

hanetf

Imagining the Fourth Industrial Revolution

Augmented & Virtual Reality

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

Genomics

Future Transport

Social Media

Cloud Computing

Blockchain

Cyber Security

Augmented & Virtual Reality

Augmented & Virtual Reality

Virtual reality is a combination of imaging, hologram, motion sensing, 3D technologies and feedback technologies that enables us to experience artificial or remote environments as if we were there. Augmented reality overlays data and information on top of our existing senses to add information to enhance decision making.

TV and movie buffs will remember the Starship Enterprise has a room called 'The Holodeck' where any reality or scenario could be created and which the characters could interact with the illusion. In 'The Matrix', the whole of humanity is plugged into an artificial world (this one) while a race of aliens harvests their bodies' energy. Both were examples of a 'virtual reality'.

Virtual reality has long been a sci-fi trope, but is now emerging into the mainstream. On the most basic level, you can now buy a simple headset for under \$10 that will allow you to experience immersive 360-degree environments via your cell phone (search '360 video' on YouTube for hundreds of examples) but VR and AR technologies are being adopted across industries to improve training and education, create new forms of entertainment and deliver critical real-time information to surgeons, soldiers, pilots and designers.

Some Applications and Examples

Entertainment: One of the biggest applications for VR/AR is in the entertainment industry. Anyone with a smart phone can now experience virtual 360-degree concerts and movies, however, the real opportunity is in video games. Currently the gaming industry is the single largest entertainment sector, with annual revenues of about \$140 Billion¹. Gaming dwarves the music industry (\$19 Billion²) and comfortably exceeds total annual box office and home entertainment movie revenues (\$136 Billion).

¹ <https://www.businessinsider.com/video-game-industry-120-billion-future-innovation-2019-9?r=US&IR=T>

² <https://www.forbes.com/sites/hughmcintyre/2019/04/02/the-global-music-industry-hits-19-billion-in-sales-in-2018-jumping-by-almost-10/#7b0e42fc18a9>



Virtual reality takes the gaming experience to the next level, offering photo-realistic 3D graphics, immersive, responsive virtual environments, motion capture, gesture capture and haptic feedback. With every advance, the Enterprise's Holodeck edges closer to being a reality and with an estimated 2.5 billion gamers³ around the world, the addressable market for even more exciting gaming experiences is massive.

Healthcare virtual reality is being introduced for practical reasons in the medical sector, enabling doctors and surgeons to practise in realistic but harm-free environments, simulate emergencies and enhance the quality of post-operative care.

VR is also being used for **patient education** – by enabling patients to take a virtual 'tour' through their own bodies, they can better understand their illness and how it will be treated. This helps demystify complex medical processes and provides reassurance for patients.

Architecture: VR technologies have a significant application in the architecture and design industries. Architects can give clients virtual tours of buildings, towns or developments before the first shovel of soil has been moved, allowing them understand key features and make any changes. This also extends into the real-estate industry where prospective buyers can get a 360-degree tour of multiple properties from the comfort of their sofa.

Military VR is well suited to enhancing training for difficult and dangerous roles. As such, militaries have been early adopters as it can be used to provide learners with a virtual environment where they can develop their skills without the real-world consequences of failing.

It has been used in bomb diffusion, astronaut training, flight simulators, driver training and medical training. Supplementing general military training with virtual training environments has also been popular as training costs can be reduced by minimizing the amounts of ammunition expended during training periods.

Similarly, Augmented Reality is being incorporated into next-generation military vehicles and helmets. HUD's (heads-up displays) project real-time information on a visor or windshield. For example, it may be used so teammates can know where each other is in real-time or the location of evacuation points or directions to a target.

The US army tested its first augmented reality system in 2019. Called HUD 3.0, the system enables soldiers to know where they are, where their unit is and where the enemy is, allowing them to quickly adjust battle plans in a real-time environment.



Military HUDs provide critical real-time information to troops. Source US Army.

³ <https://newzoo.com/insights/articles/the-global-games-market-will-generate-152-1-billion-in-2019-as-the-u-s-overtakes-china-as-the-biggest-market/>



These advances are also leaking into the civilian world with numerous cars now providing similar heads up displays that enable the driver to concentrate on the road instead of looking at dials or sat navs.



A HUD in use in a car

Industry Trends and Growth

The VR and AR markets are at a nascent stage of development and penetration, giving investors the opportunity to get in early on a high-growth potential sector. The overall market is expected to grow from \$7.9 Billion in 2018 to \$44.7 Billion by 2024, a CAGR of 33.5%⁴. More than half of this growth is expected to come from hardware sales.

Large technology companies are making huge investments in the AR and VR space such as Facebook's \$2 Billion acquisition of VR headset maker Oculus. Others, like Sony and Samsung are dominating VR spend with Samsung's 'Gear' leading the market for smartphone-based VR.

VR and AR are key themes within the fourth industrial revolution and are connected and supported by parallel developments in cloud computing and big data (data storage and access), future transportation (driver HUDs and mapping), robotics (remote surgery), cyber security and social media. As the cost of VR/AR devices continues to fall and as computer-generated imaging approaches the point of photo-realism, the industry is poised for significant growth.

Investing in the Virtual Reality Theme

The growth potential, consumer interest and size of the addressable market of AR/VR sector 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 AR and VR as part of 8 transformational technology trends that are reshaping the world alongside Robotics & AI, Cloud Computing & Big Data, Cyber Security, Genomics, Social Media, Blockchain, Future Transportation.

⁴ <https://www.marketsandmarkets.com/Market-Reports/reality-applications-market-458.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.

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



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

