THE FUTURE IS BETTER THAN WE THINK!

THE DECLINE OF POVERTY

People Living on $1.25 or Less a Day

2 Bn

1 Bn

1990   2000   2010   2020   2030

Source: The Economist

GLOBAL CHILD MORTALITY

50%

40%

30%

20%

10%

1900   1920   1940   1960   1980   2000

Source: World Bank

DATAFICATION

MOBILIZATION

ROBOTIZATION

DISINTERMEDIATION

VIRTUALIZATION

MEGASHIFTS

SCREENIFICATION

INTELLIGIZATION

COGNIFICATION

PERSONALIZATION

DIGITIZATION

Gerd

DATAFICATION

...TION

...BOTIZATION

SCREENIFICATION

INTELLIGIZATION

COGNIFICATION

PERSONALIZATION

Verify what's inside:

PILLS
Verify pill composition

MEATS
Detect water-injected meat

DRINKS
Verify alcoh...

c|net

SMART EVERYTHING: agriculture, farming, logistics, packaging, shipping...
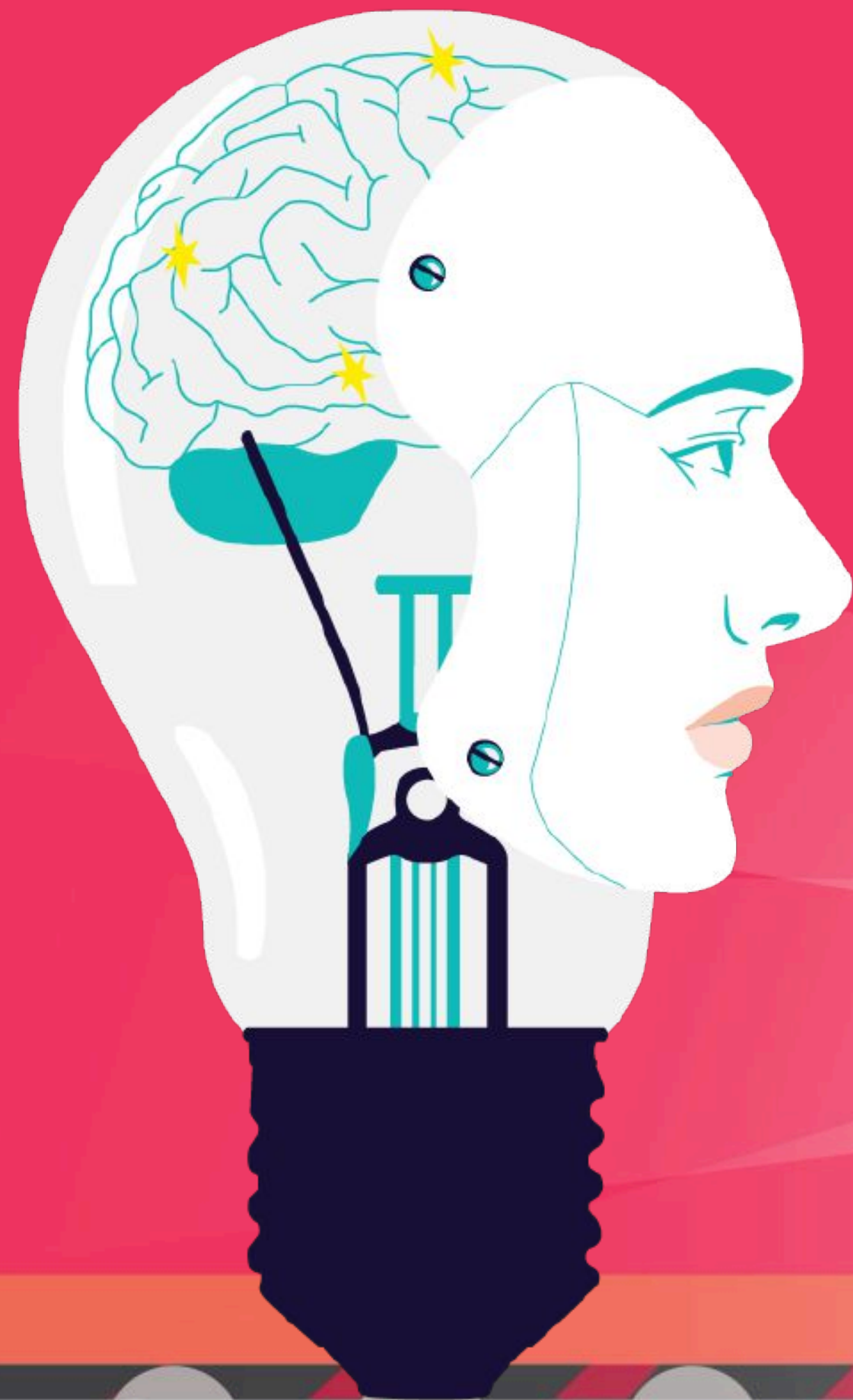
DIGITAL TRANSFORMER

SMART BANKING

SMART HEALTH

SMART RETAIL
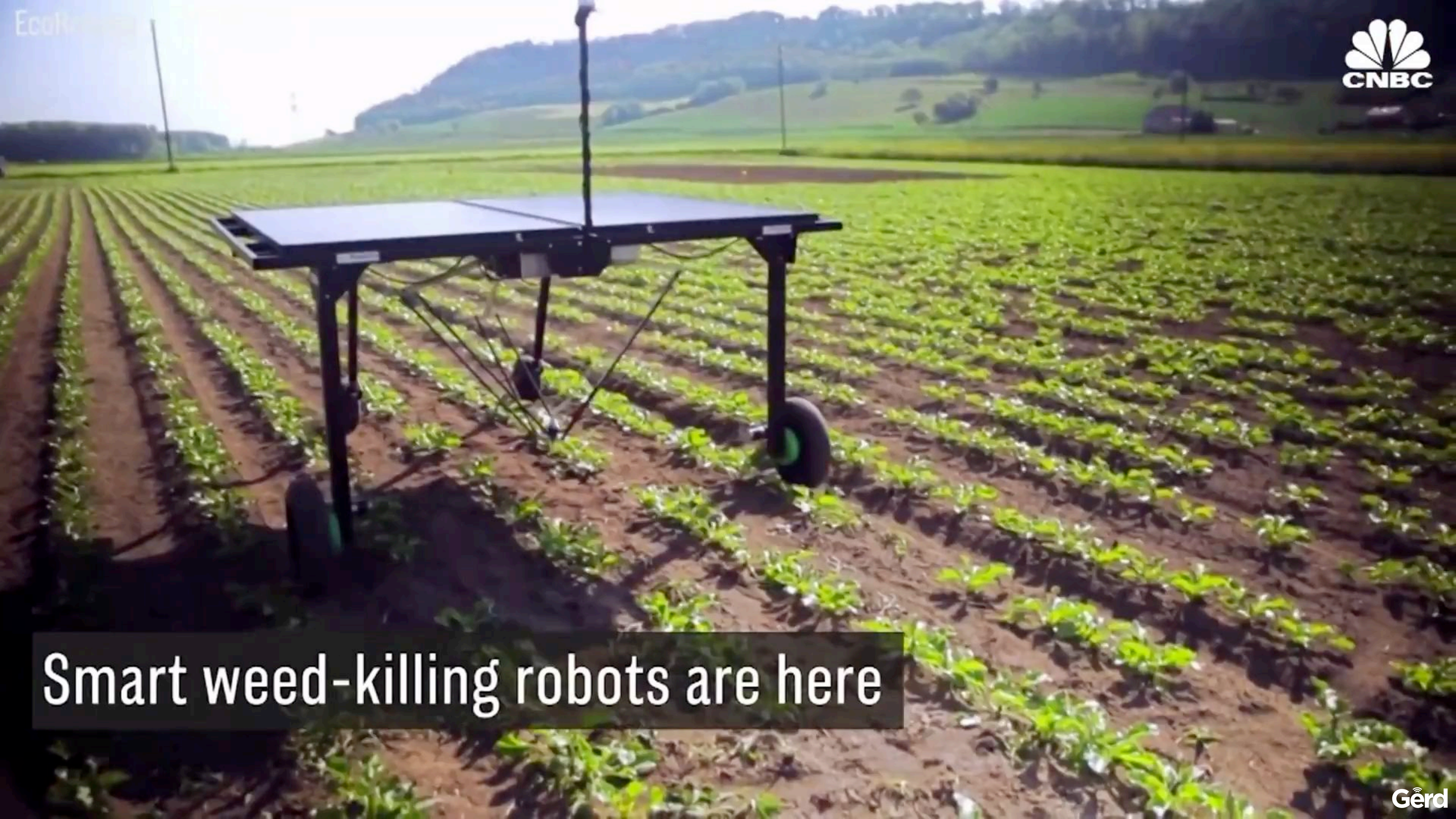
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Everything should be as smart as necessary, but not smarter

(riffing off Albert Einstein)

AI

EVERYTHING EVERYWHERE EVERYONE

Gerd

Biology ⬮ Technology ⬮ Food ⬮ Agriculture

FUTURE - - - - - - - - - - - - - - - - - -

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The next 20 years will bring more change than the previous 300 years!

