The Next Chapter in Technology

Will this decade produce new tech names to dominate the industry?

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As an investment manager, we are often asked what makes the Technology sector so special. Why are we such avid advocates for a collection of companies that operate in such obscure and little-known fields? Why not dedicate our capabilities to more practical endeavors like analyzing grocery stores or pipelines?

The answer is simple, we see Technology as not just a sector but an expression of human ingenuity and innovation. Technology companies are collections of some of the brightest people in the world with the most vivid imagination and strong-willed determination who have set out to disrupt a stale status quo. A follow up question that is also asked is “how do we know if they will succeed?”

Conditions are ripe for technological success

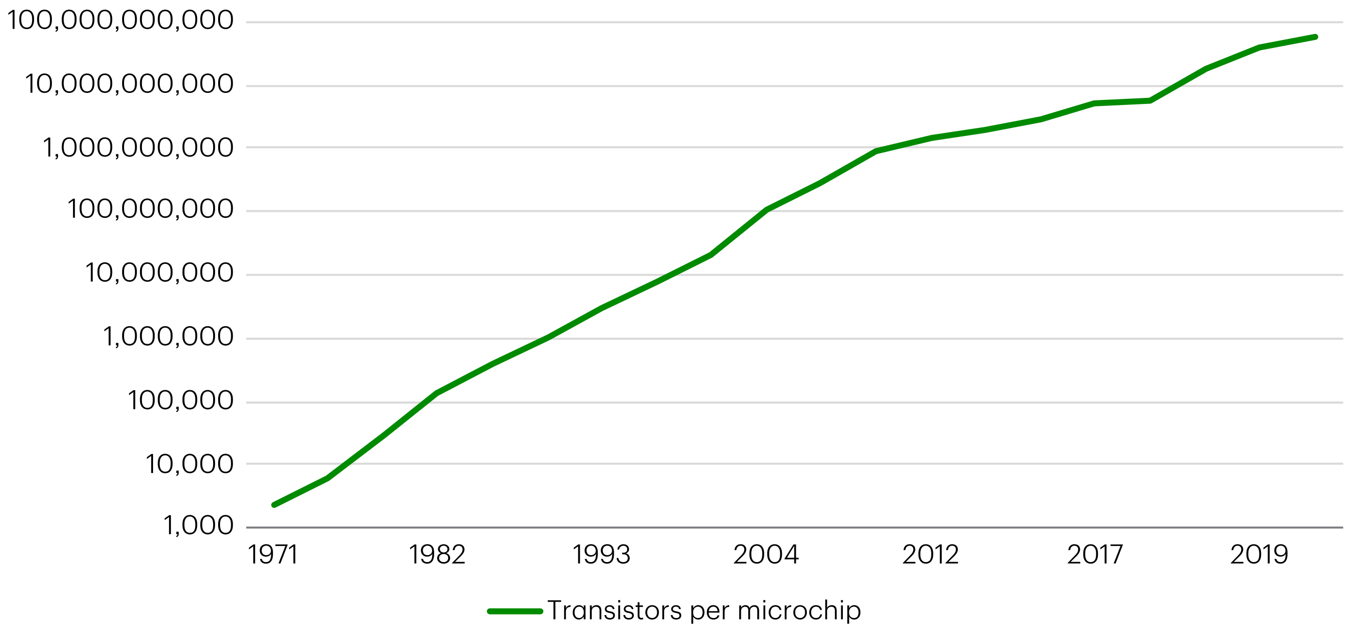
Innovators only succeed under certain conditions. We believe that the decade of the 2020s will be a potent incubator for technological disruption. But what are the building blocks for technological success?

Baseline of innovation - *"If I have seen further it is by standing on the shoulders of Giants"* was the elegant metaphor of Sir Isaac Newton expressing that progress happens by building on the discoveries of past generations. Fledgling industrial societies of the past produced technological marvels but lacked the building blocks to reach full-scale industrialization. Instead, their inventions became gifts to future generations.

Fast forward to modern times. The invention of the transistor at Bell Labs in 1947 released society on an irreversible path of innovation. First, the building blocks were still few, and the breakthrough technology was relegated to obscure tasks like powering giant mainframes in backrooms of prestigious research centers. But the building blocks kept stacking up and by the 1990s we entered the PC era, the 2000s brought us the age of internet and the 2010s miniaturized innovation into a handheld supercomputer. What's next?

