

## Demystifying Blockchain, AI and other potential bubbles

*It may seem like blockchain/cryptocurrency companies are taking over the world, so we embarked on a reality check. There is huge market interest in blockchain with abnormal gains from cryptocurrencies driving investors to hang on the coat tails of anything associated with the tech themes of the moment i.e. blockchain/AI/VR. Companies who are pivoting to blockchain are generally seeing stock spikes disproportionate with company performance as can be seen in the charts opposite that appeared in an article in CB Insights. However, the delivery of genuine economic value from these technologies is still in the infancy stage and this report will look deeper into the offerings of these new players.*

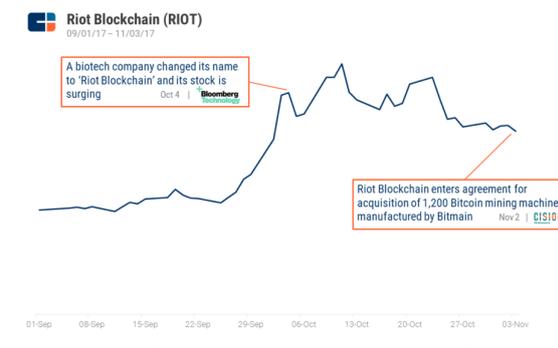
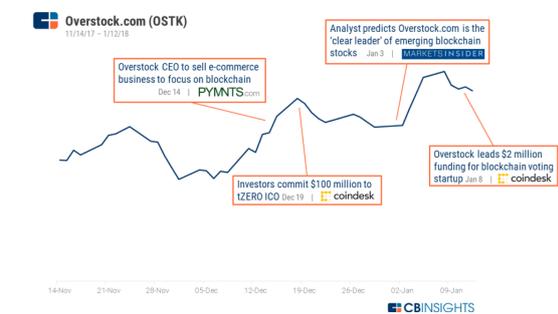
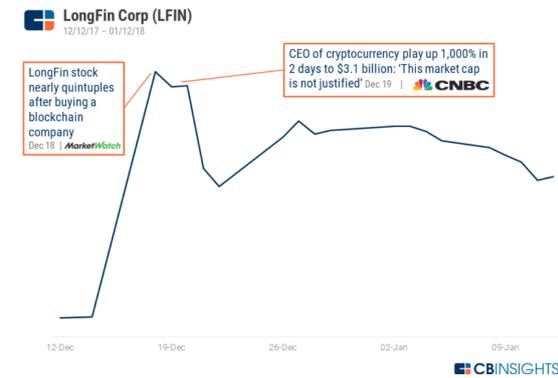
## What is blockchain?

The first major application of blockchain technology was Bitcoin (BTC) which was released in 2009. Bitcoin is a cryptocurrency and the blockchain is the technology that underpins it. A cryptocurrency refers to a digital coin that runs on a blockchain. The Bitcoin blockchain is “decentralised,” meaning it is not controlled by one central authority and it cannot be tampered with. Each block that is added onto the chain carries a hard, cryptographic reference to the previous block. That reference is part of the mathematical problem that needs to be solved to bring the block into the network and the chain.

Part of solving the puzzle involves working out random numbers called the “nonce.” The nonce, combined with the other data such as the transaction size, creates a digital fingerprint called a hash. This is encrypted, thus making it secure. Each hash is unique and must meet certain cryptographic conditions. Once this happens, a block is completed and added to the chain. Bitcoin/Cryptocurrencies use blockchain technology, but the technology is not restricted to just cryptocurrencies.

## So, who are the main providers of Blockchain technology?

The Bitcoin blockchain is not made for companies to build apps and processes on. But several other companies have created blockchain platforms to help firms interested in the technology build processes. Ethereum (ETH), Ripple (XRP), Hyperledger, IBM, R3, are just a few names that have developed such platforms.



Source:

<https://www.cbinsights.com/research/blockchain-hype-stock-trends/>

## Miles Cox

Corporate Broker

Miles.cox@hybridan.com

0203 764 2342



20 Ironmonger Lane, London, EC2V 8EP

Website: [www.hybridan.com](http://www.hybridan.com)

@HybridanLLP

Ethereum is essentially a blockchain platform that specialises in smart contracts. It has a digital coin known as Ether linked to it. This is the world's second-largest cryptocurrency by value at \$20,248,477,032. Like Bitcoin's blockchain, Ethereum's is also public. Think of how companies like Apple and Google release software developer kits to allow people to build apps on their various platforms. Ethereum does something similar, allowing people to build "decentralised apps" on its platform, leveraging its blockchain and potentially using the digital coin ether to power their product. Smart contracts are contracts that automatically execute when certain conditions are met from all interested parties. The automation can help to speed the process up, ensuring no mistakes along the way.



