

The next 30 years...

And what you can do about it



19-21 June 2017, 30th Bled Conference | Digital Transformation

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Former Director European Commission

Digital Society, Trust and Cybersecurity

All opinions expressed à titre personnel

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Hall of fame of the past 30 years



Joseph Licklider



Paul Baran



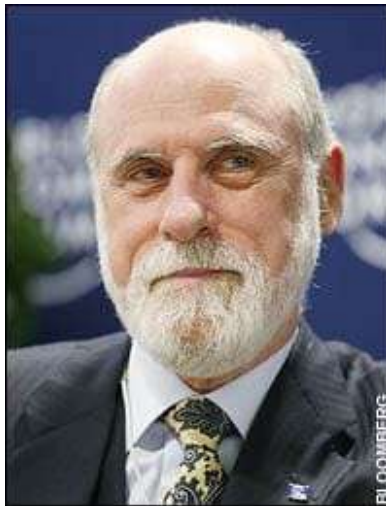
Donald Davies



Linus Torvalds



Robert Kahn



Vint Cerf



Douglas Engelbart



Esther Dyson

Hall of fame of the past 30 years



Tim Berners-Lee



John Perry Barlow



Erik Huizer



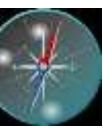
Manuel Castells



Mary Meeker



Joze Gricar



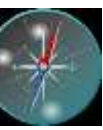
Where are we now, after 30 years?

- **Digital everywhere**
- **No more Summer of Love**
- **Big business, Big policy, Big forums**
- **US, China and GAFA dominance**
- **Great walls corralling the open internet**

TECHNOLOGY NEWS | Sat, Apr 13, 2017 | 3:53pm EDT

Germany's Merkel says digital world needs global rules





What surprised us?

- **How fast Internet commerce took over from EDI**
- **The continued rapid diffusion of the Internet**
- **How much smartphones became an indispensable part of us**
- **The phenomenal rise of the social networks**
- **Blockchain?**



The big expectations for the future

- **2017-2018: Mary Meeker**

INTERNET TRENDS 2017 –
CODE CONFERENCE

Mary Meeker
May 31, 2017

kpcb.com/InternetTrends

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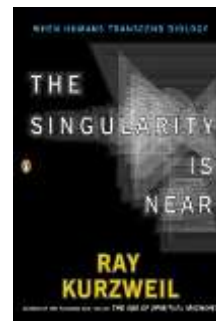
- **2017-2027: NGI debate**

ATOMIUM
EUROPEAN INSTITUTE
FOR SCIENCE, MEDIA AND DEMOCRACY



REI Search
EMPOWERING KNOWLEDGE

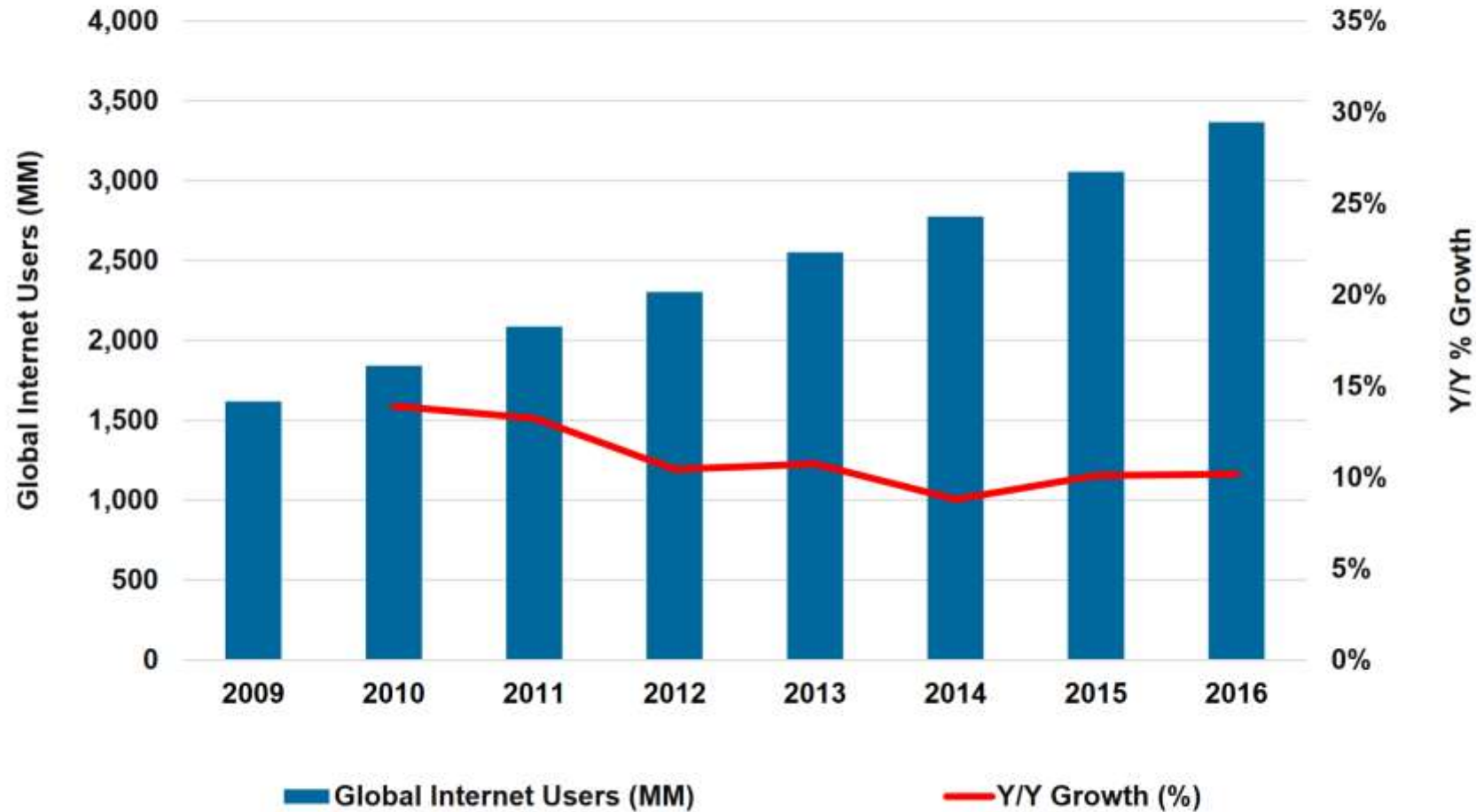
- **2017-2047: Ray Kurzweil**



2017-2018
(Mary Meeker)

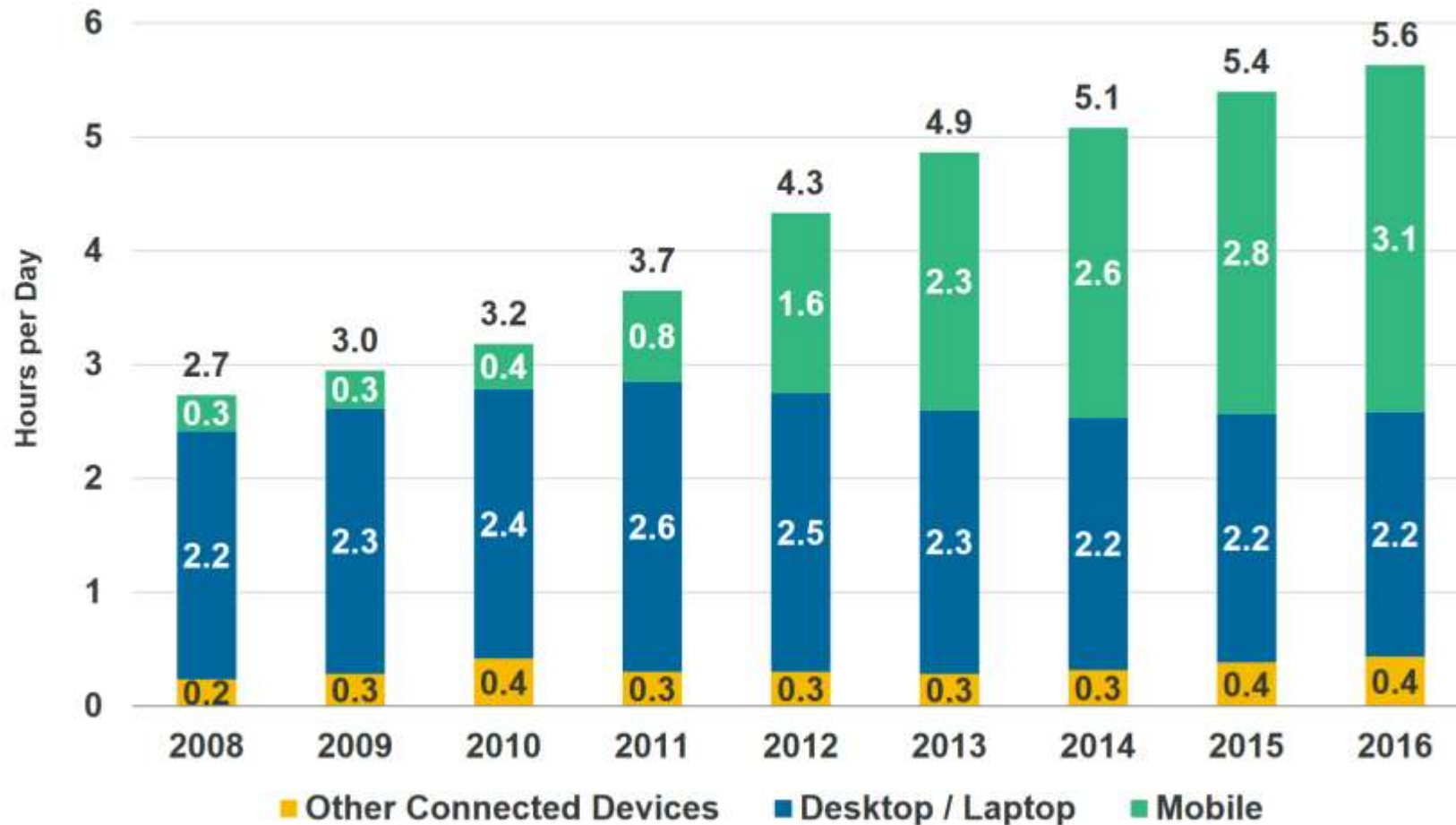
Global Internet Users = 3.4B @ 46% Penetration...
 +10% Y/Y vs. +10%...+8% Y/Y vs. +8% (Ex-India)

