

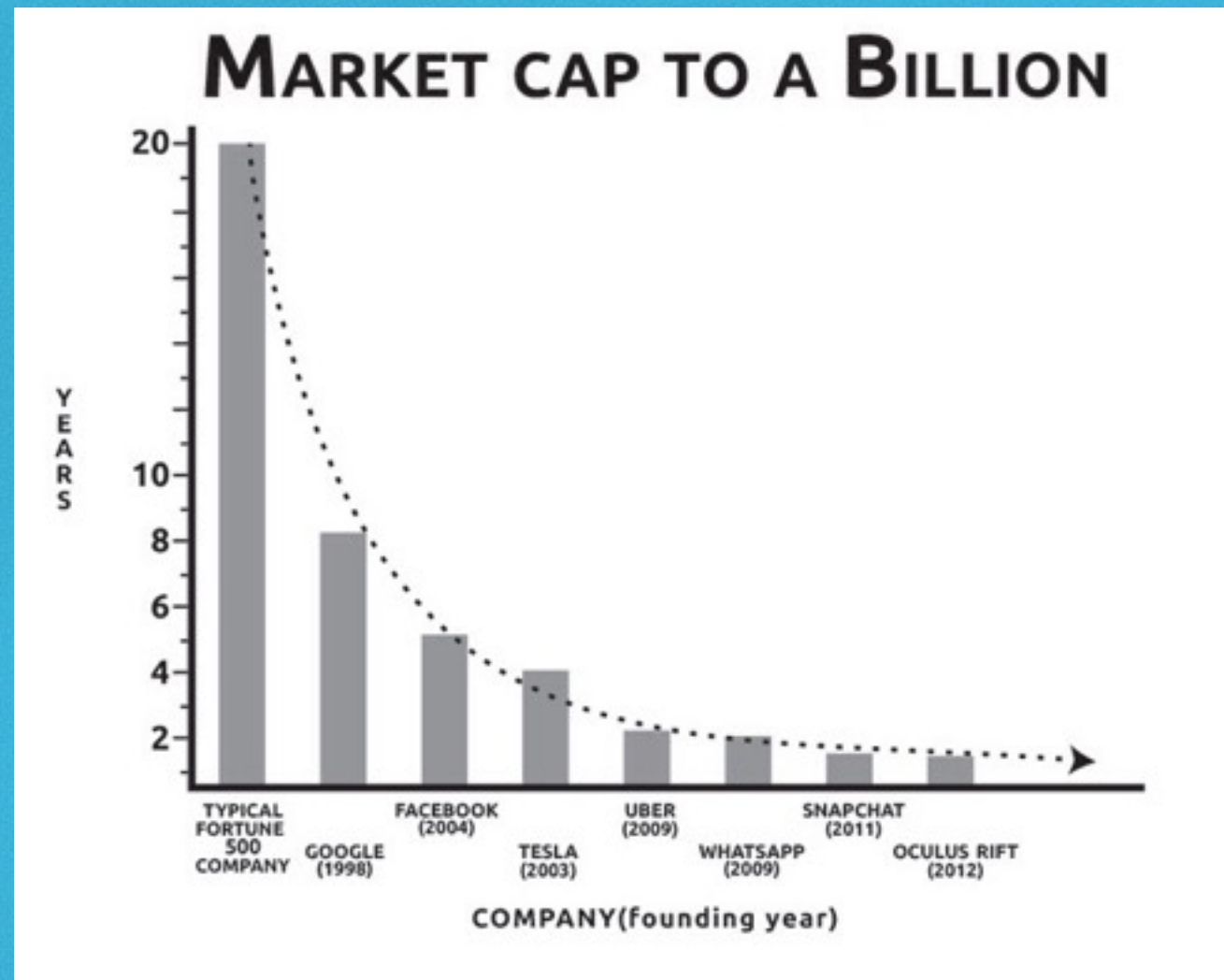
TIME TO CHANGE FASTER

“WHAT WE KNOW WITH CERTAINTY”

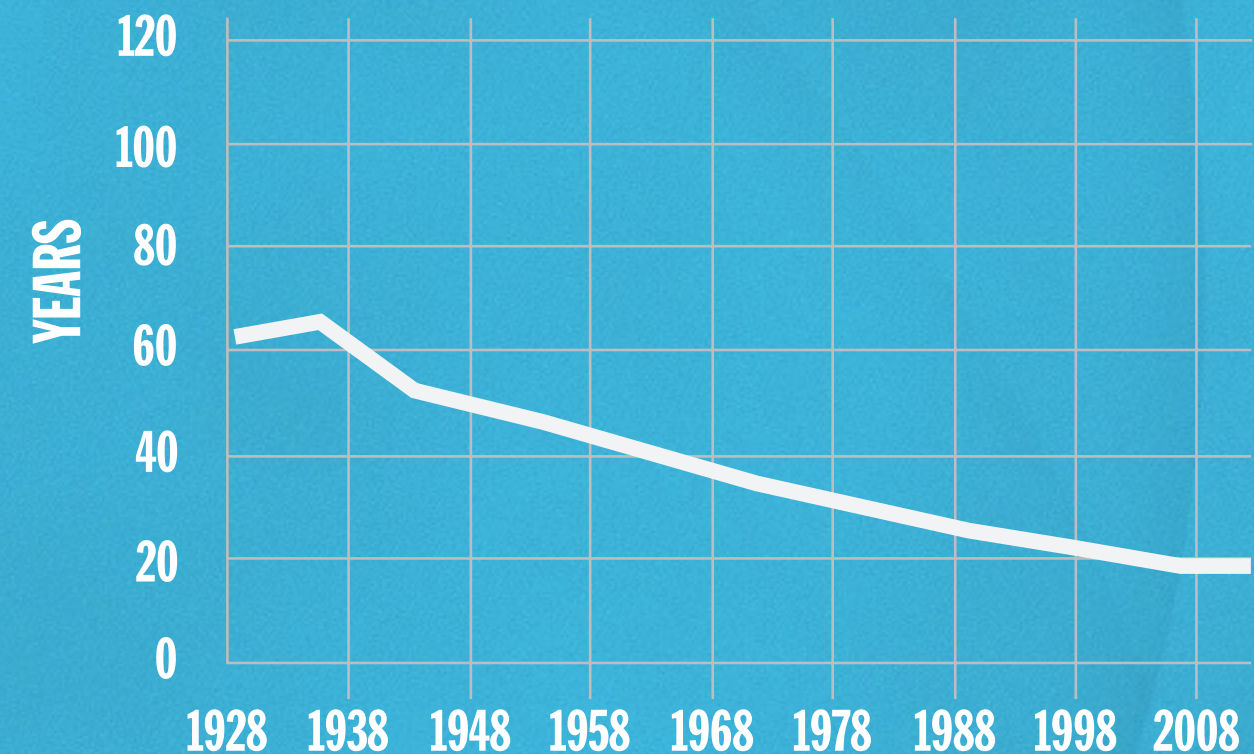
October 06, 2015
BO BIRK PEDERSEN



CHANGE HAPPENS FASTER



LIFETIME IN YEARS FOR S&P 500 COMPANIES



- In 10 years 40% of today's S&P 500 companies will be gone

PREDICTING THE FUTURE

- In 20 years we are 8.5 billion people on the planet but we will not have anyone living in extreme poverty!
- We will experience high GDP growth, higher than ever before but not in advanced markets
- 40% of all existing jobs (today) will be replaced by robotics within 20 years
- In 20 years we will be able to print our own organs using 3D printing/additive manufacturing
- In less than 20 years (in 10 years) we will be wearing digital clothes. They will be biodegradable and properly biologically grown

