



Dirk Helbing (ETH Zurich)
dhelbing@ethz.ch

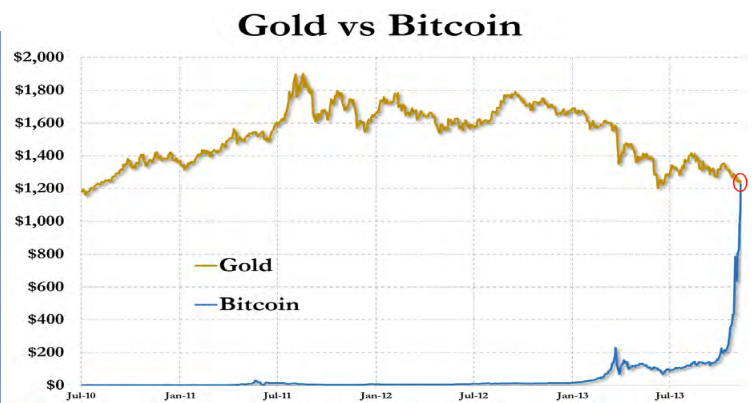
**Die Digitale
Revolution und die
soziale Frage**

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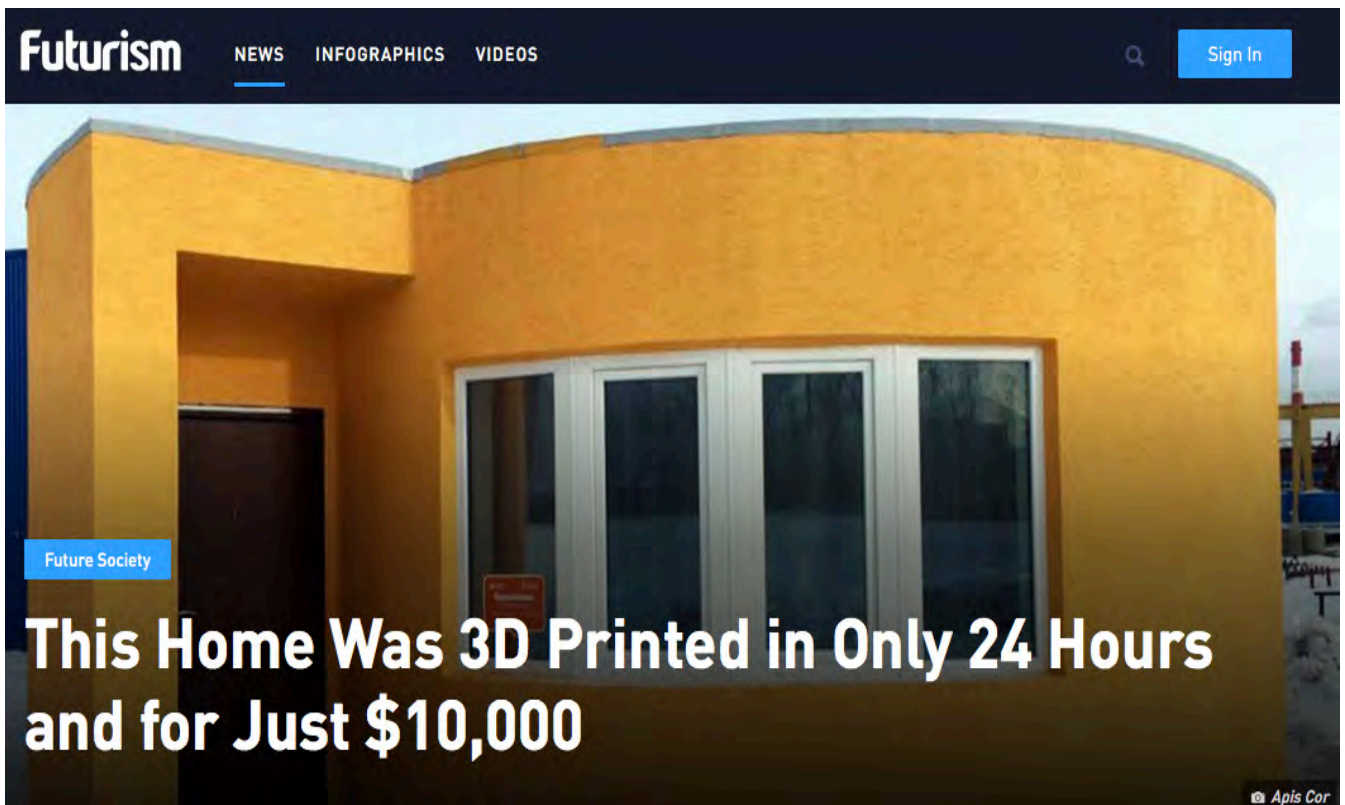




Peer to Peer Money Is on Its Way



3D Printed Houses



Google Self-Driving Cars



Uber Transport as A Service



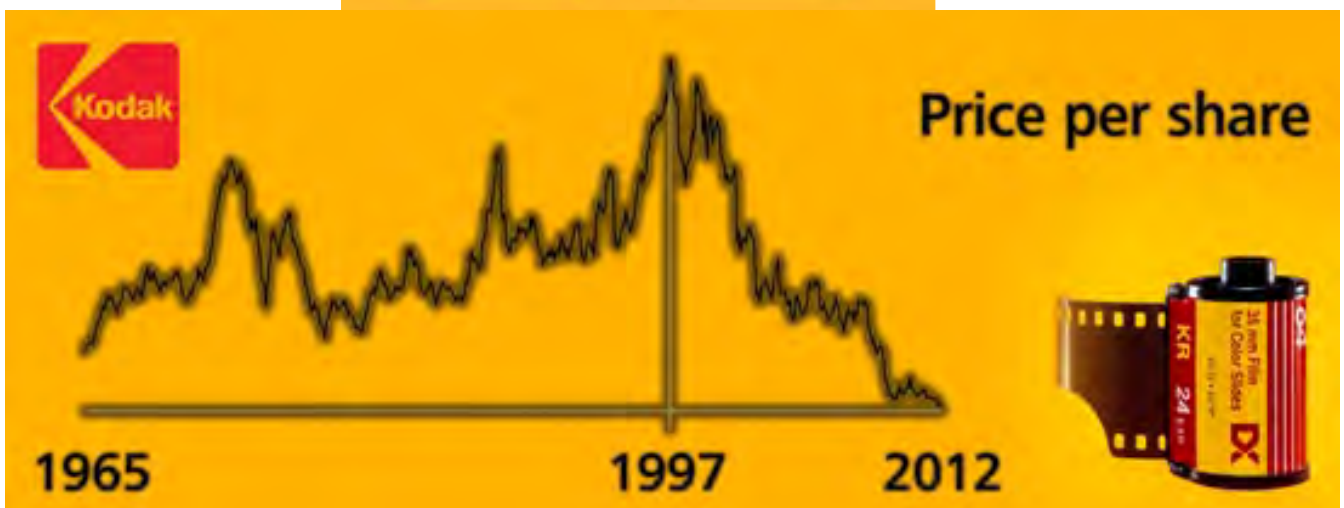
Tesla Electric Cars



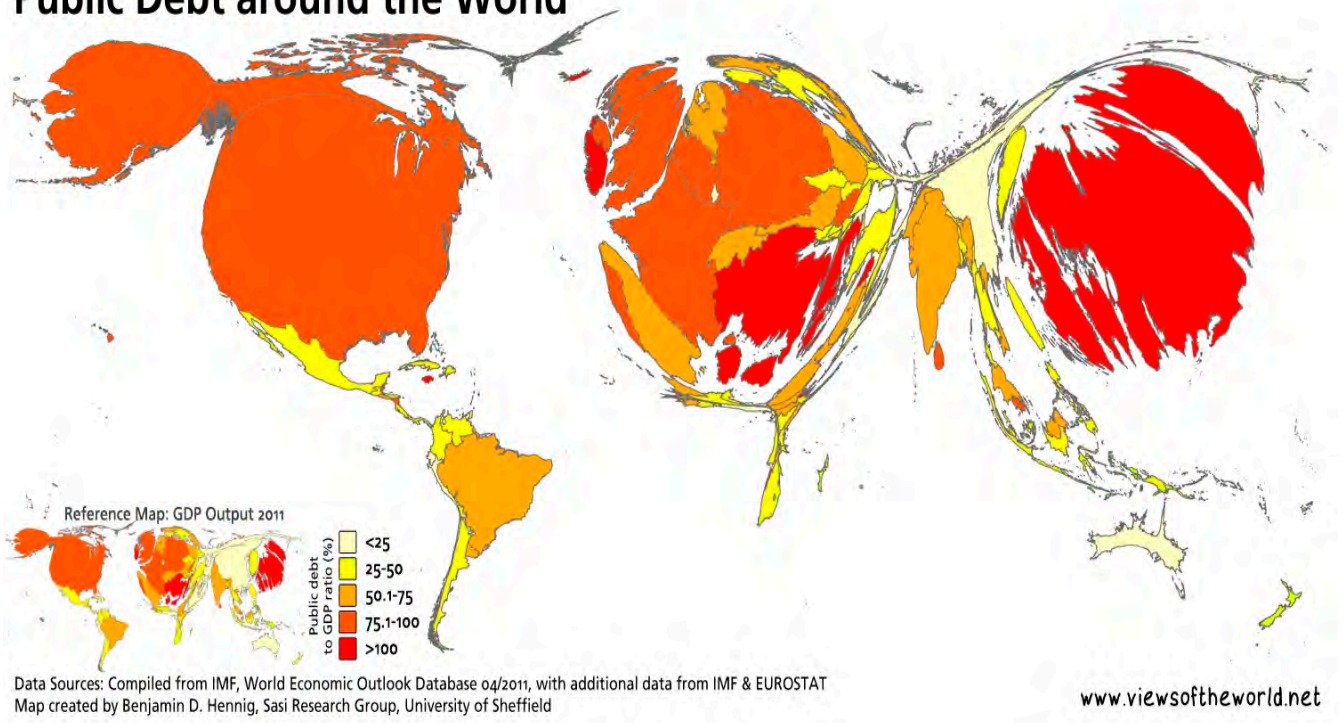
Holographic Technology: No Transport



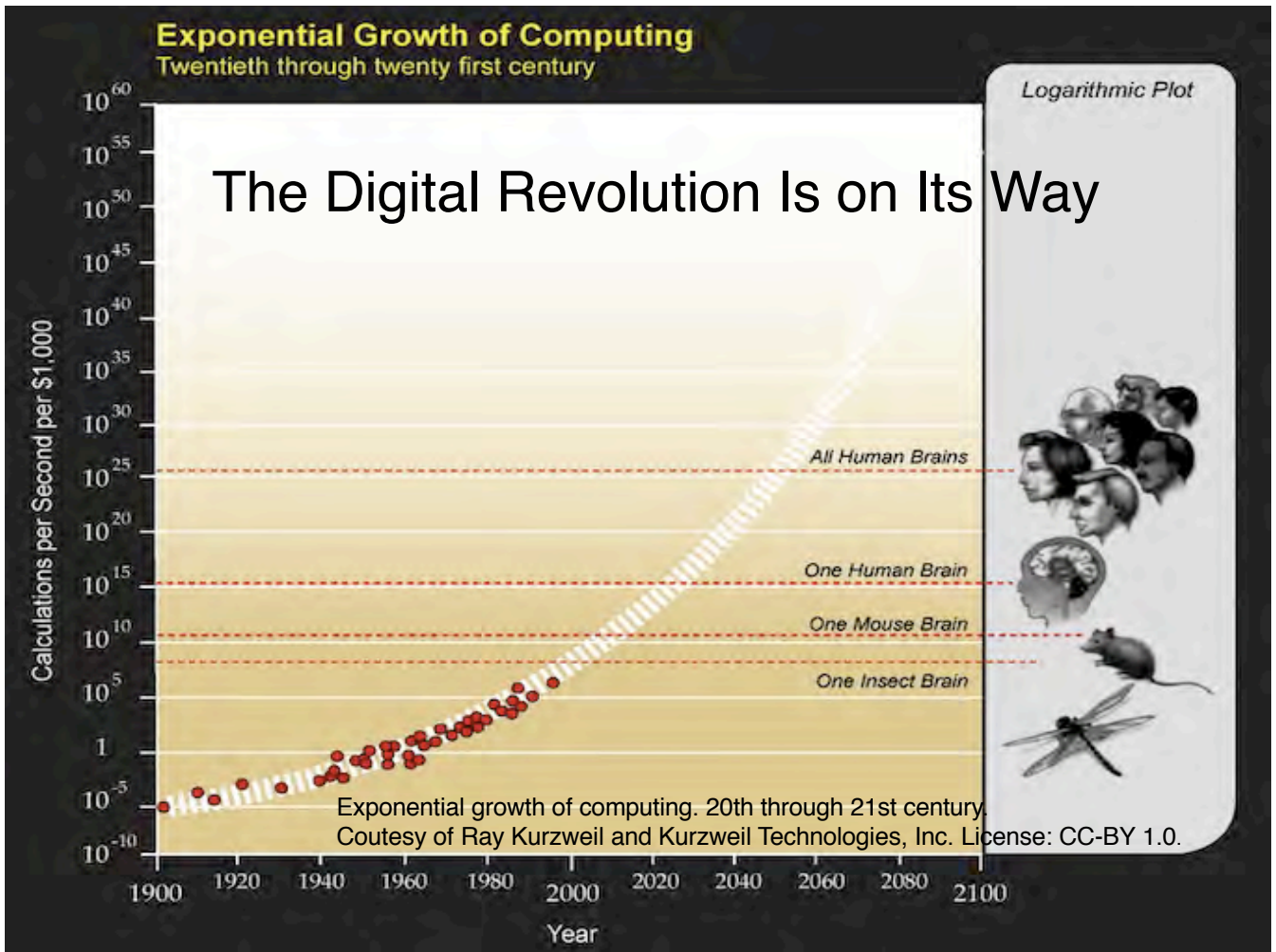
40% of
Today's
Top 500
Companies
Will Be Gone
in 10 Years



\$54 Trillion Public Debt around the World



The end of work?



Better Chess Players



Better Workers



Better Drivers?



Better Doctors?

