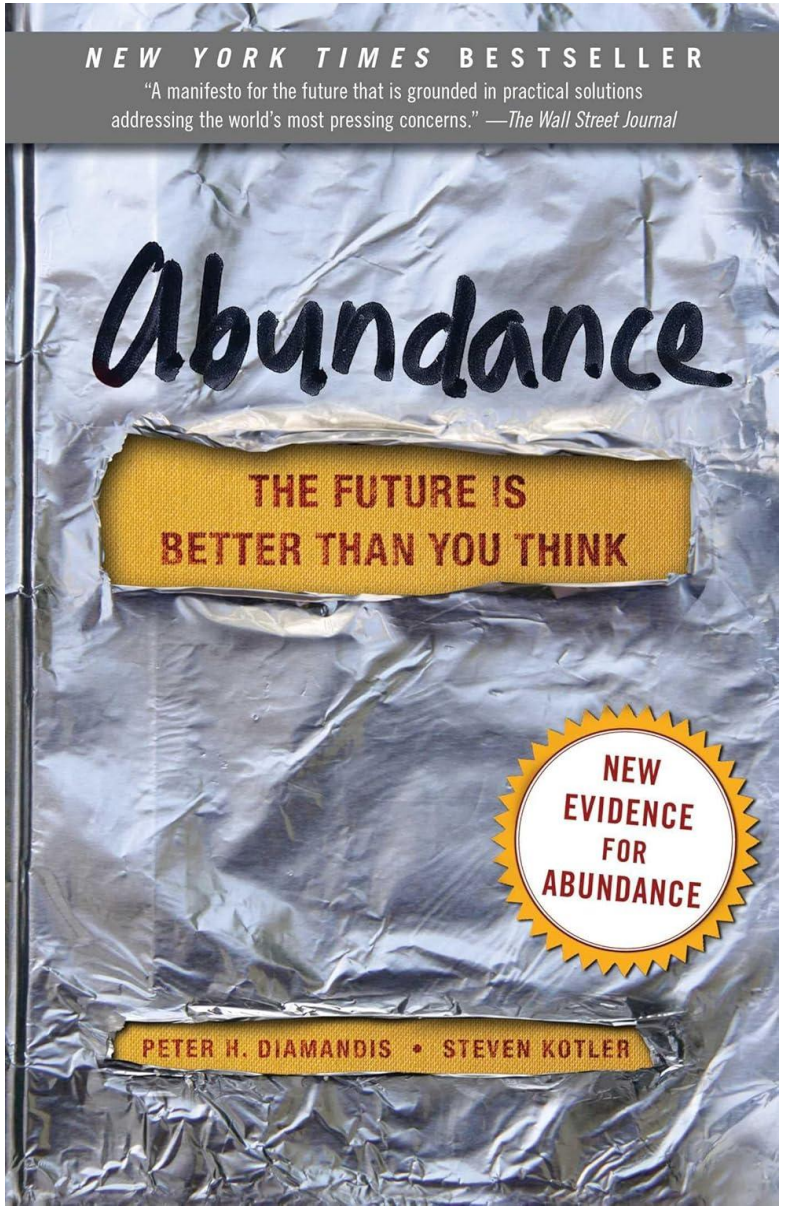
Abundance delayed – and how to accelerate it again

