
eToro
5GRevolution
CopyPortfolio™
An eToro Investment Strategy

Content

Term Sheet

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5G

A Game-Changing Technology

Throughout history, there have been major advances in technology that have had a profound impact on the world.

For example, the invention of the steam engine in the late 18th century created a new type of energy that changed the way factories were powered and goods were transported, making the First Industrial Revolution possible. Then there was the invention of the internal combustion engine in the late 19th century, which led to the development of cars and airplanes that revolutionised travel. More recently, the invention of smartphones has also had a significant impact on the world as the technology has changed the way we communicate and interact with each other.

5G — the fifth generation of mobile network connectivity — appears to have similar life-changing potential.

Providing ultra-fast network speeds, as well as far more reliable network connections than previous generations of mobile communication networks, 5G will help to connect millions of devices across the world in the years ahead, and enable a diverse range of disruptive technologies such as autonomous vehicles, virtual reality applications, and smart cities technologies to gain mainstream adoption. Allowing extraordinary amounts of data to be relayed between connected devices, infrastructure, and the cloud in near real time, 5G will have a huge impact on the world over the next decade.

Naturally, such a powerful new technology is likely to create a number of compelling opportunities for investors. For this reason, eToro has launched its **5GRevolution CopyPortfolio** — a fully-allocated thematic investment portfolio focused on global companies that are involved in the development and rollout of 5G networks. Designed to enable long-term investors to gain exposure to the 5G growth potential, while minimising risk for investors through its diversified approach to stock selection. This portfolio will be offered to investors without any management fees and 0% commission on stocks.*

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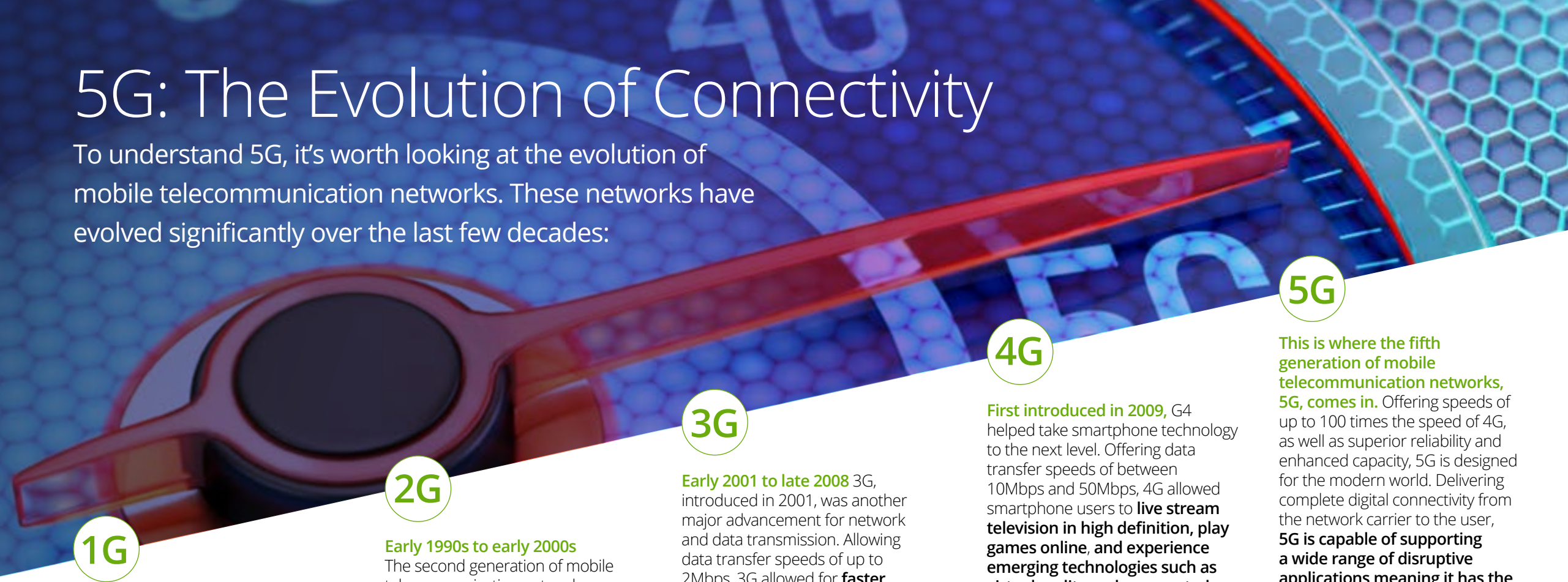
5G: The Evolution of Connectivity