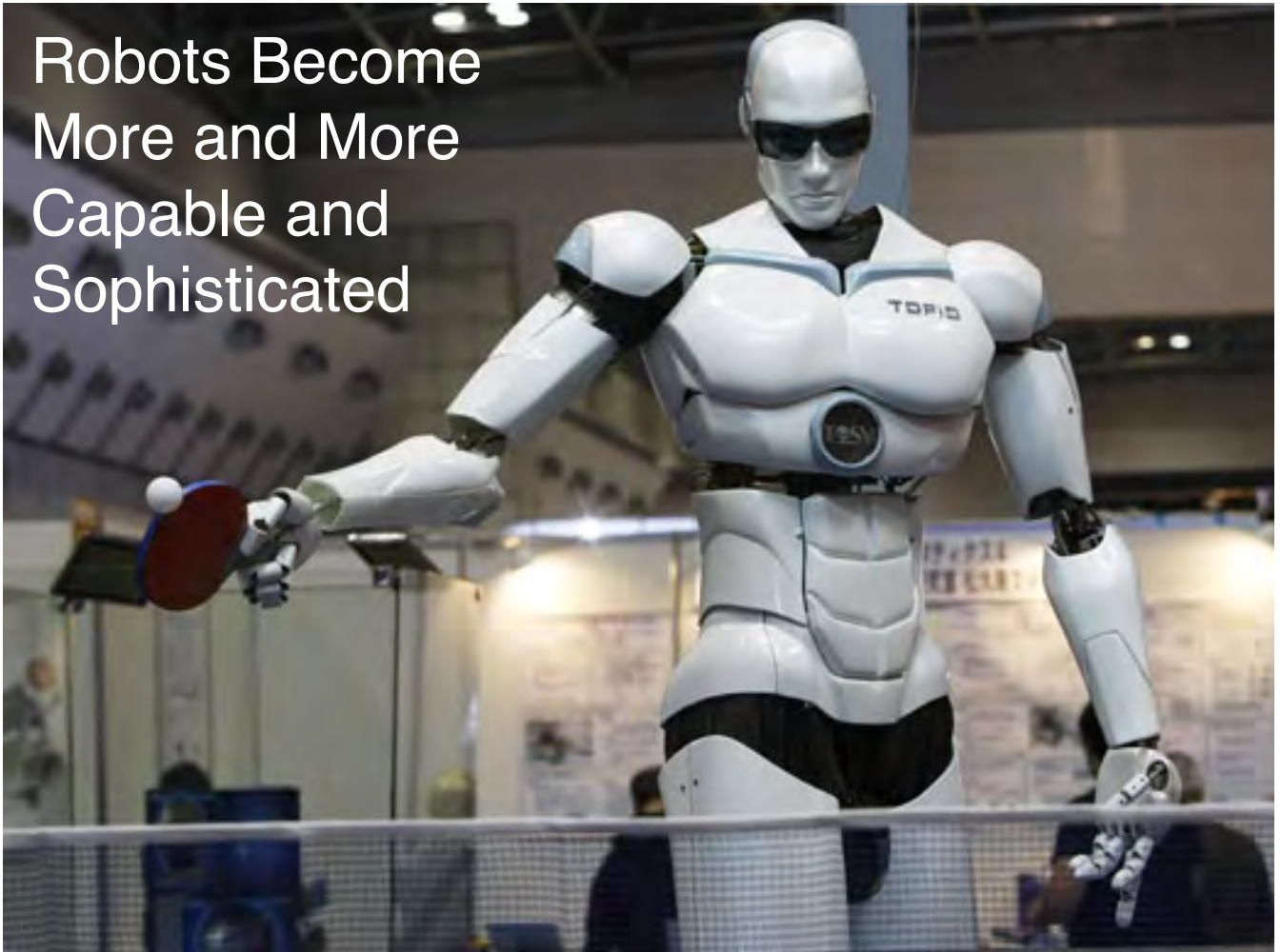


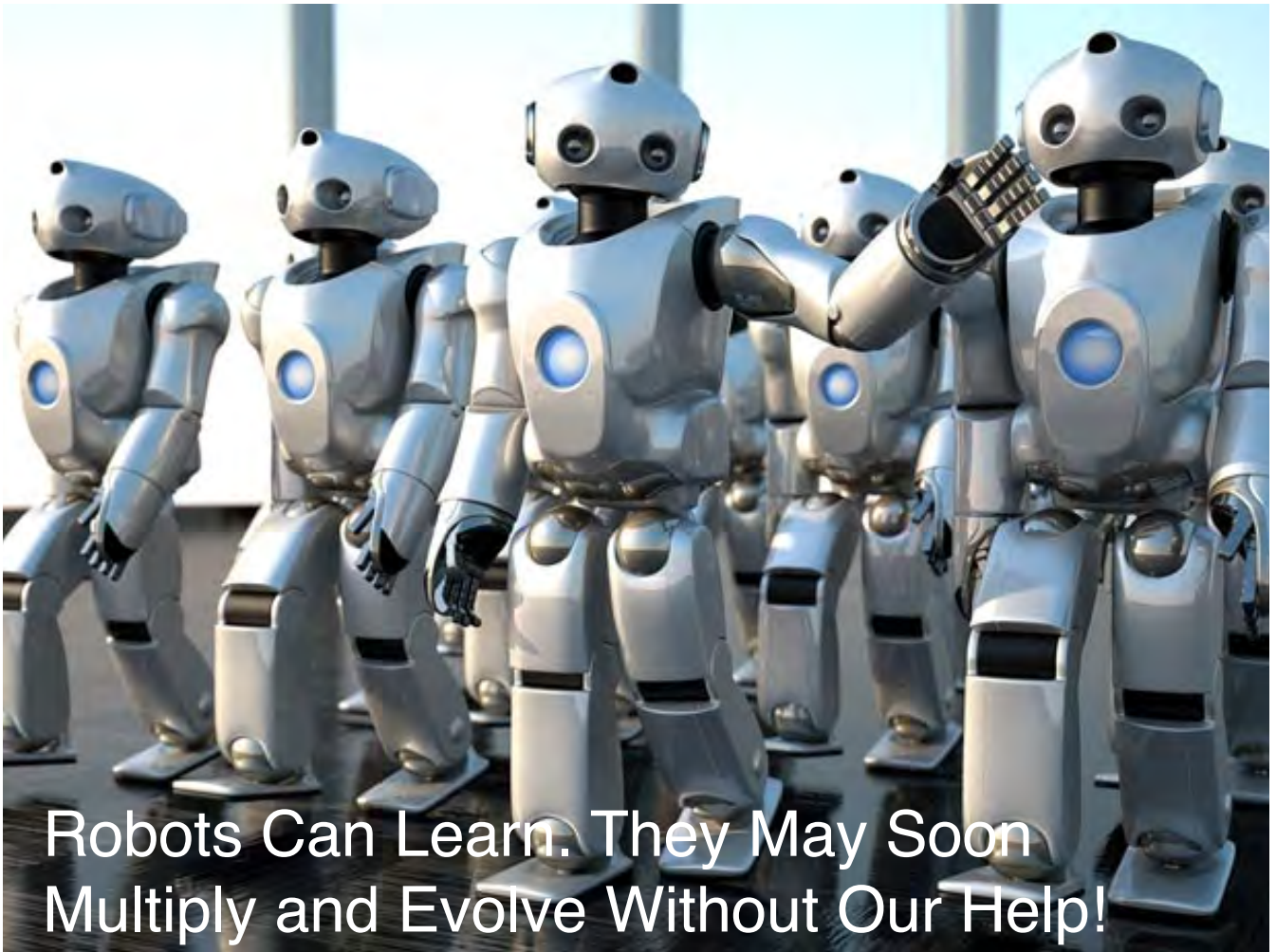
Better in Answering Questions?





Robots Become
More and More
Capable and
Sophisticated





Robots Can Learn. They May Soon Multiply and Evolve Without Our Help!

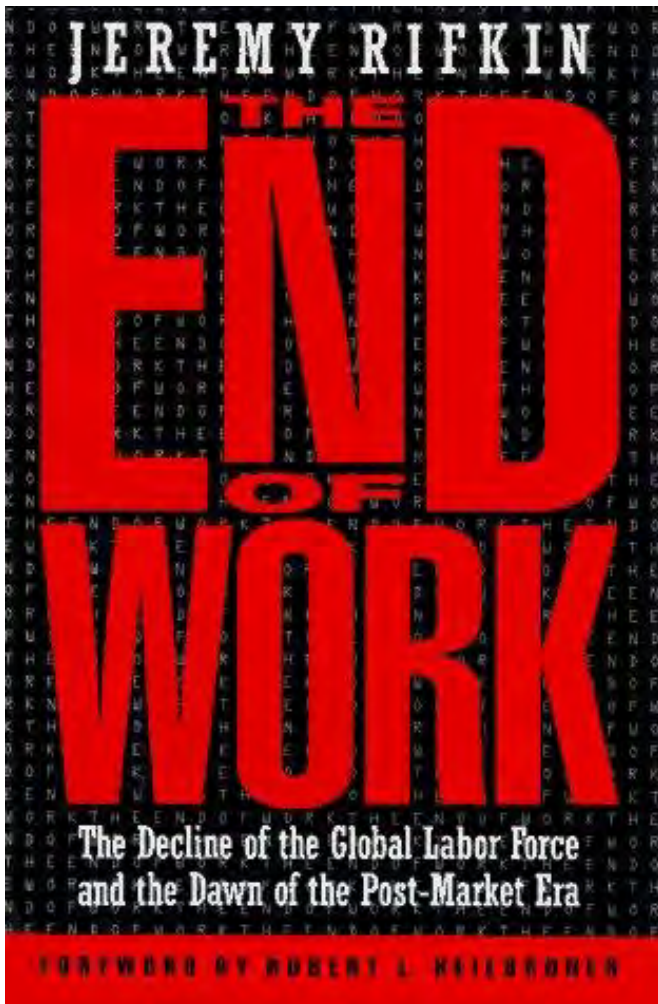
Studie: Automatisierung könnte bis 2030 jede vierte Arbeitsstunde ersetzen



AFP 3. Dezember 2017



Roboter in der Automobilproduktion



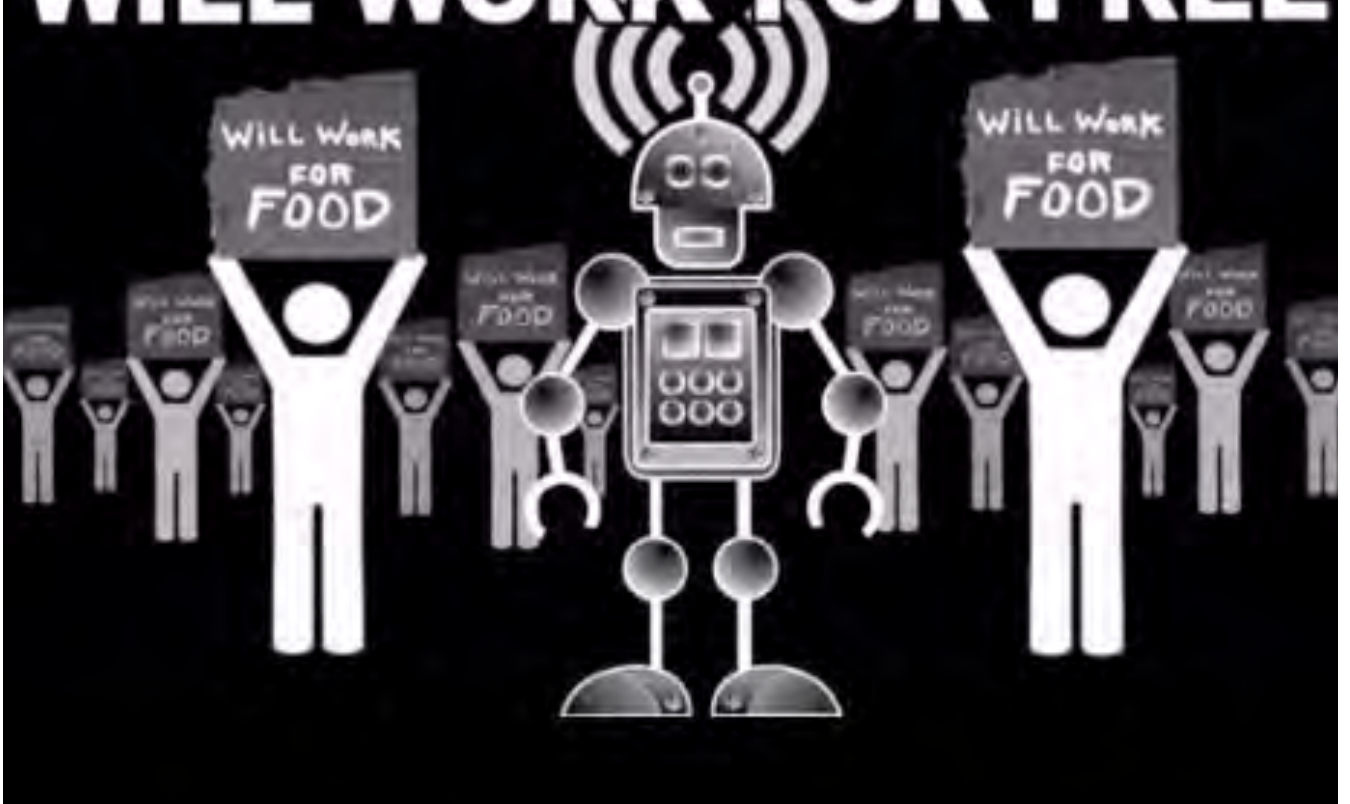
A Massive Loss of Jobs Is Already Happening

European Youth Unemployment Skyrockets



Source: Thomson Reuters Datastream, Eurostat
 Reuters graphic/Scott Barber 4/2/2012

WILL WORK FOR FREE

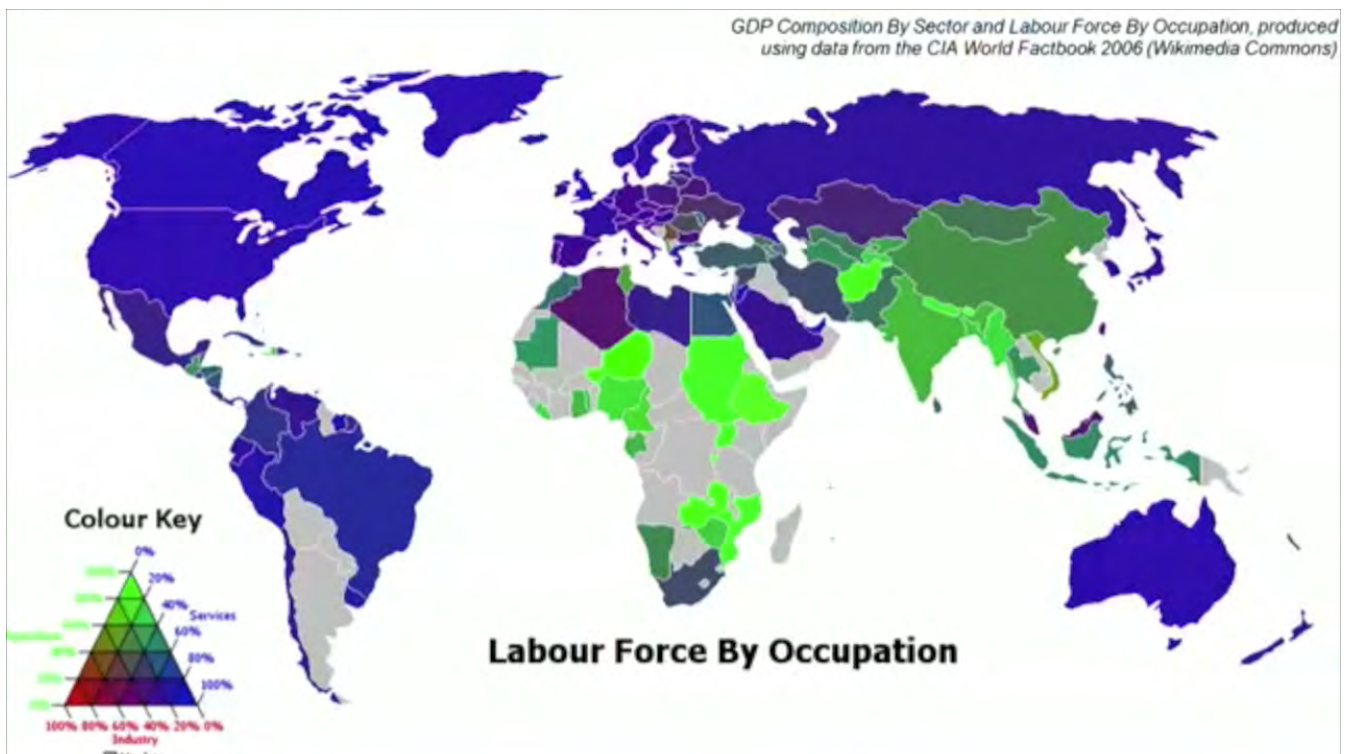




The Next Economic Revolution

- 1618-1848: **Thirty years war** agricultural society (“anarchy”)
- 1638-1715: Ludwig XIV feudal society (top-down regulation/
- 1694-1778: Voltaire centralized control)
- 1712, 1769 (James Watt): **Invention of the steam engine**
- 1723-1790: Adam Smith industrial society (bottom-up self-organization/
- 1759: Theory of Moral Sentiments distributed control)
- 1776: Wealth of Nations
- 1789-1799: **French revolution**
- 1868: **Public school established**
- 1864-1920: Max Weber service society (administration/optimization)
- 1905: on protestant work ethics and the spirit of capitalism
- 1905, 1917: **Russian revolutions**
- 1914-1918, 1939-1945: **World Wars I+II**
- 1941: Zuse **computer**
- 1989: **World Wide Web**
- 1996: IBM Deep Blue
- 2004: **Facebook** digital society (social self-regulation/
- 2010: **“Twitter revolutions”, Arab Spring begins** collective intelligence)
- 2007-?: **World financial, economic, and debt crisis, Ukrainian crisis, IS, ...**

