the futures foundation
engaging all Australians in creating a better future...

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FUTURE NEWS

TO CONNECT, TO INFORM AND TO INSPIRE

IN THIS EDITION

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THE BEGINNING OF THE FUTURE

IN THE 19TH CENTURY, RAPID TECHNOLOGICAL CHANGE WAS THE CATALYST FOR ARTISTS TO START VISUALIZING THE FUTURE

Humans have always been in the prediction business: we want to know what comes next. We haven't always listened —the warnings of Cassandra from Greek mythology were doomed to be ignored—and throughout history and across cultures, the only vision of the future was one of the end. For many classical Western artists, depicting "the future" meant painting scenes from the Book of Revelation; Michelangelo, Albrecht Dürer, and Hieronymus Bosch reminded the viewer that life on Earth was finite, a handy reminder from the church to keep in line.

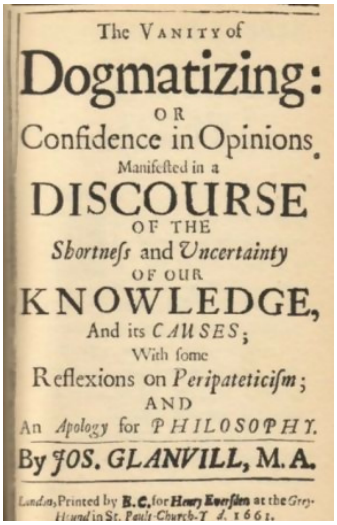
If the future was both fixed and apocalyptic, pre-modern writers and artists looked sideways to consider the existence of more advanced cultures. When much of the world was still uncharted, it felt conceivable that there could be a land inhabited by a fantastic civilization just over the horizon. The Greeks had Hyperborea, the inhabitants of which could live for a thousand years. Thomas More had Utopia, essentially a socialized state. Jonathan Swift had the floating island of Laputa, kept afloat by "magnetic virtue."

But by the 19th century, global imperialism had shrunk those "uncharted" spaces. At the same time, rapid advances in science and technology laid the frameworks for other possible futures—as well as increased anxieties about what those possibilities could bring. And as people started to imagine it, artists started to translate those ideas to the page.

When we think of futurists, we often think of scientists, science fiction writers, and industrial leaders. But what of the contribution of visual pioneers? Artists straddled science, design, and the traditions of pulp art, looking at the day-to-day possibilities that could change our lives. How did sharing these ideas, through advertising and media, shape our evolving picture of what the future would look like? And how did the world around them shape their ideas of the future?

Our contemporary idea of the future has mostly been shaped over the past two centuries. Before the 19th century, technology didn't change much during the short human lifespan and most people lacked the leisure time to sit back and think about abstract concepts like the future. Perhaps more importantly,

there could be perilous consequences to voicing ideas that challenged commonly-accepted doctrine on reality. Suggesting that the Earth orbits the Sun, or that there might be life on other planets, were factors that lead to Italian philosopher and cosmological theorist Giordano Bruno being burned at the stake in 1600.


The Vanity of
Dogmatizing:
OR
Confidence in Opinions,
Manifested in a
DISCOURSE
OF THE
Shortness and Uncertainty
OF OUR
KNOWLEDGE,
And its CAUSES;
With some
Reflexions on Peripateticism;
AND
An Apology for PHILOSOPHY.
By JOS. GLANVILL, M.A.
London, Printed by B.C. for Henry Eversden at the Grey-Hound in St. Paul's Church-Y d. 1661.

Page from "The Vanity of Dogmatizing." Joseph Glanvill, 1661.

Over time, people began to be able to voice these dissenting ideas without punishment—and some started to look towards the future. 60 years after Bruno, English philosopher Joseph Glanvill took huge leaps when he proposed that one day, a voyage to the Moon "will not be more strange than one to America" in his 1661 book *The Vanity of Dogmatizing*. His concept of global communication through "magnetic waves" predated the electric telegraph by 176 years.


A BALLOON PROSPECT from ABOVE the CLOUDS see page IIIrd

New inventions showed a view of the world that had never been seen before, as depicted by Thomas Baldwin—a drawing of one of the first aerial views of Earth in his Airopedia" published in 1785.

The 19th century brought us closer to Glanvill's future, as brand-new technologies were introduced at a rapidly accelerating speed. Their potential influenced fiction: flights of the first aeronauts inspired Jules Verne's *Five Weeks in a Balloon*; experiments with electricity and galvanism partly inspired Mary Shelley's *Frankenstein*; and H.G. Wells, whose *Anticipations* covered everything from the mechanical modernization of war to the reorganization of class structures, hoped his ideas could "undermine and destroy the monarch, monogamy, faith in God & respectability & the British Empire, all under the guise of a speculation about motor cars & electric heating."

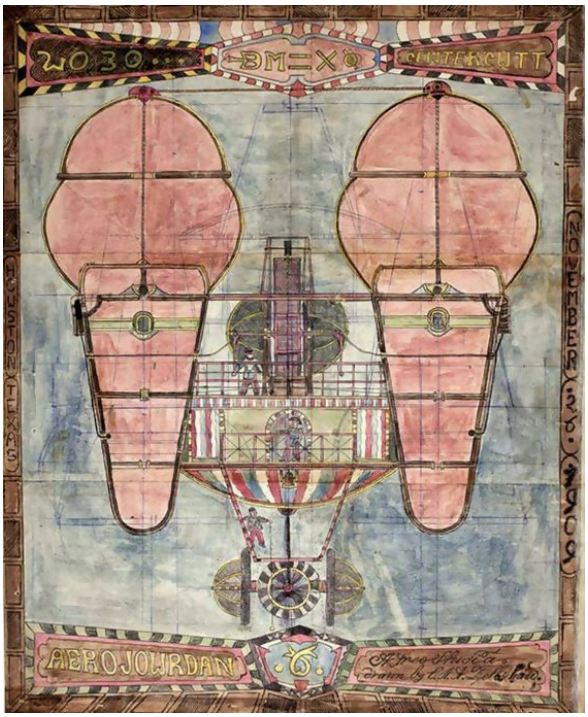
Nineteenth century artists were also getting in on the futurism game. In the preceding centuries, art was mainly concerned with capturing and interpreting reality, or the metaphysical, through religious and mythological imagery. But excitement about the technological leaps of the present—and potential leaps of the future—spurred us to want to see it.

Our desire to conquer the air has been a long-held obsession—from Icarus and his wings to Leonardo Da Vinci's 1493 drawing of an aerial screw—yet the first practical flight would not occur until the Montgolfier brothers' hot air balloon ride in 1783. This event became a catalyst on writers and artists to explore new frontiers: Verne and Edgar Allan Poe published tall stories of aeronauts, even travelling to the moon in Poe's "Unparalleled Adventure of One Hans Pfaall."

The skies are full in Albert Robida's "Leaving the Opera in the Year 2000," published in 1882.

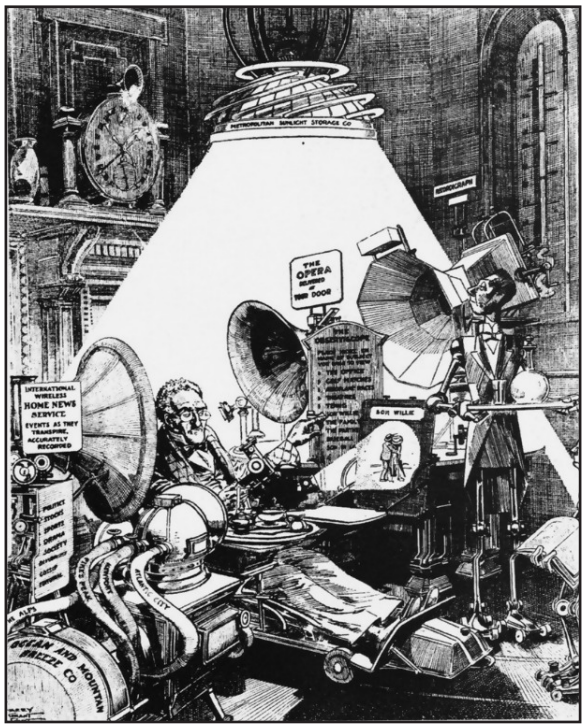
While flight was a major thread through his work, he devised other devices that would become integral to everyday life, like the Téléphonoscope, from 1890's *The Twentieth Century: The Electrical Life*, a screen for entertainment like live opera broadcasts or reports from a battlefront. It even predicted interactive functions like home shopping.

