

DIAMANDIS

EVIDENCE OF ABUNDANCE

New charts and data compiled by Peter Diamandis proving the world is getting better - including positive news and technological breakthroughs from 2017 thus far.



004	INTRODUCTION
006	GLOBAL ECONOMY
008	HEALTH
012	ENVIRONMENT
014	HEALTH
016	ENERGY
018	FOOD
021	REFERENCES
022	ABOUT PETER DIAMANDIS

Your mindset matters –
now more than ever.

Rx PRESCRIPTION
**NEGATIVE
NEWS**

**CONSUME 24/7, CONTINUE DOSE UNTIL
YOU BELIEVE THERE IS NO HOPE.**

***WARNING* LINEAR THINKING MAY OCCUR.**

We are in the midst of a drug epidemic.

The drug? **Negative news.**

The drug pushers? **The media.**

As I wrote in [Abundance: The Future is Better Than You Think](#), we pay 10x more attention to negative news than positive news.

We are being barraged with negative news on every device. This constant onslaught distorts your perspective on the future, and inhibits your ability to make a positive impact.

In this blog, I'll share new "evidence for abundance" – charts and data that show the world is getting better. I'll also share positive news and technological breakthroughs, all of which occurred in 2017 so far.

Note: This isn't about ignoring or minimizing the major issues we still face around the world. It's about countering our romanticized views of the world in centuries past with data.

My hope is that you're able to see the world as it is — a world that is still getting better. My goal here is to help you protect your abundance mindset despite this barrage of negative news.

If you have a negative-minded person in your life, forward this blog to them so they can look at the actual data.

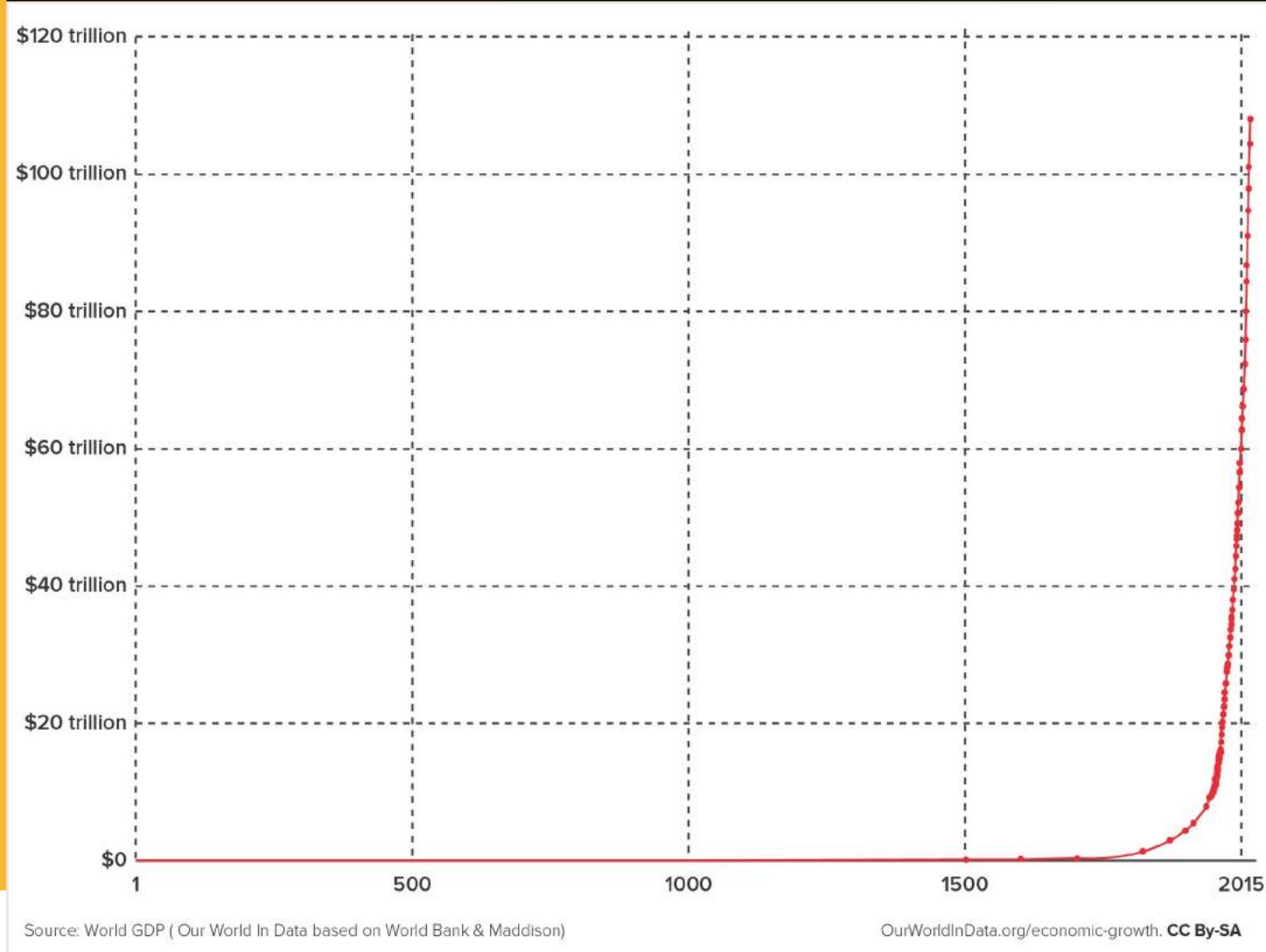
Let's dive in...

GLOBAL ECONOMY

The first area to explore is our global economy.