Jeremy Howard on Learning Computers



A NEW WORLD

A new currency



“Data is the new oil” – Clive Humby



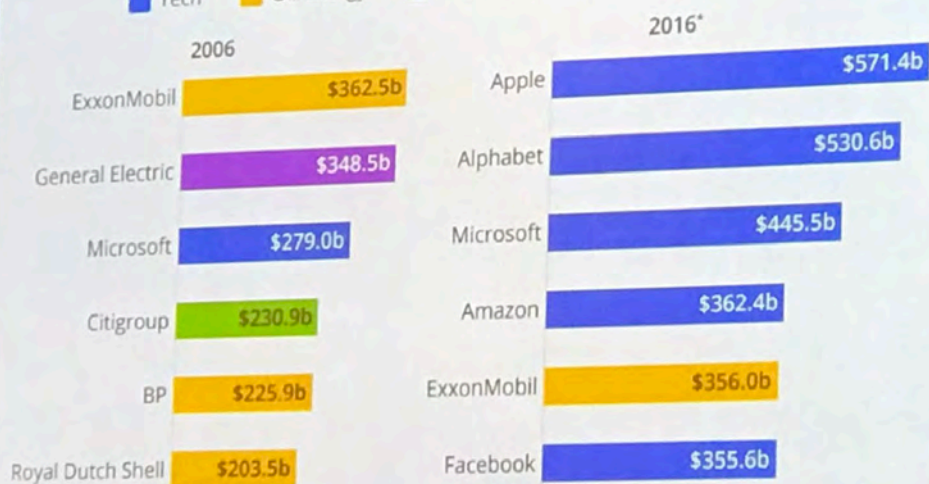
http://www.photoeverywhere.co.uk/west/usa/california/sunset_oil_rigDSC_4701.jpg

Data really is the new oil

The Age of Tech

Market capitalization of the world's most valuable public companies

■ Tech ■ Oil/Energy ■ Financial Services ■ Conglomerate



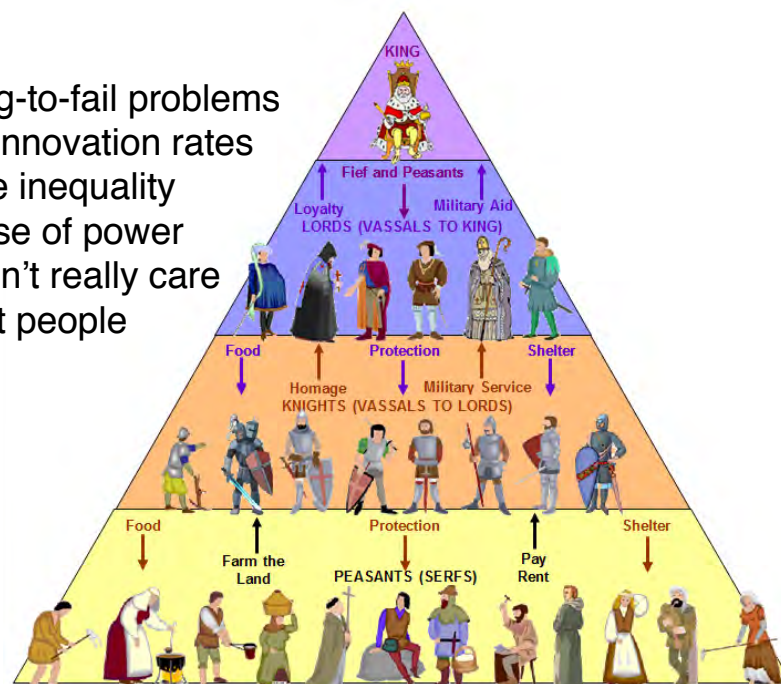
© StatistaCharts * as of August 1, 2016
Sources: Yahoo! Finance, Forbes

statista

A new economy

Feudalism 2.0: Big Other (Surveillance Capitalism)

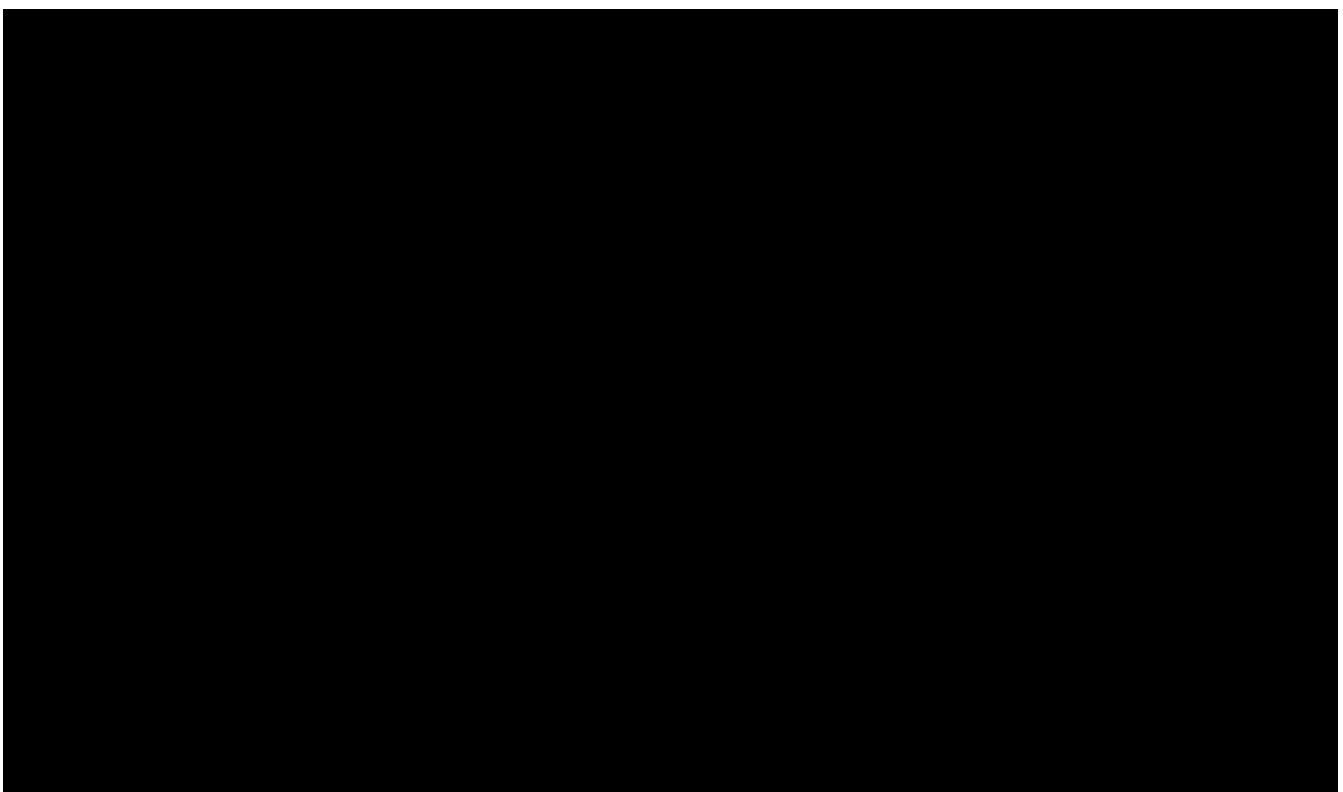
- To-big-to-fail problems
- Low innovation rates
- Large inequality
- Misuse of power
- Doesn't really care about people



Attention Economy



How to Steal People's Property and Rights



A new legal system

»»Code is law.««*

*** AND LAW ENFORCEMENT IS
INCREASINGLY BEING ENCODED**



Lawrence Lessig
CODE, VERSION 2.0 (2006)

That holds true for governments as well: Not only is code law, as Lessig famously put it – increasingly, law enforcement is being encoded, offloaded into software and the infrastructure it operates on.

The Blockchain Age: Awareness, Empowerment and Coordination

Article · May 2017 with 417 Reads

[Cite this publication](#)

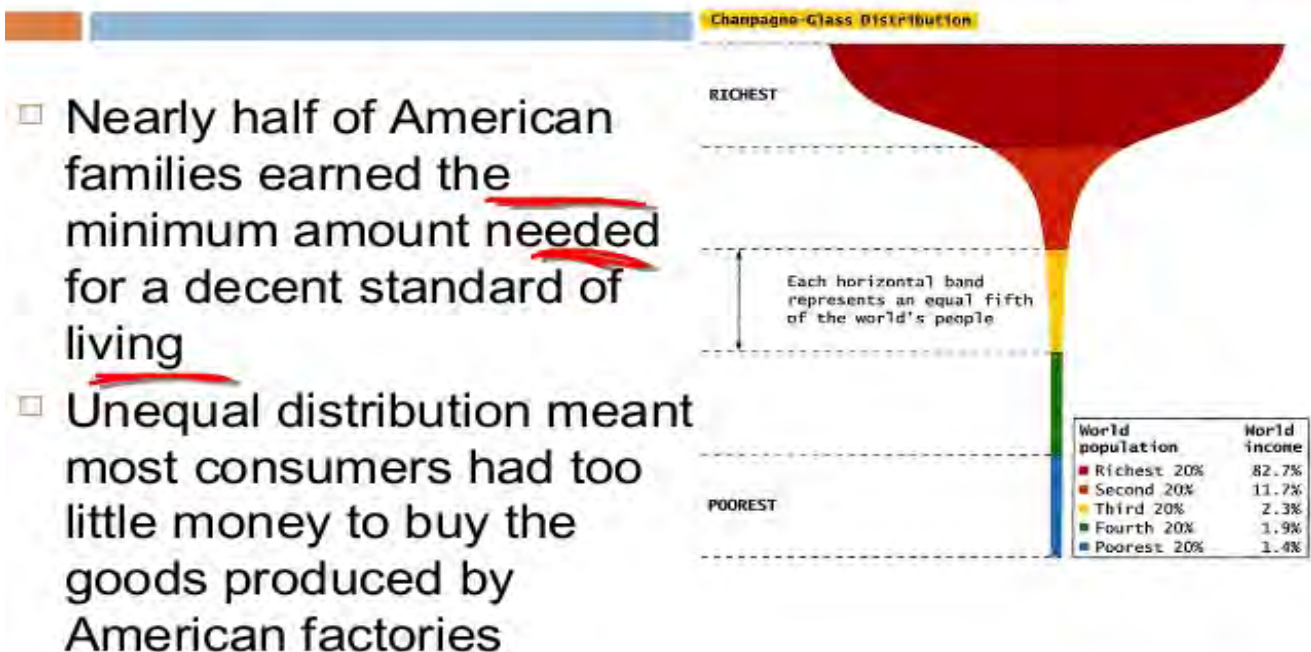


1st [Dirk Helbing](#)
47.28 · ETH Zurich

Abstract

It may be the next step in human, social, cultural evolution. There's a lot of hype surrounding blockchain technology. But the best ways to use it are still to come. Blockchain is often seen as a revolutionary technology. However, it even represents a possible means to reach the next level of human, social, cultural evolution. It can provide society with awareness and collective memory. It can furthermore boost creativity, innovation, coordination, sustainability and resilience, hence, enable an entirely new, efficient and trustable organization of the world's societies at large.

Distribution of Wealth



A world in which one percent of humanity controls as much wealth as the other 99 percent will never be stable.

<http://time.com/4501910/president-obama-united-nations-speech-transcript/>

Oxfam-Bericht

Acht Superreiche besitzen angeblich so viel wie die halbe Menschheit

Die globale soziale Ungleichheit ist laut einer Oxfam-Studie offenkundiger als je zuvor: Demnach besitzen die acht reichsten Männer der Welt 426 Milliarden Dollar - und damit mehr als die gesamte ärmere Hälfte der Weltbevölkerung.



Von Nicolai Kwasniewski ✓



Getty Images/ Bloomberg

A new political system

WIRKSAMER REGIEREN

Politik und Verwaltung versuchen oft mit großem Aufwand, Menschen zu bestimmten Verhaltensänderungen zu bewegen, die dem Gemeinwohl sowie dem Wohl des Einzelnen dienen sollen. Doch klassische Instrumente wie Verbote, Steuern und finanzielle Anreize sind hierfür nicht der einzige Weg: Die US-amerikanische und die britische Regierung setzen seit einigen Jahren auch auf wissenschaftliche Erkenntnisse über das menschliche Entscheidungsverhalten. Wie lässt sich ein solcher Ansatz begründen – und kann er auch die deutsche Regierung bei ihrem Ziel unterstützen, die Wirksamkeit des Regierungshandelns zu erhöhen?