Enthusiasm about this emerging world was not solely reserved to professional artists. Between 1899 and 1921, Charles Dellschau, a retired butcher who claimed to be a member of a secret society called the Sonora Aero Club, filled 13 notebooks with 2,500 drawings, paintings, and collages of ideas for air travel and airships. Rescued from a landfill decades later, they were eventually shown to the public in 1969—the same year that humans first landed on the moon.



Futurist visions meet outsider art in the work of Charles Dellschau.

The romance of flight was also a preoccupation of illustrator Harry Grant Dart, who created his own airship comic strip, *The Explorigator*, in 1908. He was also a cartoonist for *Life and Judge* magazine, where his satirical cartoons were less optimistic than many of his futurist contemporaries, channelling anxiety and paranoia about where technological change might lead.



"We'll All Be Happy Then." Harry Grant Dart, Life Magazine, 1911.

We'll All Be Happy Then shows a mishmash of devices designed to enhance our domestic life: stored sunlight overhead, fresh air pumped in from the Alps, opera delivered to your speaker, 24-hour news with "events as they transpire, accurately recorded." It also has one of the earliest examples of a robot servant: the gentleman of the future would never have to leave the comfort of his motor-powered armchair.

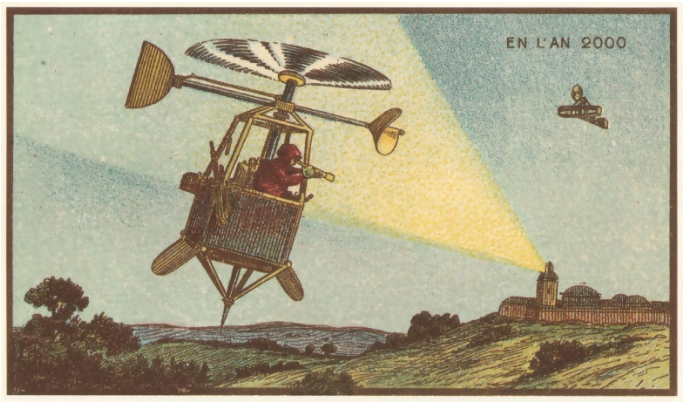
"Lord how this world improves as we grow older," "The March of Intellect." William Heath, 1828

Challenges to the status quo and possibility of progressive social change was something periodicals reacted strongly to throughout the 19th century. In 1888, American journalist David Goodman Croly predicted that, “Women throughout the world will enjoy increased opportunities and privileges. Along with this new freedom will come social tolerance of sexual conduct formerly condoned only in men.”

In the early 1920s, a set of 100 postcards were discovered in an abandoned French factory basement, amongst shelves of dusty novelties and circus automatons. From there they sat in an Editions Renaud, a Parisian antique shop for over half a century, until they were bought in 1978 by author Christopher Hyde. They show views of the year 2000, with personal flying machines, telescopes that could capture distant planets, robot tailors, and farms under the sea.

The illustrations had been commissioned by manufacturer Armand Gervais to celebrate the “fin de siècle festival” of 1899. Illustrator Jean Marc Côté produced a set of cards inspired in part by Jules Verne, and in part by the automatons made by the Gervais company itself.

Collated into a book nearly a century after their conception, Isaac Asimov wrote in the introduction, “It is, of course, easy to laugh and make fun of guesses of 1899, but how would any of us do now if asked to predict life in 2085?”

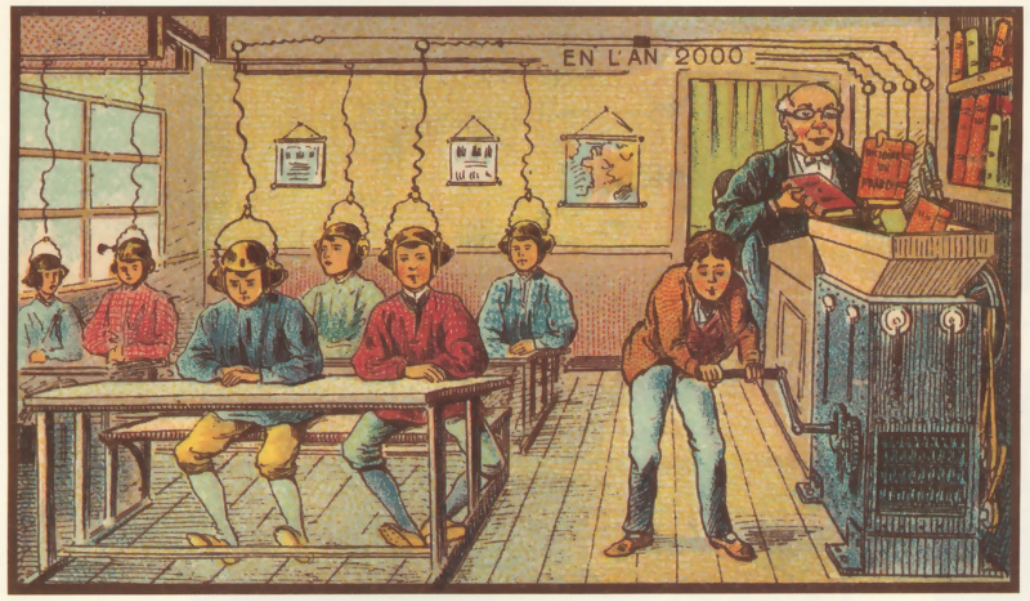


“Advance Sentinel in a Helicopter.” Jean Marc Côté, 1899.

Unsurprisingly, flight features predominantly throughout the series; Côté thought about numerous uses of air-based transport, including how it would affect warfare. Possibly inspired by popular toys of that era, he envisioned a helicopter-like vehicle, used as a wartime advance scout.

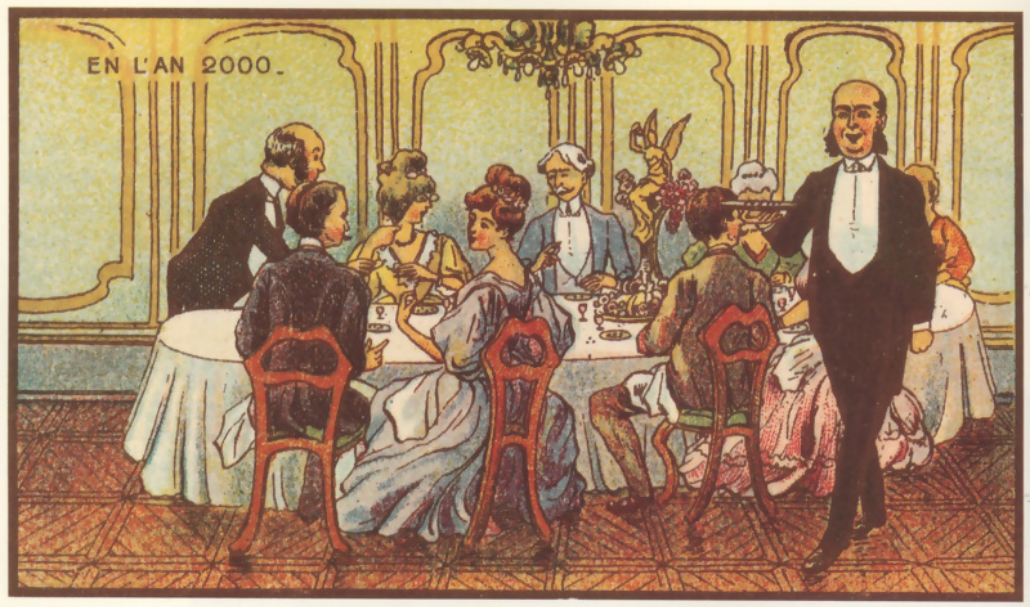
“The Rural Postman.”Jean Marc Côté, 1899.

This example of the flying mail carrier trope takes the idea of air-mail quite literally. Here the plane is more simple, like a flying bicycle, which was itself a recent innovation.



