

Challenges of globalization VI

1. The finance curse (Nicholas Shaxson, 2018)

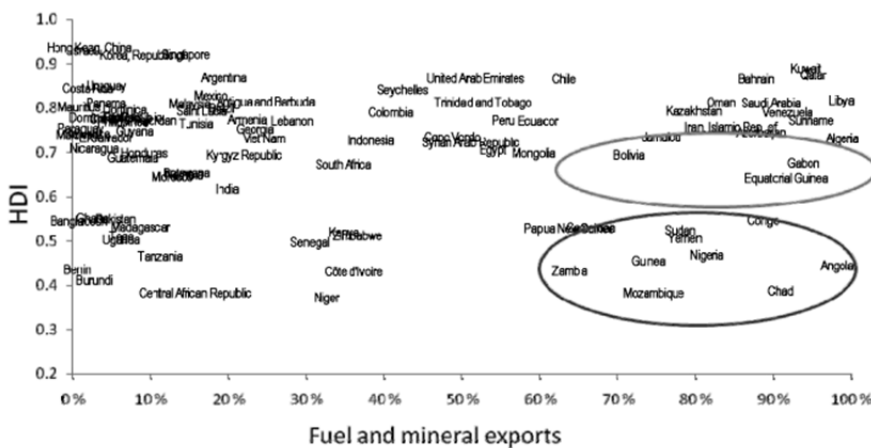
“The concept of the finance curse is simple: it’s the idea that once a financial sector grows above an optimal size and beyond its useful roles, it begins to harm the country that hosts it. Finance turns away from its traditional role serving society and creating wealth, and towards often more profitable activities to extract wealth from other parts of the economy. It also becomes politically powerful, shaping laws and rules and even society to suit it. The results include lower economic growth, steeper inequality, inefficient markets, damage to public services, worse corruption, the hollowing-out of alternative economic sectors, and widespread damage to democracy and to society.”

Shaxson, Nicholas (2018): *The finance curse: How global finance is making us all poorer*, The Bodley Head, London.

2. The resource curse thesis (a paradox of poverty from plenty)

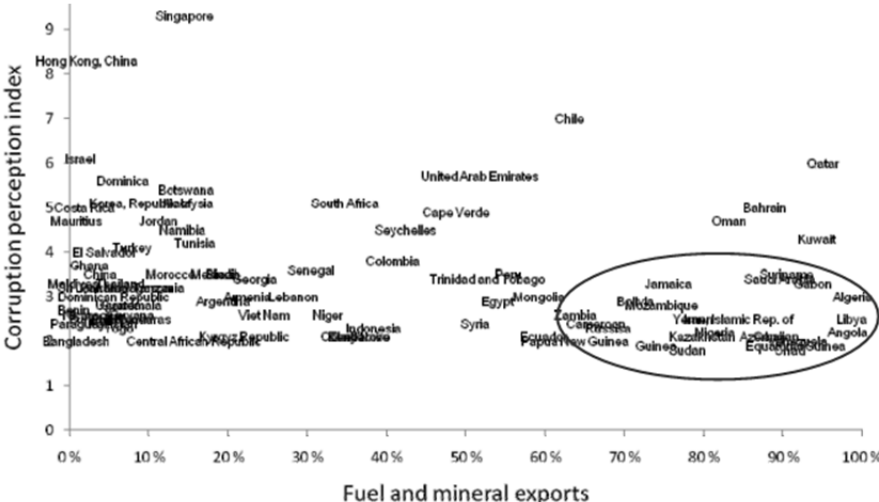
The resource curse thesis holds that economies abundantly endowed with internationally valued resources (oil, gas, diamonds, copper...) tend to be poorer, have more corrupt leaders and be more likely to suffer from war or conflict. Resource-led growth may prove beneficial in the short run (revenue is easily obtained by exporting resources and foreign capital is attracted) but, according to the thesis, the long run effects tend to be negative: economic growth slows down; poverty, inequality and unemployment levels remain high; economic diversification is avorted; social welfare programmes cannot be sustained...

“The resource curse view postulates that natural resource exports—and especially oil—constitute an external, unearned, and ‘easily capturable’ source of rents. This severs the fiscal link between rulers and the ruled and renders the former unaccountable to the latter. Once rulers are freed from taxing their citizens, they are freed from having to solicit their consent or input. Natural resource revenues therefore bolster the power of executives and the bureaucracy and create countless opportunities for rent-seeking and corruption. Paradoxically, although these rents may prolong the tenure of tyrants, they might also catalyze civil wars in a bid to capture this valuable prize.” (V. Menaldo, 2016, p. 2)



Shaxson, Nicholas (2007): “Oil, corruption and the resource curse,” *International Affairs* 83(6), 1123-1140.

Gøril and Santiso (2011, Fig. 1.3): a group of countries with high mineral and fuel exports have very low scores of the human development index.



Gøril and Santiso (2011, Fig. 1.4): a group of countries with high mineral and fuel exports have very high scores of the corruption perception index (higher index, less perception)

Havro, Gøril; Javier Santiso (2011): “Benefiting the resource rich: How can international development policy help tame the resource curse?,” *IDS Working Paper 355*, Institute of Development Studies at the University of Sussex.

3. The institutions curse (V. Menaldo, 2016)

“... overreliance on natural resources is simply one symptom of a deeper, underlying disease that afflicts developing countries. This book labels that disorder the institutions curse. Other symptoms include fiscal monopolies that represent hyper-regressive forms of taxation, urban bias that ruins farmers, crony capitalism that erodes consumer surplus, and politicized finance that rations already scarce credit.

Countries cursed by their institutions fail to provide the type of political, legal, and infrastructural ecosystem that fosters broad-based economic development. Most investors outside of extractive industries tend to stay away. Governments therefore lack a revenue base that can be taxed at low cost (...) The government's inability to credibly commit to repaying its debts, exacerbated by a genuine lack of economic growth, domestic revenues, and foreign currency, heightens political risk.

(...) Weak states cursed by their institutions may erect fiscal monopolies on inelastic goods and turn to financial repression. Or they may create marketing boards that siphon money away from the countryside by paying farmers below market prices for the food they produce and then re-exporting it at a substantial profit. They may also indulge in industrialization via crony capitalism and inflationary taxation. Finally, they may erect natural resource sectors from scratch since, unlike their counterparts in industries centered on intangible goods and services, such as intellectual property, foreign investors operating in extractive industries do not really fear political risk. They are too shrewd, powerful, and wealthy to be stopped from striking it rich in the developing world's mines and oil basins.”

Menaldo, V. (2016): *The institutions curse: Natural resources, politics, and development*, Cambridge University Press.

4. Maladaptation (maladaptive beliefs and practices)

“All societies are sick, but some are sicker than others (...) Even populations that appear to be well-adapted to their environments maintain some beliefs or practices that unnecessarily imperil their well-being or, in some instances, their survival. Populations the world over have not been well served by some of their beliefs such as, for example, those concerning witchcraft, the need for revenge, or male supremacy, and many of their traditional practices involving nutrition, health care, and the treatment of children have been harmful as well. Slavery, infanticide, human sacrifice, torture, female genital mutilation, rape, homicide, feuding, suicide, and environmental pollution have sometimes been needlessly harmful to some or all members of a society and under some circumstances they can threaten social survival.”

“Some populations have failed to survive or have lost their culture, language, or social institutions because they were not able to cope with the demands that their environments made on them. This failure to thrive is the most calamitous form of maladaptation, but it is not the only one. A few people in all societies, and many people in others, feel alienated, become depressed, or attempt suicide. Others withdraw from social life or emigrate, and it is not uncommon for people to protest or rebel (...) Beliefs or practices that leave a population seriously discontented or rebellious are, under most circumstances, maladaptive because they threaten the survival of that sociocultural system and endanger the physical and emotional wellbeing of the people in it.”

“Much of what we have learned about human history and human nature suggests a picture of human accomplishment, not discord, failure, or pathology. Throughout the world, people have developed effective techniques of hunting, gathering, herding, and gardening, domesticated plants and animals, built houses, developed trade, established meaningful religions, and learned to govern themselves. They have also created moving forms of music and dance and dazzling works of art.”

“Counterintuitive though it may seem after an exposure to this compelling record of human ingenuity, it must nevertheless be acknowledged that populations have not always gotten things right. Inefficiency, folly, venality, cruelty, and misery were and are also a part of human history. Human suffering is one result (...) Incredible folly followed by incredible heroism is not a rare occurrence in human history.”

“Some (...) believe that the prime mover of evolution has not been competition among species but environmental change that creates opportunities for some species more than others to proliferate (...) These two evolutionary phenomena are sure to continue into the future, when the already great interconnectedness of peoples and their societies will no doubt increase still further (...) Yet, paradoxically, if recent experience is any guide, neither these developments nor the increased power of regional or worldwide forms of

governance will put an end to ethnic and religious factionalism, xenophobia, and strife. Instead, one form of irredentism or another can be expected to flourish virtually everywhere on earth. These ethnic and religious revivalisms, these passionate strivings for lost autonomy and misplaced meaning, will likely bring about ever more intense valorization of traditional beliefs, rituals, and customs.”

Edgerton, Robert B. (1992): *Sick societies: Challenging the myth of primitive harmony*, The Free Press, New York.

“People are just curious. What follows in the wake of their discoveries is something for the next generation to worry about.”
Werner von Braun

5. Technology: strive for control

“Let me begin by stating the obvious: We live in an era of technological enthusiasm. It’s not too vast a generalization to say that Americans, along with much of the world, are deeply, passionately in love with the technologies they use in their personal lives. We’re also beguiled by the promises of scientists and engineers who say that, thanks to them, we’ll soon be able to do just about anything we want to do. ‘At our current rate of technological growth,’ said Elon Musk, CEO of Tesla Motors and SpaceX, ‘humanity is on a path to be godlike in its capabilities.’ (...) Such comments also testify to a more recent wrinkle in utopian visions: that new technologies will be able to remedy the problems created by previous technologies. We see the same faith at work in the conviction of those who believe we’ll come up with some way of reversing the catastrophe of global warming by ‘geoengineering’ the climate of the entire planet.”

“Four basic, overlapping characteristics or sets of characteristics can be cited as fundamental elements of the nature of technology. They are (1) Technology is by nature expansive. (2) Technology is by nature rational, direct, and aggressive. (3) Technology by its nature combines or converges with other technologies. (4) Technology by its nature strives for control (...) The four characteristics (...) point to the central question of whether technology at some point becomes autonomous— that is, does technology at an advanced stage of development become impossible for human beings to control?”

“If there is a single lesson (...) that I could drum into the mind of every technician on the planet, it would be the certainty of uncertainty. For despite their willingness to acknowledge uncertainty on the micro level and to use it to improve performance, technophiles consistently evince a depressingly broad degree of myopia in regard to uncertainty on the macro level. In other words, scientists and engineers will focus intently on the inconsistencies that appear within their specific projects and work diligently to get rid of them. At the same time they’ll be perfectly willing to overlook the unpredictable results of their projects’ interactions with other, supposedly unrelated technologies in the world at large. In doing so they ignore two (...) principles:

1. There are no unrelated technologies.
2. The more powerful a given technology, the more widely its effects will radiate outward, the more difficult it will be to predict those effects, and the more damaging those effects can potentially be (...) The effects of powerful technologies radiate outward, producing in the process consequences that are both unintended and unexpected, often at velocities that exceed our ability to stop or contain them.”

“Technology doesn’t fix technology, technology *demand*s technology. Given that we seem unable to make even minor sacrifices of consumption and convenience, we probably have no choice but to stay, in some fashion, the technological course (...) The societies we’ve constructed are so utterly dependent on our machines that any attempt to abruptly disconnect would be spectacularly, fatally disruptive. Unless and until we find a way to reposition ourselves in relation to nature, we’re pretty much stuck.”

“It’s a truism that power corrupts, and at its most fundamental level technology is about power. It follows that arrogance and overconfidence may be natural by-products of technological power.”

“[Norbert Wiener] said that the only true security comes from ‘humility and restrained ambitions’ (...) Technology is a two-edged sword, he said, ‘and sooner or later it will cut you deep’.”

“I see no harm in mentioning two general suggestions that would, if widely and comprehensively pursued, move us in a positive direction. The first of these is restraint. Cut back, on everything (...) My second suggestion is (...) pay some attention to redressing the imbalance, in the culture in general and in education in particular, between means and ends.”

Hill, Doug (2016): *Not so fast: Thinking twice about technology*, The University of Georgia Press, Athens, Georgia.

6. Some 'laws,' rules and principles

Arthur C. Clarke's laws of prediction

- First law. "When a distinguished but elderly scientist states that something is possible, he is almost certainly right. When he states that something is impossible, he is very probably wrong."
- Second law. "The only way of discovering the limits of the possible is to venture a little way past them into the impossible."
- Third law. "Any sufficiently advanced technology is indistinguishable from magic."