> The decade of the 2020s will be a potent incubator for technological disruption.

Transistors per microchip since 1971



Source: Wikiwand. Data as of November 2, 2021

Innovation

A population receptive to change – The modern economy is a consumer economy. We believe that a population receptive to, and demanding of, innovation is a pre-requisite for technological progress. Fortunately, we are in uncharted territory. In the course of just a couple of generations, the average citizen has gone from a digital sceptic to an insatiable techie, demanding more capable devices and applications with every passing year.

We see a spectrum of progress. From immobile one-way transmission mediums like the television, to portable two-way supercomputing transceivers (smartphones), to a shared virtual reality environment such as the metaverse, to the very possible realization of a brain-machine interface (Elon Musk's Neuralink idea). The next 10 years will see more innovative devices continue to deepen every consumer's integration into a richer digital world that will, with time, more closely resemble the capabilities of the physical one.

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A society receptive to – and demanding of – technological change

Phase 1: You

Phase 2: You + Smartphone

Phase 3: You + Smartphone + Home Assistant

Phase 4: You + Smartphone + Home Assistant + Watch

Phase 5: You + Smartphone + Home Assistant + Watch + Intelligent Wireless Headphones

2005

2020

Abundant and inexpensive capital - Would there have been a Da Vinci without the Medici? The reality of capitalism is that great minds need funding to develop their ideas into innovations. Today, we see the taps of capital as wide open. Technology venture capital, private equity, and public market financing is at, or near, record levels. Whether it is an emerging entrepreneur with a disruptive idea or a multinational technology company targeting an innovative new product line, investors worldwide are showing a willingness to invest and the patience to wait for returns on a multi-year horizon.

An encouraging regulatory environment - Galileo Galilei, dubbed the father of modern science, spent a decade of his life under house arrest for propagating the correct view of heliocentrism (earth rotating around the sun). Obviously, a regulatory regime with a disdain for science will act to suppress innovation. Fortunately, we are living in unprecedented times.

Every major economy in the world recognizes that its future success - the competitive advantage of its society - must be rooted first and foremost in technology and innovation. The case is best illustrated in the battle between today's two superpowers: The U.S and China. Despite a deluge of distracting headlines, we see two governments recognizing that the battle lines are drawn on the field of technology and acting to implement policies most supportive of innovation.

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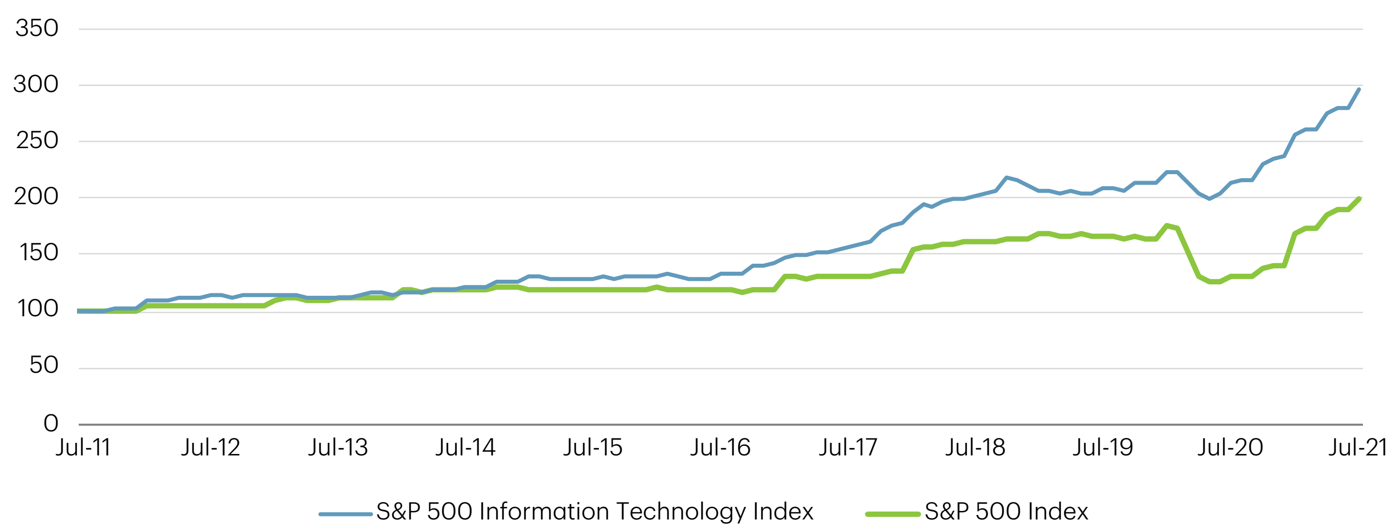
A decade for the record books