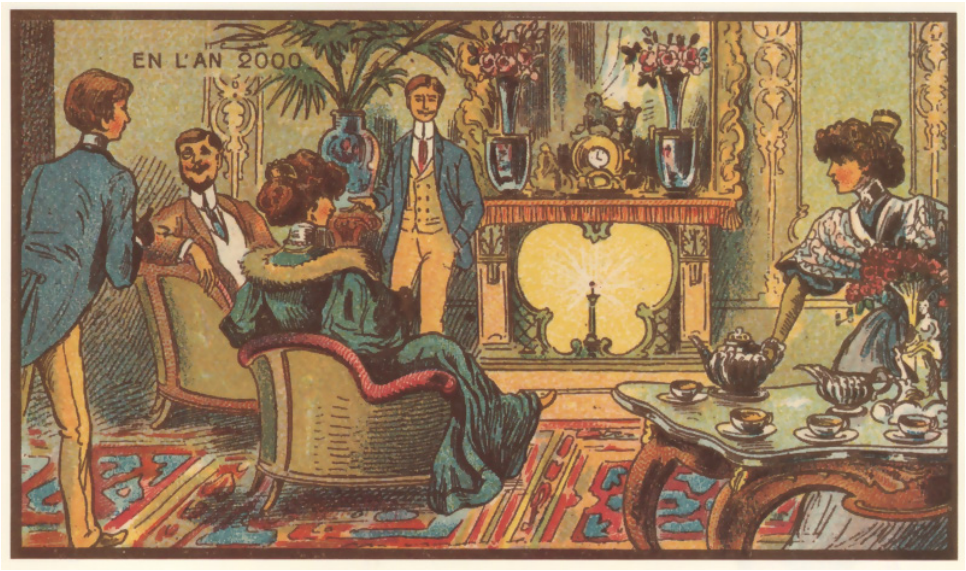
"At School." Jean Marc Côté, 1899.

Education comes under scrutiny as books are fed into a grinder, possibly "digitized," to be sent by electric current as sound directly to the students' headphones. This technological teaching marvel doesn't stop one student from looking out the window, though.



"A Chemical Dinner Party." Jean Marc Côté, 1899.

Why eat an entire plate of food when you can save time by swallowing one tiny pill? During the 19th century, scientists discovered the chemical components of our food: fats, proteins, sugars, acids. This idea then takes it one step further by providing these essential elements in pill form—a precursor to Soylent, perhaps.



"Heating With Radium." Jean Marc Côté, 1899.

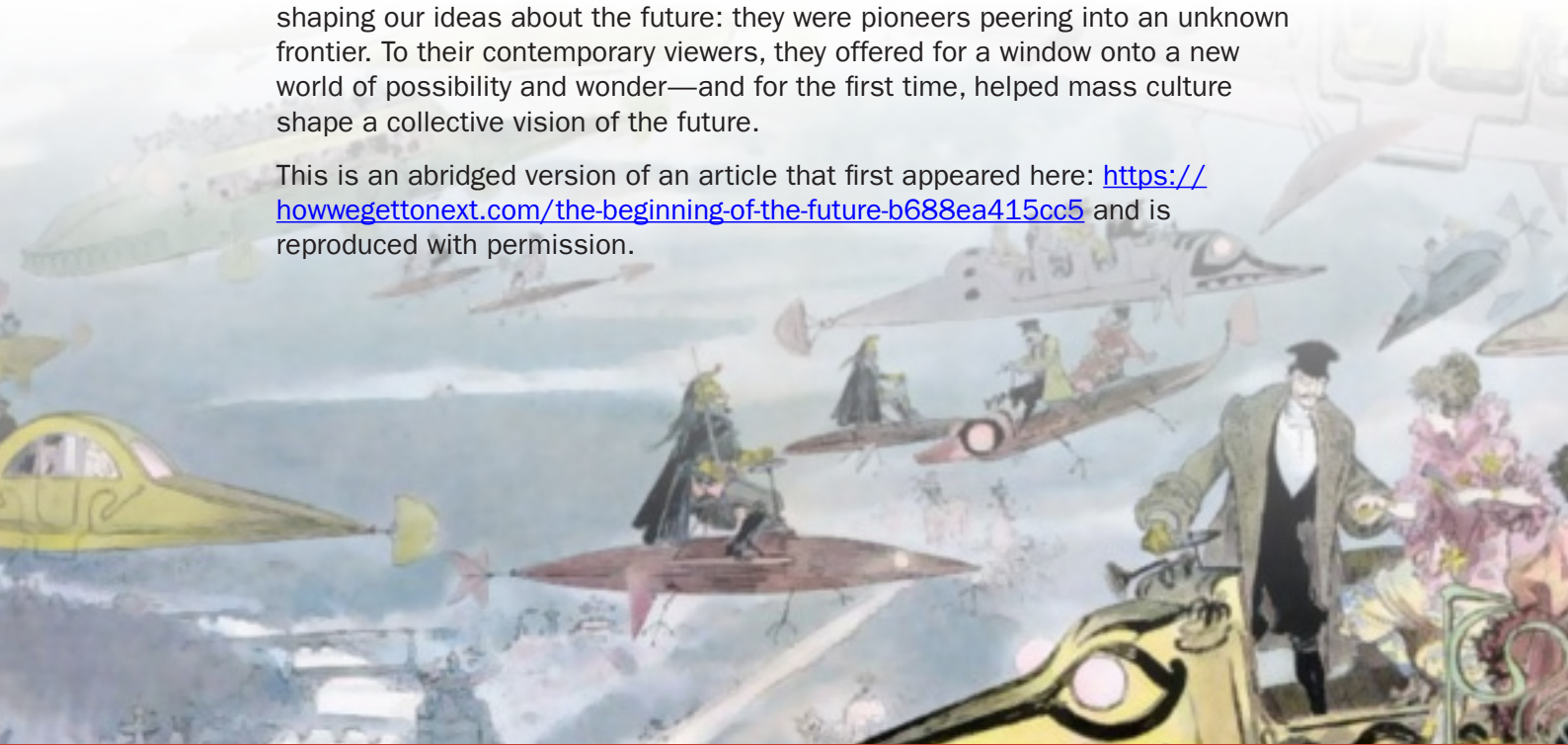
The positive and optimistic potential of atomic power is portrayed here only a year after the discovery of radium in 1898. The negative effects of radiation weren't well-known at the time. Though these negative effects would keep radioactive material from being a viable heating source in the long-term, Côté tapped into the potential of a very recent discovery here.

"Even the best futurist must face unexpected technological barriers. There are side effects he may not expect," Isaac Asimov wrote in 1986 in the introduction to Futuredays: A Nineteenth Century Vision of the Year 2000. "Unwarranted optimism may mislead him, and so may unwarranted pessimism."

19th-century futurists often leaned into either optimism and pessimism, with ideas at the extreme end of believability to the contemporary viewer's eyes. The science behind the ideas may be, to put it lightly, tenuous, and the ideas are products of their time steeped in the culture and fashions of the age.

But the artists behind them, while often forgotten, have all played their parts in shaping our ideas about the future: they were pioneers peering into an unknown frontier. To their contemporary viewers, they offered for a window onto a new world of possibility and wonder—and for the first time, helped mass culture shape a collective vision of the future.

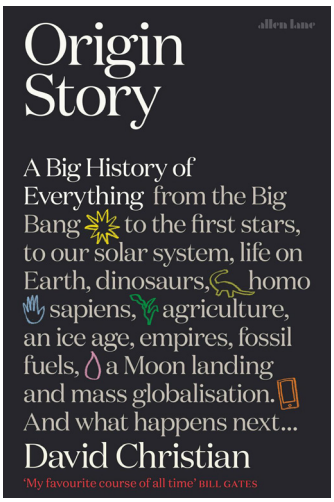
This is an abridged version of an article that first appeared here: https://howwegettonext.com/the-beginning-of-the-future-b688ea415cc5 and is reproduced with permission.



Origin Story
by David Christian

Book Review

by Charles Brass – Chair, futures foundation



The sub-title to this book is "A Big History of Everything from the Big Bang to the first stars, to our solar system, life on Earth, dinosaurs, homo sapiens, agriculture, an ice age, empires, fossil fuels, a Moon landing and mass globalization. And what happens next....." all of which is accomplished in 305 pages, plus a glossary.

David Christian (an Australian academic) helped found The Big History Project which has built a free online syllabus on the history of the universe (and is described in his previous book "Big History – between everything and nothing"). Big History is now being taught in thousands of high schools across the globe. Many futures foundation members will fondly remember a 2015 Futures forum in which Dr Joe Voros (a key contributor to the project) explained both the genesis of The Big History Project and how he had helped put the future on the agenda (a podcast of this session is available in the member only area of the website).

The Big History Project divides the history of the universe into 8 major thresholds:

1. the Big Bang
2. stars and galaxies
3. new elements and increasing chemical complexity
4. molecules and moons
5. life
6. humans
7. farming
8. the Anthropocene

and Joe likes to talk of the 9th threshold – the future.

