



hanetf

Healing the Fourth Industrial Revolution

Genomics

2020

For professional clients only. Capital at risk.

The content of this document does not constitute investment advice nor an offer for sale nor a solicitation to buy any product or make an investment.

The content of this document is issued by HANetf Limited, an appointed representative of Mirabella Advisers LLP, which is authorized and regulated by the Financial Conduct Authority.

Overview

The fourth industrial revolution is the current environment where disruptive technology trends such as the Internet of Things (IoT), Robotics, Artificial intelligence (AI), Future Cars/Autonomous Vehicles, Blockchain, Cloud Computing, Genomics and Social Media are changing the way we live and work.

Unlike previous industrial revolutions, these technologies are rapidly combining to create an accelerating, virtuous cycle of nearly unlimited disruption. While previous industrial revolutions were often localized, today is interconnected and global and its impact is already visible in homes and businesses across the world.

This is a short guide to help investors understand the main sectors of the fourth industrial revolution and their features, applications, and growth potential:

Robotics & Automation

Future Transport

Cloud Computing

Cyber Security

Genomics

Social Media

Blockchain

Augmented & Virtual Reality

Genomics Theme

From William Harvey and the human circulatory system, to Alexander Fleming and the discovery of penicillin to the first heart transplant; medical advances have gone hand-in-hand with a better understanding of the human body.

Medicine has come a long way in the 70 years since the first correct double-helix model of DNA was produced at Cambridge University in 1953, and the dawning age of healthcare sees a confluence of medicine and technology that offers the potential to fundamentally alter how we are diagnosed, treated and supported through illness.

Understand an individual's genetic make-up can help determine their predisposition toward certain diseases, guide the best course of treatment and contribute to new therapies for specific diseases (precision medicine).

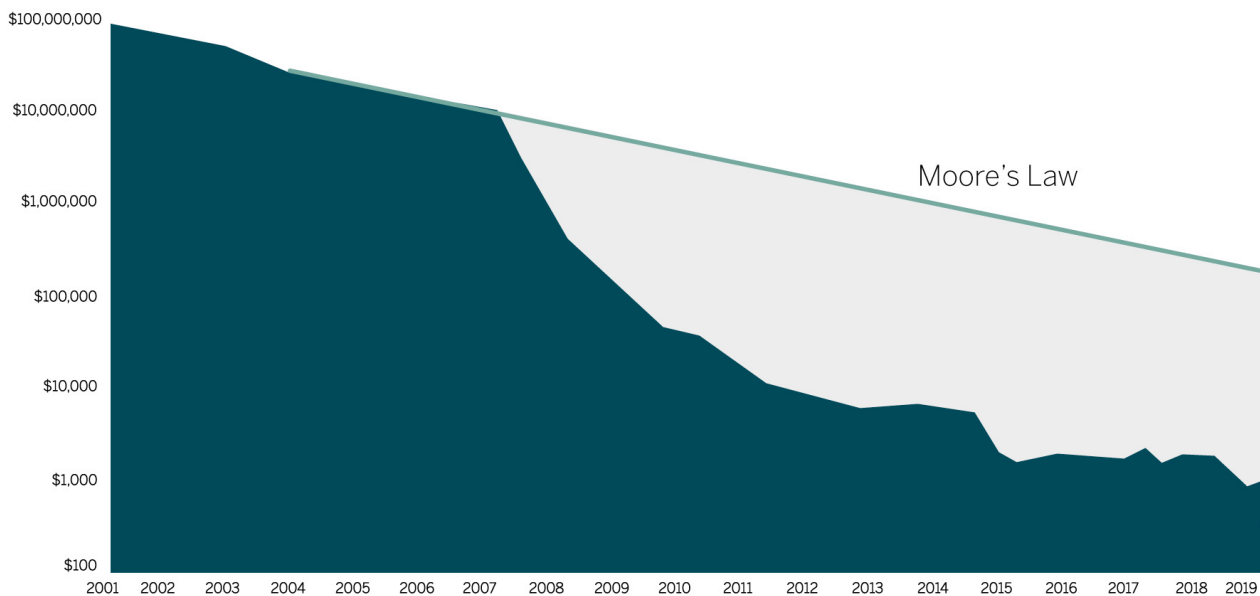
Almost all human illnesses have some genetic basis, but it is only recently that doctors have been able to take genetics into consideration when diagnosing or treating their patients. It is even more recently that doctors have been able to tailor treatments based on a patient's unique genetic make-up, or provide treatment for diseases at the genetic level.

