

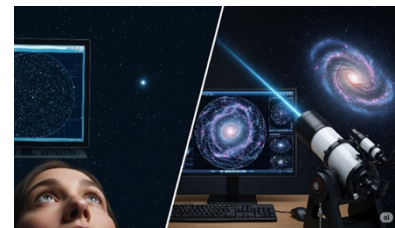
Quantum Leap - How Quantum Computers Are Rewriting the Rules of Tech

The growing demands of AI, data science, and global complexity are pushing classical computing to its limits. In response, quantum computing is emerging - a breakthrough as transformative as the telescope was to the naked eye when trying to map the universe. In this article we focus on the development of quantum computing and explore the impact it can have across industries.

From ZX Spectrum to Supercomputers

Back in the 1980s, home computing was just beginning to catch on. A popular device at the time was the Sinclair ZX Spectrum, good for tape-fed video games and not much else. Fast forward to today, and computers are literally processing data millions of times faster! Even a typical smartphone is holding over 4 million times the amount of storage than the humble Spectrum (where you needed to plug the memory into the back each time you used it).

This leap in performance has largely been driven by Moore's Law, an observation made by Intel co-founder Gordon Moore in 1965. He noted that the number of transistors¹ on a microchip doubles approximately every two years, effectively doubling computing power. While this trend has begun to slow, it paved the way for tremendous technological progress. Now, we're approaching the limits of what classical computing can do – and this is where quantum computing comes in.



Source: Image generated using Google Gemini AI, developed by Google DeepMind. Image created in June 2025

Classical vs. Quantum Computing: A Simple Analogy

Classical Computing = One Traveller, One Route: Imagine trying to find the fastest way to get from London to Tokyo. A classical computer is like a single traveller who tries one route at a time, checks how long it takes, then tries another.

Quantum Computing = Millions of Travellers Exploring All Routes at Once: A quantum computer is like sending millions of travellers out at the same time, each testing a different route instantly—by plane, boat, even time zones—until the best path is found.

These unique properties² give quantum computers the ability to process vast combinations of data simultaneously. By contrast, modern computers use light-switch-style resistors that process information in a linear sequence.

In a world increasingly defined by data and what we can do with it, quantum computing is opening up exciting avenues to expand how we can process information and in turn develop new opportunities spanning most industries.

Transforming Industries

Quantum computing holds promise across several fields, with the potential to transform major sectors in practical and profound ways:

- **Pharmaceuticals:**

Traditional drug discovery is a slow, expensive process involving trial and error. Quantum computers could simulate molecular interactions at an atomic level, drastically reducing the time needed to identify potential drug candidates and enabling more targeted therapies for complex diseases.

- **Materials Science:**

Designing new materials with tailored properties could be revolutionized. For example, researchers could create superconductors that work at room temperature or develop ultra-light but strong materials for use in aerospace and construction, all by simulating atomic structures more accurately than ever before.

- **Logistics and Transportation:**

Quantum algorithms can optimise complex logistical networks such as global supply chains, airline scheduling, and urban traffic systems. This could mean faster delivery times, lower fuel consumption, and better contingency planning in case of

disruptions.

- **Cybersecurity:**

Quantum computing is a double-edged sword in this area. It could break many of today's encryption methods, but it could also enable next-generation quantum encryption that is theoretically unbreakable, enhancing data security across industries.

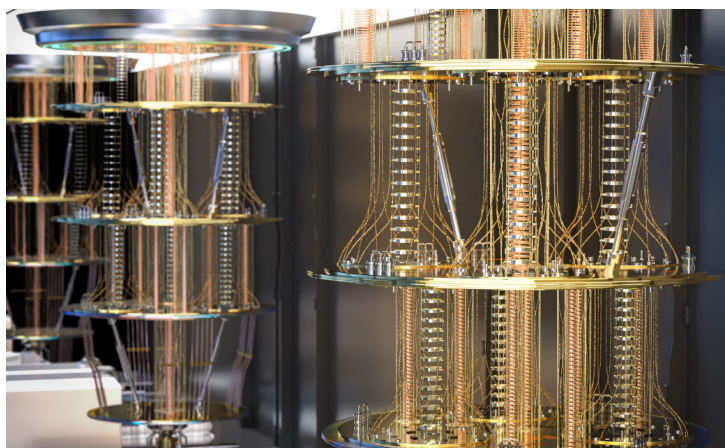
- **Artificial Intelligence and Machine Learning:**

AI and machine learning require processing huge volumes of data to identify patterns and make predictions. Quantum computing could speed up model training, improve pattern recognition, and enhance decision-making capabilities. It could lead to more intuitive AI, capable of learning from fewer data points and adapting in real-time, transforming industries from finance to healthcare.

As the world converges towards AI in both physical and data forms, the case for more powerful computing is clear to see.

Where Are We Now? The Long Road to Quantum Supremacy

Despite its promise, quantum computing is still in its early stages. Current machines, built by companies like IBM, Google, and startups such as Rigetti, have demonstrated basic functionality but are still prone to errors and instability. These machines require near-absolute-zero temperatures and specialized environments to operate.