To understand 5G, it's worth looking at the evolution of mobile telecommunication networks. These networks have evolved significantly over the last few decades:



1G

Late 1970s to early 1990s
The first generation of wireless telecommunication networks, which is now referred to as 1G, was launched in the late 1970s and early 1980s. 1G networks, which used analogue signals, allowed for nothing more than **mobile voice calls** as the technology was quite limited.

2G

Early 1990s to early 2000s
The second generation of mobile telecommunication networks, 2G, was a big step up from the first generation. These networks introduced digital technology and this played a major role in helping the mobile phone industry gain widespread adoption in the early 2000s. Later versions of 2G networks introduced data transmission, which led to the rise of **text messaging (SMS) and multimedia messaging (MMS)** services.

3G

Early 2001 to late 2008 3G, introduced in 2001, was another major advancement for network and data transmission. Allowing data transfer speeds of up to 2Mbps, 3G allowed for **faster web browsing and video calling**, which ultimately led to smartphones taking off.

4G

First introduced in 2009, G4 helped take smartphone technology to the next level. Offering data transfer speeds of between 10Mbps and 50Mbps, 4G allowed smartphone users to **live stream television in high definition, play games online**, **and experience emerging technologies such as virtual reality and augmented reality**.

While 4G was a major boost for smartphone technology, its limitations mean that it is not really suitable for new-age technologies such as the Internet of Things, which require highly reliable network connections, super-fast data transfer speeds, and near-zero latency. 4G was not designed with today's data transmission requirements in mind.

5G

This is where the fifth generation of mobile telecommunication networks, 5G, comes in. Offering speeds of up to 100 times the speed of 4G, as well as superior reliability and enhanced capacity, 5G is designed for the modern world. Delivering complete digital connectivity from the network carrier to the user, **5G is capable of supporting a wide range of disruptive applications meaning it has the potential to take technology to the next level.**

5G Applications

In a 3G/4G world, mobile networks don't have the speed, capacity, or reliability to support all the exciting new technologies that we are expecting in the years ahead. Yet 5G is a different story – with its advanced features it will open up a whole new world of possibilities. Here's a look at four major applications of 5G technology.

Driverless Cars

Without a doubt, one of the most exciting applications of 5G technology is autonomous vehicles.

Driverless cars gather an extraordinary amount of data every second and to operate efficiently they need to be able to transmit this data in real time with near-zero latency. Public safety is of course the number one priority meaning seamless connectivity is crucial. With drivers' lives at risk, an autonomous vehicle cannot afford to have a delay in its data transfer.

5G will be a major enabler for autonomous vehicles as it will allow the flow of data generated by these vehicles to be processed and converted into insights that form the basis of driving decisions in real time. Offering dramatically lower latency (5 milliseconds or less) than 4G networks, 5G will enable autonomous vehicles to communicate efficiently with both other vehicles and roadside infrastructure to ensure a smooth driving experience.

Autonomous vehicles fitted with 5G technology will also interpret road conditions and potential hazards far more quickly than other vehicles. For example, they will be able to receive information from other vehicles hundreds of meters down the road in a fraction of a second. This kind of technology could potentially reduce the number of road traffic accidents across the world substantially.