Origin Story tells the story of each of these major thresholds. As Christian says in the preface: I wanted to "teach about the heritage shared by all humans and tell that story with some of the grandeur and awe of the great national histories. I became convinced that we needed a story in which our Paleolithic ancestors and Neolithic farmers could play as important a role as the rulers, conquerors, and emperors who have dominated so much historical scholarship" (pviii).

He goes on to say: "I have written this book in the optimistic belief that we moderns are not doomed to a chronic state of fragmentation and meaninglessness. Within the creative hurricane of modernity, there is emerging a new, global origin story that is as full of meaning, awe, and mystery as any traditional origin story but is based on modern scientific scholarship across many disciplines" (pix).

It is not the place of this review to attempt to further summarize the huge historical sweep covered by this book, it suffices to say that Christian is an experienced teacher and author with a capacity to both explain complex concepts simply, and to make the story engaging to all readers. It is, however, worth commenting on here that in the final few pages Christian elaborates on the reasons for wanting to bring Big History to a wider audience: "If we successfully manage the transition to a more sustainable world, a sort of Threshold 9, it will become apparent that human history really constitutes a single threshold of increasing complexity culminating in the conscious management of an entire biosphere" (p300). "Let's be optimistic and imagine a world in which the quest has succeeded. Threshold 9 has been successfully negotiated and most humans are flourishing within a stable global society based on a more sustainable relationship to the biosphere. That means human societies may be around for several thousand years, perhaps even for hundreds of thousands of years" (p301).

Christian clearly believes that the teaching of history is a way of encouraging future generations to change the way they perceive our very existence, and for that reason alone (quite apart from what even those who consider ourselves to be widely read can learn from this book) the Big History project – and this book – are worth considerable applause.

FUTURISTS IN ACTION

I'M QUANTITATIVE FUTURIST AMY WEBB, AND THIS IS HOW I WORK

AN INTERVIEW WITH NICK DOUGLAS

First of all, tell us a little about your background and how you got to where you are today.

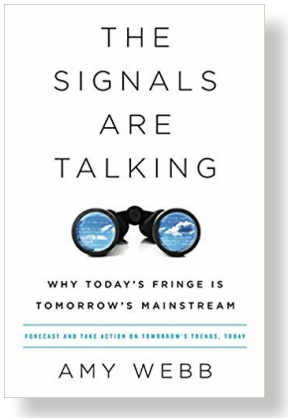
In Year 6, I joined our school Future Problem Solvers of America team, and without realising it I began my work as a futurist when I was just 11 years old. In university I took a multidisciplinary course of study, which included economics, game theory, political science, computer science and music.

When I moved back to the US, I had a difficult time fitting back in to a traditional newsroom environment. I was convinced that news needed a radically different business model to sustain quality journalism — but I grew tired of apathy towards emerging tech, so I quit. I secured seed funding to start an R&D lab for news and media, and my focus was on exploring and building new digital distribution techniques. As my team experimented with new prototypes, I became interested in much broader topics beyond journalism — like how the third era of computing (AI) would impact every facet of everyday life, how technology influenced the geopolitical balance, and how our data might become a primary driver of the economy.

I wanted to model and map plausible scenarios for what that future might look like, and that's when a colleague pointed me to the work of early futurists such as Robert Jungk and Alvin Toffler, and of the quantitative modelling developed by Olaf Helmer and Nicholas Rescher.

I took classes in strategic foresight, read everything I could get my hands on, and pivoted in 2006, when I started the Future Today Institute. I've been working full-time as a quantitative futurist ever since. I now teach foresight at NYU's Stern School of Business, and my students are incredibly bright and creative.

I also write — I'm finishing my third book now. It's a manifesto about how the "Big Nine" tech titans are shaping the future of AI. (They are Google, Amazon, IBM, Microsoft, Apple, Facebook, Baidu, Tencent and Alibaba.) My most recent book, "The Signals Are Talking", explains my foresight methodology and explains how to use the tools of a futurist to see over the horizon.



> *"The Signals Are Talking", explains how to use the tools of a futurist to see over the horizon.*

> *Because of my intense travel schedule, I spent many years searching for the perfect bag.*

Webb's Tumi Sheppard Deluxe backpack (Photo: Amy Webb)

Take us through a recent workday.
Every day at work is different — sometimes I'm at the office, but often I'm on the road — so I'll offer you two recent workdays. On the road: One of our clients is a global petroleum company, and I worked on-site with a team of 15 people to map near-future risk/opportunity scenarios. We began the session with a deep dive into the Future Today Institute's forecasting methodology and an explanation of the different dimensions of disruption. Then we mapped weak signals — issues that help us identify emerging changes own the horizon. That was followed by intensive hands-on work. The session lasted about seven hours. I caught a red-eye home after we finished. At the office: I'm completing my next book. On book writing days, I get to my office by 7AM and write until 4PM, without taking any breaks. Then from 4PM - 7PM I'm in meetings and answering email.

How do you focus for nine hours without breaks?
The way I stay focused for so long — I think — is a combination of the brown noise, my earphones, and the exercise ball I sit on instead of a regular chair. I get up to use the washroom, of course, and I usually snack on nuts and dried fruit.

Turning off my phones and keeping social media and email locked away have meant a tremendous surge in productivity. I don't believe in multitasking. In my case, the quality of my work is degraded when I try to do more than one thing at a time. Knowing that there won't be outside interruptions — tweets, texts, Slack pings — has allowed me to centre my entire focus on just one, singular task.

What apps, gadgets or tools can't you live without?
I listen to brown noise on Spotify. I've experimented with different sounds and music, and because I'm more sensitive to higher frequencies, brown noise helps me focus intensively. It's amazing how well it works. I listen on Jabra Elite 65t Bluetooth noise cancelling earbuds. When I'm writing, I use the Desktop Curtain to block out all distractions. Because of my intense travel schedule, I spent many years searching for the perfect bag — one that could carry all my gear, plus an extra pair of shoes and a water bottle. For me, the Tumi Sheppard Deluxe Brief Pack is just right. It has a sleeve that lets me secure it to my suitcase, which means that I'm no longer carrying anything heavy on my back.

What's your workspace setup like?
I have two monitors — one vertical, one horizontal. Everything that's office or communication-related (Slack, calendar, email) goes on the vertical monitor and stays active. All of my writing happens on the horizontal monitor. My office is covered in Idea Paint. We converted one entire wall, top to bottom, into a whiteboard surface. Many of the other surfaces are made of glass, allowing us to write with whiteboard markers wherever we need to, whether that's on the windows, tables or chairs.

What's your best shortcut or life hack?
It's something I learned from Ben Franklin: Get the big, gnarly hard work out of the way first, when your mind is fully charged.

Take us through an interesting, unusual or finicky process you have in place at work.
Our workdays are divided into 20-minute units, and we use maths to set every part of our schedules. We keep telephone calls/video calls to one unit, and most of our administrative meetings are two units. Certain strategy work takes 12 units. We've found that blocking out the day in units has resulted in much better and more realistic time management. The 20-minute system is something that I developed for myself in university. I worked two jobs and was at one point attempting five majors, so I had to make every single minute of every

day count. (I even had to optimise my sleep, because during my first year I was only able to get four hours at a time.)

I found that dividing the day into hours didn't allow me to get everything done — I'd either set my expectations way too low or too high. The hour convention works well for groups who need to tell time, but I don't think it works as well for productivity.

For example, I learned that if I have 40 minutes rather than an hour to complete a task, I'm likely to focus and work harder. Meetings that last an hour tend to include a lot of wasted, unproductive moments. The 20-minute unit system is definitely an adjustment for people who work with me.

"America is a country of "nowists" — that's a problem I have yet to solve.

Who are the people who help you get things done, and how do you rely on them?
Our team is distributed — we work out of spaces in many different cities and don't have a central physical hub. Collectively, we can't function without our director of operations, Cheryl Cooney. She is the engine that keeps me, and the Future Today Institute, running. She manages and executes all of the decisions that don't require my direct involvement.

How do you keep track of what you have to do?
We have a three-tiered system of delegation: Immediate, the next few days and longer-term. We allocate in advance the number of units required to complete all of these tasks. We've experimented with various task management software, like Trello and Asana, but ultimately I've found that a combination of Slack, Google docs and a physical notebook works best for me.