DIFFICULT TO PREDICT THE FUTURE

*WHAT USE
COULD THIS
COMPANY MAKE
OF AN
ELECTRICAL
TOY*

WILLIAM ORTON 1875

*THE
TELEVISION WILL
NEVER BE A
SERIOUS
COMPETITION TO
THE RADIO*

NEW YORK TIMES 1939

*"I THINK THERE
IS A WORLD
MARKET FOR 5
COMPUTERS"*

T. WATSON, IBM 1943

*AT&T SHOULDN'T
INVEST IN THE
MOBILE PHONE
BUSINESS*

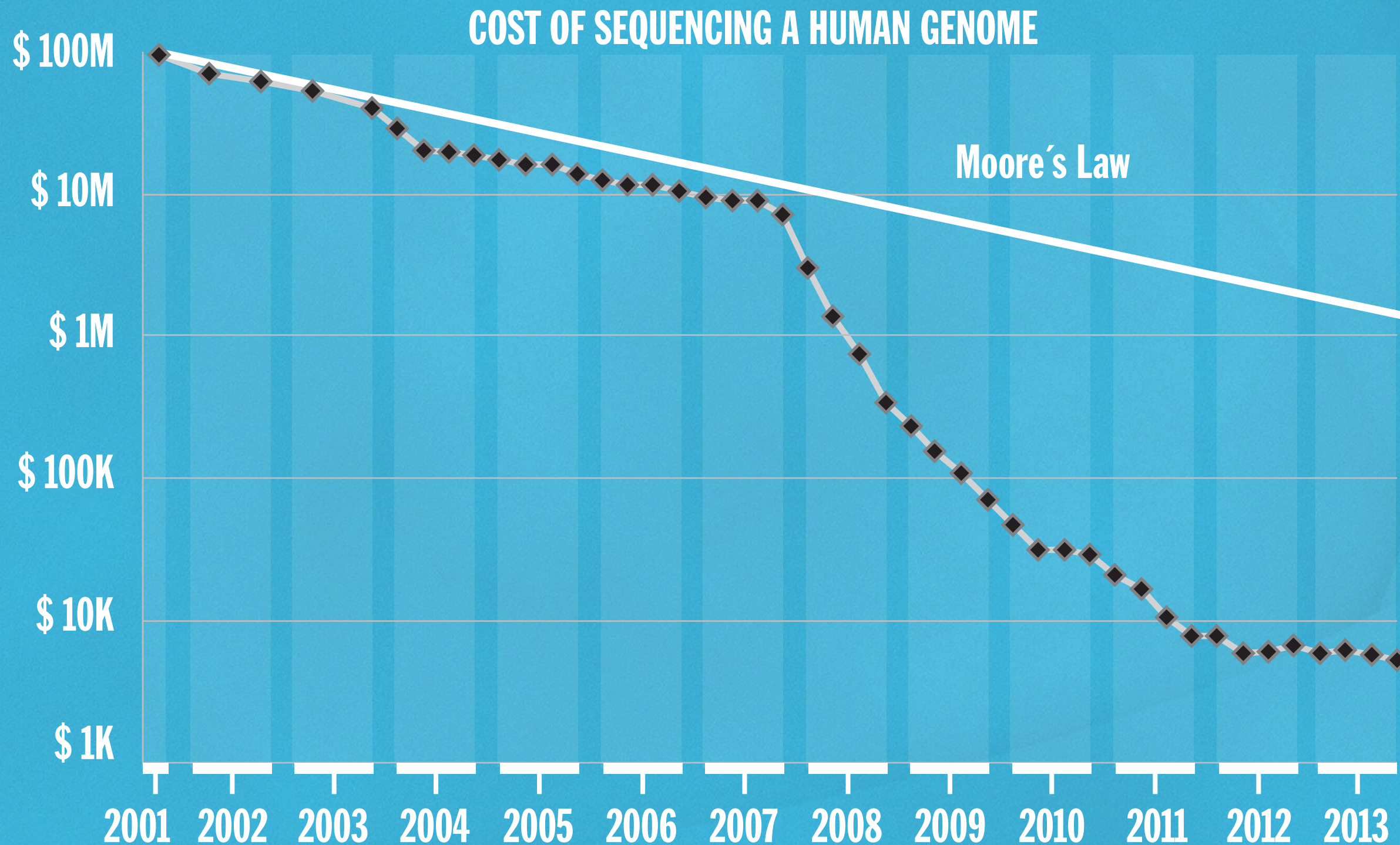
MCKINSEY 1988

*"640 K OUGHT TO
BE ENOUGH FOR
ANYONE"*

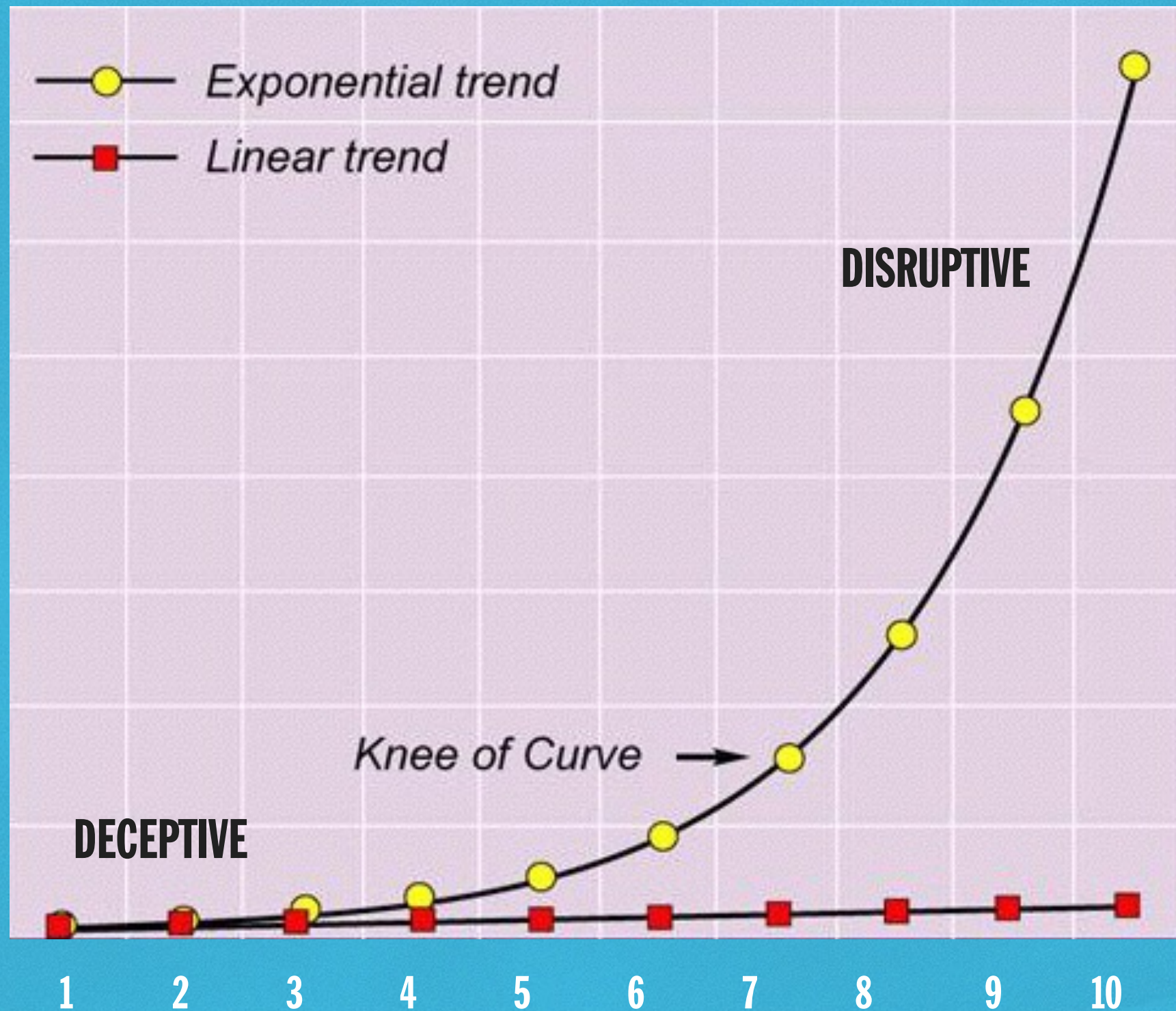
BILL GATES 1989



EXPONENTIAL GROWTH IN MEDICINE



EXPONENTIAL GROWTH VS. LINEAR



6 D'S of exponential growth

- Digital
- Deceptive
- Disruptive
- Dematerialized
- Demonetize
- Democratized

EXPONENTIAL GROWTH SURPRISES

LINEAR