Blockchain Technology

Genome Sequencing

Robotics

Energy Storage

Artificial Intelligence

Telephone

Automobile

Electricity

Computer

Internet

1900   1920   1940   1960   1980   2000   2020

Source: ARK Investment Management

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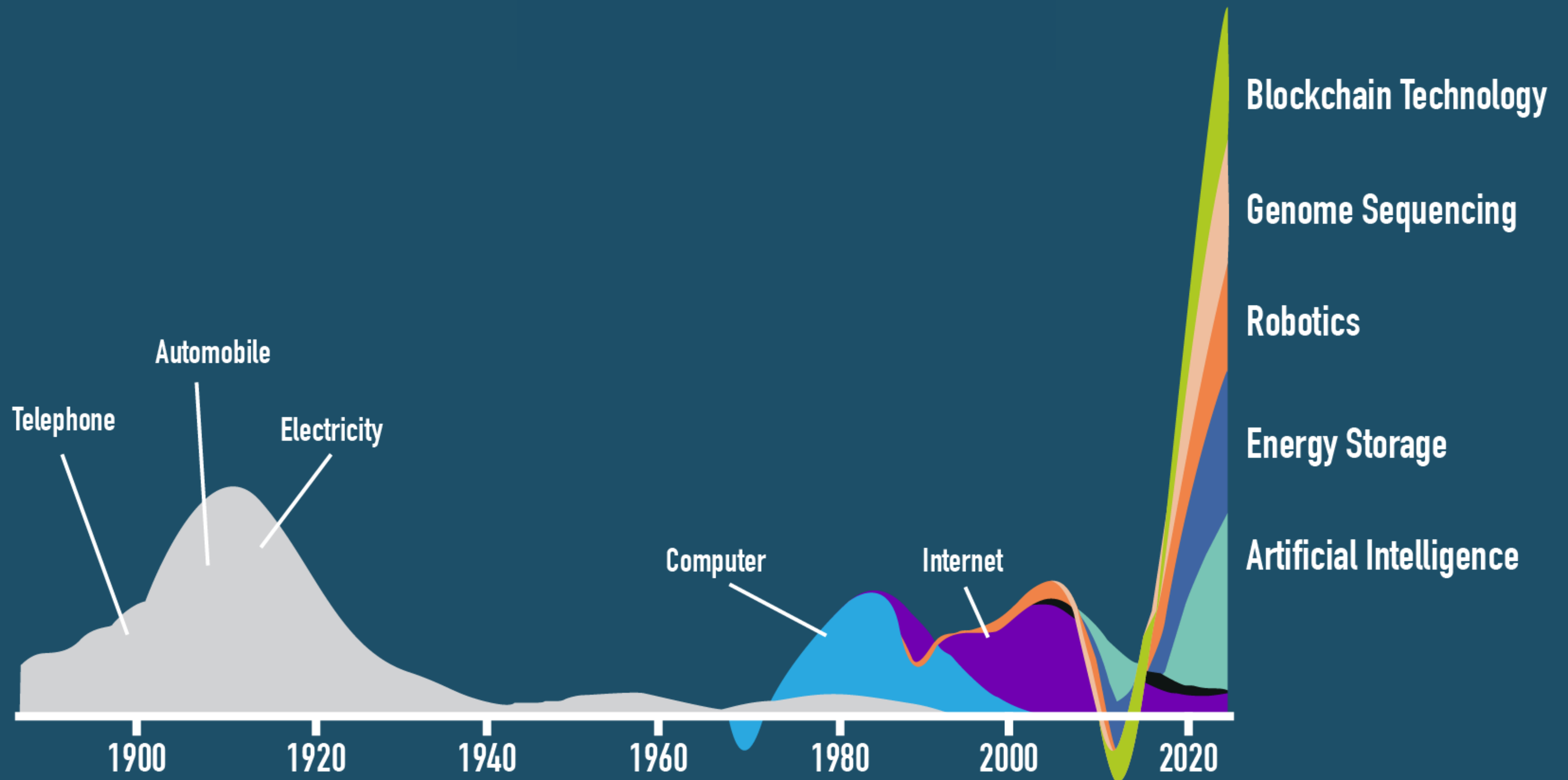
DATA EVERYWHERE

CONNECTED EVERYTHING
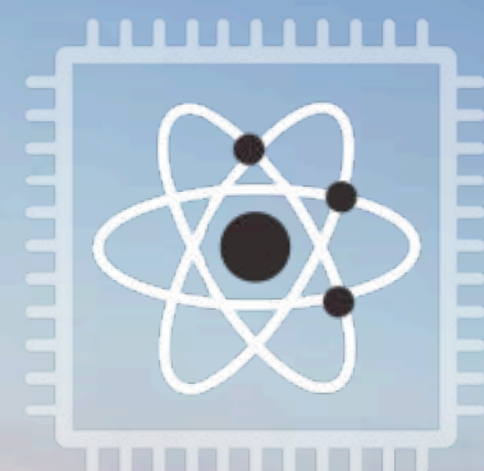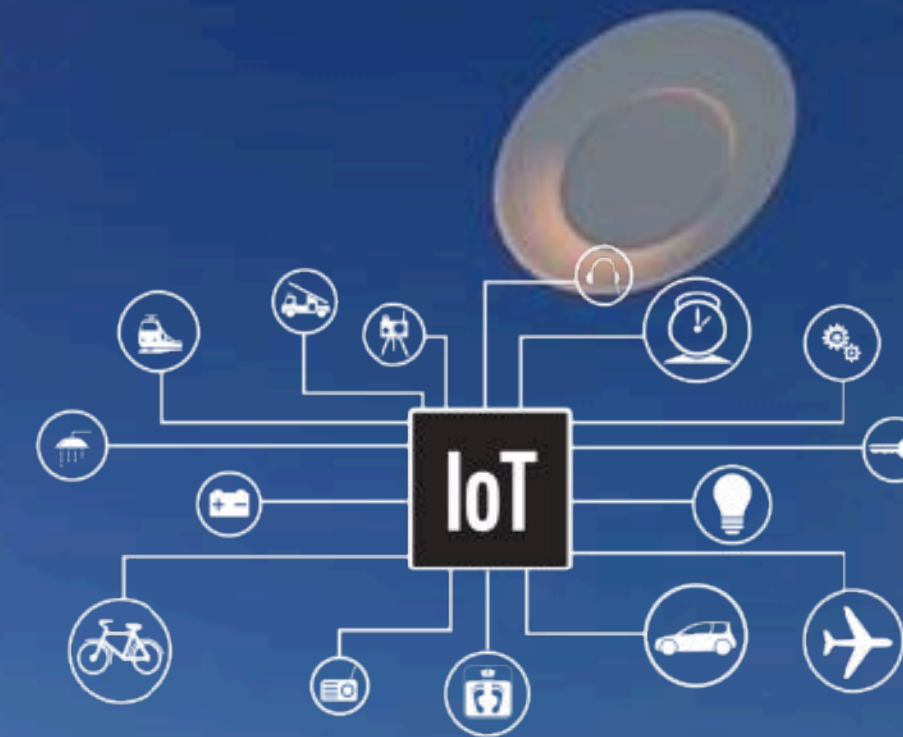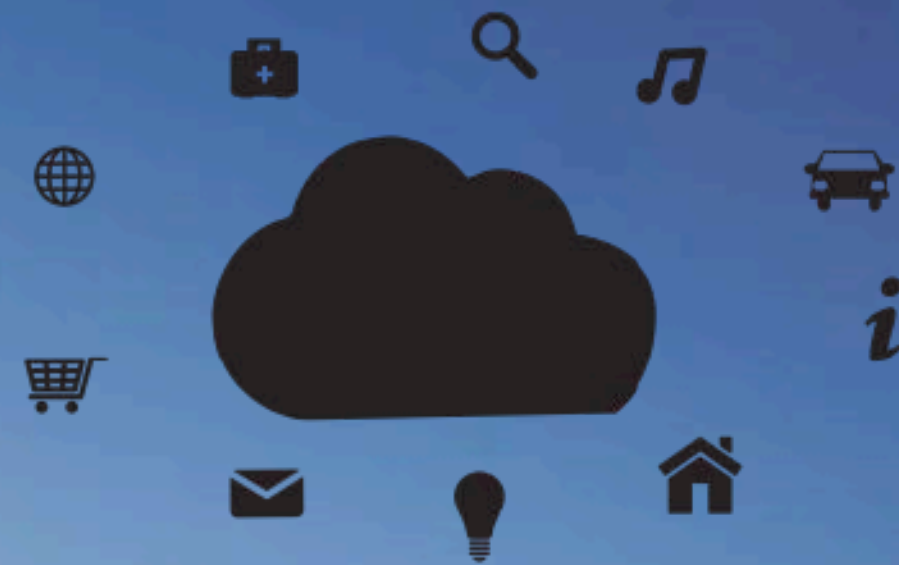
CLOUD EVERYTHING