So far we have discussed the requisite conditions for technological success and expressed our opinion that the conditions are set for prosperity. Now it's time to put theory into practice and examine the scorecard, from an investment standpoint. How have technology companies faired in the last decade on the investor's most fundamental measure of success: earnings growth?

The chart below illustrates the **substantial fundamental outperformance** and confirmation of our theory when looking back at the past 10 years. Earnings growth of the S&P 500 technology sector has compounded at an annual rate of approximately 12% for the last decade versus 7% for the S&P 500 Index. The true divergence in the path of earnings growth began in 2017 which we believe corresponds to a sufficient maturation of the prime conditions discussed earlier in the article.

A divergence of earnings

The S&P 500 Index vs. the S&P 500 Information Technology Index



Source: Bloomberg Finance L.P. Data as of July 31, 2021.

We would expect superior earnings growth to have translated into share price outperformance and that's exactly what we find. Our examination of share price performance going back 10 years uncovers a compound annual growth rate (CAGR) of 18% for the technology sector compared to a 10% growth rate for the market. That magnitude of the **significant share price outperformance** has translated into a tripling of one's initial investment in the tech sector as opposed to a doubling in the overall market.

Unsurprisingly, the technology sector has continued to capture a **large and expanding portion** of the overall market and investor's mindset. Over the last 10 years, technology stocks have gone from only 21% of the U.S. market to almost 40% today (and growing).

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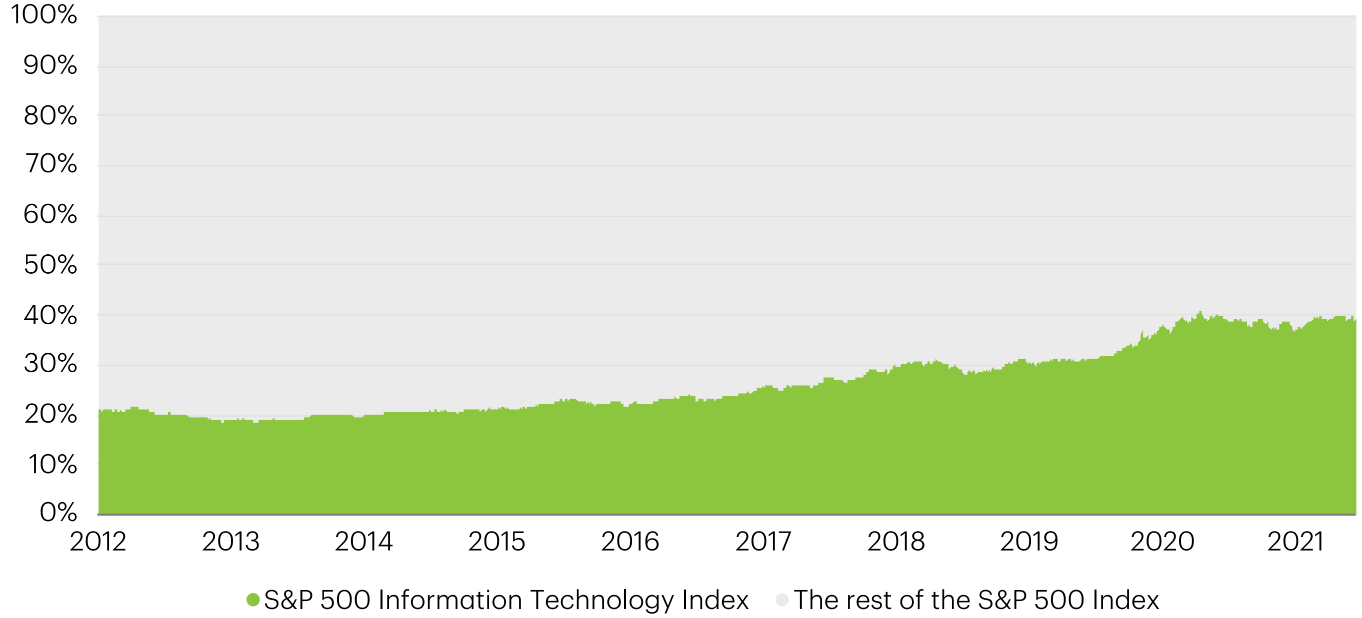
S&P 500 Index and Nasdaq 100

Share price indexed to 100 over the past 10 years

Source: Bloomberg Finance L.P. Data as of October 29, 2021.