With a number of major technology and automotive companies working hard to get driverless cars on the road right now, 5G is likely to play a key role in the successful deployment of the technology. You can find more information on the autonomous car theme here.

Smart Cities Technology

5G will also be a key enabler for smart cities technology.

According to estimates from the United Nations, over the next 30 years urbanisation could add another 2.5 billion people to the world's cities, meaning that by 2050 up to 70% of the global population could be city-based. This is likely to create a wide range of issues for society meaning that technological solutions that help to increase efficiency will be crucial.

Today, cities around the world are already deploying interconnected networks of devices

and sensors that can gather valuable information in order to become more streamlined. With the help of advanced technology such as the Internet of Things and artificial intelligence, cities are transforming everything from traffic management to waste disposal in order to make themselves more dynamic than they were in the past.

Yet one thing holding back adoption of smart cities technology is network bandwidth. The ability to transmit data from thousands of sensors to the cloud for analysis requires a huge amount of bandwidth and 4G networks often struggle to cope with the burden of mass connectivity. This is where 5G will offer a major boost. Offering the ability to connect up more devices than ever before, while also speeding up the transmission of data, 5G will allow for data from sensors on roads, buildings, and streetlights to be sent to the cloud for real-time analysis and this will have a huge impact on cities, improving the quality of life for inhabitants.

Healthcare

In the healthcare industry, 5G technology is likely to have a big impact in a number of areas in the years ahead. Right now, one of the major issues impacting the healthcare industry is the world's ageing population. With the global population getting older, and the demand for healthcare rising, many healthcare systems are struggling to cope.

One solution to this issue is online video consultations with healthcare professionals. According to the UK's National Health Service (NHS), these kinds of consultations could potentially save up to 30 million patient trips to hospitals every year in the UK alone. 5G, with its faster speeds and reliable network connections, will make online consultations possible, relieving the strain on hospitals and surgeries. Those living in more remote areas, in particular, will benefit greatly from 5G as they will be able to receive first-class healthcare support without having to travel to a major city.

Governments around the world today are also looking to shift the focus of healthcare from treatment to prevention via the use of wearable devices. Such devices can track everything from the user's heart rate to their blood glucose levels. 5G will also play a major role in this area of healthcare as it will help transmit data efficiently and enable data to be offloaded to the cloud. In addition, 5G's faster speeds and superior network reliability will allow for the development of more

complex healthcare devices, including those implanted directly into the body instead of being worn externally.

Another area of healthcare that 5G is likely to enhance is remote robotic surgery. This kind of surgery is already feasible today, yet the technology is in its infancy and surgeons generally have to be located near to the patient for it to work effectively. However, with 5G technology a specialist could potentially carry out an operation on a patient on the other side of the world, which could be life-saving in certain scenarios. With its ability to transmit data at high speed over long distances, 5G will allow robotic surgery to take place in real time and with far greater precision.

Entertainment

Finally, 5G will have a broad range of implications for the entertainment industry, which makes it an exciting development for consumers.

For example, consider the impact of 5G on live streaming on portable devices such as smartphones and tablets. One thing that has held back live streaming up to now is connectivity. Trying to watch a live football match or a television show on your smartphone with a poor internet connection can be an extremely frustrating experience. However, 5G will change that. Given that 5G is set to offer far more reliable network connections than 4G and also be up to 100 times faster, it's likely to totally transform live streaming.

5G is also likely to take gaming to the next level. Not only will online games run faster and be more responsive due to the enhanced speeds and reduced latency of 5G, but cross platform gameplay is likely to become a reality. Additionally, 5G could potentially result in a new breed of handheld gaming consoles that receive console-grade games on a monthly subscription basis. 5G technology is also likely to have implications for virtual reality and augmented reality games. As a result of 5G, we're likely to see a big leap forward in these technologies, as 5G will enable processing to be handled remotely in the cloud rather than locally on mobile devices and headsets. Overall, 5G has the potential to revolutionise the gaming industry. You can find out more about the online gaming theme here.