Global Internet Users (MM), 2009 – 2016



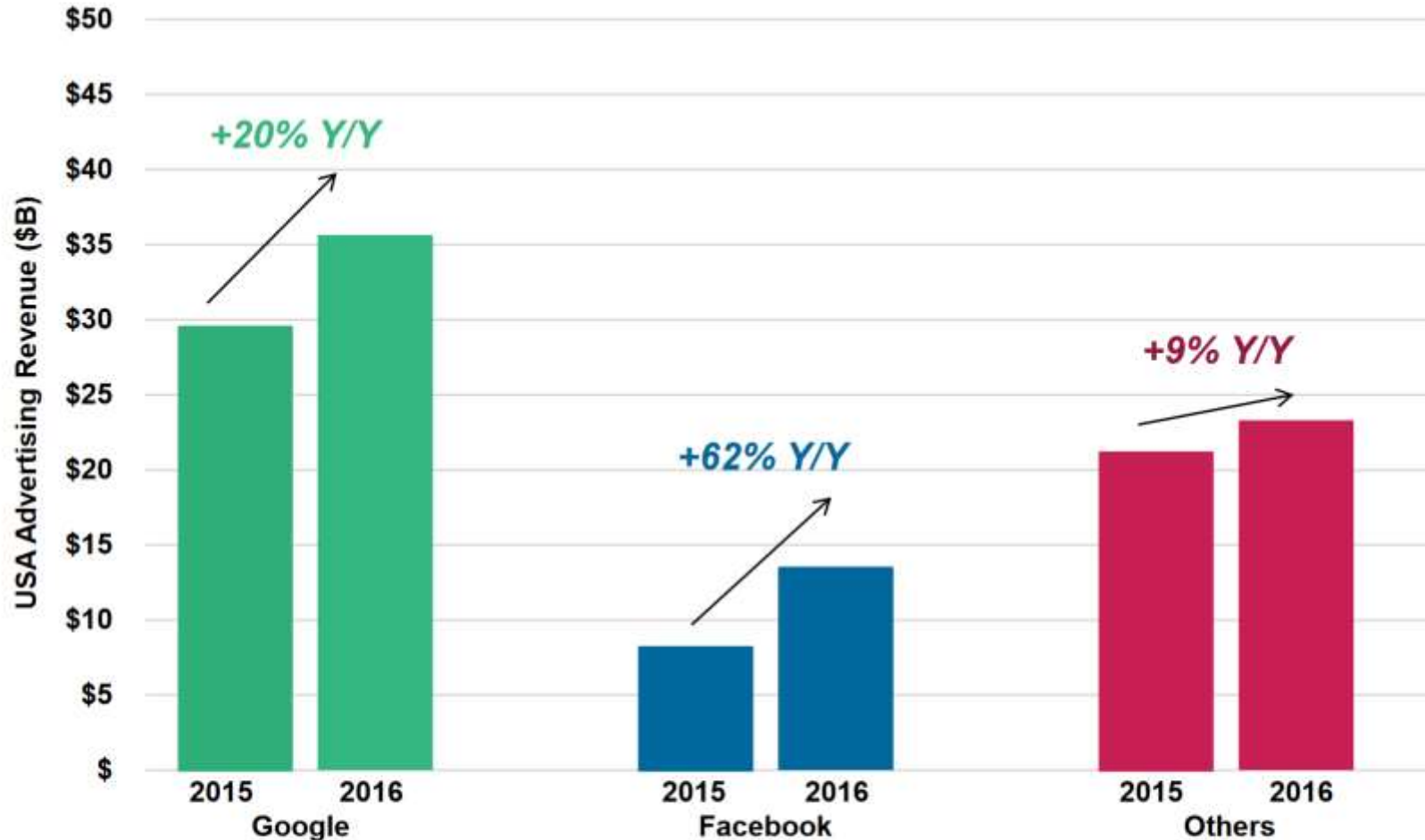
Internet Usage (Engagement) = Solid Growth...+4% Y/Y... Mobile >3 Hours / Day per User vs. <1 Five Years Ago, USA

Time Spent per Adult User per Day with Digital Media, USA, 2008 – 2016



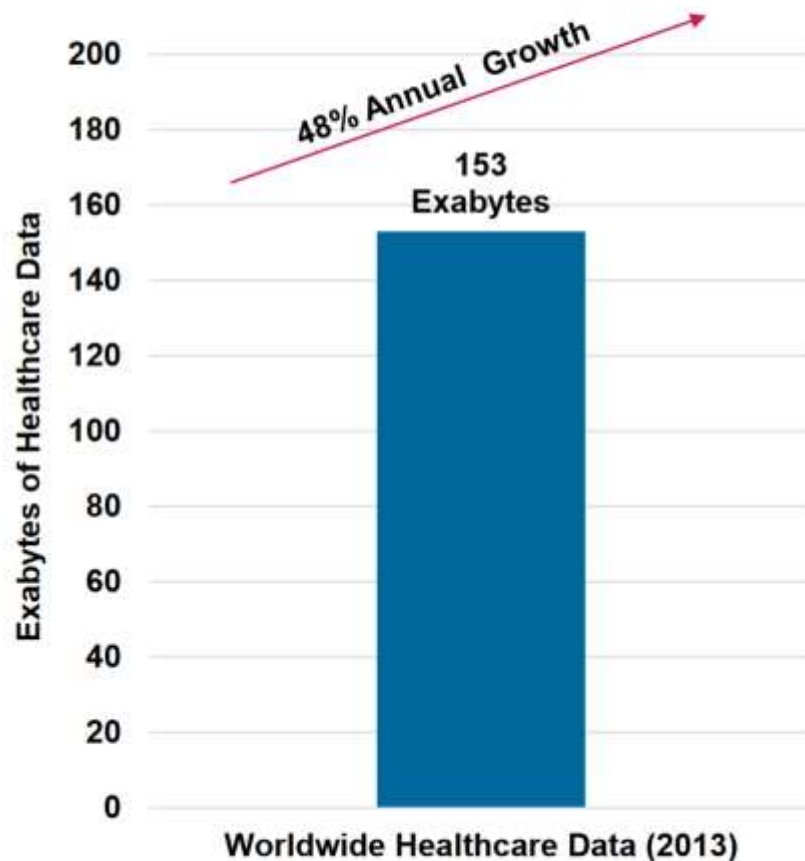
Google + Facebook = 85% (& Rising) Share of Internet Advertising Growth, USA

Advertising Revenue (\$B) and Growth Rates (%) of Google vs. Facebook vs. Other, USA, 2015 – 2016