A quantum computer, showing wiring made from copper and gold, operating in a highly controlled environment

Source: Altcoinbuzz.io

Why is progress so slow? Unlike classical computers, which evolved through decades of commercial demand and consumer use, quantum computers require breakthroughs across physics, engineering, and materials science. It's not just about writing better code—it's about redefining the hardware from the ground up.

So, how long before we see quantum computing in everyday use? Most experts agree we are at least 10 to 15 years away from having stable, fault-tolerant quantum computers that can outperform classical ones on a wide range of practical tasks. In the meantime, we'll likely see hybrid models where classical and quantum systems work together, with quantum computers handling specific types of problems.

Early adopters can experiment with quantum processors via the cloud—an emerging area known as Quantum-as-a-Service (QaaS) through providers such as Amazon. This is making early experimentation accessible to a broader range of industries.

Many companies are adopting a cautious approach. Quantum computing is expensive, and its commercial applications remain unproven. For now, it's a high-risk, long-term bet—and that doesn't always sit well with shareholders or CFOs. However, governments and tech giants are pouring billions into research, indicating strong long-term belief in its transformative power. It could be the next frontier for the global trade war and quest for technological dominance.

Positioning for the Quantum Opportunity

Quantum computing may sound like science fiction, but it is rapidly becoming science fact. Although the technology is still developing, its potential to transform industries is enormous. The “a-ha!” moment is yet to come, but bear in mind that AI in its current form has been with us for 15 years already, and OpenAI (ChatGPT's founder) was launched in 2015. It takes time for the step change to happen.

This is all well and fine, but how do we access this opportunity as investors? In short, it's tough—there are very few individual companies dedicated solely to this field. Quantum computing is a global race led by US tech giants, deep-tech startups, and

government-funded research across China and Europe. IBM, Google, and Microsoft are current frontrunners in long-term hardware and software development, while startups like IonQ and Rigetti are pushing nearer-term commercial deployments. We are more likely to be capturing the opportunity for now within these larger companies, as well as the services that can be deployed, such as Amazon's web services. As the technology matures, it's important to be positioned across the full spectrum of investment opportunities to capture what could become a significant growth cycle, impacting not only the companies driving innovation, but the whole supply chain, the downstream beneficiaries and ultimately, the consumer.

We capture this by holding a combination of funds poised to access this opportunity:

- **Index funds:**

A 'catch-all' covering the whole market. You will gain exposure, by default. This helps when it is not obvious who the winners will be. Take NVIDIA as an example—now a clear leader in AI infrastructure, but far from an obvious pick just a few years ago. Of course, even NVIDIA could one day be disrupted by new technologies like quantum computing—who knows, it might even end up as a value stock

- **Small cap growth funds:**

These funds are specifically looking at emerging technologies and the nascent startups driving the innovation.

- **Large cap growth funds:**

These companies are using substantial profit margins to invest into the next growth wave and can do so via their enormous financial resources and talent pool.

Quantum computing could be the next wave which drives innovation and growth across the markets, and allows new technologies like AI to reach their exponential growth potential. Imagine running AI on a ZX Spectrum and then ask yourself what breakthroughs we'll be discussing 10 years from now. Without a massive leap in computing power, that progress simply wouldn't be possible.

[1] A transistor is like a small switch, and the more switches the faster the computer

[2] For those interested in the underlying science, topics such as 'superposition' and 'entanglement' offer valuable insights