EXPONENTIAL



1996

Market Cap: \$28 B

Employees: 140,000



2012

Bankrupt

Employees: 17,000

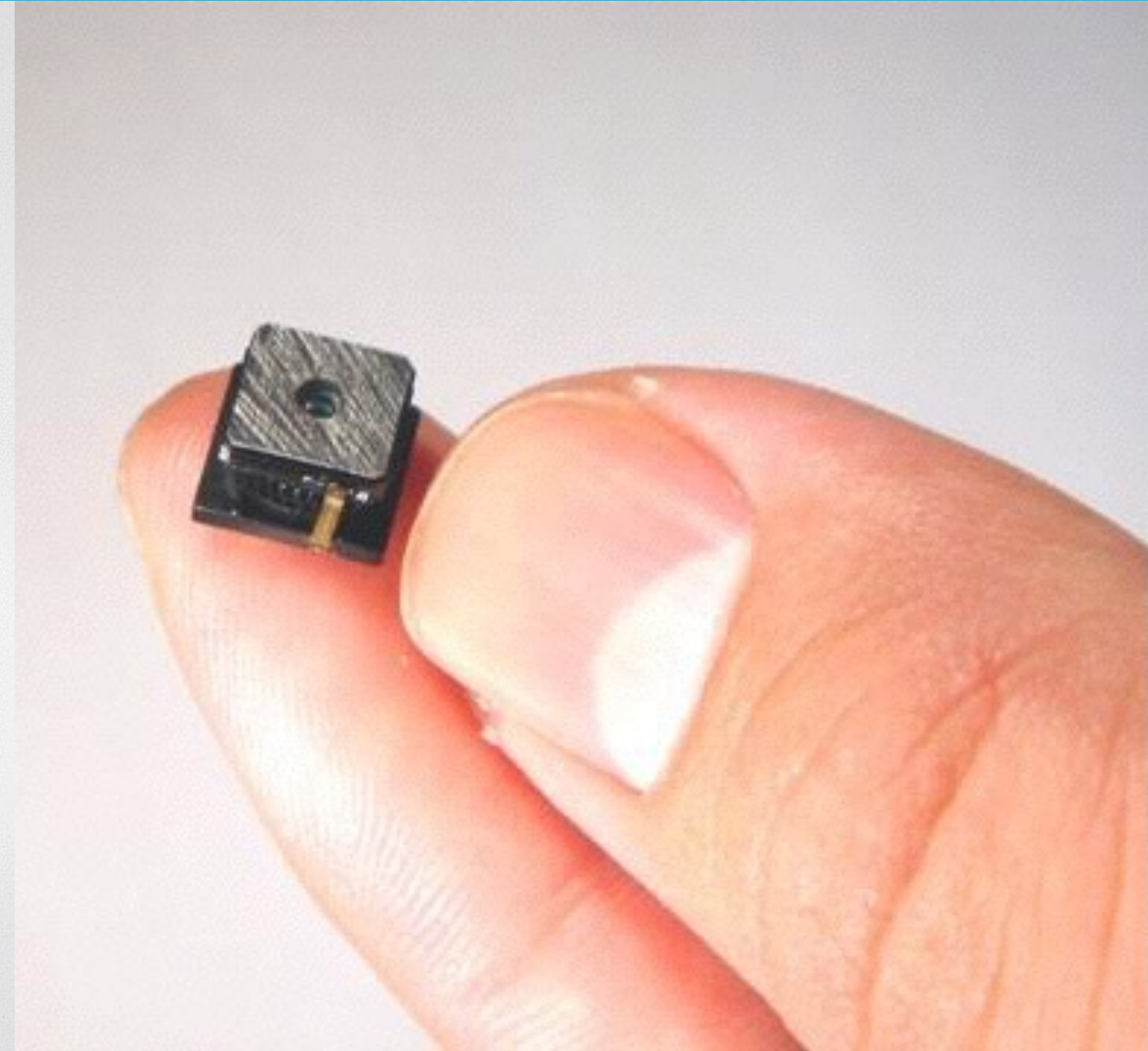
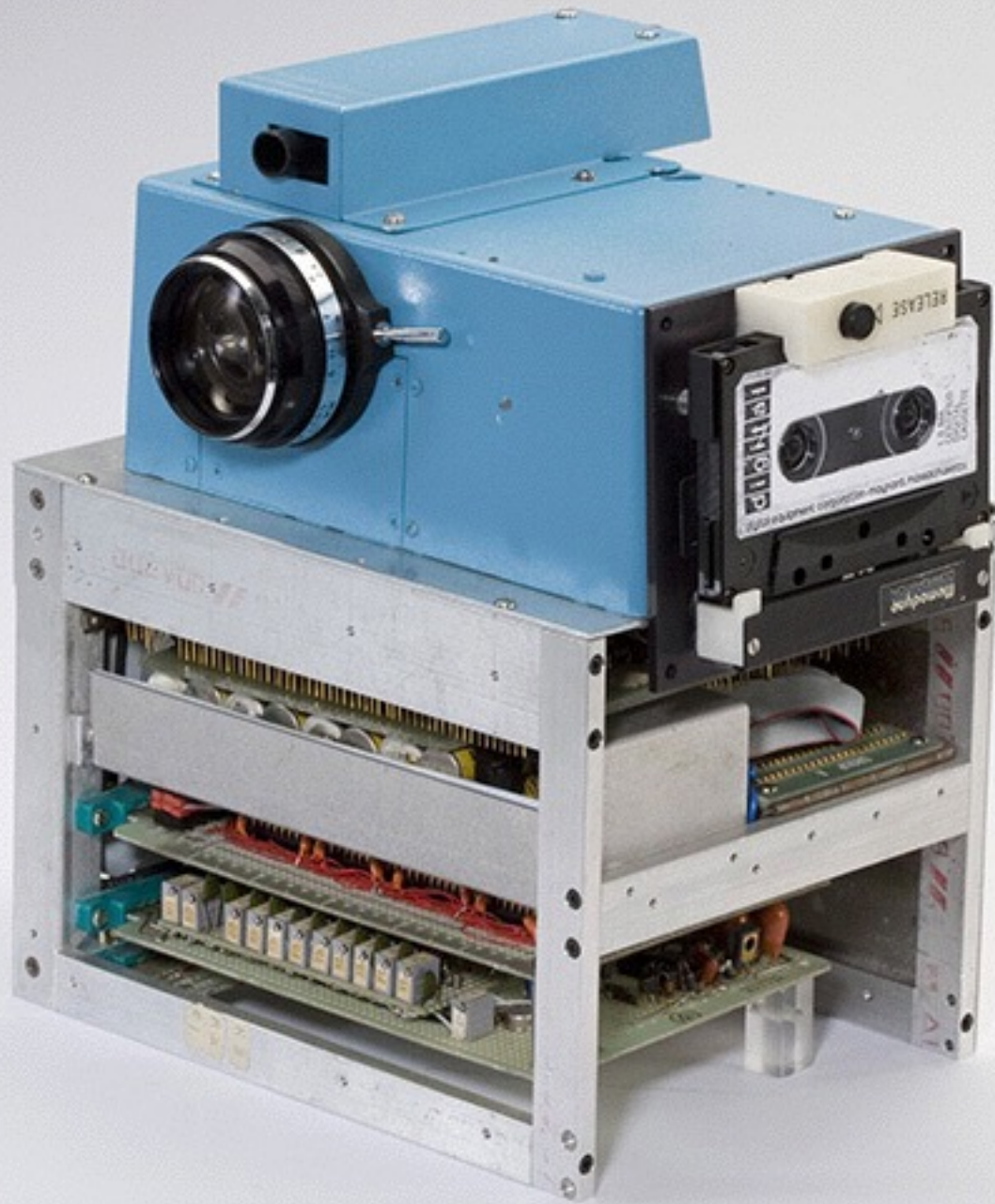


April 2012

Market Cap: \$1 B

Employees: 12

KODAK DIGITAL CAMERA



EXPONENTIAL GROWTH SURPRISES

- 465 M. users on platform
- \$ 100 Bn. mobile communications industry being displaced
- Sony (\$ 18 Bn.) is worth less than WhatsApp
- 5 employees when sold to Facebook
- A price of \$ 375 M. per employee!!!



„THIS KIND OF TECHNOLOGICAL DISRUPTION IS HAPPENING ALL AROUND US, ALL THE TIME. THE US \$ 100 BN. WIRELESS INDUSTRY WAS COMPLETELY TAKEN OFF GUARD“

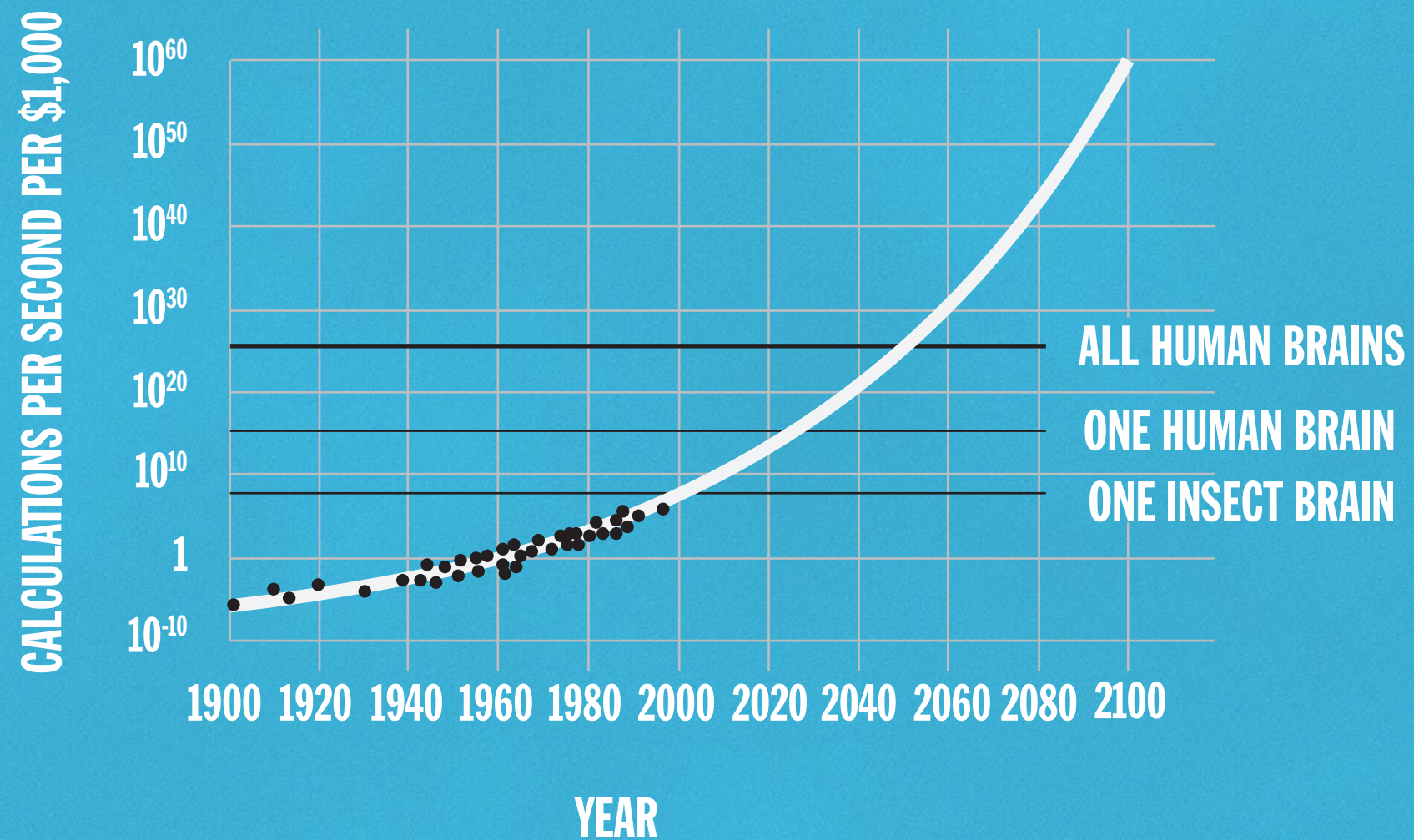
P.DIAMANDIS

QUESTION:

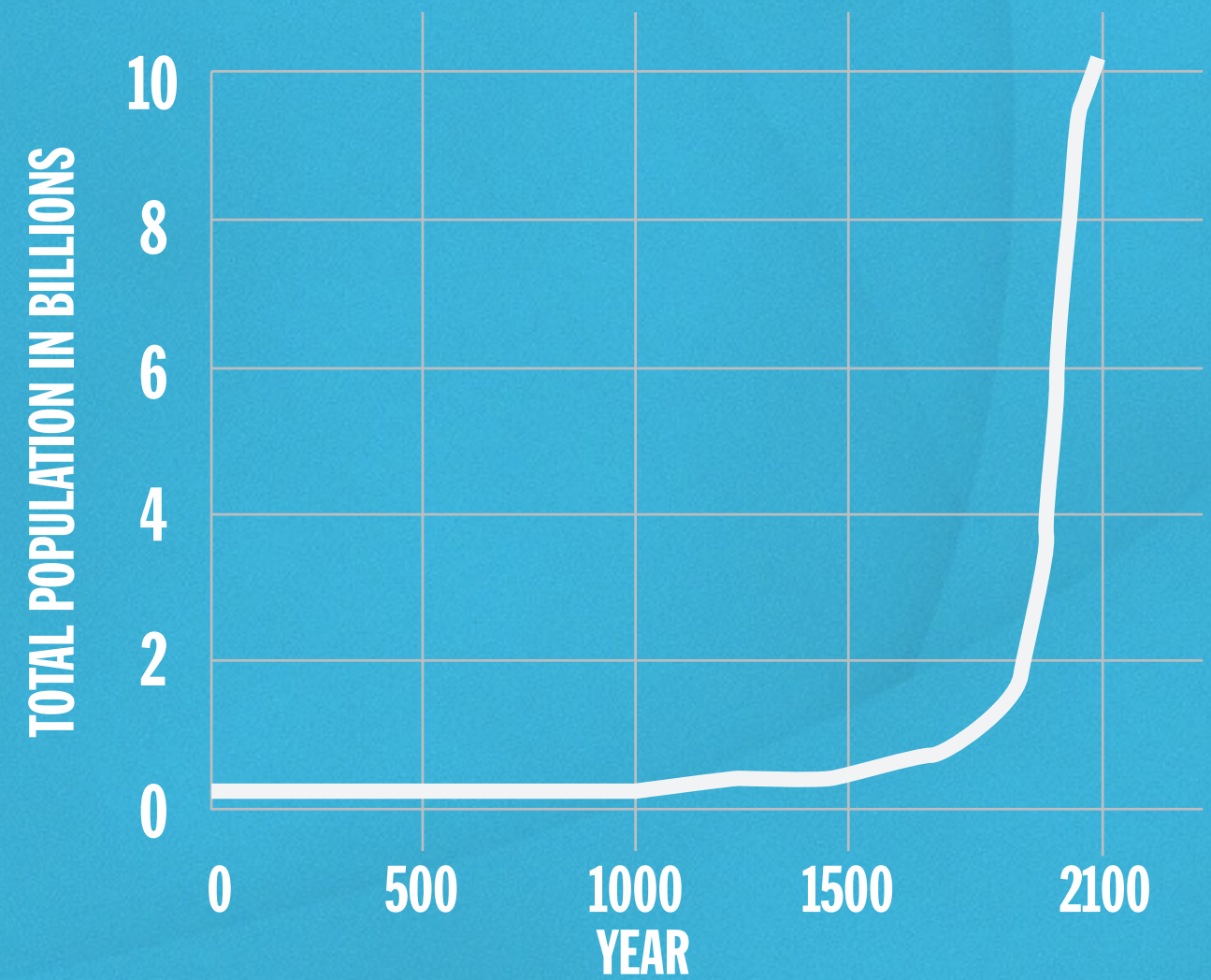
The digital revolution has changed our lives radically over the past 20 years. Should we expect this high-speed train to continue in the long-term?