...Increasing Digitization of Inputs = Healthcare Data Growing at 48% Y/Y

Growth in Healthcare Data



Data Drivers

Typical 500 Bed Hospital

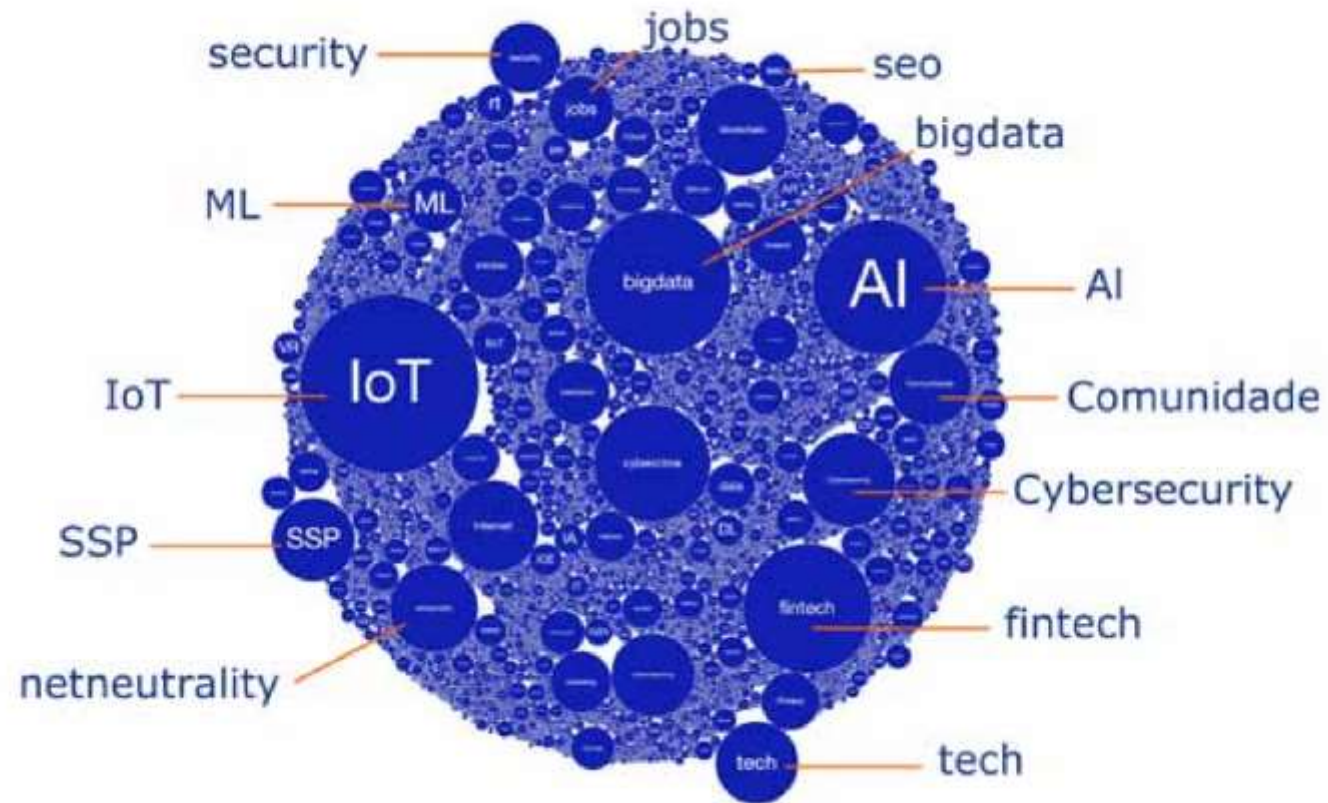
- 500 Beds
- 8,000 Employees
- 400 Applications
- 500 Databases
- 1,000 Interfaces
- 10,000 Desktops
- 500 Owned/Controlled Tablets
- 2,000 Owned/Controlled Mobile Devices

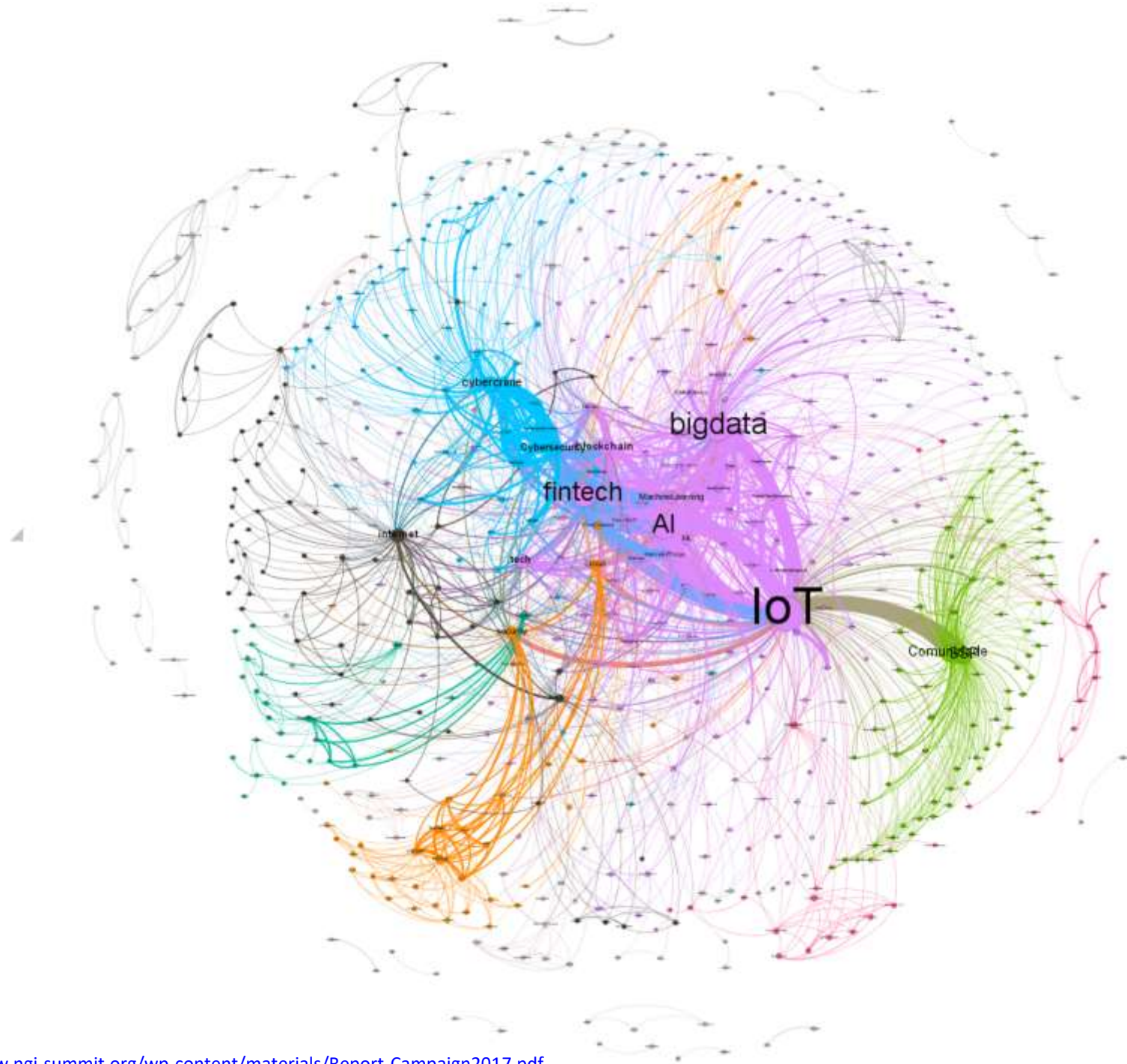
**50
Petabytes
of Data per
Hospital**

2017-2027
(Atomium / NGI)

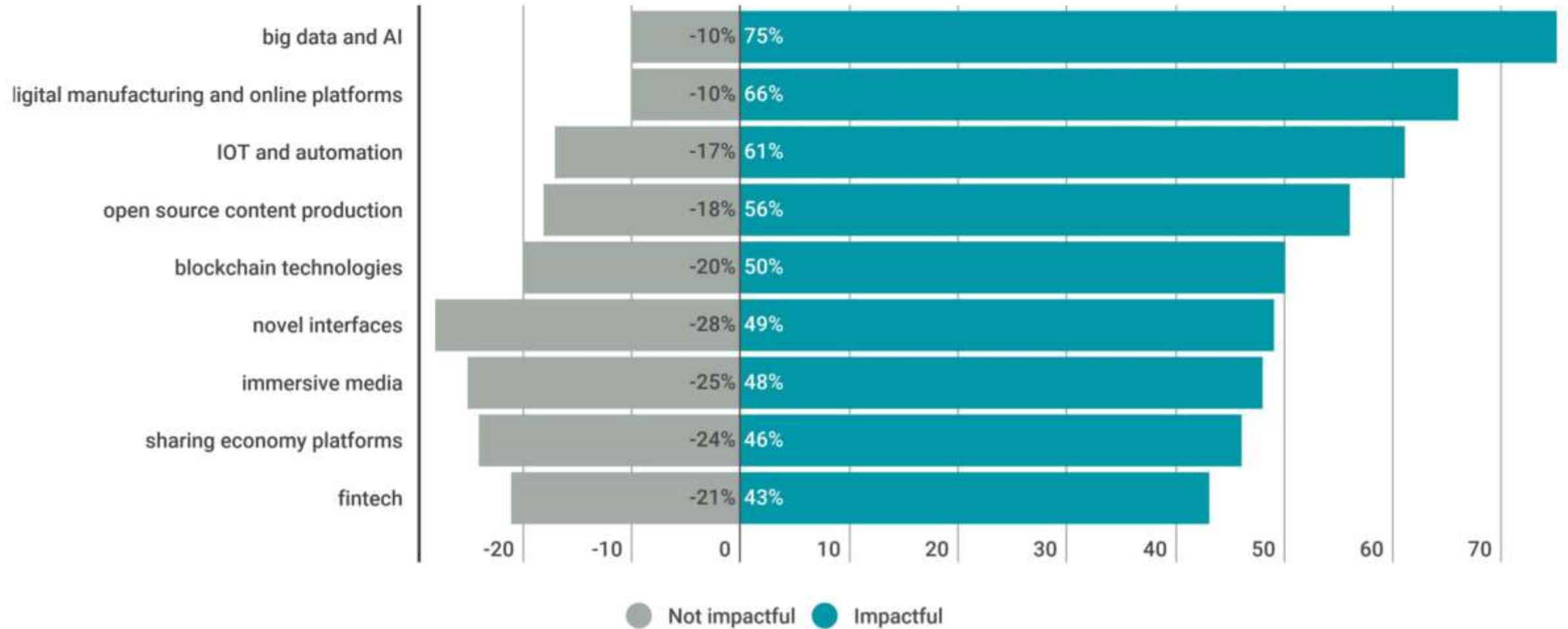
NGI debate

Fig 1. Most discussed topics on social networks (Source: EISMD – HER 2017 network analysis).