COMPUTE ANYTHING

SMART EVERYTHING

TRANSACT ANYTHING

SEE EVERYTHING

MAKE (BE) ANYTHING

IoT

AI

3D

Gerd

CONFLATING TRENDS

SEVERAL TRENDS ARE PUSHING AG-TECH FORWARD

66% OF PEOPLE WILL LIVE IN CITIES BY 2050 COMPARED TO 54% IN 2014

50% INCREASE IN FOOD DEMAND BY 2050

31.8% DROP IN AGRICULTURAL WORKERS IN DEVELOPED COUNTRIES SINCE 1950

3 BILLION MORE MOUTHS TO FEED BY 2050

32.8% DROP IN AGRICULTURAL WORKERS IN DEVELOPING COUNTRIES

SOURCE: FAO

CO.EXIST

CRISPR Is Going To Revolutionize Our Food System—And Start A New War Over GMOs

The gene-editing tool could create drought-resistant grain or allergy-free peanuts. Will a society on edge about genetically modified food embrace this newest innovation?

Illustration: Eric Palma for Fast Company

Science fiction is becoming science fact: Meat ≠ Animals!

Gerd

Science fiction is becoming science fact: Meat ≠ Animals!

GLOBAL MEAT CONSUMPTION
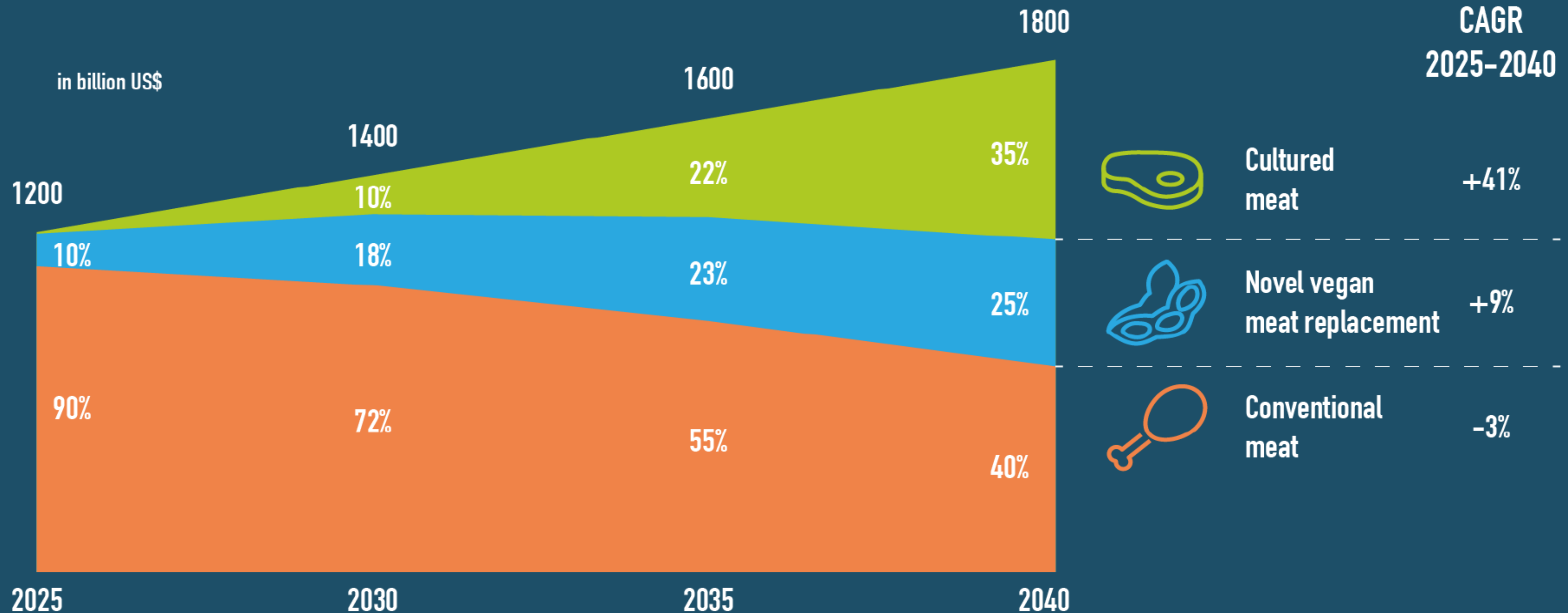
in billion US$

CAGR
2025–2040

1800

1600

1400

1200

Cultured
meat — +41%

Novel vegan
meat replacement — +9%

Conventional
meat — −3%

Cultured meat: 10% (2025), 10% (2030), 22% (2035), 35% (2040)

Novel vegan meat replacement: 10% (2025), 18% (2030), 23% (2035), 25% (2040)

Conventional meat: 90% (2025), 72% (2030), 55% (2035), 40% (2040)

2025   2030   2035   2040

Source: United Nations, World Bank, Expert interviews; A.T. Kearney analysis

GERD

Can you imagine a 'post-meat' food ecosystem?

I BELIEVE THAT IN 30 YEARS OR SO WE WILL NO LONGER NEED TO KILL ANY ANIMALS AND THAT ALL MEAT WILL EITHER BE CLEAN OR PLANT-BASED, TASTE THE SAME AND ALSO BE MUCH HEALTHIER FOR EVERYONE."

RICHARD BRANSON,
VIRGIN AMERICA FOUNDER AND MEMPHIS
MEATS INVESTOR

Gerd

Can you imagine a 'post-meat' food ecosystem?

I BELIEVE THAT IN 30 YEARS OR SO WE WILL NO LONGER NEED TO KILL ANY ANIMALS AND THAT ALL MEAT WILL EITHER BE CLEAN OR PLANT-BASED, TASTE THE SAME AND ALSO BE MUCH HEALTHIER FOR EVERYONE."

RICHARD BRANSON, VIRGIN AMERICA FOUNDER AND MEMPHIS MEATS INVESTOR

WORLD ECONOMIC FORUM

A new start-up is growing meat in tanks

TCA
5%

Source: Bloomberg

Gerd

Many farmers are prepared to talk about quitting in wake of nitrogen chaos

Photo: Depositphotos.com

A clear majority of Dutch farmers are doubtful about whether or not their business can continue and four in 10 say they are prepared to talk about closing down, if there is a good compensation package, broadcaster NOS said on Wednesday.

Air France To Carbon Offset Every Domestic Flight Booking

Air France is to begin carbon offsetting every domestic flight booking. The change comes as interest in the flight shaming movement grows globally. The mandatory carbon offsetting will come into effect from the start of 2020.