Ripple is a blockchain specifically designed for cross-border currency transactions. The movement of money from one currency to another across the world, particularly for large businesses, is expensive and takes a long time. The process involves lots of different parties from banks to clearing houses. Ripple's blockchain system, known as xCurrent, helps to cut out some of the intermediaries, cutting down a cross-currency transaction to seconds. This is used by banks such as Santander, UniCredit, UBS and Standard Chartered for cross border payments.



Hyperledger is an open source collaborative effort created to advance cross-industry blockchain technologies. It is a global collaboration, hosted by The Linux Foundation, including leaders in finance, banking, Internet of Things, supply chains, manufacturing and technology.



IBM Blockchain Platform is a flexible software-as-a-service offering that is delivered via the IBM Cloud. It enables network members to quickly get started developing and easily move to a collaborative environment. The platform simplifies one's blockchain journey of developing, governing, and operating a network.



### **Current examples of blockchain being used**

The promises of blockchain technology have been praised by the banking industry. They see it to reduce costs, make processes more efficient and potentially underpin a lot of their operations. Banks often call blockchain “distributed ledger technology” or DLT to distinguish it from Bitcoin’s blockchain. Many major banks have begun carrying out blockchain experiments:

- BBVA and the \$90 million loan (world’s first blockchain corporate loan), Santander and cross-border money (uses xCurrent app for cross border payments).
- Last year, stock exchange group Nasdaq partnered with Swedish Bank SEB to trial a blockchain-based mutual fund trading platform. Nasdaq also trialled blockchain to allow shareholders of listed Estonian firms, who were not physically present for meetings, to vote.

Other areas blockchain has been used:

- Blockchain technology can also be used to track products across a supply chain or route. For example, diamond producer De Beers recently announced that it had trialled the technology to trace the stones from the time they were mined to delivering them to a jeweller. The blockchain can also be used to track ownership of assets such as fine art or even property.
- Elections are another space which blockchain technology could be applied to. In West Virginia’s primary election in May, some voters could vote via a mobile blockchain-based platform.

Blockchain is clearly being taken very seriously with 30 out of the top 50 companies of the Forbes Global 2000 adopting or investing in some form of blockchain technology. With companies trying to find the best way to use blockchain, a lot of smaller companies have sprouted to beat them to it.

### **UK Companies Involved in the Blockchain Space**

**Crossword Cybersecurity Plc\* (NEX: CCS)**, the technology commercialisation company focusing exclusively on cyber security, has licensed its blockchain intellectual property to ByzGen. The ByzGen system is powered by a next-generation blockchain fabric called Skipchain, enabling the

technology to support offline and peer-to-peer verification. ByzGen is making very good progress working with the Ministry of Defence and ATOS amongst others. In September 2018, it received a further £1.5m investment from Regulatory Finance Solutions Limited.

**TMT Investments PLC\* (AIM: TMT.L)**, the venture capital company investing in high-growth technology companies across a number of core specialist sectors, confirmed its first blockchain related investment through participation in the recent pre-ICO (initial coin offering) conducted by Telegram Group, Inc on 21/02/18. Telegram is an established global messaging platform with over 200 million users around the world and TMT believes that demand for the Telegram pre-ICO was driven by the fact that Telegram is a well-established global messaging platform rather than a start-up. Only today TMT confirmed that it had recently invested \$100,000 in two other pre-ICO transactions. Both ICO investments were successful, and the Company has already generated a cash profit from those transactions, with some tokens still unrealised.

TMT Investments has so far only dipped its toe in the blockchain ocean with a number of small “test investments” to date. However, a proposed TMT Blockchain Fund plans to apply the same rigorous selection process and VC discipline to Blockchain investments, as TMT does to non-Blockchain prospects. This was recently spelt out by one of TMT’s investment partners Igor Shoifot “We look for evidences of serious business: product, customers, business models, growth drivers, proven and realistic scaling plans.”