5G Rollout Challenges

While it's commonly acknowledged that 5G has exciting potential, its rollout is unlikely to be fast. There are a number of challenges that need to be overcome.

One major barrier to a rapid rollout of the technology is regulation. Given that 5G will require a substantial upgrade in network infrastructure, and that base stations and antennas will need to be positioned in specific locations in order to ensure coverage, the widespread rollout of 5G could be delayed by disputes between governments, local authorities, network operators, and landlords. Zoning policies, lengthy permitting processes, and even aesthetic concerns could all impact the introduction of the technology. Ultimately, timely deployment of 5G will require clearly-defined policy framework and collaboration between stakeholders.

The high costs associated with building the 5G infrastructure are also likely to impact the rollout of the technology. For network operators, the costs associated with putting 5G infrastructure in place are likely to be formidable. For example, in the US, telecommunication providers are expected to spend $275 billion on 5G infrastructure in the years ahead, while China is expected to spend $411 billion on 5G rollout. Cost-efficient deployment will be crucial.

Finally, like all new technologies, rigorous testing of 5G technology will need to be completed before its rollout can take place. In the same way that a smartphone manufacturer wouldn't release a new model without testing it thoroughly to ensure that it works as it's meant to, 5G networks will need to be tested properly and this could delay the rollout of the technology.

While these obstacles may cause delays in the short term, the long-term story remains exciting. Once these hurdles are overcome, 5G is likely to have a big impact on the world. For this reason, now is a good time to consider exposure to the technology.

5G — A Compelling Investment Opportunity

Investing in 5G

Like any revolutionary technology, 5G appears to offer considerable investment potential. With the 5G network infrastructure market forecast to grow at a compound annual growth rate (CAGR) of 70% between 2019 and 2025, and the overall global 5G technology market size set to surge to $3,483 billion by 2026, up from just $34 billion in 2017, there are likely to be numerous opportunities for astute investors and those who get in early should be well placed to capitalise. Some analysts even believe that, due to 5G's transformative potential, investing in the technology now could be as profitable as investing in personal computers in the early 1980s.

Already, many of the world's most powerful companies are focusing on 5G and developing strategies to profit from the technology. Additionally, some of the world's largest investors are pouring money into 5G companies in order to capitalise on the growth story. Yet for private investors there are challenges associated with investing in 5G. For a start, there are multiple subsectors within the theme. Do you invest in infrastructure specialists, major network operators, or smartphone manufacturers? Another complication is that there are hundreds of 5G-related stocks listed across the world, and they all face a variety of risks depending on their place in the 5G ecosystem. Some stocks will turn out to be better investments than others.

Given the challenges associated with investing in 5G, the most sensible approach is to own a diversified portfolio of stocks that provides broad exposure to the theme, covers a range of subsectors, and eliminates the risk of an underperforming company impacting investment returns negatively.

To help investors gain exposure to the 5G theme, eToro has launched its **5GRevolution CopyPortfolio** — a fully-allocated thematic investment portfolio focused on global companies that are involved in the development and rollout of 5G networks. Designed to enable long-term investors to gain exposure to the 5G growth story, while minimising risk for investors through its diversified approach to stock selection. Those investing in this portfolio will not have to pay any management fees as well as 0% of commission on stocks.*

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Our Approach to 5G

There are many different ways to invest in 5G. From mobile network operators that will provide 5G to consumers, to smartphone manufacturers that are developing innovative 5G products, to payments companies that should benefit from enhanced mobile networks, there are literally thousands of public companies across the world that look set to benefit from the arrival of 5G.

eToro's investment team has reviewed the 5G landscape and has chosen to focus on companies that will play a major role in enabling the technology to reach our doorstep. As such, five major sub-themes have been identified, which our **5GRevolution CopyPortfolio** will focus on. These sub-themes include:

We believe that by focusing on publicly-listed companies in these areas, and excluding companies such as smartphone manufacturers and payments companies which are not directly involved in 5G network development, it will enable us to construct a portfolio that has a pure focus on 5G and is well placed to benefit as the technology unlocks opportunities.

