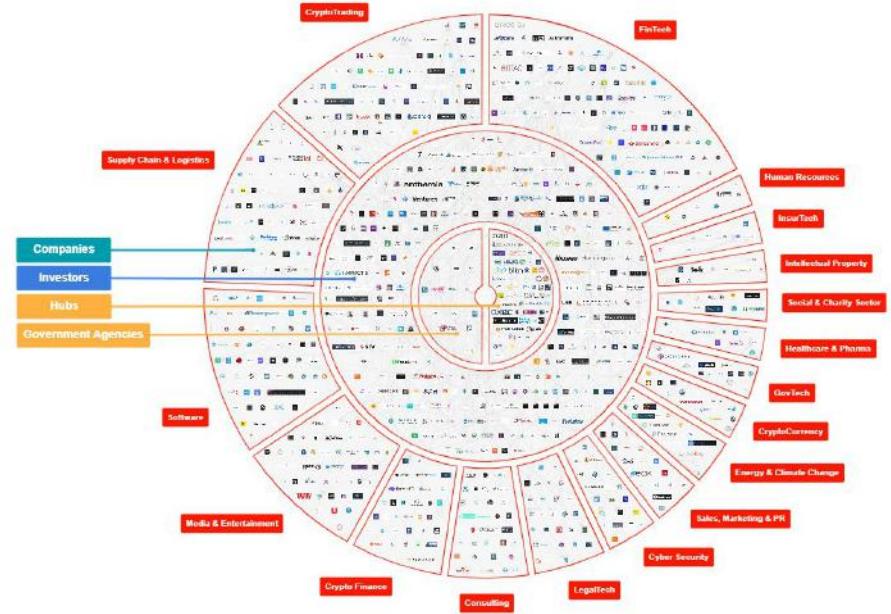




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Blockchain Industry in the UK Landscape Overview 2021: Companies, Investors, Influencers and Trends



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Opening



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Professor Birgitte Andersen, CEO Big Innovation Centre said:

“The UK, and in particular London, is becoming a true innovation and investment epicentre for everything Blockchain. This is because we have all the ingredients to create successful innovation and growth hubs – investment confidence, talent in Blockchain science, technological development, and blockchain entrepreneurship. But it does not end here – the UK’s network of Blockchain thinktanks and events companies are also playing an essential role in building the UK into a world-leading Blockchain community. “The UK’s blockchain industry can’t succeed without political will, so we are delighted to see evidence that the uptake of blockchain technology and integration is finally happening, moving Blockchain applications beyond proof of concept into use across both private and public purpose sectors including energy, health, finance and creative industries. “The UK’s blockchain entrepreneurship, talent and investment are now happening in proximity with regulators. Of course, much more needs to be done for regulation, standards and business models to cement our position.



Lord Holmes of Richmond MBE, Member of the House of Lords, said:

“We are at a point in time, a moment in history, and have an opportunity to take every tool of our new technologies to develop, deploy and distribute them for the public, common, economic, social and psychological good. We can do this. It is our choice. 3 “In this vein, I am delighted to welcome this 2021 UK Blockchain landscape overview, which breaks down on a company-by-company basis more than £1.6 billion worth of investment into UK blockchain companies and maps our entire blockchain ecosystem of entrepreneurial talent and the most prominent use-cases for Blockchain adoption and much more. “Whether reducing friction in international trade, addressing the climate change challenge, decentralising and democratising finance or providing financial assistance to individuals through Covid, blockchain is already playing a powerful role. Politicians and decision-makers must take a close look at the findings of this major blockchain landscape overview. “As I set out in my 2017 ‘DLT for public good’ report, ultimately success will come down to leadership, collaboration and innovation. This 2021 landscape overview demonstrates that we have what we need in the UK to enable local, national, and global transformation through such new technologies.



Sean Kiernan, Chief Executive Officer, Greengage Global Holding Ltd, said:

“The UK, and especially London, have a unique potential to become true epicentres of purposeful, innovative, and safe international Blockchain integration and cooperation. Examples of steps towards this include the FCA sandbox, the Khalifa review and the FCA cryptoassets taskforce. “The SEC Chairman Gary Gensler mentioned back in 2018 that financial services represent around 7.5% of US GDP, and that blockchain innovation can deliver considerable efficiencies in the sector. For an economy like the UK in 2021 with a similarly significant financial services industry, efforts need to be coordinated across financial services firms to set standards and best practice. The UK regulators are playing a pivotal role in this regard to help promote dialogue and shape the discussion with firms, but more needs to be done.



Martin Docherty-Hughes, Member of UK Parliament and Chair of the All-Party Parliamentary Group on Blockchain, said:

“The 2021 UK Blockchain Landscape shows that Scotland, England, Wales, and Northern Ireland together account for more investment in Blockchain technology than the rest of the European nations combined, and we should leverage this world technology leadership to support the public good. “We need to look at distributed ledger technology as an asset in the delivery of public services. It represents a new opportunity for the creation of natively digital public services, building off a substantial policy framework. Blockchain for democratic Government applications can improve public services, service delivery, and a public organisation's capacity, potentially reimagining the social contract completely. A new social contract where everyone gets the chance to fulfil their potential. “The flourishing Blockchain ecosystem across the four nations, mapped in this report, needs to be supported and regulated by Governments. The All-Party Parliamentary Group on Blockchain, of which I am the chair, will continue to work to ensure that both industry and society benefit from the full potential of Blockchain, and no one is left behind.



Alex Cresnirov, Director of Deep knowledge Analytics, said:

“In our report, Blockchain Industry in the “UK Landscape Overview 2021: Companies, Investors, Influencers and Trends”, we provide an extensive overview of the Digital Ecosystem in the UK to help you understand Blockchain's true potential. It lays its foundation on a deep analysis of 520 companies, 250 investors (who invested £1.6+ billion into Blockchain), 50 hubs (including think tanks, tech-hubs and events) and 15 Government agencies. “Based on the open-access data, we considered only companies that are visible to the public and have highlighted their blockchain solutions on their official websites within services/technologies and news (internal as well as external).

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Blockchain Industry in the UK Landscape Overview 2021: Companies, Investors, Influencers and Trends, produced by [Innovation Eye](#) (and powered by [Big Innovation Centre](#), [Deep Knowledge Analytics](#) and [Greengage](#)) presents an updated overview of the entire Blockchain Industry Ecosystem in the United Kingdom, and serves as a comprehensive follow-up to Innovation Eye's Blockchain in UK Landscape Overview Q3 2018 (First Edition), produced in collaboration with the All-Party Parliamentary Group on Blockchain. This report (and its associated [interactive mind maps](#)) constitutes the most comprehensive survey of the UK Blockchain Industry made to date, categorising and profiling almost 1000 distinct Blockchain-centric entities in the UK Blockchain space. It considers the funding of various UK Blockchain projects and the geographical distribution of Blockchain companies.

The report provides an overview of the most promising directions of Blockchain development in the UK. For example, it considers Blockchain-based projects that have been directly and indirectly funded by the UK government or private investors, the use of Blockchain in the UK's energy sector and how the cryptocurrency market has seen institutional adoption by some in Britain's financial sectors. The report also provides a brief rundown of the cryptocurrency market and developments in the decentralised finance sector (DeFi) in the UK as well as the use of distributed ledger technology in the UK to help combat the pandemic.

Methodology

The present case study seeks to provide an extensive overview of the Digital Ecosystem in the UK. It achieves this by profiling all relevant entities and exploring key trends and developments driving Blockchain growth in the country.

The report analyses more than 520 companies, 250 investors, 50 hubs (including think tanks, tech-hubs and events) and 15 government agencies categorised into 18 specific industry subsectors, across 50 cities.

The selection of the Blockchain-centric entities (see figure to the right) aims to deliver a comprehensive and up to date overview of the Blockchain forefront in the UK across a wide variety of private and public sector domains. The entities have been selected by using public domain databases, open-source search engines, public and private sector reports, and media reports.

The data and calculations on the main trends of the Blockchain industry in 2021 in UK featured in this report have been aggregated from a wide variety of reputable and public data sources, including general and industry-specific databases, media and news reports, and conferences and government websites. While the information presented herein is believed to be reliable, the report's authors make no representation as to the accuracy or completeness of its constituent materials, information and data.

Blockchain Industry in the UK Landscape Overview 2021: Companies, Investors, Influencers and Trends Main Parameters

520+ Companies

250 Investors

50 Hubs

15 Government Agencies

18 Blockchain Sub-sectors

50 Cities



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Executive Summary



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Executive Summary (1/4)

The UK and in particular London is becoming a true innovation and investment epicentre for everything Blockchain, but the government needs to cement this position.

Our analysis finds four facts that summarise the report. They are described below together with *examples*, but the reader must consult the entire report for full evidence, analysis, illustrations and graphics.

