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Artificial Intelligence, Automation and Employment in the United States:
Towards Augmented Democracy?

Jon Katz, Wired Magazine

- *The Digital Nation points the way to a more rational, less dogmatic approach to politics. The world's information is being liberated, and so, as a consequence, are we.*

R. U. Sirius (aka Ken Goffman)

- *As more and more people get a voice, a voice needs a special stridency to be heard above the din. On the street, people tolerate diversity because they have to—you'll get from here to there if you don't get in anybody's face. But the new media environment is always urging you to mock up an instant opinion about The Other ... You can be part of the biggest mob in history. Atavistic fun, guys. Pile on!*

The Question

- *How can individuals, organizations, communities, and societies survive and thrive in an era of exponential technological change?*

Trends and Issues

Exponential Technological Change

1 The accelerating pace of change ...



2 ... and exponential growth in computing power ...

Computer technology, shown here climbing dramatically by powers of 10, is now progressing more each hour than it did in its entire first 90 years

COMPUTER RANKINGS

By calculations per second per \$1,000



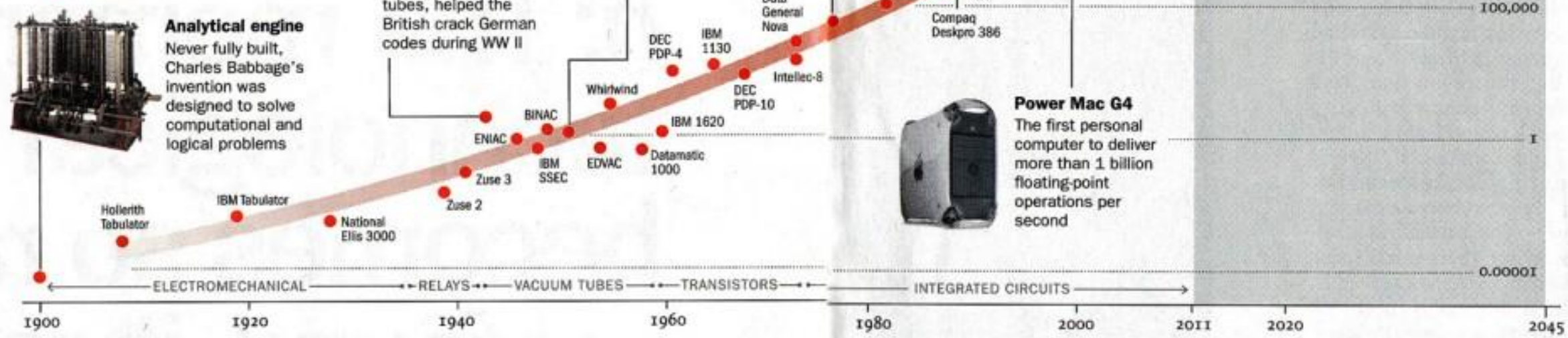
Analytical engine
Never fully built, Charles Babbage's invention was designed to solve computational and logical problems



Colossus
The electronic computer, with 1,500 vacuum tubes, helped the British crack German codes during WW II



UNIVAC I
The first commercially marketed computer, used to tabulate the U.S. Census, occupied 943 cu. ft.



3 ... will lead to the Singularity



Apple II
At a price of \$1,298, the compact machine was one of the first massively popular personal computers



Power Mac G4
The first personal computer to deliver more than 1 billion floating-point operations per second