How do you recharge or take a break?
I break a sweat daily — usually spinning or jogging. Paradoxically, wearing myself out exercising is the best way to recharge. I also try to get outdoors at some point during my work day, to take a walk to just sit in the sun for a few minutes.

What's your favourite side project?
I consult on TV shows and movies, helping talented show runners, writers, producers and production staff see the future. Most recently, I worked with Beau Willimon and his team on *The First*, which is his upcoming series on Hulu and portrays members of a team of astronauts as they become the first humans to visit Mars. It's set in the year 2031 and it stars Sean Penn and Natascha McElhone.

What are you currently reading, or what do you recommend?
I just finished *Borne* by Jeff VanderMeer and am currently reading *The Power* by Naomi Alderman. They are both terrific.

Who else would you like to see answer these questions?
Michio Kaku.

What's the best advice you've ever received?
My mentor, MJ Ryan, taught me to work incrementally. Mountains are climbed by taking a series of steps. With each and every project, I need to think about all of the steps first, without losing sight of the summit. She's trained me to think about the present and future simultaneously.

What's a problem you're still trying to solve?
My goal is to democratise the tools of futurists, and to get every decision maker to think more about the farther future. America is a country of "nowists" — that's a problem I have yet to solve.

The original interview appeared on Life Hacker (https://www.lifehacker.com.au/2018/07/im-quantitative-futurist-amy-webb-and-this-is-how-i-work/) and is reproduced with permission.

Signals in the Noise

THE 8 MAJOR FORCES SHAPING THE FUTURE OF THE GLOBAL ECONOMY

by Jeff Desjardins

> *"I can't change the direction of the wind, but I can adjust my sails to always reach my destination.*
>
> – Jimmy Dean

The world is changing faster than ever before. With billions of people hyper-connected to each other in an unprecedented global network, it allows for an almost instantaneous and frictionless spread of new ideas and innovations. Combine this connectedness with rapidly changing demographics, shifting values and attitudes, growing political uncertainty, and exponential advances in technology, and it's clear the next decade is setting up to be one of historic transformation. But where do all of these big picture trends intersect, and how can we make sense of a world engulfed in complexity and nuance? Furthermore, how do we set our sails to take advantage of the opportunities presented by this sea of change?

THE INTERSECTION OF DATA AND POWERFUL VISUALS

Interpreting massive amounts of data on how the world is changing can be taxing for even the most brilliant thinkers. For this reason, our entire team at Visual Capitalist is focused on using the power of visual storytelling to make the world's information more accessible. Our team of information designers works daily to transform complex data into graphics that are both intuitive and insightful, allowing you to see big picture trends from a new perspective. After all, science says that 65% of people are visual learners – so why not put data in a language they can understand? While we regularly publish our visuals in an online format, our most recent endeavor has been to compile our best charts, infographics, and data visualizations into one place: our new book "Visualizing Change: A Data-Driven Snapshot of Our World", a 256-page hardcover coffee-table book on the forces shaping business, wealth, technology, and the economy.

The book focuses on eight major themes ranging from shifting human geography to the never-ending evolution of money. And below, we present some of the key visualizations in the book that serve as examples relating to each major theme.

1. THE TECH INVASION

For most of the history of business, the world's leading companies have been industrially-focused.

Pioneers like Henry Ford and Thomas Edison innovated in the physical realm using atoms – they came up with novel ways to re-organize these atoms to create things like the assembly line and the incandescent lightbulb. Then, companies invested massive amounts of capital to build physical factories, pay thousands of workers, and build these things.

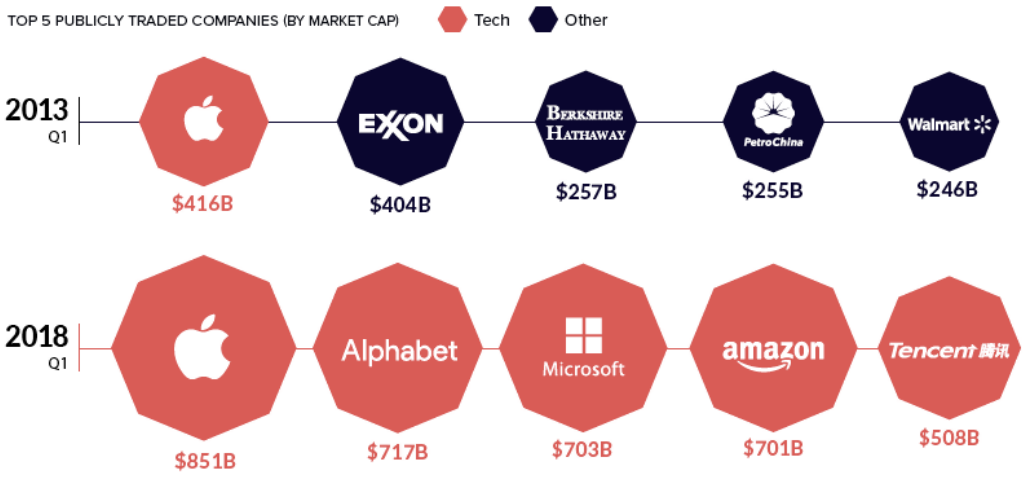
The majority of the great blue chip companies were built this way: IBM, U.S. Steel, General Electric, Walmart, and Ford are just some examples.

But today's business reality is very different. We live in a world of bytes – and for the first time technology and commerce have collided in a way that makes data far more valuable than physical, tangible objects.

The best place to see this is in how the market values businesses.

Signals in the Noise

THE 8 MAJOR FORCES SHAPING THE FUTURE OF THE GLOBAL ECONOMY



As you can see above, companies like Apple, Amazon, and Microsoft have supplanted traditional blue chip companies that build physical things.

The tech invasion is leveraging connectivity, network effects, artificial intelligence, and unprecedented scale to create global platforms that are almost impossible to compete with. The tech invasion has already taken over retail and advertising – and now invading forces have their eyes set on healthcare, finance, manufacturing, and education.

Will atoms ever be more valuable than bytes again?

Interesting Facts:

For every $1 spent on online advertising, $0.60 goes to Google and Facebook

By 2030, artificial intelligence (AI) is expected to generate a global economic impact of $15.7 trillion

Amazon is now worth more than every brick-and-mortar retailer in the U.S. combined

2. THE EVOLUTION OF MONEY

Money is arguably one of humanity's most important inventions. From beaver pelts to gold bars, the form and function of money has constantly fluctuated throughout history.

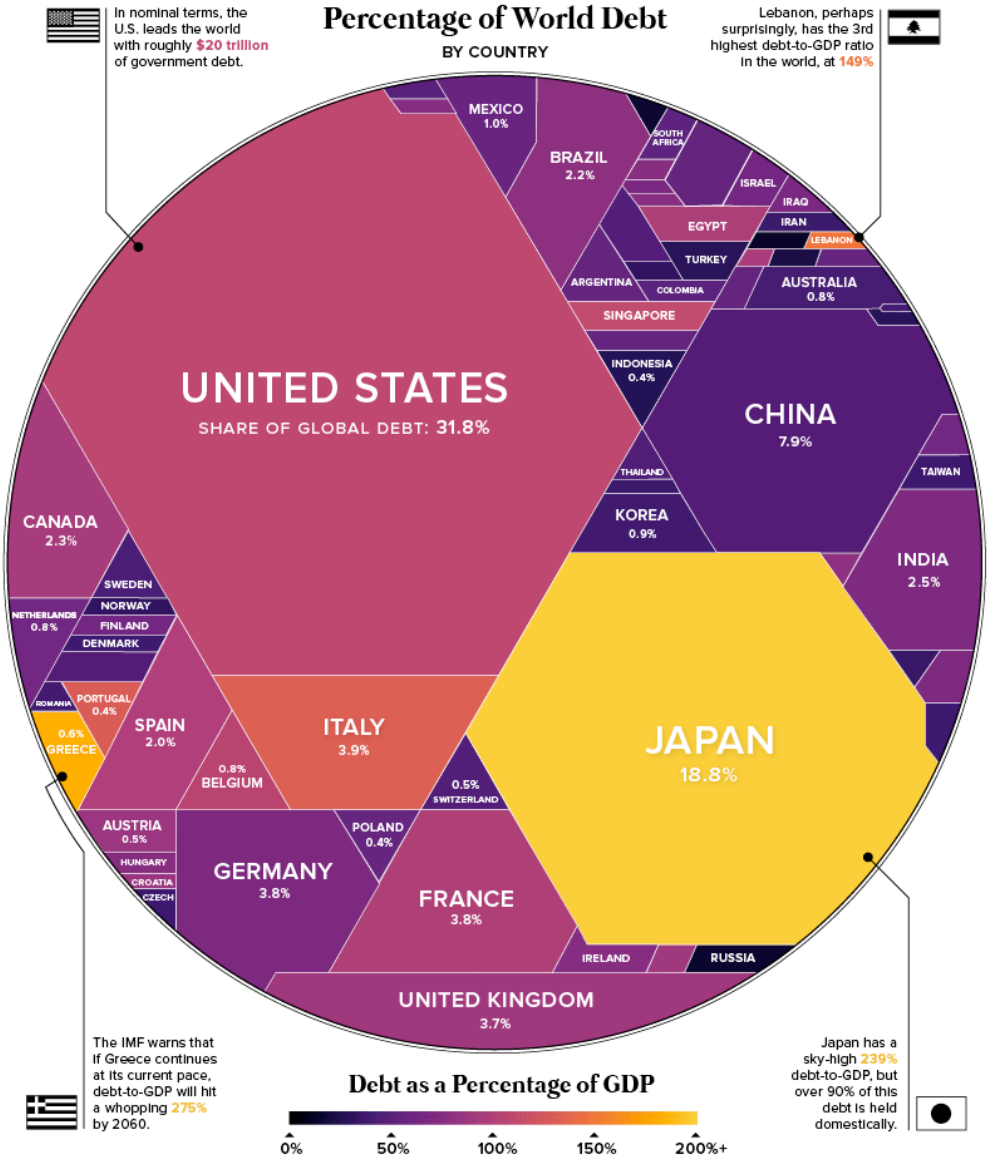
In the modern world, the definition of money is blurrier than ever. Central banks have opted to create trillions of dollars of currency out of thin air since the financial crisis – and on the flipside, you can actually use blockchain technology to create your own competing cryptocurrency in just a few clicks.