“Several members of TMT Investments have been actively involved with different Blockchain projects and see great future in the technology.” Igor Shoifot believes that “decentralisation is the near future of most of the current core tech segments: e-commerce, fintech, healthtech management, data security, cloud computing, communications, and many others.”

**Online Blockchain PLC (LSE: OBC)**, Online has begun to work with teams of independent blockchain developers on new project initiatives. Recently OBC has agreed to invest up to US\$100,000 in cash for up to a 35% interest in Encryptid Gaming Inc, a crypto gaming software development start-up Company. Encryptid is a newly-incorporated US-based Company which is planning to develop new crypto-based games, storable on the Ethereum blockchain. The first planned game for initial development is "Cybernetika", a futuristic electronic world with roving robot-like creatures that can be trained, upgraded and put into tournament-style battles.

**Coinsilium Group Limited (NEX: COIN)**, is a blockchain venture builder, advisor, and investor that finances and manages the development of early-stage blockchain technology companies. This month Coinsilium announced a Strategic Partnership with the Blockchain Infrastructure Company Lition Technology AG for its US\$25m Token Sale.

*\*Denotes a corporate client of Hybridan LLP*

## So, what next for Blockchain?

### **Smart Contracts: High Likelihood**

As stated earlier this is where you embed every transaction detail into the transaction itself. Smart contracts stop the need for counterparty recordkeeping or multi-step verification example, a used car that has a digital record of entire history. With this you can also enforce contract terms, such as payment due dates. **Minds + Machines Group Limited (AIM: MMX)**, an AIM listed domain specialist **Company**, entered into a Strategic Marketing Partnership with imToken the world's leading Ethereum wallet provider.

### **Asset Custody: High Likelihood**

Establishing provenance and authenticity through blockchain. Like in the De Beers stone tracking example, blockchain can be used to provide the record of all transactions and whereabouts of an asset. This would reduce costs for verifying ownership and help trace defective produce and point of origin. Whilst clearly showing the rightful owner and if the asset is legal to buy and sell. E.g. **Mayan Energy Ltd (AIM: MYN)** trialling the technology of Petrobloq.

### **Settlements: Medium Likelihood**

Using crypto technology to complete transactions in real time. This could be ideal for real estate transactions where same time payment and asset transaction is important. This is more difficult though, whilst reducing operational risk and costs, it opens up to other issues such as irreversibility of erroneous payments and non-compliance with KYC regulations.

### **Currency: Low Likelihood**

The original application of crypto tech. Crypto currency makes it easy to conduct real time commerce with anonymity. Whilst it has made headlines, it may struggle to scale outside low trust corners of the

global economy. With no means to regulate or tax and no seen path to legal tender status large scale adoption seems unlikely.

Main issue with adoption is Trust, Regulation, Privacy and Irreversibility.

### **Up and coming blockchain providers**

*PATRON* is one of Japan's leading blockchain companies. They are currently building a decentralised influencer-marketing platform to eliminate inefficiencies in branded content and social media. The company is fresh off a \$40 million token-sale raise and is currently expanding operations to the United States.

*TraDove* is developing a light, fast and trustable B2B blockchain payment network for international transactions. The Company was one of the highest raising ICOs in 2018 raising \$52m. It launched the world's first B2B token, BBC, opening corporate demand for cryptocurrencies for sales and marketing, a \$76 billion market according to Forbes.

*Celsius* is banking on the blockchain. Its borrowing and lending platform will allow users to earn up to 5% interest on their crypto while taking loans at a 9% interest, using their crypto as collateral.

*Menlo One* is a framework for building decentralised applications with the speed of a traditional web app. Their proof-of-reputation algorithm is an innovation for DApps, as is the speedy, decentralised database and cross-chain nodes at the centre of its technology.

*Gameflip* is an online marketplace backed by Silicon Valley venture capital. It allows gamers to transact any type of digital goods, and currently has 3 million members. The FLP (Ethereum based) utility token can now be used to transact digital goods within the Gameflip marketplace.

*Buddy* is an app store for developers, by developers. Their vision is to become the backbone on which talented programmers can build world-altering blockchain technology and off-chain apps and services.

The ADBIT token will be the core function of CIINCH Media Marketplace, the world's first blockchain-powered media planning and buying platform for traditional media (print, TV, radio and out-of-home) assets. CIINCH and ADBIT were created to help automate the multiple layers of manual processes that currently plague the industry.