Variation on Clarke's third by Mark Stanley (Freefall)

- "Any technology, regardless of how advanced, will seem like magic to those who do not understand it."

Melvin Kranzberg's six laws of technology (the sixth omitted)

- First law. "Technology is neither good nor bad; nor is it neutral."
- Second law. "Invention is the mother of necessity."
- Third law. "Technology comes in packages, big and small."
- Fourth law. "Although technology might be a prime element in many public issues, nontechnical factors take precedence in technology-policy decisions."
- Fifth law. "All history is relevant, but the history of technology is the most relevant."

Hofstadter's law

- "It always takes longer than you expect, even when you take into account Hofstadter's Law."

The freedom-security dilemma

- "The product of Freedom and Security is a constant."

Technology remakes both the physical and the mental worlds

- "Ethics change with technology."

Amara's law (Roy Charles Amara, 1925-2007)

- "We tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run."

Goodhart's law (Charles Goodhart)

- "When a measure becomes a target, it ceases to be a good measure." (When you close the door, expect people to open a window.)

Hutber's law (Patrick Hutber)

- "Improvement means deterioration." (Anything presented as an improvement hides a deterioration.)

Orgel's second rule (Leslie Orgel)

- "Evolution is cleverer than you are."

Pareto rule (Vilfredo Pareto)

- "80% of the output/consequences tends to be accounted by 20% of the inputs/causes."

Peter principle (Laurence J. Peter)

- "In a hierarchy, every employee tends to rise to his level of incompetence."

Shirky principle (Clay Shirky)

- "Institutions will try to preserve the problem to which they are the solution."

Sturgeon's law (Robert Sturgeon)

- "Ninety percent of everything is crud."

The invisible law of market stupidity

- "The market is more stupid than everybody thinks."

Cipolla's basic laws of human stupidity (Carlo Maria Cipolla)

- First law. "Always and inevitably everyone underestimates the number of stupid individuals in circulation."
- Second law. "The probability that a certain person be stupid is independent of any other characteristic of that person."
- Third law. "A stupid person is a person who causes losses to another person or to a group of persons while himself deriving no gain and even possibly incurring losses."
- Fourth law. "Non-stupid people always underestimate the damaging power of stupid individuals. In particular non-stupid people constantly forget that at all times and places and under any circumstances to deal and/or associate with stupid people infallibly turns out to be a costly mistake."
- Fifth law. "A stupid person is the most dangerous type of person."

Hanlon's razor (Robert J. Hanlon)

- "Never attribute to malice that which is adequately explained by stupidity."

The expert law of expertise

- "For every expert, there is an equal and opposite expert."

Serge Lang's laws of sociodynamics (Lang, Serge (1998): *Challenges*, Springer, New York, p. 797)

- First law. "(a) The power structure does what they want, when they want; then they try to find reasons to justify it. (b) If this does not work, they do what they want, when they want, and then they stonewall."
- Second law. "An establishment will close ranks behind a member until a point is reached when closing ranks is about to bring down the entire establishment; then the establishment will jettison that member with the least action it deems necessary to preserve the establishment."
- Third law. "It's like the video games: one can't shoot fast enough."

Murphy's laws (Koch, Richard (2013): *The 80-20 Principle and 92 Other Power Laws of Nature*)

- "Left to themselves, things go from bad to worse."
- "If anything can go wrong, it will."
- "If several things can go wrong, the one that will cause the most damage will go wrong first."
- "If anything just cannot go wrong, it will anyway."
- "The probability of anything happening is proportional to the damage it will cause."

The Dilbert principle (Scott Adams)

- "Leadership is nature's way of removing morons from the productive flow."

Sunday February 05, 1995



<http://dilbert.com/strip/1995-02-05>

The Dunning–Kruger effect (David Dunning and Justin Kruger)

- “People tend to regard themselves as more competent or capable than they actually are.”

The social entropy principle

- “If something seems to go well, it is because someone is bearing the cost of the good performance (without enjoying much of the benefit).”

The Red Queen effect

- “Constant effort is required to just maintain success.” (The natural condition of the social world is entropy growth, not equilibrium.)

7. Exit, voice and loyalty

“The performance of a firm or an organization is assumed to be subject to deterioration (...) Management then finds out about its failings via two alternative routes:

(1) Some customers stop buying the firm's products or some members leave the organization: this is the exit option. As a result, revenues drop, membership declines, and management is impelled to search for ways and means to correct whatever faults have led to exit.

(2) The firm's customers or the organization's members express their dissatisfaction directly to management or to some other authority to which management is subordinate or through general protest addressed to anyone who cares to listen: this is the voice option. As a result, management once again engages in a search for the causes and possible cures of customers' and members' dissatisfaction.” Hirschman (1970, pp. 3-4)

“Every state-and indeed every organization-requires for its establishment and existence some limitations or ceilings on the extent of exit or of voice or of both. In other words, there are levels of exit (disintegration) and voice (disruption) beyond which it is impossible for an organization to exist as an organization. At the same time, an organization needs minimal or floor levels of exit and voice in order to receive the necessary feedback about its performance. Every organization thus navigates between the Scylla of disintegration-disruption and the Charybdis of deterioration due to lack of feedback.” Hirschman (1980, p. 441)

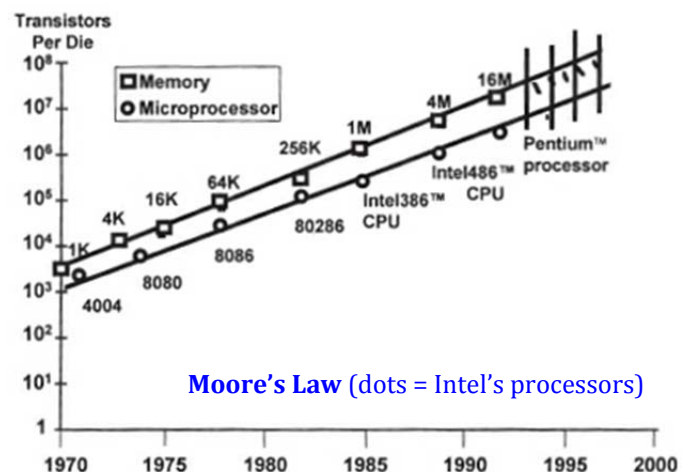
“The interaction of these three variables —suppression of exit, suppression of voice, and repression— can also be observed in other settings. One might even propose a theorem: a state can control only two out of these three variables. In Cuba, Fidel Castro chose to suppress voice and to limit the amount of repression: so he had to put up with an unexpectedly large loss of skilled manpower as hundreds of thousands of Cubans chose to emigrate. In Stalin's Russia, complete suppression of exit and voice yielded repression of a size and kind that surely had not been fully intended at the outset, while in post-Stalinist Russia, the decision to set limits to repression, combined with the continued strict controls on exit, has led to the voicing of considerably more dissent than the authorities had planned for.” Hirschman (1980, p. 444)

Hirschman, Albert O. (1970): *Exit, voice, and loyalty: Responses to decline in firms, organizations, and states*, Harvard University Press, Harvard, MA.

Hirschman, Albert O. (1980): “Exit, voice, and loyalty’: further reflections and a survey of recent contributions,” *Health and Society* 58(3), 430-453.

8. Moore's law (Gordon Moore, 1965)

“Moore's Law, the biennial doubling of computer chip performance that had accelerated the pace of innovation and become the metronome of the modern world (...) guaranteed that change would be so central to modern life that there would be precious little time left for nostalgia. When you are being chased by demons, your only chance of survival is to keep racing forward as fast as you can; looking back can only scare you. Worse, as Moore's Law had been warning for a half century now, it wasn't even enough just to go fast. Rather, you had to go faster and faster, progressing at a pace humanity had never before known, just to keep up (...) And



through Intel's products and commitment to Moore's Law, they [Gordon Moore and Andy Grove] had made possible the consumer electronics revolution that now defined the lives of three billion people, with millions more joining every day. Humanity was now richer, healthier, smarter, and more interconnected than ever before because of what they achieved." (Malone, 2014)

"Moore's Law is the product of human imagination. The phrase Moore's Law is known around the world as a technical observation, one that describes the development of digital electronics and computing (...) In April 1965 (...) Moore described how the chemical printing of microchips was open ended. If investment was made, technology would advance, and such investment would reward microchip makers handsomely. It was a win-win situation. By shrinking transistors, and putting more of them into individual microchips, everything became better: as chips became both better and less expensive, use would spread. Moore presciently envisaged the world we know today, 'such wonders as home computers, automatic controls for automobiles, and personal portable communications equipment.' (...) Since 1959 (...) the number of transistors on a chip had doubled each year, so that microchips now incorporated more than 50 transistors each. Moore predicted this dynamic would continue for the coming decade. By investing in chemical printing technology, doubling transistor counts each year, and shrinking cost (...) manufacturers would in 1975 be making microchips containing not 50 but 65,000 transistors. This was the first formulation of Moore's Law, displaying its essence." (Thackray et al., 2015)

"By 1975 Moore was CEO of Intel, and microchips did contain 65,000 transistors (...) Moore predicted that in the decade ahead, with mechanisms to develop the technology becoming more expensive, the 'annual doubling law' would slow to a doubling every eighteen months. By 1985 microchips with 16 million transistors would represent the cheapest form of electronics. And so it went. Today, the transistor on a microchip has become the most manufactured object in all of history. Transistors now produced in a single year most likely exceed the proverbial grains of sand upon all the seashores of the world. The price of computing has fallen well over a millionfold, while the cost of electronics components has shrunk more than a billionfold." (Thackray et al., 2015)

"Microchip complexity has increased at a metronomic pace for the past six decades, as Moore's Law is everywhere observed. That 'law' is a social product, inspired by imagination, made possible through experience, and enforced through the cooperative and competitive efforts of the global semiconductor industry. The development of chemical printing and the design of complex microchips have required the investment of many billions of dollars and the coordinated effort of hundreds of thousands of people, through the organizing interventions of consortia, conferences, and 'technology road maps.' In the history of technology, the silicon transistor within the microchip ranks alongside the steam railroad, the automobile, and the airplane in its revolutionary impact." (Thackray et al., 2015)

"Moore's Law is unique: the deliberate human creation of an unusually regular pace of unusually rapid change. We take this for granted and enjoy it. But it will not last. 'All good exponentials come to an end,' observes Moore. He has long glimpsed the eventual emergence of fundamental barriers. On the technical side, it is impossible to print chemically a feature that is smaller than an atom (in 2015 some features of transistors on microchips are just tens of atoms thick). More significantly, Moore foresees disruption in the economic side of Moore's Law. The growing expense of ever more exacting manufacturing technology, in factories costing several billion dollars apiece, will erode economic incentives, slowing to a crawl the future career of the microchip." (Thackray et al., 2015)

Malone, Michael S. (2014): *The Intel trinity: How Robert Noyce, Gordon Moore, and Andy Grove built the world's most important company*, Harper Business, New York.

Thackray, Arnold; David C. Brock; Rachel Jones (2015): *Moore's law: The life of Gordon Moore, Silicon's Valley quiet revolutionary*, Basic Books, New York.

9. Moore's law of everything (Samuel Arbesman, 2013)

"... there are regularities in these changes in technological knowledge. It's not random and it's not erratic. There is a pattern, and it affects many of the facts that surround us, even ones that don't necessarily seem to deal with technology. The first example of this? Moore's Law."

"These technological doublings in the realm of science are actually the rule rather than the exception. For example, there is a Moore's Law of proteomics, the field that deals with large-scale data and analysis related

to proteins and their interactions within the cell. Here too there is a yearly doubling in technological capability when it comes to understanding the interactions of proteins (...) So while exponential growth is not a self-fulfilling proposition, there is feedback, which leads to a sort of technological imperative: As there is more technological or scientific knowledge on which to grow, new technologies increase the speed at which they grow.