1: INVESTMENT CONFIDENCE IN BLOCKCHAIN ENTREPRENEURSHIP IS HIGH AND GROWING

The UK is the host of a highly sophisticated Blockchain innovation ecosystem bringing investment confidence, talent, industry growth and Blockchain-community spirit together.

Across 18 industries that are developing or using Blockchain technology in the UK, we can identify more than 520 true Blockchain-centric companies and 250 investors, who have invested more than £1.6 Billion into those businesses.

The majority of the investments into the UK Blockchain space have been into Fintech (17%) and Crypto Trading (14%) companies.

Investment into Gov-tech (2.3%) and Insur-tech (1.7%) is much lower.

London is a global financial HQ ready for a Blockchain transformation in the second quarter of the 21st century.

The entrepreneurial Blockchain community is located close to the finance that is needed to grow it.

450 out of the UK's 523 Blockchain companies are in London. Investment houses which have shown an interest in the space include Ruffer and Brevan Howard.

Executive Summary (2/4)

2: BLOCKCHAIN APPLICATIONS ARE MOVING BEYOND PROOF OF CONCEPT INTO USE

There are many application use-cases from art, fintech and energy which shows how Blockchain can support a more sustainable livelihood for people.

The relatively small investment in Blockchain Gov-tech indicates how there is still underinvestment in those public-purpose sectors compared to the huge potential.

Blockchain initiatives in government departments like the Department of Works and Pensions, Department of Environment, Food and Rural Affairs and the Department for International Development could soon move from their proof-of-concept projects into application.

We identify 15 government agencies involved in Blockchain initiatives, and the UK Government's £20M GovTech Fund must catalyse some of these opportunities.

The energy sector also shows promising public-purpose Blockchain applications.

There are use-cases by Electron, EDF Energy and Frazer Nash in areas such as peer-to-peer energy trading, wholesale trading through mini-grids, energy crypto economy and much more.

Good health means good wealth (as became evident during the COVID-19 pandemic), and Blockchain applications are also now being adopted into the health sector.

During the COVID-19 pandemic, both researchers and use-cases were developed showing how Blockchain applications can enable track and trace of data, medicines, symptoms and the spread of the pandemic, while enabling security. Two UK hospitals in Warwick and Stratford-upon-Avon have applied DLT to monitor the storage and supply of temperature-sensitive COVID-19 vaccines.

Blockchain tokens, digital asserts and DLT are also being adopted in the creative industries.

World-leading British auction house Christie's and Sotheby's are among the first movers, accepting how Blockchain can transform the industry's management of authenticity or originality behind pieces of art.

Executive Summary (3/4)

3: A HIGHLY INTEGRATED BLOCKCHAIN INNOVATION ECOSYSTEM OF TALENT

The UK hosts a highly sophisticated Blockchain innovation ecosystem integrating the ingredients for a vibrant and dynamic Blockchain industry – science, technology, talent, an entrepreneurial community with financial backing, Blockchain business model applications, and location advantages.

Thus, the UK's Blockchain innovation and investment ecosystem brings together:

- An entrepreneurial Blockchain **industry system** which is becoming a magnet for **entrepreneurial finance**.
- A **top-talent and Blockchain science system** from our education system, research base, and universities.
- Those industry, finance and talent systems are **mixed with a network of Blockchain think-tanks and events companies**, that are building the UK's world-leading Blockchain communities. They are closing the gap between research base and Blockchain market-adoption, as well as the gap between a growing Blockchain industry and entrepreneurial finance.

The highly networked Blockchain talent pool comes from a network of Blockchain initiatives including:

1. Both research and teaching programmes at UK universities (in particular from the Universities of Oxford, Cambridge, Surrey and Imperial College and University College London),
2. Blockchain networking and events companies (such as the Crypto Curry Club or Blockchain Summit),
3. Think-tanks (like the commercial Z/Yen Group or Big Innovation Centre)
4. Scientific associations with their own journals (like the British Blockchain Association BBA producing their own scientific journal),
5. The All-Party Parliamentary Group on Blockchain (APPG Blockchain) functions as the permanent authoritative voice within UK Parliament (The House of Commons and The House of Lords) on all Blockchain-related matters, while engaging with this entire network to bring experts and use-cases to inform parliamentarians.

A nation of Blockchain experts

The UK is the host of hundreds of Blockchain experts or influencers across businesses, academia, think tanks and policy.

Executive Summary (4/4)

4: UK BLOCKCHAIN ENTREPRENEURSHIP, TALENT AND INVESTMENT IS IN CLOSE PROXIMITY WITH REGULATORS

The UK and especially London have a unique potential to become a true epicentre of purposeful, innovative, and safe international Blockchain integration and cooperation.

The government must solidify this unique position by passing suitable regulation and it must do so in a timely manner.

There is strong political will for Blockchain solutions and integration, but UK Blockchain markets and industry are moving fast.

UK regulators (even if willing and able) are finding themselves in a catch-up position with the advancement of Blockchain technology adoption and applications.

Regulation and policy engagement must however happen at the same speed as the sector develops if the UK is not to lose its status and potential due to other jurisdictions like those in Gibraltar and the USA which have been quicker to respond to initiatives such as DeFi (decentralised finance).



Blockchain Industry in the UK Landscape Overview 2021: Companies, Investors, Influencers and Trends



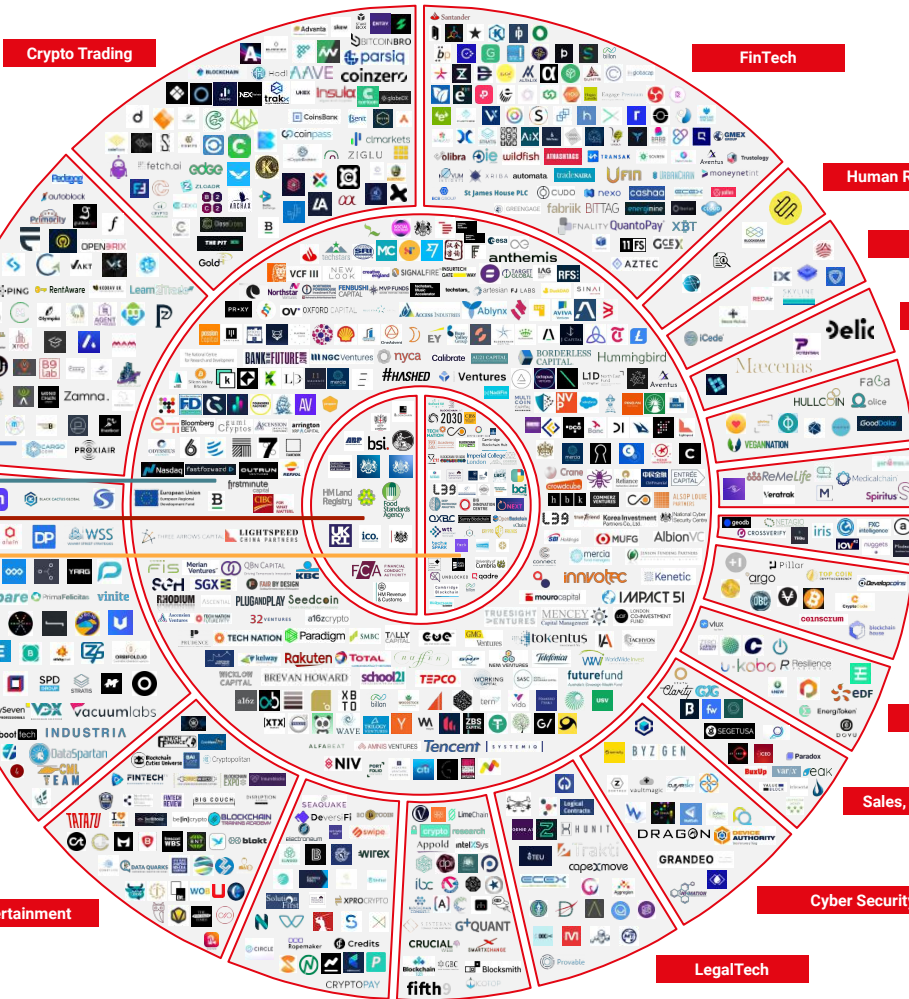
Supply Chain & Logistics

- Companies
- Investors
- Government Agencies
- Hubs

Software



Media & Entertainment



Companies - 520+
Investors - 250
Hubs - 50
Government Agencies - 15

Human Resources

InsurTech

Intellectual Property

Social & Charity Sector

Healthcare & Pharma

GovTech

Cryptocurrency

Energy & Climate Change

Sales, Marketing & PR

Cyber Security

Legal Tech

Consulting

Crypto Finance



Blockchain Industry in the UK: Companies

Software

Logos of software companies including: BLACK CACTUS GLOBAL, FortySeven, matrix, alphin, DP, WSS, vacuumlabs, YFRG, Fize, Bitcompare, PrimaFelicitas, vinite, DataSpartan, INDUSTRIA, SPD, STRATIS, VDX, finboot, and CML TEAM.