MARKET REPORT

31 05 2025

		3m	YTD	1yr	3yr pa	5yr pa	10yr pa	5yr Vol1	10yr Vol1
LOCAL MARKET INDICES									
SA Equity	ZAR	11.2%	13.7%	26.4%	12.9%	16.8%	8.9%	13.9%	14.2%
SA Listed Property	ZAR	9.0%	6.0%	31.8%	15.3%	19.2%	2.6%	20.2%	21.3%
SA Bonds	ZAR	3.5%	4.0%	21.1%	10.8%	9.5%	8.3%	7.1%	8.0%
SA Cash	ZAR	1.9%	3.2%	8.1%	7.7%	6.3%	6.7%	0.5%	0.4%
Balanced Benchmark	ZAR	7.0%	8.5%	20.4%	12.8%	13.7%	9.2%	9.5%	9.7%
SA Inflation (1 month lag)	ZAR	1.6%	2.0%	2.8%	5.1%	5.0%	4.8%	1.7%	1.7%
GLOBAL MARKET INDICES BASED TO USD									
Global Equity	USD	2.2%	4.7%	13.8%	13.3%	14.3%	10.1%	15.8%	15.2%
Emerging Markets Equity	USD	5.5%	8.1%	12.5%	4.7%	6.8%	3.6%	16.7%	17.1%
Global Property	USD	1.2%	5.8%	10.6%	0.1%	5.4%	2.6%	18.3%	17.1%
Global Bonds	USD	3.2%	5.2%	6.9%	0.9%	-1.4%	0.9%	7.9%	6.4%
US Cash	USD	1.1%	1.8%	4.9%	4.6%	2.8%	2.0%	0.7%	0.6%
MAJOR INDICES BASED TO RANDS									
SA Equity	ZAR	11.2%	13.7%	26.4%	12.9%	16.8%	8.9%	13.9%	14.2%
Global Equity	ZAR	-0.7%	0.7%	9.1%	19.0%	14.9%	14.5%	14.9%	15.9%
Emerging Markets Equity	ZAR	2.6%	3.5%	7.9%	10.0%	7.3%	7.8%	12.9%	13.7%
Global Property	ZAR	-1.6%	1.7%	6.1%	5.1%	5.9%	6.8%	16.7%	17.3%
SA Bonds	ZAR	3.5%	4.0%	21.1%	10.8%	9.5%	8.3%	7.1%	8.0%
Global Bonds	ZAR	0.3%	0.7%	2.6%	6.0%	-1.0%	4.9%	10.7%	13.8%
COMMODITIES									
Gold (US Dollars)	USD	15.6%	25.5%	39.4%	21.1%	13.5%	10.4%	15.0%	14.0%
Gold (Rands)	ZAR	12.4%	20.1%	33.7%	27.2%	14.0%	14.9%	15.5%	17.0%
CURRENCIES									
Rand / Dollar	ZAR	3.6%	4.8%	4.4%	-4.9%	-0.5%	-4.0%	12.0%	14.7%
Rand / GBP Pound	ZAR	-3.1%	-2.4%	-1.1%	-7.2%	-2.3%	-2.7%	10.1%	14.1%
Rand / Euro	ZAR	-5.2%	-4.4%	0.0%	-6.9%	-0.9%	-4.4%	9.7%	13.1%

KEY

Asset Class	Represented By:
SA Bonds	Satrix Bond Index Tracker
SA Cash	STeFi
SA Equity	Satrix ALSI Index Tracker
SA Listed Property	Satrix Property Index Tracker
Emerging Markets Equity	iShares Emerging Markets Equity Index Tracker
US Cash	Fidelity Institutional Liquidity The United States Dollar
Global Bonds	iShares Core Global Aggregate Bond ETF
Global Equity	iShares Developed World Index Tracker
Global Property	iShares Developed Real Estate Index Tracker

Disclaimer: Users should be aware that short term performance can be volatile and that past performance is not necessarily a good guide to future performance. The information in this report is for general guidance and does not constitute an offer or solicitation to purchase, sell or otherwise deal with any particular investment. This report is for the use of Fundhouse and its clients only and may not be published externally without permission first being obtained from Fundhouse. While great care and diligence has been taken in the compilation of the report with data provided by FE Analytics, no representation or warranty, express or implied, is or will be given by Fundhouse or its directors, partners, employees or advisers or any other person to the accuracy or the completeness of the information in the report or relating thereto. Fundhouse will not accept any liability for losses suffered as a result of inaccuracies.

Data supplied by FE Analytics | www.fundhouse.co.za

REDFIN WEALTH

INVESTMENT - RETIREMENT - FINANCIAL PLANNERS

May 2025

Spot Rates		30-May-25	Latest Quarter	1 Year Ago	5 Years Ago	10 Years Ago	20 Years Ago
CURRENCIES							
Rand/US\$	Rand	18.1	18.4	18.8	17.6	12.2	6.7
Rand/GBP	Rand	24.3	23.7	23.9	21.8	18.6	12.3
Rand/EUR	Rand	20.5	19.9	20.4	19.6	13.3	8.3
RATES							
SOFR 6m \$	US\$	4.5	4.5	5.4	0.1	0.2	2.9
Repo Rate	Rand	7.25	7.50	8.25	3.75	5.75	7.00
Prime	Rand	10.75	11.00	11.75	7.25	9.25	11.00
All Bond Index Yield	Rand	9.7	9.9	11.6	11.6	8.5	9.7
COMMODITIES							
Gold (\$/oz)	US\$	3,285.3	3,125.3	2,330.7	1,731.6	1,190.0	416.1
Platinum	US\$	1,071.0	993.0	1,048.0	825.0	1,115.0	859.5
Oil (Brent Crude) \$	US\$	63.9	74.8	81.8	35.4	64.6	49.9
INFLATION							
SA Inflation	%	2.8	3.2	5.2	1.9	4.6	9.4

data provided by FE Analytics

Fundhouse is a leading investment adviser specialising in fund research, ratings and portfolio construction services. We help clients manage investments on behalf of the end investor. Our experienced team understands the complexities of the fund management world. We apply this knowledge alongside a client first mindset to improve the outcome for the end investor.

Fundhouse was founded in 2007 by professionals from the investment management industry. We currently operate from offices in the United Kingdom and South Africa, where we cover the local and global fund industry first hand. Our business is 100% independent and owner managed which means we can offer objective advice and services in the best interests of our clients.

Email: adviser@fundhouse.co.za | Web: www.fundhouse.co.za

FUNDHOUSE
investment clarity