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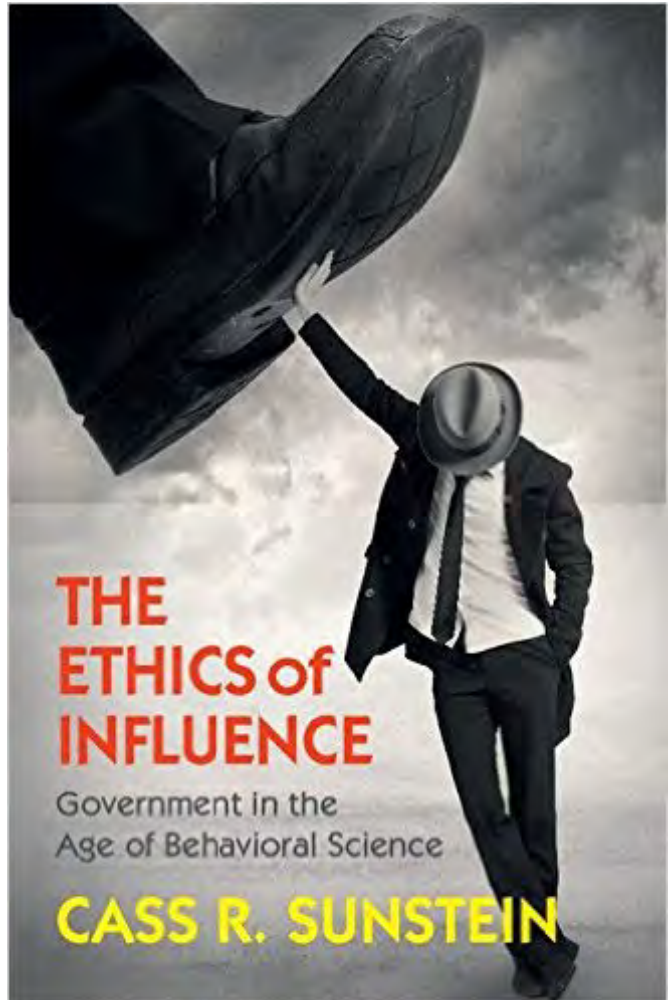
Nudge

Improving Decisions About
Health, Wealth, and Happiness

Richard H. Thaler and Cass R. Sunstein

Revised and Expanded Edition

"One of the few books I've read recently that fundamentally changes the way I think about the world." —Steven D. Levitt, coauthor of *Freakonomics*



THE ETHICS of INFLUENCE

Government in the
Age of Behavioral Science

CASS R. SUNSTEIN



*The Making of
Behavioral Economics*

MISBEHAVING

Richard H. Thaler

*Best-selling coauthor of **Nudge***

Would
so much
information
enable a
benevolent
dictator?



China's Nightmarish Citizen Scores Are a Warning For Americans



By [Jay Stanley](#), Senior Policy Analyst, ACLU Speech, Privacy & Technology Project
OCTOBER 5, 2015 | 1:00 PM



Updated below

China is launching a comprehensive “credit score” system, and the more I learn about it, the more nightmarish it seems. China appears to be leveraging all the tools of the information age—electronic purchasing data, social networks, algorithmic sorting—to construct the ultimate tool of social control. It is, as one commentator [put it](#), “authoritarianism, gamified.” Read [this piece](#) for the full flavor—it will make your head spin. If that and the [little other reporting](#) I’ve seen is accurate, the basics are this:

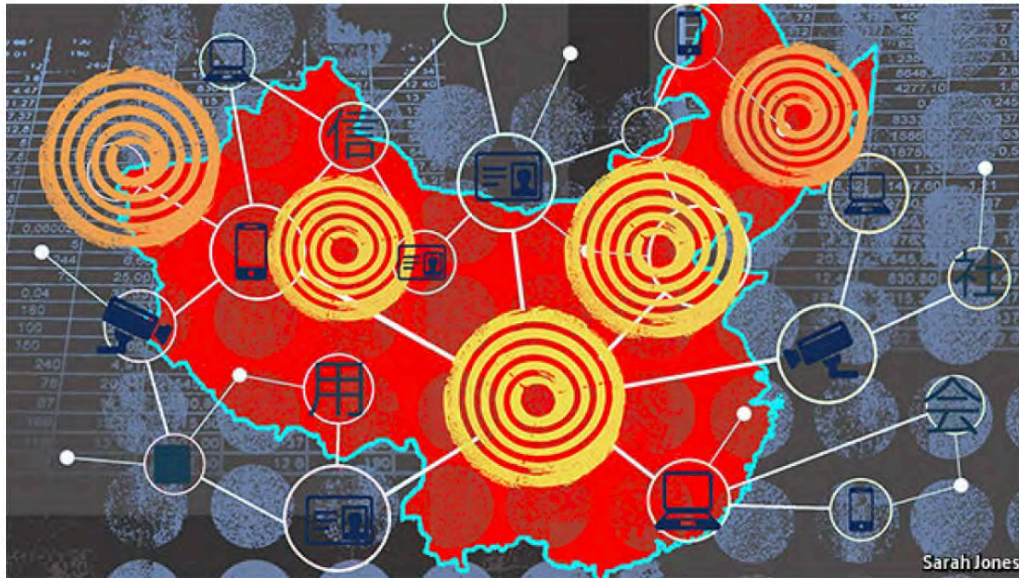


Photo: Flickr/Peter Morgan

Big data, meet Big Brother

China invents the digital totalitarian state

The worrying implications of its social-credit project



The end of democracy?



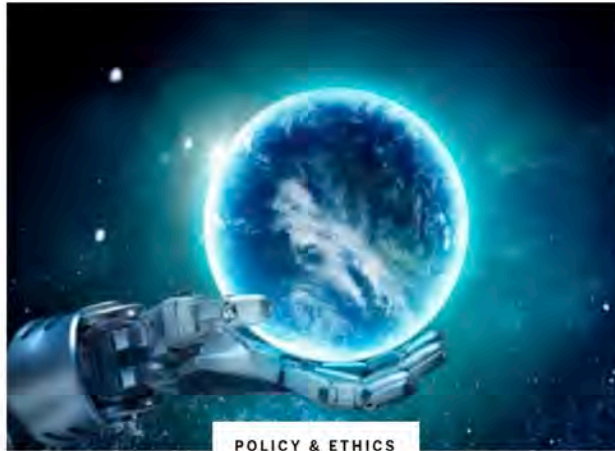
ENERGY

What 4 Million Solar Panels Look Like from Space

February 23, 2017 — Brian Kahn and Climate Central

VX Nerve Agent in North Korean's Murder: How Does It Work?

February 24, 2017 — David Bradley and ChemistryWorld



POLICY & ETHICS

Will Democracy Survive Big Data and Artificial Intelligence?

ARTS & CULTURE

Why Is It Significant That the White House Tours Resume?

11 hours ago — Krystal D'Costa

ARTS & CULTURE

Readers Respond to the November 2016 Issue

15 hours ago

EVOLUTION

Paleo Profile: Mauricio Fernández's Plesiosaur

13 hours ago — Brian Switek

EVOLUTION

Fossil Pigments Reveal the True Colors of Dinosaurs



Democracy – An Outdated Technology?

"Die Demokratie ist eine veraltete Technologie. (...) Sie hat Reichtum, Gesundheit und Glück für Milliarden Menschen auf der ganzen Welt gebracht. Aber jetzt wollen wir etwas Neues ausprobieren."

Hencken, Randolph. 2014. In: Mikrogesellschaften. Hat die Demokratie ausgedient? Capriccio. Video, veröffentlicht am 15.5.2014. Autor: Joachim Gaertner. München: Bayerischer Rundfunk.

US HOME SEARCH

The New York Times

The Opinion Pages | TURNING POINTS

Is Democracy Dead?

Tony Blair: For True Democracy, the Right to Vote Is Not Enough

By TONY BLAIR DEC. 4, 2014



Turning Point: Russia annexes Crimea, formerly an autonomous area of Ukraine.

Democracy is not in good shape. Many systems seem dysfunctional: The U.S. Congress, the coalition government in the U.K., and many governments in Europe have had difficulty making the decisions necessary to finding a way back to economic growth. Some fledgling democracies seem, in the short term at least, less competent to serve the needs of their citizens than some autocracies are.

Take all this together and add the profound nature of the challenges of recent times — the extremism convulsing whole nations in the Middle East and beyond; the ongoing

Eoin Ryan

Politik der Algorithmen

Google will den Staat neu programmieren

Hat man Entscheidungsschwierigkeiten, kann man im Notfall natürlich auch zum Würfel greifen. Doch wie wäre es, wenn Politiker nach Googles Algorithmen entschieden? Der Konzern probiert es in Amerika aus.

14.10.2015, von ADRIAN LOBE



[Home](#) / [Software](#)

Forget Trump and Clinton: IBM's Watson is running for president

Would we be better off with an algorithmically controlled overlord?



Watson for president: Is it that big a stretch? Credit: The Watson 2016 Foundation

Mark Zuckerberg's Plan to Rule the World



It all started with a status.

Putin: Leader in artificial intelligence will rule world

- Putin says that whoever reaches a breakthrough in developing artificial intelligence will come to dominate the world.
- Putin warned that "it would be strongly undesirable if someone wins a monopolist position".

Published 2:33 AM ET Mon, 4 Sept 2017

AP



Sergei Karpukhin | Reuters

Russian President Vladimir Putin gestures as he speaks to journalists following a live nationwide broadcast call-in in Moscow, Russia June 15, 2017.

GOOGLE IS ALREADY LATE TO CHINA'S AI REVOLUTION

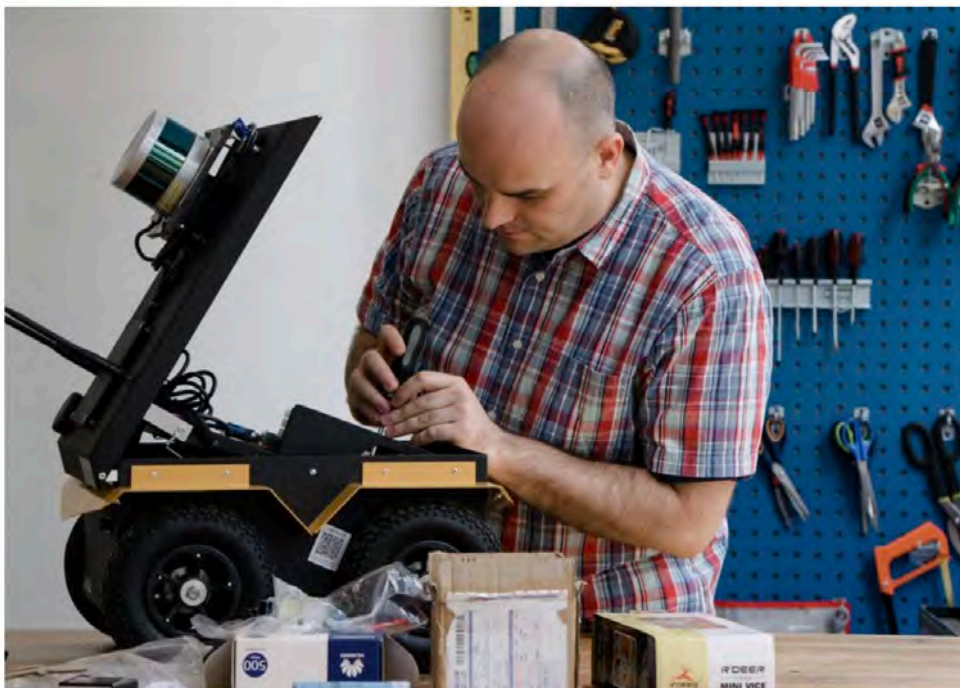


Google chairman Eric Schmidt in Wuzhen.

Is China Outsmarting America in A.I.?

[点击查看本文中文版](#)

By PAUL MOZUR and JOHN MARKOFF MAY 27, 2017

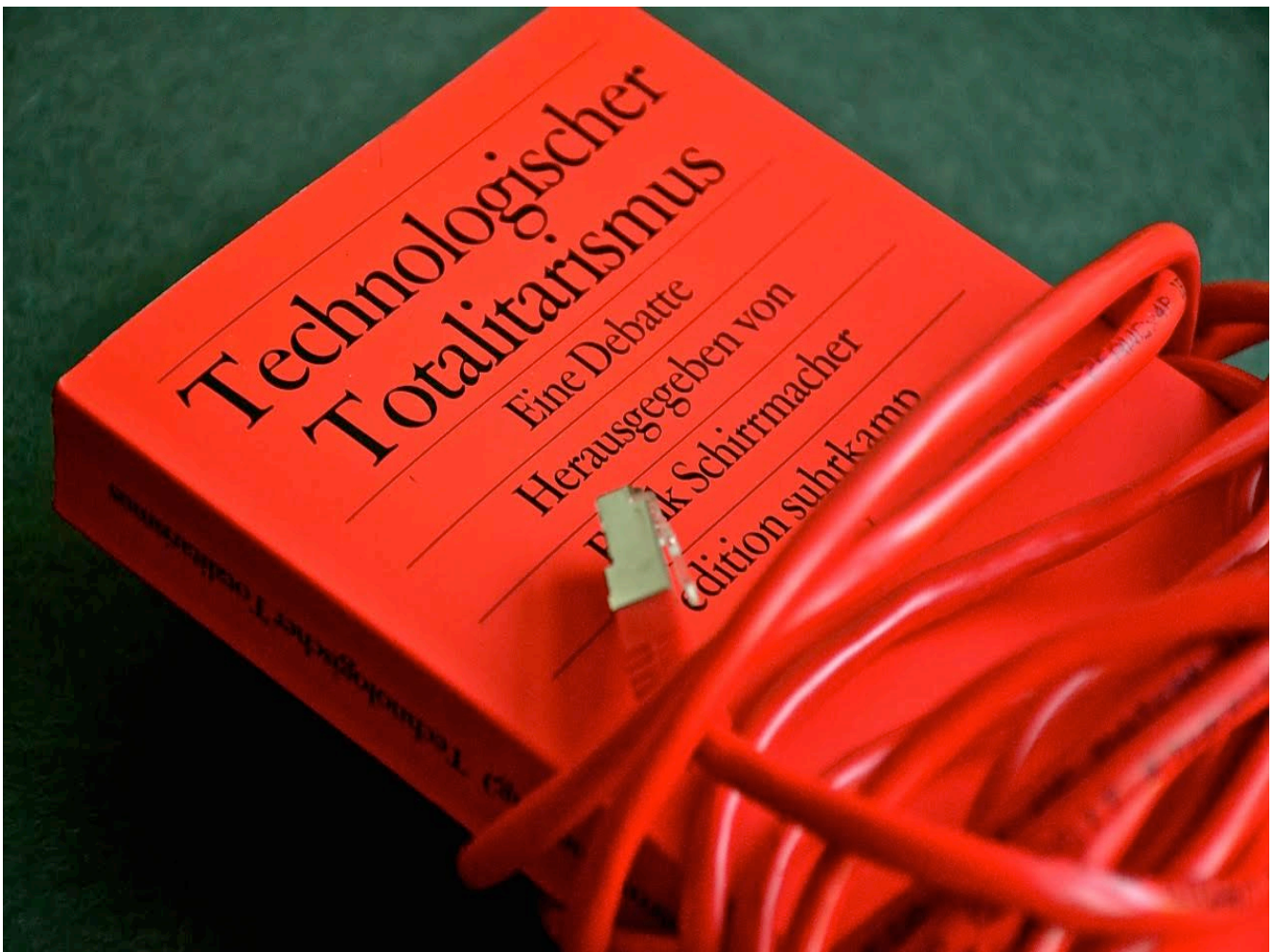


Sören Schwertfeger at ShanghaiTech University, where a sizable grant has allowed him to set up an artificial intelligence lab. Tim Franco for The New York Times

Daten

«Wir wollen Geschichte schreiben»

“China ist attraktiver als der Westen”



A New Fascism On Its Way?

