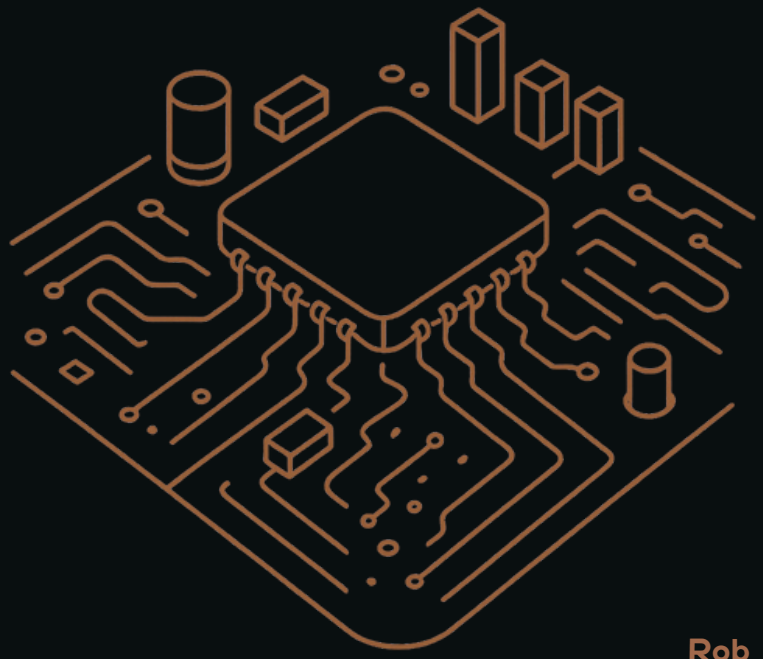
TECHNOLOGY REVOLUTIONS + INVESTING



Rob Larity
Chief Investment Officer

Summary

- Over a long time horizon (10+ years), innovation is what creates new wealth in the economy. You need to think of innovation as the cornerstone of your investment portfolio, not a speculative side pocket.

- General Purpose Technologies (GPTs) – those, like computing or steel, that become a cheap and ubiquitous input across many areas – are the kind of innovations that drive revolutionary change across an entire society. The best way to build long-term wealth is to focus on GPTs.

- We are reaching the mature phase of the computing GPT revolution: society has already entered a new techno-economic paradigm" in which we are adapting nearly all our ways to ubiquitous computing. Other GPTs, such as genetic sequencing, solar PV cells, 3D-printed metals, and orbital lift (e.g. putting stuff into space), are more nascent and will perhaps be even more impactful over the next generation, creating techno-economic paradigms of their own.

- Some businesses harness technology revolutions and thrive – but most don't. From 1990-2020, only ~2% of publicly traded companies (1 in 42) accounted for > 100% of net wealth creation in the stock market. By contrast, 58% of publicly-traded companies destroyed investors' wealth. Passively owning a broad stock market index, by definition, puts an investor on the wrong side of history.

- To grow your wealth long term, you must align your assets with disruptive innovation in a way that 1) can work at sufficient scale to accommodate your core investment portfolio, and 2) isn't too speculative or risky. The best strategy is to invest in strongly-positioned, public companies that are harnessing revolutionary GPTs to get bigger and better over time. Because GPTs operate along a predictable framework (think "Moore's Law,"), it is possible to identify these businesses without resorting to sci-fi speculation about the future.

YOU SAY YOU WANT A REVOLUTION?

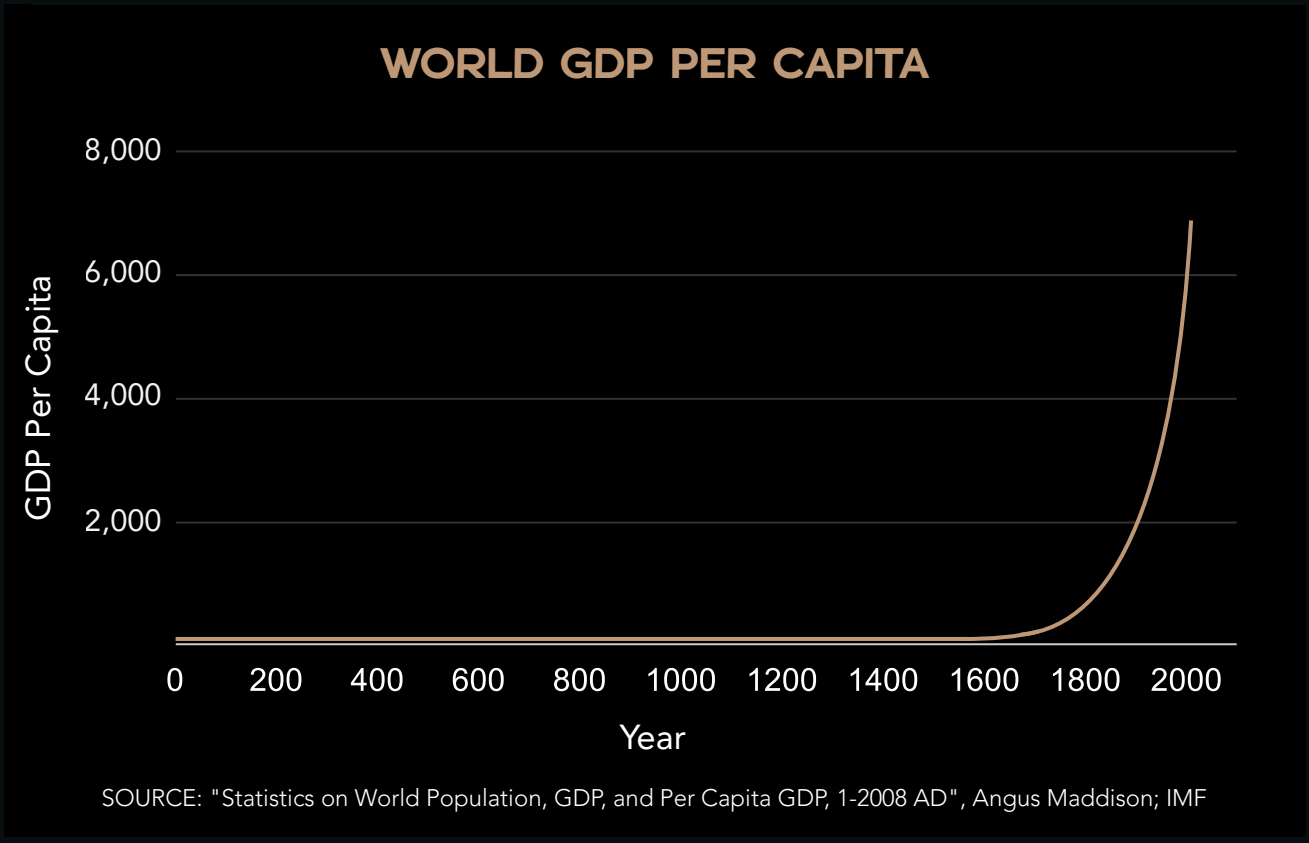
Creating new wealth – and out-maneuvering the inflation that erodes existing wealth – means looking into the future. Innovation is the process through which the future is created. New ways of doing things replace the old ways: cars replace horses, computers replace typewriters, the fast-casual Chipotle model replaces TGI Friday's with all its crazy stuff on the walls. To "innovate" means, literally, to introduce what is new. And each time we transition to something new and better, wealth grows.