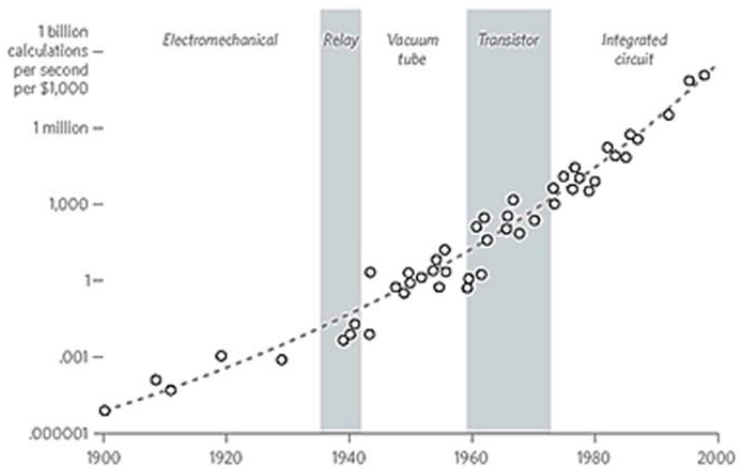
“These doublings have been occurring in many areas of technology well before Moore formulated his law. As noted earlier, this regularity just in the realm of computing power has held true as far back as the late nineteenth and early twentieth centuries, before Gordon Moore was even born. So while Moore gave a name to something that had been happening, the phenomenon he named didn’t actually create it. Why else might everything be adhering to these exponential curves and growing so rapidly? A likely answer is related to the idea of cumulative knowledge. Anything new—an idea, discovery, or technological breakthrough—must be built upon what is known already. This is generally how the world works. Scientific ideas build upon one another to allow for new scientific knowledge and technologies and are the basis for new breakthroughs. When it comes to technological and scientific growth, we can bootstrap what we have learned before toward the creation of new facts. We must gain a certain amount of knowledge in order to learn something new (...) We should imagine that the magnitude of technological growth is proportional to the amount of knowledge that has come before it. The more preexisting methods, ideas, or anything else that is essential for making a certain technology just a little bit better, the more potential for that technology to grow.”

Arbesman, Samuel (2013): *The half-life of facts : why everything we know has an expiration date*, Current, New York.

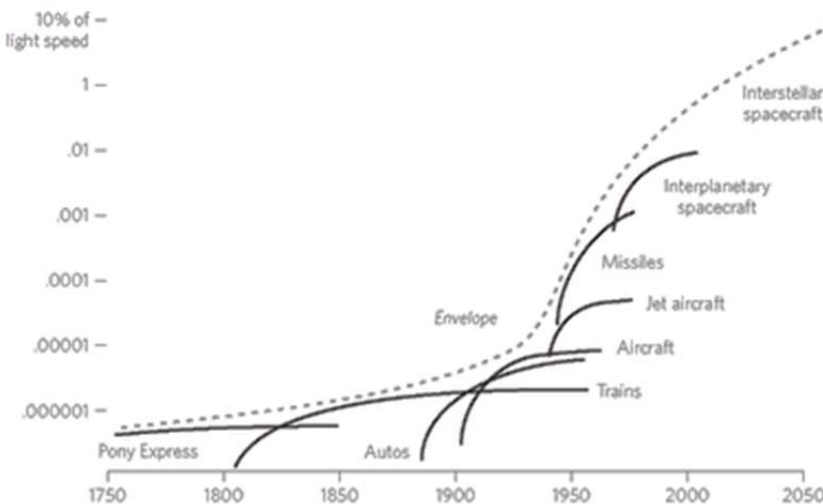
10. The paths of technology

“...we do have three types of evidence strongly suggesting that the paths of technologies are inevitable:

1. In all times we find that most inventions and discoveries have been made independently by more than one person.
2. In ancient times we find independent timelines of technology on different continents converging upon a set order.
3. In modern times we find sequences of improvement that are difficult to stop, derail, or alter.”



“Kurzweil’s Law. Ray Kurzweil translated earlier calculating methods into a uniform metric of computation to yield a steady foreshadowing of Moore’s Law”

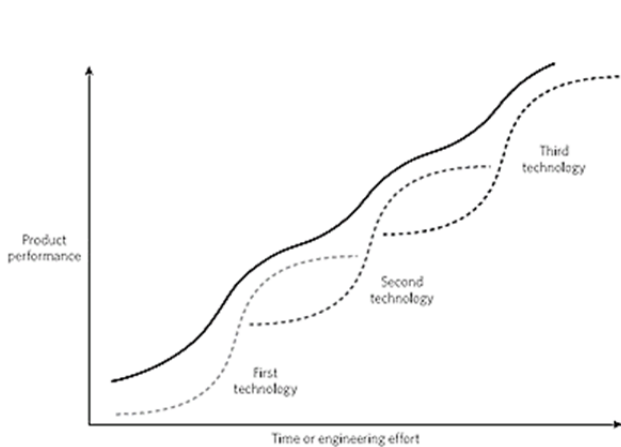


“Speed Trend Curve. The U.S. Air Force’s plot of historical speed records up to the 1950s and their expectations of the fastest speeds in the near future.”

“The kind of inevitability I am speaking of here in the digital realm is the result of momentum. The momentum of an ongoing technological shift. The strong tides that shaped digital technologies for the past 30 years will continue to expand and harden in the next 30 years. These apply to not just North America, but to the entire world (...) Change is inevitable (...) At the center of every significant

change in our lives today is a technology of some sort. Technology is humanity’s accelerant. Because of

technology everything we make is always in the process of becoming. Every kind of thing is becoming something else, while it churns from ‘might’ to ‘is.’ All is flux. Nothing is finished. Nothing is done. This never-ending change is the pivotal axis of the modern world.” Kelly (2016)



TECHNOLOGY	METRIC	MONTHS
Fiber-optic throughput	Wavelengths per fiber	9
Optical network	Dollars per bit	9
Wireless	Bits per second	10
Communication	Bits per dollar	12
Magnetic areal storage	Gigabits per square inch	12
Digital cameras	Pixels per dollar	12
Microprocessor	Dollars per cycle	13

Supercomputer power	FLOPS	14
RAM	Mebibytes per dollar	16
Transistor	Dollars per transistor	18
PCU power consumption	Watts per square centimeter	18
Pixels	Per array	19
Hard-drive storage	Gigabytes per dollar	20

Chip	MIPS	21
DNA sequencing	Dollars per base pair	22
Trunk-line data speed	Bits per second	22
Microprocessor	Transistors per chip	24
Chip processor	Megahertz per dollar	27
Bandwidth	Kilobits per second per dollar	30
Microprocessor	Hertz	36

“Compound S Curves. On this idealized chart, technological performance is measured on the vertical axis and time or engineering effort captured on the horizontal. A series of sub-S curves create an emergent larger-scale invariant slope.”

“Doubling Times. Performance ratios of various technologies measured as the number of months required to double their performance.”

Kelly, Kevin (2016): *The inevitable: Understanding the 12 technological forces that will shape our future*, Viking, New York.

Kelly, Kevin (2010): *What technology wants*, Viking, New York.

11. Technological complexity breeds vulnerability

“... we simply have no idea of the huge number of ways that these incredibly complex technologies can go wrong (...) Our technologies—from websites and trading systems to urban infrastructure, scientific models, and even the supply chains and logistics that power large businesses—have become hopelessly interconnected and overcomplicated (...) Computer hardware and software is much more complex than anything that came before it, with millions of lines of computer code in a single program and microchips that are engineered down to a microscopic scale. As computing has become embedded in everything from our automobiles and our telephones to our financial markets, technological complexity has eclipsed our ability to comprehend it.”

“Our technological realm has accelerated the metabolism of the Earth (...) We are of two minds about all this complexity. On the one hand, we built these incredibly complicated systems, and that’s something to be proud of. They might not work as expected all the time, but they are phenomenally intricate edifices. On the other hand, almost everything we do in the technological realm seems to lead us away from elegance and understandability, and toward impenetrable complexity and unexpectedness (...) there are certain trends and forces that overcomplicate our technologies and make them incomprehensible, no matter what we do. These forces mean that we will have more and more days like July 8, 2015, when the systems we think of as reliable come crashing down in inexplicable glitches.”

Arbesman, Samuel (2016): *Overcomplicated: Technology at the limits of comprehension*, Current, New York.

12. Two views of the financial world

The orthodox view of the financial markets holds that asset prices are determined by rational predictions of future fundamentals. In the heterodox view asset prices are driven by confidence (which makes prices more volatiles because confidence is more unstable than fundamentals).

- The Efficient Market Hypothesis (EMH). The EMH holds that the market price of an asset reflects the asset’s true value, so market prices are always ‘correct’. According to EMH, (i) changes in asset prices are caused by external shocks, like new information related to the asset and (ii) there do not exist asset price

bubbles nor asset price busts: sudden or intense asset price swings are merely the response by buyers and sellers of the assets to changes in the fundamental variables that determine the 'real' value of the asset.

- The Financial Instability Hypothesis (FIH). The FIH contends that the financial sector is inherently unstable because forces endogenous to the sector generate cycles of credit expansion/asset inflation and credit contraction/asset deflation.

The EMH and the FIH are both theories of what makes financial prices move. The EMH claims that market forces lead the market to an equilibrium state. This state is stationary in the sense that the market will not be pushed to another (stationary, equilibrium) state unless some unexpected external event (a 'shock') hits the market. The FIH asserts that the dynamics of financial markets is naturally unstable: left by themselves such markets show no tendency to reach stationary states. Destabilizing forces prevent financial markets from achieving efficient states and producing optimal outcomes.

For the FIH to be true, it is necessary to identify built-in destabilizing mechanisms. In a typical debt market, institutions accept deposits, which are subsequently lent. To get high profits in this business it is in general associated with charging a high interest in loans. The basic strategy to obtain a high interest rate is to accept more risk by lending, for the longest period, to the least-reliable borrowers. But a high-risk lending strategy increases the risk of not being repaid, which in turn increases the probability of not returning the deposits and thereby destabilizing the market (because of a run on the institutions that accept deposits). The source of potential instability is the fact that achieving higher returns involves taking higher risks, which endangers the normal, stable operation of the market.

Bank runs seem to contradict the EMH: they are serious threats to the stability of the banking sector. Feedback processes (like speculative bubbles) have the potential of being inconsistent with the logic of the EMH. The EMH requires independence from the past: the transition from today's price of an asset to tomorrow's price must be essentially random. No immediate tendency of the evolution of the price should be predictable. By contrast, a feedback process is memory-driven: what has just happen affects in a very significant way what is going to happen next. For instance, if many people start withdrawing money from a bank, it is likely that additional clients will withdraw their funds, which in turn increases the likelihood of more future withdrawals. In view of this, a test to establish which of the two hypothesis is more accurate to describe the financial sector is how much memory possess the mechanisms at work in the financial sector: memoryless mechanisms tend to provide support to EMH; memory-driven mechanisms, to FIH

Cooper, George (2008): *The origin of financial crises: Central Banks, credit bubbles and the efficient market fallacy*, Harriman House, Hampshire, Great Britain.

13. Paradox of efficient markets

"... if you think a market is efficient—efficient enough that you can't really beat it for a profit—then it would be irrational for you to place any trades. In fact, efficient-market hypothesis is intrinsically somewhat self-defeating. If all investors believed the theory—that they can't make any money from trading since the stock market is unbeatable—there would be no one left to make trades and therefore no market at all."

Silver, Nate (2012): *The signal and the noise : why most predictions fail but some don't*, Penguin Press, New York.

14. Minsky moment

Named after the American economist Hyman Minsky (1919-1996), a Minsky moment is a situation where asset prices suffer a sudden and precipitous collapse as a result of an excessive speculation, financed by borrowed money, that forces speculators to start a major sell-off to pay back the loans.

Farmer, Roger E. A. (2010): *How the economy works*, Oxford UP, p. 92
https://en.wikipedia.org/wiki/Minsky_moment

The Wile E. Coyote moment as a metaphor for the Minsky moment

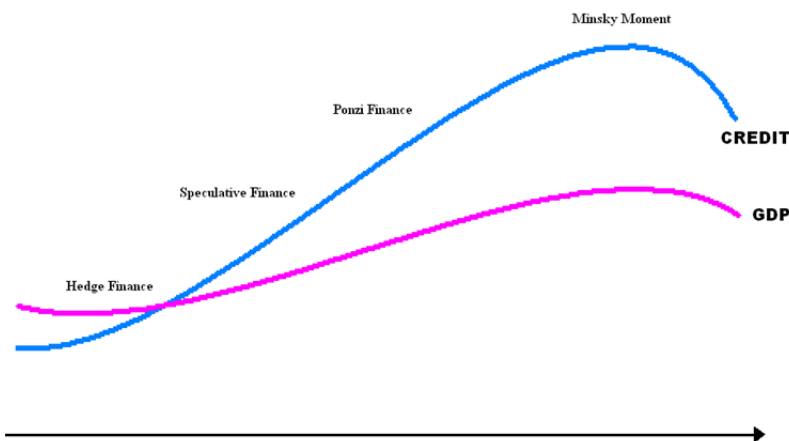
http://www.disneycharacters.net/data/media/7/Wile_E_Coyote_Fall_Cartoon_Image.jpg



“According to Minsky’s view, the natural state of an economic system is one of recurrent expansions and crashes that are characterized by credit crises. A Minsky moment is the point when the house of cards comes tumbling down and the economy moves from boom to crash.”