*DACC* is the world's first content-based blockchain that features identity and access management (IAM) at the infrastructure level. This will revolutionise the digital content and media industries, as it offers users full control over content creation, access and storage.

*Goldilock* is aiming to change the way data is stored and secured across the internet. Its innovations allow for individuals and institutions to secure digital assets in storage that are physically disconnected from the internet until the moment users want to connect it for its intended purpose.

## **View on Blockchain**

The global blockchain market is anticipated to grow to over \$60 billion by 2024 as more companies adopt distributed ledger technology and mass-use cases appear. Very much still in the infancy stage, blockchain technology is currently being explored and adopted by global industry titans. We believe that secure authentication and traceability are the key attributes that mean that Blockchain is here to stay.

We believe that Cryptocurrency's challenge to traditional media of exchange has its limitations (even with Goldman opening its own crypto division). However, there are those who have a more radical view, and indeed two former UBS bankers have raised \$103m for a crypto bank called SEBA so watch this space:

<http://uk.businessinsider.com/r-swiss-startup-seba-raises-funds-to-build-crypto-bank-2018-9>

Blockchain is still a risky investment as seen by a 25%+ drop in the price of Bitcoin over 24 hours in December 2017. However, newer uses for blockchain are starting to emerge and show true benefits to businesses including simplification, security and cost efficiency. Blockchain is not just affecting the way we use or encrypt technology, but also the way that companies can now raise funds in ICO's.

## **What is an ICO?**

An Initial Coin Offering, also commonly referred to as an ICO, is a fundraising mechanism in which new projects sell their underlying crypto tokens in exchange typically for Bitcoin and/or Ether but never for cash. There are some parallels, but also some significant differences in comparison to an Initial Public Offering (IPO) in which investors purchase shares of a company. ICO's are a relatively new phenomenon but have quickly become a dominant topic of discussion within the blockchain community.

Many view ICO projects as unregulated securities that allow founders to raise an unjustified amount of capital, while others argue it is an innovation in the traditional venture-funding model. ICO's are easy to structure because of technologies like the ERC20 Token Standard, which abstracts a lot of the development process necessary to create a new cryptographic asset. Most ICO's work by having investors send funds (usually Bitcoin or Ether) to a smart contract that stores the funds and distributes an equivalent value in the new token at a later point in time. E.g. KR1 has invested USD 200,000 into the FOAM project by Foamspace Corp ("FOAM") for 3,625,641.41 FOAM tokens.

ICO's are extremely risky for investors as the only proof they have of purchase is the hoping that their backed asset comes to fruition and they earn a profit from its value, whereas it is a relatively risk free raise for companies who typically suffer no equity dilution. An example given by Avi Mizrahi is: "ICO's are like investing in a Casino in exchange for poker chips". Picking the right ICO would be riskier than picking the better IPO, however, if the company succeeds, the returns could be substantial.

The Canadian regulator 'Financial Consumer Services Commission (FCSC)' say that cryptocurrencies have no inherent or underlying value, and their price is being pushed up by speculators. They added that the instruments are not endorsed or regulated by a central authority and, because of the anonymous nature of their transactions, are vulnerable to money laundering. Some of the most seasoned tech investors are taking a very measured approach to the space. Igor Shoifot, Investment Partner at TMT Investments\* commented recently "While fundraising in Blockchain is soaring, ICOs are quickly declining, and private placements are becoming an increasingly popular way for Blockchain start-ups to raise money."

### **What is Artificial Intelligence (AI)/Machine Learning (ML)?**

Advances in Artificial Intelligence mean machines are increasingly imitating humans in how they think and act, and are increasingly involved in work that has been exclusively done by people. Current advances in Artificial Intelligence and machine learning are being made possible through the confluence of three powerful tech-driven events:

- The rapid digitisation of the economy, which is creating trillions of gigabytes of data every year (and rising);
- Plummeting cost of storing all that data; and
- An explosion in ever cheaper, ever more powerful computing power.



Image Source: <https://www.investmentbank.barclays.com/our-insights/robots-at-the-gate.html>

However, we do not believe that robots will completely replace humans in the workplace any time soon. Crucially, people retain the upper hand over machines in two important ways:

### Sensorimotor skills

People use their senses to process what they see, hear or touch and act accordingly – often subconsciously. Most robots remain far clumsier than a young child.



