



# Why Innovation Stocks are Crucial in Asset Allocation

In a slow negative-growth world, we believe innovators could monopolize equity returns.

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## IN BRIEF

- There is ample evidence that the pace of innovation today is faster than at any point in human history. Gains in processing speed, breakthroughs in drug therapy, and the proliferation of artificial intelligence and e-commerce across industries are driving not only improvements in daily life but also wealth creation. The companies supplying the new technologies and those successfully adopting them are equally significant contributors to this momentum.
- With this technology revolution comes an increase in the number of innovators disrupting less-agile companies and, in some cases, entire industries. This trend, we argue, was for decades partially responsible for the Value Premium. Today, however, the threat appears more difficult to overcome, which may explain why that premium is either dormant or gone, at least in the formulaic way it was illustrated in historical studies.
- As institutions and individuals adapt to lower capital market expectations for what may be the next decade, there are two crucial reasons why we think stocks of high-innovation companies may need to be viewed as the new core in asset allocations:
  - First, investors can't afford to leave return on the table – disruptive innovation is generating revenue and earnings growth many multiples higher than that of the overall equity market; and
  - Second, by not owning innovation, investors may very well be left owning only areas of the economy bearing the brunt of innovation's "creative destruction".

## Human history of innovation: evolution and revolution

The history of the human species has been a story of constant evolution with periods of revolution. Certainly from the moment of the first upright-standing human six million years ago to the more refined intellects that launched the scientific revolution in the 16th and 17th centuries, the transformation was enormous, but its pace could be considered doggedly slow and incremental. The glacially slow upward trend in that evolution was most tangible in improvements in economic standards of living from century to century, productivity-enhancing innovation, and modestly longer lives. Yet, using those metrics, it has only been in the past 250 years that the human race has seen a dramatic surge in productivity, wealth, and richness in daily life never seen before, measured both by the rate of change and the magnitude. And while what we are seeing today has no historical precedent in terms of the geometric rate of change, looking back at periods within those 250 years of technological revolution can still be instructive in thinking about the effects of disruption occurring today and its implications for wealth creation and creative destruction across society.

These societal transformations are very relevant to investors from an asset allocation standpoint, as there is a "zero-sum game" aspect to the displacement of mature companies, processes, and even industries by new, more innovative companies and technologies. For equity investors, holding a portfolio primarily of the former and very little of the latter is likely not a prudent decision in our view, even if one believes that "Growth is due to underperform" in the years ahead due to its strong recent performance over Value as a style. We in fact believe these equity styles and indexes have become antiquated and in many cases simply wrong in defining public companies and their stocks. Moreover, we believe investors should begin to look at Innovation as its own asset class, representing the forefront of evolution in society, business, medicine, and human aspiration. Just as importantly, we believe innovation may have grave consequences for companies unable or unwilling to adapt. We see the result as a likely widening of the gap between haves and have-nots, which we believe likely plays out among stocks in just as Darwinian a fashion in the decades ahead.