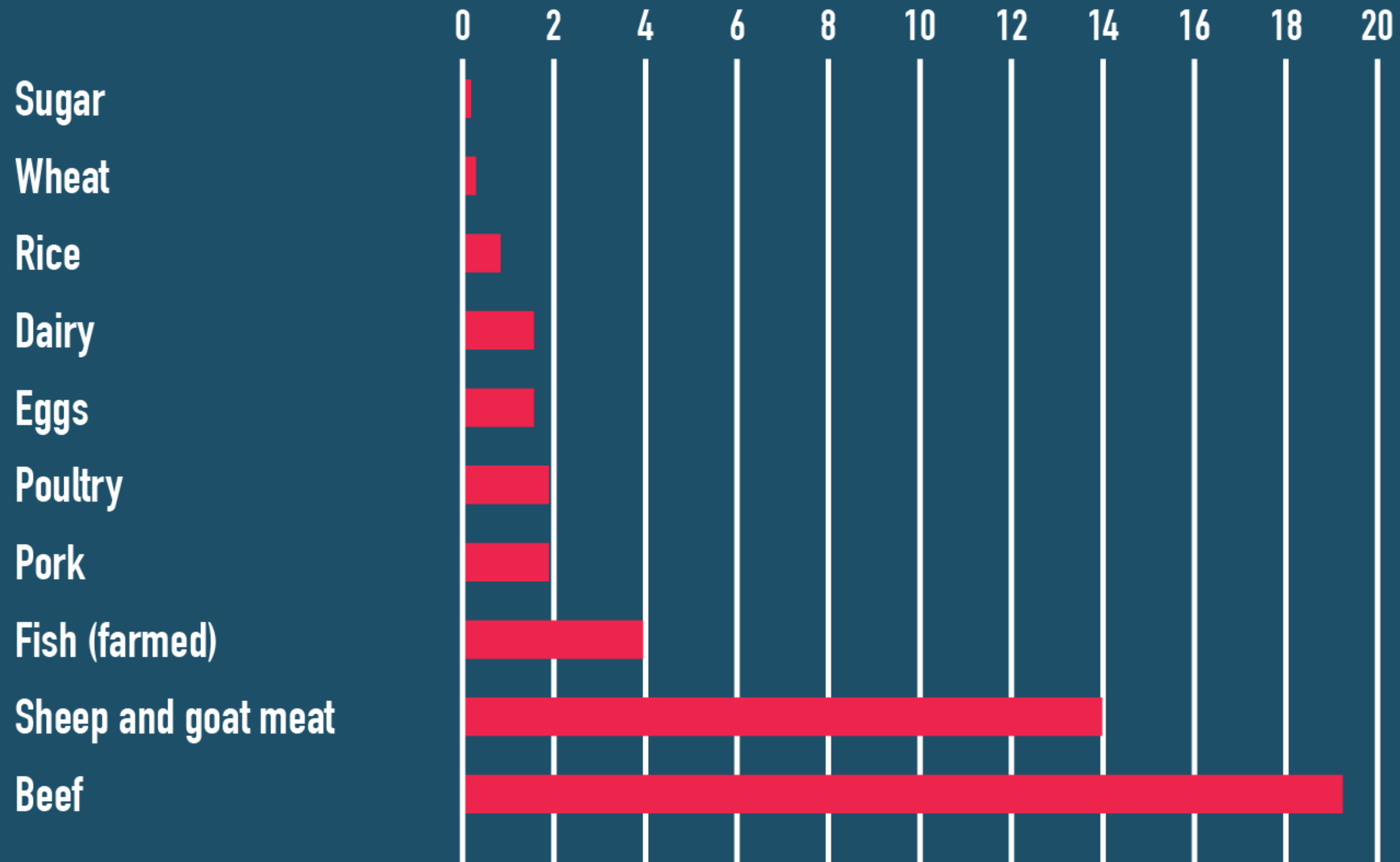Air France is to carbon offset every mainland domestic flight from January 2020. Photo: Air France

Around the world, more and more attention is being drawn to the ecological impact of flying. The aviation industry is responsible for 2.5% of the world's CO_2 emissions. As such, it comes as no surprise that airlines are doing what they can to cut the carbon footprint of their flights. Domestic flights in EU

Gerd

Next: mandatory veganism?

(metric tons of carbon dioxide equivalent per million calories consumed)

	0	2	4	6	8	10	12	14	16	18	20
Sugar											
Wheat											
Rice											
Dairy											
Eggs											
Poultry											
Pork											
Fish (farmed)											
Sheep and goat meat											
Beef											

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Food abundance by exponential technological progress?
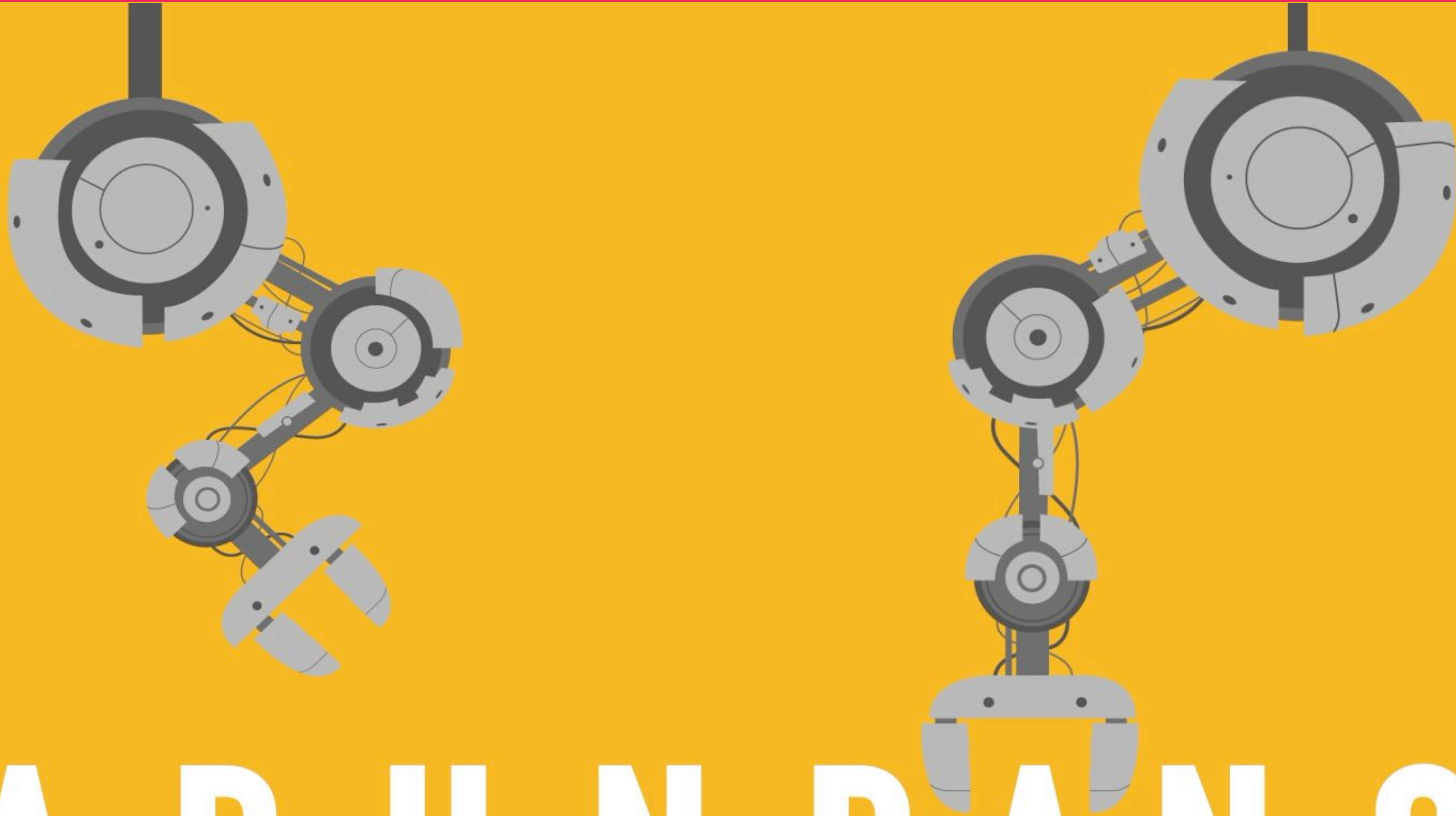
ABUNDANCE

GLOBAL RISK OUTLOOK FOR 2019

Types of Risks: ■ **Environmental** ■ **Geopolitical** ■ **Societal** ■ **Technological**

Top 5 Global Risks in terms of IMPACT

1. Weapons of mass destruction
2. Failure of climate-change mitigation and adaptation
3. Extreme weather events
4. Water crises
5. Natural disasters

Top 5 Global Risks in terms of LIKELIHOOD

1. Extreme weather events
2. Failure of climate-change mitigation and adaptation
3. Natural disasters
4. Data fraud or theft
5. Cyber-attacks

Gĕrd

'Business as usual' is coming to an end!