Regardless of what is money and what is not, people are borrowing record amounts of it.

Signals in the Noise

THE 8 MAJOR FORCES SHAPING THE FUTURE OF THE GLOBAL ECONOMY

The world has now amassed $247 trillion in debt, including $63 trillion borrowed by central governments:



In today's unusual monetary circumstances, massive debt loads are just one anomaly. Here are other examples that illustrate the evolution of money: Venezuela has hyperinflated away almost all of its currency's value, the "War on Cash" is raging on around the world, central banks are lending out money at negative interest rates (Sweden, Japan, Switzerland, etc.), and cryptocurrencies like Bitcoin are collectively worth over $200 billion.

How we view money – and how that perception evolves over time – is an underlying factor that influences our future.

Interesting Facts:

By the end of 2017, there were over 680 new cryptocurrencies that had market caps worth over $1 million

Hyperinflation in Venezuela is now running at over 1,000,000% per year

Total human debt is $247 trillion, owed by governments, corporations, and individuals

3. THE WEALTH LANDSCAPE

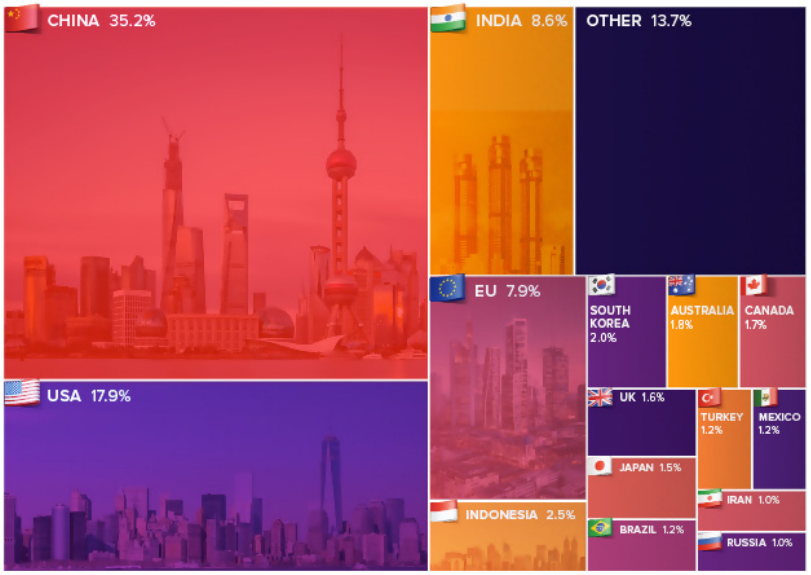
Wealth is not stagnant – and so for those looking to make the most out of global opportunities, it's imperative to get a sense of how the wealth landscape is changing.

The modern view is either extremely healthy or bubbly, depending on how you look at it: Amazon and Apple are worth over $1 trillion, Jeff Bezos has a $100+ billion fortune, and the current bull market is the longest in modern history at 10 years.

Will this growth continue, and where will it come from? Here's one look based on projections from the World Bank:

Where is Global Growth Happening?

Percentage of Estimated Global Growth (2017-2019) in Real GDP



Despite these estimates, there is a laundry list of items that the ultra-wealthy are concerned about – everything from the expected comeback of inflation to a world where geopolitical black swans seem to be growing more common.

Here's why those building and protecting wealth are rightly concerned about such events:

Signals in the Noise

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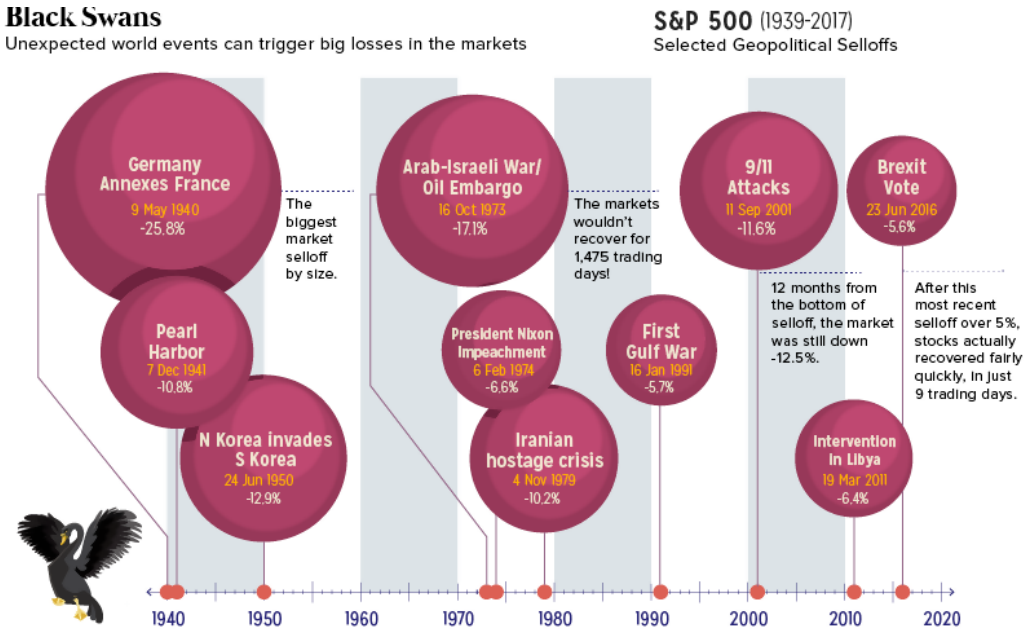

But the wealth landscape is not all just about billionaires and massive companies – it is changing in other interesting ways as well. For example, the definition of wealth itself is taking on a new meaning, with millennials leading a charge towards sustainable investing rather than being entirely focused on monetary return.

How will the wealth landscape look a decade from now?

Interesting Facts:

Of the world's richest 50 billionaires, 12 of them were in tech and are 18 years younger, on average

Just 15 companies manage a vast swath of the world's securities, about $29.8 trillion worth of stocks and bonds

86% of millennial investors are interested in sustainable investing, and put 2x more money into such causes

4. EASTERN PROMISES

The economic rise of China has been a compelling story for decades. Up until recently, we've only been able to get a preview of what the Eastern superpower is capable of – and in the coming years, these promises will come to fruition at a scale that will still be baffling to many. Understandably, the scope of China's population and economy can still be quite difficult to put into perspective.

The following map may help, as it combines both elements together to show that China has countless cities each with a higher economic productivity than entire countries.