The technology sector's growing share of the overall market



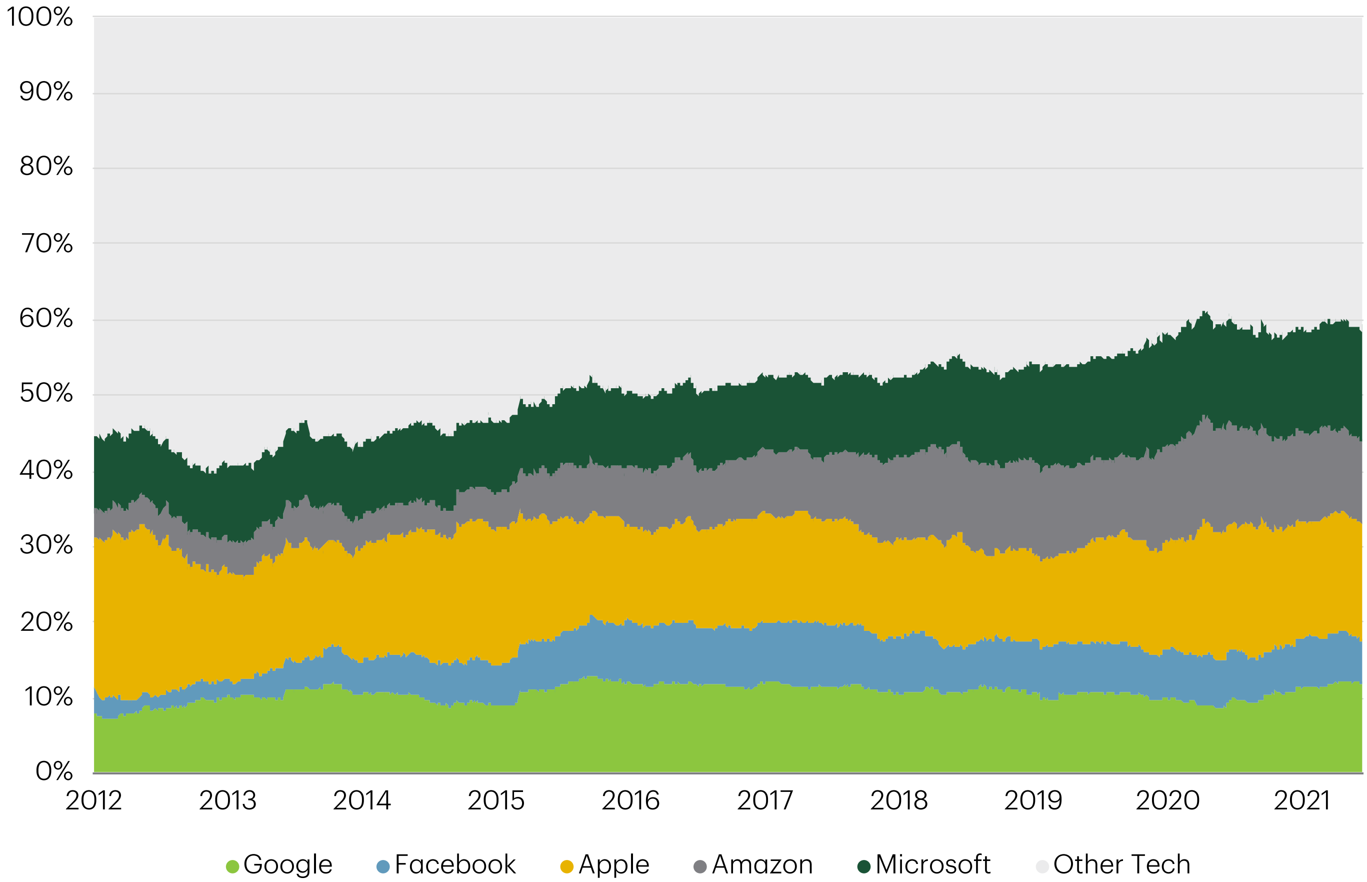
Source: Bloomberg Finance L.P. Data as of October 29, 2021. "Overall market" is represented by the S&P 500 Index.