5G CopyPortfolio Composition*

20% 5G Real estate

eToro Ticker	Company Name
AMT	American Tower Corp
CCI	Crown Castle International Cor
DLR	Digital Realty Trust Inc
EQIX	Equinix Inc
OUT	Outfront Media Inc
SBAC	SBA Communications Corp
UNIT	Uniti Group Inc

15% 5G Infrastructure

eToro Ticker	Company Name
ERIC-A.ST	Ericsson
FFIV	F5 Networks Inc
IBM	International Business Machine
INTC	Intel Corp
NOK	Nokia Oyj
PRY.MI	Prysmian SpA
QCOM	Qualcomm Inc

45% 5G Network

eToro Ticker	Company Name
0728.HK	China Telecom Corp Ltd
0762.HK	China Unicom Hong Kong Ltd
0941.HK	China Mobile Ltd
AMX	America Movil SAB de CV
CHTR	Charter Communications Inc
CTL	CenturyLink Inc
DTE.DE	Deutsche Telekom AG
ELISA.HE	Elisa Oyj
ORA.PA	Orange SA
S	Sprint Corp
SCMN.ZU	Swisscom AG
T	AT&T Inc
TEF	Telefonica SA
TEL.OL	Telenor ASA
TMUS	T-Mobile US Inc
VOD	Vodafone Group PLC
VZ	Verizon Communications Inc

10% 5G Hardware

eToro Ticker	Company Name
00763.HK	ZTE Corp
0992.HK	Lenovo Group Ltd
ANET	Arista Networks Inc
CSCO	Cisco Systems Inc
HPQ	HP Inc
JNPR	Juniper Networks Inc
MSI	Motorola Solutions Inc

10% 5G Semiconductor

eToro Ticker	Company Name
AVGO	Broadcom Inc
IFX	Infineon Technologies AG
MLNX	Mellanox Technologies Ltd
MRVL	Marvell Technology Group Ltd
MU	Micron Technology Inc
NXPI	NXP Semiconductors NV
SWKS	Skyworks Solutions Inc

*Initial allocation at inception day.

Summary

With its super-fast network speeds and superior network reliability, 5G is likely to play a key role in unlocking the next wave of advanced technology in the years ahead. Allowing massive amounts of data to be relayed between connected devices and the cloud for near-real-time analysis. 5G will have a major impact on the world and for this reason, its investment potential should not be ignored.

However, given that there are multiple subsectors of the 5G theme, and hundreds of 5G-related stocks listed across the world, investing in the technology is not straightforward. Not all 5G-related stocks will turn out to be profitable investments meaning a 5G-focused allocation, which invests in a wide range of stocks is the most sensible approach to investing in this theme.

For those looking to gain exposure to this revolutionary growth story, eToro's **5GRevolution CopyPortfolio** offers an innovative and cost-effective way to invest (without any management fees and 0% commission on stocks) in a portfolio of the world's most exciting 5G-related companies.

To learn more about how our CopyPortfolios work, click this link.