- Mass surveillance
- Unethical experiments with humans
- Social engineering
- Forced conformity (“Gleichschaltung”)
- Propaganda, censorship (social bots)
- “Benevolent” Dictatorship
- (Predictive) policing
- Different valuation of people
- Relativity of human rights
- Humiliation of minorities
- Euthanasia

Digital Fascism Rising?

Can we still stop a world of technological totalitarianism?

By Dirk Helbing, October 20, 2017



Credit: luckey_sun www.flickr.com

Any claim that we humans are (already) contending with a new form of – this time digital – fascism will immediately be discredited as overblown.

No wonder: There are very powerful business forces who each make tens of billions of dollars a year by singing the sweet song of how our existence as individuals, as well as democracy in general, is enhanced by the conveniences of Big Data and Artificial Intelligence.

However, the real issue is whether democracy, such as we know it, can **survive Big Data and Artificial Intelligence**. We have long entered a world rife with new kinds of behavioral manipulation.

British 'Karma Police' program carries out mass surveillance of the web

6

by [Russell Brandom](#) | [@russellbrandom](#) | Sep 25, 2015, 10:44am EDT

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The end of humanity?

Unsere Nachfahren werden Maschinen sein

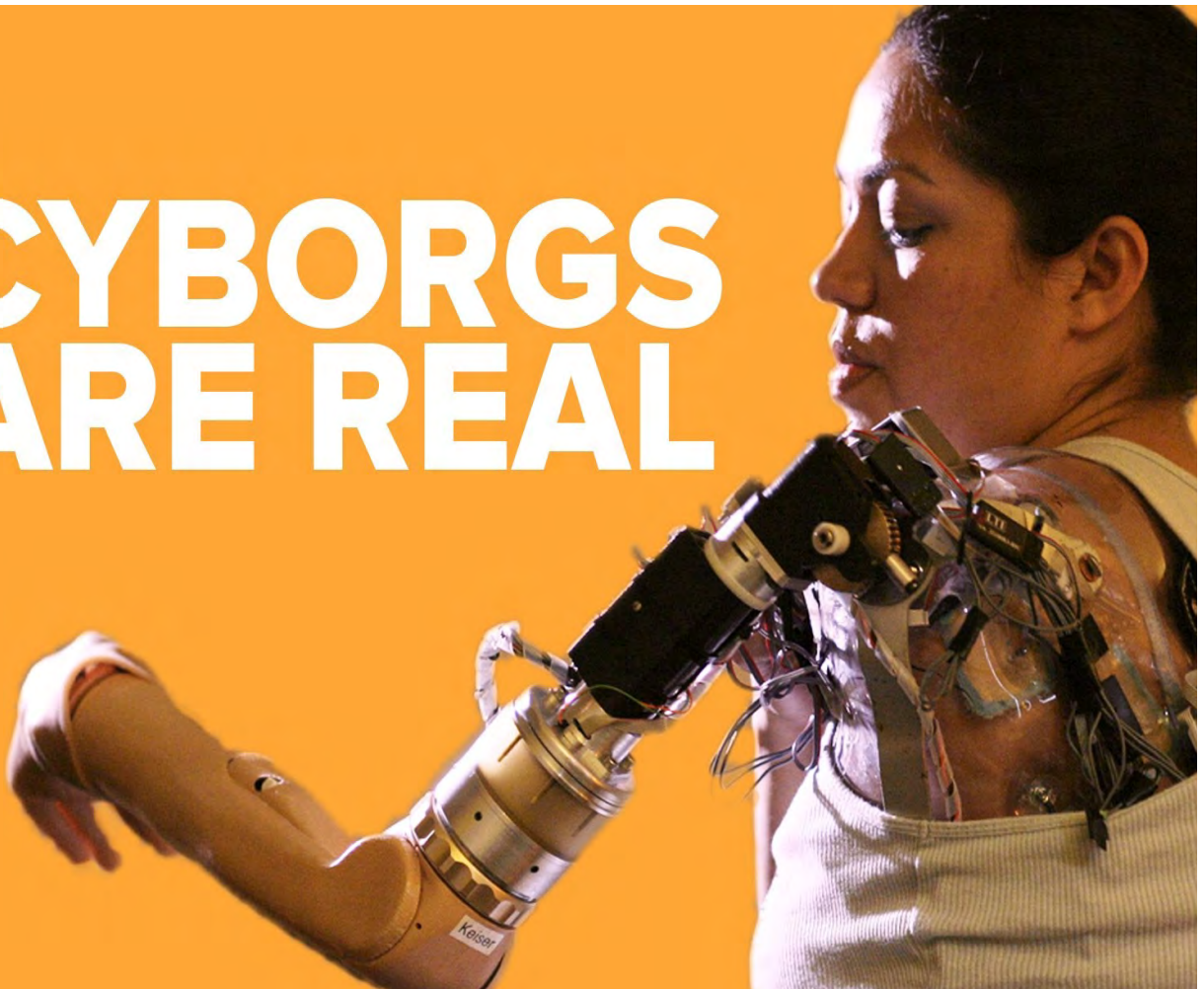
Der Händedruck zwischen Mensch und E. T. findet wohl niemals statt. Die Zukunft gehört anorganischen Lebensformen.

Martin J. Rees
21.10.2017, 05:30 Uhr



In der Milchstrasse gibt es Milliarden Planeten, die der Erde ähneln. (Bild: Anthony Anex / Keystone)

CYBORGS ARE REAL



Jürgen Schmidhuber: «Die Geschichte wird nicht mehr von Menschen dominiert»



Saudi Arabia becomes first country to grant citizenship to a robot

OLIVIA CUTHBERT | Published — Thursday 26 October 2017



Sophia the android addressed the Future Investment Initiative in Riyadh yesterday to the delight of hundreds of delegates. (Courtesy of FII)

Elon Musk on Artificial Intelligence

“I think we should be very careful about artificial intelligence. If I had to guess at what our biggest existential threat is, it’s probably that. So we need to be very careful,” said Musk.

“I’m increasingly inclined to think that there should be some regulatory oversight, maybe at the national and international level, just to make sure that we don’t do something very foolish.”

“With artificial intelligence we are summoning the demon. In all those stories where there’s the guy with the pentagram and the holy water, it’s like – yeah, he’s sure he can control the demon. Doesn’t work out,” said Musk.

Stephen Hawking on Artificial Intelligence

"Humans, who are limited by slow biological evolution, couldn't compete and would be superseded"

He told the BBC:

"The development of full artificial intelligence could spell the end of the human race."

"It would take off on its own, and re-design itself at an ever increasing rate," he said.

Bill Gates on Artificial Intelligence

"I am in the camp that is concerned about super intelligence," Gates said in response to a question about the existential threat posed by AI.

"First, the machines will do a lot of jobs for us and not be super intelligent. That should be positive if we manage it well. A few decades after that, though, the intelligence is strong enough to be a concern."

"I agree with Elon Musk and some others on this and don't understand why some people are not concerned," Gates said.

Steve Wozniak on Artificial Intelligence

"Computers are going to take over from humans, no question ...

Like people including Stephen Hawking and Elon Musk have predicted, I agree that the future is scary and very bad for people ...

If we build these devices to take care of everything for us, eventually they'll think faster than us and they'll get rid of the slow humans to run companies more efficiently ...

Will we be the gods? Will we be the family pets? Or will we be ants that get stepped on? I don't know ..."

Werden wir für sie wie Katzen sein?

VON CAROLIN WIEDEMANN - AKTUALISIERT AM 30.11.2017 - 21:50



Forscher träumen von der Überwindung des Menschen durch selbstlernende Maschinen – allen voran der Deutsche Jürgen Schmidhuber. Zeit aufzuwachen.

'I will destroy humans': Intelligent robot gives a VERY creepy answer in TV interview



Rob Waugh for Metro.co.uk Tuesday 29 Mar 2016 7:52 pm



Ugh (Picture CNBC)

Play
Ground

This is the new autonomous weapon



▶ ▶ | 🔊 0:29 / 4:21

🌐 autonomousweapons.org

Lethal Autonomous Military Slaughterbots Weapon

How a half-educated tech elite delivered
us into chaos

John Naughton

If our supersmart tech leaders knew a bit more about history or philosophy we
wouldn't be in the mess we're in now



GAME OVER

SONNTAG, 9. JULI 2017 / NR. 23 168

MEINUNG

Das neue Spiel

Foren wie die G 20 setzen bei der Weltrettung immer noch auf die alten Spielregeln der Politik und Wirtschaft. Die Digitalisierung 2.0 bietet sich hier als Alternative an.

VON DIRK HELHING

Kürzlich stellte Technologie-Visionär Elon Musk, Chef von Tesla und Space X, die Frage: „Was, wenn die Welt eine Computersimulation wäre?“ Ja, dann wäre es so etwas wie ein Spiel, in dem man lernen muss, kreativ auf das nächste Level zu kommen, um zu gewinnen. Aber was sind dann die Spielregeln?

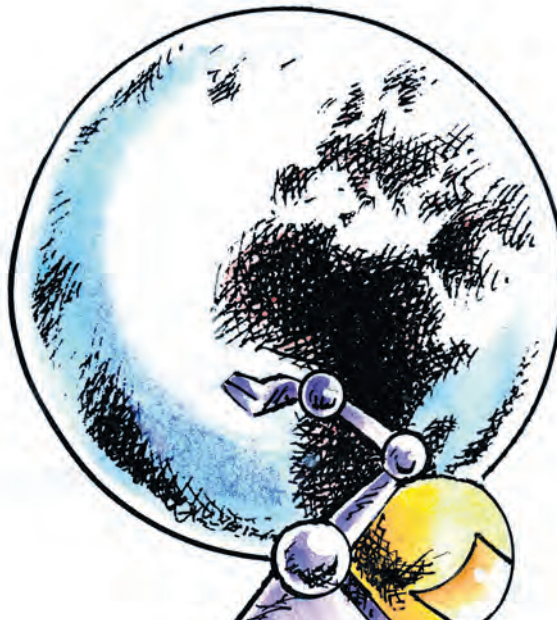
Die Herausforderungen des Spiels sollten uns eigentlich allen bekannt sein. Vor mehr als 40 Jahren befand die „Club of Rome“-Studie „Grenzen des Wachstums“, dass die Welt angesichts begrenzter materieller Ressourcen unweigerlich in einen Wirtschafts- und Bevölkerungskollaps hineinlaufen würde. Milliarden von Menschen würden sterben. Seitdem versucht man, so viel Ressourcen wie möglich unter Kontrolle zu bringen. Wir haben uns entschieden, „Monopoly“ zu spielen. Und es begann eine Ära, die von Globalisierung und Kriegen geprägt war.

Auf dem G-20-Gipfel in Hamburg wurde weiter nach diesen Spielregeln gespielt – und so blieb man auf dem alten Level. Mühsam rangen die Regierungschefs der 20 größten Volkswirtschaften um eine dürre Erklärung zum Klimaschutz und einigten sich am Ende darauf, dass es wichtig sei, den Ausstoß von Treibhausgasen zu reduzieren. So weit, so bekannt. Wir müssen radikaler denken: Neue digitale Technologien, demokratisch gesteuert und eingesetzt in einem völlig neuen Wirtschafts- und Finanzsystem, könnten unsere Ressourcenprobleme lösen. Künstliche Intelligenz kann uns viele Arbeiten abnehmen und uns Spielraum geben für ökologisch-soziales Engagement und das Entwickeln neuer Problemlösungen.

Offenbar dachte keiner daran, dass man die Art und Weise, wie Wirtschaft und Gesellschaft organisiert sind, auch ändern könnte. Dabei wäre es gar nicht so schwer gewesen. Wir hätten unseren Ressourcenverbrauch jährlich nur um drei Prozent reduzieren müssen.

Aber das gefiel den Industrievertretern nicht. Die Bürger sollten weiter konsumieren. Die Devise war „Brot und Spiele“ für das Volk, Ablenkung vom bevorstehenden Weltuntergang. Politik und Industrie versprachen, sich um alles zu kümmern. Wir müssten sie nur machen lassen. Und

Was heute technisch möglich ist, übersteigt Orwells „1984“ und Huxleys „Schöne neue Welt“



ein kooperatives Spiel, nicht das „Monopoly“ der alten, materiellen Ökonomie. An die Stelle von Besitzern tritt das Prinzip des Nutzens und des Teilens. Und so wird es plötzlich möglich, dass auch die begrenzten Ressourcen der materiellen Welt für alle reichen. Wir müssen nur lernen, Ressourcen zu recyceln und zu „sharen“. Es braucht eine Kreislaufwirtschaft statt linearer Produktionsketten, bei denen frische Ressourcen verbraucht werden, um Konsumartikel herzustellen, die man am Ende wegwirft. Doch wie kommen wir dahin?

Die Digitalisierung 2.0 wird drei miteinander eng verflochtene Transformationen mit sich bringen: die digitale, die ökologische und die des Finanzsystems. Das Internet der Dinge und die sogenannten „Blockchain-Technologien“ sind dabei die technologischen Treiber. Unter dem Internet der Dinge versteht man die Ausstattung von Alltagsgegenständen mit Mess-Sensoren – gewissenmaßen Sinnen – und mit Kommunikation. Eine Blockchain wiederum ist eine dezentrale Datenbank, die ständig durch neue Datensätze erweitert wird, die wie in einer Kette hinzugefügt werden – eine für alle einsehbare Registratur. Darauf basiert zum Beispiel die Internetwährung Bitcoin. Sie ermöglichen das sichere Weitergeben von Daten oder digitalem Geld, ohne dass es einen zentralen Sicherheitsgaranten, etwa den Staat oder eine Bank, braucht.

Das größte Potenzial besteht darin, diese Technologien miteinander zu verbinden und dabei die Wissenschaft komplexer Systeme zu berücksichtigen, die uns sagen kann, welche Anreizsysteme und Interaktionen zu welchen Ergebnissen führen.

Früher oder später wird die digitale Transforma-

Wir müssen die halbe Wirtschaft neu erfinden und ein gerechteres Finanzsystem einführen

tion rund 50 Prozent der heutigen Tätigkeiten durch Künstliche-Intelligenz-Systeme und Roboter ersetzen. Das ist zweifellos eine Herausforderung, aber auch eine Chance, denn damit können wir uns endlich mehr auf jene Themen konzentrieren, die bisher vernachlässigt wurden: Umwelt und Soziales.