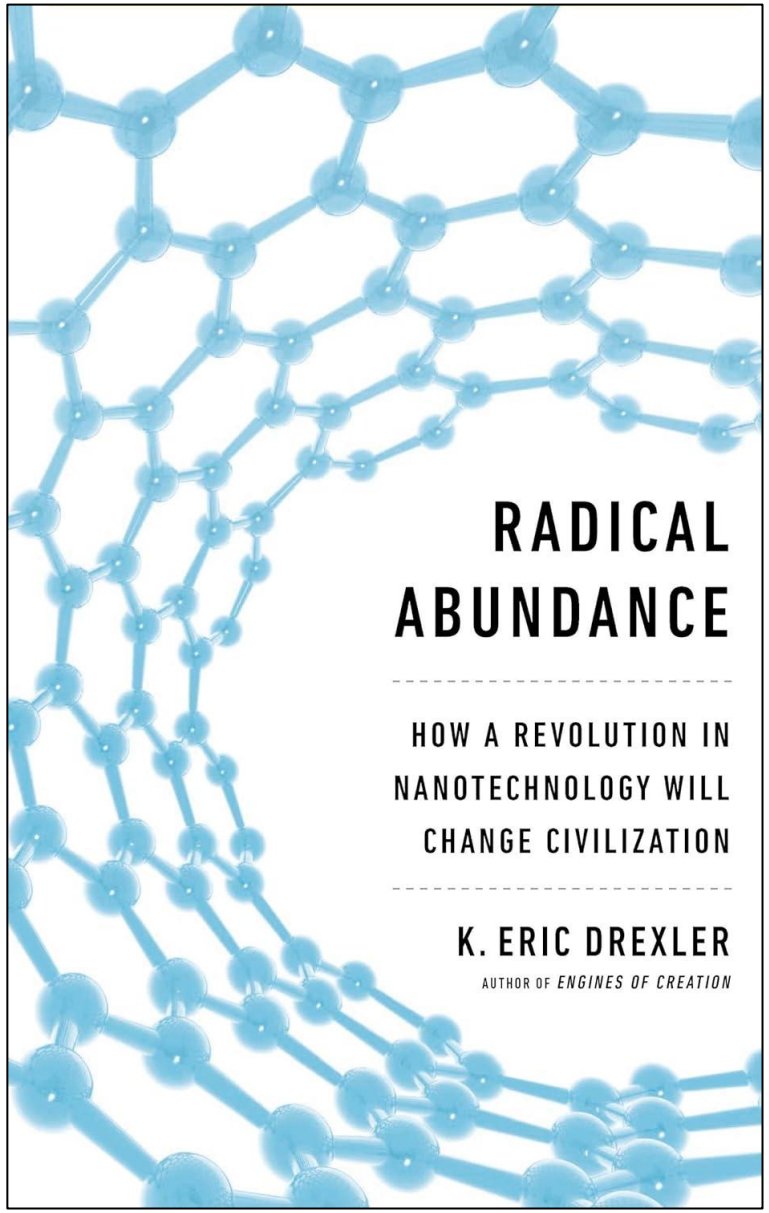
Fri, 16th May

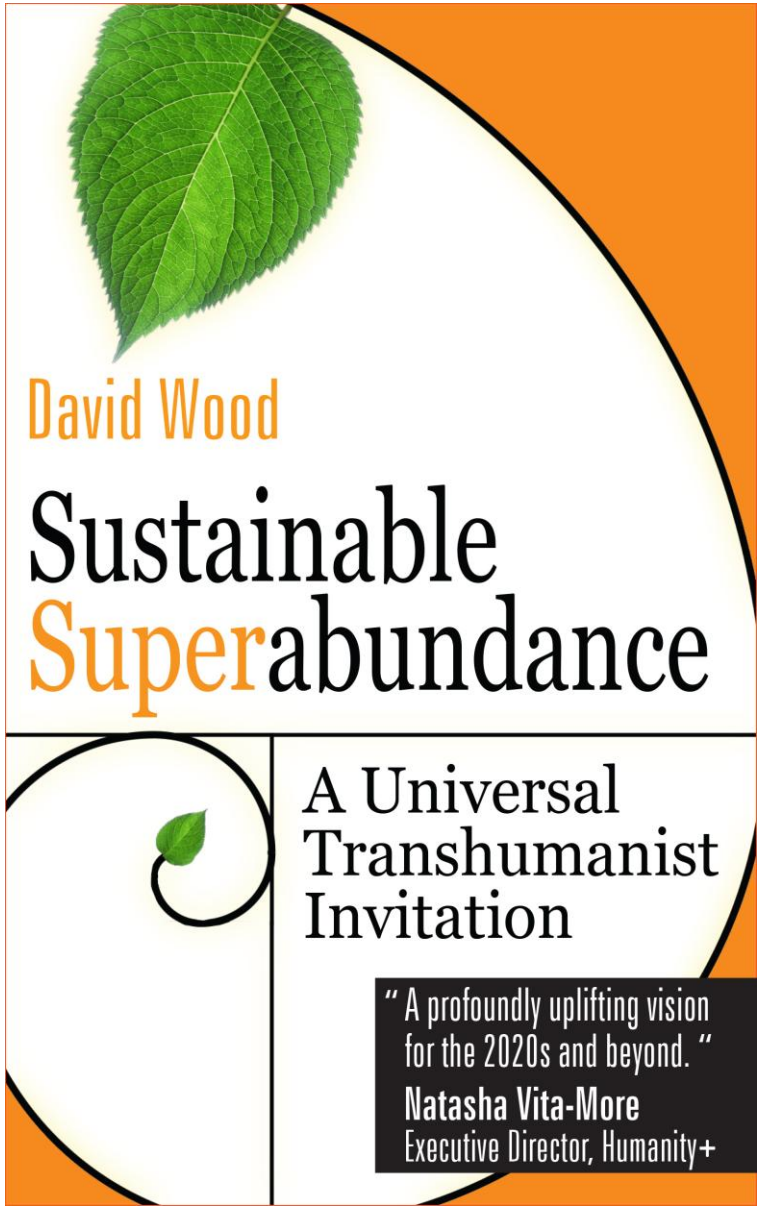
From 6pm

London Futurists in the Pub

A discussion of ideas arising from this book







Ezra Klein and Derek Thompson review what has been *stopping us* from reaching the abundance we expected

The Jetsons, 1963

“We wanted flying cars.

Instead we got

140 characters.”

Peter Thiel, 2013

Sustainable superabundance for all
>> by 2040 <<

H+

All boosted by AI

1. An abundance of **clean energy** (via greentech++)
2. An abundance of **healthy food** (via synthetic biotech++)
3. An abundance of **material goods and shelter** (via nanotech++)
4. An abundance of **affordable health** (via rejuvenation biotech++)
5. An abundance of **all-round intelligence** (via cognotech++)
6. An abundance of **time for creativity** (via automation tech++)
7. Ability to explore **external & internal space** (space tech & VR++)
8. An abundance of **collaboration & democracy** (via social tech++)

Provided we manage wisely the development of AI and NBIC

Potential cataclysmic disaster

NBIC technologies badly managed

1. A preponderance of **polluting energy** (no greentech++)
2. A preponderance of **malnutrition** (no synthetic biotech++)
3. A preponderance of **waste and biohazard** (no nanotech++)
4. A preponderance of **chronic disease** (no rejuvenation biotech++)
5. A preponderance of **unwise cleverness** (no cognotech++)
6. A preponderance of **soul-destroying toil** (no automation tech++)
7. A preponderance of **overcrowding** (no space tech or VR++)
8. A preponderance of **inequality & tribalism** (no social tech++)