Over the last 200 years, the world's GDP has skyrocketed 100-fold. Humankind has never been more prosperous and productive.

World GDP Over the Last Two Millennia



The graph on the left depicts the economic output per person around the world over the last 2,000 years. Here we see exponential growth independent of war, famine or disease.

Technology drove much of this economic growth, and there's no sign of slowing.

BANKING THE UNBANKED One especially promising area of economic growth involves empowering the “unbanked” — the 2 billion people worldwide who lack access to a bank account or financial institution via a digital device. In September 2017, the government of Finland announced a partnership with MONI to create a digital money system for refugees.

The system effectively eliminates some of the logistical barriers to financial transactions, enabling displaced people to participate in the economy and rebuild their lives.

Refugees will be able to loan money to friends, receive paychecks and access funds using prepaid debit cards linked to digital identities on the blockchain -- without a bank.

BLOCKCHAIN & GOVERNMENT Governments are investing aggressively in digitization themselves. The small country of Estonia, for example, already has an e-Residency program. The digital citizenship lets residents get government services and even start companies in the EU without ever traveling or living there.

In late August 2017, Kaspar Korjus, who heads up that e-Residency program, revealed the Estonian government's exploration of creating an initial coin offering (ICO) and issuing crypto tokens to citizens to raise government funds.

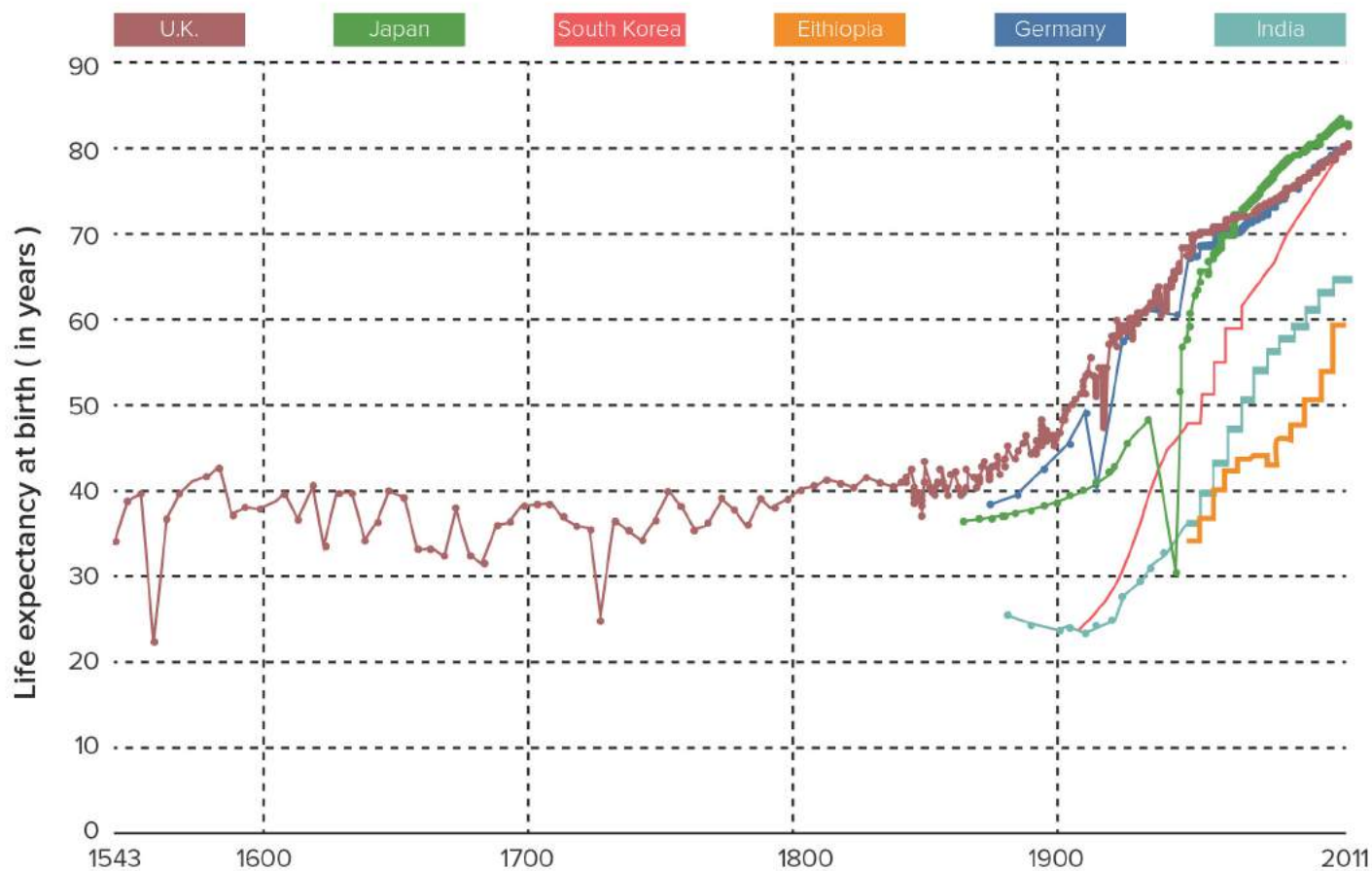
That same month, the Chinese government announced its intent to use blockchain technology for collecting taxes and issuing invoices. This builds on previous experiments China's central bank is conducting with its own cryptocurrency.

HEALTH

No matter where in the world you are, mortality rates have dropped precipitously over the last 300 years.

The following chart shows life expectancy at birth in various countries. Just 100 years ago, a child born in India or South Korea was only expected to live to 23. Fast forward to today, and India's life expectancy has tripled. South Korea's life expectancy has quadrupled, and now is higher than in the U.K.