The point of long-term investing is to bridge the gap between the (known) present and the (unknown) future. It is because the future is uncertain that investors can build their wealth by earning a return on it. We simply don't know what's going to happen. Investors get compensated for bearing the risk of that uncertainty on their shoulders. How much they get compensated – or whether that "compensation" is even negative! – depends on how wisely they underwrite with their capital the enormous tree of future probabilities. That is the tricky part.

The biggest innovations create the most wealth for investors, because they change the future the most. "Revolutionary" technologies can change the trajectory of our entire society. Naturally, the most disruptive innovations get the most attention, but investors need to be careful – to the promoters of new schemes, nearly everything can be spun as an exciting revolution. For centuries, investors have been bombarded with opportunities to invest their capital into "revolutionary" ventures ranging from the mysterious ("an undertaking of great advantage, but nobody to know what it is" [1720]) – to the dubious

("AOL + Time Warner will create unprecedented and instant access to every form of media" [2000]) – to the ridiculous ("WeWork is revolutionizing the way humans work!"). In investing, most "revolutions" are bullshit.

And yet – the progress of human civilization over the past 250 years looks like this:



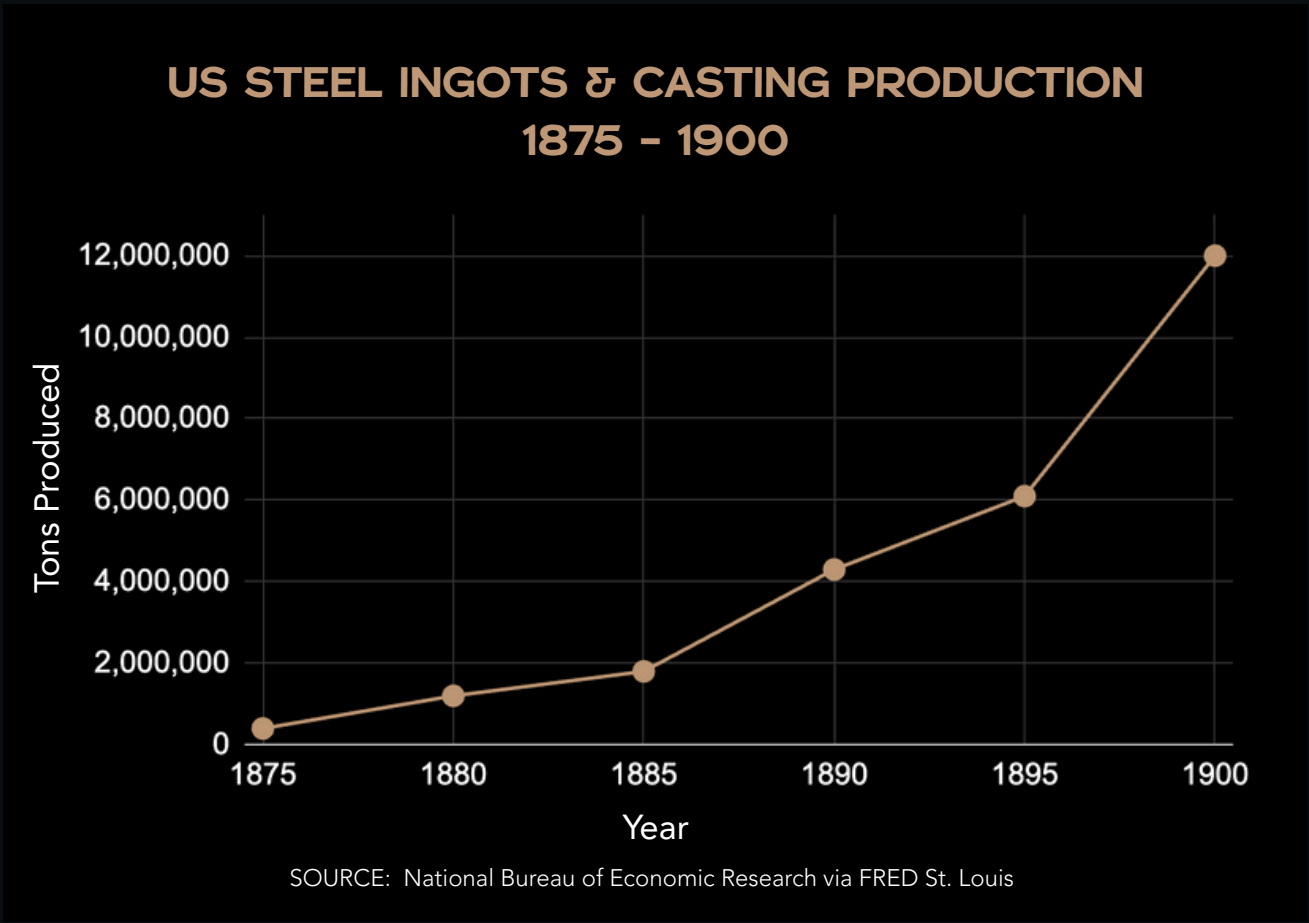
SOURCE: "Statistics on World Population, GDP, and Per Capita GDP, 1-2008 AD", Angus Maddison; IMF