Sustainable superabundance for all
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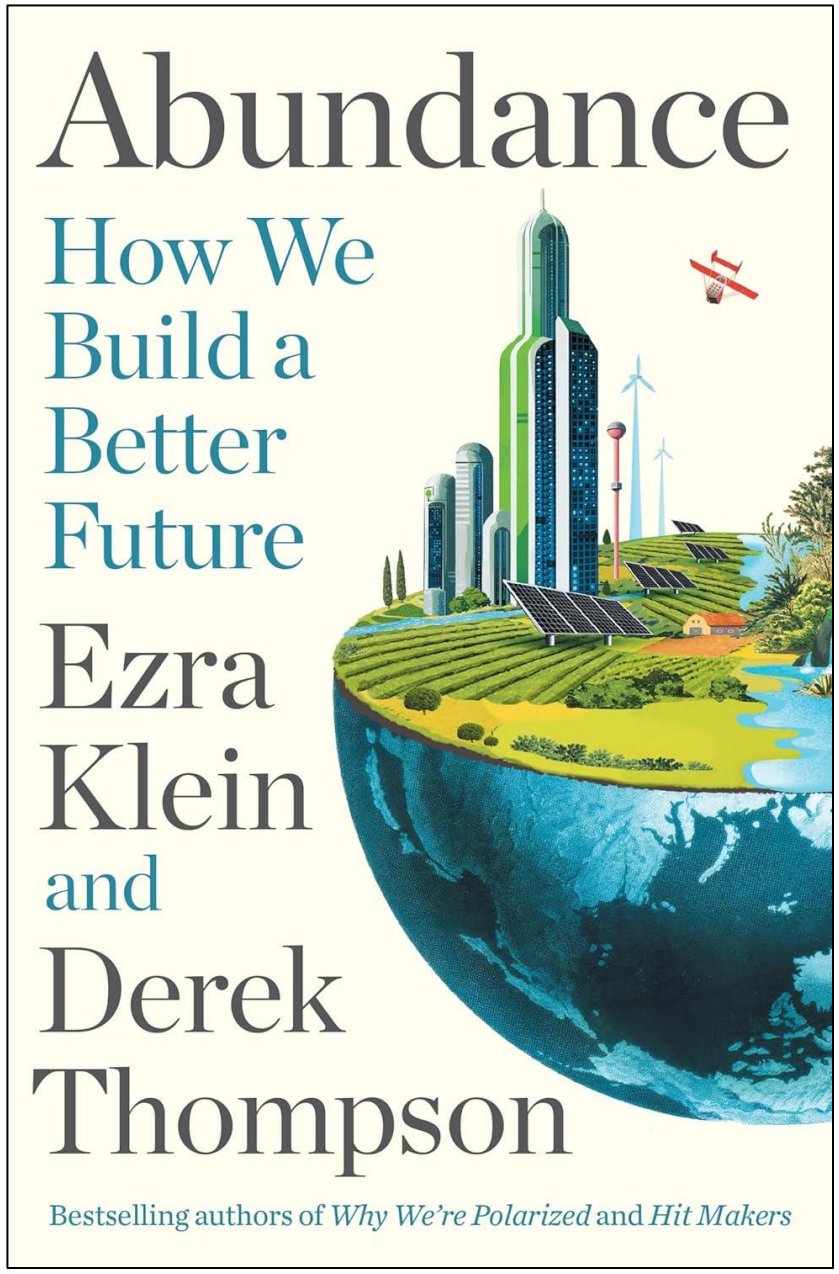
Institutions, markets, incentives, laws, politics, education



This book is dedicated to a simple idea:
to have the future we want,
we need to build and invent more of what we need.

Ezra Klein
New York Times

Derek Thompson
The Atlantic

Sluggish?

Supply-side

Deregulate production

Cut taxes for producers

Less government

Keep faith in the market

More needed here!

The economy:

Energy
Food
Housing
Transport
Education
Healthcare
Consumer goods

Demand-side

Housing vouchers

Childcare vouchers

Healthcare vouchers

Keep faith in the market

UBI?

But there are multiple ways in which our markets (and other institutions) fail us

Declining affordability

☑ Flat screen TVs
☑ Smartphones

☒ Housing
☒ Health
☒ Education

- **Median home price, US** (1950 to 2020)
  - 1950: 2.2 times average annual income
  - 2020: 6 times average annual income
- **Average premium for employer-based family health insurance** (1999 to 2023)
  - 1999: $5,791
  - 2023: $23,968

"We have a startling abundance of the goods that fill a house and a shortage of what's needed to build a good life."

- **Average annual costs of tuition fees** (1970 to 2023)
  - 1970: $394 (public colleges) and $1,706 (private colleges)
  - 2023: $11,310 (public) and $41,740 (private)

Three problems with abundance

1. The **wrong kind** of abundance
   – With adverse side-effects (health, environment…)
2. (Good) abundance **not shared**
   – High costs of housing, education, healthcare
   > Adversity, alienation, frustration, bad choices
3. (Good) abundance **not built**
   – There are things the free market can’t do by itself
   – Politics *should* help, but often makes things worse
   – Institutions *should* help, but often make things worse

Housing crisis (California as extreme case)

- **California: 12% of US population**
  - **30%** of the nation's homeless population
  - **50%** of the nation's unsheltered population
- **Explanations?**
  - Nice weather? (but compare Texas)
  - Prevalence of mental illness in California (not unduly high)
  - Poverty? Generosity of California's social services?
- **The availability and cost of housing!**
  - Since 2015, California has authorized construction on about half as many housing units as Texas, despite it now having 9 million more residents


When do we want it?
Now!
AFFORDABLE HOUSING
Where do we want it?
Not here!

