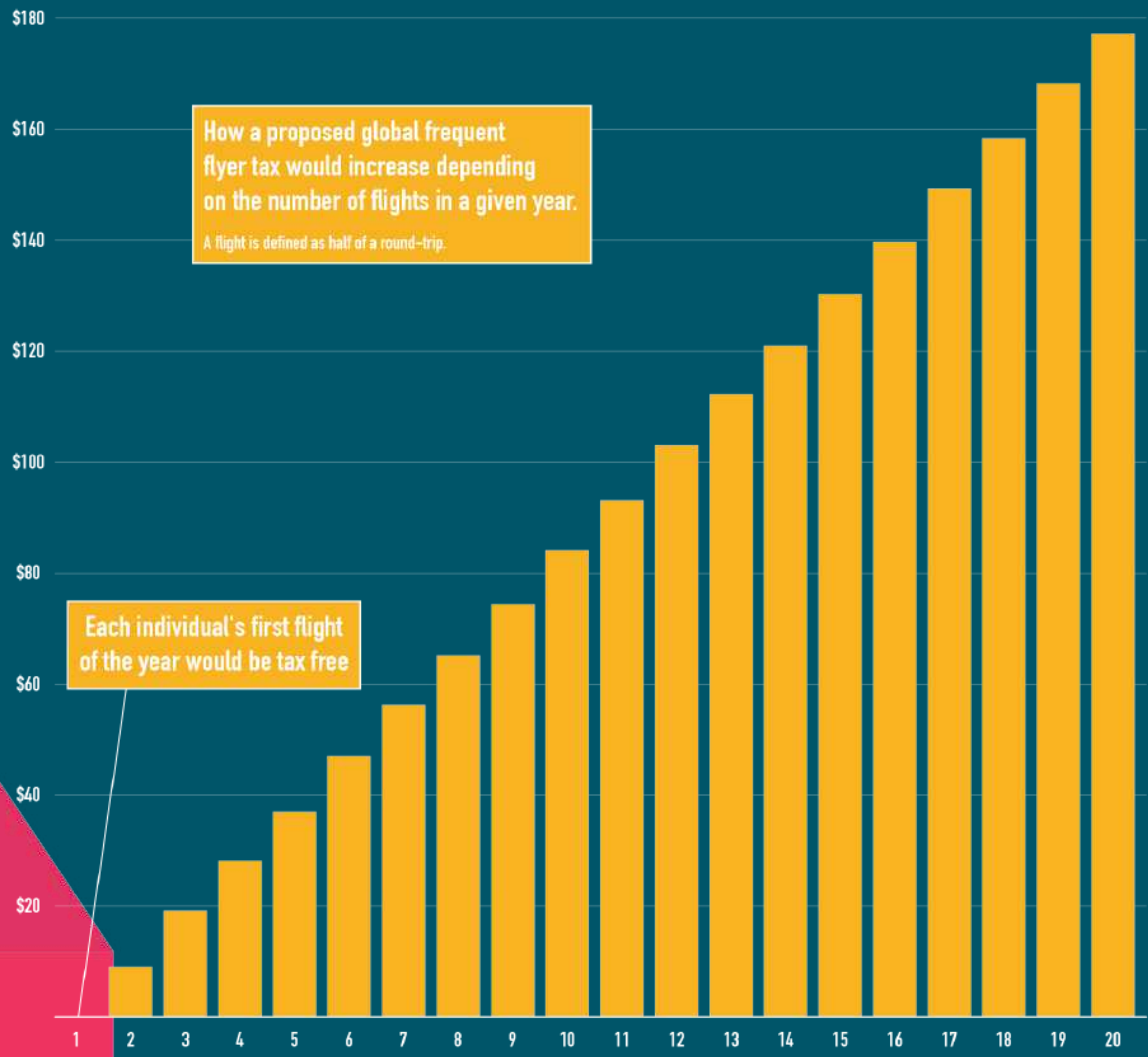
- In scope of flight ban
- Unaffected by flight ban



Source: 2023 BCD Travel N.V.

# UNTHINKABLE... NEW NORMAL

## PROGRESSIVE FREQUENT FLYER TAX

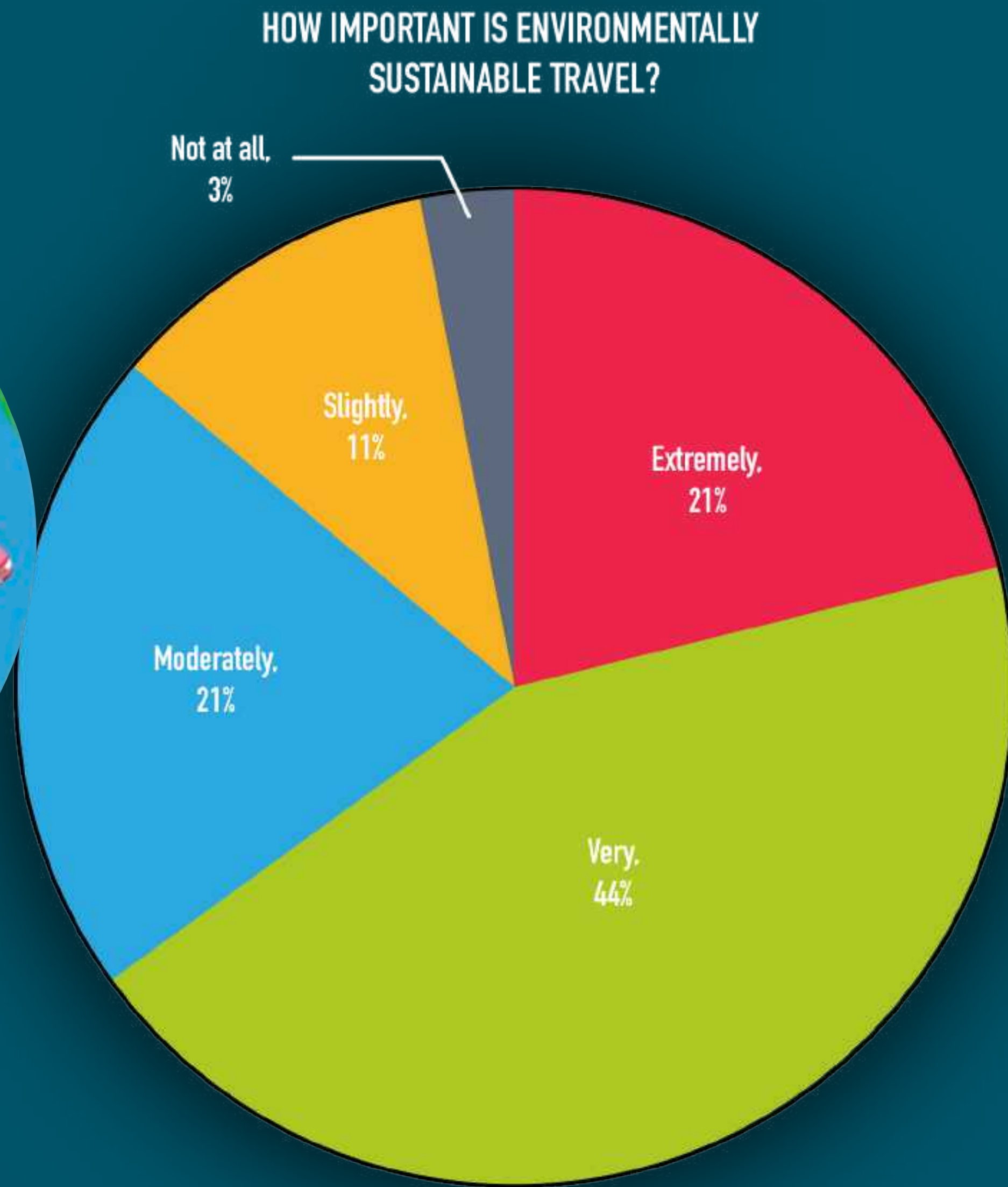


How a proposed global frequent flyer tax would increase depending on the number of flights in a given year.  
A flight is defined as half of a round-trip.

Each individual's first flight of the year would be tax free

Source: International Council on Clean Transportation

66% of the South African population is aged 35 years or younger



**CULTURE**

Source: 2023 BCD Travel N.V.