Global Life Expectancy



Source: Clio Infra (life expectancy, both genders)
OurWorldInData.org/life-expectancy/. CC BY-SA

Shown is period life expectancy at birth. This corresponds to an estimate of the average number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.

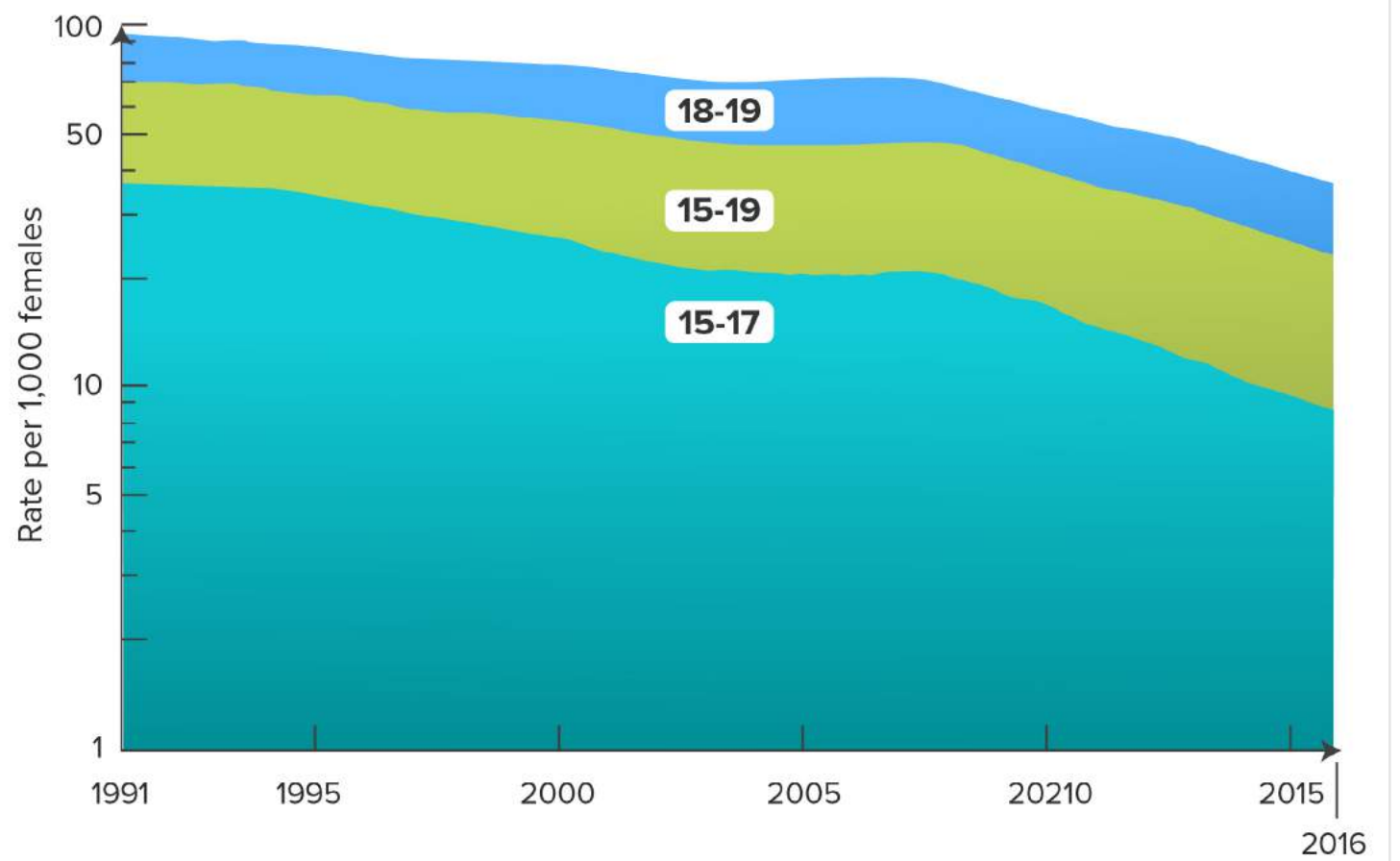
PLUMMETING TEEN BIRTHS Another measure of a nation's health is how it responds to preventable public health issues. Here in the U.S., teen births are down an impressive 51 percent over the last decade, going from 41.5 births per 1,000 teenage girls in 2007 to 20.3 births per 1,000 teenage girls in 2016.

I share the following graph because, by the numbers, teen girls who have babies will have a harder life than their peers who delay motherhood.

As the U.S. Department of Health & Human Services notes, they're more likely to drop out of high school, rely on public assistance, and have children with "poorer educational, behavioral and health outcomes over the course of their life than kids born to older parents."

Between 2007 and 2015, the teen birth rate (aged 15-19) dropped a staggering 51 percent. Since these statistics were first compiled in 1991, teen births have dropped 67 percent.

U.S. Birth Rates, by Age Group (1991-2015)



NOTE: Rates are plotted on a logarithmic scale.
SOURCE: NCHS, National Vital Statistics System

more HEALTH

As exponential technologies continue to advance, we'll see even more healthcare breakthroughs. Here's a sampling from this year:

EXPONENTIAL TECH IMPACT ON HEALTH Most exciting these days is the tremendous impact that exponential technologies are having on Health.

ROBOTICS Last month, a robot dentist in China successfully implanted 3D-printed teeth into a female patient's mouth with "high precision." The only human medical staff involvement was to conduct light setup and a pre-test. Imagine when such robots are in every healthcare facility on the planet, delivering service for the cost of electricity.