This exponential leap in wealth and material progress is a true revolution, and it was driven by a series of "General Purpose Technologies," or GPTs, emerging and then spreading through society. A GPT is a rare technology that:

1. grows dramatically cheaper as the volume produced increases exponentially, and;
2. as it gets cheaper, it becomes a ubiquitous input to a wide variety of other economic activities.

Consider steel. We associate it with the late 1800s but, in fact, it was already an ancient technology then, having been manufactured by the Indians and Chinese for thousands of years (it is said that when Alexander the Great defeated the Indian king Porus in 325 BC, he requested as his bounty – not gold or silver – but 30 pounds of Indian steel). In Europe, the first steel making techniques were established during the Renaissance, and steel was being produced in small quantities – for swords, razors, watch springs, etc. – by the early 1600s.

While steel in the 19th century was a long-standing technology, it was not yet a General Purpose Technology (GPT), nor a revolutionary one. That required the development of the Bessemer process, patented in 1856, which allowed steel to be made at increasingly low cost and in increasingly enormous quantities, as production capacity scaled up. And scale it did:



SOURCE: National Bureau of Economic Research via FRED St. Louis

The Bessemer process changed everything. By the 1880s, steel had met the two GPT criteria of becoming 1) dirt cheap and, as a result, 2) a ubiquitous input to hundreds of other things (hence the name, "general purpose"). All of a sudden, steel had gone from being a nifty technique for making a few special items, to starting a genuine technology revolution.

Technology revolutions and the wealth they create are hard to wrap our heads around. Everyone knows that Andrew Carnegie became unfathomably wealthy by dominating the market for steel production. But Carnegie's billions (in today's money) represent only a tiny portion of the wealth that the steel revolution created. By far the greatest wealth generation came from the broader society shifting to a new and better way of doing things – using cheap steel as an input. In the words of technology historian and theorist

Carolta Perez, society had entered a new "techno- economic paradigm," in which our entire way of living and working began to adapt itself to the new, now ubiquitous, technology. That is where the real wealth creation happens for forward- thinking investors.

For example, without steel, there would be no Manhattan. Before the late 1880s, the population density of New York was limited by the fact that you couldn't physically cram more people into the city without expanding vertically – but if you erected a wood or masonry building more than a few stories tall, it would collapse. Factories and offices were therefore small, because they could only draw on the relatively small population of workers that lived close enough to walk to work in a reasonable amount of time.[1]

Steel changed that calculation. In 1889, New York completed its first "skyscraper" – supported by a steel frame – of 11 stories, called the Tower Building. Nearby residents gawked at it, waiting for it to collapse. With a strong wind blowing, the architect climbed to the roof and waved to the onlookers below, to show the building was safe. That settled it. Starting in the 1890s, New York developers started erecting taller and taller skyscrapers, culminating with the (102-story) Empire State Building in 1931. Population density rose, and immigrants poured in to capture the opportunity. The building boom was on.[2]

Times Square, 1903

The steel revolution created modern New York. For those investors with the foresight to anticipate how steel would impact the city, the wealth created in real estate alone was astronomical.3 Even more important was the new wealth created by all the businesses (e.g. John Jacob Astor's department stores) that only emerged because of the urban densification that steel made possible. To a forward-thinking investor in 1880, the steel GPT revolution meant not just, "Go long Andrew Carnegie," but more importantly (and more scalably), "Go long Manhattan." And many did.

To harness a GPT revolution as an investor, you need to follow where the new technology is being used as an input. Sometimes these connections can be subtle.

To continue our example, without steel, there would be no automobile industry, and no Ford Motor Company. It was only with the arrival of cheap steel that the weight-to-energy ratio of the early combustion-engine automobiles started to make sense – wrought iron was far too heavy and energy-inefficient to be used for small vehicles.