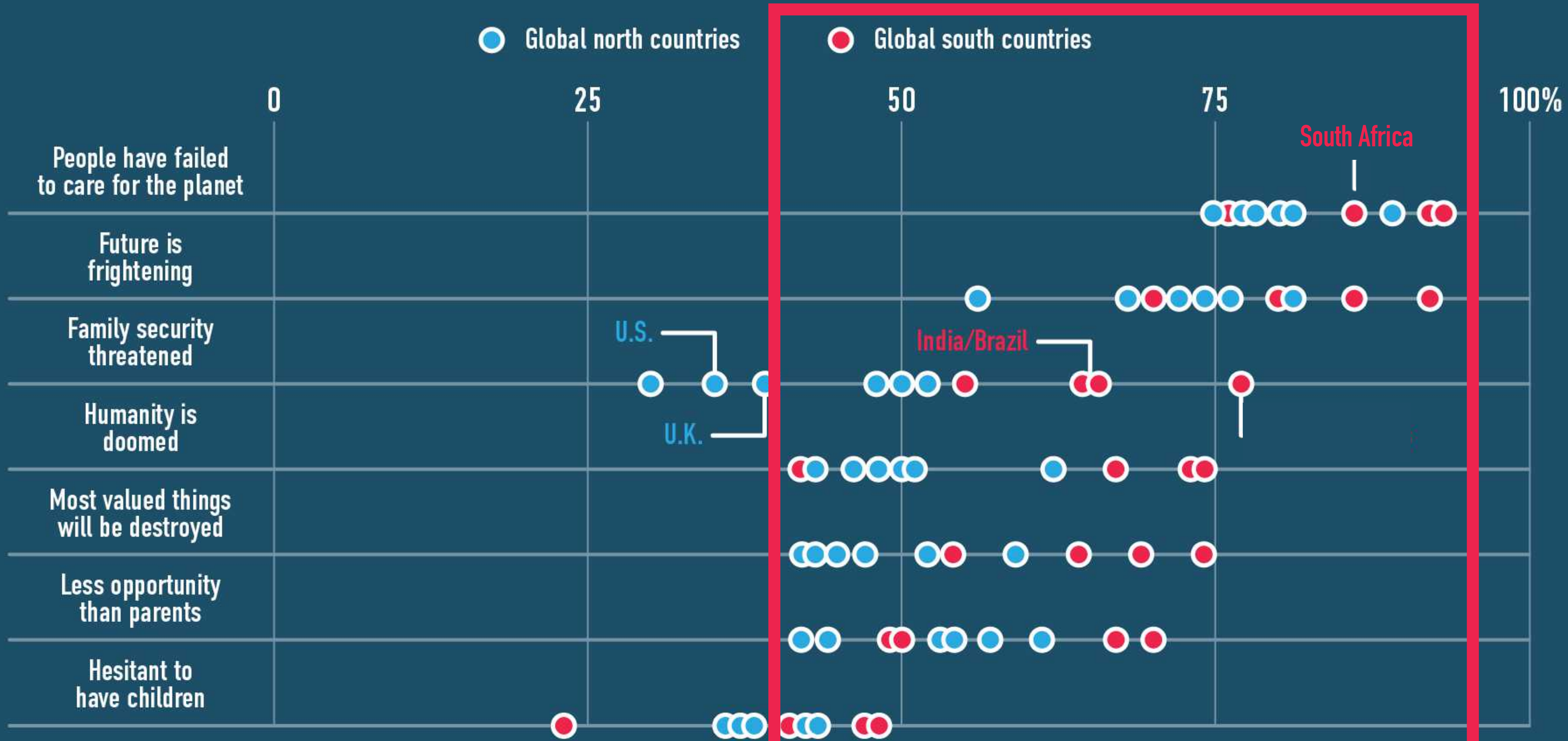
Boomer-centric



Millennial-centric

# THE CLIMATE-CHANGE ANXIETIES FELT BY PEOPLE AGE 16-25

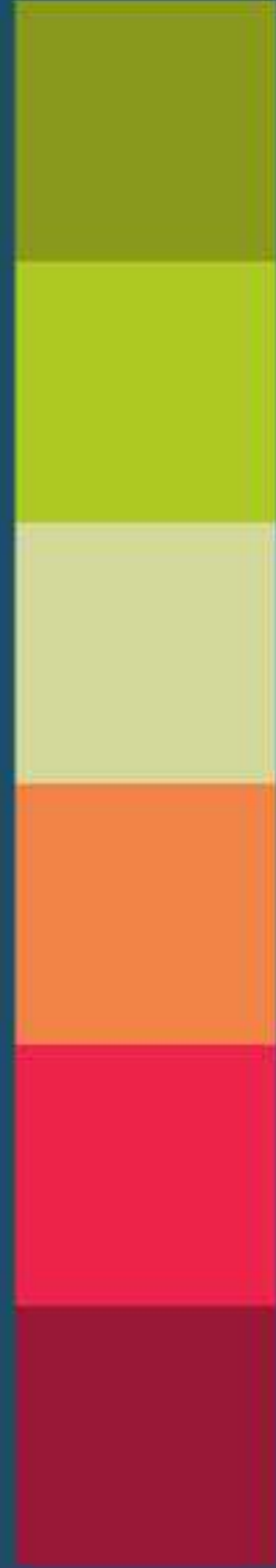
## SHARE OF RESPONDENTS WHO ANSWERED IN THE AFFIRMATIVE



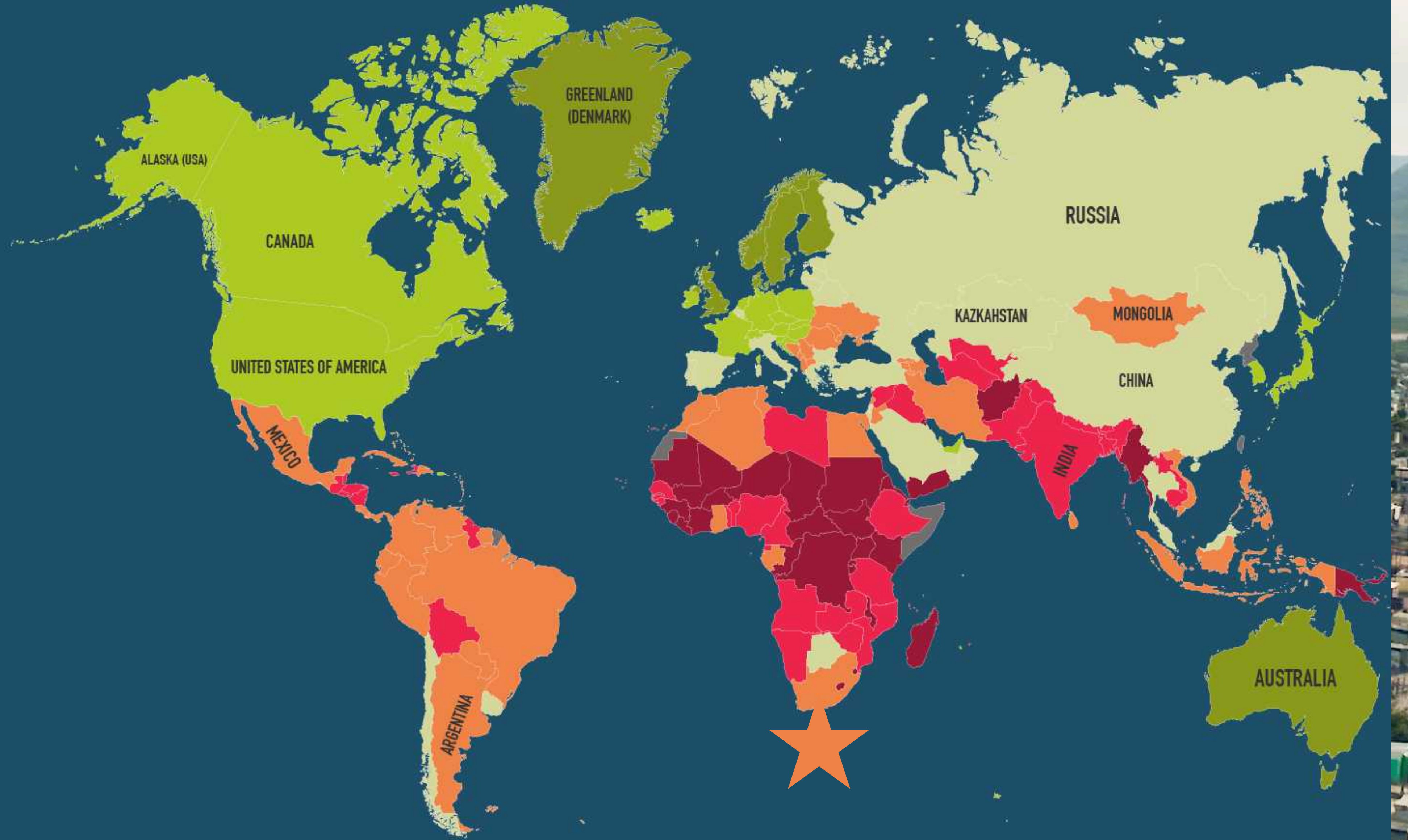
Source: Lancet Planetary Health



Least  
at risk



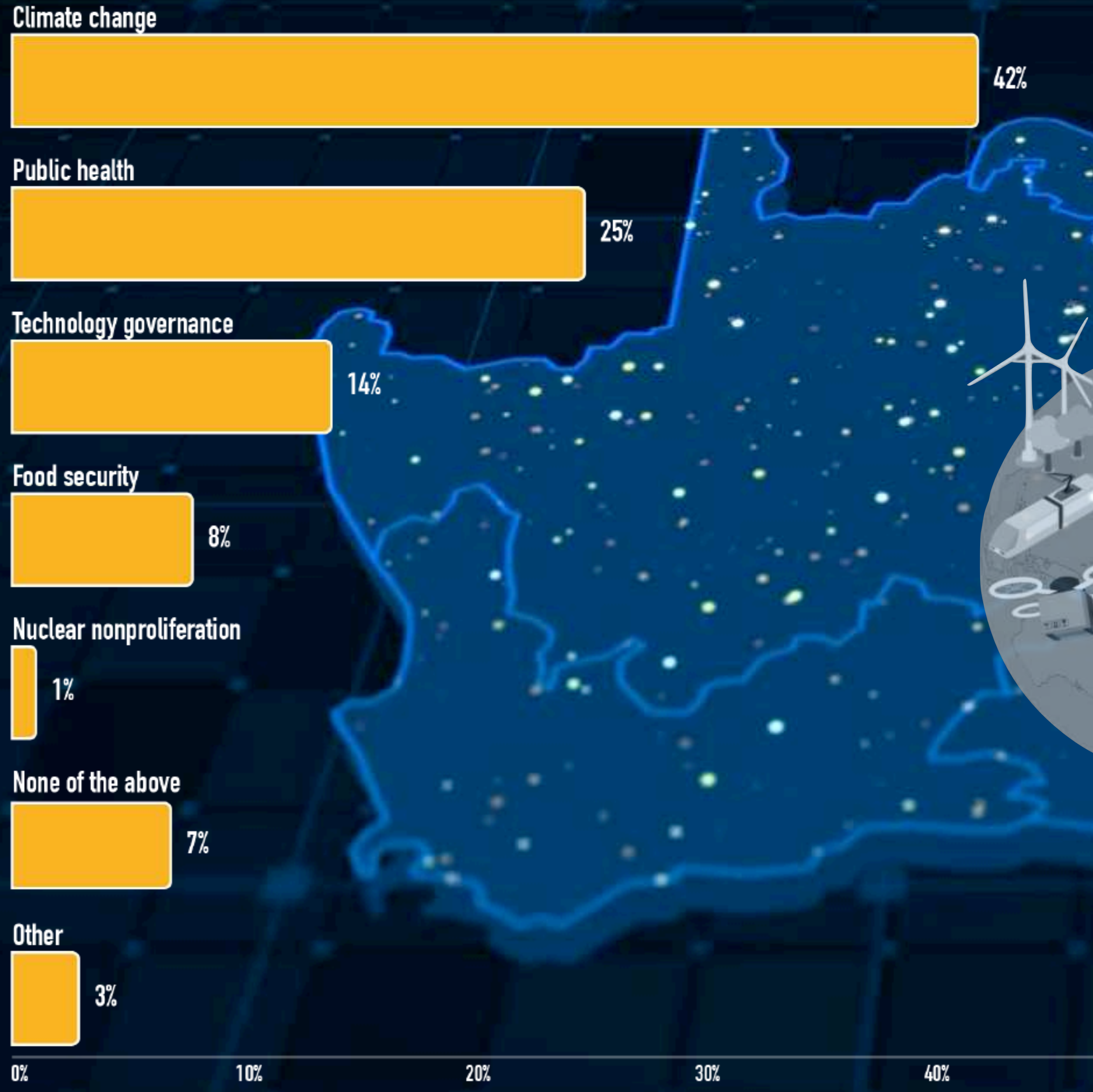
Most  
at risk



Source: Erin Brodwin and Matt Johnston, Business Insider



# IN WHICH OF THE FOLLOWING FIELDS DO YOU EXPECT THE GREATEST EXPANSION OF GLOBAL COOPERATION OVER THE NEXT TEN YEARS?



### At McKinsey, Widespread Furor Over Work With Planet's Biggest Polluters

A letter signed by more than 1,100 employees has called for change at the consulting firm, which has advised at least 43 of the 100 most environmentally damaging companies.  
Oct. 27, 2021, 5:00 a.m. ET



### Coca-Cola, Pepsi and Unilever are world's biggest plastic polluters

Monday, 25 October 2021



### Beef Industry Tries to Erase Its Emissions With Fuzzy Methane Math

A new campaign asserts, incorrectly, that cows in the U.S. "may not be contributing much at all to global warming."  
More stories by Ben Elgin · 19 October 2021, 12:00 CEST

### Historical climate emissions reveal responsibility of big polluting nations

Six of top 10, including China and Russia, yet to show ambition on emissions cuts before Cop26  
Darrian Carrington



### Which countries are historically responsible for climate change?

1850 - 2021



### CoP 26: World is on the line at Glasgow

ExxonMobil has spent more than \$39 million to manufacture doubt about climate science



### Saudi Arabia Pledges 'Net Zero' Carbon Emissions by 2060

Goal doesn't include emissions from the massive amounts of oil the kingdom exports to other countries  
By and · Updated Oct. 24, 2021 3:14 pm ET





GETTY IMAGES

Jay Naidoo thinks mini-grids could be the solution for South Africa's most rural communities