Restrictions on construction

- **Environmental concerns**
  - An understandable bipartisan reaction to pollution from laissez-faire construction of the post-WW2 era
  - But planning applications take longer and longer
- **Zoning rules**
  - Intended to preserve the character of existing housing
  - Many people want to keep house prices high
  - Value from ownership rather than value from activity
- **Objectors ably used litigation to block new development**
  - “Democracy by lawsuit”
- **Rules to promote diversity and ease-of-access**
  - Further restrictions on construction activity

Restrictions on green energy

- **Progress has been encouraging by many metrics…**
  - Cost of solar energy dropped c. 90% from 2010-2020
  - Cost of wind energy dropped c. 70%
  - Cost of renewables almost always falls faster than forecast
- **But vast further changes are needed**
  - One billion machines need to be converted to use electricity
  - Enormous quantities of land needed for solar / wind farms
  - Upgrade of electrical grid lags far behind schedule needed
  - “The new Green Deal slowed by the old Green Laws”
- **Nuclear industry especially damaged by well-meaning concerns**
  - Knowledge of how to build at scale has been lost

Restrictions on mass transport?

- **California's High-Speed Railway?** (started by Jerry Brown, 1982)
  - Vision: Transport millions of passengers at up to 220 mph
  - High-Speed Rail Authority formed in 1996
  - 2008: Voters approved $33B to build first segment by 2020
  - Applauded by Barack Obama, 2009
  - Latest estimates: *some passengers* carried short distance by 2033
- **US used to lead the world in aspects of rail construction**
  - 1,800 miles of Transcontinental Railroad built in 6 years in 1860s
- **Other countries constructing lots of high-speed rail**
  - China built 23,000 miles whilst California failed to build 500 miles
  - France has TGV, Japan has bullet trains too
- **Comparative costs to build 1km of rail (US: $609M)**
  - Germany $384M, Canada $295M, Japan $267M, Portugal $96M

The obstacles

- **“Not technology but politics”**
  - “Not pouring concrete but negotiating”
  - Multiple owners of existing properties, existing infrastructure
  - Lots of legal mechanisms used to oppose and delay
  - “There are a million veto points. So many people can gum up the works.”
- **Loss of faith in collective ability**
  - “Delays are pervasive at every level of government—federal, state, and local. We got so good at stopping projects that we forgot how to build things in America.”
  - “People are losing trust and confidence in our ability to build big things. People look at me all the time and ask, ‘What the hell happened to the California of the ’50s and ’60s?’” – Gavin Newsom
  - California (and other red states) was the reason Trump won in 2024
  - “Empire State Building was completed in little over one year”