A genome is the full genetic make-up of an individual. In 2003, The Human Genome Project – an international scientific effort to map the entire human genome – was completed at a cost estimated at over \$500 million. ¹ Since then, the cost of genome sequencing has fallen to under \$1,000, making it cheap enough for researchers and doctors to obtain large amounts of genetic data from a wide range of individuals.

¹ <https://www.genome.gov/about-genomics/fact-sheets/Sequencing-Human-Genome-cost>



Cost per Human Genome



For illustrative purposes only

Source: National Human Genome Research Institute

A broader and more accessible research data set has accelerated scientific understanding of the effect that (combinations of) genes play in contributing to diseases that impact large swathes of the population – diseases like cancer, diabetes and cardiovascular disease, alongside other hereditary illnesses.

These advances opened the door to a new age of gene therapies and genetic editing technologies like CRISPR, whereby genetic abnormalities can be corrected by administering new DNA, or by editing out and replacing faulty sections of the patient’s DNA.

These remarkable new capabilities extend into both veterinary and agricultural areas with GM plants being a well-known example of a practical application for genetic research.

To capture these developments, the Genomics theme in ITEK focuses on companies that incorporate technological and scientific advancements in genomics into their business, including:

- **CRISPR** (genome editing tool)
- **Targeted Therapeutics**
- **Bioinformatics** – medical and genetic databases and research
- **Molecular Diagnostics**
- **Stem Cells**

For professional clients only

+44 (0) 203 794 1800
info@hanetf.com

40 Basinghall Street, City Tower,
London, EC2V 5DE



HAN-etf



@HANetf

www.hanetf.com



Megatrends Driving the Genomics Market

The growth of the genomics market is expected to be driven by the healthcare and agricultural sectors as they respond to new challenges caused by long-term social and technological megatrends:

- **Technology:** Increasing computing power was critical in driving down the cost of DNA sequencing, providing the foundation for modern genetic research. Advances in Genomics have since been supported and accelerated by bioinformatic data sets that aggregate and analyse information from multiple sources, cloud-based research portals, machine learning, gene editing tools and new visualisation technologies.
- **Ageing populations:** continued advances in medicine mean that people are living longer and while they face declining risk of dying of communicable diseases, the risk of dying of illnesses with a genetic component such as heart disease or cancer is on the rise. Governments are seeking to reduce the economic cost of illness by funding new genomic research such as the UK's £300 million '100,000 Genome' project².
- Genomics also has significant potential in the provision of **personalised medicines**, whereby treatment is customised according to each individual's unique genetic profile. Research in this area increasingly combines big data sets, machine-learning and AI to uncover previously unseen patterns in DNA that may yield new understanding of an individual's susceptibility to various diseases. Individualised healthcare can lead to healthier patients, longer lives and a more productive existence.
- **Food Security:** As human populations continue to grow and arable land becomes scarcer, the world is facing a significant food security challenge. Genomics may have a role to play in addressing this by helping to modify food crops to produce higher yields, be more disease and pest resistant or grow in different climates.

Against this backdrop, the Genomics market is expected to be a high-growth healthcare theme. In 2019, the market was estimated to be \$19 Billion and is expected to grow to \$39.7 Billion by 2024 - a CAGR of ~13.5%³

Genome-based research is already enabling medical researchers to develop improved diagnostics, more effective therapeutic strategies, evidence-based approaches for demonstrating clinical efficacy, and better decision-making tools for patients and providers.

Investing in the Genomics Theme

The growth potential, consumer interest and size of the addressable market of Genomics has spurred investor interest in this theme. Investors who see long-term opportunity can consider an allocation to the HAN-GINS Tech Megatrend Equal Weight UCITS ETF (ITEK). ITEK includes Genomics as part of 8 transformational technology trends that are reshaping the world alongside Robotics & AI, Cloud Computing & Big Data, Cyber Security, Future Transportation, Social Media, Blockchain, Augmented & Virtual Reality.