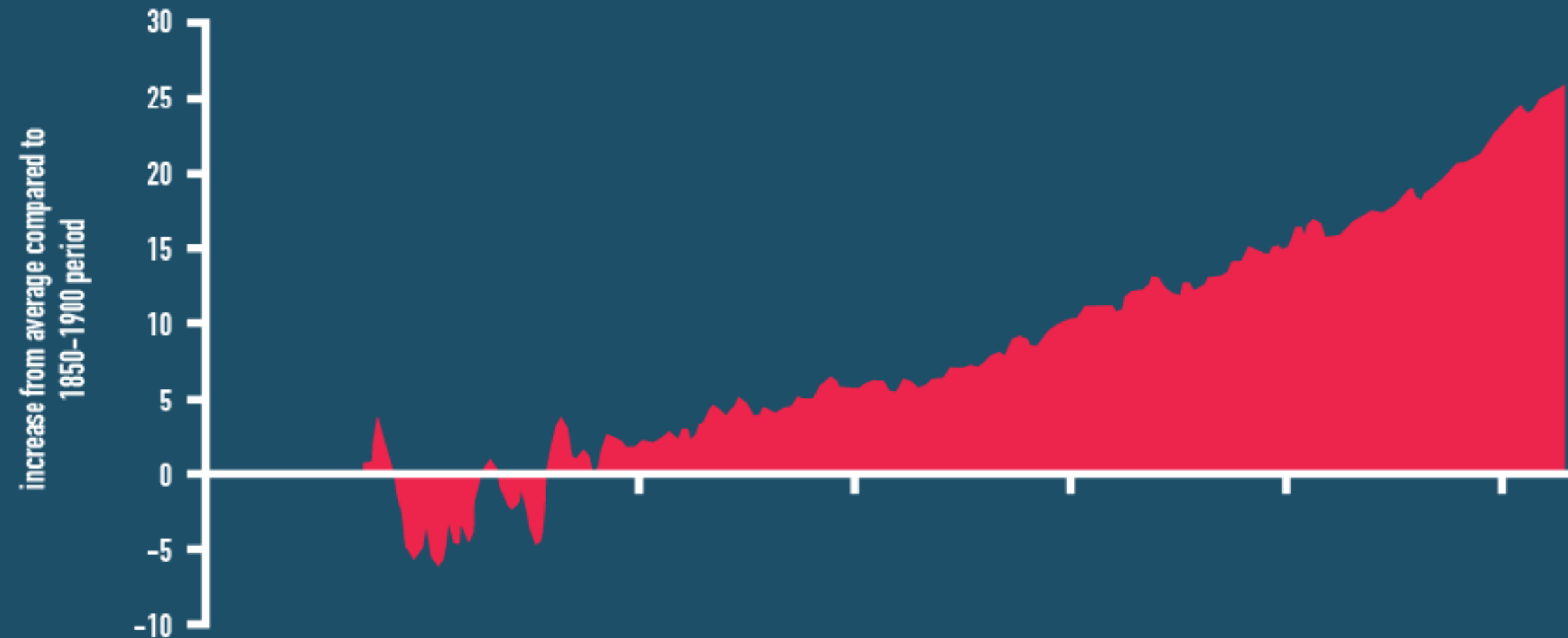## GLOBAL ENERGY USE
A TWENTY-FOLD INCREASE

GLOBAL GPD
A HUNDRED-FOLD INCREASE

GLOBAL SEA LEVEL
A 25CM INCREASE

GLOBAL SURFACE TEMPERATURE
A 1°C INCREASE

Source: Exponential View

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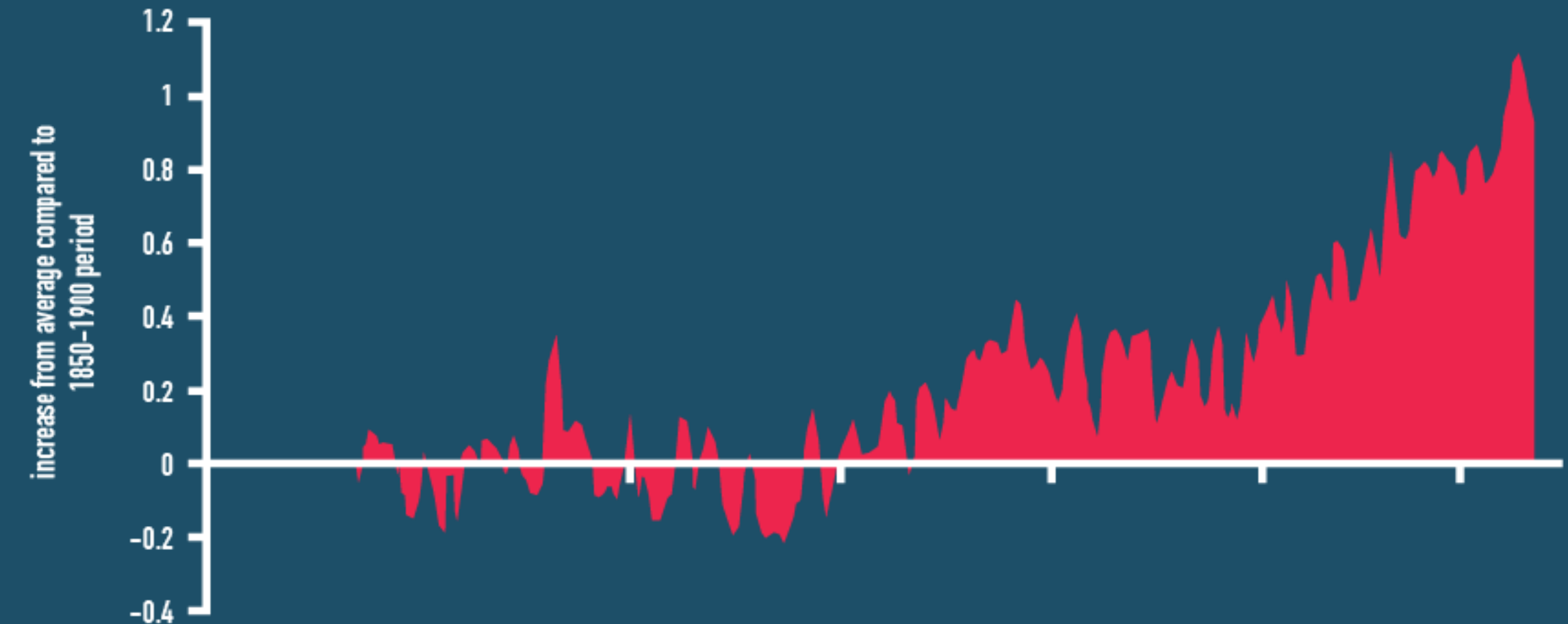
Climate-Change

Human-Change

Dramatic climate change adaptation measures will result in business model resets, turbo-charging the impact of transformative inventions

ALASKA (USA)

GREENLAND (DENMARK)

CANADA

RUSSIA

UNITED STATES OF AMERICA

KAZAKHSTAN

MONGOLIA

CHINA

MEXICO

INDIA

ARGENTINA

AUSTRALIA

Most at risk

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A new economic logic: Sustainable Capitalism

PEOPLE

PLANET

PURPOSE

PROSPERITY

Gĕrd

Leading US bosses drop shareholder-first principle

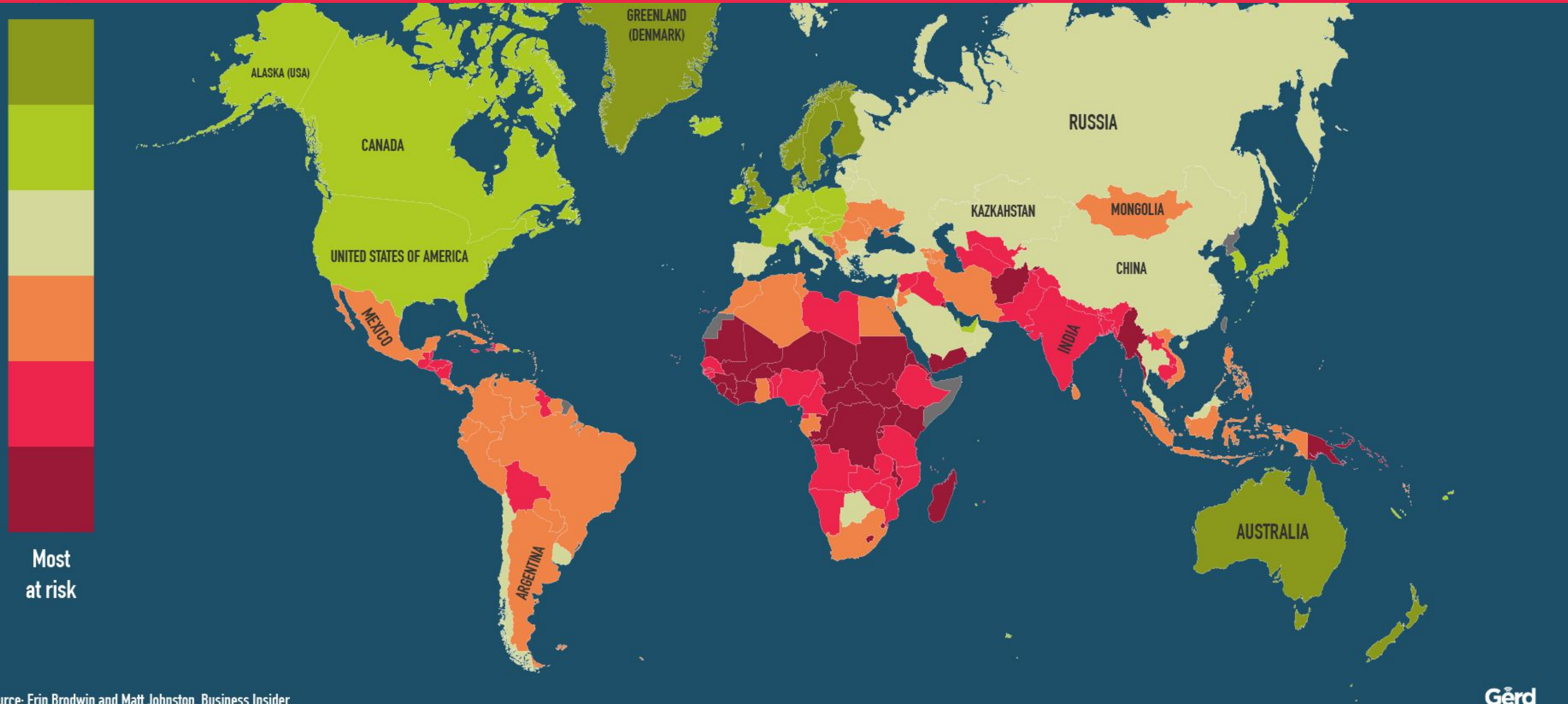**The real test will be in deeds not words, IPPR thinktank tells Business Roundtable**