26 Jun 1930

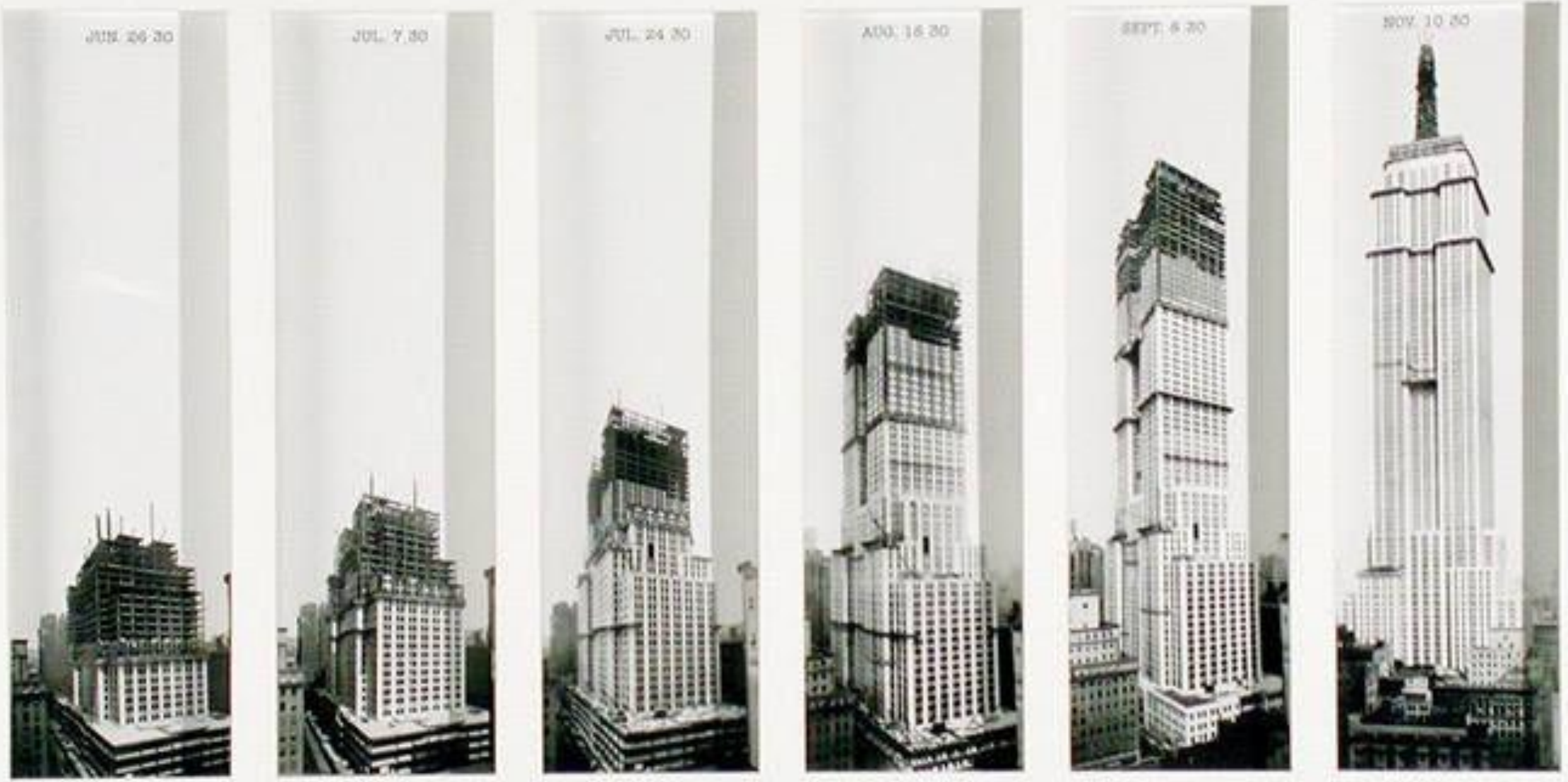
7 Jul 1930

24 Jul 1930

16 Aug 1930

8 Sep 1930

10 Nov 1930



Site acquired 1929. Construction started on March 17, 1930. Building opened on May 1, 1931

The diagnosis

Losing sight of the big picture

- **Process-focused rather than Outcome-focused**
  - Preoccupied not with “Is this good progress?” but with “Is this fair?”
  - Lots of effort (and auditing) needed to *prove* that you’re being fair
  - Also: proving that you’re not wasting money
- **Deep-seated American mistrust of big government**
  - America has twice as many lawyers per capita as Germany and four times as many as France
  - Lawyers are 1% of the population, but constitute more than 1/3 of House of Representatives, and more than 1/2 the Senate
  - Every Presidential and VP nominee of Democratic Party from Walter Mondale (1984) to Kamala Harris attended law school
- **Must highlight success stories of strong government action**
  - From overseas and inside the US


I-95 Bridge collapse,
Philadelphia, 11 June 2023

I-95 Bridge collapse, Philadelphia, 11 June 2023

- **"A crisis for a region"**
  - Critical traffic route between New York and Washington DC
  - Rebuilding expected to take many months
  - 12-24 months under normal approval & review processes
- **Governor Josh Shapiro had different ideas**
  - Declaration of emergency: exemption from many rules and requirements that normally slow down public projects
  - Engaged building contractor firms without bidding process
  - Calculated risks taken; teams worked 24x7 (union support)
  - **I-95 bridge re-opened after just 12 days**

Dramatically speeding up vaccine development

- **Fastest ever vaccine development, prior to 2020**
  - Three years, from lab to public
- **Covid-19 vaccines took just 10 months**
  - 10-20 million lives saved worldwide by vaccine in first year of usage
  - (Unvaxed seniors were dying at >10x rate of vaxed seniors)
- **"Whole of government urgency"**
  - Explored multiple scientific approaches
  - Innovative low temperature storage
  - Anticipated and managed distribution challenges
  - Government decided to underwrite costs of vaccines

Best bargain of all time?