The NASDAQ Composite, 5 Feb 1971-29 Feb 2016

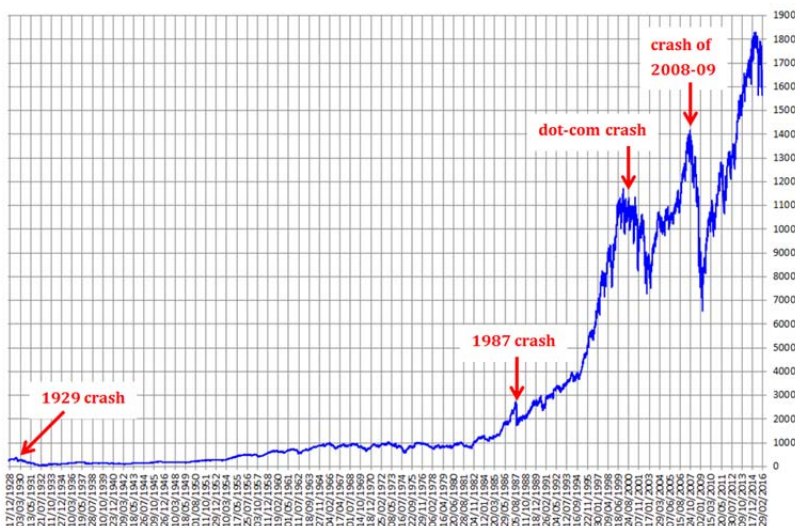
<http://finance.yahoo.com/q/hp?s=^IXIC&a=01&b=5&c=1971&d=02&e=1&f=2016&g=d>



Stylized representation of the Minsky cycle
https://en.wikipedia.org/wiki/File:Stylized_Minsky_Cycle.PNG

“A Minsky moment is a sudden major collapse of asset values which is part of the credit cycle or business cycle. Such moments occur because long periods of prosperity and increasing value of investments lead to increasing speculation using borrowed money. The spiraling debt incurred in financing speculative investments leads to cash flow problems for investors. The cash generated by their assets no longer is sufficient to pay off the debt they took on to acquire them. Losses on such speculative assets prompt lenders to call in their loans. This is likely to lead to a collapse of asset values. Meanwhile, the over-indebted investors are forced to sell even their less-speculative positions to make good on their loans. However, at this point no counterparty can be found to bid at the high asking prices previously quoted. This starts a major sell-off, leading to a sudden and precipitous collapse in market-clearing asset prices, a sharp drop in market liquidity, and a severe demand for cash.”

cash flow problems for investors. The cash generated by their assets no longer is sufficient to pay off the debt they took on to acquire them.



Dow Jones Industrial Average, 1 Oct 1928 -

29 Feb 2016 | <http://finance.yahoo.com/q/hp?s=^DJI&a=00&b=11&c=2010&d=01&e=29&f=2016&g=d&z=66&y=1254>

15. Machine | platform | crowd

“In March of 2015, strategist Tom Goodwin pointed out a pattern. “Uber, the world’s largest taxi company, owns no vehicles,” he wrote. “Facebook, the world’s most popular media owner, creates no content. Alibaba, the most valuable retailer, has no inventory. And Airbnb, the world’s largest accommodation provider, owns no real estate.” (...) The three examples we’ve just described—AlphaGo’s triumph over the best human Go players, the success of new companies like Facebook and Airbnb that have none of the traditional assets of their industries, and GE’s use of an online crowd to help it design and market a product that was well within its expertise—illustrate three great trends that are reshaping the business world.”

“The first trend consists of the rapidly increasing and expanding capabilities of machines, as exemplified by AlphaGo’s unexpected emergence as the world’s best Go player. The second is captured by Goodwin’s observations about the recent appearance of large and influential young companies that bear little resemblance to the established incumbents in their industries, yet are deeply disrupting them. These upstarts are platforms, and they are fearsome competitors. The third trend, epitomized by GE’s unconventional development process for its Opal ice maker, is the emergence of the crowd, our term for the startlingly large amount of human knowledge, expertise, and enthusiasm distributed all over the world and now available, and able to be focused, online.”

McAfee, Andrew; Erik Brynjolfsson (2017): *Machine, platform, crowd: Harnessing our digital future*, W. W. Norton & Company, New York.

16. The rise of the collaborative commons

“The capitalist era is passing... not quickly, but inevitably. A new economic paradigm—the Collaborative Commons is rising in its wake that will transform our way of life (...) The struggle between these two competing economic paradigms is going to be protracted and hard fought (...) While I suspect that capitalism will remain part of the social schema for at least the next half century or so, I doubt that it will be the dominant economic paradigm by the second half of the twenty-first century (...) the Collaborative Commons is ascendant and, by 2050, it will likely settle in as the primary arbiter of economic life in most of the world.”

“The Internet of Things will connect every thing with everyone in an integrated global network. People, machines, natural resources, production lines, logistics networks, consumption habits, recycling flows, and virtually every other aspect of economic and social life will be linked via sensors and software to the IoT platform, continually feeding Big Data to every node—businesses, homes, vehicles—moment to moment, in real time.”

“We are so used to thinking of the capitalist market and government as the only two means of organizing economic life that we overlook the other organizing model in our midst that we depend on daily to deliver a range of goods and services that neither market nor government provides. The Commons predates both the capitalist market and representative government and is the oldest form of institutionalized, self-managed activity in the world.

The contemporary Commons is where billions of people engage in the deeply social aspects of life. It is made up of literally millions of self-managed, mostly democratically run organizations, including charities, religious bodies, arts and cultural groups, educational foundations, amateur sports clubs, producer and consumer cooperatives, credit unions, health-care organizations, advocacy groups, condominium associations, and a near endless list of other formal and informal institutions that generate the social capital of society (...) The IoT is the technological ‘soul mate’ of an emerging Collaborative Commons.”

“The technology platforms of the First and Second Industrial Revolutions were designed to be centralized with top-down command and control. That’s because fossil fuels are only found in certain places and require centralized management to move them from underground to the final end users (...) The high up-front cost of establishing vertically integrated enterprises in the First and Second Industrial Revolutions required large amounts of investment capital (...) The emergence of the IoT infrastructure of the Third Industrial Revolution, with its open architecture and distributed features, allows social enterprises on the Collaborative Commons to break the monopoly hold of giant, vertically integrated companies operating in capitalist markets by enabling peer production in laterally scaled continental and global networks at near zero marginal cost.”

Rifkin, Jeremy (2014): *The zero marginal cost society: The internet of things, the collaborative commons, and the eclipse of capitalism*, Palgrave Macmillan, New York.

17. The four D’s behind the rise of national populism

“National populists prioritize the culture and interests of the nation, and promise to give voice to a people who feel that they have been neglected, even held in contempt, by distant and often corrupt elites. It is an ideology rooted in very deep and long-term currents that have been swirling beneath our democracies and gaining strength over many decades.”

“National populism revolves around a set of four deep-rooted societal changes (...) The first is the way in which the elitist nature of liberal democracy has promoted distrust of politicians and institutions and fuelled a sense among large numbers of citizens that they no longer have a voice in their national conversation. Liberal democracy always sought to minimize the participation of the masses (...)

The second is how immigration and hyper ethnic change are cultivating strong fears about the possible destruction of the national group’s historic identity and established ways of life. These fears are wrapped up in a belief that culturally liberal politicians, transnational organizations and global finance are eroding the nation by encouraging further mass immigration, while ‘politically correct’ agendas seek to silence any opposition (...)

The third is the way in which neoliberal globalized economics has stoked strong feelings of what psychologists call relative deprivation as a result of rising inequalities of income and wealth in the West and a loss of faith in a better future (...) This means they are very fearful about the future and what lies ahead for themselves and their children. This profound sense of loss is intimately entwined with the way in which people think through issues like immigration and identity. Today there are millions of voters who are convinced that the past was better than the present and that the present, however bleak, is still better than the future (...)

National-populist leaders feed on this deep dissatisfaction, but their path into the mainstream has also been cleared by a fourth trend: the weakening bonds between the traditional mainstream parties and the people, or what we refer to as de-alignment. The classic era of liberal democracy was characterized by relatively stable politics, strong mainstream parties and loyal voters; we have seen it now come to an end. Many people are no longer strongly aligned to the mainstream. The bonds are breaking. This de-alignment is making political systems across the West far more volatile, fragmented and unpredictable than at any point in the history of mass democracy. Politics today feels more chaotic and less predictable than in the past because it is. This trend too was a long time coming, and it still has a long way to run.

Together, the ‘Four Ds’ have carved out considerable room for national populists, or what we call the ‘pool of potential’ – large numbers of people who feel that they no longer have a voice in politics, that rising immigration and rapid ethnic change threaten their national group, culture and ways of life, that the neoliberal economic system is leaving them behind relative to others in society, and who no longer identify with established politicians.”

Eatwell, Roger; Matthew Goodwin (2018): *National populism: The revolt against liberal democracy*, Pelican, UK.

18. The imperial mode of living

“By [imperial mode of living] we aim to understand both the persistence and, at the same time, crisis-deepening patterns of production and consumption that are based on an– in principle– unlimited appropriation of the resources and labour capacity of both the global North and the global South and of a disproportionate claim to global sinks (like forests and oceans in the case of CO₂).”

“We argue that the increase of productivity and material prosperity in the capitalist centres depends on a world resource system and international division of labour that favours the global North and is rendered invisible through the imperial mode of living, so that the domination and power relations it implies are normalized. Since the beginning of industrial capitalism, the imperial mode of living gained certain stability and hegemony at the cost of environmental destruction and the exploitation of labour. Societal relations as well as societal nature relations were stabilized (...) due to its environmentally and socially unsustainable character.

(...) Due to the imperial mode of living and its global spread, societies seem to be approaching the limits to capitalist nature. This does not necessarily mean that the imperial mode of living is leading into a great crash. The limits are not absolute (...) The authoritarian stabilization of the imperial mode of living is not the only strategy to cope with the multiple crises and to shift the limits to capitalist nature in an exclusive manner. Another one (...) is the selective ecological modernization of the imperial mode of living which may result in what can be called a green capitalism.”

Brand, Ulrich ; Markus Wissen (2018): *The limits to capitalist nature: Theorizing and overcoming the imperial mode of living*, Rowman & Littlefield, London.

19. Basic conceptions of global order (Andrew Hurrell, James Mayall)

- Minimalist. Global order relies on power and, occasionally, on convergence of interests.
- Pluralist. Global order is sustained by negotiated rules and common understandings that ultimately regulate the use of violence to resolve conflicts. In a narrower interpretation of the pluralist conception, the global order just involves a society of sovereign states, which accept principles of territorial integrity and non-interference.
- Solidarist (or cosmopolitan). Global order involves both states and non-state actors and requires a consensus (among them) on basic principles regarding global governance and on procedures to implement the principles. In a narrower interpretation of the solidarist conception, global order is predicated rather on a society of peoples than a society of states, whose activity may be subordinated to comply with humanitarian demands by the international community.

Foot, Rosemary; Andrew Walter (2011): *China, the United States, and global order*, Cambridge University Press, New York.

20. Basic issues in the current global order (Rosemary Foot and Andrew Walter, 2011)

- Use of force. The UN Charter provides norms to constrain the use of force. Article 2(4) makes an appeal to UN members to 'refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any state,' though Article 51 acknowledges a state's 'inherent right of individual or collective self- defence if an armed attack occurs against a Member of the United Nations.' The Charter also attributes the Security Council the function of maintaining international peace and security.

"While there have been many instances, especially during the Cold War, when US military actions gained the support of its major allies, America has been less successful in generating support in the post-Cold War era for its arguments in favour of a role for the preventive use of force."

- Macroeconomic policy surveillance. The International Monetary Fund has assumed the general surveillance function of the global economy, to in particular promote the stability of the international monetary system.

"Neither China nor the United States has been unambiguously committed to the international surveillance framework, but paradoxically it has become increasingly central to their bilateral relationship over the past decade. In marked contrast to China, the United States has been by some distance the most important norm and rule maker in this area of global ordering. But its position towards the surveillance framework has always been ambivalent, seeing its norms and rules as constraining the macroeconomic policies of other countries rather than itself."

- Non-proliferation of nuclear weapons. "The NNPN [Nuclear Non-Proliferation Norm] framework has been an emblematic part of global order in the period since 1945, and the challenge to its current status raises the spectre that we are on the verge of an era where several new states, and possibly non-state groupings, acquire such weaponry (...) The non-proliferation norm is under challenge, but for the time being it appears to have sufficient legitimacy and to be sufficiently embedded to retain some level of constraint over these two states and many other members of global society."
- Climate change (global norm of climate protection). "...the course of this global norm and its movement from creation to elaboration has been fraught with difficulty. While it is the case that we have a global norm on climate protection, it is far too optimistic to claim that it has been consolidated or has enough stability and legitimacy to ensure eventual success."
- Financial regulation. "The dilemmas posed by the emergence of cross-border capital flows and global financial firms since the 1960s are emblematic of the difficulties posed in a hybrid global order that had been predicated on national financial regulation and supervision. Financial globalization has been associated with periodic crises of growing frequency and with important cross-border dimensions, prompting efforts to coordinate regulatory approaches. The major developed countries dominated these efforts (...) By some measures, China's attitudes towards the core norms and associated rules and principles of the Basel framework have been remarkably convergent, whereas the United States has sometimes found it difficult to achieve full behavioural consistency even in areas where its influence on

the global framework has been close to decisive (...) The 2008-09 crisis was a major blow to the credibility and legitimacy of the Basel framework and to the US approach to financial regulation (...) Paradoxically, China emerged as a defender of the Basel framework and insisted that it is on track for implementation in spite of its own desperate efforts to maintain growth through an unprecedented expansion of bank lending.”