## Innovation's ascent and acceleration

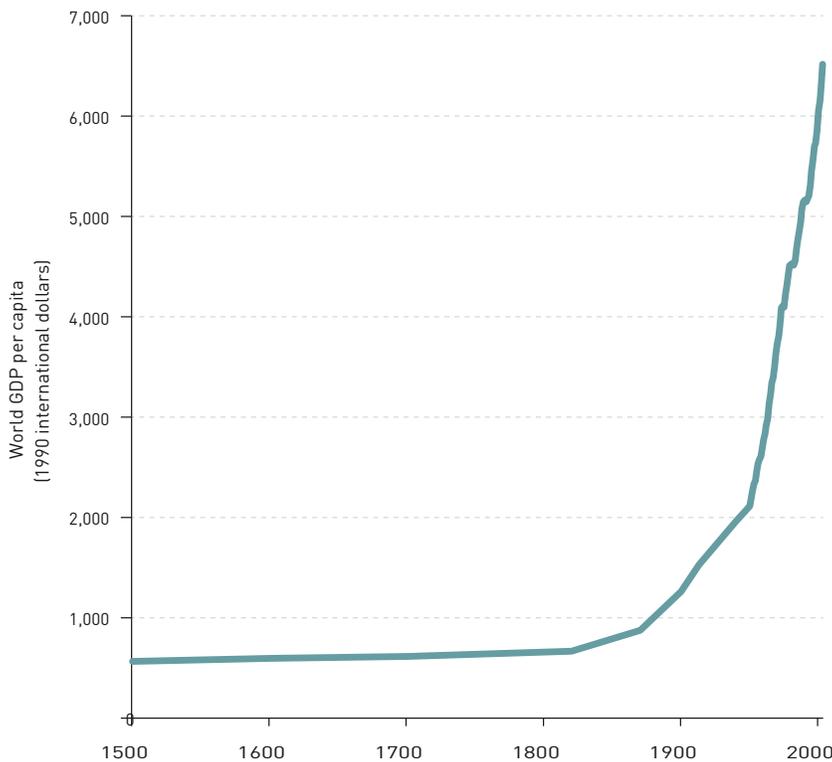
This moment in time where we are replicating the processing speed and prowess of the human brain – transforming cognitive processes into adaptive digital intelligence – is both the culmination of the technological revolution that began with microprocessors, computers, and the internet, and the rapid ascent into a very real world of robots and human replacement technologies long predicted in science fiction.

Some have dubbed it the “fourth industrial revolution,”<sup>1</sup> following #1: the steam engine in the 18th century, #2: fossil fuels and electrification in the late 19th and early 20th century, #3: the

information technology revolution that took hold in the last half of the 20th century, and now #4: integrating adaptive, intelligent technologies across everyday life, including biology, transportation, and the realms of work and consumption. We would largely agree, though we categorize these revolutions a little differently (below), classifying what is happening today and for the next few decades as simply the “Cognitive Revolution”.

The result of these revolutions has been spectacular in terms of global economic growth, as illustrated by the IMF graph below, showing the massive gains in GDP per capita over the last quarter of the last millennium.