Ford's Model T used a custom vanadium steel alloy for the mechanical parts and side panels. In fact, the Ford Motor Company invested heavily to develop a unique in-house expertise in metallurgy and steel-making.[4] A forward-looking investor, recognizing the importance of steel, would have focused on Ford's efforts here – because these vanadium steel alloys, and the weight-to-energy efficiency they enabled, helped Ford to engineer the Model T as a reliable yet- affordable option for the burgeoning middle classes – and to dominate the nascent auto industry. While Ford and a few others thrived and created enormous wealth for society (and their investors), the vast majority of other automakers went bust.

Detroit Industry [excerpt from North Wall mural] - Diego Rivera, 1933

Without steel, there would be no modern surgery. It was only with the development of stainless steel surgical tools – which, unlike their predecessors, could be sterilized to avoid infection – that modern surgery became possible and safe enough to perform. Prior to stainless steel, "surgery" was a gruesome (and relatively rare) procedure that involved lopping off wounded arms and legs to avoid death by gangrene. Stainless steel changed the game. The first (successful) appendectomy was performed in Iowa in 1885, the first open heart surgery in Germany in 1896, and the first cornea transplant in 1905. The volume of annual surgeries began to explode by the early 20th century – and today there are roughly 50 million surgical procedures performed each year in the U.S. alone. Just think of all the surgical equipment, all the infrastructure, and all the human capital[5] that has emerged because stainless steel made it possible to cut somebody open without killing them.

In short, society changed because steel became widely available and cheap. That is what a technology revolution looks like. As the production volumes of a GPT grow exponentially, and as the GPT becomes exponentially cheaper, society enters a new "techno-economic paradigm" in which every aspect of the economy is re-thought using the new GPT as an input. This launches the economy into a new, higher plane of productive development. As a long-term investor, this is the broad wealth creation you want to capture with the core part of your assets.

If this process sounds familiar, it's because we are living through it now – except in our time, the GPT is not steel, but semiconductors. Propelled by "Moore's Law," computing has become exponentially cheaper with the passage of time. And as it became drastically cheaper, it became ubiquitous, to the point where a high-powered computer now sits in everybody's pocket.[6]

The computing revolution, which has defined the past 40 years, has now reached its mature phase, in which society has already shaped its ways around the new technology (i.e. we have entered a new "techno-economic paradigm"), and now the use of computing as an input to nearly everything – cars, houses, drones, doorbells, factories, satellites, communication tech, the Internet of Things, AR headsets and even our clothing – is proceeding apace. AI represents the apotheosis of this techno-economic paradigm.

Computing is the most obvious technology revolution today because it is now a mature one – we see it everywhere around us – but other GPTs, such as genetic sequencing, solar PV cells, 3D-printed metals, and orbital lift (i.e. putting stuff into space), are more nascent and will perhaps be even more impactful over the next generation, creating new "techno-economic paradigms" of their own. The revolution is here, and it is fantastic.

"COME WITH ME IF YOU WANT TO LIVE"

But as any Frenchman or Russian could tell you – revolutions create, but they also destroy. Even as technology revolutions push society to a new, higher plane of productivity and wealth, in the process of doing so, the old wealth changes form, and much of it is destroyed and replaced. ("Last year is dead, they seem to say / Begin afresh, afresh, afresh." – Philip Larkin, "The Trees").

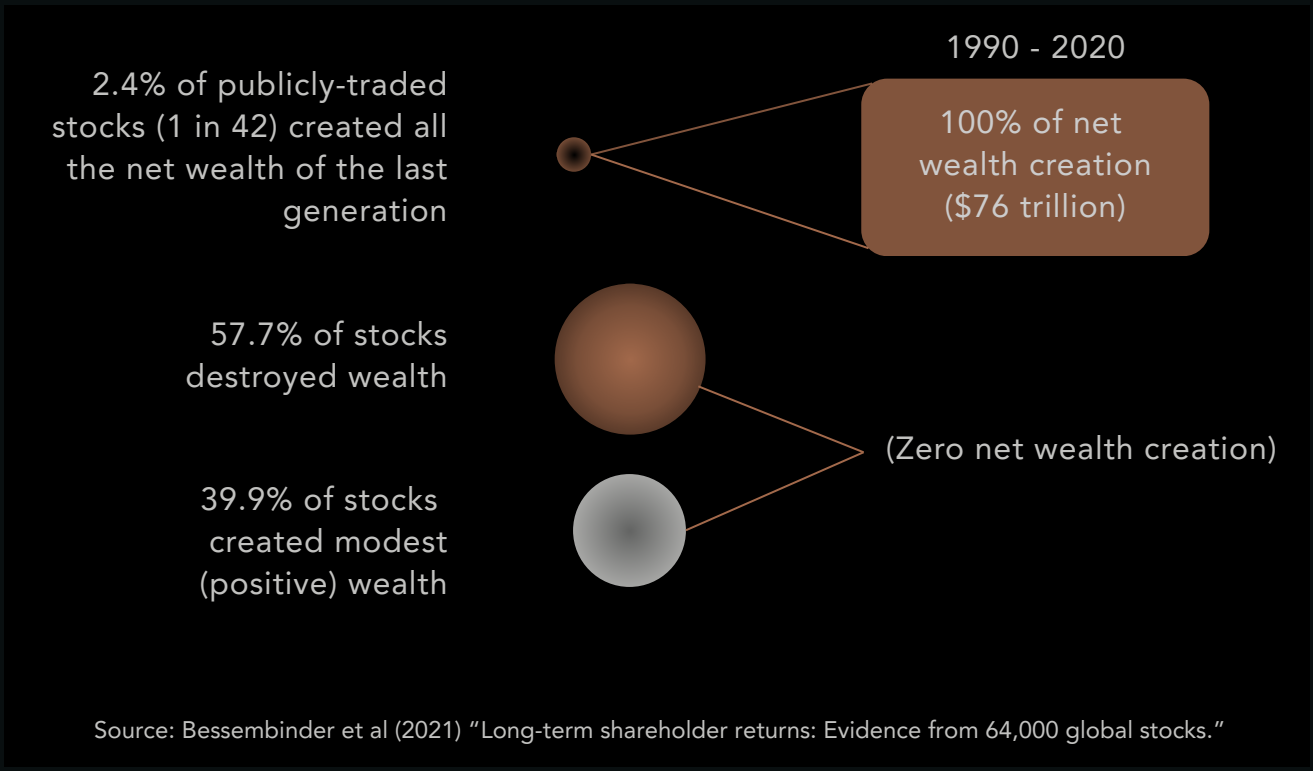
To invest successfully through a technology revolution, you not only must anticipate the course of a GPT and identify those areas set to thrive, but you must also sidestep the old wealth destruction that necessarily accompanies it. To simply ignore the overwhelming force of technology revolutions when allocating the core part of one's investment portfolio – the approach now taken by most investors and family offices – is a poor option, as we'll explain.