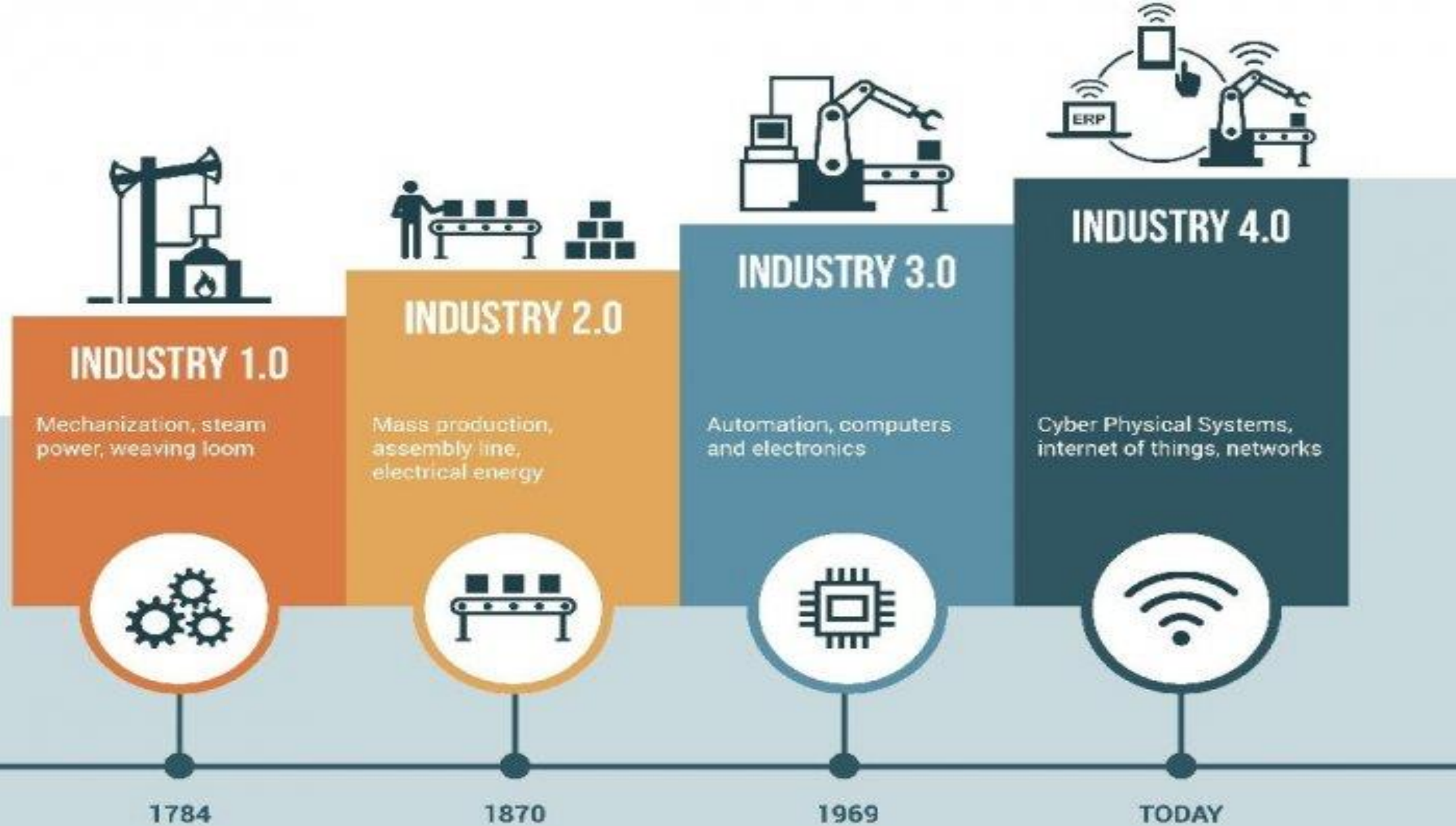
2045
Surpasses brainpower equivalent to that of all human brains combined