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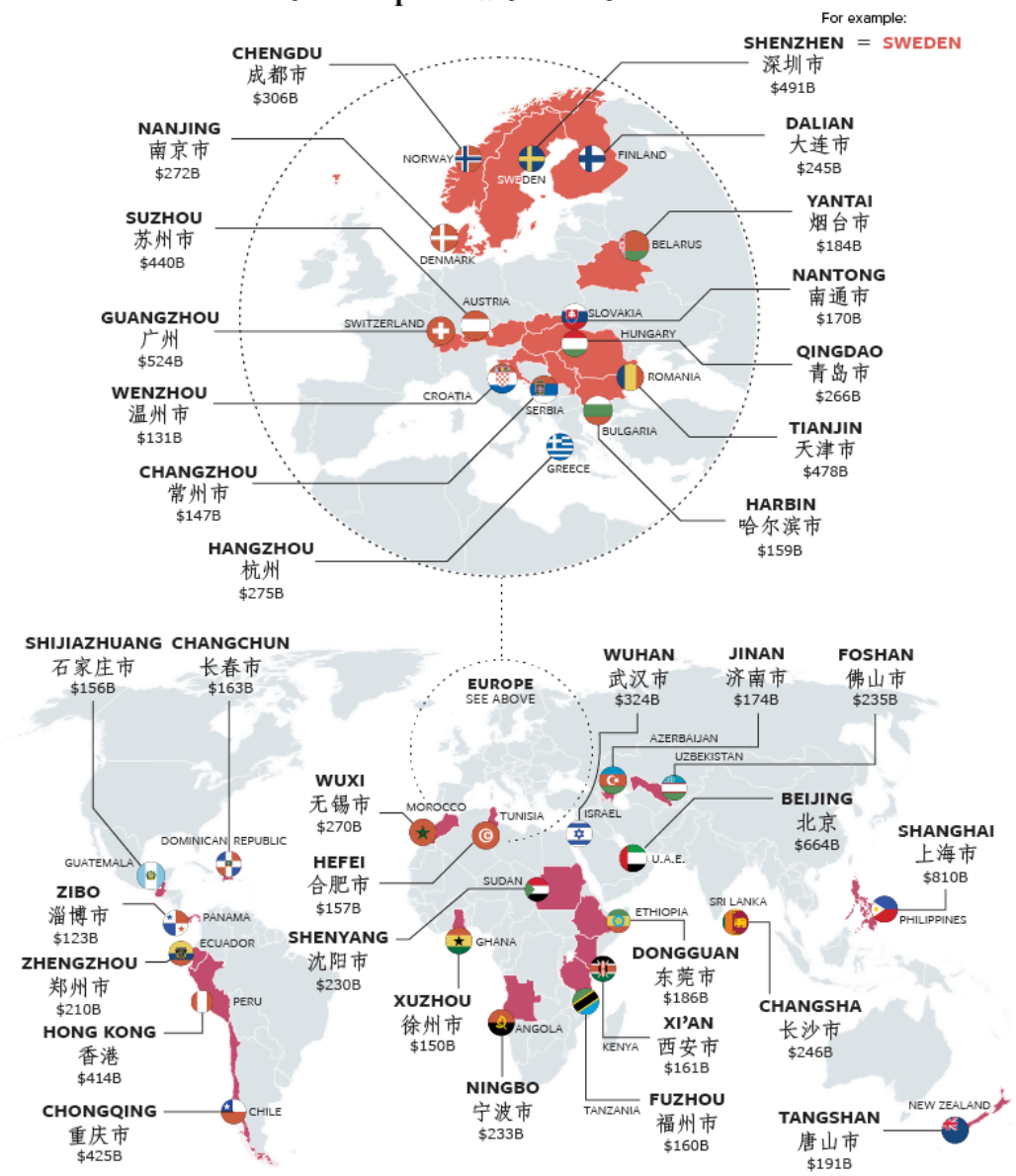
The GDP of Chinese cities compared with countries



In fact, China has over 100 cities with more than 1,000,000 inhabitants. These cities, many of which fly below the radar on the global stage, each have impressive economies – whether they are built upon factories, natural resource production, or the information economy. As one impressive example, the Yangtze River Delta – a single region which contains Shanghai, Suzhou, Hangzhou, Wuxi, Nantong, Ningbo, Nanjing, and Changzhou – has a GDP (PPP) of $2.6 trillion, which is more than Italy.

Interesting Facts:

- Since 1990, over 800 million Chinese people have been lifted out of extreme poverty
- By 2029, there will be more people in China's middle class than there are total people in the United States
- China will account for 35.2% of global real GDP growth between 2017-2019

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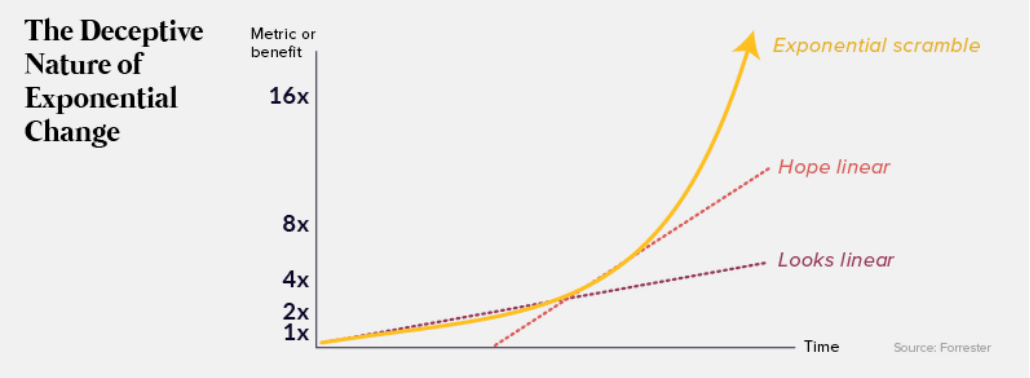
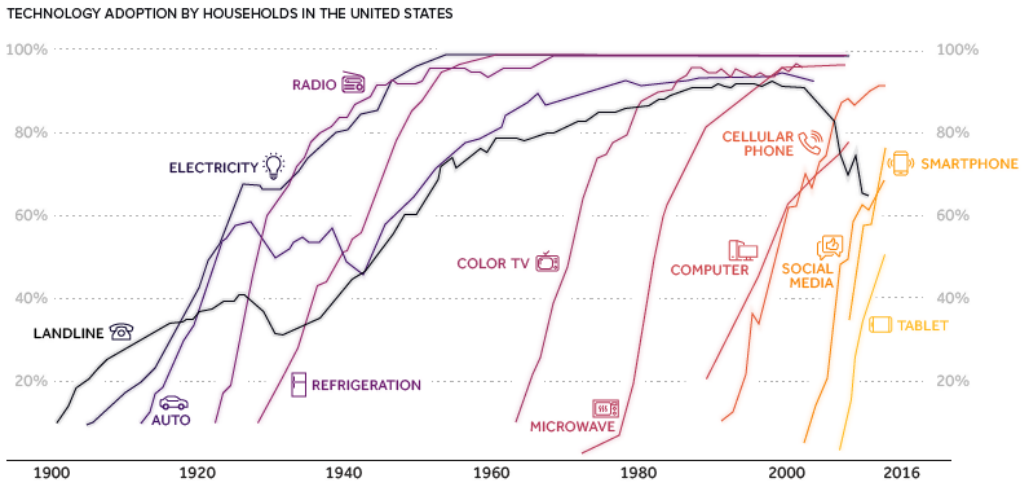
5. ACCELERATING TECHNOLOGICAL PROGRESS

As we've already seen, there are many facets of change that will impact our shared future. But here's the kicker: when it comes to technological progress, the rate of change itself is actually getting faster and faster. Each year brings more technological advancements than the last, and once the exponential "hockey stick" kicks into overdrive, innovations could happen at a blindsiding pace.



This could be described as a function of Moore's Law, and the law of accelerating returns is also something that futurists like Ray Kurzweil have talked about for decades. Interestingly, there is another offshoot of accelerating change that applies more to the business and economic world. Not only is the speed of change getting faster, but for various reasons, markets are able to adopt new technologies faster:



New products can achieve millions of users in just months, and the game Pokémon Go serves as an interesting case study of this potential. The game amassed 50 million users in just 19 days, which is a blink of an eye in comparison to automobiles (62 years), the telephone (50 years), or credit cards (28 years). As new technologies are created at a faster and faster pace – and as they are adopted at record speeds by markets – it's fair to say that future could be coming at a breakneck speed.

Interesting Facts:

Things that sound crazy could happen sooner than we think: disease eradication, nanobots, mind/machine interfaces, etc.