Foot, Rosemary; Andrew Walter (2011): *China, the United States, and global order*, Cambridge University Press, New York.

“I would give myself an A+.” —Donald Trump, April 2018

21. The American liberal order

Amitav Acharya (followed by Joseph S. Nye) claims that the liberal order: (i) “should be seen as an international order, but not the world order, of the post-World War II period”; (ii) “was largely limited to a group of like-minded states centered on the Atlantic littoral” and “did not include many large countries such as China, India, and the Soviet bloc states”; (iii) “was not so benign for many outside of it, especially in the developing world”; and (iv) that its hegemony is past.

“Until now, it was generally assumed that the main challenge to that order would come from external factors, especially from the rising powers led by China. Now, the liberal order is imploding as well. Trump's victory, and Brexit, suggest that the challenge to the liberal international order is from within (...) A key argument of this edition is that the decline of the AWO [American World Order] cannot be reversed by Trump, no matter what course he takes as US President (...) If Trump faithfully carries out his ‘America-first’ policies to their logical conclusion (which is by no means certain), and weakens the US alliances and global institutions that have been foundational to the liberal order, it could well accelerate the end of that order. The nature of his policy platform is such that its success could come only at the expense of the liberal order (...) The decline of the American World Order is rooted in multiple long-term structural factors that simply cannot be reversed either through American isolationism or American internationalism.”

“... despite the Trump interlude (...) the era of liberal hegemony is past. The emerging world is not defined by the hegemony of any single nation or idea. This does not necessarily mean the United States is in decline. This is still arguable. But it is no longer in a position to create the rules and dominate the institutions of global governance and world order in the manner it has done for much of the post-World War II period. And any elements of the old liberal order that survive would have to accommodate new actors and approaches which do not play to America's commands and preferences. They would have to compete or enmesh with other ideas in a world of growing complexity and interconnectedness: a multiplex world (...) While the liberal order is imploding in the West, China and India are likely to pursue globalization, albeit in a way different from the earlier Western-led globalization. China in particular is taking on a more assertive role in reshaping globalization and global governance.”

“While there are signs of growing conflict and violence in the world, these are not necessarily due to the decline of the American World Order (...) A multiplex world will not be free from conflicts and disorder. But absolute peace is illusory. The goal should be to achieve relative stability, preventing major power wars and genocide and managing regional conflicts to minimize human suffering. (...) A multiplex world presents both challenges and opportunities for global and regional cooperation. This would require the Western nations to shed their free-riding on the US and accept shared leadership with the rising and regional powers. It would require greater partnership between global and regional bodies, public, private and civil-society groups. This is a G-Plus World and requires a reformed system of global governance that accords genuine recognition to the voices and aspirations of the Rest. America and its Western allies must give up exclusive privileges in return for their trust and cooperation in order to make the system work.”

Acharya, Amitav (2018): *The end of American world order*, second edition, Polity, Cambridge, UK .

22. Is globalization prone to recurrently generate backlashes and collapses? (Harold James, 2009)

- “The phenomenon of globalization has today become a ubiquitous way of understanding the world, but people who used the concept as a tool of analysis failed to understand its volatility and instability.”
- “Globalization not only involves international movements of goods, people, and capital, but is also associated with transfers of ideas and shifts of technology, which affect and restructure our preferences. In consequence, globalization generates continuous uncertainty about values.”

- “Globalization is vulnerable to periodic financial catastrophes, which involve very sudden alterations of concepts of value. That is, our values themselves are reevaluated during such crises. During a crisis, unexpected and apparently random linkages become apparent. People begin to see in what complex ways the world has become interconnected.”
- “The perception of instability calls into question the sophisticated techniques devised for monetary management (...) In the uncertainty of globalization setbacks, the experience of the past becomes a powerful template for understanding the contemporary predicament (...) Today, we look back to the Great Depression of the late 1920s and 1930s as a model for what can go wrong when globalization breaks apart.”
- “Politics and economics are inextricably and inherently linked, and politics provides an alternative to market mechanisms for the management of globalization crises.”
- “When breakdowns occur, reconstruction is extremely difficult and involves a long and arduous effort for the rebuilding of social trust. Value renewal takes time.”

23. Globalization cycles: can the future of globalization be seen in its past? (Harold James, 2009)

- “Globalization is not only a process that occurs somewhere out there—in an objective and measurable world of trade and money. It also happens in our minds, and that part of globalization is often more difficult to manage. To understand both the process and our reactions to it, we need a historical grounding.”
- “All of these previous globalization episodes ended, almost always with wars that were accompanied by highly disruptive and contagious financial crises. Globalization is often thought to produce a universalization of peace, since only in a peaceful world can trade and an interchange of ideas really flourish. But in practice, a globalization of goods, capital, and people often leads to a globalization of violence.”
- “It is thus possible to speak of globalization cycles, with long periods of increased interchange of goods, and flows of people and capital. But then something happens. People feel there has been too much interaction; they draw back from the global setting and look instead for protected areas in which they can be safe from global threats and global devastation. The shock or trauma is often connected with financial collapse, especially the profound uncertainty that financial disaster brings.”

James, Harold (2009): *The creation and destruction of value: The globalization cycle*, Harvard University Press, Cambridge, MA.

24. Global power elites and the transnational capitalist class (Peter Phillips, 2018)

“[In 1956, C. Wright] Mills described the power elite as those ‘who decide whatever is decided’ of major consequence. Sixty-two years later, power elites have globalized and built institutions that facilitate the preservation and protection of capital investments everywhere in the world.”

“The Global Power Elite function as a nongovernmental network of similarly educated wealthy people with common interests of managing, facilitating, and protecting concentrated global wealth and insuring the continued growth of capital. Global Power Elites influence and use international institutions controlled by governmental authorities—namely, the World Bank, International Monetary Fund (IMF), NATO, World Trade Organization (WTO), G7, G20, and many others. These world governmental institutions receive instructions and recommendations for policy determinations from networks of nongovernmental Global Power Elite organizations and associations.”

“We name some 389 individuals in this book as the core of the policy planning nongovernmental networks that manage, facilitate, and protect the continued concentration of global capital. The Global Power Elites are the activist core of the Transnational Capitalist Class—1 percent of the world’s wealthy people—who serve the uniting function of providing ideological justifications for their shared interests and establishing the parameters of needed actions for implementation by transnational governmental organizations.”

“This concentration of protected wealth leads to a crisis of humanity, whereby poverty, war, starvation, mass alienation, media propaganda, and environmental devastation are reaching a species-level threat. We realize

that humankind is in danger of possible extinction and recognize that the Global Power Elites are probably the only ones capable of correcting this condition without major civil unrest, war, and chaos. This book is an effort to bring awareness of the importance of systemic change and redistribution of wealth, to readers as well as to the Global Power Elites themselves, in the hope that they can begin the process of saving humanity.”

Phillips, Peter (2018): *Giants: The global power elite*, Seven Stories Press, New York.

25. The engineers as the heroes of history

“...if there is any one progressive, consistent movement in human history, it is neither political, nor religious, nor aesthetic. Until recent centuries it was not even scientific. It is the growth of technology, under the guidance of the engineers.”

“Technology has progressed continuously from the time of the Agricultural Revolution 10,000 years ago, slowly and hesitantly at first, then with increasing sureness and speed. The sixteenth century marked the beginning of modern engineering because, from that time on, professional societies were formed, treatises on engineering subjects were printed in quantity, engineering schools sprang up, specialization within the profession began, and engineers began to take advantage of the brilliant scientific discoveries of the time. The Industrial Revolution, which started two centuries ago and is still going on, was a surge in the growth of technology. Barring nuclear war, the end of this fruition of engineering is nowhere in sight (...) Today, in technologically advanced lands, men live very similar lives in spite of geographical, religious, and political differences (...) These resemblances are the result of a common technology, and this technology is what many generations of engineers have built up, with the greatest skill and diligence of which human beings are capable, and handed down to us.”

de Camp, L. Sprague (1993): *The ancient engineers*, Barnes & Noble Books.

26. On two global forces: does trade make conflict (and war) less likely?

“Although there have been and still are critics of international trade who denounce it because it damages the environment, causes domestic unemployment, undermines local communities and cultures and exacerbates conditions of inequality – in other words, because of the many ways in which it is destructive – the association between international trade and conditions of stability, if not peace, has endured at the levels of government policy, in the work of international organizations and in academic analysis (...) We see trade as an inherently competitive endeavour in which participants vie to establish their dominance that is achieved by defeating or besting others. Our case studies also show that historically conflict has not stopped trade (...) Trade might or might not be the object of the war but trade can become essential to sustain a war effort. Rather than seeing a zero-sum dynamic defining the relationship between trade and conflict, we have found that there is a reciprocal transformative relationship. (...) Even if the expression of conflict has mostly shifted from physical violence to rhetorical disputes, the encounters remained highly conflictual. Commercial competition remains a cut-throat contest in which not all will thrive or survive. Neither has the shift from mercantilism to liberalism that demarcated commercial eras eradicated the connection between trade and war. Wars have been pursued in the name of free trade. There was also the specific commercial variant – trade war– that provoked anxiety throughout the twentieth century.”

“‘Make trade, not war’ is a classical motto that, depending on the times, finds more or less debatable theoretical and empirical support (...) Acceptance that trade relations are conflicting, essentially dynamic and oftentimes disaggregating will surely ease the task of all – academics, negotiators, businessmen, policymakers, social leaders – involved in the trade drama. The WTO exists exactly because trade is conflict; it will never lead us to a rosy garden of free, perpetually peaceful trade. Not at all; it will through considerable trouble and strife mend fences, try to impose close to ‘fairer practices’ in the swiftly changing trade flows and stand as one of the (fragile) barriers to more drastic approaches to conflict resolution. [By rejecting the view that trade makes conflict less likely] we shall be in better condition to face the myriad problems posed by trade relations, focusing in a more realistic manner on what should and may be changed.”

Coppolaro, Lucia; Francine McKenzie; eds. (2013): *A global history of trade and conflict since 1500*, Palgrave Macmillan, Basingstoke, UK.

27. Do regional trade agreements promote globalization (or economic liberalization)?

“RTAs are shaped by and in turn shape globalization. They are increasing in number, membership diversity, scope, and certainly importance and controversy. Whether RTAs facilitate economic liberalization or economic nationalism in the future and whether they promote a wider balance of societal interests than is currently the case remains to be seen. The interplay of economics and politics will continue to be the center of determining these future RTA, trade, and globalization trends.”

- What is beneficial at some scale (individual, national, regional) need not be so at larger (global) scale. “RTAs created in the name of economic liberalization may be individually rational but are collectively irrational in terms of efficiency.”
- “Economic nationalists, of course, are less interested in what is collectively rational than in other goals (...) For instance, states may seek a degree of economic autonomy at the expense of efficiency, or they may be concerned about their economic performance compared with that of a rival. Economic policymakers’ goals may be to protect employment in a given economic sector that is important to social stability or reelection.”
- “... economic liberals criticize RTAs because they may impede globalization, while globalization critics fear RTAs promote globalization altogether too much, or at least corporate-led consumption driven globalization that they fear harms the environment and fails to alleviate poverty. Globalization critics (...) point out that economic growth isn’t enough for economic development. For instance, a country that moves toward monocrop agriculture for export may be more efficient in its agricultural production but may also have more hunger than it had before export-oriented agriculture. Access to land and urban poverty are more important variables in alleviating hunger than marginal improvements in overall efficiency and are often sacrificed in the rush to increase exports.”
- “While economic globalization is not enough to guarantee economic development, neither is simply turning away from it. No country has successfully developed by shielding itself from the rest of the world. The question for both RTAs and globalization more generally is how to ensure that economic openness leads to development, not just overall economic growth.”