▲ The new guidance urges companies to protect the environment and treat workers with dignity and respect. Photograph: Mark Wilson/Getty Images

The bosses of 181 of the US's biggest companies have changed the official definition of "the purpose of a corporation" from making the most money possible for shareholders to "improving our society" by also looking out for employees, caring for the environment and dealing ethically.

"GNP (GDP) measures everything except that which makes life worthwhile"

Senator Robert F. Kennedy

March 18 1968

ABUNDANCE ROUTINE

AUTOMATED FOR THE PEOPLE
AUTOMATION RISK BY JOB TYPE, %

Job Type	
Food preparation	
Construction	
Cleaning	
Driving	
Agricultural labour	
Garment manufacturing	
Personal service	
Sales	
Customer service	
Business administration	
Information technology	
Science & engineering	
Healthcare	
Hospitality & retail management	
Upper management & politics	
Teaching	

10   20   30   40   50   60

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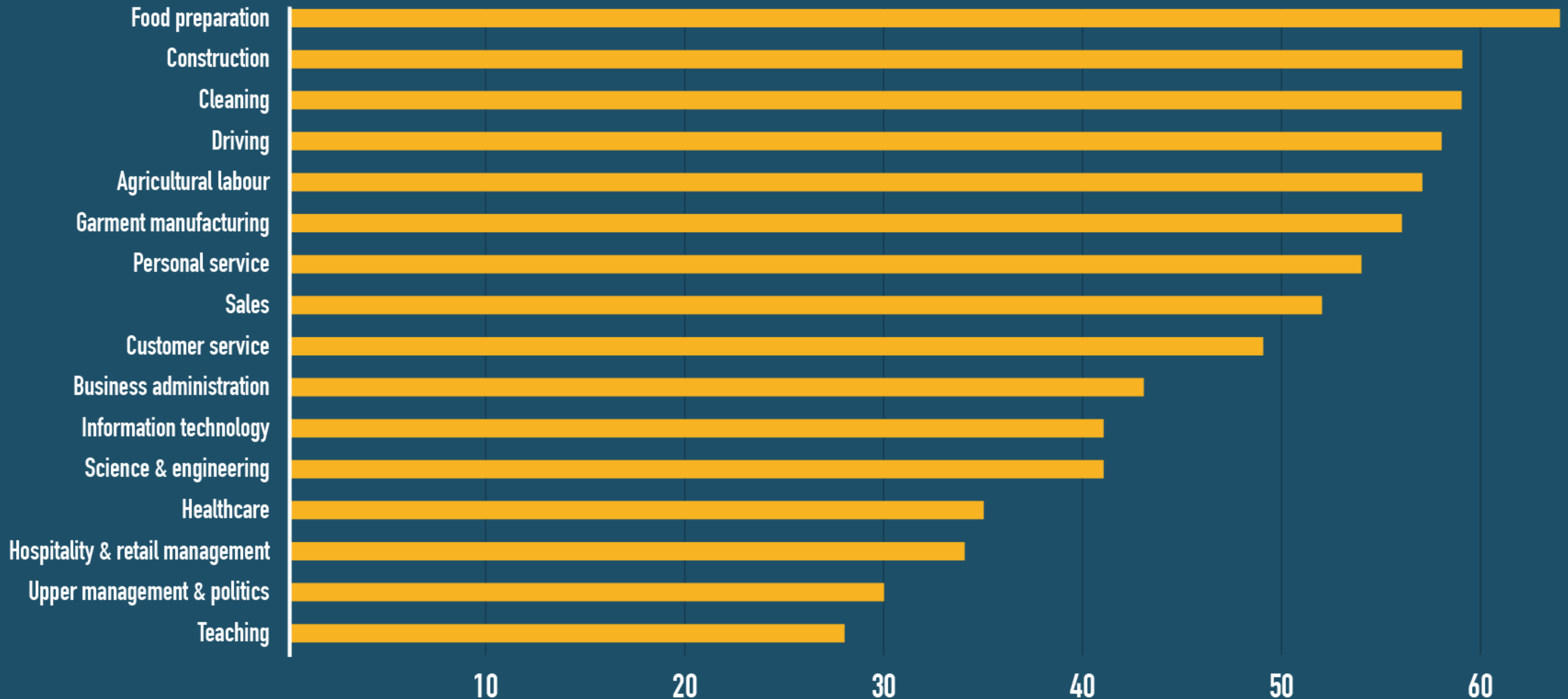
Our ultimate job: be HUMAN

Health

Scientific and technical

Communications

Hospitality

Education

Administrative and support services

Other sectors

Wholesale and retail

Construction

Financial and insurance

Public administration and defence

Transportation and storage

Manufacturing

-30   -20   -10   0   10   20   30%

Gerd
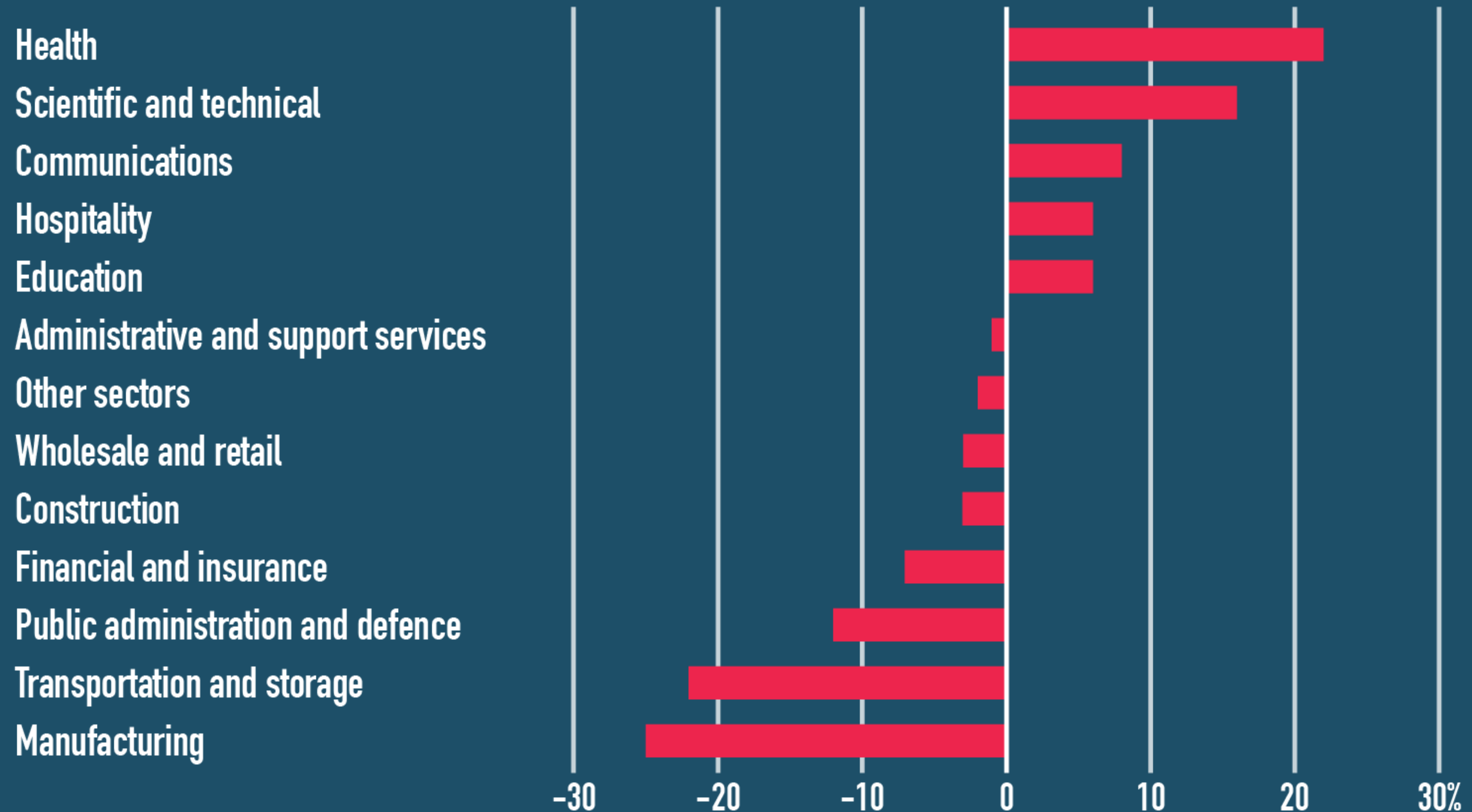
The future of work: HUMAN–ONLY skills and technological expertise