VIRTUAL REALITY VR is also entering the operating room. In July 2017, University of Minnesota doctors used VR to prepare for a challenging non-routine surgery -- separating a pair of twins conjoined at the heart. Not only was the life-saving surgery a success, the VR prep gave doctors unforeseen insights that prompted them to accelerate the surgery by several months. It won't be long until we refuse to have surgery completed by any human who hasn't prepared in virtual reality using a personalized 3D model.

CRISPR / GENE EDITING In August 2017, the Food and Drug Administration (FDA) approved the first-ever treatment that uses gene editing to transform a patient's own cells into a "living drug." Kymriah, a one-time treatment made by Novartis, was approved to treat B-cell acute lymphoblastic leukemia -- an aggressive form of leukemia that the FDA calls "devastating and deadly." The FDA is currently considering over 550 additional experimental gene therapies. What happens to our healthy human lifespan as these life-saving treatments demonetize and become universally accessible?



PHOTO » Robot dentist - CCTV+

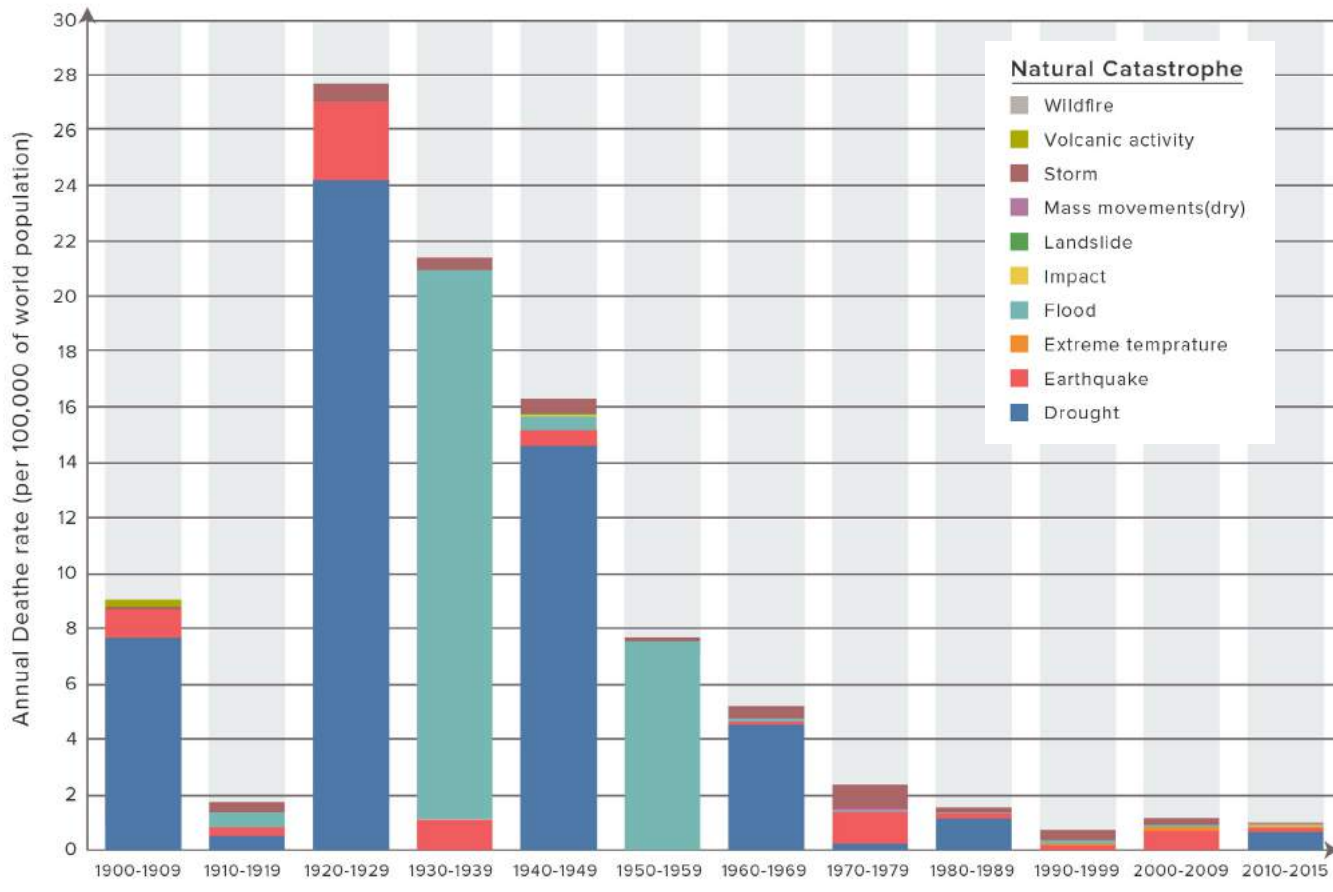
ENVIRONMENT

Thirty years ago, the world signed the Montreal Protocol to prevent the depletion of the Ozone Layer.

Today, the U.S. Environmental Protection Agency (EPA) credits that agreement with for preventing an estimated 280 million additional cases of skin cancer, 45 million cataracts, and 1.5 million skin cancer deaths between its signing in 1987 and the year 2050. Without the Montreal Protocol, the planet would have been about 4 degrees warmer by 2050 (resulting in more extreme weather events like droughts, floods and hurricanes). As the graph below clearly depicts, the global annual death rate from natural disasters has plummeted over the past century.

Global Annual Death Rate From Natural Disasters

Global death rate measured as the number of deaths per 100,000 of the world population (by decade 1900s to 2000s; and six years from 2010)



Why has this happened? It's the impact of exponential technologies (satellites, sensors, networks, machine learning), which enable humans to better image, predict and model disasters. These models provide early warning systems, enabling citizens to flee to safety and for first responders to send supplies and food to remote areas in time.