When we picture the stock market, we always picture the big, successful companies – Apple, Google, Walmart, etc. But this is a result of "survivorship bias": we focus on them because they are the survivors, the winners, the businesses that rode the wave of the last technology revolution to new heights.[7] Most businesses aren't like that. Most business stories are of stagnation and slow decay – not exactly the stuff that HBS case studies are made of.

This is because old wealth struggles to adapt to new ways. That is not a moral judgment, but a structural observation. The big businesses of yesteryear were not necessarily old fuddyduds, turning their nose at new technologies or business models. A technology revolution is rarely a surprise – it can take decades to play out – and most observant professionals can see where things are going, at least in a general way. The problem, then, is not psychological, but structural. Put simply, big businesses are usually invested in a certain way of doing things, a certain business model that is already producing some level of steady profit – and that is extremely difficult to change. So most don't.[8]

The result is that, while a small minority of companies grow big on the back of the GPT and come to define the new techno-economic paradigm, the majority of existing businesses fail to sufficiently change course, and these companies' value, the wealth they embody, erodes steadily over time.

The data bears this out. Academic research[9] shows that, from 1990-2020, only ~2% of publicly traded companies (1 in 42) accounted for more than 100% of net wealth creation in the global stock market. Meanwhile, a full 58% of publicly-traded companies across the globe actually destroyed investors' wealth.[10] In other words, the data shows that long-term wealth creation is highly skewed – it is driven by a small number of very big winners, while most of the others stagnate or decay.[11]



Source: Bessembinder et al (2021) "Long-term shareholder returns: Evidence from 64,000 global stocks."

Passively owning any stock market index, by definition, puts an investor on the wrong side of history – because the majority of companies in the index are going to produce mediocre or negative returns.

We can see this by looking at snapshots of the past. Consider the largest publicly-traded companies in 1990, for example, the ones that dominated the S&P 500 index at the time: Ford, GM, IBM, Exxon-Mobil, Dupont, Dow Chemical, General Electric, Eastman Kodak, etc. With the benefit of hindsight – are these the businesses you would have wanted to invest in? The majority of these companies badly underperformed the market over the following decades – a few of them even went bankrupt – and few of them can be said to have actively harnessed their business to the technology revolution in computing. Passive investing looks backward. A more thoughtful and active approach is necessary.

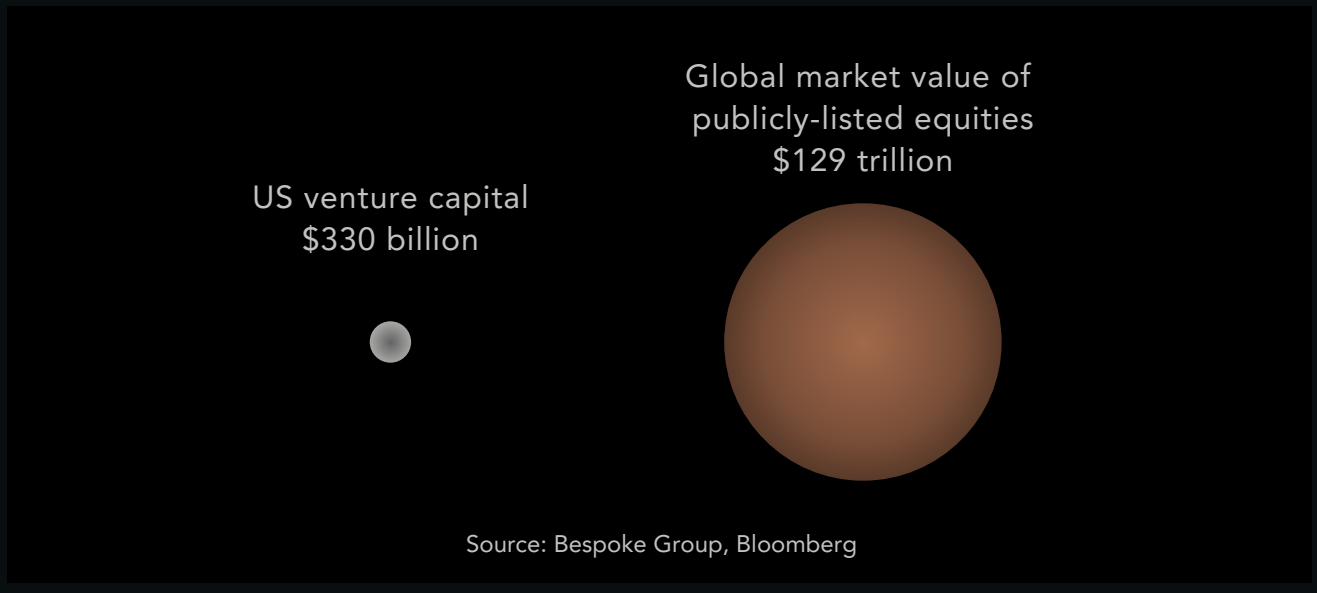
"I HAVE SEEN THE FUTURE, AND IT WORKS"