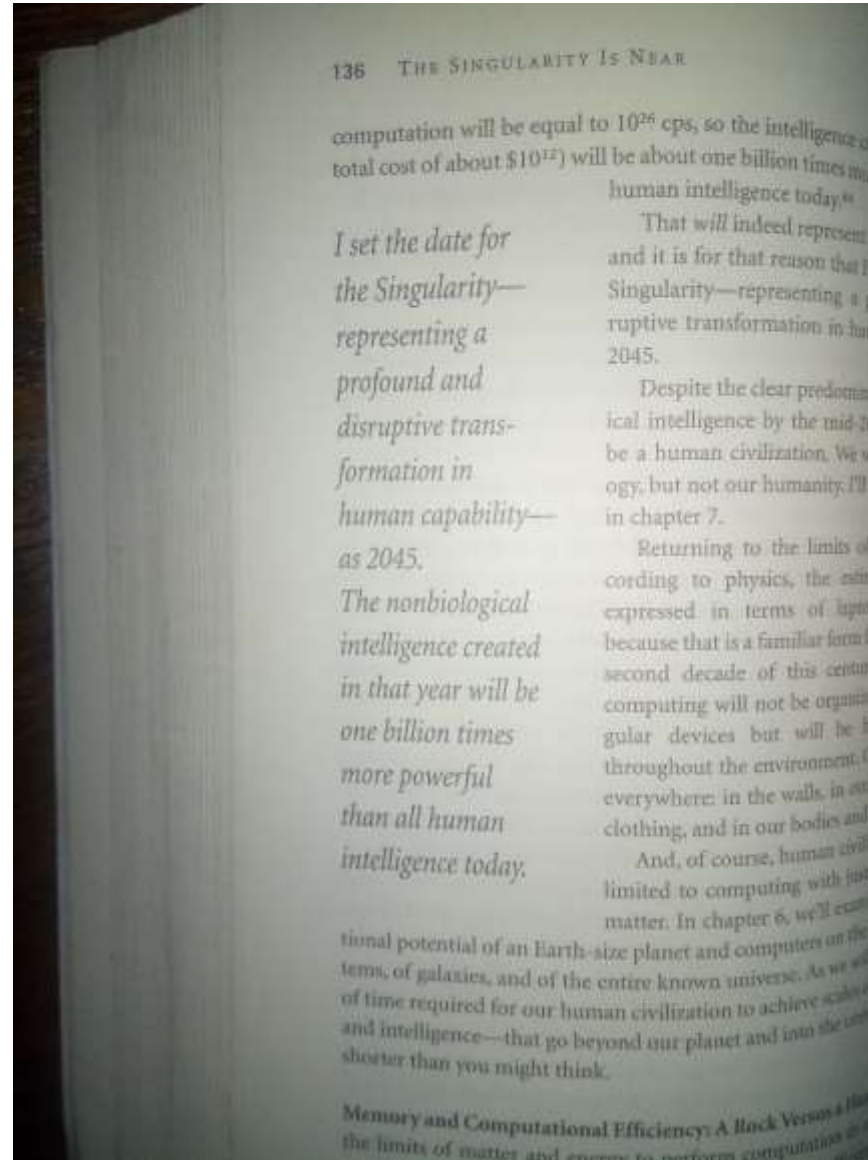


Graph 2.2 – Which technologies will bring the most profound change in change in how we learn, work and do commerce in the next 10 years?



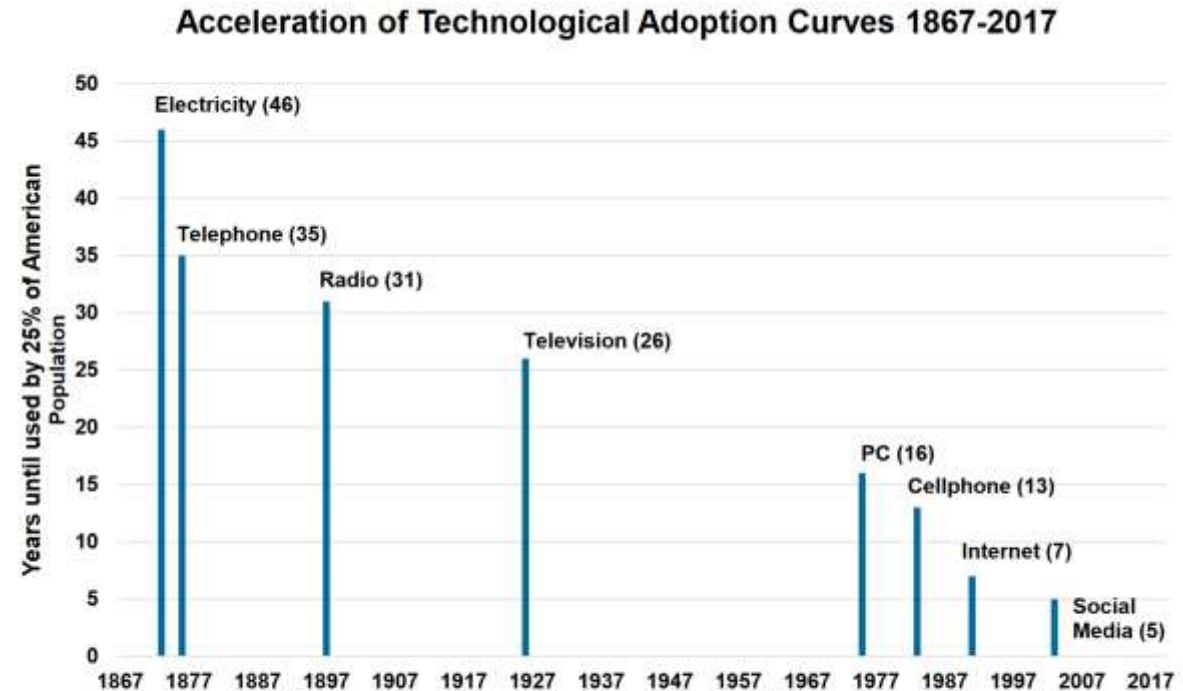
2017-2047
(Singularity)

Singularity



The big expectations

- It will go ever faster....



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Source: The Economist (12/15), Pew Research Center (1/17)
*Social Media Adoption based on founding date of MySpace (2003) and Social Media Penetration calculated by Pew Research Center

KP INTERNET TRENDS 2017 | PAGE 311

- what does this tell us about the future of digital transformation?

Let's focus on 3 big expectations

- We all become **smarter with AI**
- We will enjoy **abundance with data and IoT**
- We will **live longer and healthier**