Surpasses brainpower of human in 2023

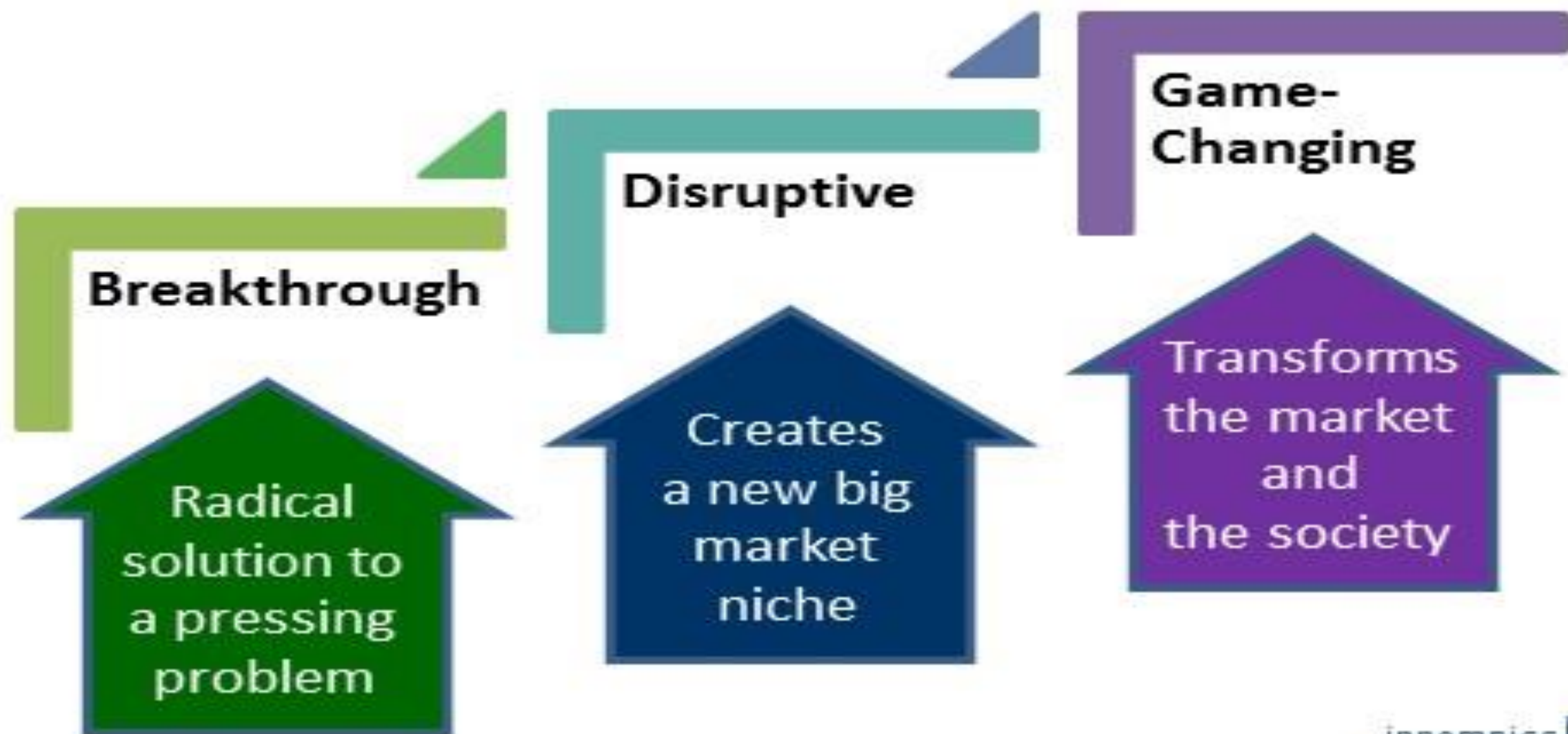


Surpasses brainpower of mouse in 2015

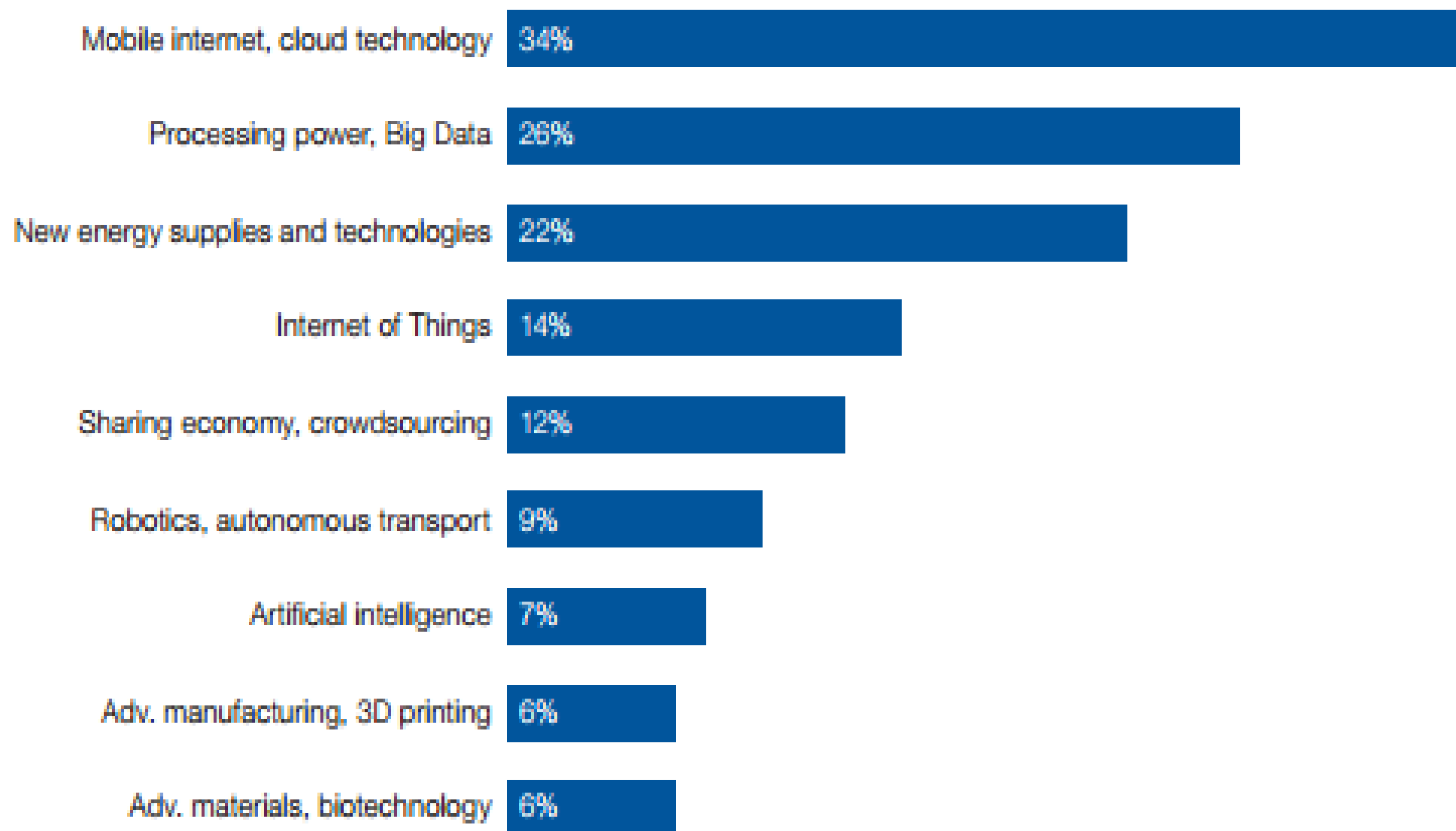




3 Levels of Radical Innovation



TECHNOLOGICAL



Source: Future of Jobs Survey, World Economic Forum.

Note: Names of drivers have been abbreviated to ensure legibility.

Disruption Is the New Normal Emerging technologies, business model transformations and ecosystem changes will force executives to make significant strategic choices to drive organizational success.