Lynch, David A. (2010): *Trade and globalization: An introduction to regional trade agreements*, Rowman & Littlefield Publishers, Lanham, Maryland

28. The long descent (John Michael Greer, 2008)

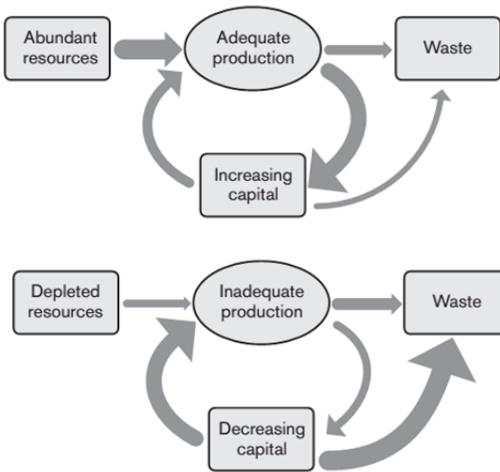
“This is the process I’ve named the Long Descent — the declining arc of industrial civilization’s trajectory through time. Like the vanished civilizations of the past, ours will likely face a gradual decline, punctuated by sudden crises and periods of partial recovery. The fall of a civilization is like tumbling down a slope, not like falling off a cliff. It’s not a single massive catastrophe, or even a series of lesser disasters, but a gradual slide down statistical curves that will ease modern industrial civilization into history’s dumpster.”

“At this point it’s almost certainly too late to manage a transition to sustainability on a global or national scale, even if the political will to attempt it existed — which it clearly does not. It’s not too late, though, for individuals, groups, and communities to make that transition themselves, and to do what they can to preserve essential cultural and practical knowledge for the future. The chance that today’s political and business interests will do anything useful in our present situation is small enough that it’s probably not worth considering. Our civilization is in the early stages of the same curve of decline and fall that so many others have followed before it, and the crises of the present — peak oil, global warming and the like — are the current versions of the historical patterns of ecological dysfunction. To judge by prior examples, we can’t count on the future to bring us a better and brighter world — or even a continuation of the status quo. Instead, what most likely lies in wait for us is a long, uneven decline into a new Dark Age from which, centuries from now, the civilizations of the future will gradually emerge.”

29. Catabolic collapse (John Michael Greer, 2008)

“The word “catabolism” comes from the Greek, by way of the life sciences. In today’s biology it refers to processes by which a living thing feeds on itself. One of the most striking features of the dead civilizations of the past is that they go through precisely this process as they move through the stages of decline and fall.”

“... civilizations are complex, expensive, fragile things. To keep one going, you have to maintain and replace a whole series of capital stocks: physical (such as buildings); human (such as trained workers); informational (such as agricultural knowledge); social (such as market systems); and more. If you can do this within the ‘monthly budget’ of resources provided by the natural world and the efforts of your labor force, your civilization can last a very long time. Over time, though, civilizations tend to build their capital stocks up to levels that can’t be maintained; each king (or industrial magnate) wants to build a bigger palace (or skyscraper) than the one before him, and so on. That puts a civilization into the same bind as the homeowner with the oversized house.”



“In a growing or stable society, the resource base is abundant enough that production can stay ahead of the maintenance costs of society’s capital – that is, the physical structures, trained people, information, and organizational systems that constitute the society. Capital used up in production or turned into waste can easily be replaced.”

“In a society in catabolic collapse, resources have become so depleted that not enough is available for production to meet the maintenance costs of capital. As production falters, more and more of society’s capital becomes waste, or is turned into raw material for production via salvage. If resource depletion can be stopped, the loss of capital brings maintenance costs back down below what production can meet, and the catabolic process ends;

if resource depletion continues, the catabolic process continues until all capital becomes waste.”

30. Four factors/horsemen of catabolic collapse

- Declining energy availability. “As oil depletion accelerates, and other resources such as uranium and Eurasian natural gas hit their own production peaks, the shortfall widens, and many lifestyles and business models that depend on cheap energy become nonviable.”
- Economic contraction. “Energy prices are already beginning to skyrocket as nations, regions, and individuals engage in bidding wars driven to extremes by rampant speculation. The global economy, which made economic sense only in the context of the politically driven low oil prices of the 1990s, will proceed to come apart at the seams, driving many import- and export-based industries onto the ropes, and setting off a wave of bankruptcies and business failures. Shortages of many consumer products will follow, including even such essentials as food and clothing. Soaring energy prices will have the same effect more directly in many areas of the domestic economy. Unemployment will likely climb to Great Depression levels, and poverty will become widespread even in what are now wealthy nations.”
- Collapsing public health. “As poverty rates spiral upward, shortages and energy costs impact the food supply chain; energy-intensive health care becomes unaffordable for all but the obscenely rich; global warming and ecosystem disruption drive the spread of tropical and emerging diseases; malnutrition and disease become major burdens. People begin to die of what were once minor, treatable conditions. Chronic illnesses such as diabetes become death sentences as the cost of health care climbs out of reach for most people. Death rates soar as rates of live birth slump, launching the first wave of population contraction.”
- Political turmoil. “What political scientists call ‘liberal democracy’ is really a system in which competing factions of the political class buy the loyalty of sectors of the electorate by handing out economic largesse. That system depends on abundant fossil fuels and the industrial economy they make possible. Many of today’s political institutions will not survive the end of cheap energy, and the changeover to new political arrangements will likely involve violence. International affairs face similar realignments as nations whose power and influence depend on access to abundant, cheap energy fall from their present positions of strength. Today’s supposedly ‘backward’ nations may well find that their less energy-dependent economies turn into a source of strength rather than weakness in world affairs. If history is any guide, these power shifts will work themselves out on the battlefield.”

Greer, John Michael (2008): *The long descent: A user's guide to the end of the industrial age*, New Society Publishers, Gabriola Island, Canada.

31. The most important lesson in history?

“...perhaps the most important lesson we can learn from history is that short-term solutions and quick profits come at a great price in the long run.”

Fawcett, Bill (2013): *Doomed to repeat: The lessons of history we've failed to learn*, William Morrow.

32. Lessons from the history of financial crises

- “The history of financial crises shows that there is a crisis somewhere in the world about every decade.”
- “Fiscal and financial crises have been increasingly linked together by the increased use of government guarantees of financial intermediaries.”
- “Government rescues to avoid the costs of old-fashioned banking panics have led to more virulent modern banking crises.”
- “There is a trade-off between the costs of financial crises that accompany financial development and growth and the moral hazard costs of insurance.”
- “Eliminating crises entirely is not desirable, but letting them burn out without intervention is also not ideal.”

Bordo, Michael D. (2018): “Reflections on the evolution of financial crises: Theory, history and empirics,” chapter 1 in Rockoff, Hugh; Isao Suto; eds. (2018): *Coping with financial crises: Some lessons from economic history*, Springer, Singapore.

33. Hallucinated wealth (John Michael Greer, 2008)

“It surprises me how many people still seem to think that the main business of a modern economy is the production and distribution of goods and services. Far and away the majority of economic activity nowadays consists of the production and exchange of IOUs. The United States has the world’s largest economy not because it produces more goods and services than anyone else — it hasn’t done that for decades — but because it produces more IOUs than anyone else, and it sells those IOUs to the rest of the world in exchange for goods and services.”

“The resulting IOU economy is highly unstable because hallucinated wealth has value only as long as people believe it does. The history of modern economics is thus a chronicle of booms and busts, as tidal shifts in opinion send various classes of IOUs zooming up in value and then crashing back down to Earth. Crashes, far from being signs of breakdown, are a necessary and normal part of the process. They serve the same role as laundry day did in the schoolroom IOU economy: by paring down the total number of IOUs, they maintain the fiction that the ones left still have value.”

34. The fallacy of metaphysical questions

“The fallacy of metaphysical questions is an attempt to resolve a nonempirical problem by empirical means (...) A prime example is the problem which is eternally popular among Civil War historians : ‘Was the War inevitable?’ A scholar who carries this question to the archives can illustrate his answer by reference to historical events; he can add persuasive power to his metaphysical proposition by the appearance of factual solidity. But he can no more hope to resolve the issue of inevitability by empirical research than he can hope to determine by modern methods of quantification the number of angels which might be made to perch upon the head of a proverbial pin.”

Fischer, David H. (1970): *Historians' fallacies: Toward a logic of historical thought*, Harper Perennial, New York.

35. The didactic fallacy

“The didactic fallacy is the attempt to “extract specific ‘lessons’ from history, and to apply them literally as policies to present problems, without regard for intervening changes.” (Fischer, 1970, p. 157)

36. The quantitative fallacy

“The quantitative fallacy (...) consists in the idea that the facts which count best count most. (...) [It is] a criterion of significance which assumes that facts are important in proportion to their susceptibility to quantification. There is an epigram, perhaps apocryphal, attributed to Lord Kelvin, that everything which exists, exists in quantity. Enthusiastic quantifiers have amended Lord Kelvin's statement to read, ‘Unless a thing can be measured quantitatively, it does not exist significantly.’ Therein lies a fallacy.” (Fischer, 1970, p. 90)

37. Graeber’s Iron Law of Liberalism (David Graeber, 2015)

“The Iron Law of Liberalism states that any market reform, any government initiative intended to reduce red tape and promote market forces will have the ultimate effect of increasing the total number of regulations, the total amount of paperwork, and the total number of bureaucrats the government employs.”

This law expresses a paradox: “...government policies intending to reduce government interference in the economy actually end up producing more regulations, more bureaucrats, and more police.”

Graeber, David (2015): *The utopia of rules: On technology, stupidity, and the secret joys of bureaucracy*, Melville House, Brooklyn, NY.

38. Why cars do not fly, yet?

A thesis and an antithesis by David Graeber (2015, p. 120) and a synthesis by J. S. Mill.

- “There appears to have been a profound shift, beginning in the 1970s, from investment in technologies associated with the possibility of alternative futures to investment technologies that furthered labor discipline and social control.”
- “Yet even those areas of science and technology that did receive massive funding have not seen the breakthroughs originally antedpated.”
- John Stuart Mill: “All the labor-saving machinery that has hitherto been invented has not lessened the toil of a single human being.”

39. We live in a deeply bureaucratic society (David Graeber, 2015)

“... we live in a deeply bureaucratic society. If we do not notice it, it is largely because bureaucratic practices and requirements have become so all-pervasive that we can barely see them— or worse, cannot imagine doing things any other way. Computers have played a crucial role in all of this. Just as the invention of new forms of industrial automation in the eighteenth and nineteenth centuries had the paradoxical effect of turning more and more of the world's population into full-time industrial workers, so has all the software designed to save us from administrative responsibilities in recent decades ultimately turned us all into part or full-time administrators.”

40. Trends causing labour abundance (Ryan Avent, 2016)

- Automation. “New technologies are replacing certain workers, from clerks to welders, and will replace more in the future, from drivers to paralegals. Machines are becoming defter and software is becoming cleverer, and these improvements are increasing the set of human tasks that can be cheaply automated.”
- Globalization. “It would have been nearly impossible for rich Western firms to manage the sprawling global supply chains that wrapped around the world over the last twenty years without powerful information technology (...) Global employment grew by over one billion jobs over the last generation, with most of the growth occurring in emerging economies. Workers there are, on the whole, less skilled than those in the rich world, and their incorporation into the global economy has been felt more keenly by workers in middle-skill manufacturing or back-office jobs than by white-collar professionals. That need not last; the developing world is home to millions of engineers, doctors, financial professionals and others who are just as capable of serving clients as their peers in America and Europe.”

- Rising productivity of some highly skilled workers. “...technology provides a massive boost to the productivity of some highly skilled workers, allowing them to do work which it might previously have taken many more people to accomplish. Technology enables small teams of money managers to run vast funds; it is increasingly allowing highly skilled instructors to build courses that can be taken and re-taken by millions of students, potentially replacing hundreds or even thousands of lecturers. New technology is allowing fewer doctors and nurses to observe and treat many more patients, fewer lawyers to pour through vastly more trial-related evidence, and fewer researchers to sift through massive amounts of data and test more hypotheses more quickly.”

41. Adjustments to labour abundance

“The economy, and society, will try to adjust. That adjustment will mean stagnating wages for many workers, rising inequality, and a tenuous and fading connection to the world of work for many others. Workers are unlikely to take these woes lying down. Something has to give. Either society will find ways to shore up work or develop substitutes for it, or workers will use the political system to undermine the forces disrupting their world.”

“What is missing from the conversation is a clear explanation of how rapid technological change is compatible with both rising employment globally and disappointing growth in wages and productivity. And while it may be correct (...) that a world of technological prosperity and plenty awaits us in the distant future, it is wrong (...) to characterize the digital revolution as something entirely different from anything that has come before (...) The digital revolution is very much like the industrial revolution. And the experience of the industrial revolution tells us that society must go through a period of wrenching political change before it can agree on a broadly acceptable social system for sharing the fruits of this new technological world.”

“It is unfortunate, but those groups that benefit most from the changing economy tend not to willingly share their riches; social change occurs when losing groups find ways to wield social and political power, to demand a better share. The question we ought to be worried about now is not simply what policies need to be adopted to make life better in this technological future, but how to manage the fierce social battle, only just beginning, that will determine who gets what and by what mechanism.”