For investors who are interested in the Genomics theme specifically, HANetf offers a targeted healthcare themed ETF – The HAN GINS Indxx Healthcare Innovation UCITS ETF (WELL) that includes genomics alongside other important modern medical technologies.

² <https://www.sciencemag.org/news/2014/08/uks-100000-genomes-project-gets-300-million-finish-job-2017>

³ <https://www.marketsandmarkets.com/Market-Reports/genomics-market-613.html>



Fund Details

When you trade ETFs, your capital is at risk

EXCHANGE	BB CODE	RIC	ISIN	CURRENCY	INCOME
London Stock Exchange	ITEK LN	ITEK.L	IE00BDDRF700	USD	Acc
London Stock Exchange	ITEP LN	ITEP.L	IE00BDDRF700	GBP	Acc
Borsa Italiana	ITEK IM	ITEK.MI	IE00BDDRF700	EUR	Acc
XETRA	T3KE GY	T3KE.DE	DE000A2N5XE0	EUR	Acc
SIX	ITEK SW	ITEK.S	IE00BDDRF700	CHF	Acc

- [ITEK Factsheet](#)
- [ITEK Video](#)
- [ITEK Fund Page](#)

About HANetf

HANetf is an independent ETF specialist working with third-party asset managers to bring differentiated, modern and innovative ETF exposures to European investors via unique white-label ETF/ETC platform.

Founded by two of Europe's leading ETF entrepreneurs, Hector McNeil and Nik Bienkowski, HANetf provides a complete operational, regulatory, distribution and marketing solution for asset managers who want to successfully launch and manage UCITS ETFs.

HANetf's full products list includes:

Name	TER	Bloomberg Codes				
		LSE \$	LSE £	Borsa €	XETRA €	SIX
The Emerging Markets Internet & Ecommerce UCITS ETF	0.86%	EMQQ LN	EMQP LN	EMQQ IM	EMQQ GY	EMQQ SW
HAN-GINS Tech Megatrend Equal Weight UCITS ETF	0.59%	ITEK LN	ITEP LN	ITEK IM	T3KE GY	ITEK SW
HAN-GINS Cloud Technology UCITS ETF	0.59%	SKYY LN	SKYP LN	SKYY IM	5XYE GY	SKYY SW
HAN-GINS Indxx Medical Innovation UCITS ETF	0.59%	WELL LN	WELP LN	WELL IM	W311 GY	WELL SW
KMEFIC FTSE Kuwait UCITS ETF	0.80%	KUW8 LN	KUWP LN	KUW8 IM	KUW8 GY	-
The Medical Cannabis & Wellness UCITS ETF	0.80%	CBDX LN	CBDP LN	-	CDSX GY	CBDX SW
The Royal Mint Physical Gold ETC	0.22%	RMAU LN	RMAP LN	-	RM8U GY	-
BTCEtc Bitcoin Exchange Traded Crypto*	2.00%	-	-	-	BTCE GY	-

*Marketed and Distributed by HANetf

For further information, please visit www.hanetf.com.



Important Information

The content in this document is issued by HANetf Limited ("HANetf"), an appointed representative of Mirabella Advisers LLP, which is authorised and regulated by the Financial Conduct Authority ("FCA"). For professional clients only. Past performance is not a reliable indicator of future performance. Any historical performance included on this document may be based on back testing. Back testing is the process of evaluating an investment strategy by applying it to historical data to simulate what the performance of such strategy would have been. Back tested performance is purely hypothetical and is provided on this document solely for informational purposes. Back tested data does not represent actual performance and should not be interpreted as an indication of actual or future performance. The value of any investment may be affected by exchange rate movements.

Any decision to invest should be based on the information contained in the appropriate prospectus and after seeking independent investment, tax and legal advice. These products may not be available in your market or suitable for you. The content of this document does not constitute investment advice nor an offer for sale nor a solicitation of an offer to buy any product or make any investment. An investment in an ETF is dependent on the performance of the underlying index, less costs, but it is not expected to match that performance precisely. ETFs involve numerous risks including among others, general market risks relating to the relevant underlying index, exchange rate risks, interest rate risks, inflationary risks, liquidity risks and legal and regulatory risks.