The Future of Work

3) Automation, robots, artificial intelligence are taking over workers' traditional tasks

45 years

The timeframe estimated by artificial intelligence experts when “high level machine intelligence” – unaided machines that can accomplish any given task better and more cheaply than humans – will be developed

- 2024: outperform language translators
 - 2027: drive a truck
 - 2031 : work in retail
- 2049: write best selling book
 - 2053: work as a surgeon

<https://arxiv.org/pdf/1705.08807.pdf>

MARCH OF THE MACHINE MAKES IDLE HANDS

By EVANS CLARK.

A FEW days ago the General Motors Corporation reported the largest peace-time earnings ever made by a single concern in the history of America. Three days later Governor Smith made public a report from the New York Industrial Commissioner which called public attention to serious unemployment throughout the State: not since the depression of 1921, it was disclosed, have conditions been as bad.

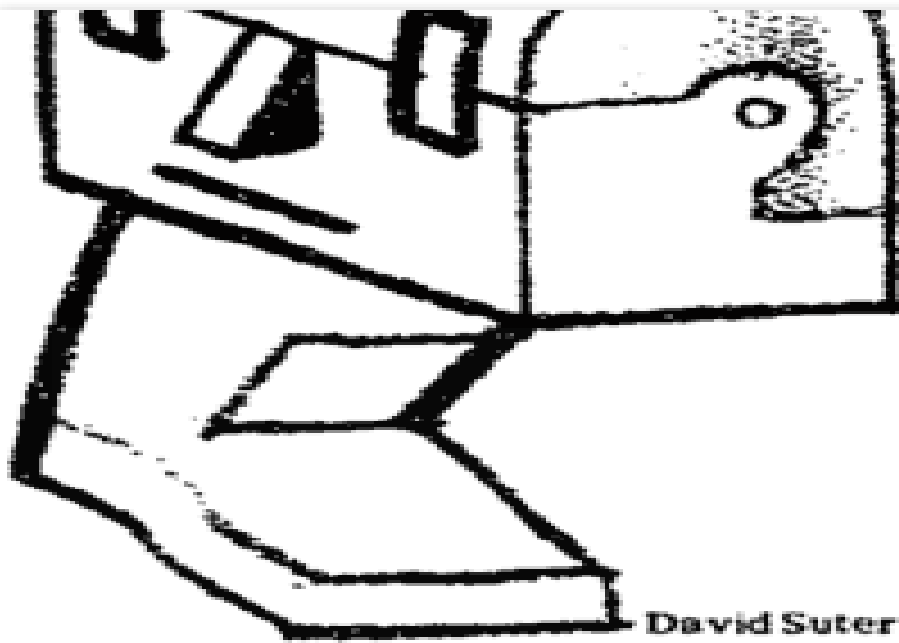
The people of the United States—in the shadow of a Presidential election—are presented with a social

Prevalence of Unemployment With Greatly Increased Industrial Output Points to the Influence of Labor-Saving Devices as an Underlying Cause



have gone far to make construction a machine industry instead of a collection of hand trades. One gasoline crane takes the place of ten or twelve laborers. The hod-carrier has disappeared before the invasion of the material hoist. In concrete construction building materials are mixed, like dough, in a machine and literally poured into place without the touch of a human hand. The Ohio figures record these results: with 15 per cent. fewer men employed, contractors put up 11 per cent. more square feet of finished buildings last year than in 1923.

Coal Mined by Machines.



David Suter



DETROIT — Technological innovation is widely billed as a miracle cure for the United States' economic doldrums. Its aftereffects, however, may be far from benign. The introduction of revolutionary new technologies such as robots — versatile computer-controlled mechanical arms — raise two painful possibilities: sizeable losses of jobs and a deteriorated quality of working life.