DRONES & THE ENVIRONMENT Previously, animals were counted manually by researchers who had to spot them from helicopter or prepositioned camera footage. Now, a drone captures footage, the machine learning system counts different types of animals, and human volunteers help train the algorithm by verifying detections.

Faster, cheaper, easier, and more accurate.

And in Bengaluru, researchers at the Indian Institute of Science are fighting deforestation with camera-equipped drones that drop seeds in areas they otherwise wouldn't be able to explore. Their goal is to seed 10,000 acres in the region.

What becomes possible when thousands of teams — not simply individuals and a handful of research teams — leverage these tools to protect the environment?

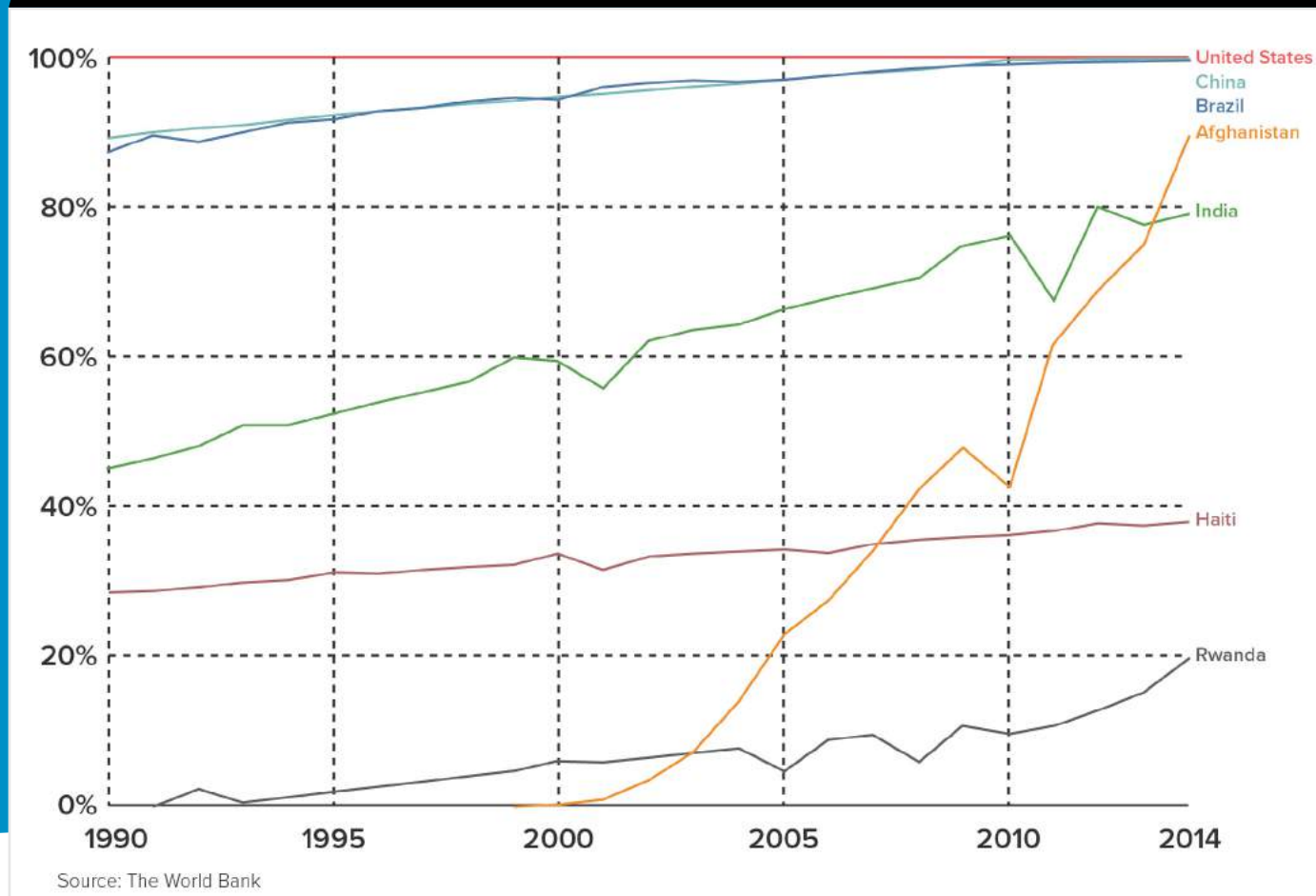
ENERGY

A key measure of economic growth, living standards and poverty alleviation is access to electricity.

The graph below uses data from the World Bank and the International Energy Agency's definition of electricity access, which is delivery and use of at least 250 kilowatt-hours per year in rural households and 500 kilowatt-hours per year in rural households.

Simply put, more people around the world have access to electricity than ever, and the absolute number of those without access to electricity is dropping (despite population growth). Take a look at the chart below to see how various regions of the world are meeting their energy needs.

Share of the Population With Access to Electricity



Source: The World Bank

As you see, India has gone from 45 percent access to electricity in 1990 to nearly 80 percent in 2014.

Afghanistan has seen an even more dramatic improvement, going from 0.16 percent of the population in 2000 to 89.5 percent of the population in 2014.

As renewable energy sources become cheaper and more accessible, we'll reach total electrification.

Here too, we're making great progress. In 2016, solar power grew faster than any other fuel source for the first time ever. Around the world, solar prices are still dropping.