Media & Entertainment

Logos of media and entertainment companies including: FINTECH, BIG COUCH, DISTRIBUTION, WOT, U, TATATU, I, be[|]crypto, BLOCKCHAIN TRAINING ACADEMY, DATA QUARKS, CRYPTO POLITICAL, and others.

Cyber Security

Logos of cyber security companies including: vaultmagic, BYZ GEN, DRAGON, DEVICE AUTHORITY, and GRANDEO.

Cryptocurrency

Logos of cryptocurrency companies including: Blockchain, argo, Pillar, OBC, COINSCRUM, TOP COIN, Developcoins, and Cryptocade.

GovTech

Logos of GovTech companies including: METAGIO, iris, CROSSVERIFY, geodb, iOV, FXC intelligence, nuggets, and Findex.

LegalTech

Logos of LegalTech companies including: LEGAL CONTRACTS, HUNIT, capeXmove, and others.

Energy & Climate Change

Logos of Energy & Climate Change companies including: u-kobo, EnergyToken, vlux, R Resilience, and EDF.

InsurTech

Logos of InsurTech companies including: iCede, REDAR, and IX.

Social & Charity Sector

Logos of Social & Charity Sector companies including: Faça, VEGANNATION, HULLCOIN, alicia, and GoodDollars.

Healthcare & Pharma

Logos of Healthcare & Pharma companies including: Veratrak, Medicalchain, genomes.io, ReMeLife, and Spiritus.

Crypto Finance

Logos of Crypto Finance companies including: SOLUTION FIRST, XPROCRYPTO, ROPEMAKER, DeversFi, WIREX, CRYPTOPAY, SEAGUAKE, and Credits.

Consulting

Logos of consulting companies including: G+QUANT, CRUCIAL, SMARTEXCHANGE, Appold, intelXsys, Blockchain, Blocksmith, and fifth9.

Sales, Marketing & PR

Logos of Sales, Marketing & PR companies including: B, fw, var/x, VALUE BLOCK, Clarity, eak, BuxUp, Paradox, and SEGETUSA.

Supply Chain & Logistics

Logos of Supply Chain & Logistics companies including: PING, YAY, RentAware, Pedigo, OUTLOOK, CV, Learn, Zamna, OPENBRIX, and others.

Human Resources

Logos of Human Resources companies including: BLOCKGRAM and others.

FinTech

Logos of FinTech companies including: GMEX GROUP, GREENGAGE, fabriik, BITTAG, 11FS, GCXY, AZTEC, ATRASIRIAS, bilion, and others.

Crypto Trading

Logos of Crypto Trading companies including: coinzero, edge, parsiq, BITCOINBRO, COINPASS, COINBASE, and others.

Blockchain Industry in the UK: Investors

Investors

The following is a list of some of the investors shown in the grid:

- PLUGANDPLAY
- Nasdaq
- IMPACT 51
- Tencent
- Rakuten
- NGC Ventures
- anthemis
- WorldWide Invest
- Siicon Valley Blockchain
- AV
- COMMERZ VENTURES
- crowdcube
- MVP FUNDS
- TARGET GLOBAL
- Hummingbird
- Lightyear
- artesian
- twister
- Kenetic
- mourocapi
- NadiFin
- AU21 CAPITAL
- Seedcoin
- techstars
- OXFORD CAPITAL
- a16zcrypto
- MC
- futurefund
- school21
- SGX
- Aventus
- Banc
- EVE
- FIS
- Ascension Ventures
- eesa
- vidio
- possession capital
- FENBUSHI CAPITAL
- merco
- RFS
- ACCESS INDUSTRIES
- ALSOPI LOUIE PARTNERS
- arrington
- Korea Investment Partners Co. Ltd.
- TECH NATION
- SINAI
- TALLY CAPITAL
- AMNIN VENTURES
- AlbionVC
- ketway
- MENCEY Capital Management
- OneAdvent
- RHODIUM
- Merian Ventures
- QBN CAPITAL
- ENTRÉE CAPITAL
- tern
- nyca
- 32 VENTURES
- octopus ventures
- LID
- LI Digital
- creative england
- Bloomberg BETA
- firstminute capital
- CIBC
- POST FUND
- Tencent
- mercio
- Rakuten
- NGC Ventures
- INSURTECH GATEWAY
- Reliance
- h b k
- WAVE
- 7
- cti
- innovotec
- SASC
- SYSTEMIQ
- #HASHED
- KBC
- anthemis
- North East Fund
- PRXY
- NEW LOOK
- WORKING CAPITAL
- GMG Ventures
- Telefonica
- NEM VENTURES
- Calibrate
- SMBC
- tokenus
- WorldWide Invest

Blockchain Industry in the UK: Government Agencies and Hubs

Government Related Agencies

ABP ASSOCIATED BRITISH PORTS
appg BLOCKCHAIN
bsi.
 Centre for Data Ethics and Innovation
 CITY OF LONDON
 Food Standards Agency
 HM Land Registry
UKRI
FCA FINANCIAL CONDUCT AUTHORITY
ico. INFORMATION COMMISSIONER'S OFFICE
 HM Revenue & Customs

Hubs

Imperial College London
wtt whitechapel think tank
B9 Lab Academy Blockchain education
TECH NATION
Cambridge Blockchain Hub
bci BLOCKCHAIN CLIMATE INSTITUTE
 The British Blockchain Association
Blockchain for Business Summit
BLOCKCHAIN FOR GOOD
 CAMBRIDGE BLOCKCHAIN SOCIETY
2030
 Future of Humanity Institute UNIVERSITY OF OXFORD
billon
NChain
Oxford SU
TELECOMS
CJBS Alternative Finance
CRYPTO CURRY CLUB
BIG INNOVATION CENTRE
DEEP KNOWLEDGE ANALYTICS
BLOCKCHAIN LIVE
BLOCKCHAIN EXPO
BLOCKCHAIN SUMMIT
Zen
UNBLOCKED
qadre
ANTI-CORRUPTION NEXT
GO
UCL CBT
University of Cumbria
tech*SPARK
Cambridge Blockchain
BLOCKCHAIN TECH WORLD
Retail Blockchain Consortium
 UNIVERSITY OF OXFORD
Saïd Business School
LBCF
Yark
OXBC
OpenBlockchain
CRYPTO CF FRIENDS
Surrey Blockchain

Glossary (1/3)

Altcoin

A cryptocurrency other than Bitcoin (and more recently Ether - the native currency of the Ethereum Blockchain).

AML (Anti-Money Laundering)

These are laws/regulations that aim to prevent money laundering.

Bitcoin (BTC)

The dominant cryptocurrency as measured by market cap and the first cryptocurrency with a proof of work Blockchain protocol.

Blockchain

A Blockchain is a distributed ledger made up of blocks that contain changes to the state of the ledger i.e. transactions. Groups of state changes are added to the ledger in the form of "blocks". Typically each block references the preceding block via the use of cryptographic techniques and the Blockchain represents the history of all the state changes ever made to the ledger.

Cryptocurrency

A virtual/digital currency that runs on Blockchain technology.

Decentralised Finance (DeFi)

The reimagining of traditional financial services using Blockchain technology. This includes borrowing, lending, trading and insurance. Such services can then be accessed in a decentralised and permissionless manner with the role of traditional intermediaries such as banks and exchanges replaced by code.

Distributed Ledger Technology (DLT)

DLT refers to the technological infrastructure and protocols that allows simultaneous access, validation, and record updating in an immutable manner across a network that's spread across multiple entities or locations.

Glossary (2/3)

Ethereum (ETH)

Ethereum is the first public Blockchain that allowed for the development of smart contracts that could solve any codable problem given enough time and money. This gives it the ability to perform a variety of functions that Bitcoin could not. As of writing, it is the 2nd largest cryptocurrency by market cap.

Know Your Customer (KYC)

Is an identity and background verification process for a business' customers and is enforced by regulation. It allows the business to construct risk profiles to aid in decisions such as lending as well as to avoid doing business with criminals (e.g., terrorist financing).

Liquidity

Is the degree of ease to which an asset can be traded or converted to another asset such as cash. The more liquid the asset, the easier it is to convert. Providing liquidity is where an entity makes their assets available to be converted or traded.

Market Cap

Market Cap or Market Capitalization is the total value that a company/asset or currency is worth. In cryptocurrency, this is the current supply of a specific cryptocurrency multiplied by its price.

Mining

Is the process of validating transactions in order for them to be added to the Blockchain.

Non-Fungible Token (NFT)

This is a digital token used to represent unique digital assets that aren't interchangeable with any other asset. NFTs came to Ethereum in early 2017 and commonly use the ERC-721 token standard. They stand in contrast to fungible tokens such as ETH where one ETH can be interchanged with another.

Glossary (3/3)

P2P (Peer-to-peer)

Is the connection and interaction between two individuals/computers that doesn't require a centralised server to facilitate it. Networks with this property are called P2P networks which is the case with decentralised Blockchains.