**A Robot
Is After
Your Job**

Robots Won't Take All Jobs | Bloomberg LP [US] | https://www.bloomberg.com/view/articles/2018-03-23/robots-won-t-take-all-jobs-because-humans-demand-new-things

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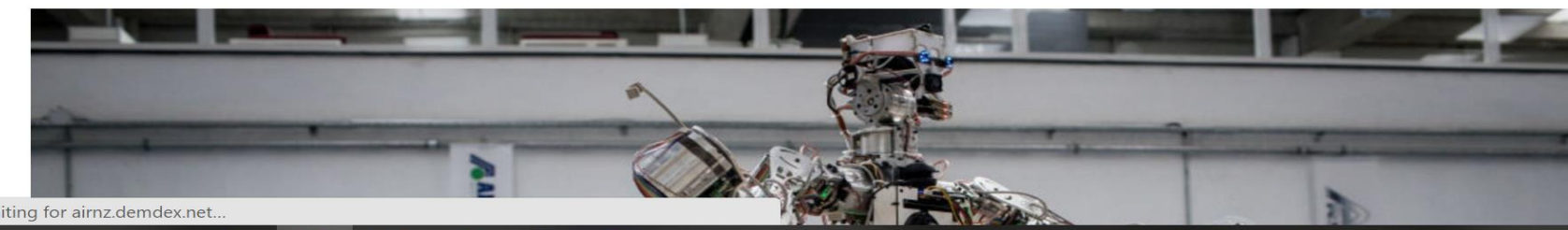
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Economics

As Long as There Are Humans, There Will Be Jobs

Automation will dominate some fields. But people will want new things, and new industries will arise.

By Noah Smith
March 24, 2018, 4:58 AM GMT+13



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Economics

Why the U.S. Economy Is Having a Boom

There are plenty of theories, but no definitive answers.

By Noah Smith

August 31, 2018, 11:00 PM GMT+12



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The disruption of work is bigger than anything we've seen before ...

Stage 1

Sharing economy
platforms

The gig
economy

- ▶ Nonemployee
freelance workers
- ▶ Temporary
assignments



40%
of US workers independent
contractors by 2020¹

Stage 2

Artificial
intelligence and
robotics

The machine
economy

- ▶ Massive labor
disruption
- ▶ Human labor
displaced and
supplemented
- ▶ Jobs unbundled
into tasks



White collar and creative
work not immune



5.1 million
net job loss by 2020²

Perspectives on Automation



Automation is Voldemort: the terrifying force nobody is willing to name.

Jerry Michalski, Founder of REX

The risk of jobs being replaced by automation varies by country

Source: World Bank Development Report (2016)



47% of US jobs are at risk from automation, but not all cities have the same job risk

Source: Berger, Frey and Osborne (2015)

Least at risk

Boston	38.40%
Washington D.C.	38.40%
Raleigh	39.70%
Baltimore	40.40%
New York	40.70%
Bridgeport	41.10%
Toms River	41.20%
Richmond	41.40%
Minneapolis	41.40%
Denver	41.50%
San Francisco	41.70%

% of jobs at risk of automation



Most at risk

Houston	45.80%
Sacramento	45.90%
Dayton	46.00%
Los Angeles	47.00%
Harrisburg	47.10%
Oklahoma City	47.10%
Grand Rapids	47.90%
Reading	48.40%
Greensboro	48.50%
Las Vegas	49.10%
Fresno	53.80%