**Chart 1. World Gross Domestic Product per Capita**

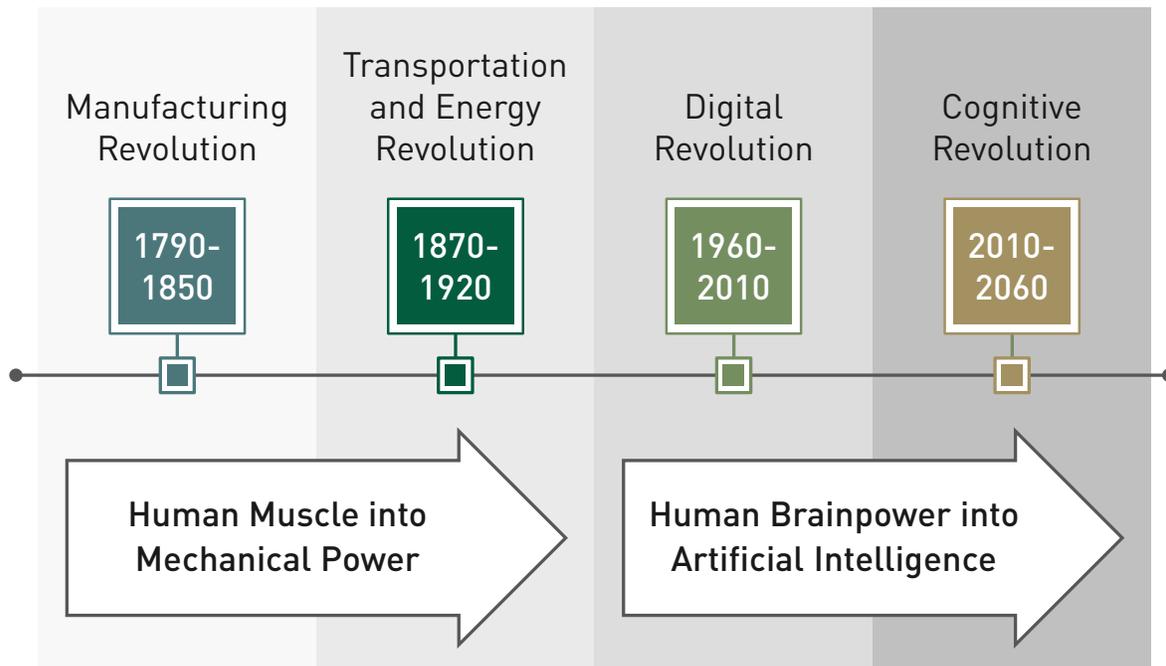


Innovation itself has been in one long industrial revolution since the 1700s, but could be considered in its 4th stage – a minor clarification, but one that separates what we’ve called the “revolution of the muscle” (stages 1 and 2, where muscle power was augmented into mechanical power) and the “revolution of the brain” (stages 3 and 4, where cognitive power is being transformed into adaptive digital intelligence). Below, we refine the idea of four industrial revolutions into four stages of one great technological revolution, which has seen periods of surging innovation and growth, interrupted by wars and economic depression.

Source: World average GDP per capita 1500 to 2003. Data extracted from Angus Maddison's "World Population, GDP and Per Capita GDP, 1-2003 AD"



**Chart 2. Timeline Illustration of Innovation / Industrial Revolutions**



Source: Lord Abbett. For illustrative purposes only.

### #1: Manufacturing revolution (1790-1850)

This is typically referred to as the advent of the Industrial Revolution, and it ushered in an unprecedented surge in economic growth. The factory system, the steam locomotive, division of labor, and the rapid automation of muscle power into mechanical processes launched an era of unprecedented industrial production.

### #2 Transportation & Energy revolution (1870-1920)

With the Civil War over and the Transcontinental Railroad reaching completion, the quest to conquer time, distance, and space was under way in the U.S., and with it greater efficiency, speed, and wealth creation from commerce. At the start of this period, there were no automobiles, subways, or airplanes. By 1920, automobiles replace the horse and buggy, the New York and Chicago subway systems are built, and the military leverages fighter planes in World War I. This transformation that enabled unprecedented mobility and gains in standard of living was powered by the Fossil Fuels revolution that enabled the combustion engine, electricity, refrigeration and (mercifully) toilets and sewage treatment. The economic gains from this period were spectacular, as were the decimation of industries made irrelevant by innovation. Notable as well during this period was the development of the telegraph and telephone, the first advances in what would explode later in the century as the information and communications revolution.