Smarter with AI

Smarter with AI

Worldwide IT spending - overall 2016-2021 CAGR 6.4%

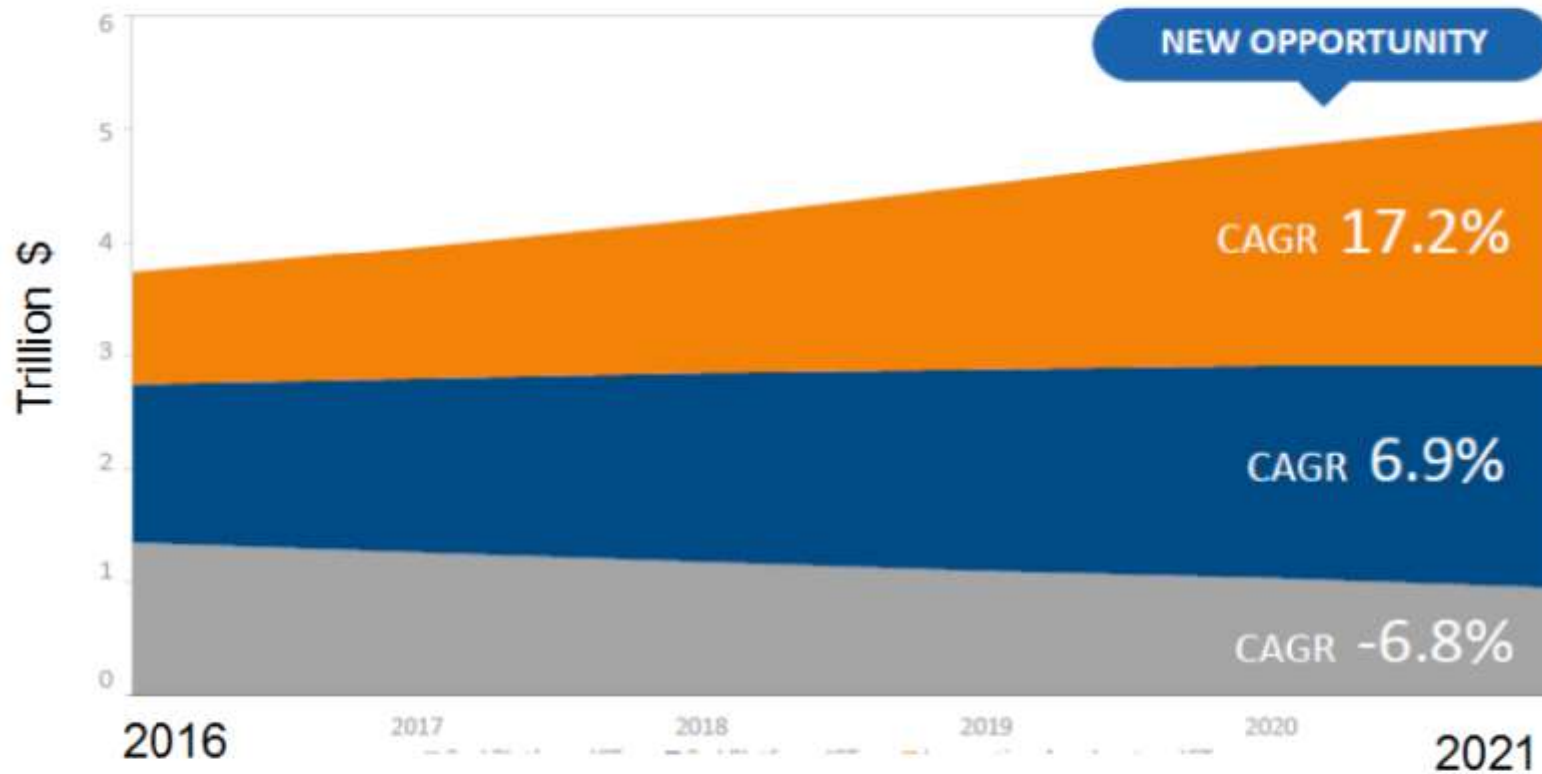


Table 3 Legend: Grey area: traditional IT; Blue area: spending in 2nd platform technologies, Cloud, Big Data, Social Media, Mobile; Orange area: spending in innovation accelerators, IoT, Cognitive Systems, Robotics and others

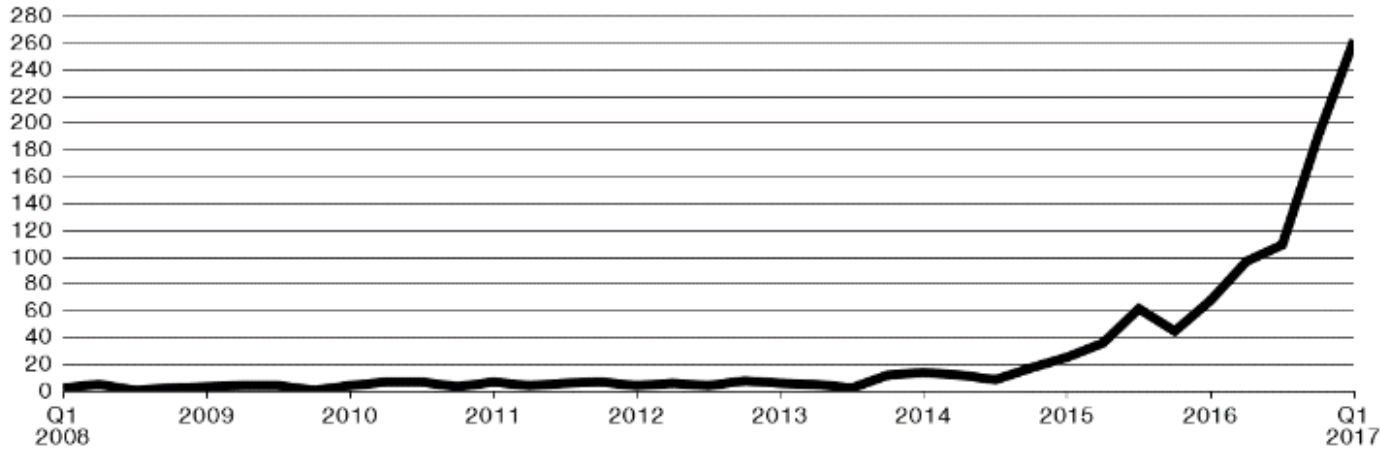
Source: IDC 2016

Smarter with AI

I, Robot

Companies are talking more and more about Artificial Intelligence

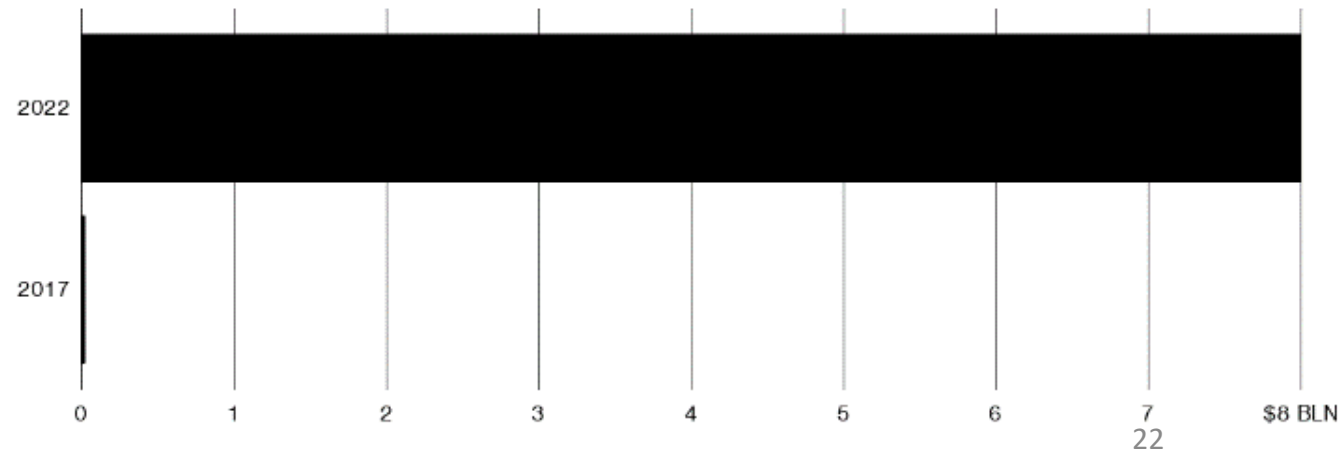
■ Mentions of Artificial Intelligence in Bloomberg Transcripts



Source: Bloomberg

Bot Savings

Chatbots are expected to eliminate \$8 billion of customer-service costs in the next five years



Source: Juniper Research

Smarter with AI



Artificial intelligence can now predict suicide with remarkable accuracy



Science for Social Good

Applying AI, cloud and deep science toward new societal challenges (IBM Initiative)

Picture sources: bipolarsymptoms.com, IBM website, Pixabay/ markusspiske



Algorithms can detect whether code is business as usual or an attack. Credit: Pixabay/ markusspiske

AI teaches computers to spot malicious tinkering with their own code (EU SecTrap project)