Scalability

Is the ability of a network to cope with the computational work produced by the users of that network. This work normally comes in the form of transactions for a Blockchain network where the Blockchain can only handle a certain amount of transactions per second.

Smart Contracts

Are computer programs that self-execute upon the conditions set out in the code being met. The conditions can be the terms of agreement between two parties for nearly any type of situation that would benefit from a contractual agreement.

Stablecoin

Is a cryptocurrency whose value is pegged to that of another asset (usually a fiat currency).

Wallet

Is the tool used to store cryptocurrency and other digital assets. The wallet has at least one address (public address) generated by a public key that allows you to receive digital assets from another public address. The corresponding private key authorises your wallet to send the digital assets attributed to that public address. The private key generates the public key and both are stored in the wallet. A wallet can have one or more public key - private key pairs, each with their own public address. Wallets can come in the form of pure software or hardware.



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Funding Amount and Geographical Distribution of Companies by Sectors



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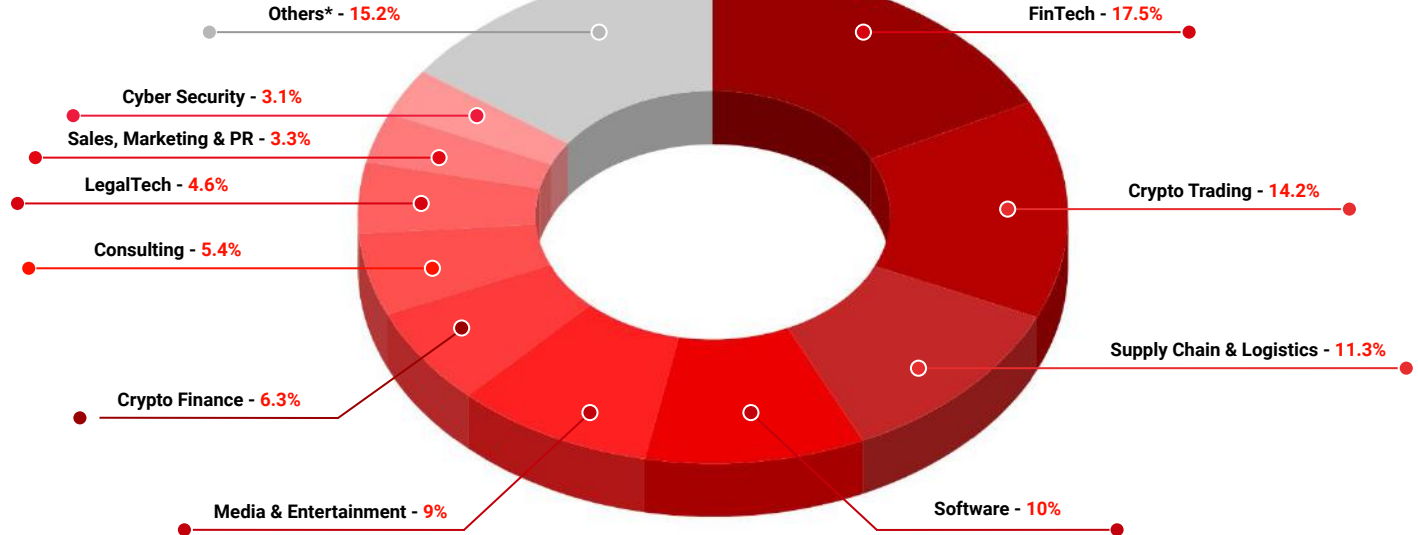
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Breakdown of Companies by Sectors

Most companies using Blockchain are in the financial services sector.

● **Others:**

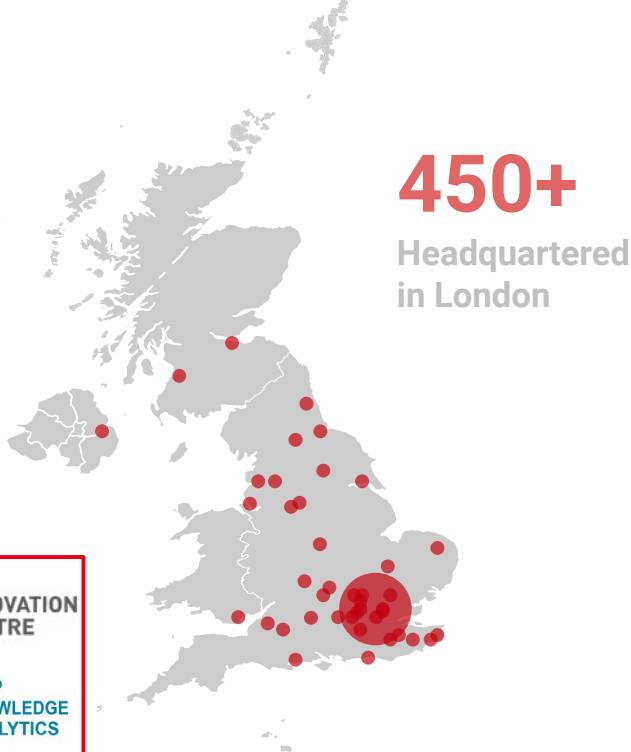
- 2.7% Cryptocurrency
- 2.7% Energy & Climate Change
- 2.3% GovTech
- 1.9% Social & Charity Sector
- 1.7% Healthcare & Pharma
- 1.7% InsurTech
- 1.3% Intellectual Property
- 0.8% Human Resources



*Category "Others" signifies joint Human Resources (0.8%), Intellectual Property (1.3%), Healthcare & Pharma (1.7%), InsurTech (1.7%), Social & Charity Sector (1.9%), GovTech (2.3%), CryptoCurrency (2.7%), and Energy & Climate Change (2.7%) categories.

Blockchain in the UK: Geographic Distribution

As a capital and a global financial centre, London hosts more than 450 Blockchain companies out of a total of 523 operating in the UK. London also hosts most of the conferences and events dedicated to Blockchain.



London as a Blockchain Hub

The vast majority of Blockchain companies are based in London. This density of Blockchain talent co-located next to the country's financial hub and political centre could allow London to become a global hub for the development of the technology. Over time, this could create a spillover effect to other cities in the UK as trade, investment and economic activity moves between these locations.

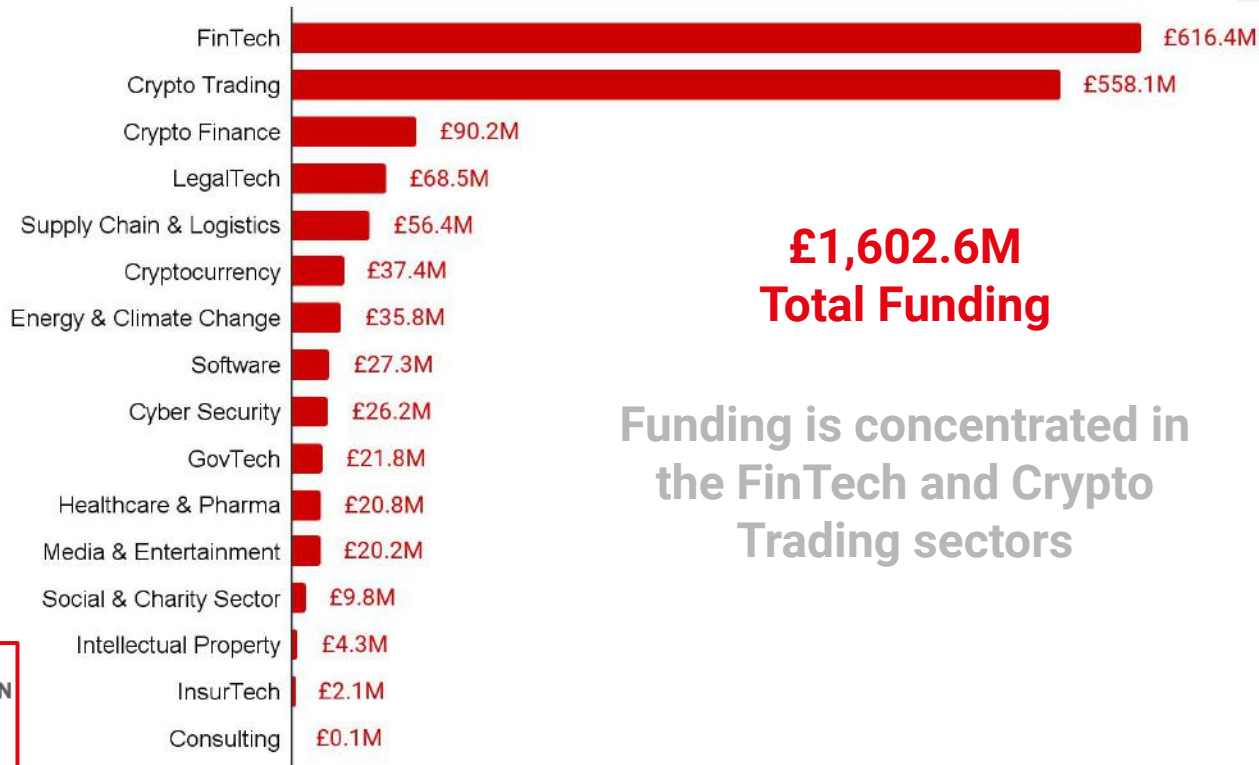
However, the UK is in competition with multiple jurisdictions around the globe to be the leader in the Blockchain and cryptocurrency space. To make this vision a reality and beat this competition a comprehensive long term strategy is needed. Such a strategy should include funding, a responsive political class and a robust regulatory framework including standardisation for scalability. Any investment made now will have a multiplier effect for the rest of the UK as London is already capturing the growing revenues and talent from the space.