Renowned futurist Ray Kurzweil predicts the technological singularity to occur by 2045

Past this point, tech would advance so fast that it's impossible to fathom what would happen

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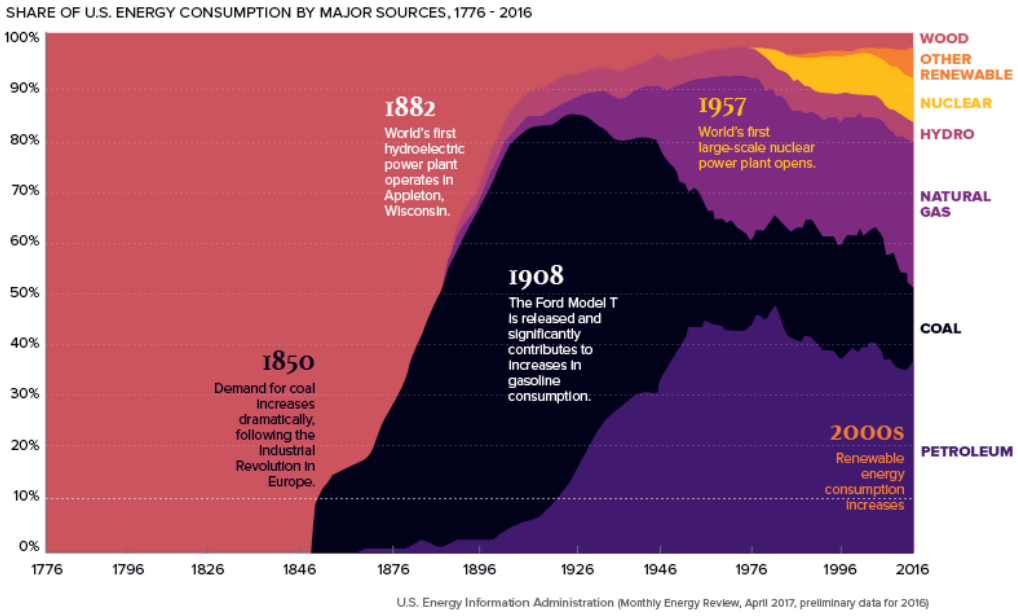
6. THE GREEN REVOLUTION

It's no secret that our civilization is in the middle of a seismic shift to more sustainable energy sources. But to fully appreciate the significance of this change, you need to look at the big picture of energy over time. Below is a chart of U.S. energy consumption from 1776 until today, showing that the energy we use to power development is not permanent or static throughout history.



And with the speed at which technology now moves, expect our energy infrastructure and delivery systems to evolve at an even more blistering pace than we've experienced before.

Interesting Facts:

- By 2040, a total of $10.2 trillion will be invested in new power generation capacity worldwide
- Wind and solar will make up almost half of global installed electrical capacity in two decades
- Morgan Stanley sees 1 billion electric vehicles on the road by 2047

7. SHIFTING HUMAN GEOGRAPHY

Global demographics are always shifting, but the population tidal wave in the coming decades will completely reshape the global economy. In Western countries and China, populations will stabilize due to fertility rates and demographic makeups. Meanwhile, on the African continent and across the rest of Asia, booming populations combined with rapid urbanization will translate into the growth of megacities, holding upwards of 50 million people. By the end of the 21st century, this animation shows that Africa alone could contain at least 13 megacities that are bigger than New York:

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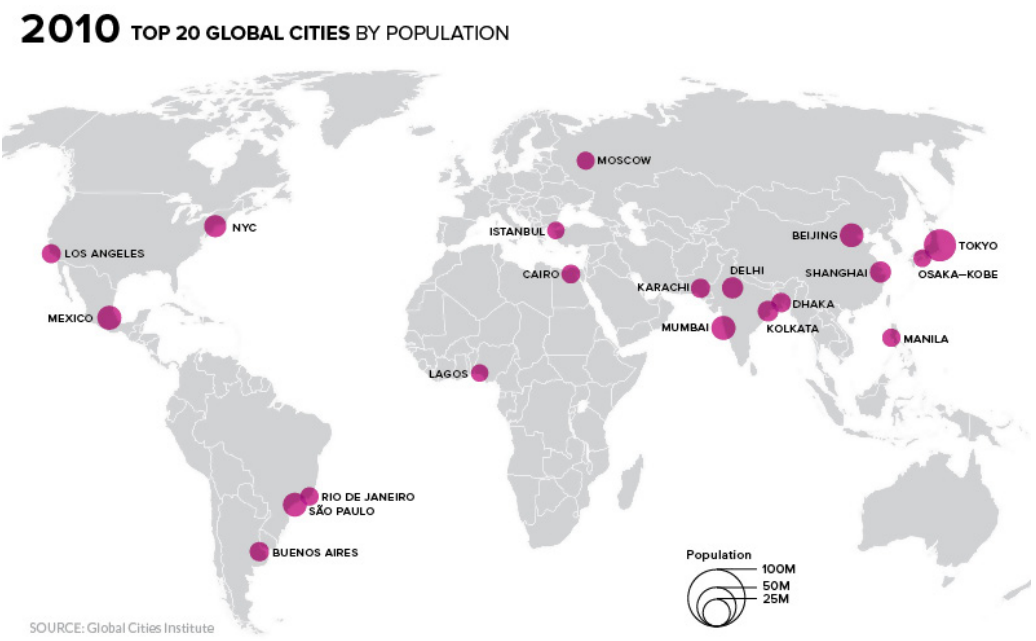


By this time, it's projected that North America, Europe, South America, and China will combine to hold zero of the world's 20 most populous cities. What other game-changing shifts to human geography will occur during this stretch?

Interesting Facts:

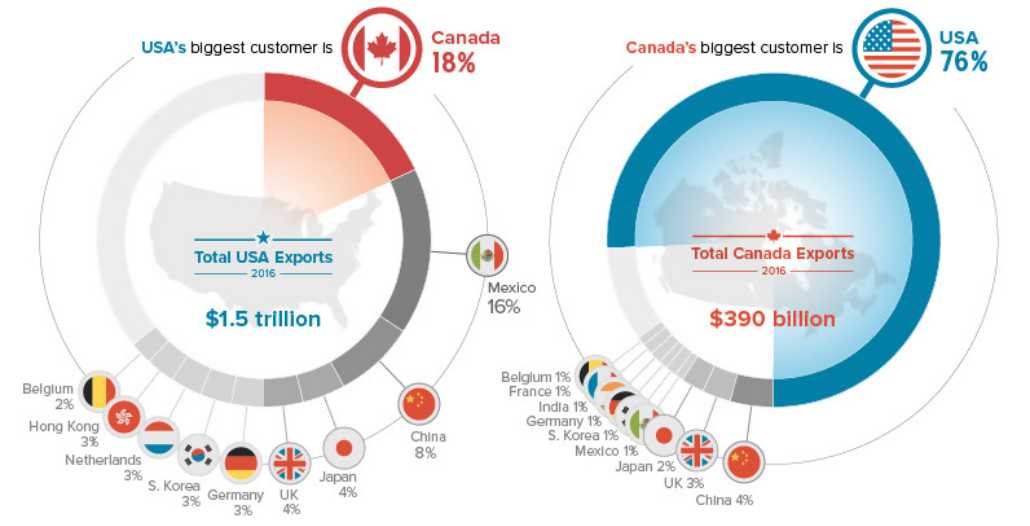
By 2050, the global population will be roughly 10 billion people

At this point, a whopping 70% of these people will be living in urban areas

By 2100, the world's largest megacity is projected to be Lagos, Nigeria – it alone will hold 88.3 million inhabitants

8. THE TRADE PARADOX

By definition, a consensual and rational trade between two parties is one that makes both parties better off. Based on this microeconomic principle, and also on the consensus by economists that free trade is ultimately beneficial, countries around the world have consistently been working to remove trade barriers since World War II with great success. But nothing is ever straightforward, and these long-held truths are now being challenged in both societal and political contexts. We now seem to be trapped in a trade paradox in which politicians give lip service to free trade, but often take action in the opposite direction. To get a sense of how important trade can be between two nations, we previously documented the ongoing relationship between the U.S. and Canada, in which each country is the best customer of the other:



With the recent USMCA agreement, the two countries seem to have sorted their differences for now – but the trade paradox will continue to be an ongoing theme in economics and investing at a global level for many years to come, especially as the trade war against China rages on.

Points to Consider:

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