Smarter with AI



Actual
face



Predicted
face



205 neurons are enough for face recognition

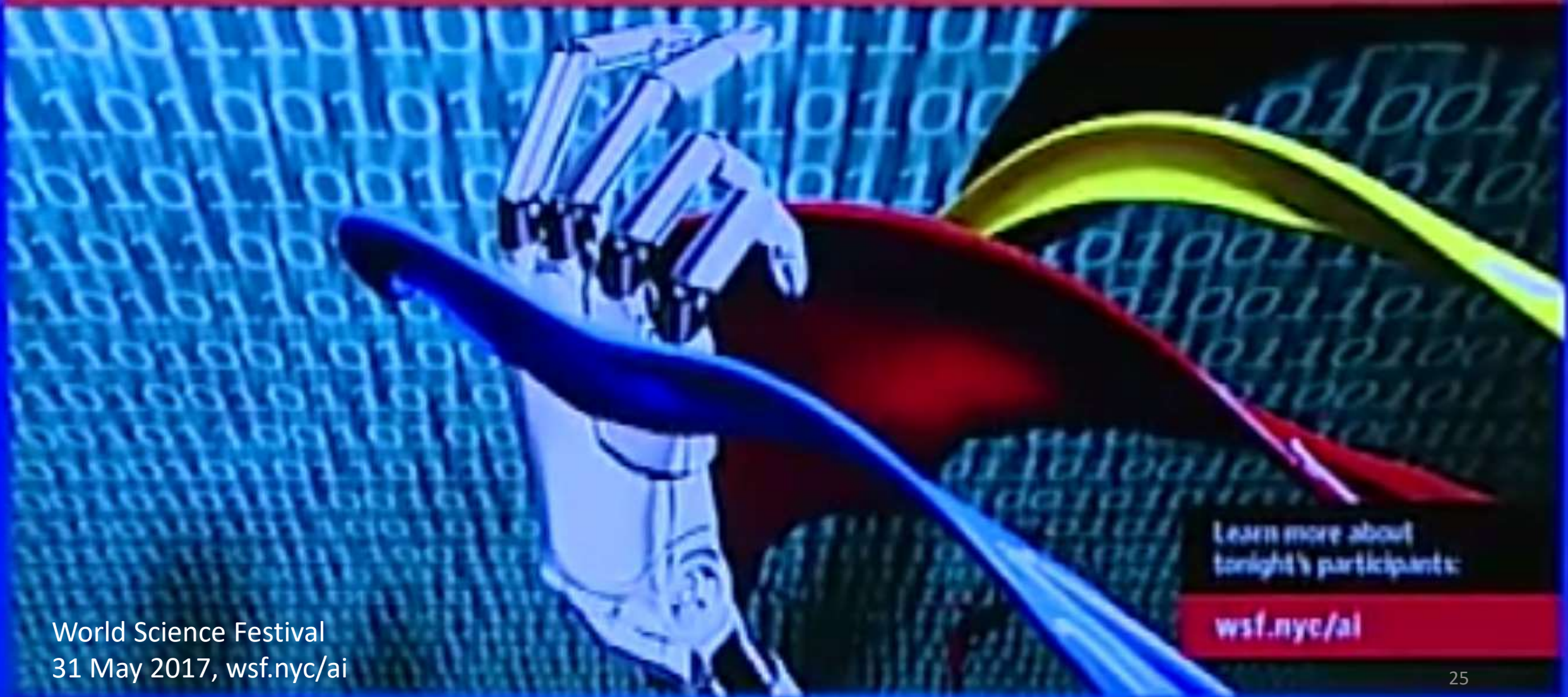


Illustration: iStockphoto

Robocars and Electricity—a Match Made
in Heaven

IEEE.org

COMPUTATIONAL CREATIVITY: AI and the Art of Ingenuity



Learn more about
tonight's participants:

wsf.nyc/ai

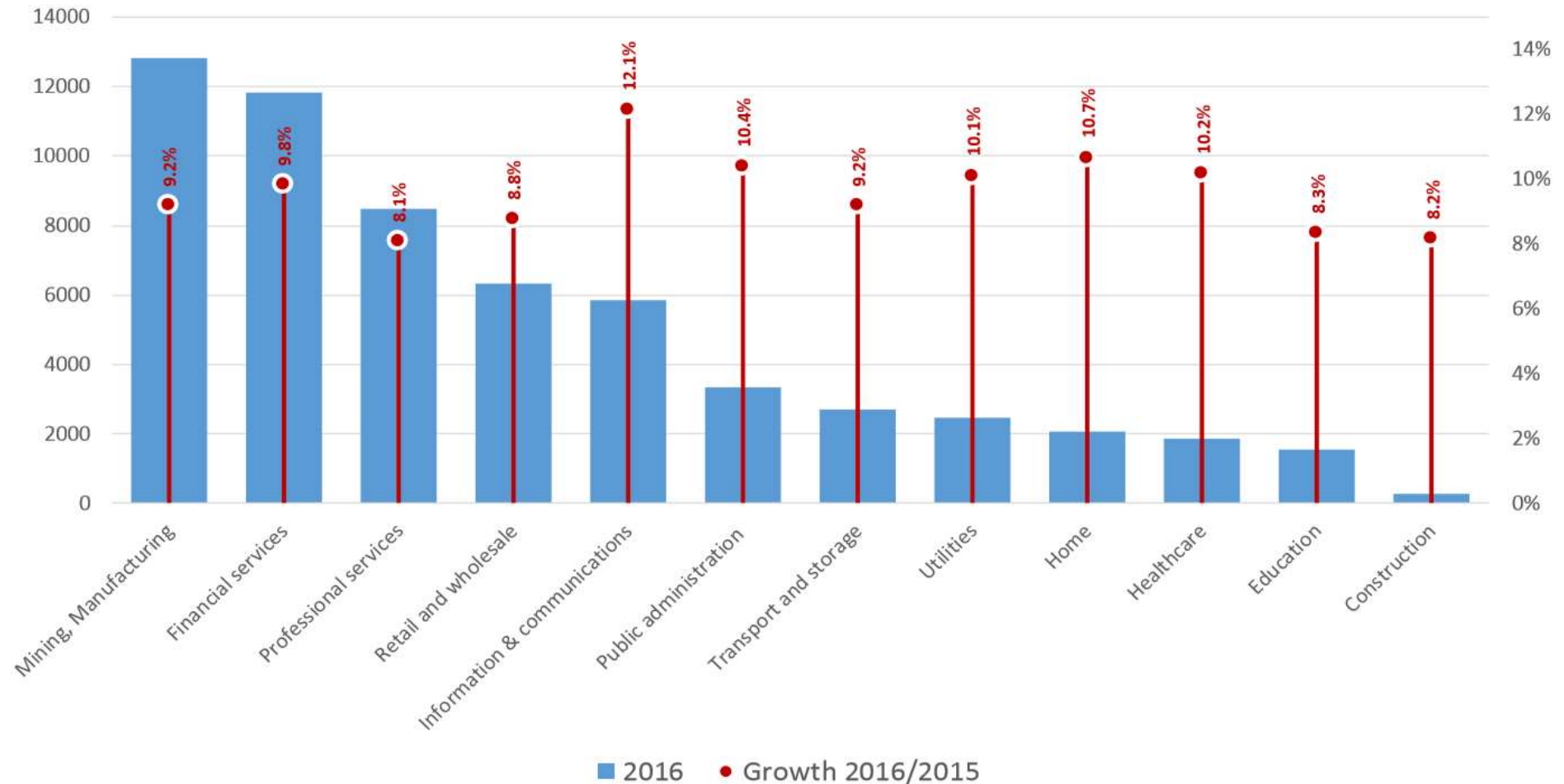
World Science Festival
31 May 2017, wsf.nyc/ai



Abundance with data and IoT

Abundance with Data and IoT

Data Market Value by Industry, 2016, € Million; Data Market Growth by Industry, 2016-2015, %



Source: European Data Market Monitoring Tool, IDC October 2016

Data and IoT

EXHIBIT 1 | Data-Driven Companies Have Become the Most Valuable

COMPANY: MARKET CAPITALIZATION

RANK	APRIL 2017	Q4 2011	Q4 2006
1	Apple: 741	Exxon Mobil: 406	Exxon Mobil: 447
2	Alphabet: 585	Apple: 376	General Electric: 384
3	Microsoft: 505	PetroChina: 277	Microsoft: 294
4	Amazon: 432	Royal Dutch Shell: 237	Citigroup: 274
5	Facebook: 408	ICBC: 228	Gazprom: 271
6	Berkshire Hathaway: 404	Microsoft: 218	ICBC: 255
7	Exxon Mobil: 344	IBM: 217	Toyota: 241
8	Johnson & Johnson: 330	Chevron: 212	Bank of America: 240
9	JPMorgan Chase: 303	Walmart: 205	Royal Dutch Shell: 226
10	Alibaba Group: 278	China Mobile: 196	BP: 219

 Data-driven company

Source: S&P Capital IQ, "Top 10 Companies with Highest Market Capitalization Worldwide."

Note: Market capitalization figures have been rounded and are in \$billions.