The era of platforms

Up until now, we believe that the fruits of innovation have been disproportionately harvested by the Big Tech companies. Specifically, the large platform operators of Apple, Alphabet (Google), Amazon, Meta Platforms (Facebook), and Microsoft. Collectively, these five companies have used the conditions of sufficient buildings blocks, receptive population, cheap capital, and absent regulation to ride the smartphone revolution to unprecedent heights of market leadership and concentration.

The 2010s belonged to the large internet platforms: they emerged from niche companies into the nearly literal owners of the universe (or at least data), making them more powerful than government according to many observers.

The technology sector has seen tremendous growth due to the tech giants
The big 5 tech platforms as % of the overall S&P 500 Information Technology Index



Source: Bloomberg Finance L.P. Data as of October 29, 2021.

The next decade

We believe that the current platforms will remain relatively dominant forces in global innovation, business, and capital markets for years to come. However, we see three forces as potentially capping incremental growth:

- Emerging and intensifying regulatory headwinds driving higher costs while constraining revenue opportunities
- High penetration into their respective total addressable markets limiting revenue growth rates
- Rising competitive forces that challenge the dominance of the big tech platforms

> The next decade will likely continue to see the rise of a new generation of successful large cap tech companies.

Over the next decade, we expect to see the continued rise of a new generation of successful large-cap tech companies. These are anticipated to come in two forms: some will be outright challengers to Big Tech's way of doing business (e.g.,Shopify vs. Amazon) while others will piggyback on what has been already built by the big platforms (a typical Software as a service company benefitting from Amazon's web service infrastructure).

10 themes we are watching

We believe that this cohort of next generation tech companies generally falls within 10 themes. While all these themes are all in their early stages, they are sufficiently established with a handful of champions (companies with at least a few hundred million in revenue in a period of hypergrowth, growing more than 30%). We believe these themes will thrive in the next decade as they take advantage of a perfect storm of technological and societal conditions.

New Money

- Square
- PayPal
- Adyen

Data Revolution

- Snowflake
- MongoDB
- Datadog

Distributed Life

- Airbnb
- Uber
- Upwork

Safety First

- Crowdstrike
- Zscaler
- Okta

Ecommerce 2.0

- Shopify
- Farfetch
- Sea Limited

Remember the Robots

- Keyence
- Fanuc
- Yaskawa

Digital Railroads

- Cloudflare
- Fastly
- Akamai

Built By Us

- ASML
- Lasertec
- NVIDIA

White Collar Automation

- ServiceNow
- Atlassian
- UiPath

Modernity Now

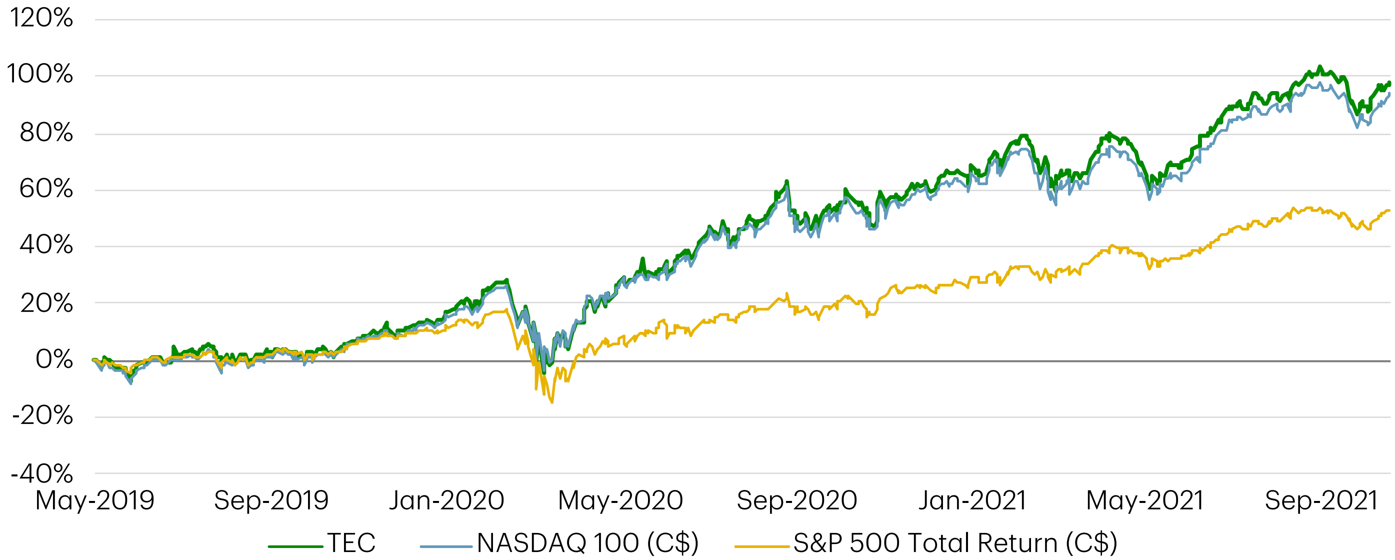
- Bentley Systems
- Unity Software
- Autodesk