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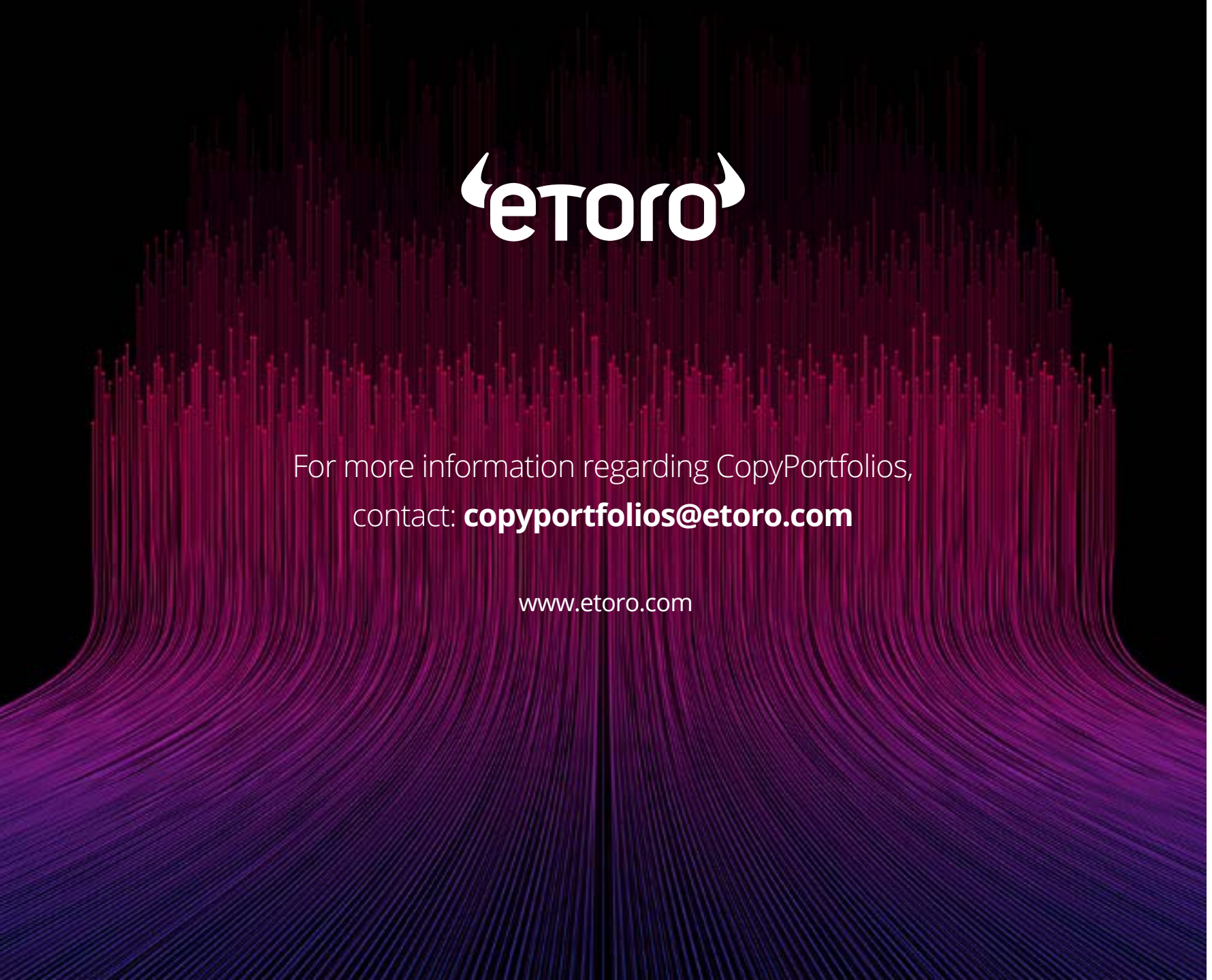

For more information regarding CopyPortfolios, contact: **copyportfolios@etoro.com**

www.etoro.com

Resources:

https://www.howtogeek.com/340002/what-is-5g-and-how-fast-will-it-be/

https://www.longtermplan.nhs.uk/online-version/overview-and-summary/

https://crsreports.congress.gov/product/pdf/R/R45485

https://www.scmp.com/tech/china-tech/article/2098948/china-plans-28-trillion-yuan-capital-expenditure-create-worlds

https://www.prnewswire.co.uk/news-releases/5g-network-infrastructure-market-to-grow-at-a-cagr-of-70-accounting-for-28-billion-in-annual-spending-by-2025-616607744.html

https://www.reuters.com/brandfeatures/venture-capital/article?id=132363

https://moneymorning.com/2019/05/15/the-best-5g-investments-and-where-to-buy-them/

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