TECHNOLOGICAL, SOCIAL AND EMOTIONAL SKILLS WILL BECOME EVEN MORE IMPORTANT
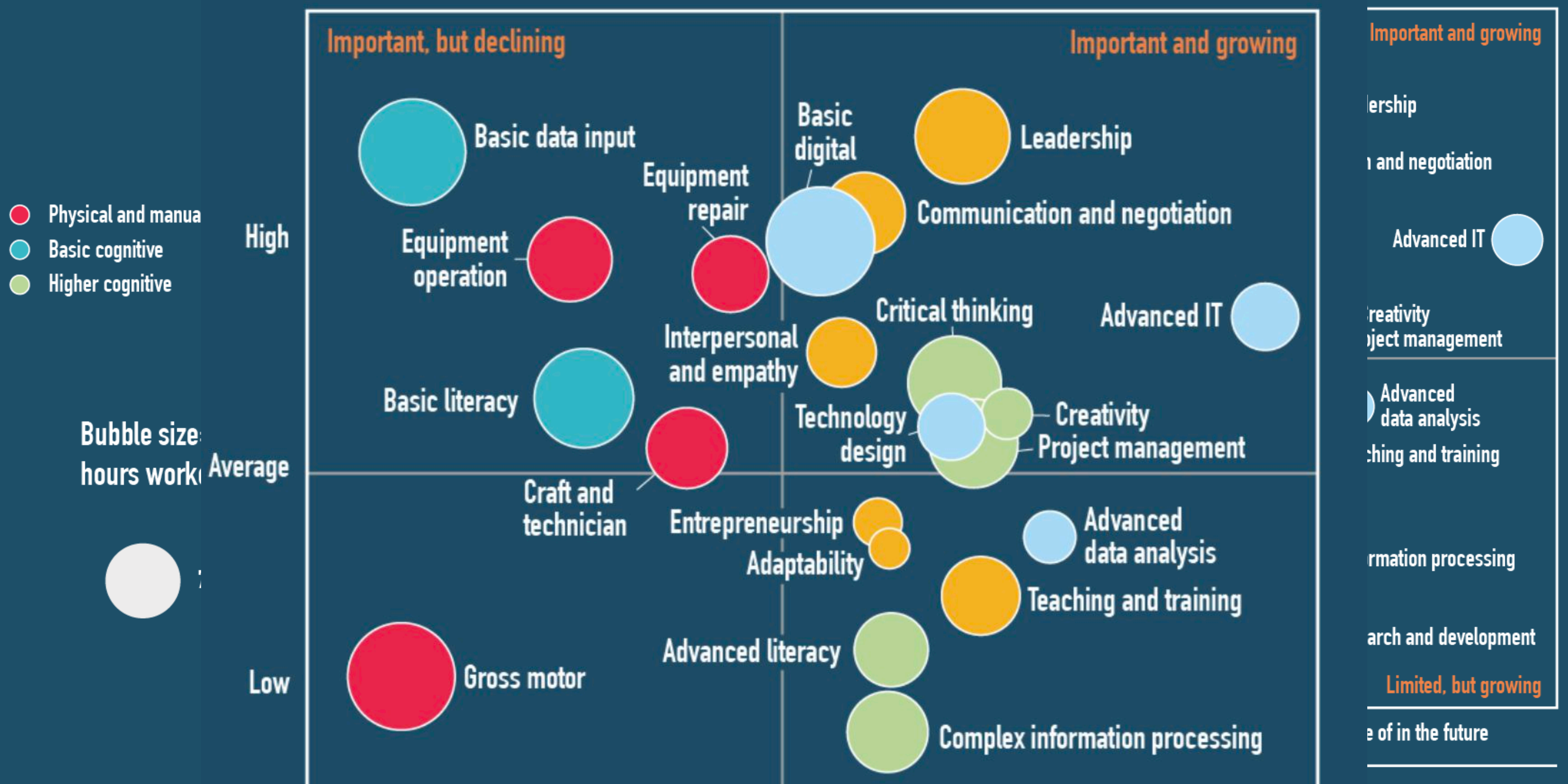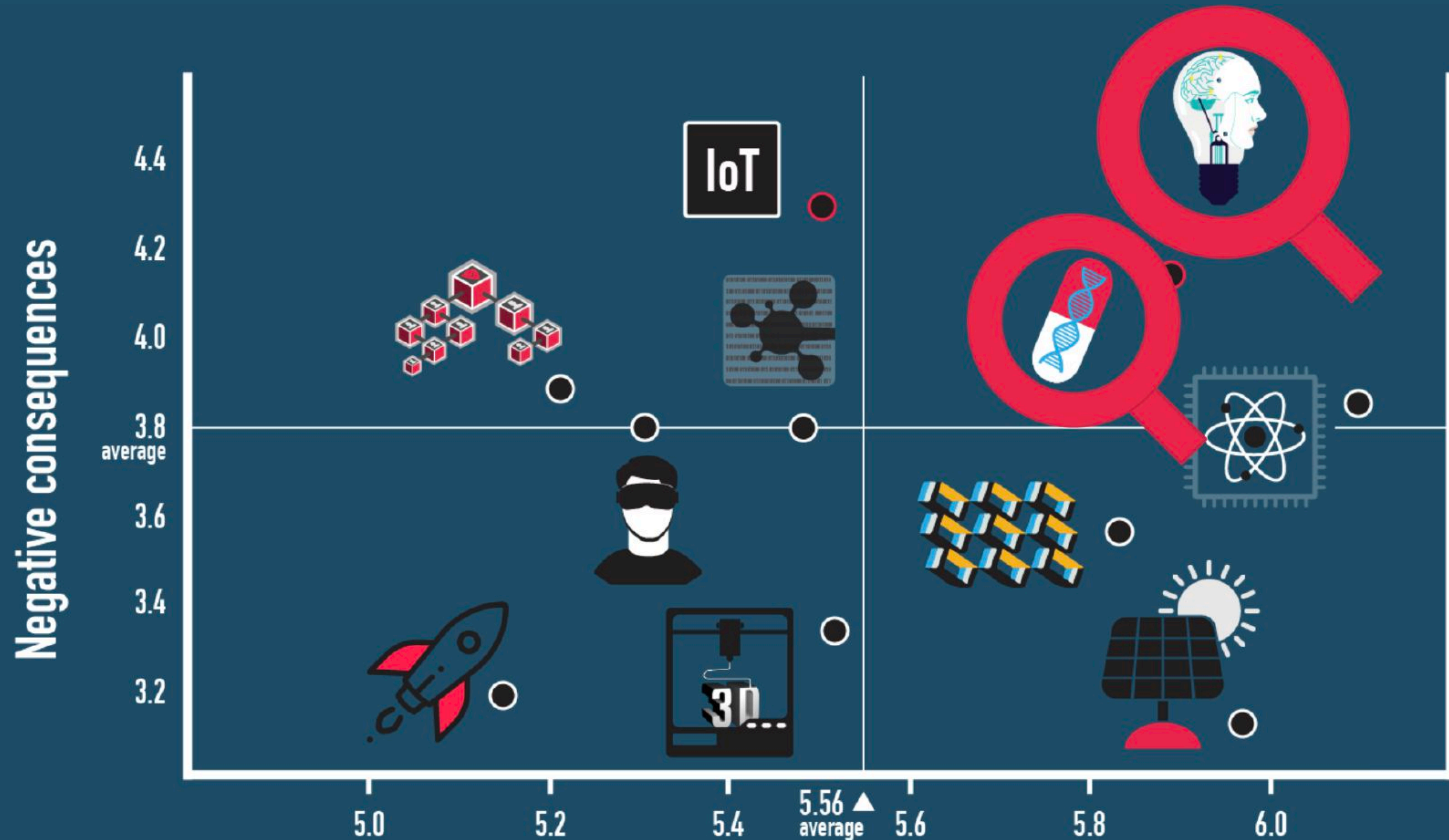
Important, but declining