First TEC, now TECI?

We launched the TD Global Technology Leaders Index ETF (TEC) in May 2019 with the belief that there were no technology ETFs doing investors any justice. So, we created a custom universe of technology stocks to overcome legacy classification issues and expanded our horizons to all 28 developed countries. The result has been a success. TEC quickly became the gold standard for technology ETFs. Only 30 months old, TEC is now the largest such fund in Canada with over $2 billion in assets under management (AUM)[1] and has had experienced performance ahead of all major indices.

Against this backdrop, we are excited to announce the launch of our second technology ETF, the TD Global Technology Innovators Index ETF (TECI). TECI aims to build on the success of TEC by providing investors exposure to faster-growing, more disruptive technology companies. TECI excludes the Big Tech and most of the FAANG[2] complex ($500 billion market cap limit) which accounts for 42% of TEC. Instead, its top holdings consist of prominent, fast-growing disruptors still in the early to middle points of their life cycle.

Total Returns of TEC vs. Nasdaq 100 vs. S&P 500
Since Inception: May 9, 2019



Source: Bloomberg Finance L.P. Data as of October 29, 2021.

[1] Source: TD Asset Management, Bloomberg Finance L.P., as of October 31, 2021.
[2] Facebook, Amazon, Apple, Netflix, and Google

TEC vs. TECI - which one is right for you?

TEC is targeted for investors who want to maximize their participation in the technology **trends of today**. Investors will benefit from significant concentration in the Big Tech complex. It's a perfect solution for those lacking material technology exposure or presently finding their exposure through inefficient vehicles.

TECI on the other hand is targeted to investors that want to maximize their participation in the trends **of the next decade**. Instead of Big Tech, the largest holdings are dominated by best-of-breed companies still in the early to middle stages of their life cycle.

	TEC - Leaders	TECI - Innovators
Top Ten % of portfolio	51.87%	58.8%
Bottom 50%	6.38%	5.76%
Top Ten names	Apple, Microsoft, Amazon, Alphabet, Tesla, Meta Platforms (Facebook), NVIDIA, Visa, ASML Holdings, Adobe	ASML Holdings, Shopify, Advanced Micro Devices, Square Inc., SEA Ltd, Activision Blizzard, Snap Inc., Zoom Video Comm, Snowflake, Nintendo
Number of Constituents	262	100
Number of same issuers	28	28
Issuer overlap - % of Other Fund	7.35%	79.14%

Source: TDAM, as of November 2021.

Depending on an investors goals and needs, from a tech standpoint, TDAM has you covered. Whether it is exposure to the big players, an allocation to the growth trends of today, or a bit of both, investors can gain access to these opportunities through both TEC and TECI.