### Cognitive functionality

Much of what humans do daily depends on a capacity to perceive context, learn from experience and make decisions based on incomplete information. Machines can't, yet.

Image Source: <https://www.investmentbank.barclays.com/our-insights/robots-at-the-gate.html>

### Current AI/ML examples:

#### *SAP – AI for Turning Databases into Useful Intel*

It replicates and ingests structured data, such as sales transactions or customer information, from relational databases, apps, and other sources. Walmart, for example, has been using HANA to process its high volume of transaction records.

#### *DOMO – AI for Business Dashboards*

This gives companies using Domo a way to pull data from Salesforce, Square, Facebook, Shopify, and many other applications that they use to gain insight on their customers, sales, or product inventory.

#### *Apptus – AI in Sales Enablement*

The Apptus eSales solution is designed to, among other features, automate merchandising based on a predictive understanding of consumers. The software combines big data and machine learning to

determine which products might appeal to a potential customer as they search online or get recommendations.

*Avanade – AI for Business Insights*

Avanade is a joint venture between Microsoft and Accenture that leverages the Cortana Intelligence Suite and other solutions for predictive analytics and data-based insights.

*General Electric – Predicting Repairs and Upkeep for Machinery*

Oil and gas, aviation, and other industries, for example, have been using General Electric's Predix operating system, which powers industrial apps to process the historic performance data of equipment. That can be used to discern a variety of operational outcomes such as when machinery might fail.

*Siemens – AI for Monitoring Machine Fleets and Factories*

In March 2016, Siemens launched its MindSphere open industry cloud platform in beta. MindSphere was designed to provide monitoring of machine fleets for service needs through machine tool analytics and drive train analytics.

**View on AI & ML**

This is a potentially a critical moment for business and industry, where machine learning might weave its way further into how operations are handled, the way decisions are made, and resources get managed. With a greater influx of companies coming to market, for example the listing of **Renalytix AI (AIM: RENX)** on 19/10/2018 – *a developer of AI in decision support and clinical management tools for improving early diagnosis, continual monitoring and drug development for kidney disease*, it will depend on whether businesses collectively find real value in AI. For the investment in the technology AI must prove its worth against human labour and we believe that Artificial Intelligence should seek to complement rather than replace human intelligence.

Whilst the accuracy and capabilities of deep learning have increased, the technology is still trickling out into the world among early adopters. The next phase will be about whether such resources will flow more freely and be embraced by the business community at large. To quote cyber punk author William Gibson "The future is already here," "It's just not widely distributed."

### **But how does VR fit into this?**

Virtual reality is the term used to describe a three-dimensional, computer generated environment which can be explored and interacted with by a person. That person becomes part of this virtual world or is immersed within this environment and whilst there, can manipulate objects or perform a series of actions. There are a range of systems that are used for this purpose, such as headsets, omnidirectional treadmills and special gloves. These are used to stimulate our senses together to create the illusion of reality.

Virtual reality is already changing the way we consume media, from online videos to movies to videogames. But VR isn't just about creating more immersive entertainment experiences. In fact, there are several ways in which VR is changing the workplace. The platform promises to help employees empathise with and serve customers. It should also make it easier for engineers and designers to develop products faster. Virtual reality will impact how people work by making it easier to work remotely, and it may encourage some to participate less in the workplace, if current trends serve as any indication.

### **Where is VR used in the UK?**

**Training - SimiGon (AIM: SIM)**, is a leading developer and supplier of distributed simulation solutions for defence and civilian applications. SimiGon is the creator of SIMbox, a leading PC-based platform for creating, managing and deploying simulation-based content across multiple domains using. This includes the procurement of SIMbox-based T-6A training devices in a fully immersive, Virtual Reality (VR) environment.

**Marketing - Immotion Group PLC (AIM: IMMO.L)**, the provider of 'Out of Home' virtual reality experiences is working in partnership with intu, which owns and manages many of the UK's best and most popular shopping centres. Immotion Group continues the roll out of its successful ImmotionVR brand. Customers will be able to enjoy a broad range of experiences including Delta Zero which was launched in August 2018. Further experiences are due to launch later this year, including seasonal themed experiences for both Halloween and Christmas.