Important and growing

Legend:
- ● Physical and manual
- ● Basic cognitive
- ● Higher cognitive

Bubble size: hours worked

- Basic data input
- Equipment repair
- Basic digital
- Leadership
- Communication and negotiation
- Equipment operation
- Critical thinking
- Advanced IT
- Interpersonal and empathy
- Basic literacy
- Technology design
- Creativity / Project management
- Craft and technician
- Entrepreneurship
- Adaptability
- Advanced data analysis
- Teaching and training
- Gross motor
- Advanced literacy
- Complex information processing

Axis labels: High / Average / Low (vertical)

Expected future skill need (horizontal)

Right side panel:
Important and growing
- ...ership
- ...n and negotiation
- Advanced IT
- ...reativity / ...oject management
- Advanced data analysis
- ...ching and training
- ...rmation processing
- ...arch and development

Limited, but growing
- ...e of in the future

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THE MOST PROMISING FUTURE IS ONE WHERE WE DO NOT POSTPONE INNOVATION

BUT NEITHER DO WE DISMISS THE EXPONENTIAL RISKS AS "SOMEBODY ELSE'S BUSINESS"

Negative consequences

- 4.4
- 4.2
- 4.0
- 3.8 average
- 3.6
- 3.4
- 3.2

IoT

5.0   5.2   5.4   5.56 ▲ average   5.6   5.8   6.0

Source: World Econor
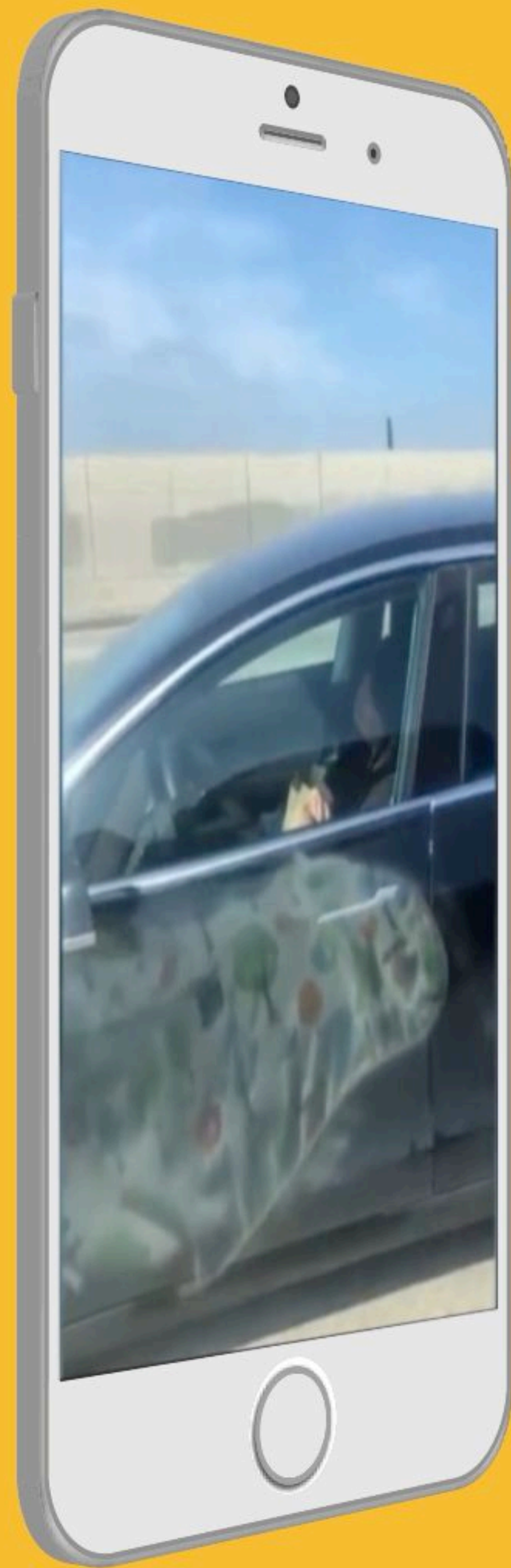
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Let's not blindly proceed into 'WHATEVER CAN BE DONE'

Gerd

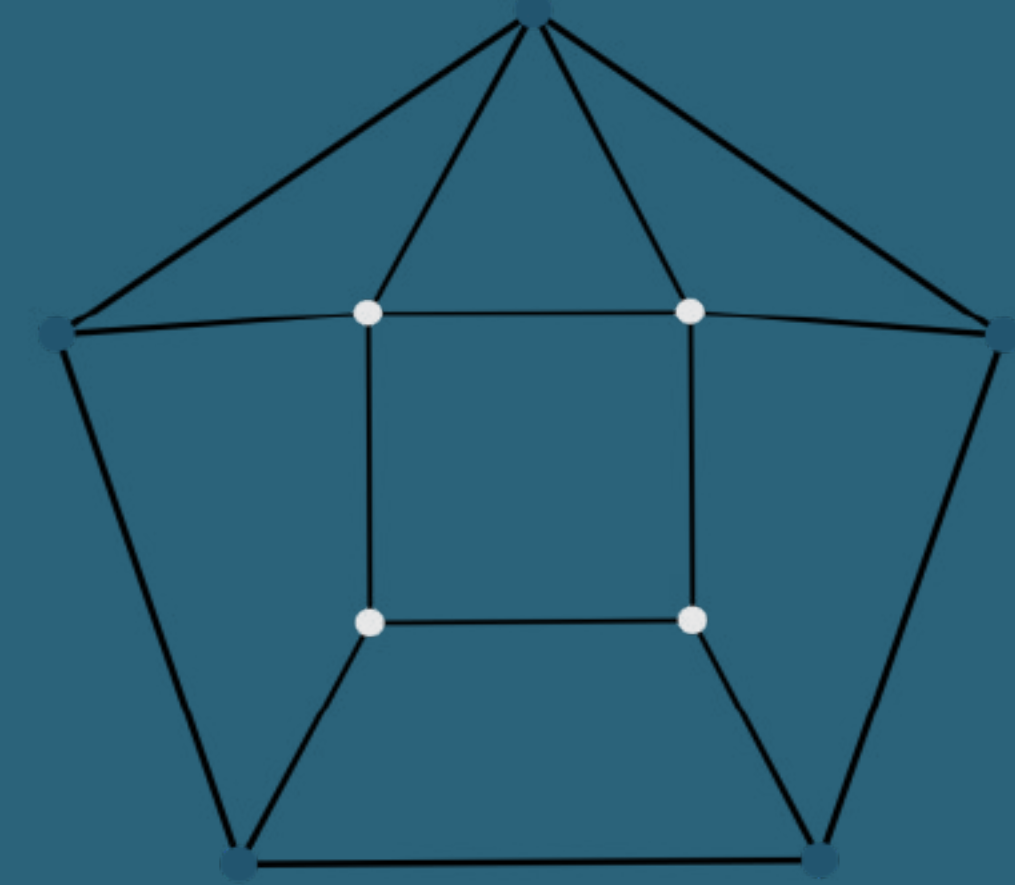# The 6 Future-Principles: 3 x Technology, 3 x Humanity

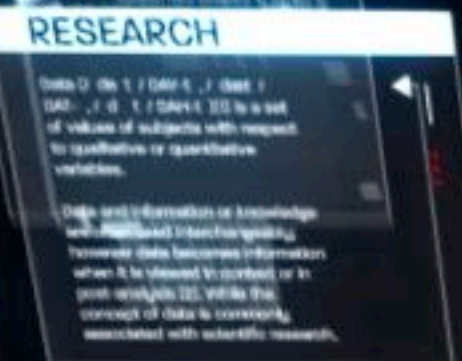EXPONENTIAL

CONVERGENT

COMBINATORIAL

HOLISTIC

CIRCULAR

HUMAN

Gerd

TREND SUMMIT
Door de makers van de
Food Inspiration Days

TECHNOLOGY VS HUMANITY

TECHNOLOGY
vs
HUMANITY

The coming clash between
man and machine

By Gerd Leonhard

FutureScapes

amazon.com

THANK YOU
FOR YOUR TIME

techvshuman.com

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futuristgerd.com