UNIQUE OPPORTUNITY IN HUMAN HISTORY

MOORE'S LAW



WORLD POPULATION DEVELOPMENT

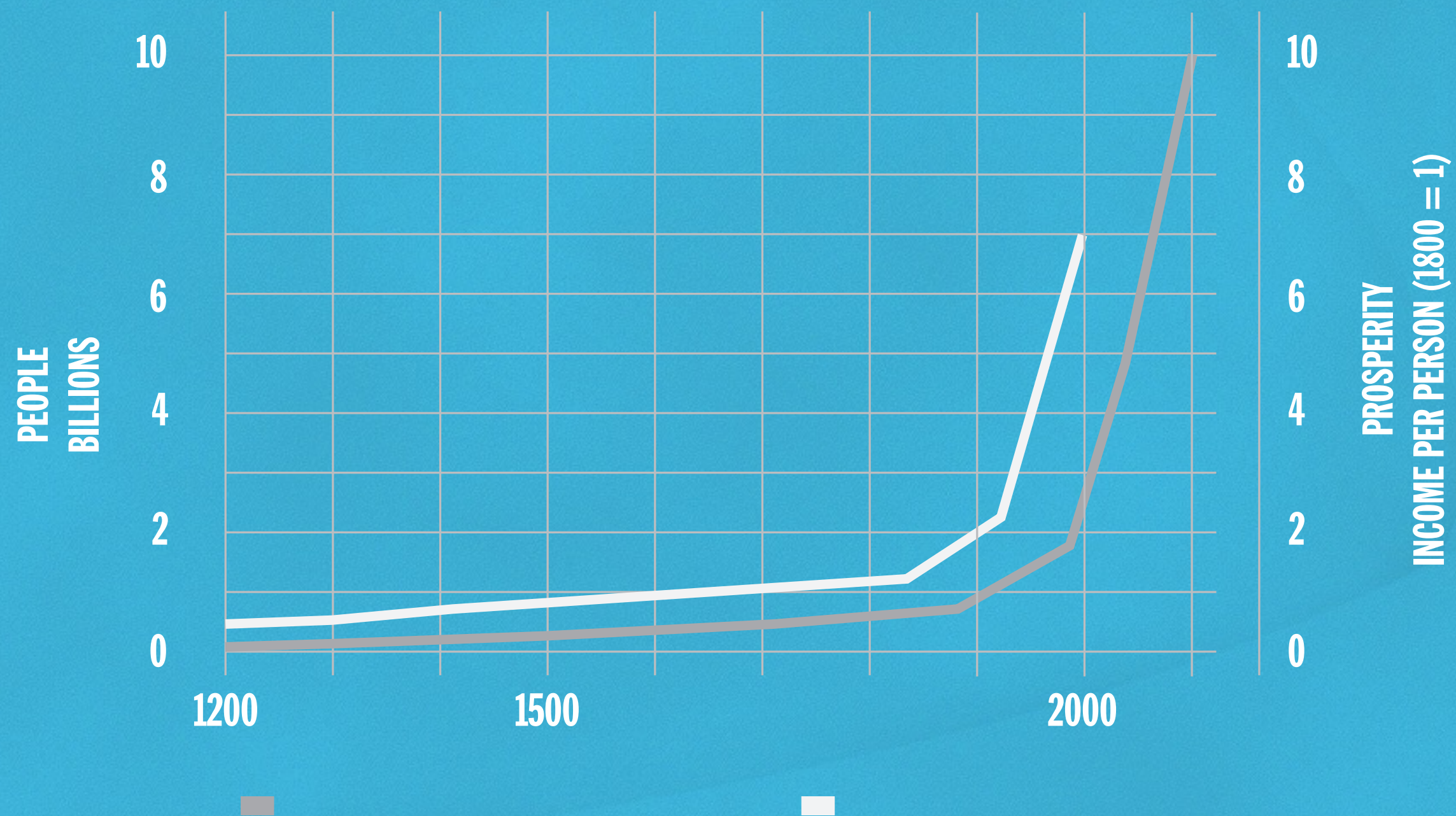


INDUSTRIAL REVOLUTION

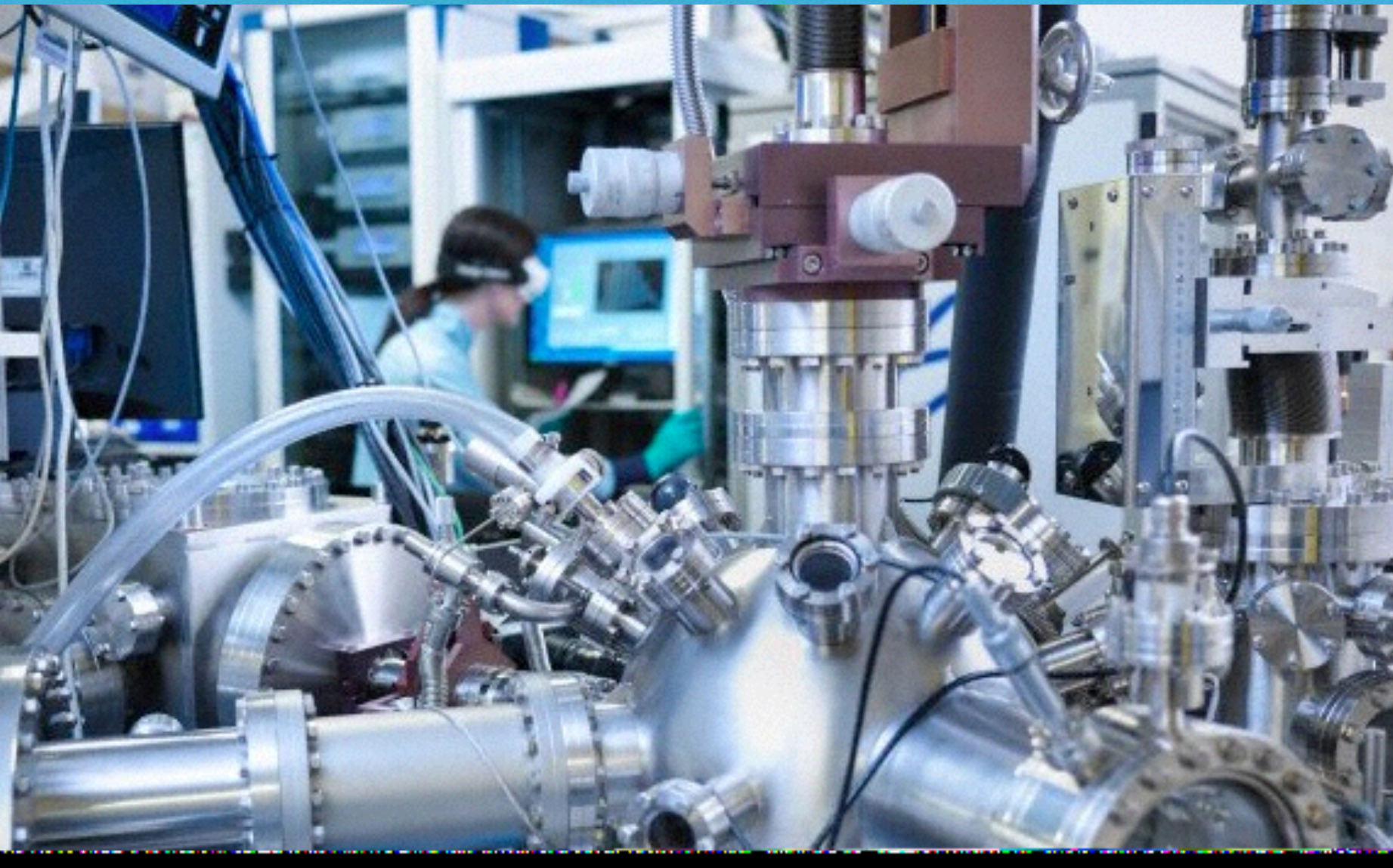


INDUSTRIAL REVOLUTION

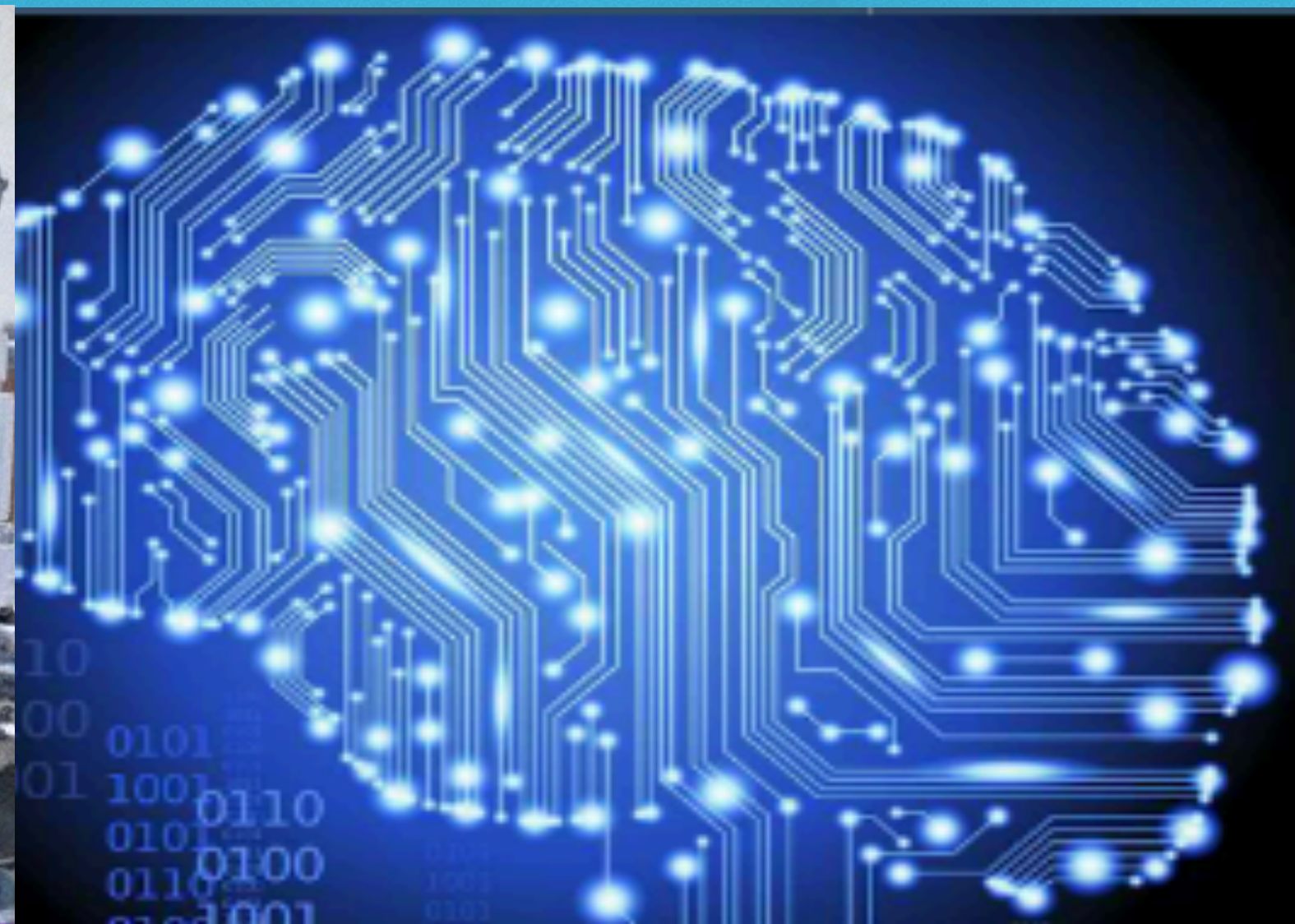
GROWTH IN POPULATION AND PROSPERITY



THE NEXT INDUSTRIAL REVOLUTION



We combine the power of machines with the power of computers.



We combine human intelligence with artificial intelligence.

A MEGATREND FRAMEWORK



**EXPONENTIAL
TECHNOLOGIES**



DEMOGRAPHICS



HOLISTIC HEALTH



CONNECTIVITY



GLOBALISATION



ENVIRONMENTALISM



TECHNOLOGY - PORTAL TO THE FUTURE

EXPONENTIAL GROWTH FIELDS

SOURCE: P.DIAMANTIS

1 INFINITE COMPUTING

2 SENSORS AND NETWORKS

3 ROBOTICS

4 3D PRINTING

5 SYNTHETIC BIOLOGY

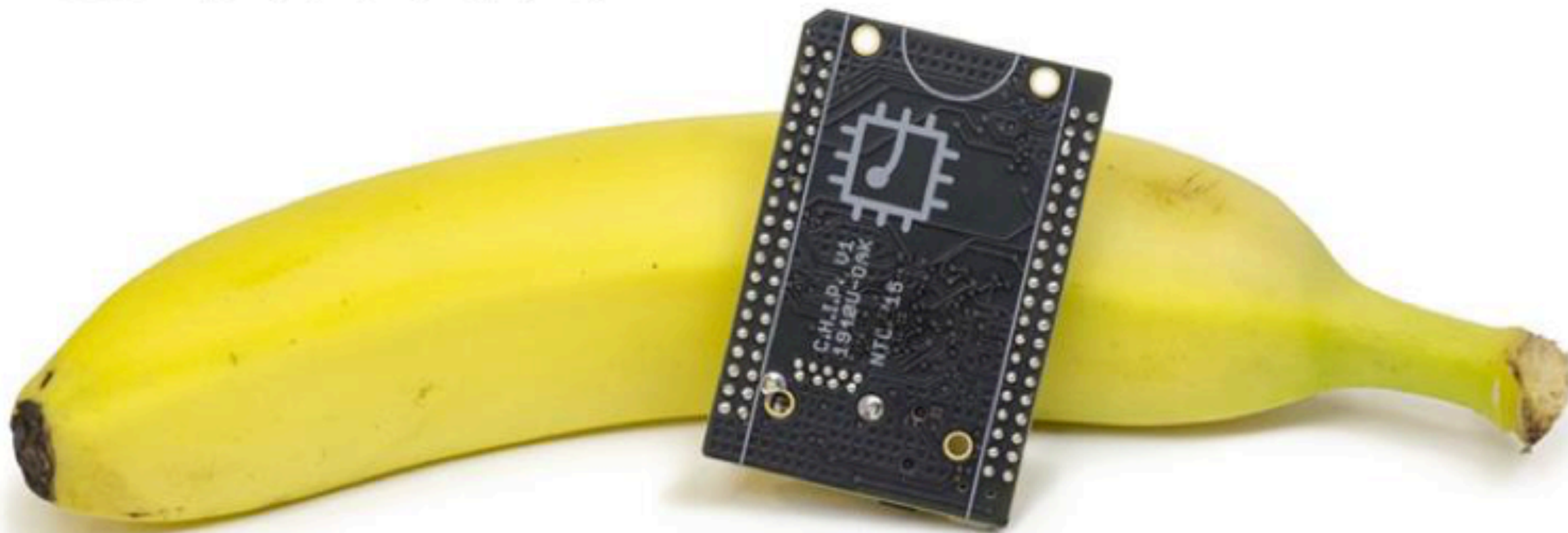
6 DIGITAL MEDICINE

7 NANOMATERIALS

8 ARTIFICIAL INTELLIGENCE

INFINITE COMPUTING

CHIP



3D PRINTING/ADDITIVE MANUFACTURING



- Potential to disrupt a 10 Trillion global manufacturing industry.
- Industrial mass production.
- New design & functionality opportunities.
- Cost drop from US\$ 40.000 in 2007 to US\$ 1000 in 2014
- Today you can print a car or a jet engine. In 20 years you can print your own organs