“A makers-and-takers conception of the world is one that neglects the social foundation on which wealth is built. We aren’t merely divided into makers and takers. We are participants in societies, operating according to a broad social consensus. When that consensus breaks down, the wealth goes away. Society either agrees a way to share its riches that most members find acceptable, or the system fractures and the social wealth available to everyone shrinks.”

“Wealth has always been social (...) Wealth creation in rich economies is nurtured by a complex system of legal institutions (such as property rights and the courts that uphold them), economic networks (such as fast and efficient transportation and access to scientific communities and capital markets) and culture (such as conceptions of the ‘good life’, respect for the law, and the status accorded to those who work hard and become rich). No individual can take credit for this system; it was built and is maintained by society. The digital revolution is increasing the importance of social wealth.”

“... these two kinds of conflict –between individuals and society, and between society’s insiders and outsiders– create the fundamental tension presented by the digital revolution. To take full advantage of its promise, countries must become better at sharing social wealth. Yet the better countries become at sharing social wealth among members, the greater the pressure to shrink the circle of social membership.”

Avent, Ryan (2016): The wealth of humans: Work, power and status in the twenty-first century, St. Martin’s Press.

42. Does capitalism have a future?

“We are reluctant to call the ‘state,’ let alone ‘global state,’ the political structure of a better future. This is in fact the biggest unknown (...) Most of us doubt that existing international organizations add up to the prototype of such structures. The United Nations, the European Union, the IMF, Davos, G-8, G-20 (...) belong to the epoch of capitalist integration and American hegemony. At present these institutions are weakened or compromised by political manipulation and technocratic aloofness. Some of us, however, see the only solution to environmental crisis in a much stronger network of relations between states—a Super United

Nations. Others of us doubt that this political integration can be achieved fast enough, and it is not without its own worries (...) The changing structures and directions of future politics will surely deliver big surprises.”

“The coming decades will be anything but usual: that is, usual in the perspective of the last 500 years. The collective trajectory of humanity is taking a big turn, but not necessarily for the worse. (...) There is no reason to believe, on the basis of the accumulated understandings of sociology, that history will ever end, as long as there are human beings connected in social organization. The direst scenarios involving a world nuclear war or environmental collapse, fortunately, seem avoidable precisely because collective extinction has been widely regarded as a real danger for some decades now. The end of capitalism is not a catastrophe of that sort (...) Ultimately, the end of capitalism is a hopeful vision. Yes, it comes with its own dangers. We must remember how early twentieth-century attempts to foster anticapitalist alternatives in response to crisis developed totalitarian tendencies and ended in bureaucratic inertia. Nor should we forget how directly these anticapitalist projects arose from the state machineries and personnel constructed in the world wars. The crucial political vectors in the coming decades will have to be curbing militarism and institutionalizing democratic human rights around the planet.”

“Those who worry about postcapitalism ushering in a period of deadly stagnation are surely wrong. Those who hope that postcapitalism will deliver a lasting paradise without its own crises are likely wrong, too. After the crisis—and, some of us predict, the postcapitalist transition of the mid-21st century—there will be a great deal happening. Hopefully, much of it will be good. We shall see, and soon enough.”

Wallerstein, Immanuel Maurice; Randall Collins; Michael Mann; Georgi Derluguian; Craig Calhoun (2013): *Does capitalism have a future?*, Oxford University Press, New York.

43. The present civilization will fall as all others did previously

“Modern civilization believes that it commands the historical process with technological power. Allied to capitalist markets that foster continual innovation, this power will allow it to overcome the challenges I identify and thereby escape the common fate of all previous civilizations. No longer bound by the past, or so we think, our future is infinitely bright. The late futurist Herman Kahn, for example, claimed that by the year 2200, ‘humans would everywhere be rich, numerous, and in control of the forces of nature.’

I argue to the contrary that industrial civilization will yield to the ‘same passions’ that have produced the ‘same results’ in all previous times. There is simply no escape from our all-too-human nature. In the end, mastering the historical process would require human beings to master themselves, something they are very far from achieving. (This is why democracy, considered by some to be an asset in the struggle against the forces that challenge industrial civilization, is in fact a liability.) Commanding history would also require them to overcome all of the natural limits that have defeated previous civilizations. As will be shown, this is unlikely. Hence our civilization, too, will decline and fall. In fact, the process of decline is already well advanced.

“The essential reason is contained in Gibbon’s terse verdict on the decline and fall of Rome: immoderate greatness (...) In essence, immoderate greatness exemplifies what the ancient Greeks would have called hubris: ‘overbearing pride or presumption.’ Civilization is *Homo sapiens*’s bold attempt to rise above the natural state in which the species lived for almost all of its two hundred thousand years on Earth. Unfortunately, by its very nature, this effort to become greater encounters four implacable biophysical limits. It also sets in motion a seemingly inexorable moral and practical progression from original vigor and virtue to terminal lethargy and decadence.”

Opahls, William (2012): *Immoderate greatness: Why civilizations fail*, CreateSpace, North Charleston, SC.

44. The shifting baseline syndrome

“That’s what scientists call ‘Shifting Baseline Syndrome.’ Each generation accepts their version of nature, plunders it, then leaves the next generation to accept the depleted version and so on.’

Madame President S3 E16



Donald J. Trump 
@realDonaldTrump

The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive.

RETWEETS 8,415 FAVORITES 3,755

7:15 PM - 6 Nov 2012

45. Three concepts in Earth system science

“Earth system science arose in the 1990s and early 2000s as the planet began to be understood as a complex, evolving, unified system that was more than the sum of its parts. Crucial to the emergence of this new way of thinking was a dawning awareness about two fundamental elements of the way integrated Earth system functions support life. The first was that the Earth itself is a single system, within which the biosphere is an active and critical component. In other words, the presence of life itself on Earth is critical to the creation of the conditions that make this life possible. More than that, the system itself is created and sustained by biodiversity: the sum total of all the immensely variegated life on the planet. The second key realization was that human activities are now so pervasive and profound in their consequences that they affect Earth system function at a global scale ‘in complex, interactive and accelerating ways’.”

- Anthropocene: humanity has become a geological force that influences how the Earth system functions.
- Great acceleration: the massive impact of human activity on the Earth system after World War II.
- Planetary boundaries: limits within which planetary conditions remain sufficiently stable for humanity to live and operate safely, in the present and the foreseeable future.

Sandford, Robert William; Jon O’Riordan (2017): *The hard work of hope: Climate change in the age of Trump*, RMB, Canada.

46. Core principles of Trumponomics

- Put America first always. Globalism is rejected: no other nations’ interests above America’s or the Americans’ interests. “World government and multinational governing bodies are dangerous and misguided solutions.”
- Restore American patriotism. America is a special place, great and good. In Ronald Reagan’s words: “Divine providence put us here as a beacon of freedom for the rest of the world.”
- Reject government paternalism: “Empower Americans to make decisions for themselves.” Letting people choose and the forces of competition freely operate produces better results than regulations and government intervention.
- Rebuild America’s inner cities. “This means eradicating crime, violence, drug abuse, corruption, and joblessness.” “One of Trump’s big urban initiatives is the designation of 50 enterprise zones—mostly poor areas in inner cities—that will be targeted for lower capital gains taxes, regulatory relief, and the clearing of other barriers to development.”
- Protect borders: “Secure and protect our borders from drug runners, terrorists, illegal immigrants, and criminals.” “A nation without borders is not a nation.”
- Promote and support American business. “Liberals love jobs, but they hate job creators. As Trump likes to say: you can’t have one without the other.”
- Reject identity politics. The prevailing liberal mindset is that Americans are inherently divided by race, sexual orientation, ethnicity, and class and that there is a zero-sum game being played among all those divisions. No. We are one nation under God, indivisible. Everyone can be better off, and the gain of one person does not necessarily equal the infringement of another.”
- “Reject declinism and celebrate that America’s best days lie ahead. This means rejecting the limits to growth, secular stagnation, and the environmental doomsdayism (climate change) that animate the left today. Trumponomics is predicated on a faith in the future and a confidence that America can solve any problem through innovation, invention, technology, and a healthy dose of just plain American can-doism.”
- “America’s most valuable role in the global economy is to lead by example. Our most important gift to the world is to export the virtues of democratic capitalism and free enterprise. When we get it right, the rest of the world follows.”
- “The final and we would argue the most important principle of Trumponomics and restoring American prosperity is this: Growth is everything. Faster economic growth is a necessity if America is to fix its socioeconomic problems.”

Moore, Stephen; Arthur B. Laffer (2018): *Trumponomics: Inside the America first plan to revive our economy*, All Points Books, New York.

47. Policy measures of Trumponomics (Moore and Laffer, 2018)

- “Cut unnecessary regulations”
- “Improve American competitiveness by slashing tax rates and burdens”
- “Replace welfare with work”
- “Use America’s abundant natural resources”
- “Modernize America’s infrastructure”
- “Encourage twenty-first-century healthcare and education based on choice and competition”
- “Promote free and fair trade deals”
- “Reduce government spending”
- “Implement a pro-America immigration policy”



“We are frequently asked: Does the Trump trade doctrine risk a trade war? Our answer is always the same: hopefully not, but it could happen, to everyone’s detriment, if other nations don’t stand down and play by the rules they agreed to. Trump’s response (in a tweet, of course) to his critics is that “we’ve already been in a trade war for decades and we’re losing.” Other nations are clearly shirking on the trade laws, but it’s hard to see how “we’re losing” given that today our economy is the envy of the world.”

48. The psychological climate paradox

“We know that climate science facts are getting more solidly documented and disturbing year by year. We also know that most people either don’t believe in or do not act upon those facts. It forces the simple question: *Why?*”

Stoknes, Per Espen (2015): *What we think about when we try not to think about global warming: Toward a new psychology of climate action*, Chelsea Green Publishing, White River Junction, VT

49. The threat of nuclear annihilation

“The global population doesn’t realize just how little time exists for our leaders to make a decision about whether or not to use nuclear weapons even today (...) This creates a psychiatric issue: the real problem—the real pathology—in nuclear war planning is nuclear psychosis. In truth, the world is being run by many people who are either sociopaths—brilliant, charming, erudite, with no moral conscience—or others I would label as schizophrenics who suffer from a split between reality and perception of reality. These men have wired the world up like a ticking time bomb ready to explode at any minute. We are faced, therefore, with a fundamentally medical issue. Cyberwarfare has made the situation worse.” (Introduction)

Caldicott, Helen; ed. (2017): *Sleepwalking to Armageddon: The thread of nuclear annihilation*, The New Press, New York.

50. STUPID

“Nearly 13.8 billion years after our Big Bang, about five hundred years after inventing the printing press, we humans decided to build a contraption called the Spectacular Thermonuclear Unpredictable Population Incineration Device, abbreviated STUPID. It’s arguably the most costly device ever built on this beautiful spinning ball in space that we inhabit, but the cost hasn’t prevented many people from saying that building and maintaining it was a good idea. This may seem odd, given that essentially nobody on our ball wants STUPID to ever get used (...) My own guess is that the most likely way we’ll get a nuclear war going is by accident.”

Tegmark, Max (2017): “Nuclear weapons and artificial intelligence,” chapter 6 in Caldicott, Helen; ed. (2017): *Sleepwalking to Armageddon: The thread of nuclear annihilation*, The New Press, New York.

51. Yuval Noah Harari’s (2018) lessons for the 21st century

- **IDEOLOGY.** History has not ended. The fascist ideology was defeated in World War II. The communist ideology after the Cold War. The liberal ideology emerged apparently definitively triumphant. But since the 2008 global financial crisis, freedoms seem to be in retreat in many countries: new walls erected;

restrictions on trade and immigration applied; the independence of the judiciary system compromised; freedom of the press under attack; strongmen impose illiberal democracies or, even, autocracies; Brexit; Trump; internally non-democratic but externally liberal China has become an emergent hegemonic power... Will liberalism reemerge as the dominant ideology or will a new ideology (nihilism?) replace it?

- **WORK.** The rise of technological unemployment and of an economically useless class. Is technological development going to make having a job a luxury? Or will the current fears of massive unemployment become just another illustration of the Luddite fallacy, as in the long run automation will create more jobs than it destroys? Machines have initially displaced humans in activities involving physical abilities (manual jobs in agriculture and industry). Now, machines (artificial intelligence) are rivalling with humans in cognitive abilities (use of information). Is there another type of abilities (beyond the physical and the cognitive) in which machines will not be able to outperform humans (art, emotions, intuitions about other humans)? Is there an unhackable trait of humans? For if everything in a human can be replicated by a machine, what are the long run prospects of humanity?