Cities with the Highest Number of Blockchain Companies (except London)

Edinburgh	8	Manchester	7	Bristol	4
Cambridge	4	Kent	4	Guildford	3



Top-150 Companies' Total Funding* by Sector**

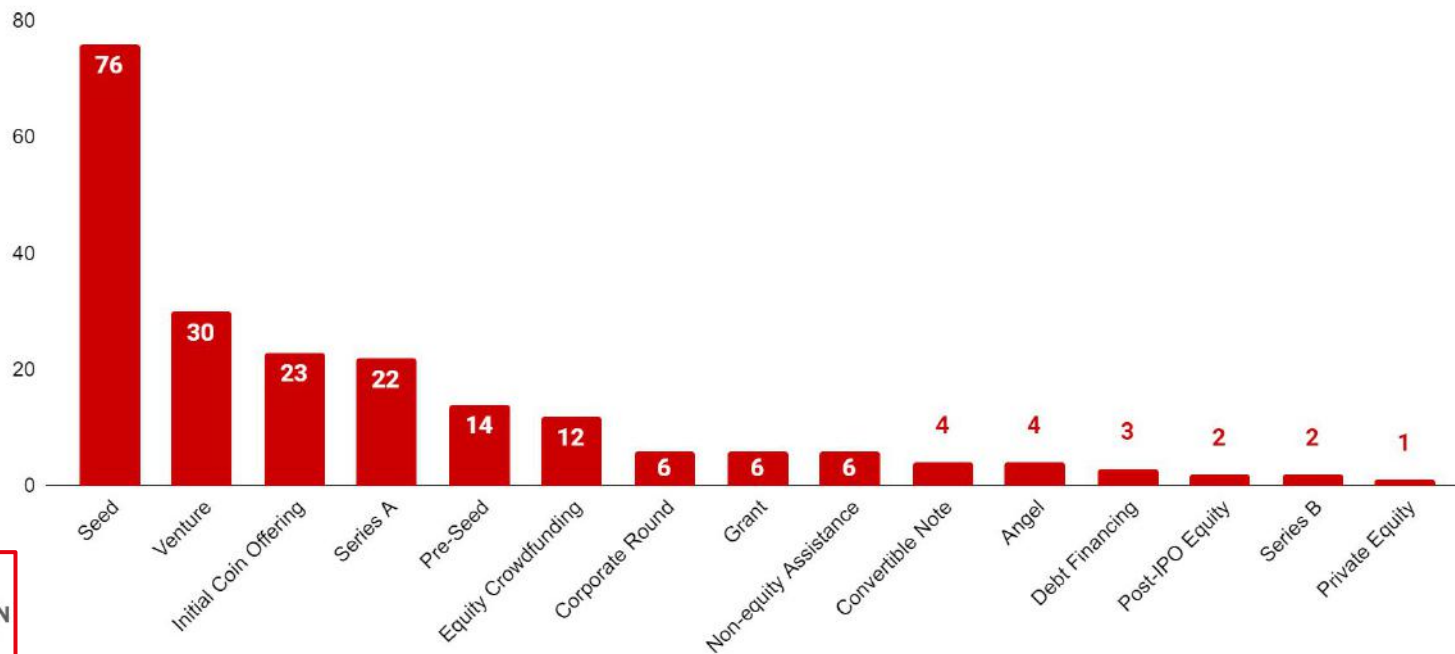


Notes: *Funding includes investments, donations, grants and subsidies.

**Numbers are converted from USD to GBP using the average exchange rate

Funding of Blockchain Companies in UK*

Number of Funding Deals Summarised by type, 2015-2021



Notes: *Funding includes investments, donations, grants and subsidies. The graph was based on the database and the open data.

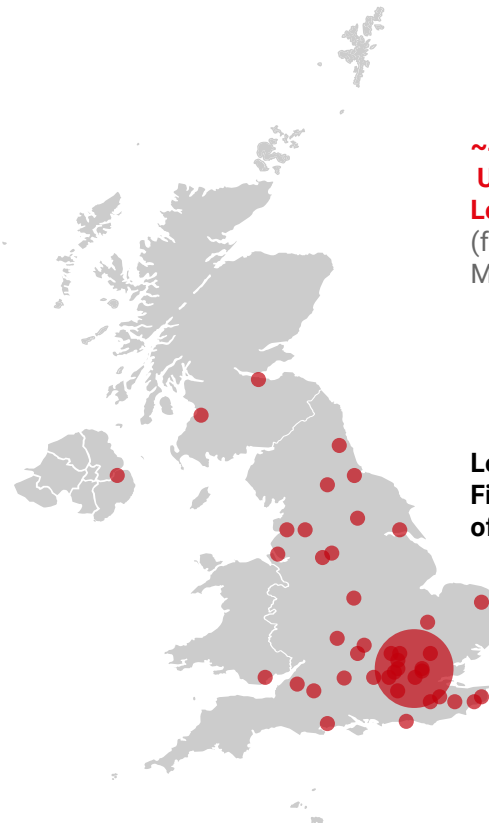
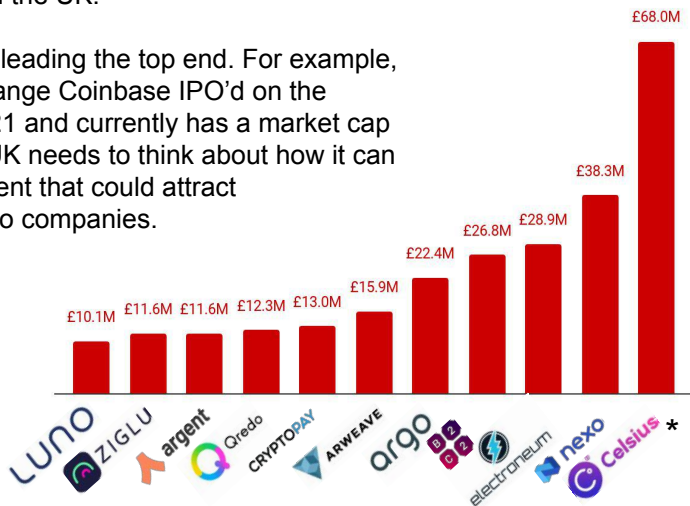
Building Blockchain Growth Stars in the UK

**Blockchain Industry in the UK
Landscape Overview 2021:
Companies, Investors, Influencers
and Trends**

Accelerated by the COVID-19 digital transformation, Blockchain technology has become an indication of data security and has gained ground in FinTech, Logistics, and Software industries.

Significant capital has been raised by Blockchain companies based in the UK.

However, the US is leading the top end. For example, the US crypto exchange Coinbase IPO'd on the NASDAQ in Q1 2021 and currently has a market cap of \$50 billion. The UK needs to think about how it can create an environment that could attract similarly-sized crypto companies.



**~450 out of 520+
UK Blockchain companies are
London-based**
(followed by Edinburgh and
Manchester).

**London is a world-leading
FinTech hub. It has received 91%
of the sector's funding in the UK.**



Blockchain companies are primarily in the financial services space (38%) which plays to the UK's inherent strengths as an international centre for finance and technology.