Wir müssen die halbe Wirtschaft neu erfinden. Die Nachhaltigkeit können wir durch ein neues,

WE MUST REMAKE SOCIETY IN THE COMING AGE OF AI: OBAMA



We are at the beginning of a new age

Openness: Boosting co-creation

Our Competitors



World's Largest IT Companies

World's Largest IT Companies (2015 AR in B\$)



World's Largest Internet Companies

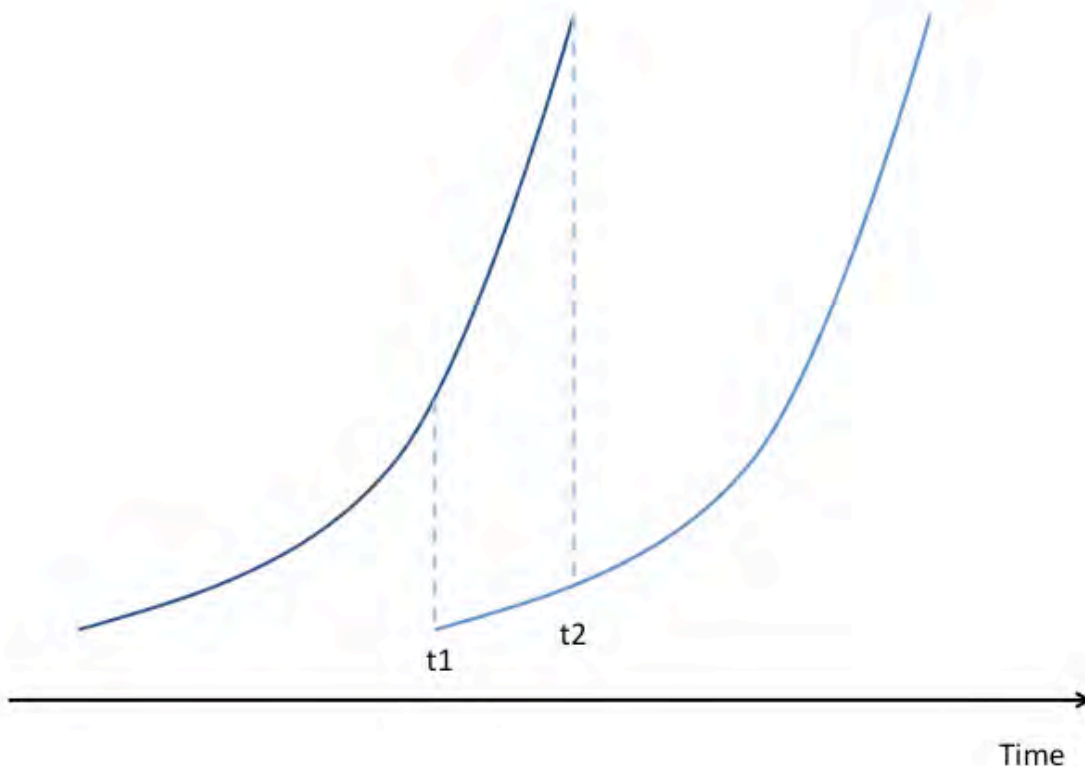
World's Largest Internet Companies (2015 AR in B\$)



World's Largest Software Companies



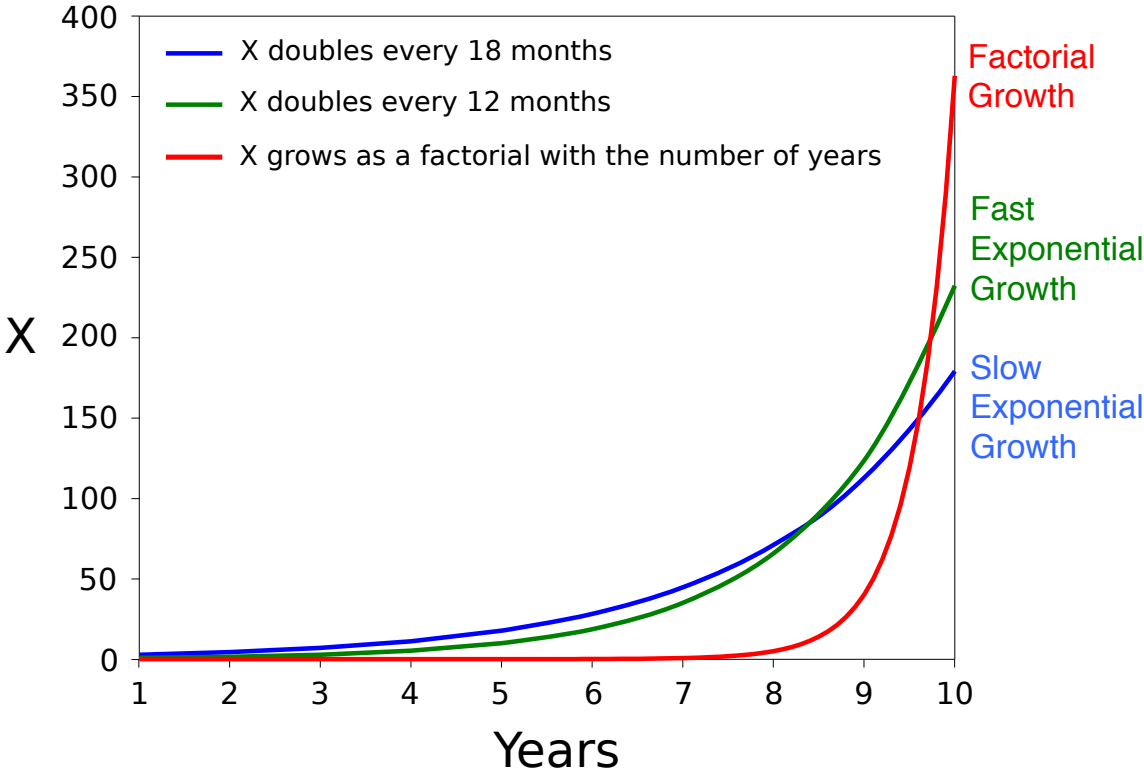
Exponential Growth with a Delay
Is Destined to Fail



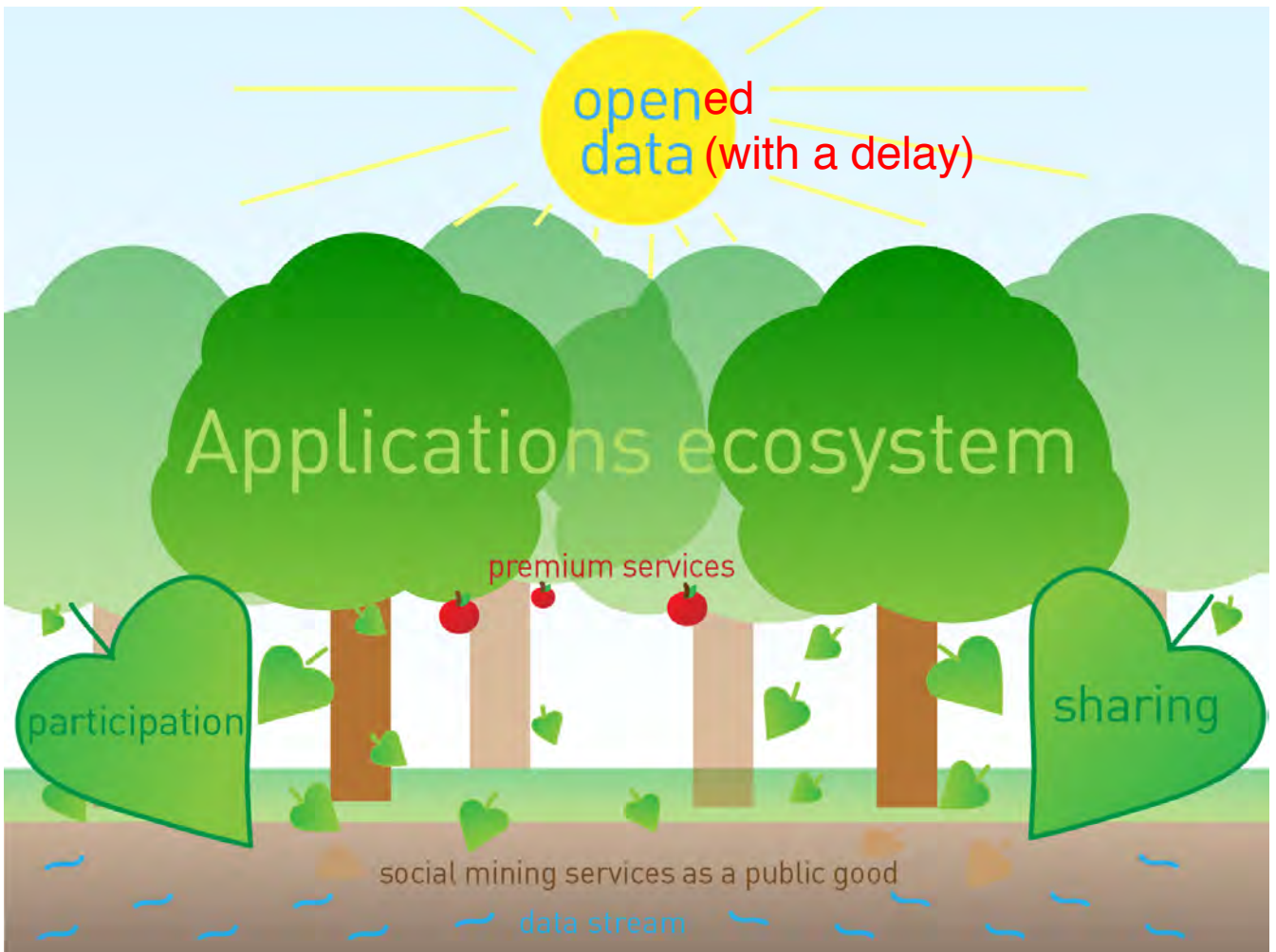
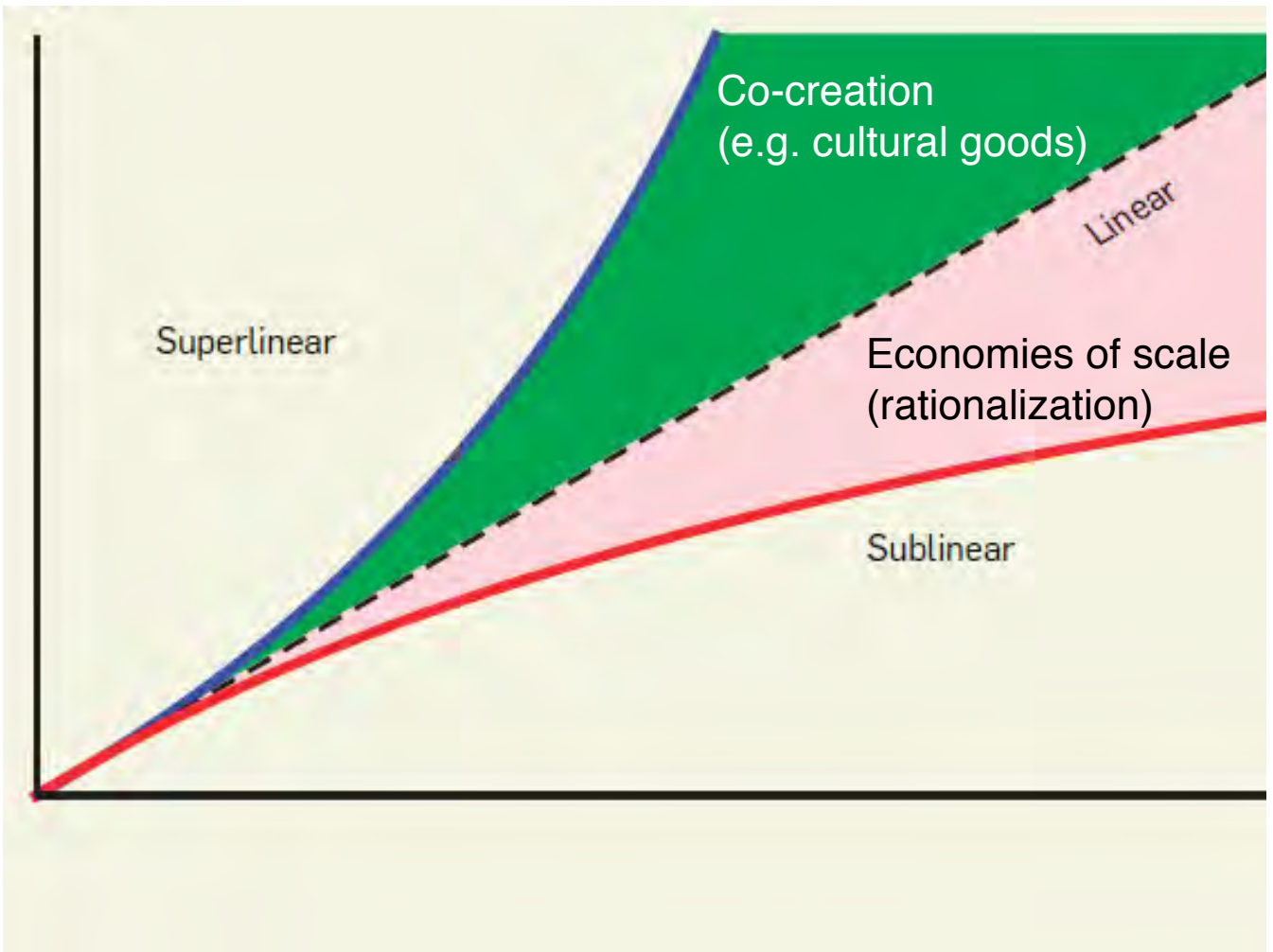
Isn't that Phantastic?



Exponential vs. Factorial Growth







Data for All!

Data production



Data analytics



Applications and Services

Empowering People



www.enableeurope.eu

If set up well, enabling users, customers, citizens will lead to better services, better products, better businesses, better neighborhoods, smarter cities, smarter societies ...