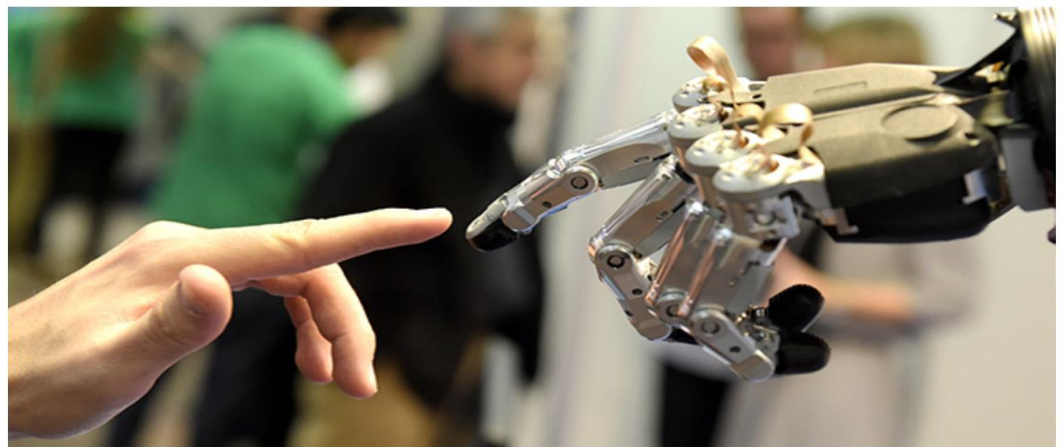
SEPTEMBER 13, 2018



In Advanced and Emerging Economies Alike, Worries About Job Automation

Many fear robots, computers will eliminate jobs, increase inequality

BY RICHARD WIKE AND BRUCE STOKES



(Gerard Julien/AFP/Getty Images)

REPORT MATERIALS

Complete Report PDF

Topline

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 - Most see robots and computers displacing human jobs
 - Trepidation about the effects of automation
 - Who is responsible for making sure the workforce is prepared?

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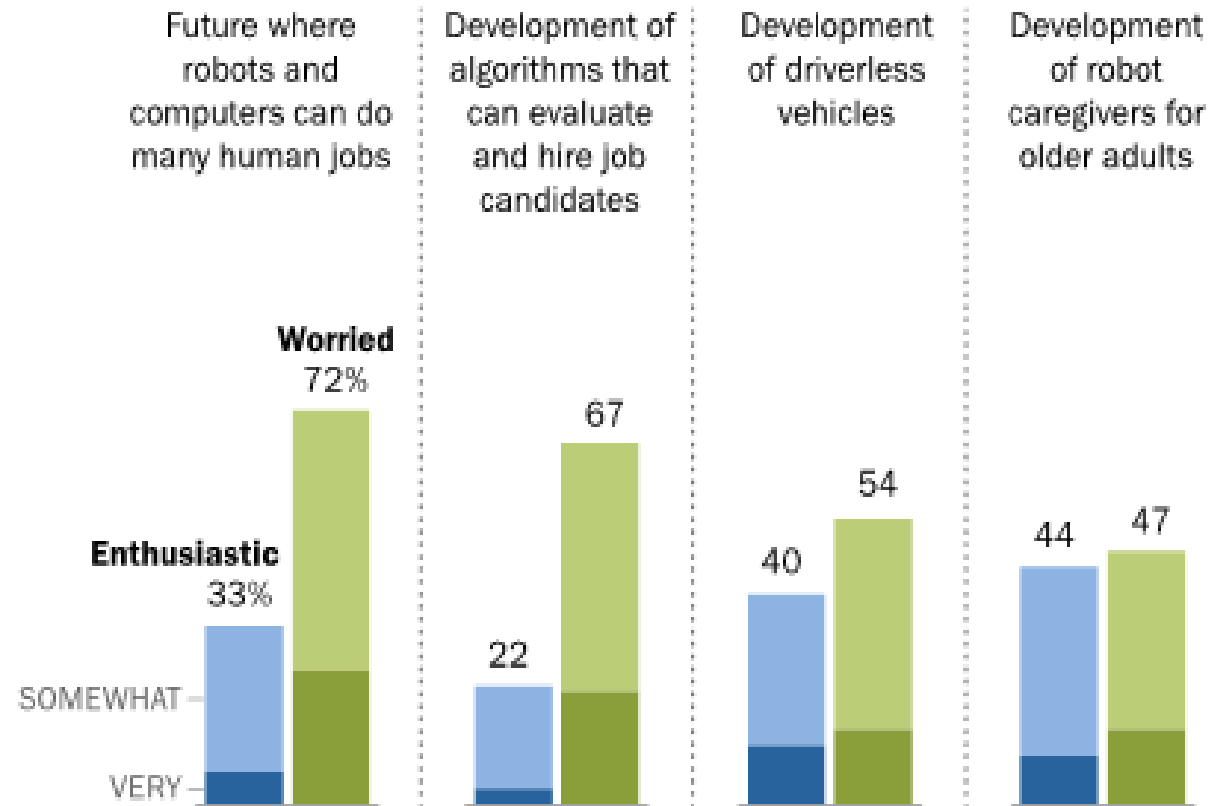
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A Decade After the