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Key Influencers



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Key Influencers – Academia (1/2)



**Prof. Aggelos
Kiayias**

**University of
Edinburgh**



**Apolline
Blandin**

**Cambridge
Centre for
Alternative
Finance**



**Prof. Ben
Livshits**

**Imperial College
London**



**Prof. Bill
Buchanan**

**Edinburgh Napier
University**



**Bryan
Zhang**

**Cambridge
Centre for
Alternative
Finance**



**Dr. Catherine
Mulligan**

**Centre for
Cryptocurrency
Research and
Engineering**



**Prof. David
Shrier**

**Saïd Business
School**



**Dr. Enrico
Rossi**

**UCL Department
of Computer
Science**



**Prof. Francesca
Medda**

**UCL Department
of Civil,
Environmental
and Geomatic
Engineering**



**Dr. Garrick
Hileman**

**University of
Cambridge**



**Geoffrey
Goodell**

**University
College London**



**Prof. John
Collomosse**

**Surrey Blockchain
- Surrey
University**

Key Influencers – Academia (2/2)



**Prof. John
Domingue**

**Open University,
British
Blockchain
Association**



**Keith
Bear**

**Cambridge
Centre for
Alternative
Finance**



**Prof. Lenny
Koh**

**Sheffield
University**



**Marcus
O'Dair**

**University of the
Arts of London**



**Nikhil
Vadgama**

**UCL Centre for
Blockchain
Technologies**



**Prof. Nir
Vulkan**

**Saïd Business
School, AI for
People**



**Dr. Paolo
Tasca**

**UCL Centre for
Blockchain
Technologies**



**Prof. Peter
McBurney**

**King's College
London**



**Dr. Robert (Bob)
Wardrop**

**Cambridge
Centre for
Alternative
Finance**



**Prof. Tomaso
Aste**

**University
College London**



**Prof. Vili
Lehdonvirta**

**University of
Oxford**



**Prof. William J.
Knottenbelt**

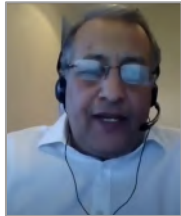
**Centre for
Cryptocurrency
Research and
Engineering**

Key Influencers – Business or Crypto Influencers (1/4)



**Dr. Abdullah
Albeyatti**

Medicalchain



**Ahmed
Zghari**

HC BIM



**Alan
Vey**

Aventus Network



**Andrew
Tobin**

Evernym Inc



**Annika
Monari**

**Artos
Systems**



**Areiel
Wolanow**

**Finserv Experts
Limited**



**Charles
Kerrigan**

CMS



**Chris
Gledhill**

FinTech Advisor



**Chris
Trew**

Stratis Group



**Chris
Tyrer**

**Fidelity Digital
Asset**



**Dr. Chris
Francis**

SAP



**Dr. Christian de
Vartavan**

**Projectis
Consultants**



**Christophe
Langlois**

Finastra



**Daniel
Masters**

Coinshares



**David
Fauchier**

**Global Digital
Finance**



**David M.
Brear**

11:FS



**David
Osojnik**

Bitstamp



**Dinis
Guarda**

Ztodium



**Dmitry
Kaminskiy**

**Deep Knowledge
Group**



**Eddy
Travia**

Coinsumium

Key Influencers – Business or Crypto Influencers (2/4)



**Eser
Torun**

Everledger



**Genevieve
Leveille**

AgriLedger



**Gilbert
Verdian**

Quant Network



**Graham
Rodford**

Archax



**Hirander
Misra**

GMEX Group



**Ian
Hunt**

FundAdminChain



**James
Smith**

Elliptic



**Jamie
Burke**

Outlier Ventures



**Jannah
Patchay**

Markets Evolution



**Jasmine
Birtles**

**Jasmine Birtles
Ltd**



**Jason
Lacombe**

Vertrak



**Jens Munch
Lund-Nielsen**

**IOTA
Foundation**



**Jeremy
Millar**

ConsenSys



**Jonny
Fry**

TeamBlockchain



**Julian
Sawyer**

Bitstamp



**Julien
Bouteloup**

Stake Capital



**Kevin
O'Grady**

ARUP



**Kumar
Gaurav**

Cashaa



**Laura Rachel
Bailey**

Qadre



**Leanne
Kemp**

Everledger

Key Influencers – Business or Crypto Influencers (3/4)



**Dr. Luke
Riley**

Quant Network



**Lynn
McConnell**

Binance



**Manreet
Nijjar**

Truu



**Marc
Piano**

Harneys



**Dr. Maria
Vigliotti**

GradBase



**Dr. Marta
Piekarska**

**Balancer Labs,
Cambridge
Blockchain
Society**



**Matthew
Corallo**

Square



**Matthew
Green**

**Imperial
Corporate Capital
PLC**



**Max
Boonen**

B2C2



**Michael
Parsons**

**Blockchain
Solutions Ltd**



**Muhammad
Tanoli**

SmartData



**Dr. Navin
Ramachandran**

**IOTA
Foundation**



**Oliver
Oram**

Chainvine



**Oner
Avara**

**My Next
Match**



**Paul
Gordon**

Coinscrum



**Pavlo
Tanasyuk**

**Spacebit,
BlockVerify**



**Pawel
Kuskowski**

Coinfirm



**Peter
Bidewell**

Accenture



**Peter
McCormack**

Podcaster



**Peter
Randal**

SETL

Key Influencers – Business or Crypto Influencers (4/4)



Peter Smith

Blockchain.com



Peter Wall

Argo Blockchain



Philippe Morel

SETL



Raja Sharif

FarmaTrust



Richard Muirhead

Fabric Ventures



Ron Kalifa

Network International / FutureLearn



Dr. Sally Eaves

Effect.AI



Dr. Scott Steedman

BSI Group



Sean Kiernan

Greengage



Simon Cocking

Crypto Commonwealth



Simon Taylor

11:FS



Stephan Tual

Stealth Startup/Atlas Neue/Slock.it



Stewart Jeacocke

TradeLens / IBM



Teana Baker-Taylor

Looking Glass Labs / Crypto.com



Tomas Power

9Spokes



Dr. Tirath Virdee

Capita plc



Tyler Welmans

Deloitte UK



Victoria Thompson

Orora UK Services Limited



Vinay Gupta

Mattereum



Vlad Zamfir

Ethereum Foundation

Key Influencers – Think Tanks, Hubs & Events (1/2)



**Dr. Abel
Maciel**

**Construction
Blockchain
Consortium, UCL**



**Alastair
Marke**

**Blockchain &
Climate Institute**



**Prof. Birgitte
Andersen**

**Big Innovation
Centre**



**Charlie
Muirhead**

CognitionX



**Daigan
Reid**

**London
Blockchain Labs,
Vega Protocol**



**Erica
Stanford**

Crypto Curry Club



**Fernando
Santiago-
Cajaraville**

**Big Innovation
Centre**



**Gilane
Tawadros**

**DACS - Design
and Artists
Copyright Society**



**Hazem Danny
Al-Nakib**

**Cambridge
Blockchain Hub**



**Helen
Disney**

**Unblocked &
GovChain**



**James
Bowater**

CityAM



**Jeremy
Wilson**

**Whitechapel
Think Tank**



**Jon
Bradford**

Dynamo Ventures

Key Influencers – Think Tanks, Hubs & Events (2/2)



**Julie
Pierce**

**Food Standards
Agency**



**Lex
Sokolin**

ConsenSys



**Linda (Jackson)
Holmes**

**London
Blockchain
Foundation**



**Marzia
Zafar**

Kaluza



**Mayank
Singh**

**London
Blockchain
Foundation**



**Michael
Stock**

**Blockchain &
Climate Institute**



**Prof. Michael
Mainelli**

Z/Yen Group



**Dr. Mureed
Hussain**

**British
Blockchain
Association**



**Dr. Naseem
Naqvi**

**British
Blockchain
Association**



**Olga
Slonchak**

**London
Blockchain
Foundation**



**Ravi
Gurumurthy**

Nesta



**Tabitha
Goldstaub**

**AI Council /
CognitionX**

Key Influencers – Policymakers (1/2)



Adam Afriyie MP

UK Parliament



Lord Ashton of Hyde

UK Parliament



Lord Bates

UK Parliament



Baroness Bloomfield of Hinton Waldrist

UK Parliament - APPG Blockchain



Chi Onwurah MP

UK Parliament



Lord Clement-Jones

UK Parliament - APPG Blockchain



Damien Moore MP

UK Parliament



Darren Jones MP

UK Parliament - APPG Blockchain



Eddie Hughes MP

UK Parliament - APPG Blockchain



Rt Hon Elizabeth Truss MP

UK Parliament



Baroness Featherstone

UK Parliament - APPG Blockchain



Lord Holmes of Richmond

UK Parliament - APPG Blockchain



Lord Howell of Guildford

UK Parliament - APPG Blockchain



Jackie Doyle-Price MP

UK Parliament



John Glen MP

UK Parliament

Key Influencers – Policymakers (2/2)