The high skewness of returns in the stock market – the fact that overall wealth creation is dominated by a small handful of big winners – means it's worth spending significant time and effort to identify those winners, rather than passively invest in a broad market index and hope for the best. But how do you find them?

After all, a forward-looking investor in 1990 might have appreciated the scale of the ongoing computing revolution – and invested in IBM, the biggest computing company at the time, only to find themselves holding a dud.

Active stock selection is a laborious and difficult task. Thankfully, the skewness in wealth creation across firms is so high – i.e. the potential rewards from identifying just a few of the big winners, and avoiding the big losers, are so substantial – that an active investor is afforded much wiggle room. In a system with high positive skew, and with a sufficiently long time horizon, you can be "sorta" right and still produce excellent investment results.

The key is to avoid speculation. This might sound like a paradox. But for a thoughtful, long-term investor, harnessing technology innovation isn't about predicting which sci-fi future is going to play out, or picking which speculative startup is someday going to become the big winner. Despite the lofty claims of futurists and gurus, this kind of forecasting is virtually impossible. It is gambling, sanctified by an aura of techno-futurism.12 That is why this kind of "innovation investing" tends to be relegated to a small side-pocket of most investors' portfolios, rather than at the core where it belongs.



Source: Bespoke Group, Bloomberg

The nature of general-purpose technologies (GPTs) holds the solution. As we discussed above, GPTs drive technology revolutions and wealth creation at the total society level. To do that, they must operate on a scale that is truly enormous. Because of this scale, they behave in roughly predictable ways – as noted above, with a GPT, production capacity increases exponentially, while price decreases exponentially, and that leads to wider and more intensive use of the GPT as an input.

When analyzing GPTs, you don't necessarily have to predict the future – you just need to analyze and understand the present. The exponential and self-reinforcing nature of GPTs (more production + lower prices = wider and more intense usage) means that the growth and intensity of their future deployment can be very roughly anticipated – even if the variety of uses often cannot – from any given starting point.

"Time present and time past, / Are both perhaps present in time future, / And time future contained in time past"

– T.S. Eliot, "Four Quartets"

For practical investment purposes, what this means is that you can harness the engines of innovation in a way that is moderately low-risk and non-speculative, and therefore appropriate for the core part of your investment assets. Put simply – identify the most probable beneficiaries of the GPT (both producers and users of it), choose those that appear to have durable competitive advantages, and invest in them at a time when their market valuation is not unreasonable.

Take Apple (AAPL) for a quintessential example. Even if you had anticipated in 2005 that smartphone adoption would grow exponentially (not a fanciful conclusion if you consider the natural path of computing as a GPT), in 2005 – two years before the famous iPhone launch – it was impossible to predict that, once the dust settled, Apple would eventually dominate the then-nascent smartphone market.

Fair enough. But fast forward to 2011 – it's now four years after the launch of the iPhone, and we're well into the smartphone adoption curve. By that point, it had become pretty clear that Apple would – at the very least – be part of a small oligopoly of major smartphone players.13 Even If you invested in Apple in 2011, after its competitive advantages had already become clear, due to the exponential growth of computing as a GPT (in this case, expressed in the form factor of a smartphone), that investment would still have returned roughly 4x the return of a broad stock market index over the following decade.[14]

The key is to avoid undue speculation. By focusing on analyzing and understanding GPTs, an investor can anticipate with some confidence the long-term trajectory of a business that has harnessed itself to the GPT's exponential pattern of growth. Apple is a very direct and classic example – the Carnegie Steel of the computing revolution – but the same approach can be applied to more indirect situations. Consider John Deere (DE). Its entrenched position with farmers is fairly obvious: this is a business that operates in a quasi- duopoly (in fact, U.S. farmers often ask, "Are you green [Deere] or red [Case IH]?").

Yet Deere, like Apple, is harnessing the computing GPT revolution by building more and more digital capabilities (GPS precision farming, self-driving tractors, drones, farm management software and analytics, AI-driven planting, etc.) into its equipment. Over time, Deere is morphing from a "tractor company" into a robotics and software company that just happens to sell tractors. Even as new farm technology startups enter the industry, Deere seems likely to use its entrenched position and existing relationships with farmers to resist any major competitive pressure, and either mimic or acquire new startup technologies. At the same time, Deere is investing heavily in its own R&D efforts – few people realize that this tractor company now employs more computer engineers than mechanical engineers. In short, Deere is a fundamentally low risk business from a competitive standpoint.

At the same time, as it layers more and more computing technology into its equipment, Deere sells more to each farmer customer, each year. And these sales are being made at attractive profit margins.