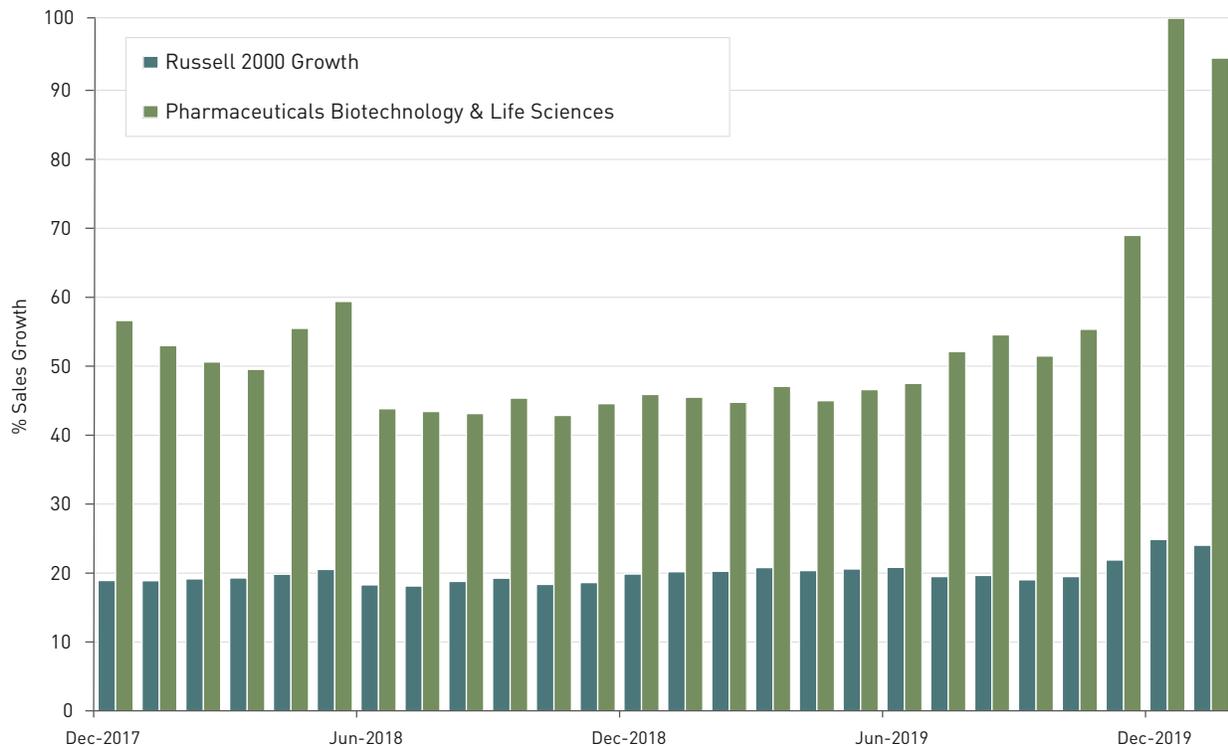
### #3 The Digital and Information revolutions (1960-2010)

Not to imply that nothing occurred between 1920-1960 in terms of innovation (Edison, Turing, and others would certainly have something to say about that!), but the introduction of the integrated circuit and microchip in 1959 proved to be a catalyst for a new revolution that spawned the greatest period of transformation of society and wealth creation in human history, the Digital Revolution, which then spawned the Information Revolution. The personal computer, internet, social networks, software and cloud computing have amplified our lives and the global economy, touching virtually all sectors and industries.

### #4 Cognitive Revolution (2010-????)

Today, the "revolution of the brain" is in full bloom. In areas like artificial intelligence, gene therapy, and robotics, the pace of progress is proving to be exponential rather than linear, and the application of this technology is likewise powering the fortunes of companies and investors alike. And while technology has permeated all areas of the global economy, three areas stand out, in our view, from an investment perspective:

- Breakthroughs in **biotechnology** are likely to be enormous in the decade ahead. Thanks to the decoding of the human genome and medical technologies that have dramatically accelerated the understanding of – and applications for – gene therapy, immunotherapy, and diagnostics, we are seeing the pace of successful drug therapies dwarf that of the past. And this is translating into rapid revenue growth today, as shown below, among small and mid-sized pure-play biotech. This is not some far-off phenomenon but rather it is happening right now.

**Chart 3. Biotech Drug Discovery is Driving Real Results for Investors**

Source: Factset, Lord Abbett. As of 01/31/2020.

- **Artificial intelligence** is emerging from its infancy into a prolific adolescence that will influence our lives in stunning ways. Autonomous vehicles, advances in areas such as education, human resources and recruiting, the military, and agriculture are just a handful of areas where machine learning and adaptive technologies will transform society and the global work force. This transformation will likely have massive winners and “left behind” casualties, and the net gain for total economic growth is debatable in our view.
- **Cloud computing, ecommerce, and 5G networks** continue to become more interrelated as businesses become more focused on internet sales and engagement with customers and clients. Cloud infrastructure has become a core requirement for developing an e-commerce platform for scalability, speed, security, and cost savings; moreover, the advent of a global 5G network promises to benefit these types of companies the most. And while e-commerce has become seemingly ubiquitous in our day-to-day lives, only 12% of retail today comes through this method. The continued automation of consumer society still has far more to go over the next decade.