# South Africa turns to solar to help stop power cuts

© 29 November 2022



ZOLA ENERGY

Zola Energy builds mini-grids, with solar panels powering villages



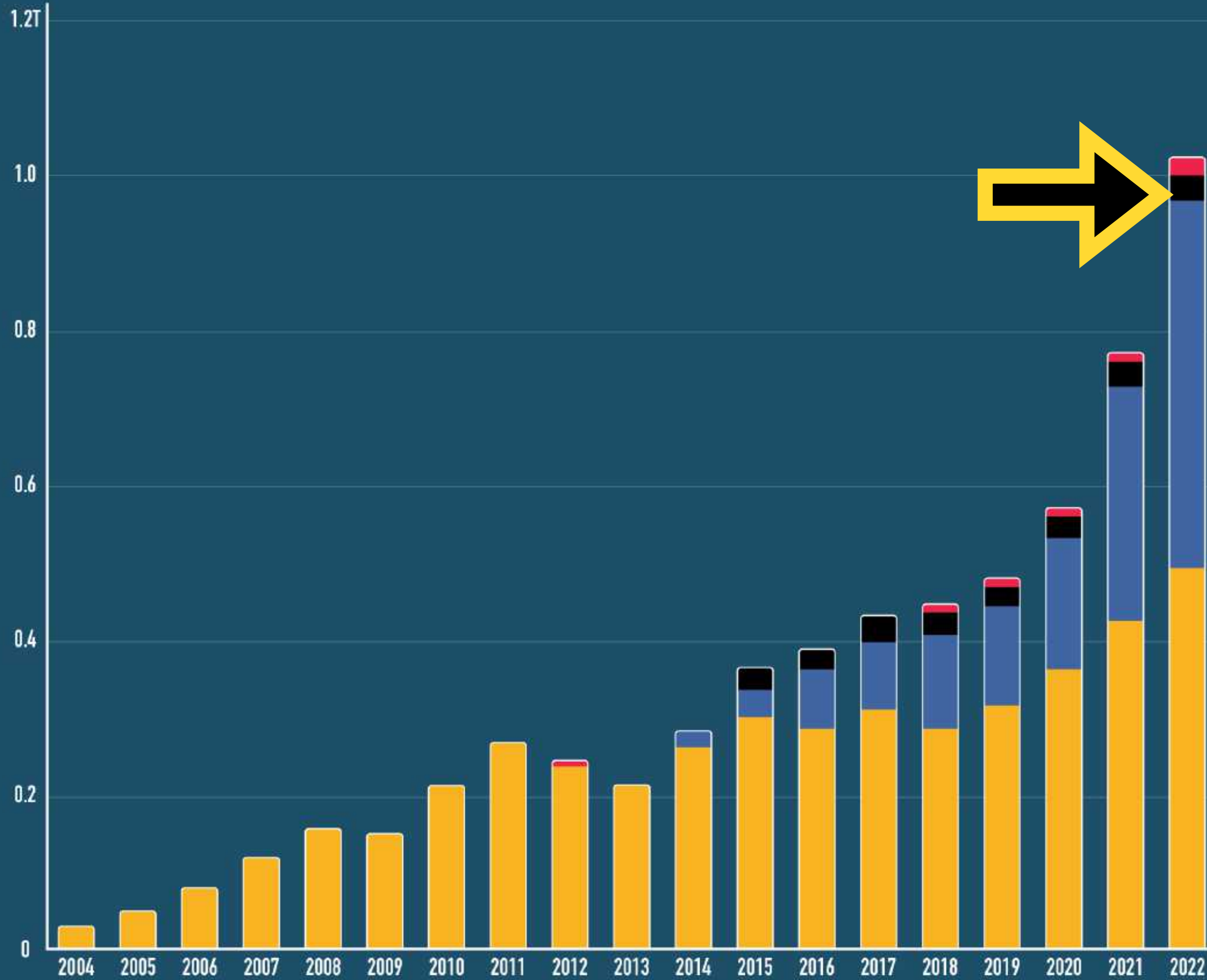
ART SOLAR

South Africa has perfect weather for solar power

# ENERGY TRANSITION INVESTMENTS TOP \$1 TRILLION

Global electric vehicle spending surges in last three years

- Renewable energy
- Nuclear
- EVs
- Energy storage and other



Source: BloombergNEF

# GLOBAL RISKS REPORT 2023

"PLEASE ESTIMATE THE LIKELY IMPACT (SEVERITY) OF THE FOLLOWING RISKS OVER A 2-YEAR AND 10-YEAR PERIOD"

2 years

- 1 Cost of living crisis
- 2 Natural disasters and extreme weather events
- 3 Geoeconomic confrontation
- 4 Failure to mitigate climate change
- 5 Erosion of social cohesion and societal polarization
- 6 Large-scale environmental damage incidents
- 7 Failure of climate-change adaption
- 8 Widespread cybercrime and cyber insecurity
- 9 Natural resource crises
- 10 Large-scale involuntary migration

10 years

- 1 Failure to mitigate climate change
- 2 Failure of climate-change adaption
- 3 Natural disasters and extreme weather events
- 4 Biodiversity loss and ecosystem collapse
- 5 Large-scale involuntary migration
- 6 Natural resource crises
- 7 Erosion of social cohesion and societal polarization
- 8 Widespread cybercrime and cyber insecurity
- 9 Geoeconomic confrontation
- 10 Large-scale environmental damage incidents

Risk categories: ● Environmental ● Societal ● Economic ● Geopolitical ● Technological

# GLOBAL RISKS REPORT 2023

"PLEASE ESTIMATE THE LIKELY IMPACT (SEVERITY) OF THE FOLLOWING RISKS OVER A 2-YEAR AND 10-YEAR PERIOD"

10 years

BUSINESS AS USUAL  
IS DEAD  
OR DYING

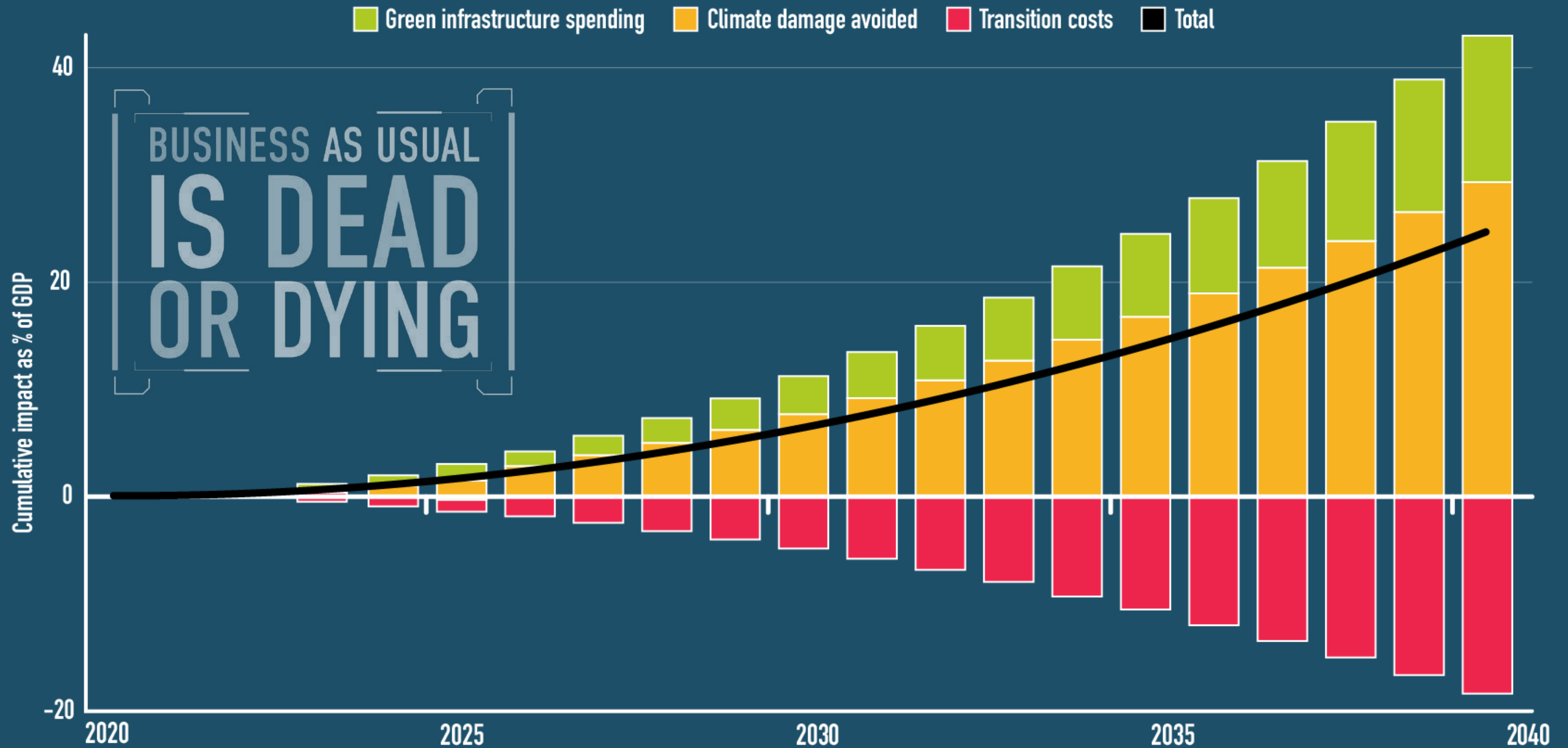
- 1 Failure to mitigate climate change
- 2 Failure of climate-change adaption
- 3 Natural disasters and extreme weather events
- 4 Biodiversity loss and ecosystem collapse
- 5 Large-scale involuntary migration
- 6 Natural resource crises
- 7 Erosion of social cohesion and societal polarization
- 8 Widespread cybercrime and cyber insecurity
- 9 Geoeconomic confrontation
- 10 Large-scale environmental damage incidents

Risk categories: ● Environmental ● Societal ● Economic ● Geopolitical ● Technological