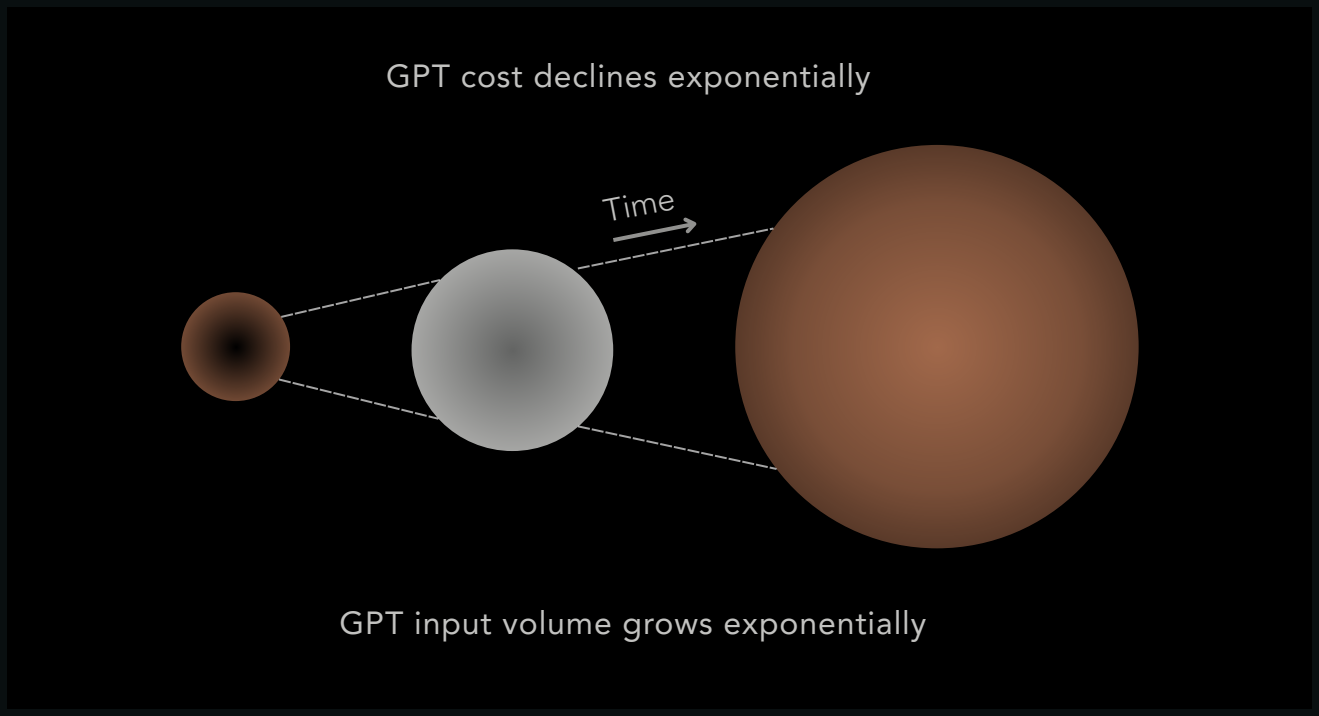
As the amount of computing embedded in farm operations continues to grow, the most probable scenario is that Deere's revenues will compound at a high rate for the next decade or more.

Deere's efforts in precision farming and computers are no secret. In conducting this analysis, we don't possess any hidden information that other investors can't see with their own eyes. Our longterm approach to innovation investing does not work because of an information advantage per se, but because of an analytical and behavioral one. Put another way, most other investors will focus on other, shorter-term, things.

As we write this, Deere is coming off a cyclically strong period for equipment sales and its stock price is high. But there will inevitably come a period in the next few years, when the farm equipment cycle turns downward, and shorter-term investors sour on Deere. At that time, we will still be focused on the long-term growth

trajectory of computing, as discussed above. And sales by other, shorter-term investors will provide us a buying opportunity to harness our clients' capital to Deere's long-term trajectory.

Do this in a sufficiently diversified fashion – both globally and across a handful of major innovation vectors – and you have built a durable engine for the long-term compounding of generational wealth.



For more information, or to speak with a member of the Bespoke Advisory team, please visit us at bespokeadvisory.io.

ENDNOTES

[1] people who happen to be living, mostly spread out in 2-4 story buildings, within a roughly 4-mile radius. Although elevated train lines allowed some white collar professionals to begin commuting from the suburbs by the late 19th century, at 10 cents a ride, the "El" was prohibitively expensive for most workers to use daily (not to mention inconvenient and dangerous). As a result, rather than the highly productive, middle-class professionals that dominated Manhattan in the 20th century – think Mad Men – in the 19th century, Manhattan was populated by the (mostly-idle) rich – think The Age of Innocence – and by a warren of unskilled immigrants crammed into dilapidated, 2-3 story houses – think Gangs of New York. Needless to say, this was not an optimal background for new business formation and productivity growth.

[2] Ironically, by the late 1920s, Manhattan's population density actually began to decline again, and the city spread out – because the subway enabled ordinary people to commute from homes in the suburbs. However, to build the NY subway required – what else? – enormous amounts of cheap steel.

[3] In 1900, we would *very* roughly estimate that the total real estate value of Manhattan was worth $60billion (in today's dollars). Today, that is closer to $3 trillion. That is a ~2.5% annual compounded rate of growth, after inflation.

[4] Everybody knows about Ford's famous assembly line, but assembly line techniques can be copied. By contrast, the importance of steel innovation to Ford's success can hardly be overstated. Ford built America's first vanadium steel heat treatment plant in 1907, and used the alloy to launch the Model T in 1908. This was a major differentiator: at the time, vanadium alloys were unheard of in the US – in fact, almost no steel furnaces in the US could even reach the temperatures needed to produce vanadium steel alloys. But Henry Ford had a close relationship with two brothers who owned the one mine in Peru that generated 92% of global vanadium supply, and he invested heavily into developing the alloy. This bet paid off in spades. Ford's vanadium steel was nearly twice as strong as regular steel, but even lighter. This was the structural game-changer that allowed Ford to produce a cheap and reliable Model T for the masses.