### Innovation as a Core Asset Class

Prior to the COVID-19 pandemic, areas of innovation were already becoming the dominant component of global stock markets. The companies that had achieved trillion dollar market valuations were all titans of the technology revolution, from Microsoft to Google to Apple to Amazon. Dominant mega-caps aside, the total market valuation percentage of this segment expanded.

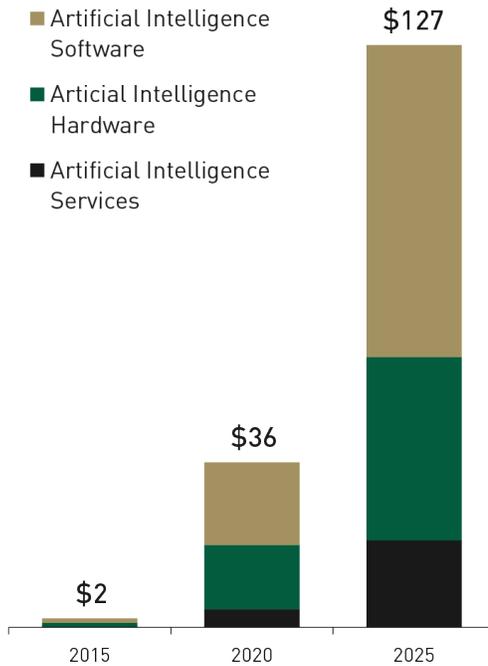
In addition, anecdotal evidence does warrant some attention in this discussion, given how ubiquitous a few of the big winners in disruptive areas have become. Looking at the three biggest winners over the past 40 years<sup>2</sup>, these stocks further the case for an innovation anomaly in the market:

- **Microsoft**, which experienced revenue growth of 38% a year between **1988-1999** (growing from \$591 million to \$20 billion in 11 years – a factor of 34x) and stock price appreciation during that period of 58% per year (turning a \$10,000 investment into \$1.6 million in 11 years)
- **Amazon.com**, which experienced average revenue growth of 30% a year between **2006-2018** (growing revenues from \$9.8 billion in annual sales to \$221 billion – a factor of 23x) and stock price appreciation during that period of 41% per year (turning a \$10,000 investment into \$629,000 in 12 years)



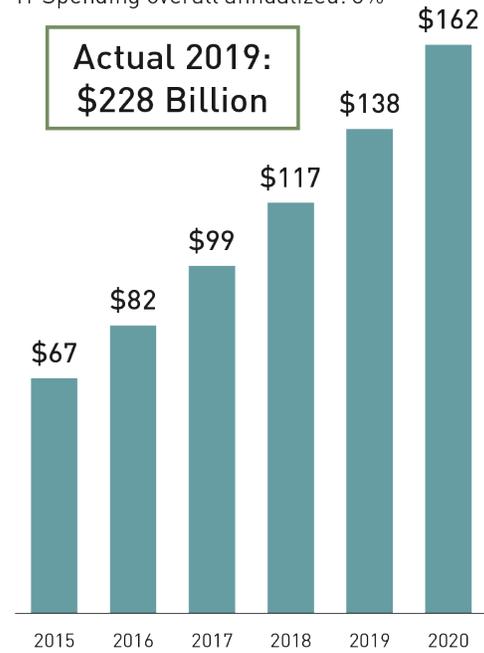
### Chart 4. Aggressive Forecasts for Growth May Now Look Too Conservative

WORLDWIDE SPENDING ON ARTIFICIAL INTELLIGENCE, 2015-2025 (\$B)



WORLDWIDE SPENDING ON PUBLIC CLOUD COMPUTING, 2015-2020 (\$B)

Cloud software annualized spending: 19%  
IT Spending overall annualized: 3%



Source: Cloud software spending: IDC, 2016; data past 2016 represents projections. Worldwide Spending on Artificial Intelligence: BofA Merrill Lynch Research Estimates, 2017; data past 2017 represents projections. For illustrative purposes only.