Digital Assistants: Boosting self- organization

Empirical Studies of Self-Governance
Confirm Efficiency, Given Proper Design
Principles



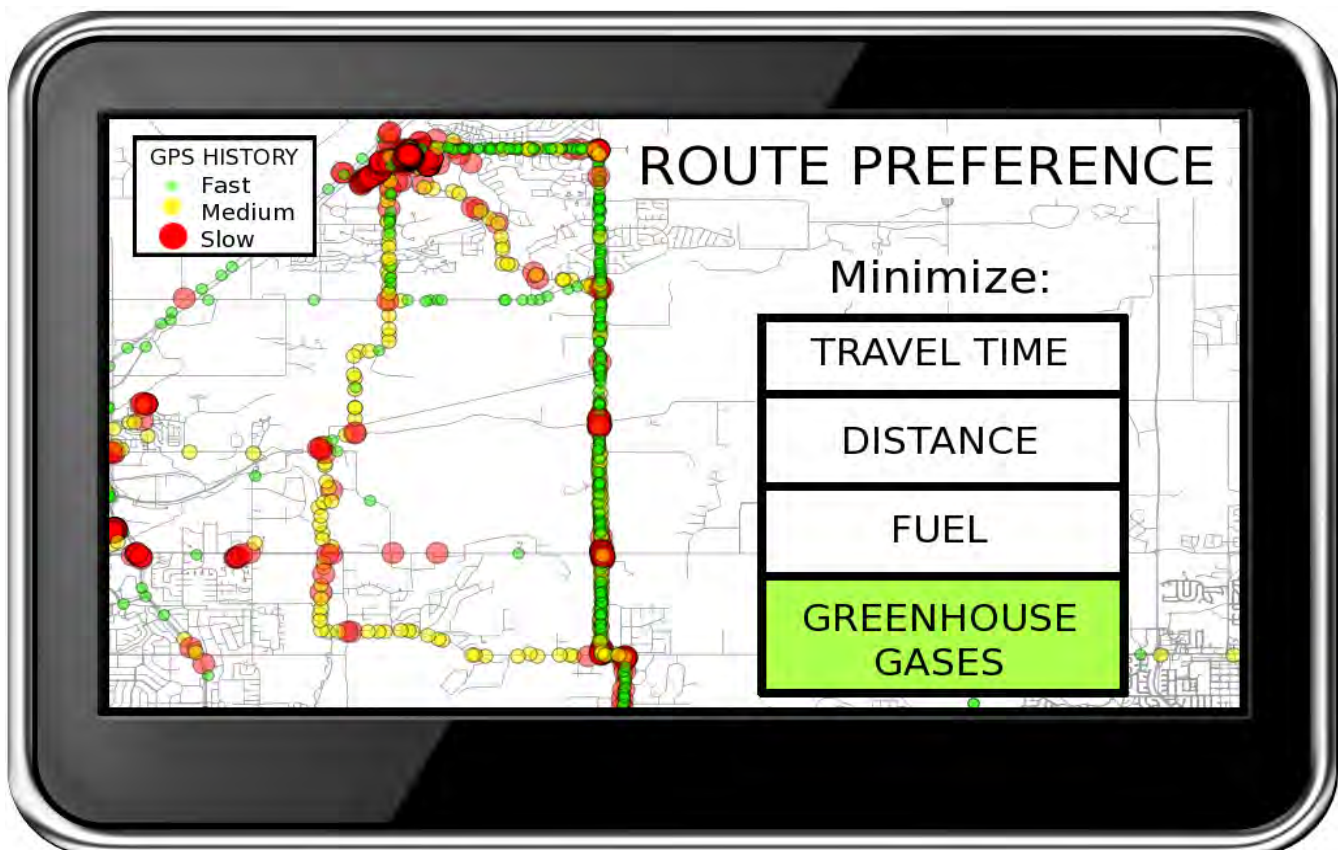
ELINOR OSTROM

2009 Nobel Laureate
in Economic Sciences



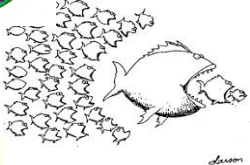

Nobel medal © © The Nobel Foundation



Digital Assistants to Support Decisions



Support Favorable Interactions with Personal Digital Assistants

Task	Technology
Support situational / context awareness	Social Mirror 
Facilitate profitable interactions	Social Adapter 
Avoid lossful interactions	Social Protector 
Incentivize favorable interactions / support value transfer	Social Money 

In A Diverse World We Need to Create Interoperability

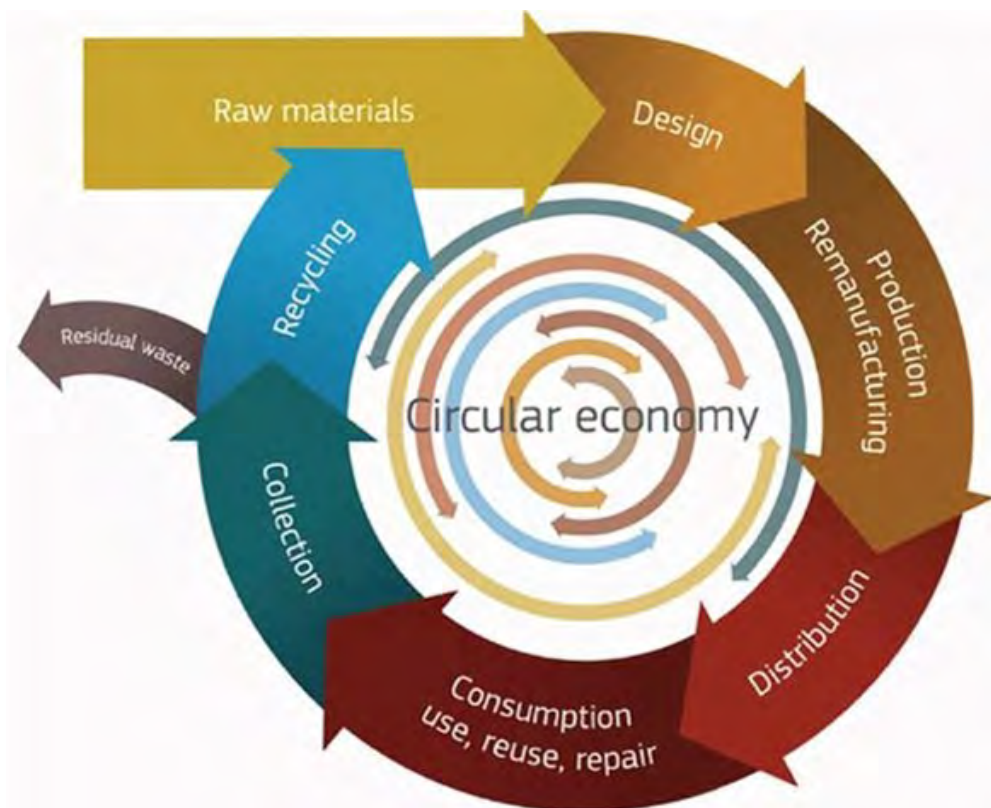


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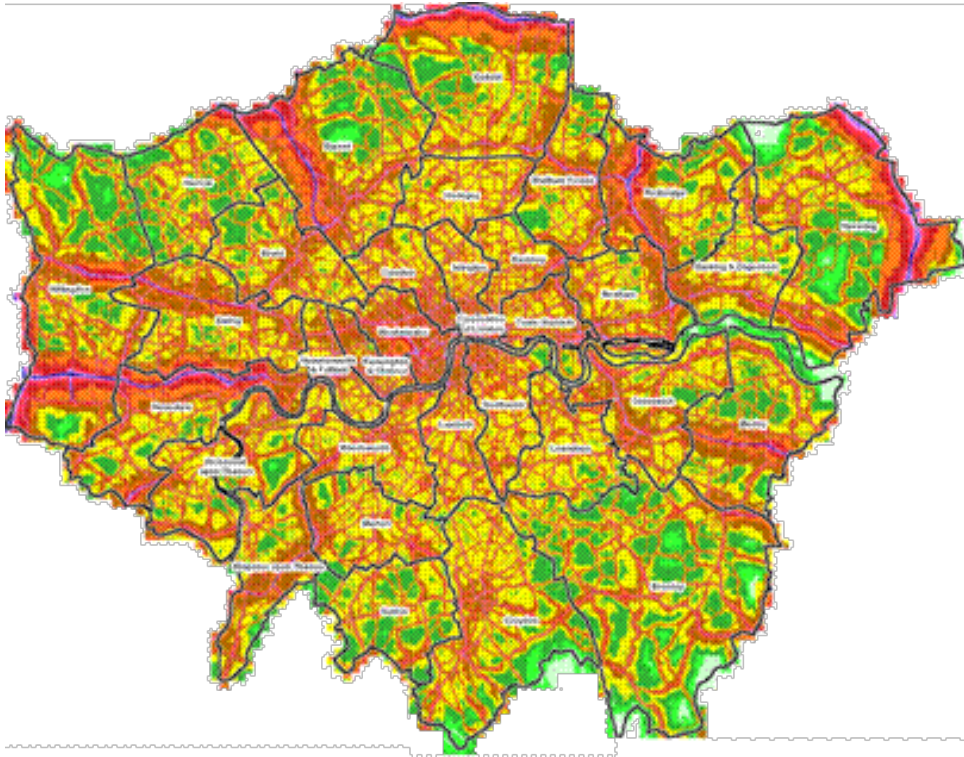
**Socio-ecological
coordination system:
Boosting sustainability**



Circular Economy



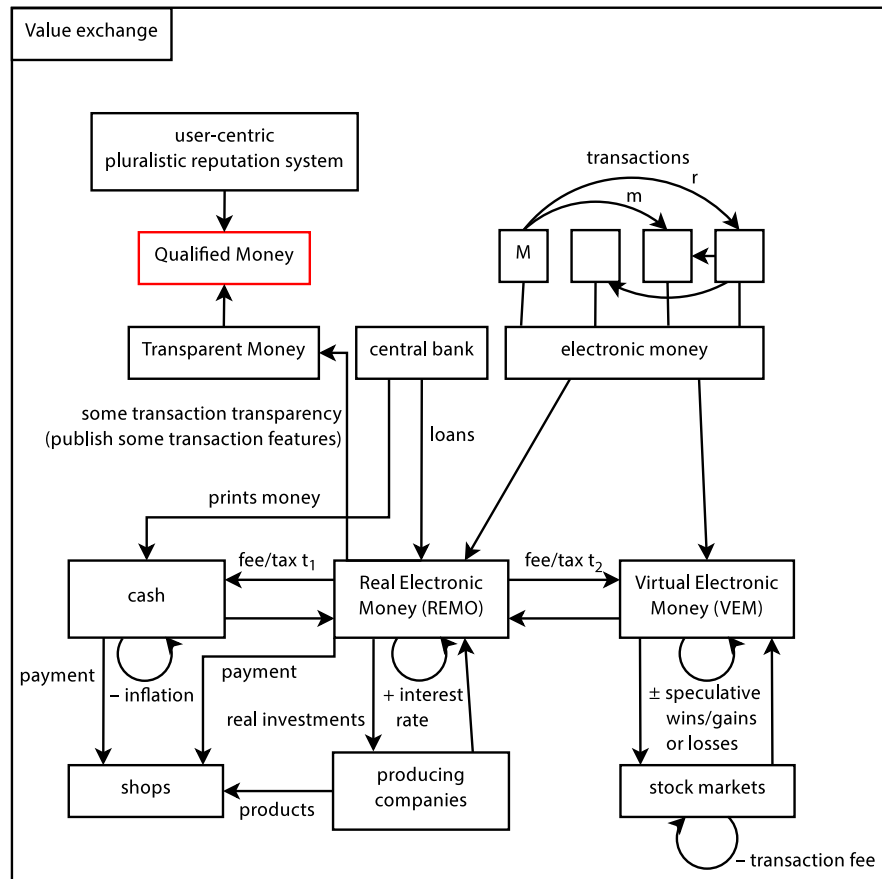
Mapping Noise and other Externalities



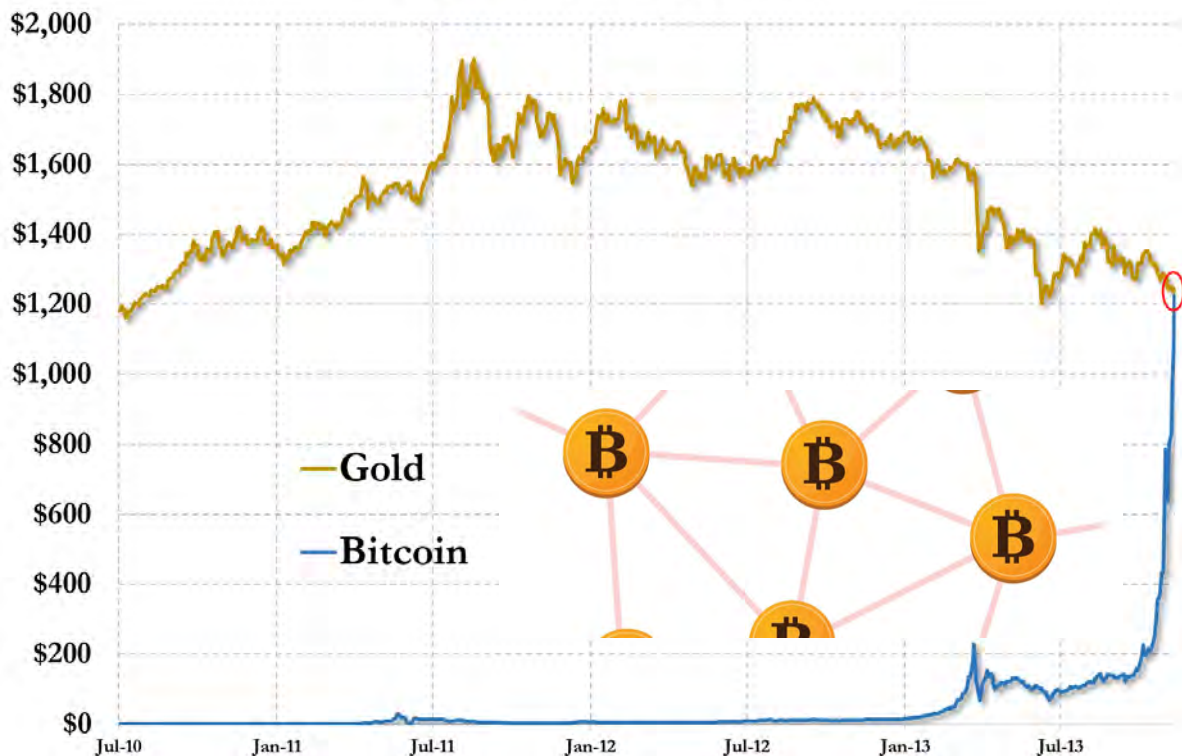
The No. 1 Principle

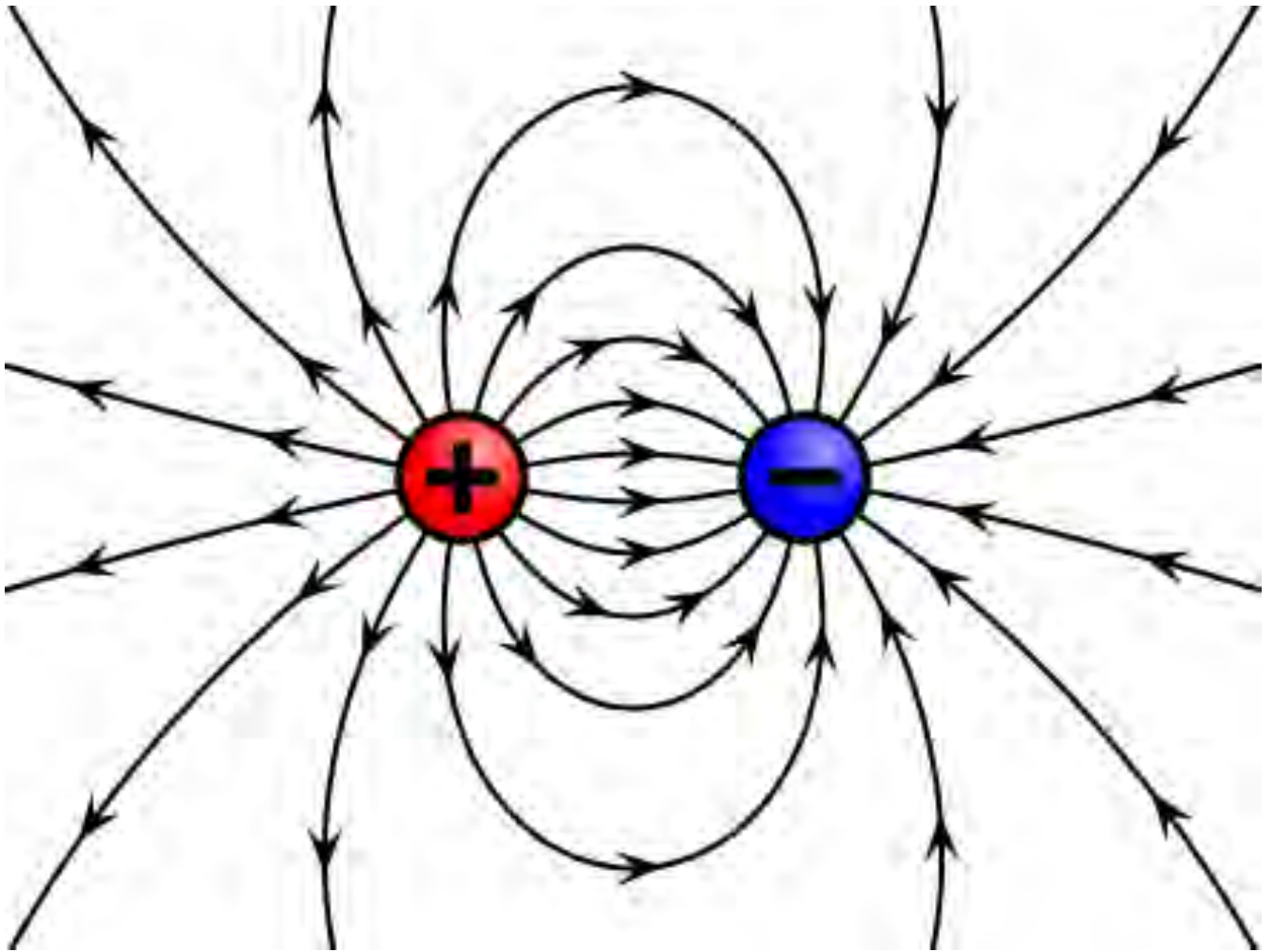
Increase positive externalities, reduce negative ones, and ensure fair compensation