Relentless focus: Keep sight of the big picture

"Deliver at least one safe and effective vaccine, manufactured and distributed at scale, before the end of the year"

Be pragmatic about the "how"

Anticipate and address potential bottlenecks

Relentless focus: Keep sight of the big picture

- **Human lives matter!**
  - Global war against Covid
  - Global war against cancer? / dementia?
  - Global war against aging?

Why is progress in these "wars" so slow?

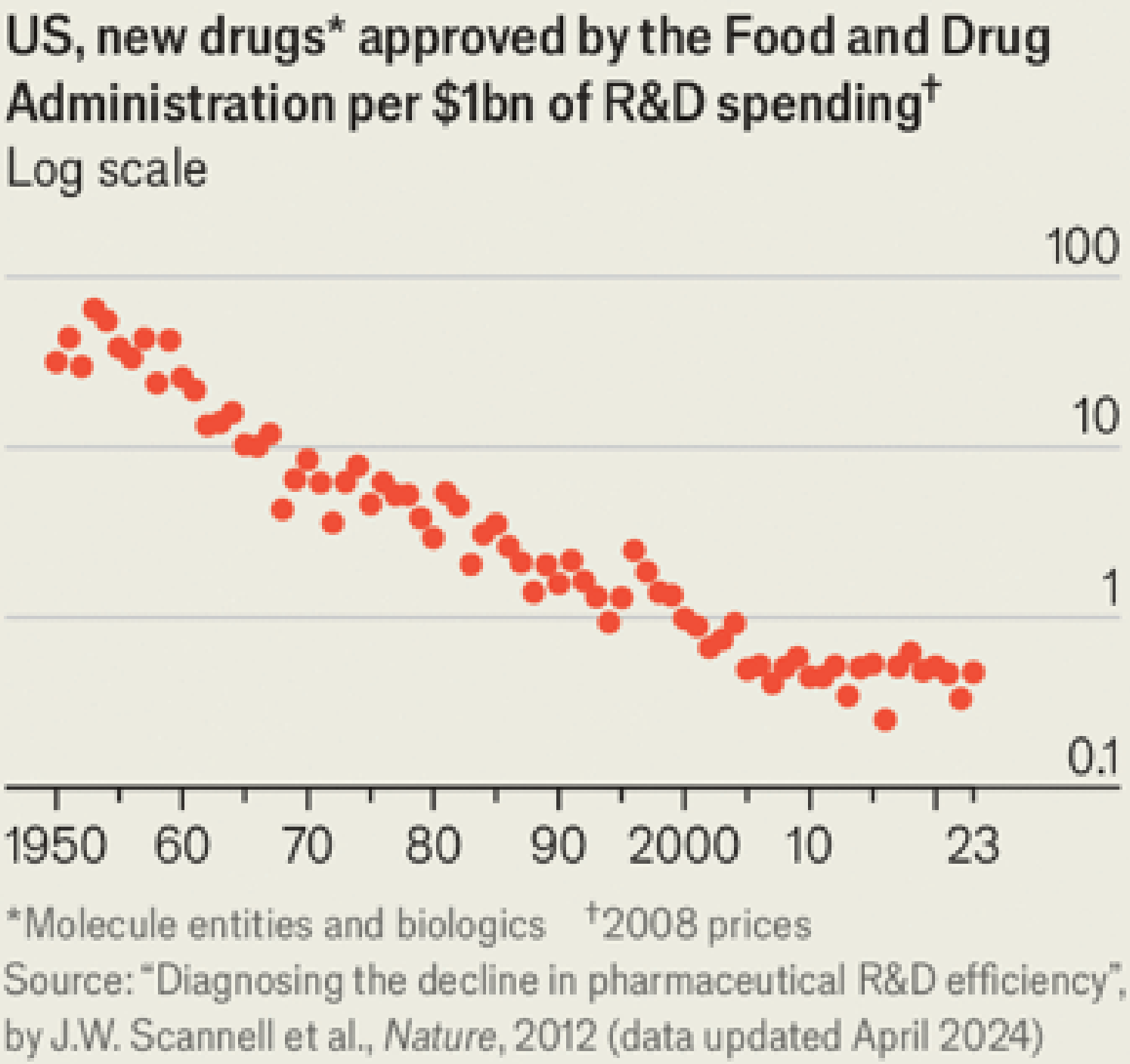
- **Look for two kinds of blockages**
  - Sometimes we don't **build** the (good) things that we already know how to build
  - Sometimes we don't know how to build them
  - In the second case, we need more **invention**
  - (Invention beyond the "Eureka", scaled to mass usefulness)
- **Both times, our institutions often get in the way**