**John Howell
MP**

**UK Parliament -
APPG Blockchain**



**Lord St John of
Bletso**

UK Parliament



**Rt Hon Kevan
Jones MP**

**UK Parliament -
APPG Blockchain
(Vice Chair)**



**The Earl of
Lindsay**

**UK Parliament -
APPG Blockchain
(Vice Chair)**



Lord Mann

UK Parliament



**Martin Docherty-
Hughes MP**

**UK Parliament
APPG Blockchain
(Chair)**



**Rt Hon Mel Stride
MP**

UK Parliament



**Rt Hon Oliver
Dowden MP**

UK Parliament



Baroness Penn

UK Parliament



**Stephen Metcalfe
MP**

**UK Parliament -
APPG Blockchain
(Vice Chair)**



**Tom Tugendhat
MP**

UK Parliament



Viscount Ridley

**UK Parliament -
APPG Blockchain**



**Viscount
Waverley**

**UK Parliament -
APPG Blockchain
(Vice Chair)**



**Lord
Wei**

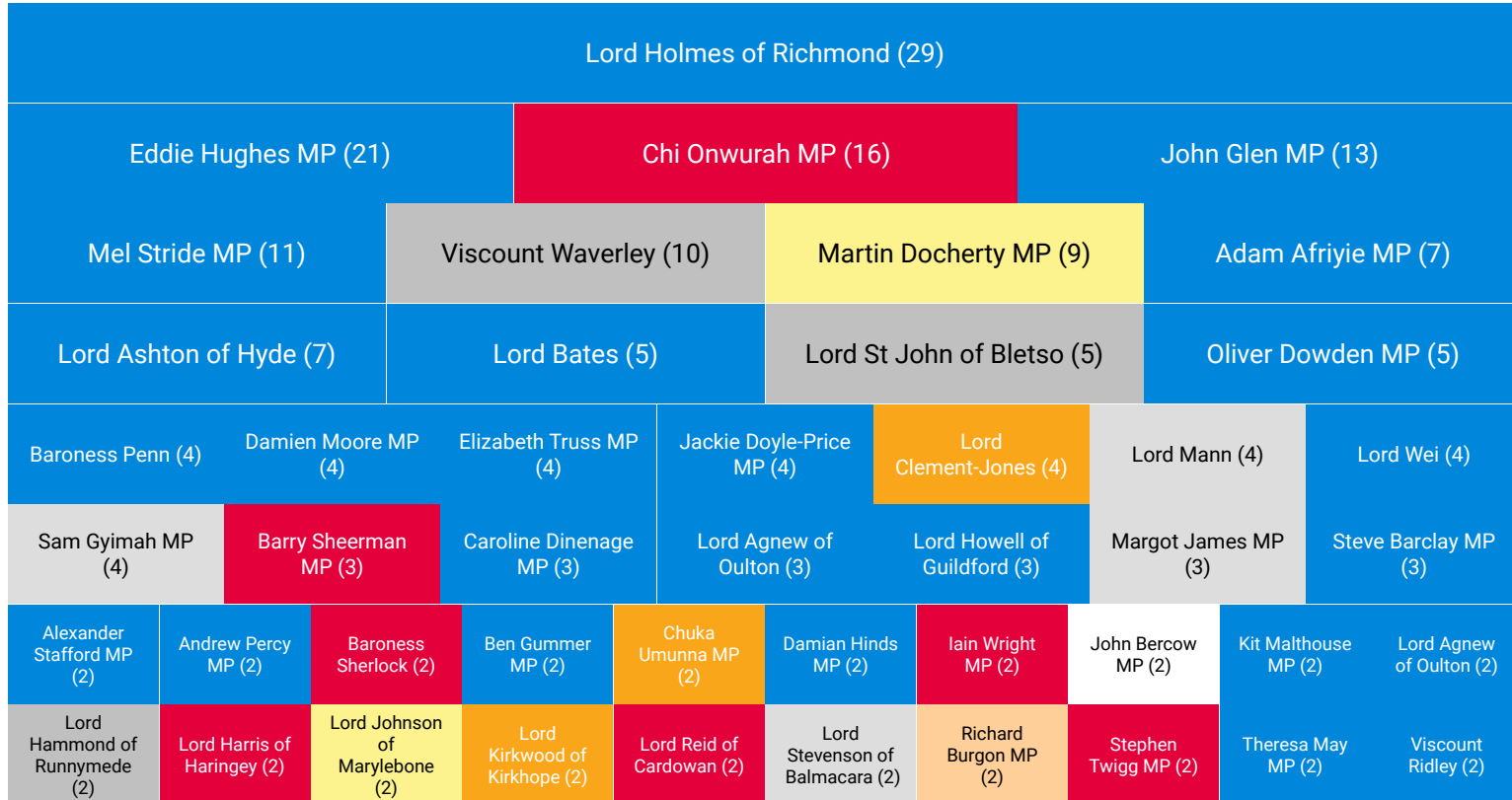
UK Parliament

Multiple Mentions of Blockchain and DLT in UK Parliament Speeches (2016-2021)

This visualization shows references to Blockchain technology and Distributed Ledger Technology (DLT) by British parliamentarians in their speeches.

Number of mentions are shown in (brackets)

- Conservative
- Labour
- Crossbench
- SNP
- Lib Dem
- UKIP
- Speaker
- Non-affiliated/independent
- Joint Committee



One-Time Mentions of Blockchain and DLT in the UK Parliament Speeches (2016-2021)

This visualization shows references to Blockchain technology and Distributed Ledger Technology (DLT) by British parliamentarians in their speeches.

- Conservative
- Labour
- Crossbench
- SNP
- Lib Dem
- UKIP
- Speaker
- Non-affiliated/independent
- Joint Committee

Alan Duncan MP	Caroline Nokes MP	Jamie Greene	Lord Wilson of Dinton	Richard Harrington MP
Angela Smith MP	Chris Evans MP	Lord Desai	Lord Young of Cookham	Rishi Sunak MP
Anne-Marie Trevelyan MP	David Chaytor MP	Lord Fox	Mary Creagh MP	Robert Jenrick MP
Anthony Mangnall MP	David Rutley MP	Lord Henley	Matt Warman MP	Rory Stewart MP
Baroness Barran	Douglas Carswell MP	Lord Houghton of Richmond	Matthew Hancock MP	Sadiq Khan
Baroness Featherstone	Drew Hendry MP	Lord Knight of Weymouth	Mr John Butcher MP	Scott Mann MP
Baroness Grender	George Eustice MP	Lord Martin of Springburn	Mr Tam Dalyell MP	Simon Kirby MP
Baroness Neville-Rolfe	Grant Shapps MP	Lord Purvis of Tweed	Mr Timothy Renton MP	Vera Baird MP
Baroness Sugg	Harriett Baldwin MP	Lord Scriven	Nusrat Ghani MP	Viscount Younger of Leckie
Baroness Verma	Hugo Swire MP	Lord Taylor of Warwick	Rebecca Pow MP	Oliver Dowden MP
				Lord Spicer



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Blockchain Industry Overview: History and Main Principles



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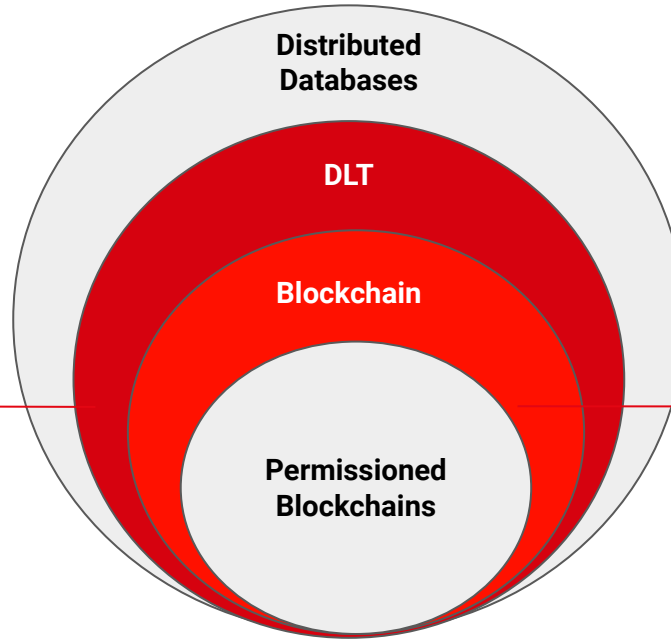
www.innovationeye.com
www.biginnovationcentre.com
www.dka.global

Differences between Blockchain and DLT

DLT (Distributed Ledger Technology)

DLT allows for a decentralised database to be managed by its participants without the need for a central authority to act as an arbitrator or monitor. Each participant maintains their own copy of the database's current state. Changes to the state are achieved via consensus amongst all participants, this ensures all copies are synchronised to one another.

There are different forms of DLT designs, such as Blockchain (Bitcoin, Ethereum, EOS, etc.) or Directed Acyclic Graphs (DAG) (IOTA, Hedera Hashgraph, etc.).



Blockchain

A Blockchain is a distributed ledger made up of blocks that contain changes to the state of the ledger i.e. transactions.

Groups of state changes are added to the ledger in the form of "blocks". Typically each block references the preceding block via the use of cryptographic techniques. The Blockchain, when viewed in its entirety, reveals the full history of all the state changes ever made to the ledger/database.

The most common Blockchains e.g. Bitcoin are open for anyone to use however a Blockchain can also be permissioned.

Blockchain Features

Most Blockchains shares 5 common features.

Common Features:

Peer-to-Peer

The communication between the parties is not dependent on any central authority. Instead, every node participates equally in processing and distributing the information to all other nodes that are associated with the network or especially to the transaction.