Powering a rich ecosystem

 **SIGFOX**
One network A billion dreams

Data and IoT



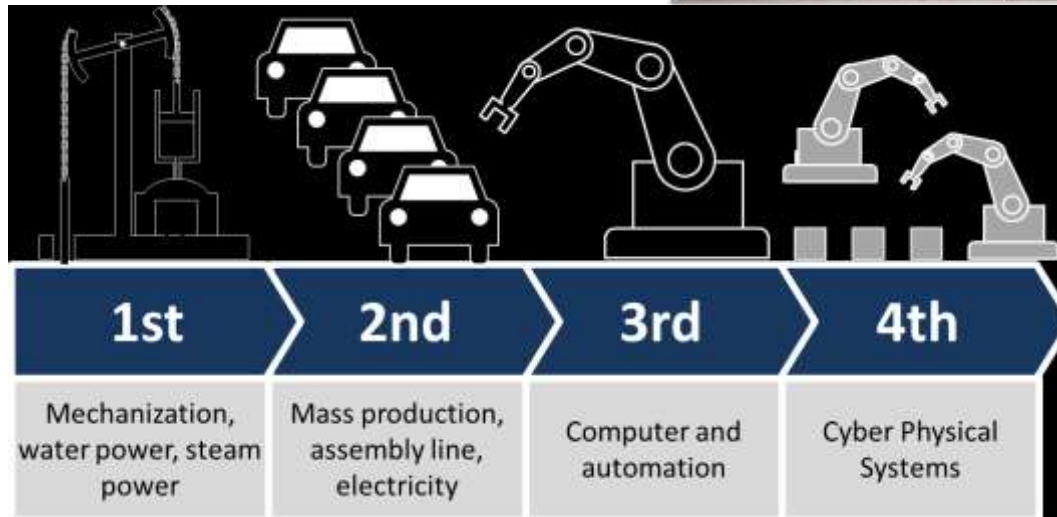
THE BEDBUGS WON'T BITE THANKS TO THIS SMART IOT TRACK-AND-TRAP DEVICE

By Luke Dermold — Updated June 8, 2017 12:19 am

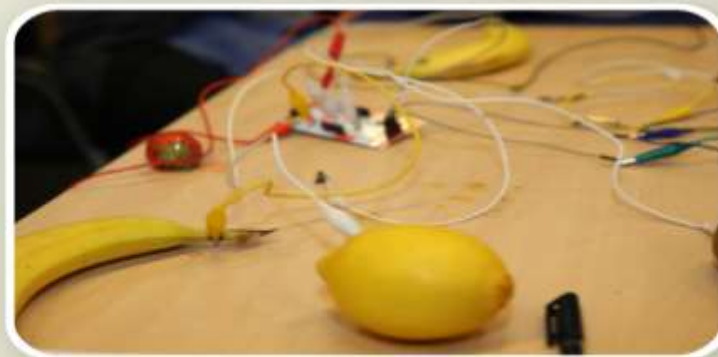
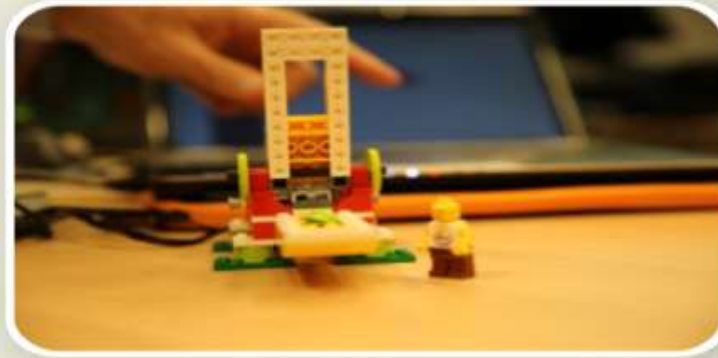


Get your Sagan on with these 43 awe-inspiring photos of the final frontier

Here are the top 25 games

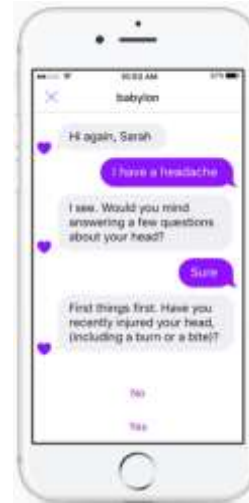


Data and IoT can be fun too...



Living longer and healthier

Living longer and healthier



EU Tobi project



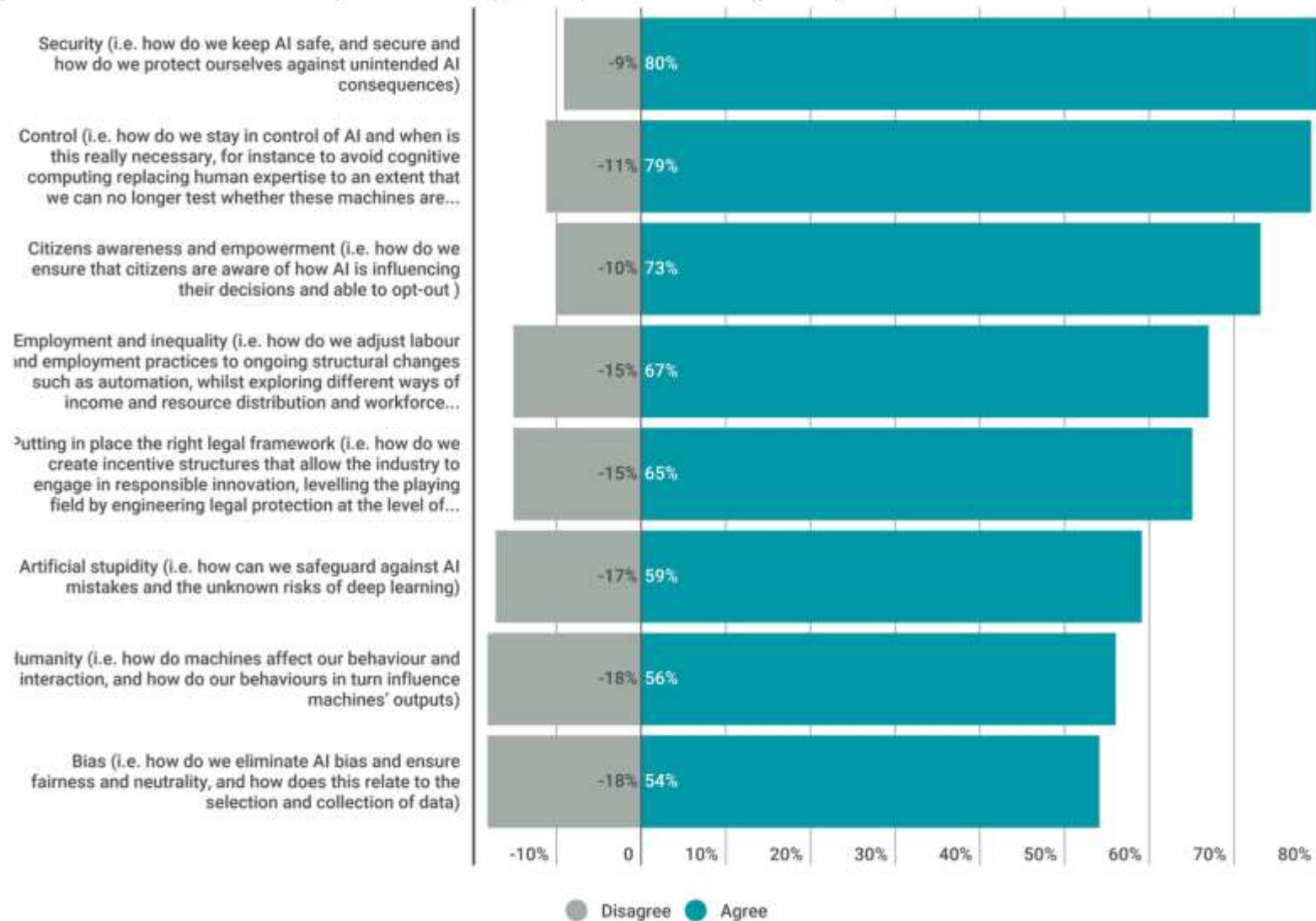
Death is Obsolete
How to live longer through science & technology

But of course this happy story
is not going to become true...

AI, Data, IoT, Longevity – the dark side



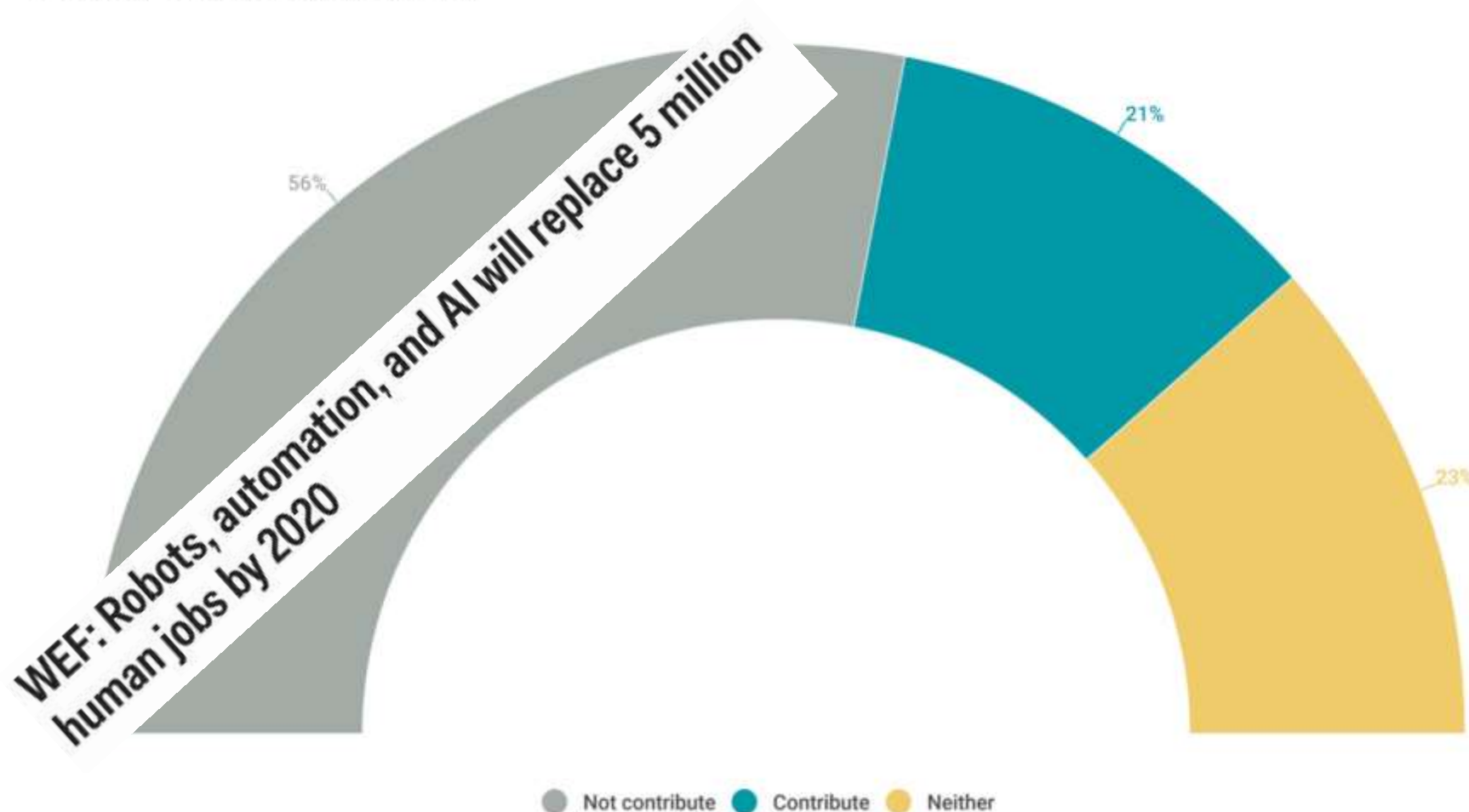
Graph 4.6 – What are the most important issues posed by Artificial Intelligence systems in the next decade?