[5] Surgeons are notorious prima-donnas – but perhaps with some justification! According to a recent estimate, the total cost to train a surgeon in the U.S. amounts to $1.5 million, and closer to $2.0 million for a neurosurgeon. That's a lot of human capital.

[6] Incidentally, research suggests that, after 75 years of falling unit costs, cutting-edge computer chips stopped getting cheaper to produce around 2010-2011. Although we continue to find ways to cram more transistors onto a chip, the cost per transistor is no longer falling, as the new innovations are exponentially more costly than before (if you have seen what goes into producing ASML's cutting edge EUV lithography machines, just one of which costs hundreds of millions, this will come as no surprise). This doesn't suggest the computer revolution is ending – but it does suggest it is maturing.

[7] Walmart might seem like the oddball on this list. But Walmart was actually an early and aggressive adopter of computing and network technologies – for example, installing computerized POS terminals in its stores in 1975 (only 2 years after IBM invented them) to collect and analyze sales data, and installing a company-wide computer network in 1977 to interface with suppliers (supplier relations – some would say supplier "squeezing" – arguably constitutes the core advantage of Walmart's business model). Few other retailers were so forward-thinking in their adoption of the new technology. Walmart the plucky upstart couldn't have become Walmart the giant without harnessing its business to the computer revolution. This is what we mean by finding already-established companies that are riding technology revolutions to get bigger and better.

[8] Most people are familiar with the idea of "disruptive innovation" originally coined by Clayton Christensen, the HBS professor. What many don't know is that Christensen in his writings advised that existing businesses should not attempt to change their business model in response to a disruptive threat, because this would be structurally so difficult to pull off. Instead, he (somewhat weakly) advises existing businesses to start a separate division that mimics the disruptive entrant, and try to grow that division separately from the main business. Needless to say, this almost never works. Even the guru of disruptive innovation has little advice to offer existing players – such is the difficulty of making structural change.

[9] Most notably, Bessembinder, H 2021. "Long Term Shareholder Returns: Evidence from 64,000 Global Stocks,".

[10] In the global data, small company stocks are more likely than large company stocks to produce negative 30-year shareholder returns; in fact, a surprisingly large number of small company stocks decline by -100% (i.e. go to zero). But the skewness in long-term returns, the degree to which overall wealth creation is dominated in a small number of big winners, is similar across both small and large company stocks.

[11] Bessembinder's data (2021) actually shows that the skewness of wealth creation is slightly more pronounced in international stock markets than in the U.S.. This refutes the notion that it's only big US information technology companies that drove this skewness in stock market returns.

[12] This might seem unduly harsh to early-stage VC and startup investors. But as these investors will tell you – what they are really doing is identifying talented founders, not necessarily underwriting the prospects of those founders' original business ideas (which often get "pivoted" out of recognition). This is a form of human capital evaluation that can only be done at small scale and is

outside the scope of what we're talking about here. Remember - the entire VC industry, including later-stage VC, is about $330 billion dollars, which is smaller than CalPERS. The market value of publicly-traded stocks, globally, is $130 trillion.

[13] By 2011, smartphone penetration in the US and Europe already exceeded 50%, and the Apple / Android duopoly had become firmly established.

[14] The primary driver of AAPL's outperformance in the 2010s was revenue growth. Apple generated $108 billion of revenue in 2011. It produced $366 billion in revenue in 2021, a decade later. That is a compound annual growth rate of 13%. Operating profit margins were basically unchanged over the period (31% in 2011, 30% in 2021). Yes, Apple's P/E ratio increased from 14x in 2011 to 25x a decade later, but even if valuation had remained steady at 14x, AAPL in 2021 would still have traded at $79, versus $16 in 2011, roughly double the performance of the S&P 500.

IMPORTANT INFORMATION:

Disclaimer:
Bespoke Advisory is registered as a registered investment advisor (RIA) with the US Securities and Exchange Commission (SEC). Our registration number is 801-127194.

RIAs have an obligation to comply with the applicable provisions of the Investment Advisers Act of 1940 and the rules that have been adopted by the SEC. Additional information is available at: adviserinfo.sec.gov/firm/summary/323909.

The information provided is for educational and informational purposes only and does not constitute investment advice and it should not be relied on as such. It should not be considered a solicitation to buy or an offer to sell a security. It does not take into account any investor's particular investment objectives, strategies, tax status or investment horizon. Bespoke Advisory and its representatives do not provide legal, accounting, or tax advice. Consult your attorney or tax professional. Representatives have general knowledge of the Social Security tenets. For complete details on your situation, contact the Social Security Administration. No investment strategy or risk management technique can guarantee returns or eliminate risk in any market environment.

All investments include a risk of loss that clients should be prepared to bear. The principal risks of Bespoke Advisory's strategies are disclosed in the publicly available Form ADV Part 2A. Asset Allocation may be used in an effort to manage risk and enhance returns. It does not, however, guarantee a profit or protect against loss. Under Securities Law, a company or private fund may not offer or sell securities unless the transaction has been registered with the SEC or an exemption from registration is available. Certain securities offerings that are exempt from registration may only be offered to, or purchased by, persons who are accredited investors. One principal purpose of the accredited investor concept is to identify persons who can bear the economic risk of investing in these unregistered securities.