Eroom's Law

(by Jack Scannell)

Number of drugs approved per US$B R&D spending, halves every 9 years since 1950

(Pace of progress in medicine is slowing down)



https://www.economist.com/business/2024/04/30/can-biotech-startups-upstage-eli-lilly-and-novo-nordisk

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Seven causes of the slow-down

1. Regulators are more cautious
2. Remaining diseases have complex causes
3. All low-hanging fruit has been picked
4. It takes more statistical effort to verify a treatment that has only marginal impact
5. The "throw money at it" tendency ("try, try, and try again")
6. Big Pharma not sharing info (so, failures are duplicated)
7. Extrapolation from mice cures to human cures often fails – unrealistic genetic models of human diseases

Scientists are too cautious

Looking at too few trees

Try something radically different

Institutions crippling innovation

- **Paperwork, paperwork, paperwork**
  - Lots of time spent in filling in multiple grant applications
  - And in writing reports showing there has been no waste
- **Publications, publications, publications**
  - Huge numbers of publications that have little real value
- **Prioritising safe incremental projects**
  - "Herd mentality": Close to what was "successful" before
- **Example of Katalin Karikó, pioneer of mRNA vaccines**
  - Grant proposals turned down numerous times over 20 years
  - Demoted: A lesser person would have given up…

Examples of good invention processes

- **Privately owned invention factories**
  - Thomas Edison's lab: made electric lights *useful at scale*
  - Bell Labs (transistor, laser, photovoltaic cell, Unix, C…)
    - Eleven Nobel Prizes and five Turing Awards
  - More coordination and support from government during and after WW2, and again after shock of Sputnik
- **Government-supported invention (e.g. DARPA)**
  - Smartphone technology: GPS, multi-touch, Internet, Voice Rec
  - Drones
  - Solar panels (for satellites at first)
  - Tesla and SpaceX received massive government funding

Yesterday's politics can block tomorrow's solutions

1. **Keep the end in mind:**
   - A sustainable superabundance is possible **>> by 2040 <<**
2. **Ask hard questions with an open mind**
   - Q: What is scarce today that ought to become abundant?
   - Q: What is hard to build today that should be easier to build?
3. **Solutions require scaling up and ecosystem support**
   - That doesn't happen automatically (penicillin, solar power…)
   - Need to plan what comes next after the "Eureka"
4. **Actions by state and other institutions have vital roles**
   - Patient investing in speculative breakthrough ideas
5. **Yesterday's institutions can block tomorrow's solutions**
   - Institutional innovation is a constant challenge
   - Be careful what we incentivize!

5 Takeaways

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It's time for a new political order

- **A "political order" transcends partisan divides**
  - Broadly supported by both wings of politics
- **New Deal (from 1930s and 1940s)**
  - Arose from the squalor of the Great Depression
  - Social-democratic collectivism – Welfare State in UK
- **Neoliberalism (from 1980s)**
  - Reactions to stagflation, Vietnam War
  - Celebrating individual contributions over collective action
- **Abundance (from late 2020s)?**
  - A much better alternative than scarcity politics ("me first") and degrowth ("small is beautiful")
  - Solve our problems with more supply and more invention