**Socialising - Oxford Metrics plc (LSE: OMG)**, Vicon, a world leader in motion measurement, has launched Origin, a comprehensive new solution for the fast-growing Location-Based Virtual Reality (LBVR) market. LBVR is an emerging form of entertainment where participants share collective VR experiences in a specific location, such as a shopping mall, cinema, theme-park or museum. In these experiences, users are free to walk within a virtual world and interact with each other, whether that be enacting a scene from a movie franchise, wandering the surface of Mars or playing a video game with friends. Also, **EVR Holdings plc (AIM: EVRH)**, the leading creator of virtual reality music content, announced an exclusive multi-year partnership with the National Exhibition Centre Limited. From 09/08/18, virtual reality (VR) market leader, MelodyVR, is working with the NEC Group Arenas to offer exclusive virtual access to selected live events in each of its venues.

**Cosmetics – Integumen plc\* (AIM: SKIN)**, Integumen is to launch the first laboratory-grown human-skin test service, to use artificial intelligence, to provide clinical validation for cosmetic, personal hygiene and skin care products. Integumen’s partner RinoLab has developed a range of algorithms for the analysis of big data specifically from scientific sources. In the case of Labskin AI, these algorithms will be applied to a database of 40 years of patents and online scientific publications to return recommendations on the most suitable ingredient formulations to achieve the required solution for the skin, wound, hair care or cosmetic related problem of Integumen’s customers. This has the potential to save R&D departments time and money.

## Summary

There is no doubt that technology is rapidly affecting business with VR, AI and Blockchain looking to be here for the long run. All their capabilities have commercial uses but there have been false dawns before. It is yet to be seen which areas will succeed and which are just falsified by hype or market hyperactivity. Given the proliferation of new ‘blockchain’ start-ups it is vital for investors to understand the background of the technology and how it can benefit business. Although Virtual Reality is certainly becoming more mainstream it remains somewhat as a fringe media. According to IDC’s Worldwide Quarterly Augmented and Virtual Reality Headset Tracker, “shipments of augmented reality (AR) and virtual reality (VR) headsets were down 30.5 per cent year over year, totalling 1.2 million units in the first quarter of 2018.” Headline grabbing innovations such as driverless cars are those that capture the public’s imagination, but it is AI’s ability to process and arguably interpret vast reams of information in an ever datacentric world that we believe to be its edge.

## Disclaimer

This document, which does not constitute research, has been issued by Hybridan LLP for information purposes only and should not be construed in any circumstances as an offer to sell or solicitation of any offer to buy any security or other financial instrument, nor shall it, or the fact of its distribution, form the basis of, or be relied upon in connection with, any contract relating to any such action. This document has no regard for the specific investment objectives, financial situation or needs of any specific person or entity and is not a personal recommendation to any such person or entity. Recipients should reach an individual investment decision, based upon their respective financial objectives and financial resources and, if any doubt, should seek advice from an investment advisor.

The information contained in this document is based on materials and sources that are believed to be reliable; however, such information has not been independently verified and therefore it is not possible to confirm such information as being accurate. This document is not intended to be a complete statement or summary of any securities, markets, reports, or developments referred to herein. No representation or warranty, either express or implied, is made or accepted by Hybridan LLP, its members, officers, employees, agents, or associated undertakings in relation to the accuracy, completeness or reliability of the information contained in this document, nor should it be relied upon as such.

The content of this document includes market commentary and other information which we have prepared in relation to companies referred to in this document. \*These includes the following broking clients of Hybridan LLP:

TMT Investments plc  
Crossword Cybersecurity Plc  
Integumen plc

The provision of this document to you constitutes a minor non-monetary benefit which is capable of enhancing the quality of service provided by Hybridan LLP and which is of a scale and nature which could not be judged to impair the duty of Hybridan LLP to act in the best interest of its client falling within article 24(7)(b) of Regulation 600/2014/EU (**MIFID II Regulation**).

**This document has been prepared by Miles Cox, an employee of Hybridan LLP.**

Any and all opinions expressed are current as of the date appearing on this face of this document only. Any and all opinions expressed are subject to change without notice and Hybridan LLP is under no obligation to update the information contained herein. To the fullest extent permitted by law, none of Hybridan LLP, its members, officers, employees, agents, or associated undertakings shall have any liability whatsoever for any direct or indirect or consequential loss or damage (including lost profits) arising in any way from use of all or any part of the information in this document.