“The AI revolution won’t be a single watershed event after which the job market will just settle into a new equilibrium. Rather, it will be a cascade of ever-bigger disruptions. Already today few employees expect to work in the same job for their entire life. By 2050, not just the idea of ‘a job for life’, but even the idea of ‘a profession for life’ might seem antediluvian.”

“The challenge posed to humankind in the twenty-first century by infotech and biotech is arguably much bigger than the challenge posed in the previous era by steam engines, railroads and electricity. And given the immense destructive power of our civilisation, we just cannot afford more failed models, world wars and bloody revolutions. This time around, the failed models might result in nuclear wars, genetically engineered monstrosities, and a complete breakdown of the biosphere. Consequently, we have to do better than we did in confronting the Industrial Revolution.”

“Potential solutions fall into three main categories: what to do in order to prevent jobs from being lost; what to do in order to create enough new jobs; and what to do if, despite our best efforts, job losses significantly outstrip job creation.”

“It is debatable whether it is better to provide people with universal basic income (the capitalist paradise) or universal basic services (the communist paradise).”

- **BIG DATA.** Help or control? A benign use of Big Data algorithms might empower people, helping them to make fast and easily what currently are difficult decisions. They could help people to discover what they really want and help them to obtain it efficiently. Alternatively, there are at least two dark scenarios.
 - (i) **Rise of the robots: the Terminator world.** AI entities created by humans could not remain obedient to humans and become free to develop their own agenda (which need not be beneficial to humans).
 - (ii) **Big Brother and digital dictatorship: the Orwellian world.** AI entities created by humans could actually be too obedient to humans. Unscrupulous governments might use too efficient killing machines and too powerful surveillance algorithms to monitor people all the time and impose an absolute control on all human activities. Computing power contributes to reduce the comparative advantage of democracies over dictatorships in data-processing: information processing and decision making need no longer to be distributed among many social and political agents. “AI might make centralised systems far more efficient than diffused systems.” And even if political systems manage to remain democratic under the AI impact, people may suffer from new forms of exploitation, oppression or discrimination: the Big Brother could develop in the private sector (banks and corporations could benefit far more from the AI revolution than the ordinary citizen).

Harari, Yuval Noah (2018): *21 lessons for the 21st century*, Jonathan Cape, London.

52. Dominant paradigms (world views, tacit set of beliefs, default interpretations) in the West

- ‘Markets’ are good: economies based on a system of markets produce efficient outcomes and are endowed with a self-correcting ability.
- Democracy is good: political systems based on a system of representative democracy produce efficient political outcomes and are endowed with a self-correcting ability.

- Capitalist growth is good: societies organized on the basis of a capitalist system that exploits fossil fuels and natural resources reach unlimited growth.
- Globalization is good: a global economy favouring free trade and global integration delivers a growing welfare.

Randers, Jorgen (2012): *2052: A global forecast for the next forty years*, Chelsea Green Publishing, White River Junction, VT.

53. Jorgen Randers' (2012) five big issues toward 2052

- The sustainability revolution. "The future world will not have an expanding population. It will still use much energy per person, but that energy will be used wisely and be of the renewable sort. In the end the world will run on energy from the sun (...) It will be a world that focuses on human well-being, not only on its material component. The big question is how fast the transition to sustainability will happen. The sustainability revolution has already begun, that is for sure."
- The end of capitalism? "Capitalism has done wonders for global wealth creation over the last centuries, and this system for allocation of human activity dominates the current world economy. Capitalism has successfully focused attention and capital on organizations that are able to provide goods and services to customers who are willing and able to pay. Whenever demand shifts, the capitalistic system reallocates, again and again, thereby contributing to a continuing restructuring and growth of the societal pie. But in the same process, uncontrolled capitalism concentrates wealth in fewer hands. So there is a growing group of critics who point to the inequitable distribution of success in the system. The defenders of capitalism have always responded that this is the task of the politicians. But since politicians, particularly in democratic societies, seem unable to tax and redistribute in a sufficient manner, capitalism normally ends with the blame. Employment is the main tool of distribution in the capitalist economy (...) But unemployment compensation is normally quite limited both in value and in the length of time it is available. This is why job loss is so much feared in all capitalist economies, and why capitalism comes under fire whenever unemployment rates increase."
- The end of economic growth? "Yes, economic growth can continue, but only as long as the accompanying ecological footprint remains within the carrying capacity of the globe. (...) Will humanity manage to limit its ecological footprint to fit within the carrying capacity of the planet? Or will we continue to allow overuse of natural resources and the pollution-absorption capacity of the global environment? As you will see later, current lifestyles require roughly the support of 1.4 planets. Humanity has overshoot. We see the result of the overshoot most clearly in the ongoing accumulation of CO₂ in the atmosphere (...) It will be physically impossible to lift the material standard of living of all nations to that of the current West (...). In summary, global average per capita resource consumption will never reach the level that Americans enjoyed around the year 2000."
- The end of slow democracy? "Democracy has many advantages and often yields solutions that are more sustainable than top-down decisions. But speed is not one of the characteristics of democratic decision making. So the way I see it, the fundamental question in this domain is whether democracy will agree on a stronger state (and faster decision making) before it is too late—before we run into the brick wall of self-reinforcing climate change, irreversible biodiversity loss, and insufficient investment in forward-looking research and development."
- The end of generational harmony? "Over the last hundred years or so we have gotten used to expecting that each generation enters the grown world in better shape. That means with better health, better education, more wealth, and better prospects (...) Today's young, particularly in the rich world, are facing a new situation. They are inheriting a significant burden of national debt from their parents; they have to beat their way into markets characterized by persistent unemployment; they can ill afford housing at the same level as their parents; and they are expected to pay for their parents' pensions. On top of this, the prospects for a quick resolution of these issues are grim. So the relevant question becomes: Will the younger generation calmly accept the burden bestowed on them by the older generation? Or will we get an aggressive and paralyzing confrontation between young and old, starting with confrontations with the baby boomers in the rich world?"

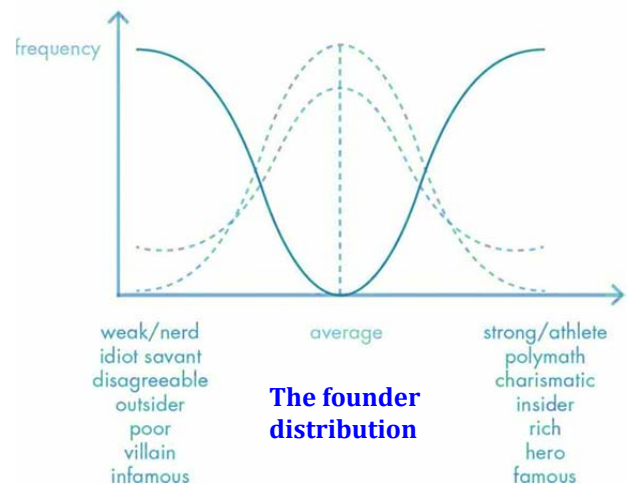
- The end of stable climate? The intergenerational issue (...) is most obvious in three areas: anthropogenic biodiversity destruction, climate change, and entombment of radioactive waste (...) The prime legacy issue in 2012 is humanity's big and growing emissions of greenhouse gases, which lead to global warming. The CO₂ is emitted as a gas into the atmosphere and quickly moves around the globe. It remains in the atmosphere for a long time while waiting to get absorbed in the ocean (as carbonic acid in the water) or in trees and plants (as plant material when they grow). Presently, very roughly one-quarter of the CO₂ flows into the ocean, one-quarter flows into new biomass, and one-half remains in the atmosphere. The long-run accumulated effect of these flows has been to lift the concentration of CO₂ in the atmosphere from 280 ppm in preindustrial times (circa 1750) to 390 ppm today (2010). The CO₂ flows also have increased the acidity of the oceans and created a more difficult life for shell-forming species. More CO₂ in the atmosphere accelerates plant and tree growth, but it also leads to higher temperatures on the surface of the earth. The global average temperature has increased by 0.7°C since preindustrial times (...) And if we are to keep the temperature rise below plus 2°C we must keep the concentration of CO₂ in the atmosphere below 450 ppm (...). The concentration is currently going up by 2 ppm per year."

54. Jorgen Randers' (2012) 'grocline'

"In the last third of the twenty-first century I believe the world economy will have entered into an era where the combination of individual growth and societal decline has become the norm. Per capita consumption will be growing year by year, just as in the good old days. And at the same time the total economy—the GDP—will be in constant decline. This could be called 'grocline'—simultaneous growth and decline. The grocline world is one where the individual situation improves while the total pie shrinks. It's good and bad at the same time—decade after decade.

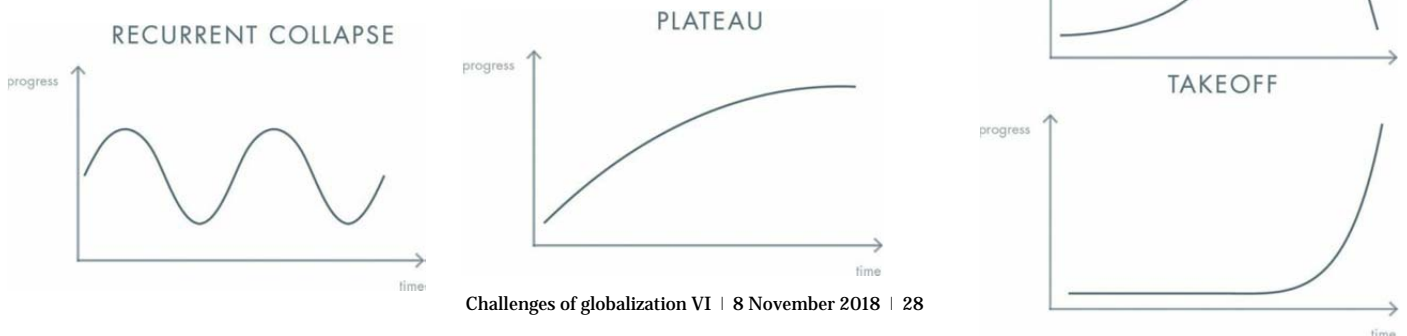
55. The founder's paradox

"Of the six people who started PayPal, four had built bombs in high school. Five were just 23 years old—or younger. Four of us had been born outside the United States. Three had escaped here from communist countries: Yu Pan from China, Luke Nosek from Poland, and Max Levchin from Soviet Ukraine (...) Are all founders unusual people? (...) Some people are strong, some are weak, some are geniuses, some are dullards—but most people are in the middle. Plot where everyone falls and you'll see a bell curve. Since so many founders seem to have extreme traits, you might guess that a plot showing only founders' traits would have fatter tails with more people at either end. But that doesn't capture the strangest thing about founders. Normally we expect opposite traits to be mutually exclusive: a normal person can't be both rich and poor at the same time, for instance. But it happens all the time to founders: startup CEOs can be cash poor but millionaires on paper. They may oscillate between sullen jerkiness and appealing charisma. Almost all successful entrepreneurs are simultaneously insiders and outsiders. And when they do succeed, they attract both fame and infamy. When you plot them out, founders' traits appear to follow an inverse normal distribution."



Thiel, Peter; Blake Masters (2014): *Zero to one: Notes on startups, or how to build the future*, Crown Business, New York.

56. Nick Bostrom's futures of humanity (in Thiel and Masters, 2014)



57. Tim Hardford's lessons of the history of technology

- “One: don't be dazzled by the fancy stuff.”
- “Two: humble inventions can change the world if they're cheap enough.”
- “Three: always ask, ‘To use this invention well, what else needs to change?’ ”

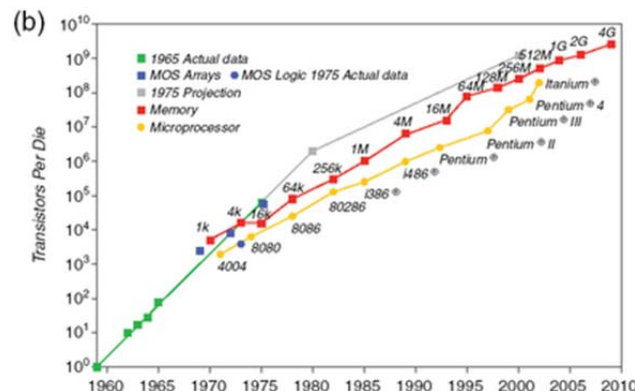
Hardford, Tim (2018): “What else needs to change?,” Opinion piece, WTO 2018 Trade Report.

58. Delays in problem-handling

- Time to realize the existence of the problem
- Time to identify the nature of the problem
- Time to accept the significance and relevance of the problem
- Time to find a solution to the problem
- Time to implement the solution
- Time for the problem to be solved



Mr. Happy wants to remind us that tragedy plus time equals comedy (Leo Cullum)



“Moore's law still working after nearly fifty years”

Hey, Tony; Gyuri Pápay (2015): *The computing universe*