- Or perhaps the greatest growth stock ever, **Walmart**, which experienced an incredible run from **1972-1999** of 32% average revenue growth (growing from \$78 million to \$138 billion in 27 years – a factor of 1,764x) and stock price appreciation during that period of 30% per year (turning a \$10,000 investment into \$11 million in 27 years!) Notably, the end of this run coincides with when Amazon began its insurgency in retail, reflecting the creative destruction endemic to capitalism – and growth investing.

These examples defied the traditional dividend-discount model (DDM), discounted cash-flow (DCF) method, and sell-side expectations and illustrate that the operating momentum and price appreciation of innovative companies can persistently prove traditional analytics to be far too conservative for extended periods of time. And, in each of these cases – and hundreds of others – these stocks were classified as grossly overvalued, unsustainable, and often as over-hyped, one stock bubbles that would come down to earth once a particular mania subsided. Amazon’s crash from \$96 per share in early 2000 down to \$5 per share in September, 2001 served to prove that theory correct. Except that the stock then grew from \$5 to \$2,000 over the next 17 years. That case illustrates the full spectrum of both innovation investing and the momentum factor.

And so, we believe there are clear deficiencies in the view that the “correct” way to invest in equities is to only seek discount stocks and hold them until the market comes around to your thesis.

As the chorus of doubters continues to call for the end of the sustained success of innovation stocks and advocate for a pivot away from Growth, we continue to advocate that institutions, individuals, professional allocators, and even liability-focused plans view innovation as a new core asset class and not the “nice to have” satellite it has been considered since the dot com bubble burst in 2000. In our view, however, the key is to view equity investing less in terms of growth and value and more in terms of innovation, durability, and disaster. Companies that are driving new technology successfully fall into the innovation category; companies with dominant competitive moats and resilient business models fall into the durability category; and companies vulnerable to change and a lack of agility would fall into the disaster bucket. All three of these classifications can fall across the Growth and Value Indexes.

As seen above, innovative technologies and emerging industries may have decades left of runway before reaching maturity, and in their path we believe will be the destruction of older companies. We have called for a potentially more “Darwinian decade” ahead, with more Kodak’s, Blockbusters, Borders Books, and Toys R Us’ to fall in the wake of new innovation and the displacement risk it poses to older companies.



Thus, in our view, the two key risks for investors today are (1) leaving returns on the table in a time when capital market expectations and return forecasts continue to come down for the next decade, and (2) owning a portfolio primarily of “disasters” again, companies and industries vulnerable to the displacement risk of innovation. With the trajectory of innovation growing exponentially and valuations dampened by risk aversion, we believe, this is a time for investors to be owning the secular bull markets driving long-term market returns for the long run.

## Next Steps

In this paper, we covered the big themes in innovation dominating the global economy and equity markets, in our opinion, for decades to come. In the next paper, “Introducing the Innovation Premium,” we dive deeper into the academic argument for Innovation. We look at both risk-based and behavior-based explanations for the inefficiencies that drive persistent outsized returns from high-innovation stocks, noting a direct relationship between innovation and the Value premium. The final two papers in this series look at the chronic problems of growth indexing, failing to guide investors to true growth and innovation stocks, and finally the importance of momentum—both fundamental and price—in effectively identifying innovation when it is flourishing and being recognized in the market.

<sup>1</sup>“The Fourth Industrial Revolution,” Schwab, Klaus, World Economic Forum, 2016, Random House

<sup>2</sup>Source: Bloomberg, Lord Abbett research as of 12/31/2019.

### IMPORTANT INFORMATION

**A Note about Risk:** The value of investments in equity securities will fluctuate in response to general economic conditions and to changes in the prospects of particular companies and/or sectors in the economy. While growth stocks are subject to the daily ups and downs of the stock market, their long-term potential as well as their volatility can be substantial. Value investing involves the risk that the market may not recognize that securities are undervalued, and they may not appreciate as anticipated. Smaller companies tend to be more volatile and less liquid than larger companies. Small cap companies may also have more limited product lines, markets, or financial resources and typically experience a higher risk of failure than large cap companies.

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