This document should not be relied upon as being an independent or impartial view of the subject matter and, for the avoidance of doubt, constitutes **non-independent research** (as such term is defined in the Financial Conduct Authority's Conduct of Business Sourcebook to reflect the requirements of the MIFID II Regulation and Directive 2014/65/EU (known as **MIFID II**)). The individuals who prepared this document may be interested in shares in the company concerned and/or other companies within its sector, may be involved in providing other financial services to the company or companies referenced in this document or to other companies who might be said to be competitors of the company or companies referenced in this document. As a result both Hybridan LLP and the individual members, officers and/or employees who prepared this document may have responsibilities that conflict with the interests of the persons who receive this document. Hybridan LLP and/or connected persons may, from time to time, have positions in, make a market in and/or effect transactions in any investment or related investment mentioned herein and may provide financial services to the issuers of such investments.

In the United Kingdom, this document is directed at and is for distribution only to persons who (i) fall within article 19(5) (persons who have professional experience in matters relating to investments) or article 49(2) (a) to (d) (high net worth companies, unincorporated associations, etc.) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (SI 2005/1529) (as amended) or (ii) persons who are each a **professional client** or **eligible counterparty** (as those terms are defined in the Financial Conduct Authority's Conduct of Business Sourcebook) of Hybridan LLP (all such persons referred to in

(i) and (ii) together being referred to as **relevant persons**). This document must not be acted on or relied up on by persons who are not relevant persons. For the purposes of clarity, this document is not intended for and should not be relied upon by any person who would be classified as a **retail client** under the Financial Conduct Authority's Conduct of Business Sourcebook.

Neither this document, nor any copy of part thereof may be distributed in any other jurisdictions where its distribution may be restricted by law and persons into whose possession this document comes should inform themselves about, and observe, any such restrictions. Distribution of this report in any such other jurisdictions may constitute a violation of territorial and/or extra-territorial securities laws, whether in the United Kingdom, the United States, or any other jurisdiction in any part of the world.

Where possible this document is made available to all relevant recipients at the same time. Dissemination of research by Hybridan LLP is monitored to ensure that it is only provided to relevant persons. Research prepared by Hybridan LLP is not intended to be received and/or used by any person who is a **retail client**.

Hybridan LLP and/or its associated undertakings may from time-to-time provide investment advice or other services to, or solicit such business from, any of the companies referred to in this document. Accordingly, information may be available to Hybridan LLP that is not reflected in this material and Hybridan LLP may have acted upon or used the information prior to or immediately following its publication. In addition, Hybridan LLP, the members, officers and/or employees thereof and/or any connected persons may have an interest in the securities, warrants, futures, options, derivatives, or other financial instrument of any of the companies referred to in this document and may from time-to-time add or dispose of such interests.

**Niall Pearson an employee of Hybridan LLP, is a shareholder in Integumen plc and in TMT Investments plc, corporate clients of Hybridan LLP mentioned in this report. Hybridan LLP also hold warrants over the equity of Integumen plc.**

**TMT Investments PLC and Crossword Cybersecurity PLC, who are also mentioned in this report, are also corporate clients of Hybridan LLP**

This document may not be copied, redistributed, resent, forwarded, disclosed, or duplicated in any form or by any means, whether in whole or in part other than with the prior written consent of Hybridan LLP.

#### **MIFID II status of Hybridan LLP research**

The cost of production of our corporate research is met by retainers from our corporate broking clients. In addition, from time to time we issue further communications as market commentary (such as our daily newsletter, Small Cap Breakfast), which we consider to constitute a minor non-monetary benefit which is capable of enhancing the quality of service provided by Hybridan LLP and which is of a scale and nature which could not be judged to impair the duty of Hybridan LLP to act in the best interest of its client falling within article 24(7)(b) of the MIFID II Regulation.

Hybridan LLP is a limited liability partnership registered in England and Wales, registered number OC325178, and is authorised and regulated by the Financial Conduct Authority and is a member of the London Stock Exchange. Any reference to a partner in relation to Hybridan LLP is to a member of Hybridan LLP or an employee with equivalent standing and qualifications. A list of the members of Hybridan LLP is available for inspection at the registered office, 2 Jardine House, The Harrovian Business Village, Bessborough Road, Harrow, Middlesex HA1 3EX.

If you would like to unsubscribe, please email [enquiries@hybridan.com](mailto:enquiries@hybridan.com) with "unsubscribe me".