The latest forecast from GTM Research reports prices of \$2.07 per watt in Japan to \$.65 per watt in India, with prices dropping across hard and soft costs.



more ENERGY

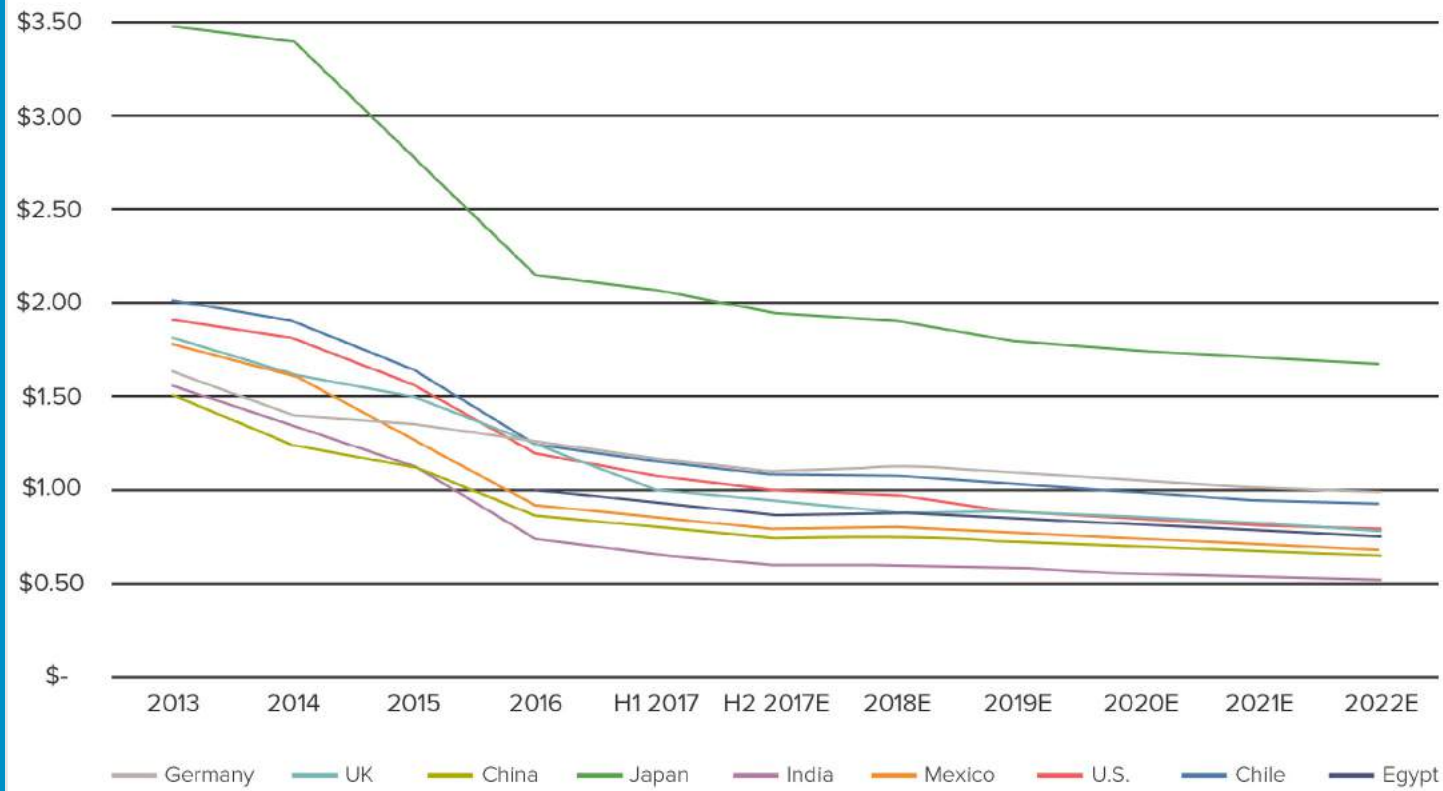
In 2017 alone, we saw wind power become cheaper than nuclear in the U.K., with the cost of subsidies slashed in half since 2015.

As the BBC reports, during the U.K.'s 2015 subsidy auction, "offshore wind farm projects won subsidies between £114 and £120 per megawatt hour." Just two years later, two firms committed to a guaranteed price of £57.50 per megawatt hour.

Looking stateside, the U.S. Department of Energy announced in September 2017 that utility-scale solar has officially hit its 2020 cost targets three years early — with generation costs of \$1 per watt and energy consumption costs of \$0.06 per kilowatt-hour.