3D PRINTING/ADDITIVE MANUFACTURING



ROBOTICS

- Exoskeletons
- Bionics
- Industrial AI robots
- Self-drive cars

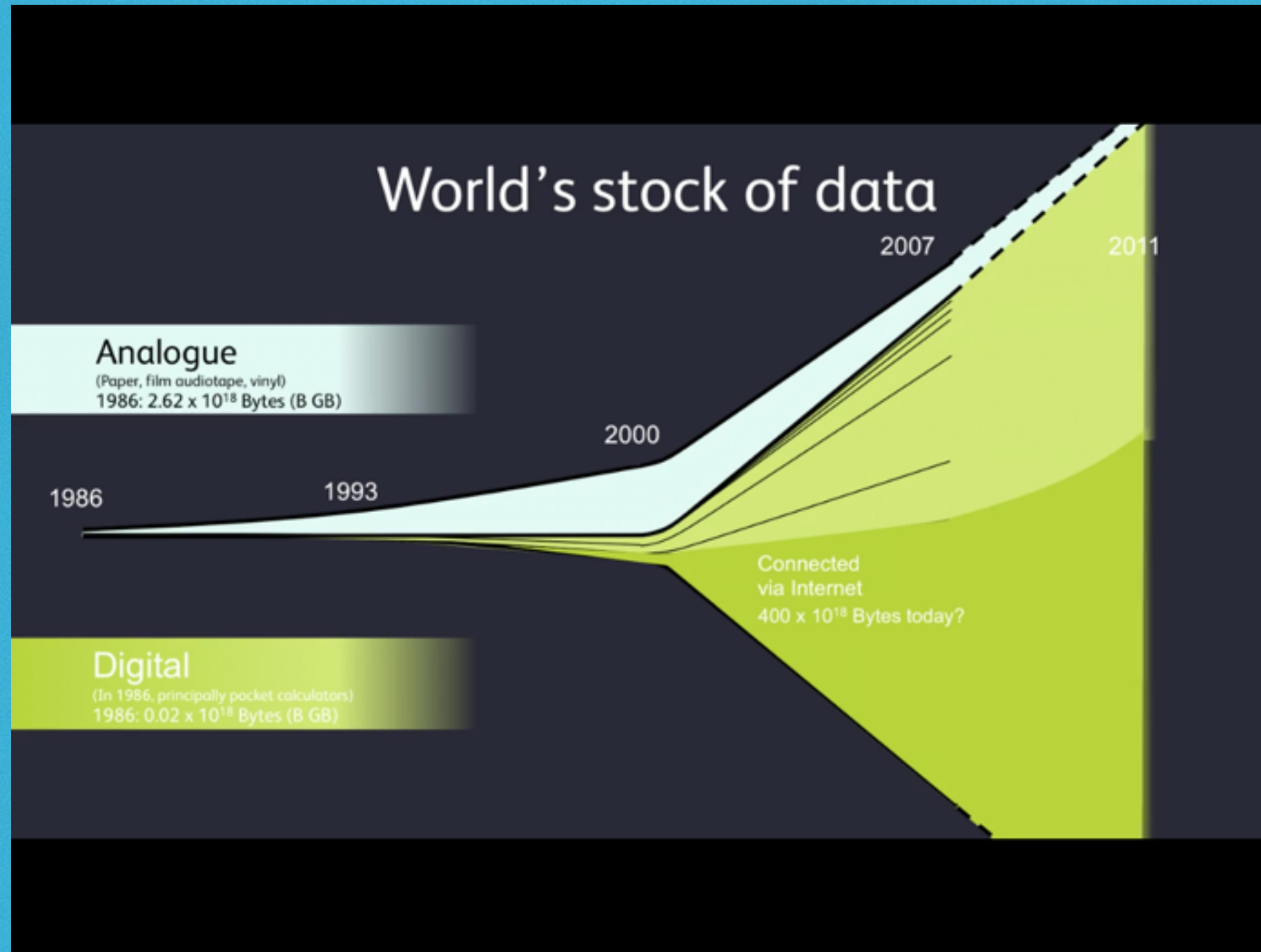


Robotics combined with AI are expected to take over more than 30% of all existing jobs by 2030

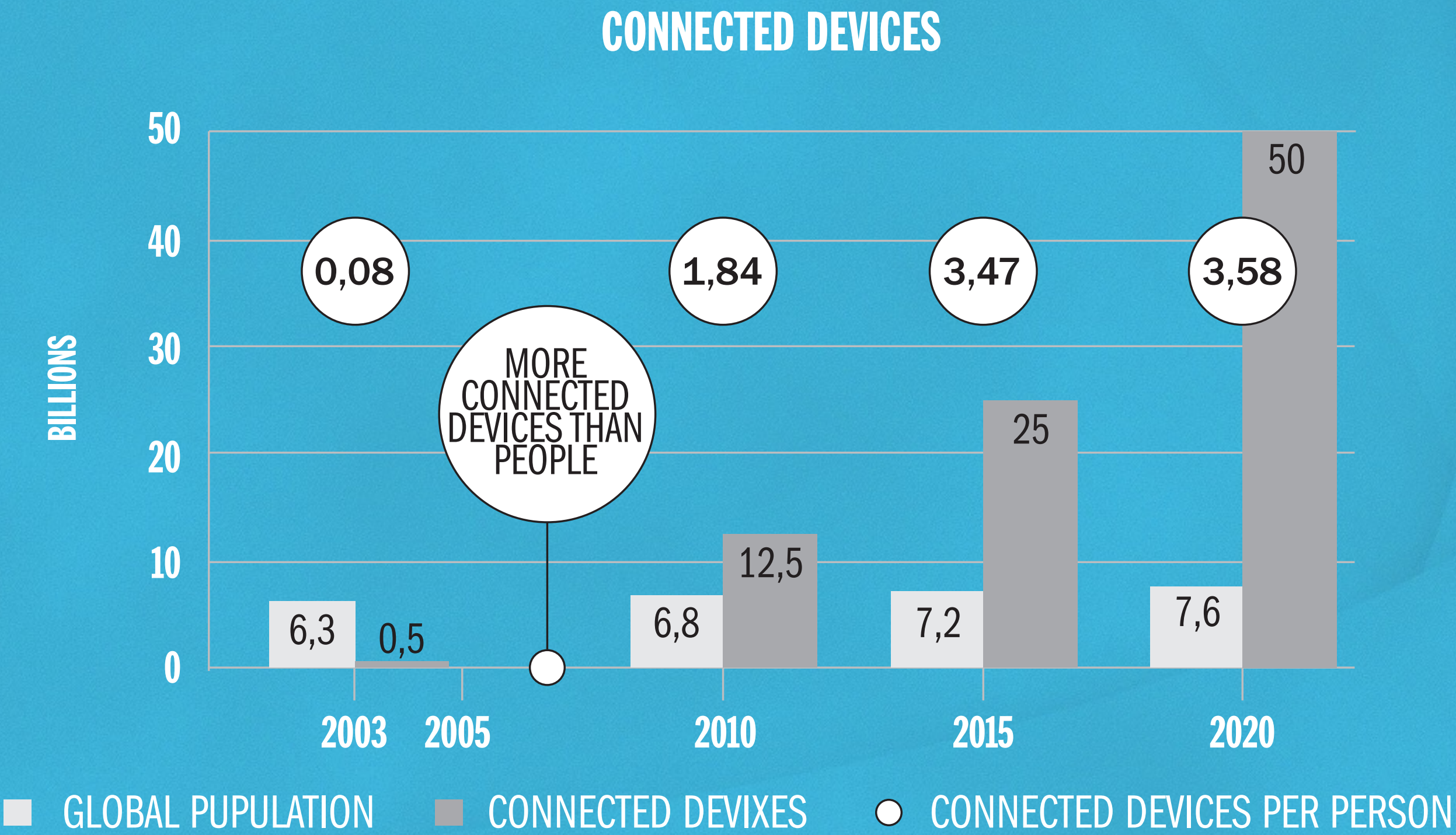
-> taxi, logistics, lawyers, finance, economist, manufacturing/plant workers, doctors, nursing/elderly-care, teachers, public (and private) administration

TED Talk -> Hugh Herr

BIG DATA



ARTIFICIAL INTELLIGENCE & BIG DATA



NANOMATERIALS — SUPERMATERIALS



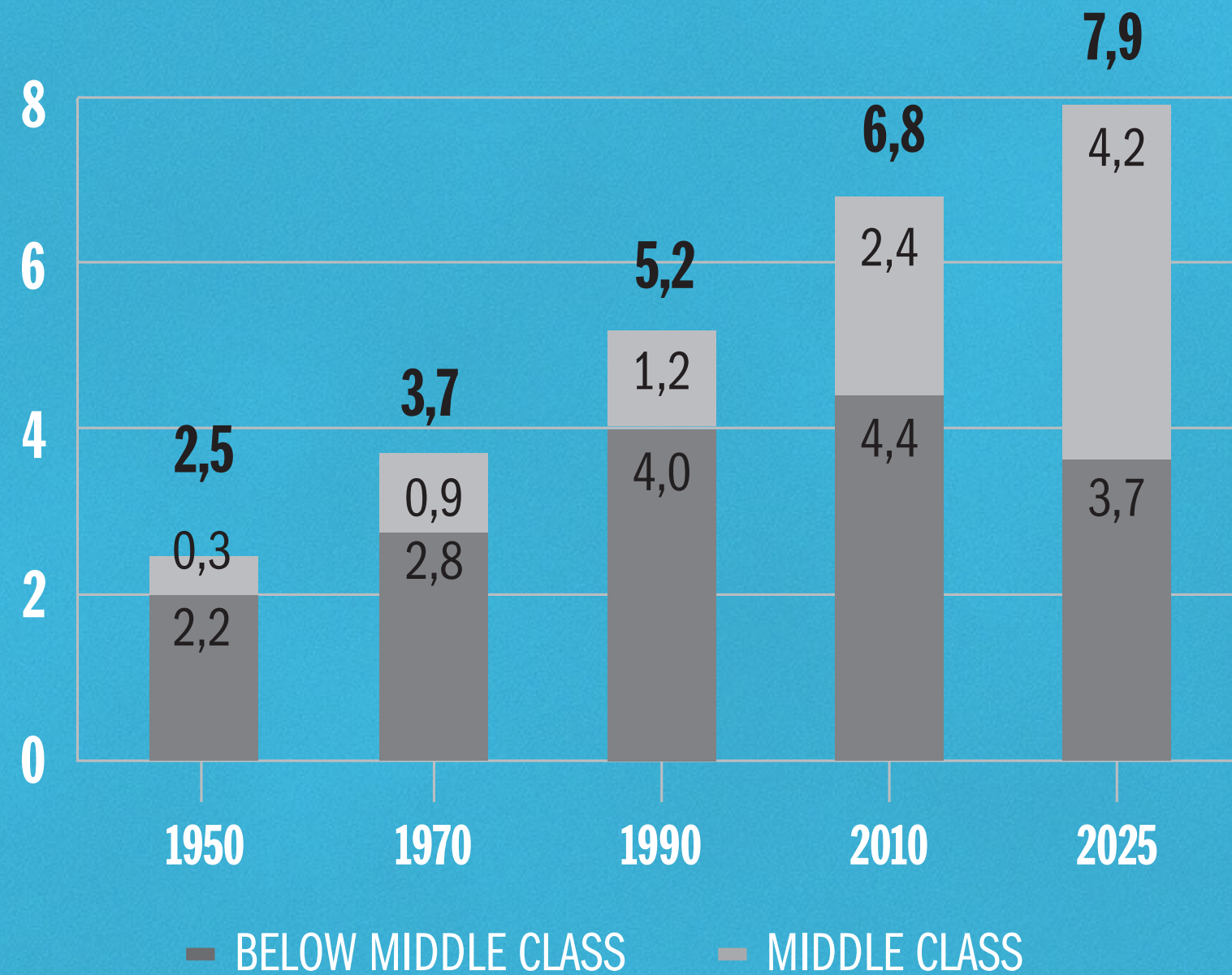
Graphene and Quantum Dot has the potential to disrupt battery technology and screen technology within few years. Electro-active polymers to replace motors.