Key attributes of TECI

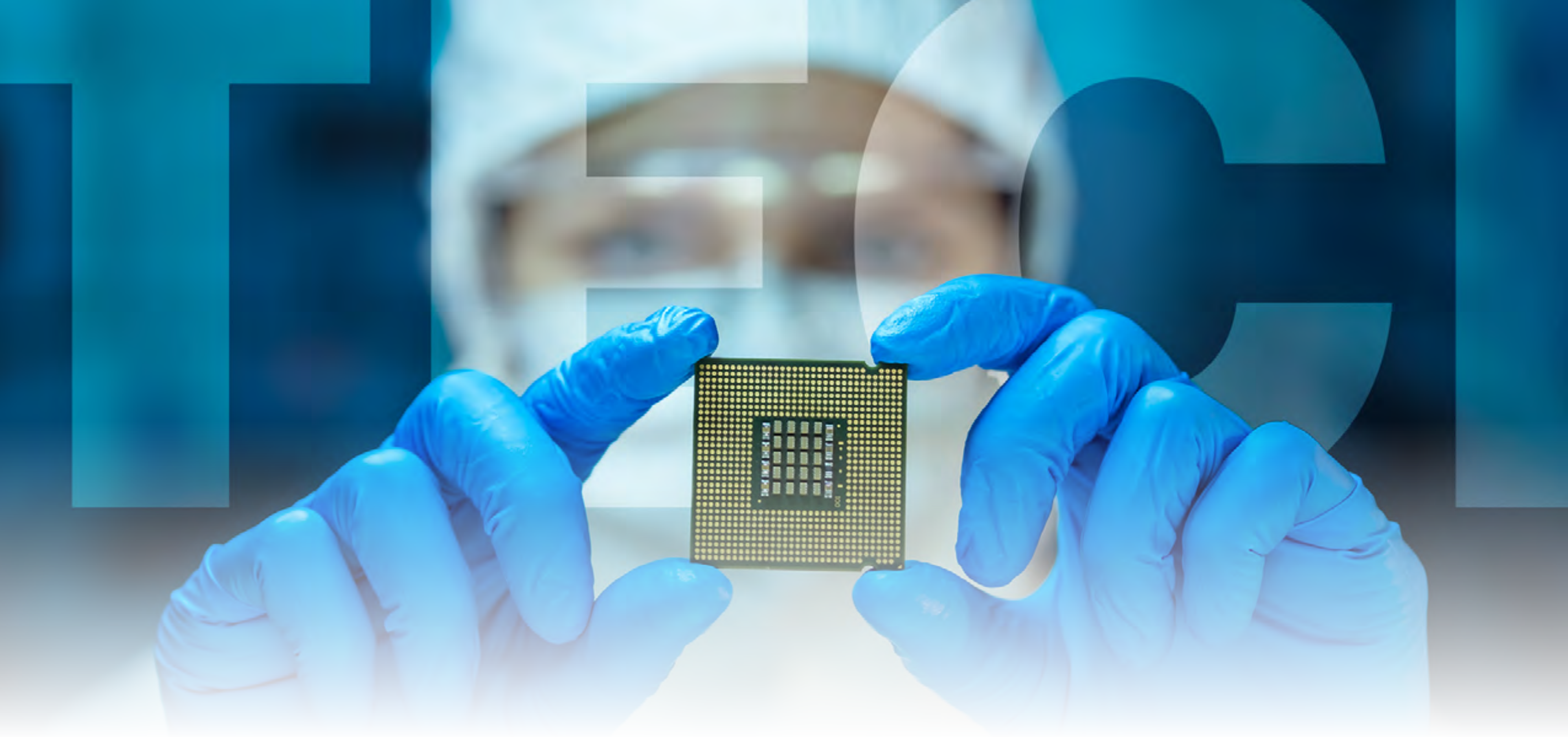
Sweet spot of innovation - TECI does not hold the big tech platforms of today with the philosophy that these companies have already created the vast majority of their lifetime shareholder wealth. Nor does TECI hold microscopic tech companies dealing in speculative technology with little to no revenue. Instead, TECI owns companies in their prime: innovative technologies translated into captivating products that are still in the early stages of capturing their markets.

Programmatic - TECI holdings are selected from our custom universe of technology stocks and re-balanced based on three key metrics:

- revenue growth
- margin expansion
- return on growth capital

Concentrated - TECI is a concentrated ETF with only 100 pure play technology holdings at any given time.

Data as of October 31, 2021	1 Mo.	3 Mo.	6 Mo.	YTD	1 Yr	2 Yrs	Return Since Inception	Inception Date
TD Global Technology Leaders Index ETF (TEC)	4.2	4.2	13.8	19.3	34.1	37.4	31.0	5/7/2019
TD Global Technology Innovators Index ETF (TECI)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	11/30/2021



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