# TRANSITION RESULTS IN NET ECONOMIC GAIN

## ESTIMATED CUMULATIVE GDP IMPACT OF TRANSITION, 2020-2040



# PURPOSE REVOLUTION

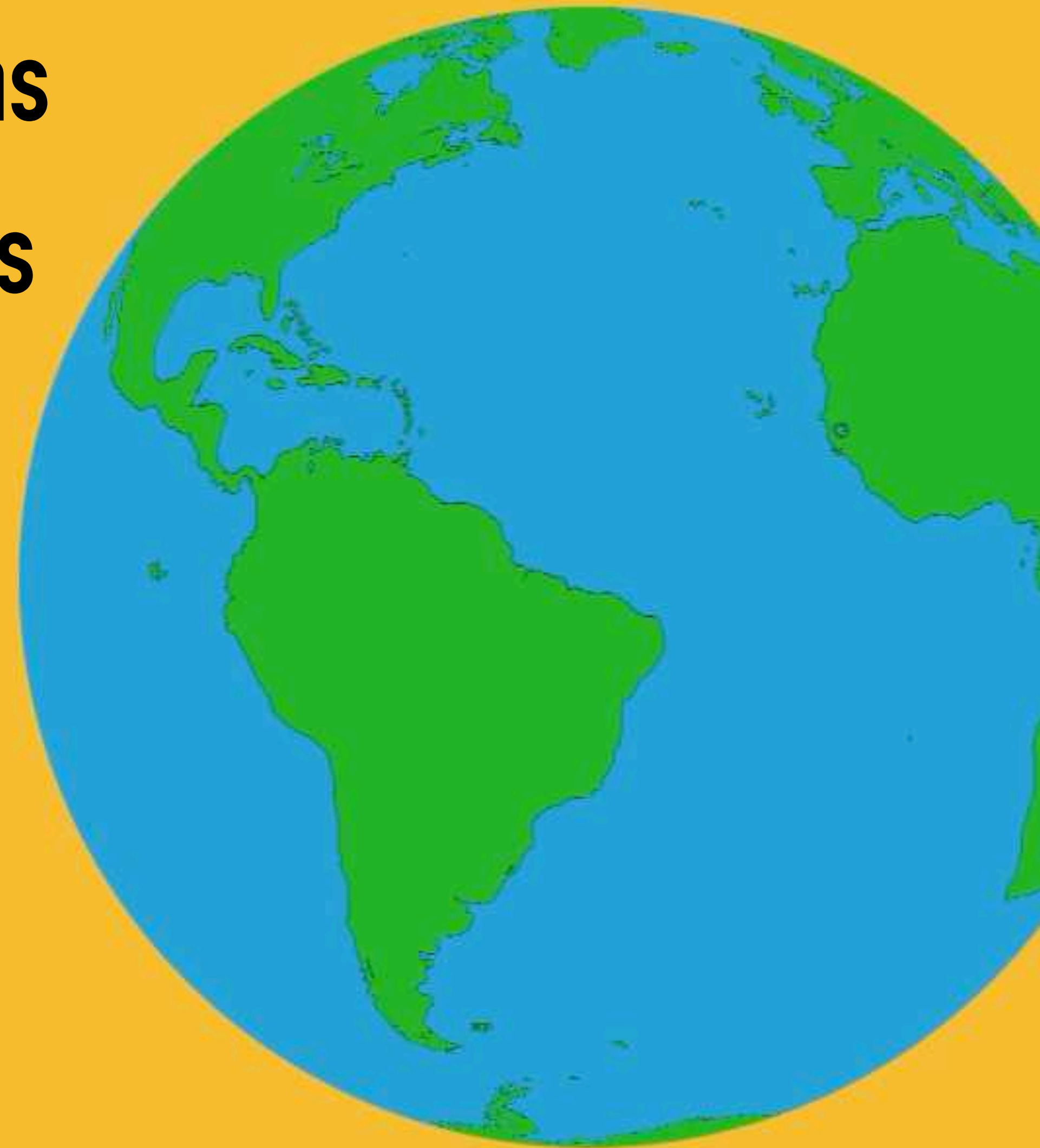


# PROFIT GROWTH



**PEOPLE  
PLANET  
PURPOSE  
PROSPERITY**

**New Paradigms  
New Narratives  
New Priorities  
New Rules  
New Skills  
New \$**



# Purpose



PEOPLE  
PLANET  
PURPOSE  
PROSPERITY



Gerd

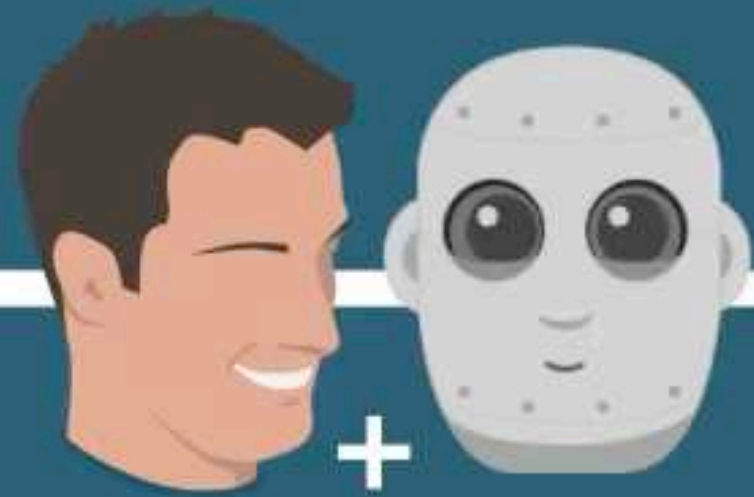
# AI: “Computer systems that turn information and data into **KNOWLEDGE**”

(Demis Hassabis, CEO, DeepMind)

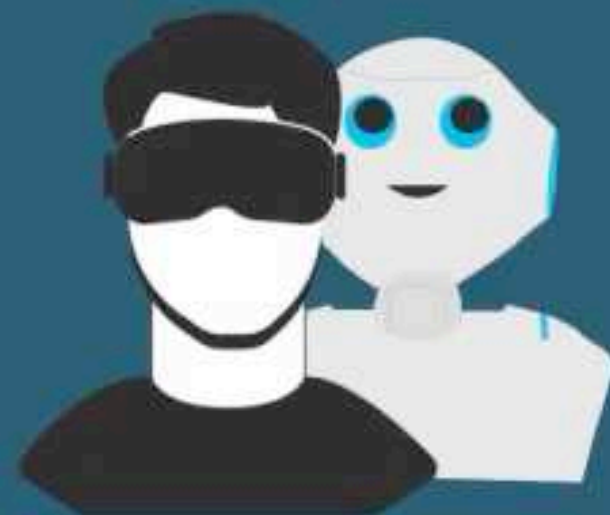
ASSISTED INTELLIGENCE



AUTOMATION



AUGMENTED INTELLIGENCE



AUTONOMOUS INTELLIGENCE





What about nuclear power?