“GRAPHENE HAS THE POTENTIAL FOR QUANTUM LEAPS - NOT JUST IN SCIENCE BUT ALSO IN APPLICATIONS.”

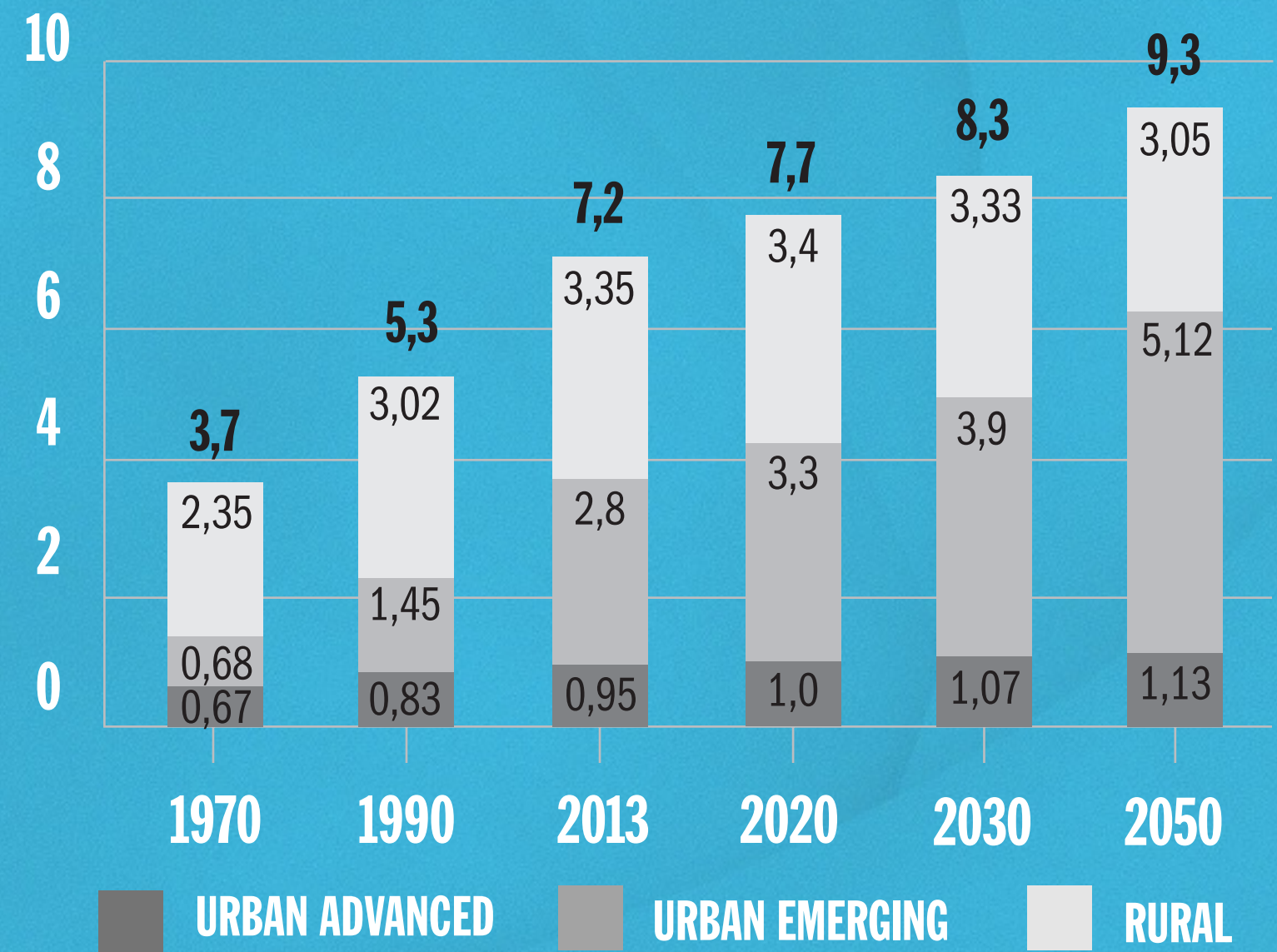
SIEMENS INDUSTRY JOURNAL 2013

URBANISATION & MIDDLE CLASS

MIDDLE CLASS DEVELOPMENT



URBAN POPULATION DEVELOPMENT



DEMOGRAPHICS — NEW PATTERN

- 1.2 Bn. people will be urbanized within 17 years. 70 mill. people a year. A 6 mill. people city per month.
- Nearly all this growth is in emerging markets. 7 countries account for more than 50%
- By 2040 Nigeria will have a population of 440 mill., larger than the US at 400 mill.
- The new billion consumers will have a different legacy, different needs and preferences...

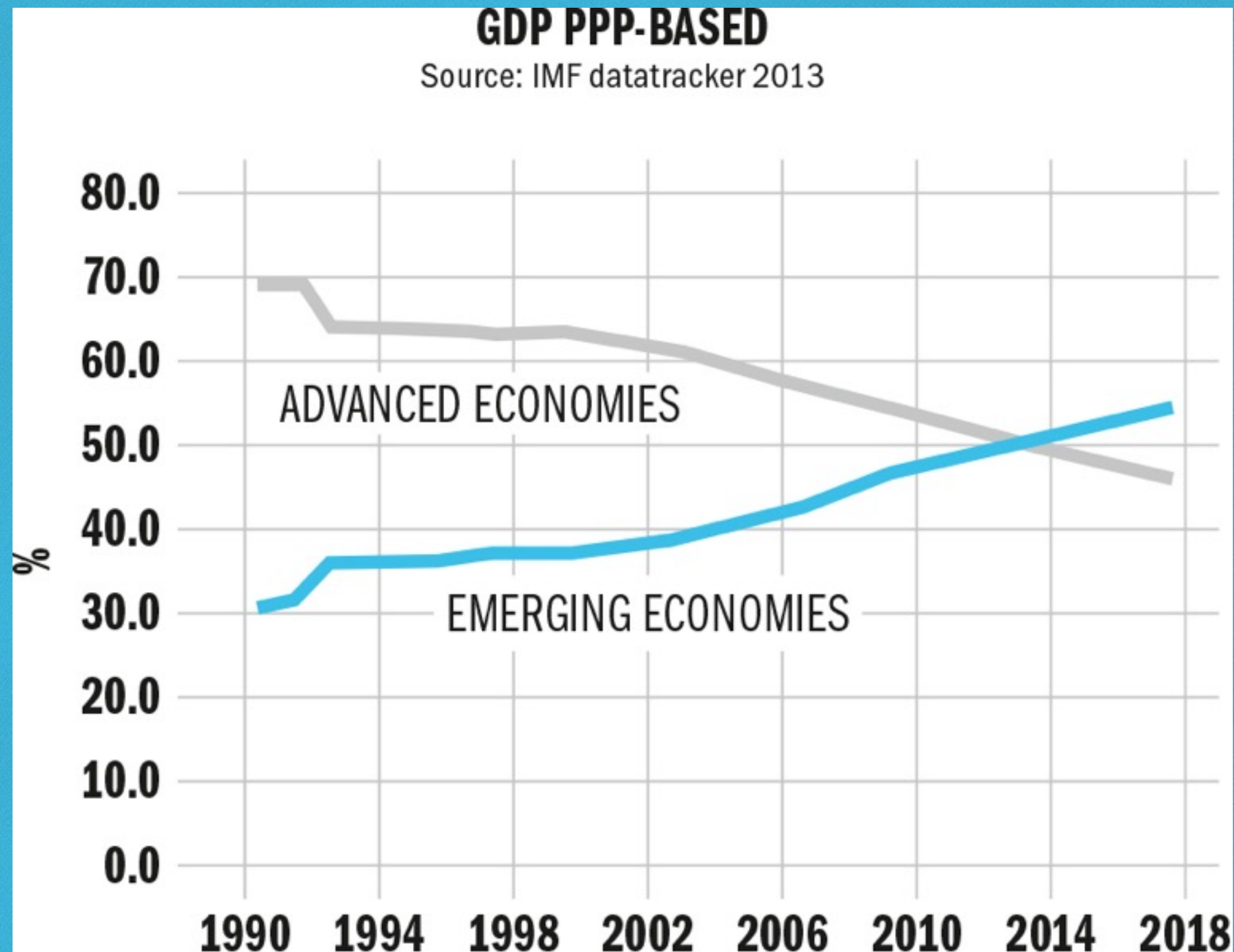


GLOBALIZATION

Where does large international companies come from ?
Competition intensifies, and technological leadership shifts