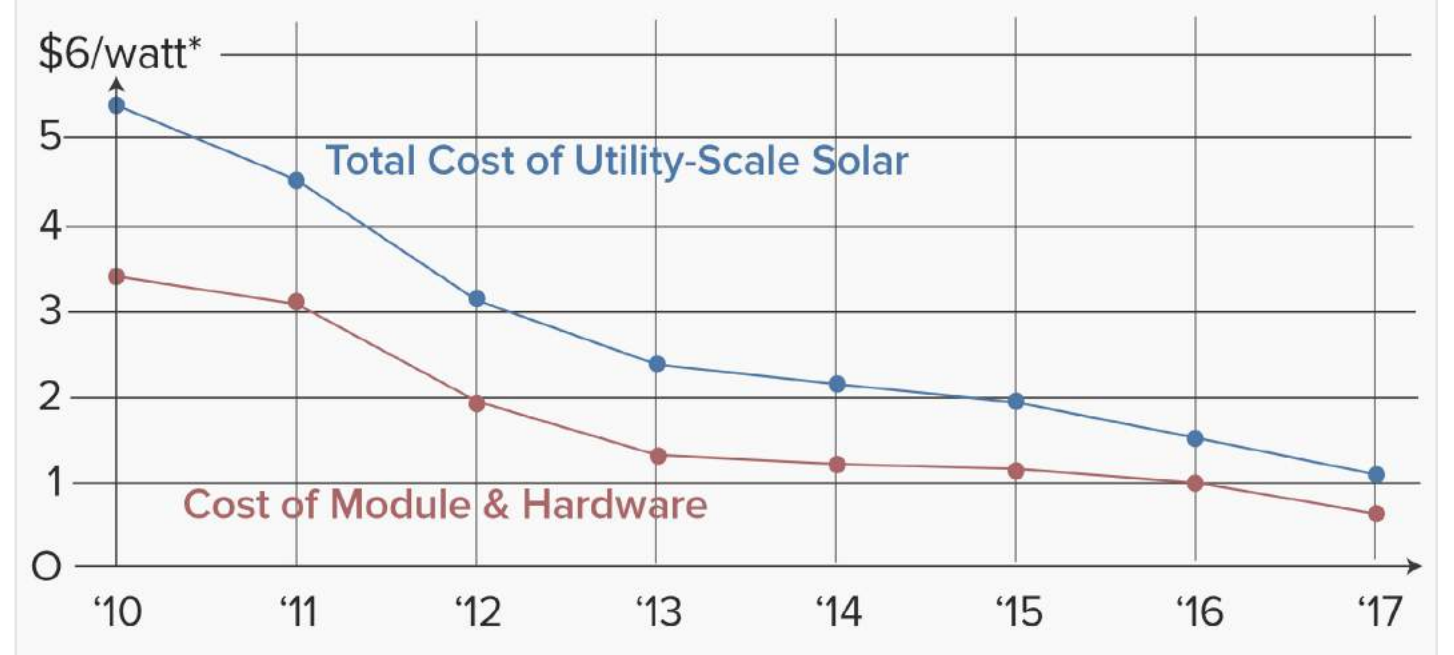


Historical Forecasted Utility and PV System Pricing 2013 - 2022E



Source: GTM Research

U.S. Commercial & Residential Solar Costs

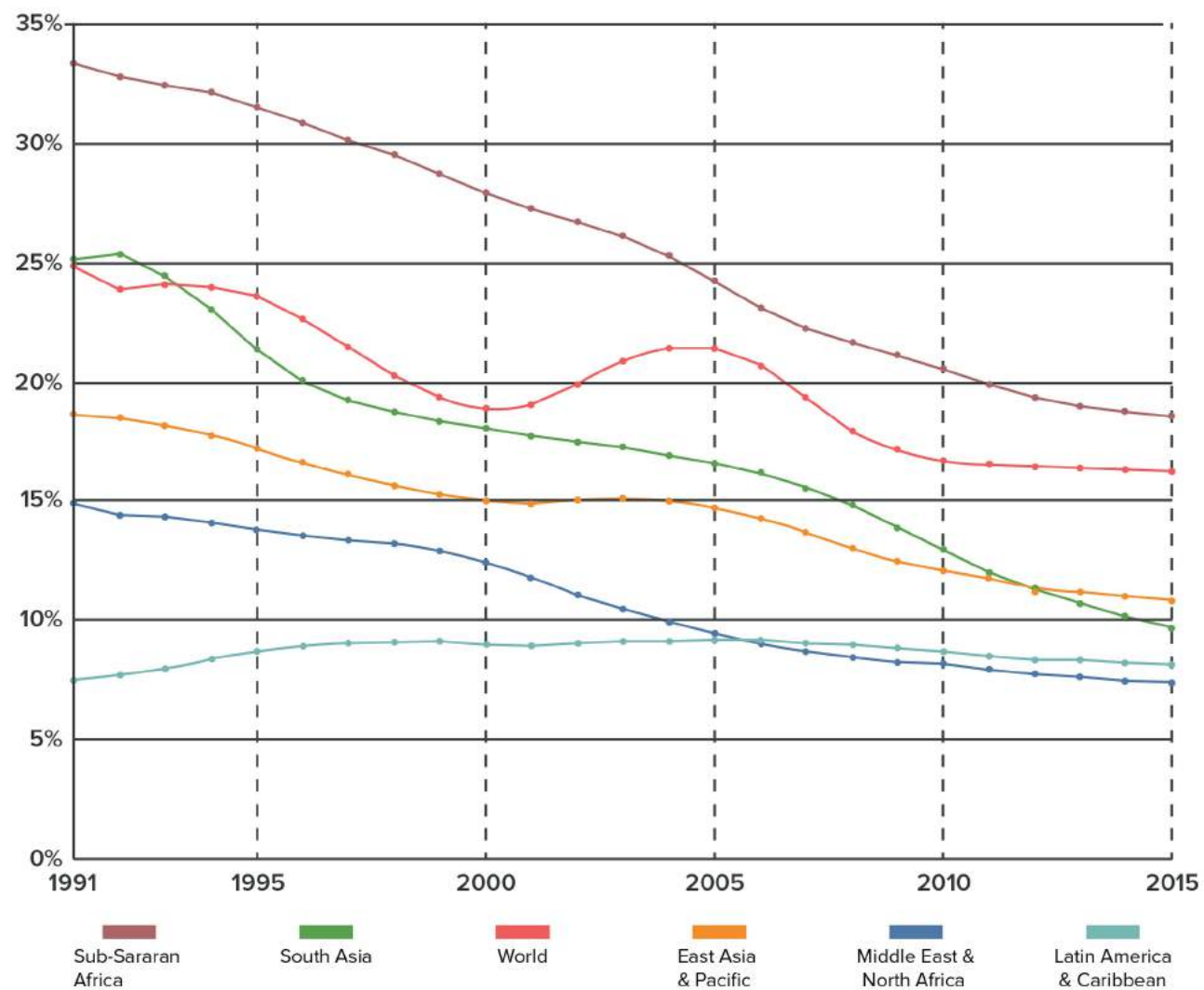


FOOD

Despite the headlines, we're making steady progress in the realm of food scarcity and hunger.