We Need a Multi-Dimensional Incentive System



It is now possible to create such new money(s), as BitCoin has shown





**Democratic
Capitalism:**
Boosting
innovation



Revealed: how the wealth gap holds back economic growth

OECD report rejects trickle-down economics, noting 'sizeable and statistically negative impact' of income inequality



📷 OECD secretary-general Angel Gurría said that 'addressing high and growing inequality is critical to promote strong and sustained growth'. Photograph: Eric Piermont/AFP/Getty Images

10.000 Euro-Ökonom zieht Bilanz

Quantitative Easing der Fed hat versagt!



Foto: Daniel Stelter - Beyond the obvious

Autor: Redaktion w:o 01.11.2014, 10:06 | 4210 | 1 | 0



Kaum zu glauben, aber wahr. Die Zeiten der geldpolitischen Lockerung (Quantitative Easing) sollen in den USA erst einmal vorbei sein. Das hat die amerikanische Notenbank Federal Reserve (Fed) beschlossen.

Seit dem Ausbruch der Finanzkrise hatte sie insgesamt drei QE-Programme aufgelegt, zuletzt hatte sie im Herbst 2012 damit begonnen, Papiere im Wert von 85 Milliarden US-Dollar zu kaufen. Doch mit dem [Gelddrucken](#) soll nun Schluss sein. Zeit, Bilanz zu ziehen: War die Politik mit der Notenpresse erfolgreich?





Digital Democracy :
Boosting collective
intelligence



Dirk Helbing, Contributor

Professor of Computational Social Science, complex systems expert, member of the German Academy of Sciences "Leopoldina"

How to make democracy work in the digital age

08/04/2016 06:44 am ET

By Prof. Dirk Helbing and Stefan Klauser, ETH Zurich

Recently, we have heard many complaints about how democracy works these days – or maybe rather why it doesn't work. In a recent Huffington post article, Dhruva Jaishankar, a Fellow at the Brookings Institution in India, claimed that digital democracy is the evil that makes our world ungovernable.^[1] We argue that Jaishankar defines digital democracy in a flawed and misleading way. This could cause serious misunderstandings of what the problems are and what are the possible solutions. In the following we will show that digital democracy – if properly understood^[2] – is the most promising way to build prosperous societies in the digital age.

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Brexit, Trump, AfD - is the Internet creating protest voters?

COMMENT

IMAGINECHINA/CORBIS

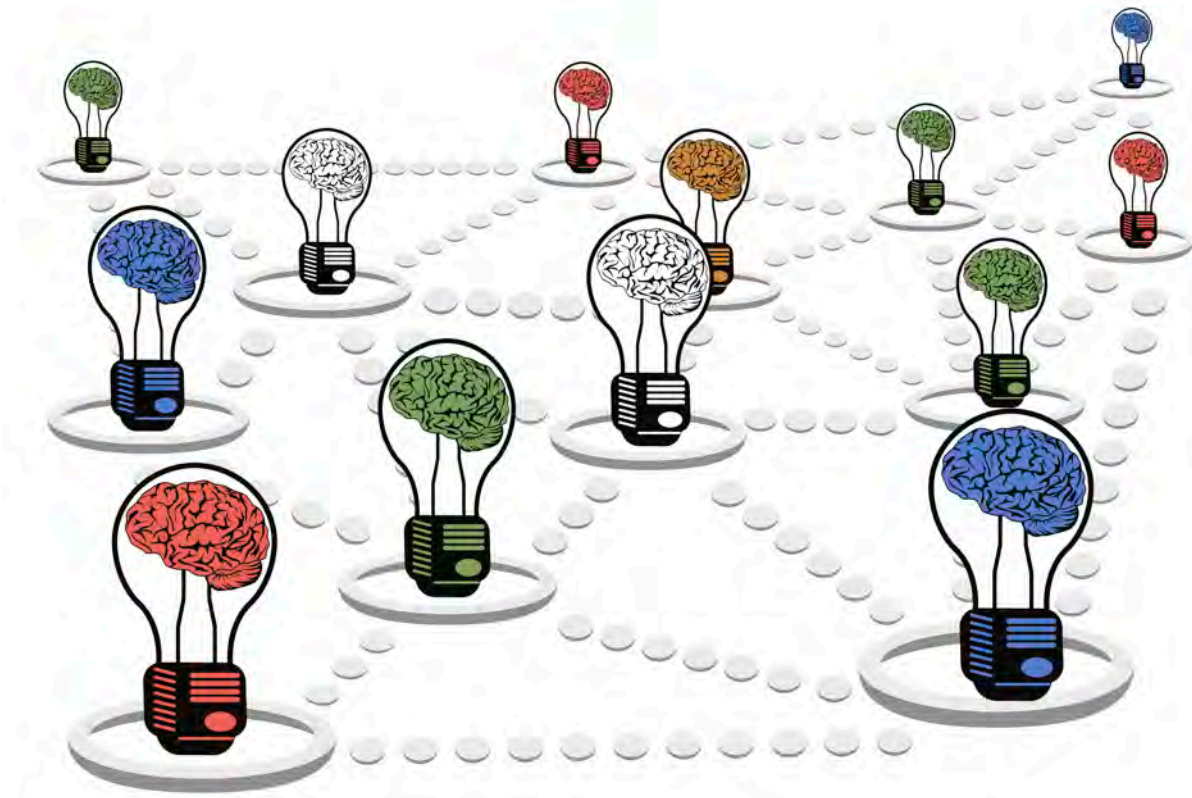


Many choices that people consider their own are already determined by algorithms.

Build digital democracy

Open sharing of data that are collected with smart devices would empower citizens and create jobs, say **Dirk Helbing** and **Evangelos Pournaras**.

Bring the Best Ideas of Many Minds Together



<http://medialniporoci.blogspot.ch/2013/04/sharing-is-new-shoppingand-working.html>

Diversity Wins, Not the Best

Netflix Prize

[Home](#) | [Rules](#) | [Leaderboard](#) | [Register](#) | [Update](#) | [Submit](#) | [Download](#)

Leaderboard

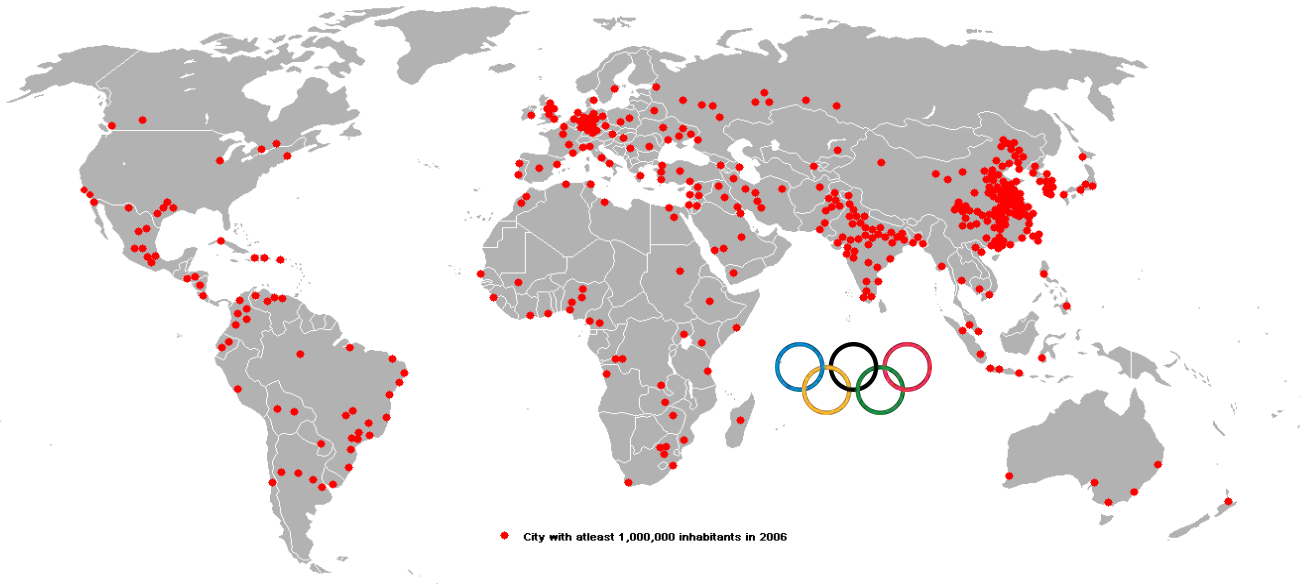
Display top 20 leaders.

Rank	Team Name	Best Score	% Improvement	Last Submit Time
1	BellKor's Pragmatic Chaos	0.8558	10.05	2009-06-26 18:42:37
Grand Prize - RMSE <= 0.8563				
2	PragmaticTheory	0.8582	9.80	2009-06-25 22:15:51
3	BellKor in BigChaos	0.8590	9.71	2009-05-13 08:14:09
4	Grand Prize Team	0.8593	9.68	2009-06-12 08:20:24
5	Dace	0.8604	9.56	2009-04-22 05:57:03
6	BigChaos	0.8613	9.47	2009-06-23 23:06:52
Progress Prize 2008 - RMSE = 0.8616 - Winning Team: BellKor in BigChaos				
7	BellKor	0.8620	9.40	2009-06-24 07:16:02
8	Gravity	0.8634	9.25	2009-04-22 18:31:32
9	Opera Solutions	0.8638	9.21	2009-06-22 05:53:30
10	xlvector	0.8639	9.20	2009-06-26 13:49:04
11	xiangliang	0.8639	9.20	2009-06-26 07:47:34
12	BruceDengDaoCiYiYou	0.8641	9.18	2009-06-02 17:08:31
13	Ces	0.8642	9.17	2009-06-24 14:34:14
14	majia2	0.8642	9.17	2009-06-23 08:07:50

Top-down and majority decisions obstruct collective intelligence

Wisdom of crowds requires independent exploration and then integration

Countering Global Problems Bottom-Up: **City Olympics** for Better Energy, Environmental and Climate Solutions



Public domain ([SoccerFan](#)) (update to a map done by [Boqdan](#))

The Grand Transformation of Our Society



We All Deserve A Better Future

- Circular economy
- Pull economy, open innovation
- Participatory sharing economy
- Democratic capitalism to let the best ideas become real
- Socio-ecological finance system
- Region-based world council
- Digital democracy to activate collective intelligence
- City olympics to achieve global goals

Read "To the Elites" in "The Globalist" by Dirk Helbing

Value-Sensitive Design and Value Pluralism Rather than Market-Conform Democracy

- | | |
|-------------|------------------|
| • Privacy | • Sustainability |
| • Autonomy | • Health |
| • Equity | • Friendship |
| • Justice | • Solidarity |
| • Dignity | • Peace |
| • Happiness | • Usability |
| • Wellbeing | • Resilience |
| • Safety | • Efficiency |
| • Security | • Flexibility |

After
Jeroen van
den Hoven

Goals must be balanced (politically negotiated).
Otherwise, the approach is oversimplified, inadequate.

The 7C

- Co-learning
- Co-creation
- Combinatorial innovation
- Co-ordination
- Co-operation
- Co-evolution
- Collective intelligence

Let's Do This Together!



The explosion in data volumes, processing power, and Artificial Intelligence, known as the **"digital revolution"**, has driven our world to a dangerous point. One thing is increasingly clear: We are at a crossroads. We need to make decisions. We must re-invent our future.

After the automation of factories and the creation of self-driving cars, the automation of society is next. But there are two kinds of automation: a centralized top-down control of the world, and a distributed control approach supporting local self-organization. Using the power of today's information systems, governments and companies like Google seem to engage in the first approach. Will they even try to build a **"digital God"** who knows everything and controls what we do? In fact, governments would spend billions to predict the future of our world and control its path.

Given that, every year, we produce as much data as in the entire history of humankind, can we now create a better world? The abundance of data certainly makes it possible to establish an entirely new paradigm for running our societies. Could we even build a data-driven **"crystal ball"** to predict the future and, given that knowledge implies power, also something like a **"magic wand"** to optimally rule the world? Will the digital revolution empower a **"wise king"** or **"benevolent dictator"**, maybe by means of Artificial Intelligence? In fact, we are much closer to this than you might think. But do we really need large-scale surveillance to understand and manage the increasingly complex systems we have created? Or are we running into a totalitarian nightmare?

What alternatives to master our complex world do we have? What about the principles of the **"invisible hand"** and the **"wisdom of the crowd"**, which posit that independent decisions made by many people will produce optimal societal outcomes? In the past, these principles have often failed. So, can bottom-up self-organization really work and if so, what does it take? Could technology make it work? Relying on the **"Internet of Things"** and complexity science, can self-organization now enable a more efficient, more innovative, more successful, more resilient, smarter and happier society?

Let us explore this now, because this would open the door to a brighter version of the digital society, based on informational self-determination, human dignity, freedom of decision-making, democratic principles, participation, and collective intelligence.

It's time to take the future in our hands!

Bar Code

THE AUTOMATION OF SOCIETY IS NEXT Dirk Helbing

Dirk Helbing

THE AUTOMATION OF SOCIETY IS NEXT

How to survive the digital revolution



**SUPPLEMENTARY
SLIDES**