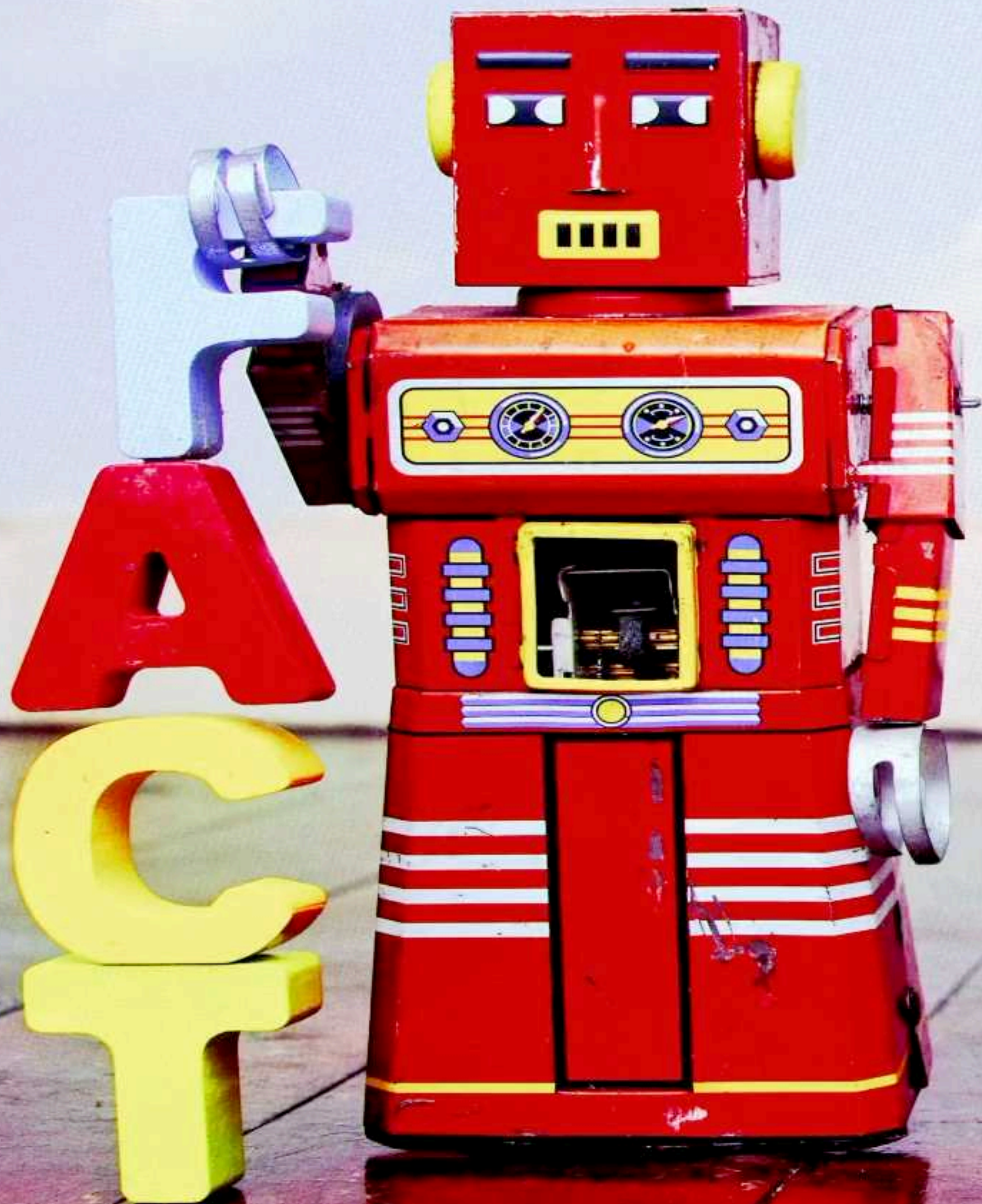
Nuclear power is another potential solution to South Africa's energy crisis, as it is a reliable and low-carbon energy source. However, building and operating a nuclear power plant is a complex and expensive process that can take many years. Additionally, nuclear power comes with certain risks, such as potential nuclear accidents and the storage of radioactive waste.

South Africa has experience with nuclear power, having operated the Koeberg nuclear power station since the 1980s. However, the country has faced challenges in expanding its nuclear power capacity due to cost and public opposition.

Ultimately, the decision to pursue nuclear power as a solution to South Africa's energy crisis would require careful consideration of the costs, benefits, and risks, as well as the potential for alternative energy sources like renewables to meet the country's energy needs ■

Stop generating

**GENERATIVE  
ARTIFICIAL  
INTELLIGENCE (AI)**  
describes algorithms (such as ChatGPT) that can be used to create new content, including audio, code, images, text, simulations, and videos. Recent new breakthroughs in the field seem to have the potential to drastically change the way we approach EVERYTHING



What does the quick brown fox do?

relevant day what  
flower The white slow think icon  
users dog jumps the run  
chat cat together picture tree apple  
quick over fox lazy junk  
brown

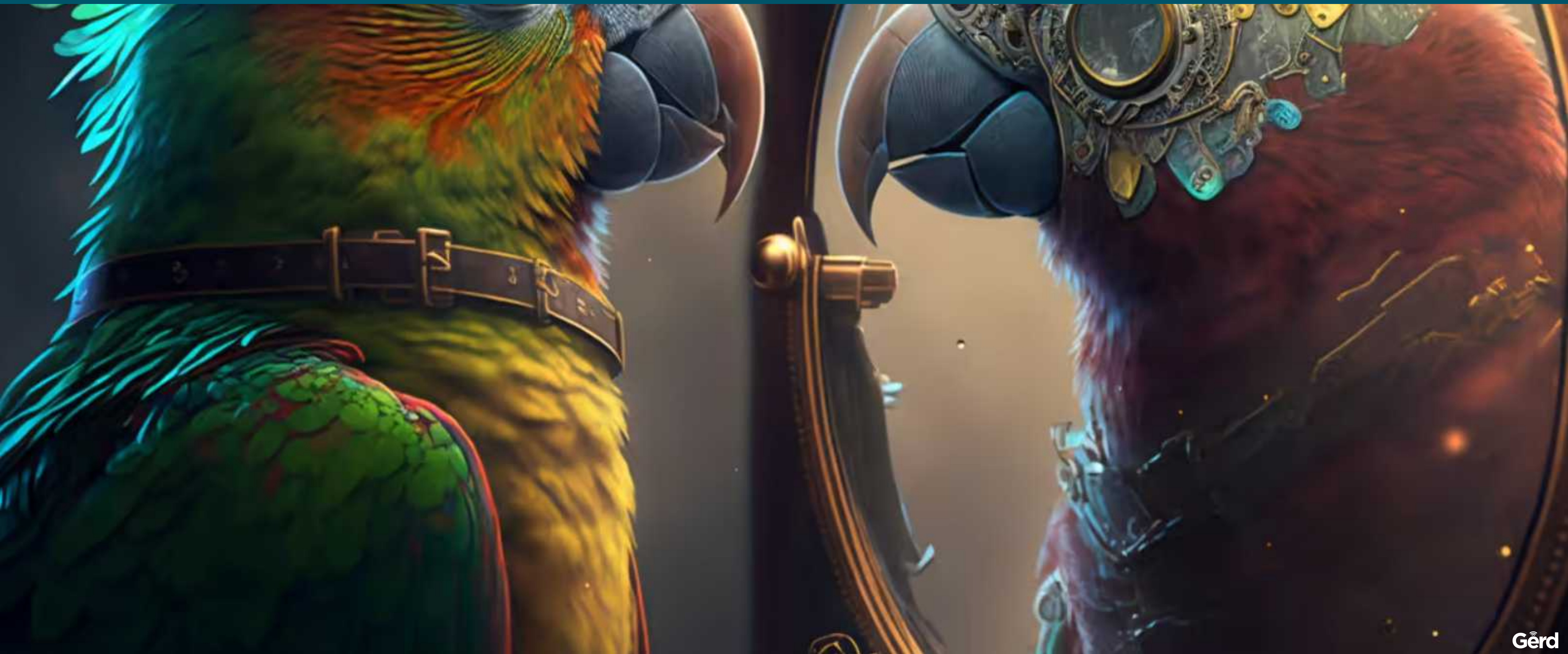
What does the quick brown fox do?