This graph features World Bank data on the percentage of the population that has an inadequate caloric intake. Globally, 18.6 percent of the population was undernourished in 1991; by 2015, it dropped to 10.8 percent.

Undernourishment in Developing Countries



Source: World Bank - WDI: Prevalence of undernourishment (% of population)
 Note: Developed countries are not included in the regional estimates since the prevalence is below 5%.

Time and again, technology is making scarce resources abundant. I've written about bioprinted meat, genetically engineered crops, vertical farming, and agriculture robots and drones. Two more examples from 2017 so far:

HUMAN-FREE FARMS In a 1.5-acre remote farm in the U.K., Harper Adams University and Precision Decisions recently harvested their first crop of barley. The twist? The farm is run autonomously. Instead of human farm workers, Hands Free Hectare uses autonomous vehicles, machine learning algorithms and drones to plant, tend and harvest.

FOOD FROM ELECTRICITY Another big idea in the fight against food scarcity and undernourishment comes out of Finland, where researchers are creating food from electricity. The team, formed of researchers from the Lappeenranta University of Technology (LUT) and the VTT Technical Research Centre of Finland, have created a machine that runs on renewable energy to produce nutritious, single-cell proteins. The system is deployable in a variety of environments hostile to traditional agriculture, and future iterations will be able to produce food anywhere, from famine-stricken deserts to space.



Looking at the data, we truly live in the most exciting time to be alive.

And if your mindset enables you to see problems as opportunities,
 the future is even more exciting than the present.

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Empowering entrepreneurs to generate extraordinary wealth while creating a world of abundance.

OVERVIEW

Created in cooperation with Singularity University, Abundance 360 is Peter H. Diamandis' mastermind for entrepreneurs. Each January, 360 CEOs, entrepreneurs, executives and investors convene in Beverly Hills to discuss some of the most exciting developments happening in disruptive technology and innovation.

The topics have ranged from machine learning to robotics, synthetic biology, and human longevity. We focus on how these emerging technologies will impact business in the next one to three years.

Peter's goal is to show members the on-ramps and turnkey applications so that, together, we can leverage and impact the world.

Peter's committed to running A360 for 25 years, and 2018 will be Year 6 on the journey.

Dates: January 21 - 23, 2018

Location: Beverly Hills, CA

Contact: team@a360.com

Learn More + Apply: A360.com

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2018 Content

Bridge to Abundance: Brainstorm solutions to mitigate society's near-term problems.

Tech Demos: Experience the latest in exponential technologies.

Convergence Catalyzer: Identify breakthroughs in Applied Materials, Robotics and Energy

Blockchain & Cryptocurrency: Get concrete examples of how to use this emerging field in your business and onramps to get started.

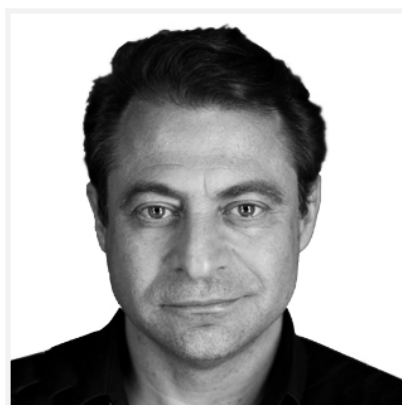
Longevity Mastermind: Understand the latest research and technology to extend your healthy life.

Convergence Catalyzer: Identify breakthroughs in brain-computer interfaces, nanotech and artificial general intelligence.

Future of Education: Explore how entrepreneurs are reinventing how we learn throughout life.

Moonshot Thinking Mastermind: Understand what it takes to solve global problems and build Moonshot teams.

"This is the group I've always wanted to put together. These are the forward-thinking entrepreneurs and early adopters that want to be on the cutting edge of technology and business. I want to share the amazing lessons and dealflow I have access to and test some of the most exciting new developments in technology with the group. These are the conversations we need to be having every day." –Peter Diamandis



ABOUT PETER DIAMANDIS

Dr. Peter H. Diamandis is an international pioneer in the fields of innovation, incentive competitions and commercial space. In 2014 he was named one of "The World's 50 Greatest Leaders" – by Fortune Magazine. In the field of Innovation, Diamandis is Founder and Executive Chairman of the XPRIZE Foundation, best known for its \$10 million Ansari XPRIZE for private spaceflight. Diamandis is also the Co-Founder and Vice-Chairman of Human Longevity Inc. (HLI), a genomics and cell therapy-based diagnostic and therapeutic company focused on extending the healthy human lifespan. He is also the Co-Founder and Executive Chairman of Singularity University, a graduate-level Silicon Valley institution that studies exponentially

growing technologies, their ability to transform industries and solve humanity's grand challenges. In the field of commercial space, Diamandis is Co-Founder/Co-Chairman of Planetary Resources, a company designing spacecraft to enable the detection and prospecting of asteroid for precious materials. He is also the Co-Founder of Space Adventures and Zero-Gravity Corporation. Diamandis is the New York Times Bestselling author of *Abundance – The Future Is Better Than You Think* and *BOLD – How to go Big, Create Wealth & Impact the World*. He earned an undergraduate degree in Molecular Genetics and a graduate degree in Aerospace Engineering from MIT, and received his M.D. from Harvard Medical School.