The information contained on this document is not, and under no circumstances is to be construed as, an advertisement or any other step in furtherance of a public offering of shares in the United States or any province or territory thereof, where none of the Issuers or their products are authorised or registered for distribution and where no prospectus of any of the Issuers has been filed with any securities commission or regulatory authority. No document or information on this document should be taken, transmitted or distributed (directly or indirectly) into the United States. None of the Issuers, nor any securities issued by them, have been or will be registered under the United States Securities Act of 1933 or the Investment Company Act of 1940 or qualified under any applicable state securities statutes. The products discussed on this document are issued by HANetf ICAV.

This document may contain forward looking statements including statements regarding our belief or current expectations with regards to the performance of certain assets classes and/or sectors. Forward looking statements are subject to certain risks, uncertainties and assumptions. There can be no assurance that such statements will be accurate and actual results could differ materially from those anticipated in such statements. Therefore, readers are cautioned not to place undue reliance on these forward-looking statements. HANetf ICAV is an open-ended Irish collective asset management vehicle which is constituted as an umbrella fund with segregated liability between sub-funds and with variable capital organised under the laws of Ireland and authorised by the Central Bank of Ireland ("CBI"). Investors should read the prospectus of HANetf ICAV ("HANetf Prospectus") before investing and should refer to the section of the HANetf Prospectus entitled 'Risk Factors' for further details of risks associated with an investment in the Shares.

Notice to Investors in the EEA

[Emerging Markets Internet & Ecommerce UCITS ETF], [HAN-GINS Cloud Technology UCITS ETF], [HAN-GINS Tech Megatrend Equal Weight UCITS ETF], [KMEFIC FTSE Kuwait Equity UCITS ETF], [HAN-GINS Indxx Healthcare Innovation UCITS ETF], [The Medical Cannabis and Wellness UCITS ETF] (the "Fund") is a sub-fund of HANetf ICAV. HANetf ICAV is authorised by the Central Bank of Ireland as an Undertaking for Collective Investment in Transferable Securities under the European Communities (Undertakings for Collective Investment in Transferable Securities) Regulations 2011 (S.I. No. 352 of 2011), as amended. The Fund is registered for sale to investors in the EEA in Ireland, the United Kingdom, Italy, and Germany, Netherlands, Finland, Luxembourg¹ and Switzerland². Accordingly, in the EEA, the prospectus may only be distributed to, and subscriptions to the Fund accept from, investors resident in those jurisdictions. The Fund is not currently registered for sale in any other EEA Member State, although such registration may be sought in the future.

Without prejudice to the foregoing, where permitted by national law in a jurisdiction where the Fund is not registered for public offering, shares in the Fund may be offered by way of through private placement. Where private placement is relied upon this will not constitute, or form part of, any offer or invitation to the public in that jurisdiction to subscribe for or purchase shares and shall not be construed as such.

As noted above, the Fund is not eligible to be marketed to, or subscriptions accepted from, investors in the EEA, other than investors resident in the countries set out above where the Fund is registered Ireland, the United Kingdom, Italy and Germany or by way of private placement, where permitted in a given jurisdiction. Accordingly, shares in the Fund may not be marketed and neither this document nor any other information relating to the Fund (together, "Relevant Communications") distributed or made available to other investors in the EEA, unless, if permitted in the relevant jurisdiction, such other investors in the EEA have received any such Relevant Communications on the basis of an enquiry made at the investor's own exclusive initiative.

The distribution of this marketing material and subscription to the Fund in certain jurisdictions may be restricted by law. It is the responsibility of each investor to ensure that their subscription to the Fund does not violate any applicable laws in the investor's jurisdiction of residence. Each prospective investor should check if the Fund has been registered for sale in the jurisdiction in which they are resident. The Fund shall not be liable for, and accepts no liability for, the use or misuse of this document. Please be aware that not every share class is available in all jurisdictions.

1 CBDX is not registered in Luxembourg

2 KUW8 is not registered in Switzerland

For professional clients only

+44 (0) 203 794 1800 40 Basinghall Street, City Tower,
info@hanetf.com London, EC2V 5DE



www.hanetf.com