More worry than optimism about potential developments in automation

% of U.S. adults who say they are enthusiastic or worried about ...



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 1-15, 2017.

"Automation in Everyday Life"

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@WORK

Hotel workers fret over a new rival: Alexa at the front desk

Eduardo Porter
 Published 9 Hours Ago | Updated 6 Hours Ago
 The New York Times



The bosses haven't yet introduced facial recognition technology at the Royal Hawaiian Hotel. But from her perch behind the front desk at the pink neo-Moorish palace overlooking Waikiki Beach, Jean Te'o-Gibney can see it coming.

"Marriott just rolled it out in China," enabling guests to check into their rooms without bothering with front-desk formalities, said Ms. Te'o-Gibney, a 53-year-old grandmother of seven. "It seems they know they will be eliminating our jobs."



TRENDING NOW: TECH

1. Amazon makes first investment in a homebuilder, backing start-up focused on prefabricated houses
2. iOS 12 tips and tricks



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It's Not the 'Future of Work,' It's the Future of Workers That's in Doubt

FUTURE WORK SKILLS OF 2020:



LONGEVITY



SMART
MACHINES



COMPUTATIONAL
WORLD



NEW MEDIA
ECOLOGY



SUPER STRUCTED
ORGANIZATION



GLOBALLY
CONNECTED



**SENSE
MAKING**

ABILITY TO DETERMINE THE DEEPER
MEANING OR SIGNIFICANCE OF WHAT
IS BEING EXPRESSED

THE DRIVERS:



**SOCIAL
INTELLIGENCE**

ABILITY TO CONNECT TO OTHERS IN A
DEEP AND DIRECT WAY, TO SENSE AND
STIMULATE REACTIONS AND DESIRED
INTERACTIONS

THE DRIVERS:



**NOVEL AND
ADAPTIVE THINKING**

PROFICIENCY AT THINKING AND
COMING UP WITH SOLUTIONS AND
RESPONSES BEHIND THAT WHICH IS
ROTE OR RULE-BASED

THE DRIVERS:





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POLICY & ETHICS

Will Democracy Survive Big Data and Artificial Intelligence?

We are in the middle of a technological upheaval that will transform the way society is organized. We must make the right decisions now

.....

By Dirk Helbing, Bruno S. Frey, Gerd Gigerenzer, Ernst Hafen, Michael Hagner, Yvonne Hofstetter, Jeroen van den Hoven, Roberto V. Zicari, Andrej Zwitter on February 25, 2017



Key Questions

- How can workers be supported to adapt to new technologies and new industries?
- Will workplace protections survive?
- Do we need to consider Universal Basic Income or other mechanisms as a safety net for periods of job disruption?
- How can society support those upon whom the risks of technology transformation fall most heavily?

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LIFE WITH A.I.

Elon Musk: Free cash handouts 'will be necessary' if robots take humans' jobs

Catherine Clifford | 5:16 PM ET Mon, 18 June 2018



Augmented Democracy

- Fair
- Transparent
- Accountable

A Blueprint for Augmented Democracy

- Develop technological citizenship
- Increase diversity within the technological sector
- We are not all starting from the same place
- Adapt education to the new world of work
- Remember **why** democracy matters – and remember to 'make the case' consistently