AI, Data, IoT, Longevity – the dark side



Graph 2.5 – Will the digitisation and “internetisation” of business deliver meaningful work for all, and generate salaries that equal or exceed current levels?



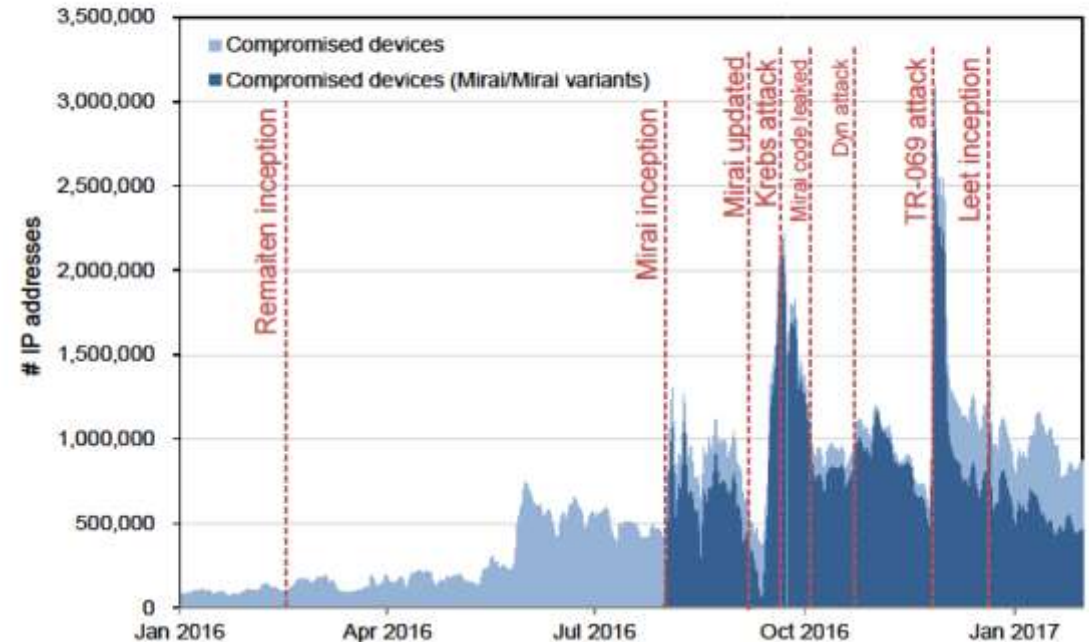
AI, Data, IoT, Longevity – the dark side



Bot versus bot: An online AI battle will soon rage over fake news

<https://www.siliconrepublic.com/machines/bots-fake-news-twitter>

Compromised IoT

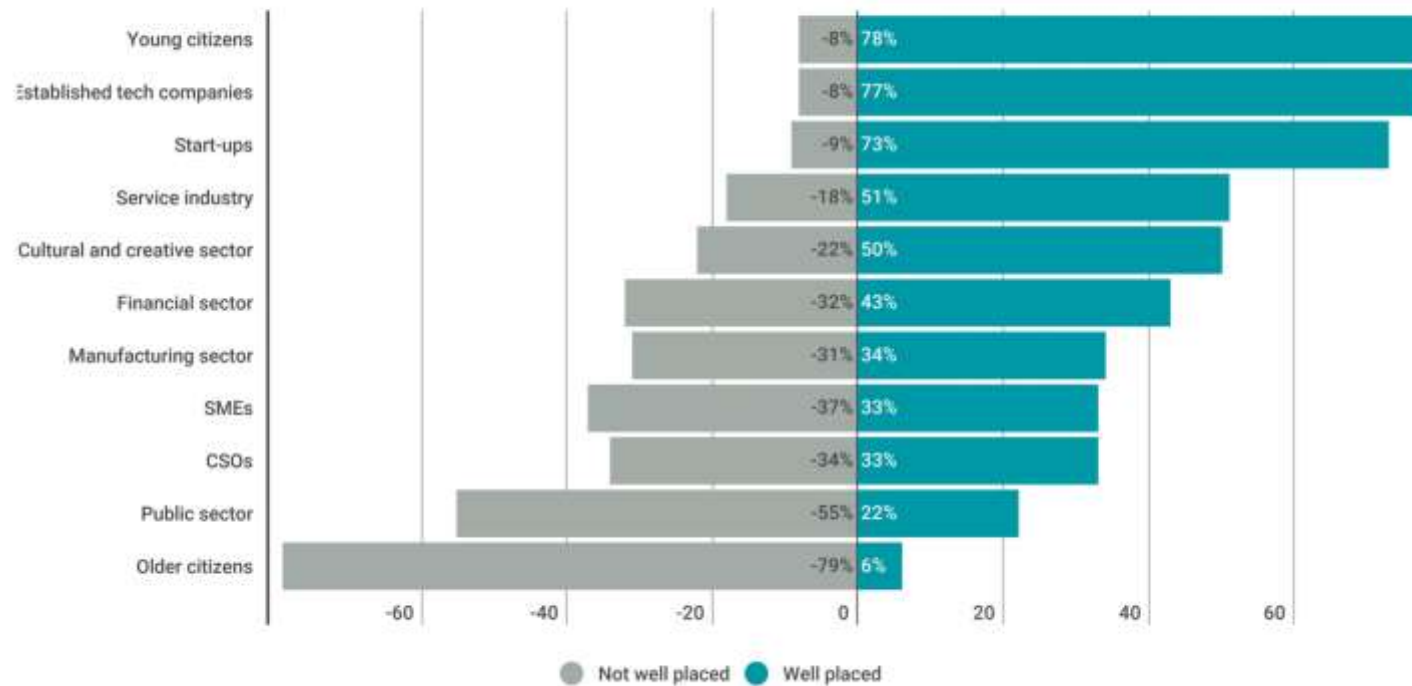


Source: Michel van Eeten, ONE Conference, 16 May 2017

AI, Data, IoT, Longevity – the dark side



Graph 2.7 – Who is best placed to take advantage of the next generation of internet technologies?





What can you do about it?

Discuss at this Bled conference

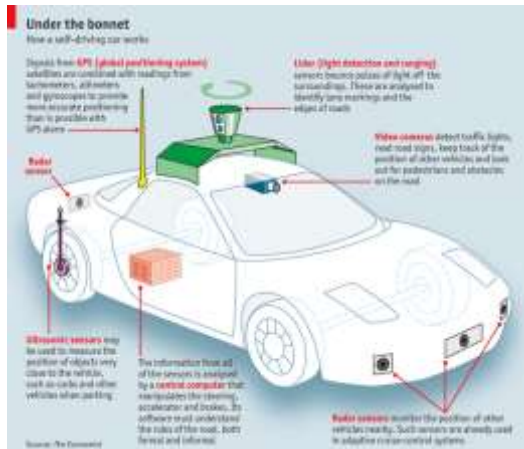
- Living longer and healthier – eHealth & Wellness tracks
- Abundance thanks to data and IoT - modernization of industry and big data and business models sessions
- Smarter brains with AI – some attention eg algorithms, education
- Digital Forum

Thorny policy-technology questions

- Encryption



- Device data ownership



- Free flow of data



- Digital sovereignty



Thorny policy-technology questions

- Democratizing and humanizing AI



- **Accountability** of algorithms



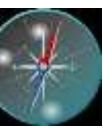
- The good, the bad and the ugly of the **sharing economy**

My wish list for the next 30 years



- No one left behind
- Everyone respected as an individual
- Technology that is simple and addresses 'all-senses'
- Not only pursuing utility but meaningful & happy lives

Human-centred
Digital Transformation



The next 30 years...

And what you can do about it?

Ask not what the next 30 years
will bring to you...

Ask what you will bring to the
next 30 years.

Hall of fame of the next 30 years can be...





Thank you!



19-21 June 2017, 30th Bled Conference | Digital Transformation

Paul Timmers

Former Director European Commission

Digital Society, Trust and Cybersecurity

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