The quick brown fox jumps  
over the lazy dog

Marques Brownlee  
@mkbhd  
16.7M subscribers



**LOGIC ALONE IS NOT ENOUGH. REAL LIFE IS NOT BINARY.  
PURE LOGIC WITHOUT WISDOM IS OFTEN QUITE DANGEROUS.**



**Human-  
Only  
Turf**

**Machine  
Turf?**

**PURPOSE**

**WISDOM**

**UNDERSTANDING**

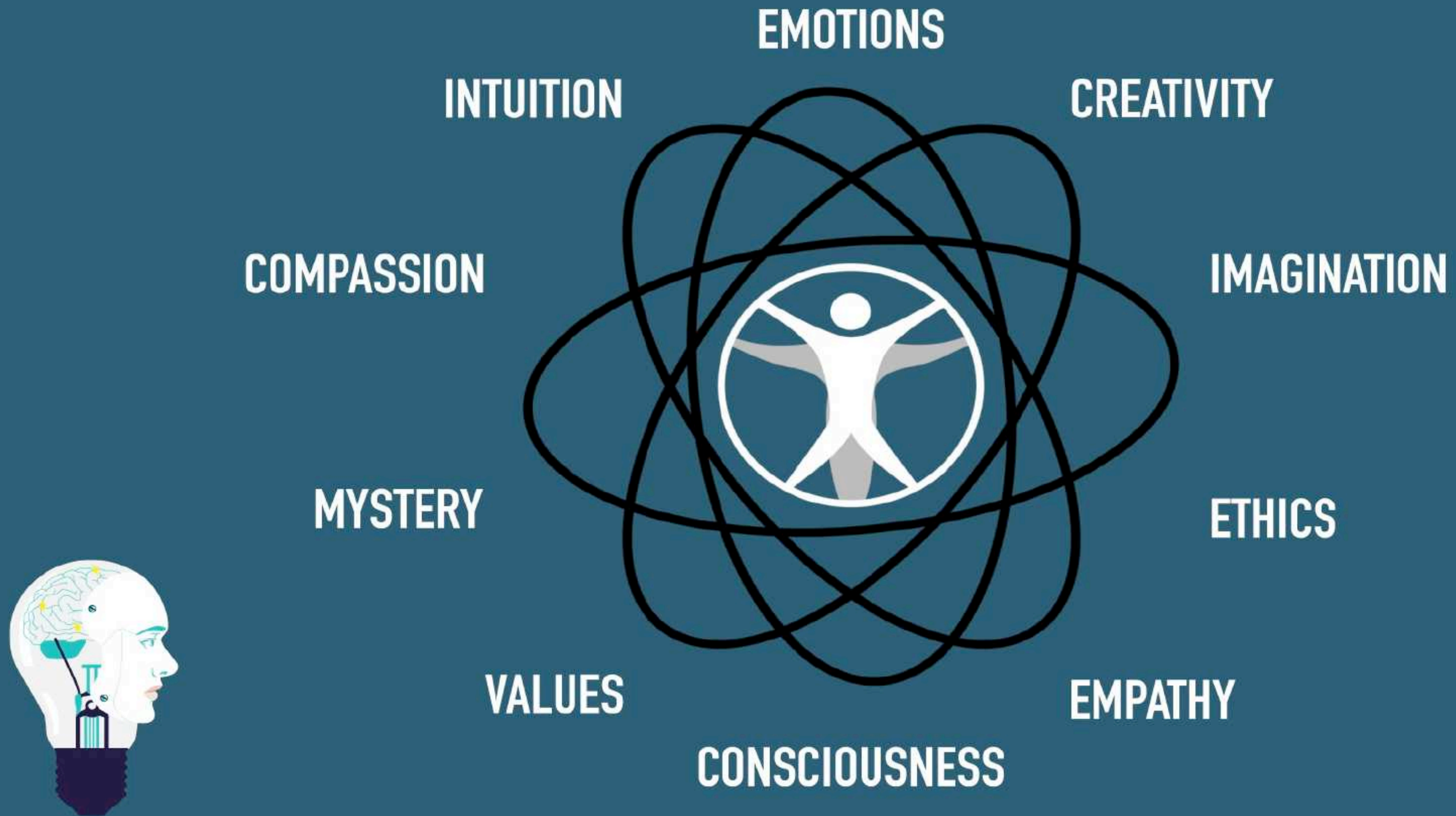
**TACIT KNOWLEDGE**

**DEEPER KNOWLEDGE**

**INTELLECTUAL KNOWLEDGE / LOGIC**

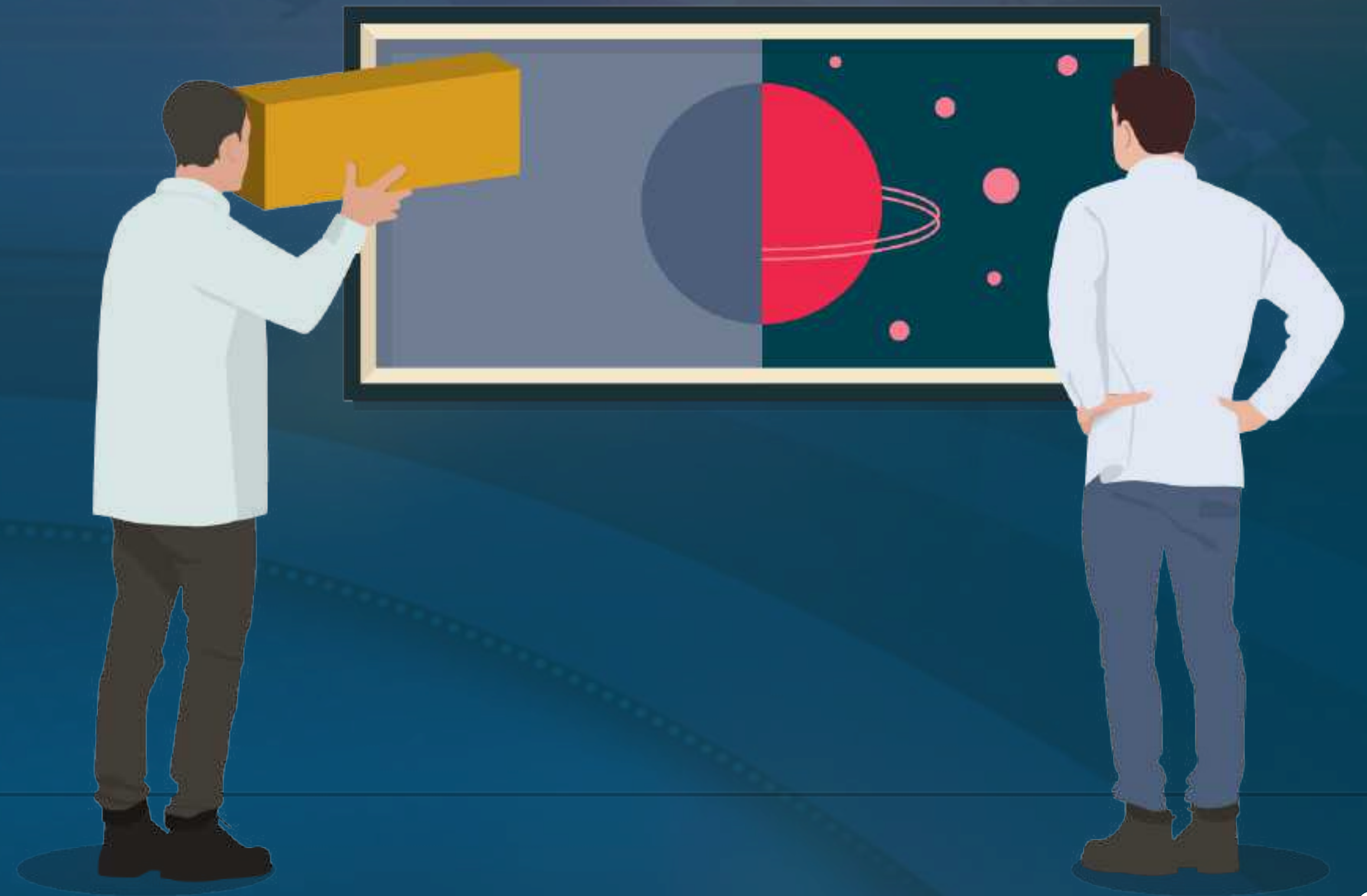
**DATA AND INFORMATION**

# Algorithms know the PATTERNS of everything but the MEANING of nothing



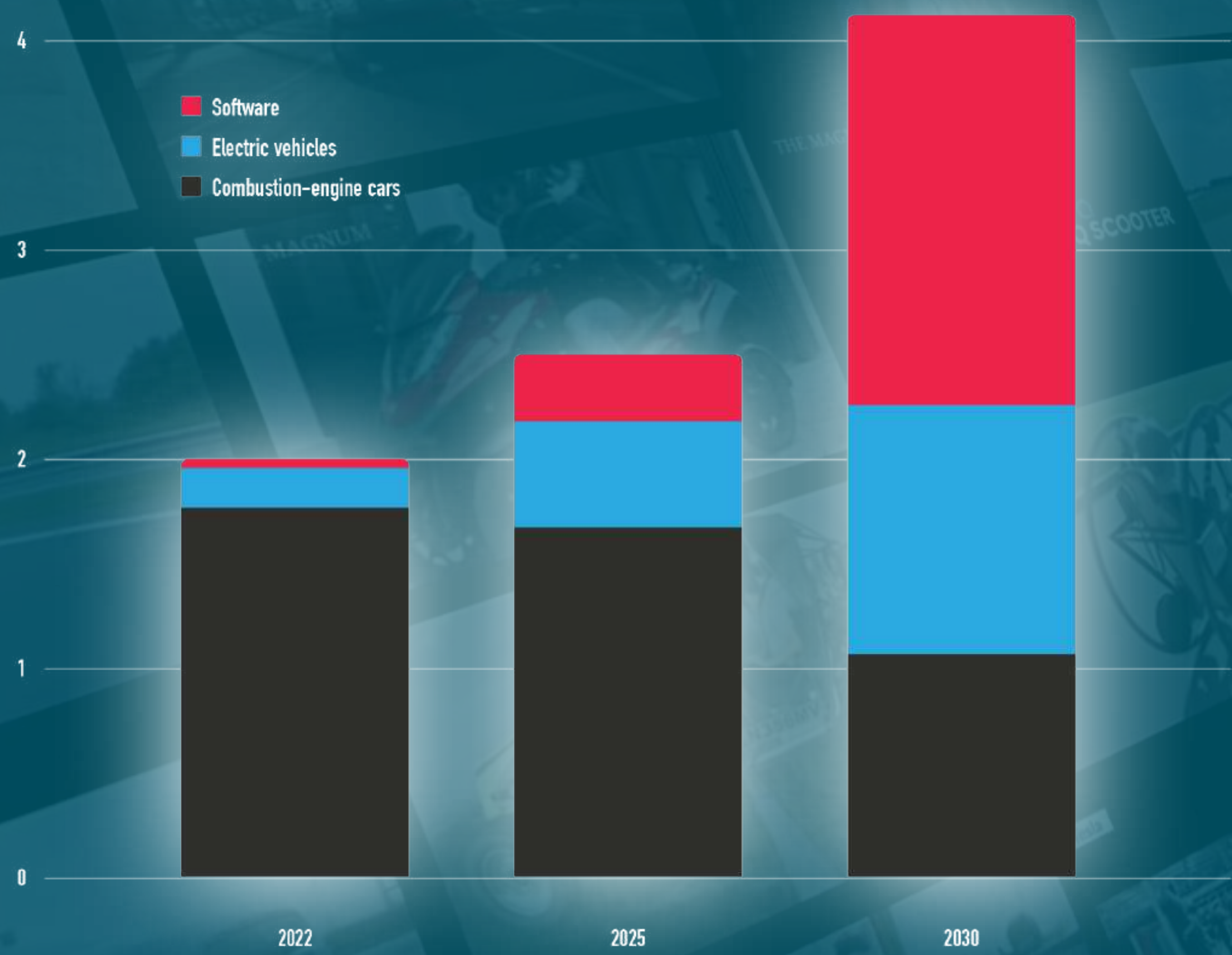


**The future belongs to those that  
can hear/see/feel it coming!**



# GLOBAL CAR INDUSTRY, REVENUE BY SECTOR, \$TRN FORECAST

BUSINESS AS USUAL  
**IS DEAD  
OR DYING**



Source: The Economist

# Utopia **PROTOPIA** Dystopia

THE GOOD FUTURE



BUSINESS AS USUAL  
**IS DEAD  
OR DYING**

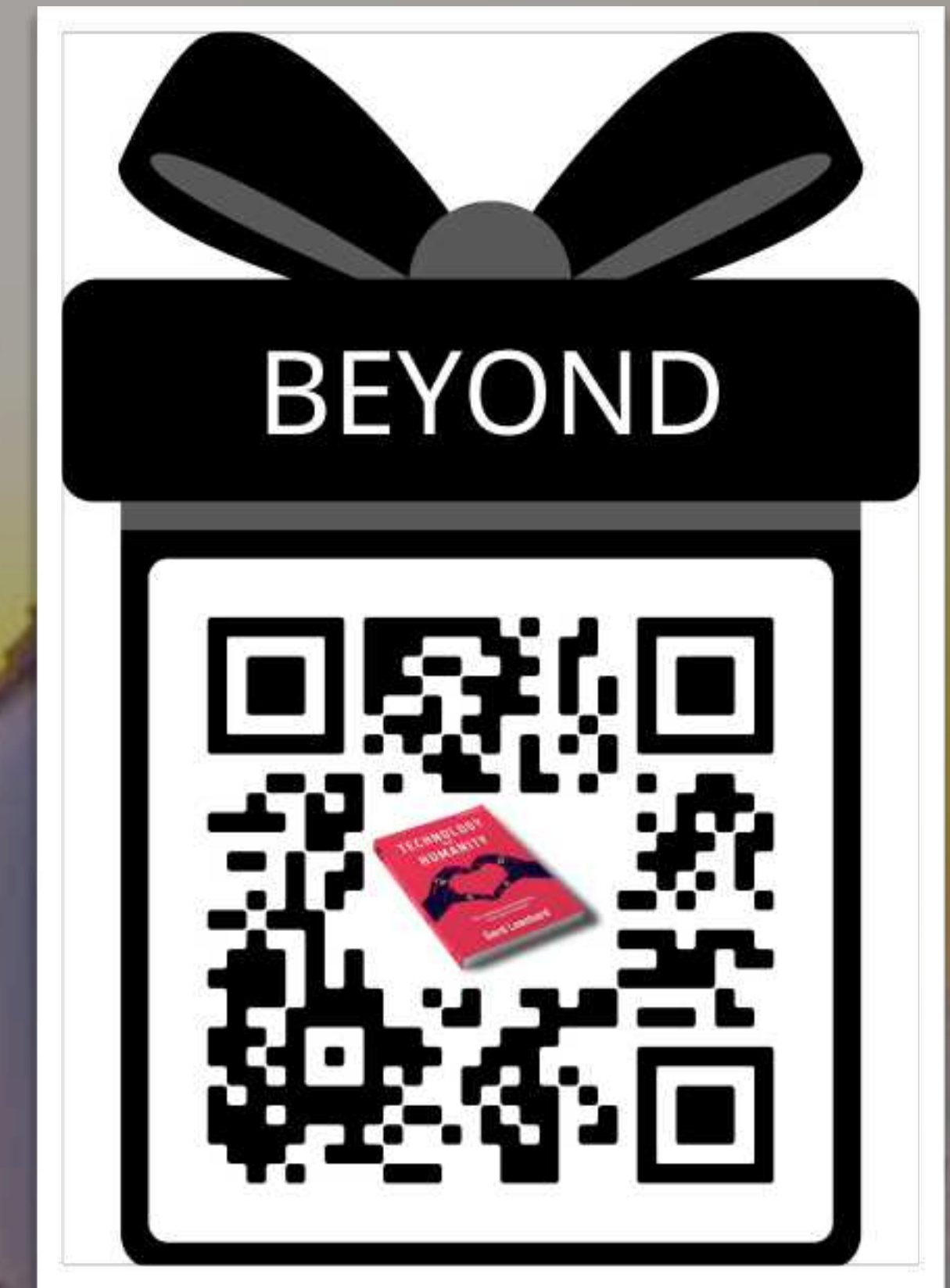
**GREEN**  
IS THE NEW  
**DIGITAL**

# Purpose (Summary)

- Embrace the 3 Revolutions: Digital, Sustainable, Purposeful. Understand 4 techs: Info, Energy, Bio, AI.
- Practice “Pessimism of the intellect, but optimism of the mind (heart)” \*Antonio Gramsci
- “As we see the future, so we act; as we act so we become”: The Future belongs to OPTIMISTS
- **Stubborn Optimism** is a requirement for creating TheGoodFuture: Develop your positive narratives:
- PROTOPIA – a stepwise and exponential approach to the Good Future (not Utopia or Dystopia)
- Spend 45–60 minutes in the future, every day: READ THE BEST BOOKS, develop your FUTURE MINDSET
- Reminder: “We are to be ARCHITECTS of the future, not its victims” (Buckminster Fuller)



# Thanks for your time and attention, now let's talk!



Gerd Leonhard, Futurist



@gleonhard



gerdtube.com



futuristgerd.com



thegoodfuturefilm.com



thegoodfutureproject.com

futureworld

create tomorrow together

Gerd