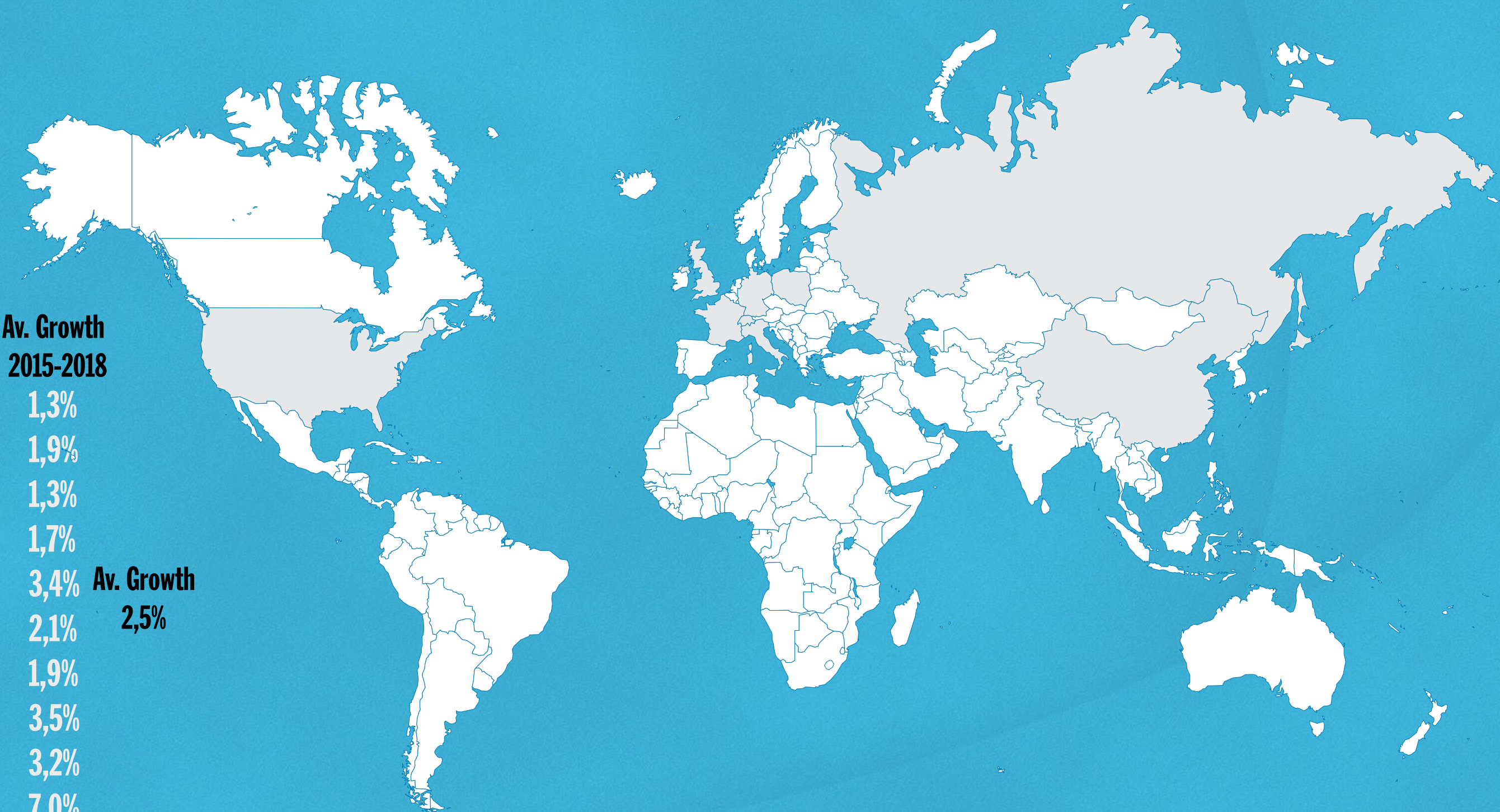
REGION	2005	2010
US & CANADA	1060	750
W. EUROPE	650	600
JAPAN	45	33
OTHER ADVANCED	300	150
CHINA	0	250
BRI	50	150
OTHER EMERGING	150	250

EMERGING VS ADVANCED



VORARLBERG TOP 10 EXPORT MARKETS

1. Germany	1,3%	Av. Growth 2015-2018 2,5%
2. Switzerland	1,9%	
3. Italy	1,3%	
4. France	1,7%	
5. USA	3,4%	
6. United Kingdom	2,1%	
7. Liechtenstein	1,9%	
8. Russia	3,5%	
9. Polen	3,2%	
10. China	7,0%	
WORLD	4,0%	



HIGH GROWTH MARKETS



	Av. Growth 2014-2018	Av. Growth 4,9%
1. China	7,0%	
2. Nigeria	6,8%	
3. India	6,6%	
4. Indonesia	6,0%	
5. Philippines	5,5%	
6. Vietnam	5,5%	
7. Malaysia	5,2%	
8. Colombia	4,5%	
9. Turkey	4,4%	
10. Egypt	4,1%	
11. Mexico	4,1%	
WORLD	4,0%	

A NEW MIND-SET REQUIRED...

*ADAPTIVE
VS.
ANTICIPATORY*


*STATIC
VS.
DYNAMIC*

*MAINTAIN
VS.
TRANSFORM*

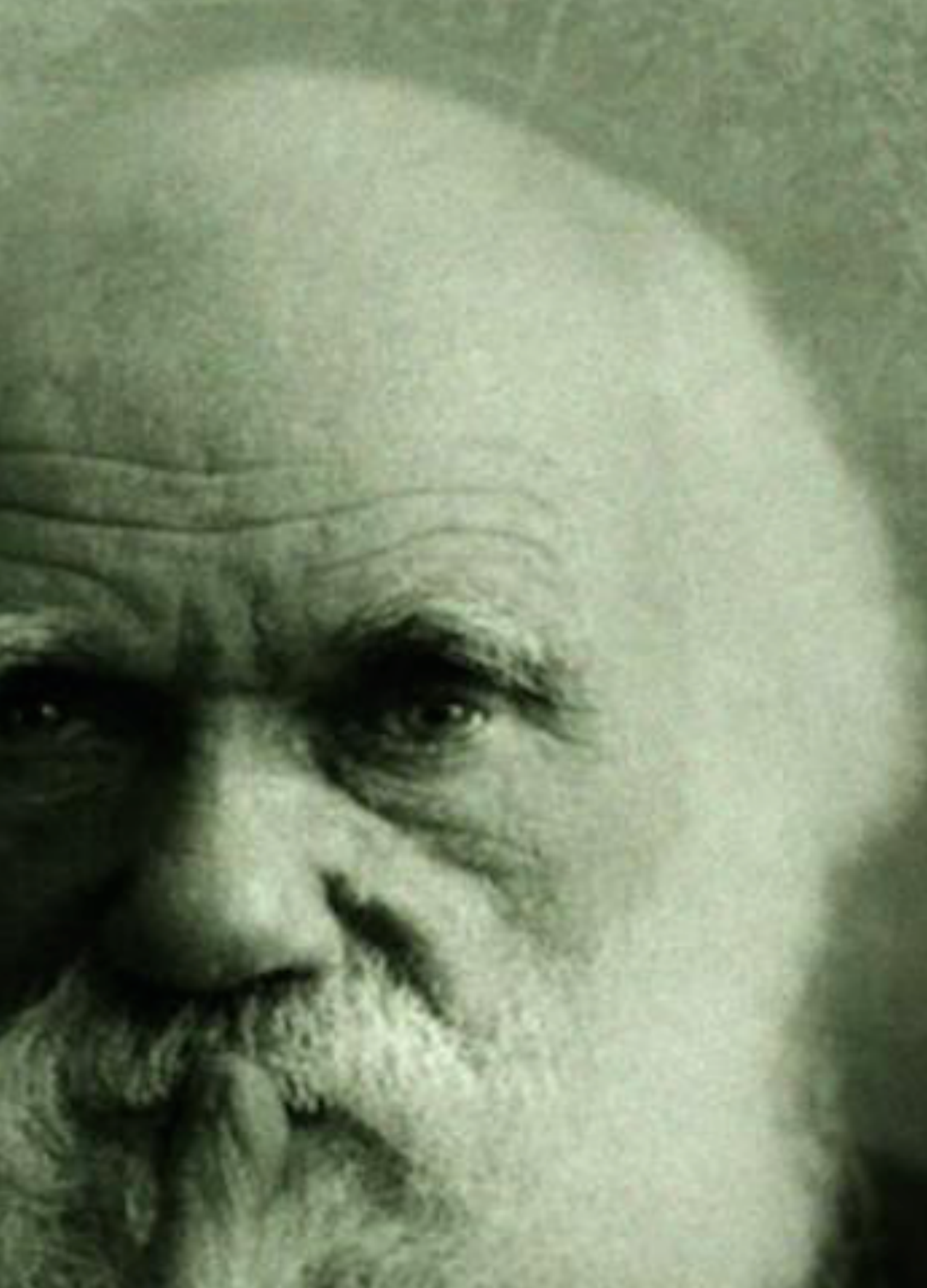
*MATERIAL
VS.
IMMATERIAL
ECONOMY*

*SCARCITY
VS.
ABUNDANCE*



A dramatic, low-angle shot of a massive tsunami wave crashing over a sandy beach. The water is a deep, vibrant blue, and the crest of the wave is a thick, white foam. The wave is curling over, creating a tunnel-like effect. The sky is a clear, bright blue. The word "TSUNAMI" is overlaid in large, white, bold, sans-serif capital letters on the right side of the image.

TSUNAMI



“It is not the
strongest of the
species that
survives, nor the
most intelligent,
but the one most
responsive to
change.”

-Charles Darwin, 1809