Consensus

Most Blockchain projects use one of the three consensus algorithms: Proof of Work (PoW), Proof of Stake (PoS) or Delegated Proof of Stake (DPoS). The consensus algorithm permits participants to maintain identical copies of the distributed ledger without the need for a central authority.

Transparency

Most Blockchains are public ledgers, meaning that all transactions that have ever taken place can be viewed by anyone, including individuals who don't interact with the ledger directly. The level of transparency can vary though where some enterprise Blockchains are completely walled off from public view.

Distributed

For most Blockchains, anyone can participate in maintaining the chain. Typically, this involves maintaining a copy of the current state of the Blockchain and processing transactions. The result is that the Blockchain can't be turned off by simply removing a single actor as can be done with centralised databases.

Immutability

The transactions initiated, processed and completed on the network are hard to reverse. Regardless of the algorithm utilised to maintain consensus, a dishonest actor looking to reverse a transaction or edit an old transaction would have to incur great financial costs to do so.

Blockchain History Timeline

2008-2009:

Satoshi Nakamoto introduces Bitcoin and Blockchain in a whitepaper. The first bitcoin exchange and transactions take place.

2012-2013:

Market capitalisation of bitcoin reaches \$1B. Vitalik Buterin introduces Ethereum and smart contracts in a whitepaper.

2016:

The DAO sets a crowdfunding record by raising more than \$150m Investment and then loses a third of its ether in a vulnerability attack.

2018:

The 10th anniversary of the inception of Bitcoin. Switzerland begins to accept tax payments in bitcoin.



2008

2010

2012

2014

2016

2018

2020

2010-2011:

Bitcoin is used to make a purchase for the first time: two pizzas were bought for 10,000 bitcoin. In 2009, bitcoin exchange value reaches parity with the US dollar.

2014-2015:

The Ethereum Project is launched as the first smart contract. Blockchain tech company R3 is founded. The Linux Foundation establishes the Hyperledger Project.

2017:

Seven major European banks announce Digital Trade Chain to offer a trade finance platform via Blockchain. Virtual currencies are officially recognised in Japan.

2019-2021:

Institutional capital flows into crypto. DeFi becomes a major trend and NFTs gain mainstream adoption. PayPal allows the purchase of crypto on their platform.

The Cryptocurrency Market in 2021

Cryptocurrencies remain the largest sector within the Blockchain industry with 150 companies in the UK operating in the sector.

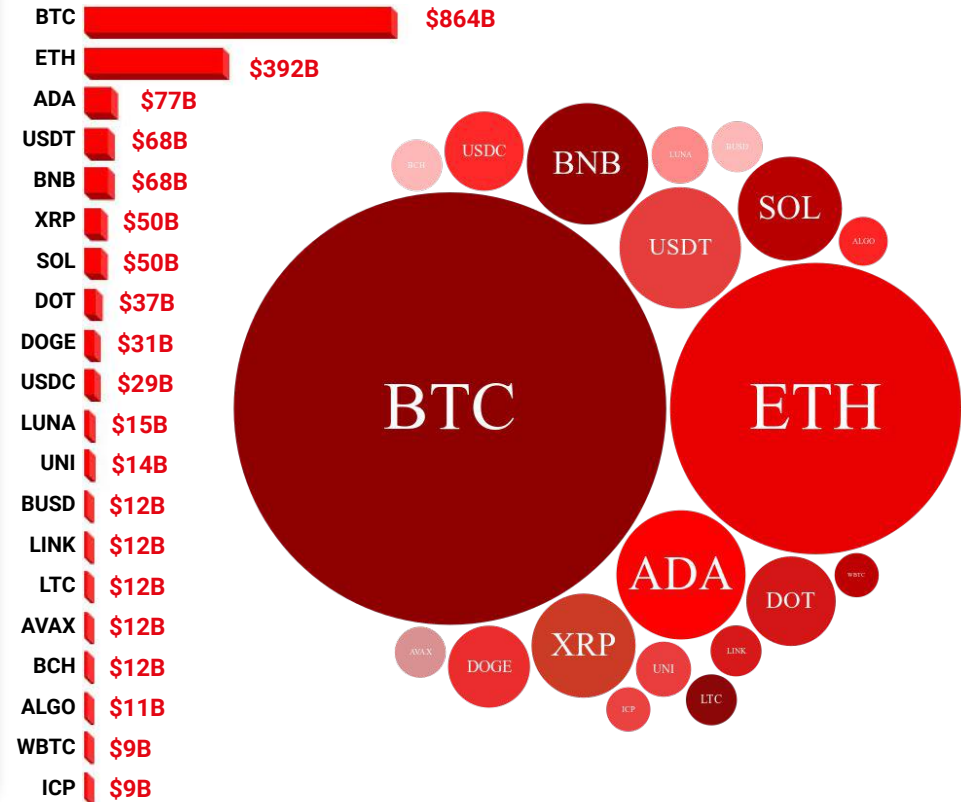
Cryptocurrencies have been in the spotlight for a year now with the remarkable rise of Bitcoin amid the COVID-19 pandemic, climbing above \$60,000 in Q1 2021. This also pushed up the prices in the broader cryptocurrencies market: crypto market capitalisation now exceeds \$1.5T.

The bull market that fueled this price rise began in 2020 as cryptocurrencies began to gain traction with institutional investors. Starting with Microstrategy purchasing \$250 million worth of bitcoin, in August 2020, other institutions soon began to follow. A \$1.5 billion purchase of bitcoin by Tesla triggered another rally that caused Bitcoin's market cap to exceed \$1T.

Recently, the likes of Blackrock have expressed an interest in investing in Bitcoin futures while Goldman Sachs and JP Morgan are both offering access to Bitcoin to their high net worth clients.

Although much of the institutional focus has been on Bitcoin, its rapid rise has catapulted the rest of the market, with many altcoins also increasing in value.

Biggest Cryptocurrencies in the World by Market Capitalisation, September 2021



The Most Popular Cryptocurrencies (1/2)



BTC : Bitcoin is the first cryptocurrency. Launched in 2009 by pseudo-anonymous creator Satoshi Nakamoto. It is a proof of work Blockchain that aims to be the **money of the internet**. It has recently been adopted as the **national currency of El Salvador** alongside the USD.



ETH : Ethereum was the idea of Vitalik Buterin who sought to develop a **multipurpose Blockchain** that would serve as a platform for other cryptocurrencies and allow for the execution of **decentralised smart contracts**.



ADA : Cardano was founded by Charles Hoskinson who was one of the co-founders of Ethereum. Since launch it has been a proof of stake Blockchain. It has recently launched **smart contract functionality**.



USDT : USD Tether was the first dollar stablecoin. It **trades primarily as a token on Ethereum**. There has been some controversy surrounding what assets actually back USDT. Despite these controversies it is still the largest stablecoin as measured by market cap.



BNB : Binance Coin is the native token of the world's largest cryptocurrency exchange, (as measured by volume) Binance. Binance holders can use their tokens to **pay for trading and transaction fees** on the various Binance platforms.



XRP : Ripple is a digital asset built for payments. It can **settle transactions in 3-5 seconds**. It can be used by RippleNet customers to source liquidity for cross-border transactions.



SOL : Solana is a highly functional open source project that banks on Blockchain technology's permissionless nature to **provide decentralized finance (DeFi) solutions**. Solana was officially launched in March 2020.



DOT : Polkadot is an open-source sharding multichain protocol that **facilitates the cross-chain transfer of any data or asset types**, not just tokens, thereby making a wide range of Blockchains interoperable with each other.



DOGE : Dogecoin is the open-source digital currency was created by Billy Markus from Portland, Oregon and Jackson Palmer and was forked from Litecoin in December 2013. **Dogecoin's creators envisaged it as a fun, light-hearted cryptocurrency**.



USDC : USD Coin is a **stablecoin that is pegged to the U.S. dollar on a 1:1 basis**. Every unit of this cryptocurrency in circulation is backed up by \$1 that is held in reserve, in a mix of cash and short-term U.S. Treasury bonds.

The Most Popular Cryptocurrencies (2/2)



LUNA : Terra was officially launched in April 2019. It offers stablecoins pegged to the U.S. dollar, South Korean won, Mongolian tugrik and the International Monetary Fund's Special Drawing Rights basket of currencies – and it intends to roll out additional options.



UNI : An example of an automated market maker, Uniswap launched in November 2018, aims to keep token trading automated and completely open to anyone who holds tokens, while improving the efficiency of trading.



BUSD : Binance USD is approved and regulated by the New York State Department of Financial Services. Launched on 5 Sep 2019, BUSD aims to meld the stability of the dollar with Blockchain technology.



LINK : Through a decentralized oracle network, Chainlink allows Blockchains to securely interact with external data feeds, events and payment methods, providing the critical off-chain information needed by complex smart contracts.



LTC: Litecoin, sometimes described as "Bitcoin lite," is a digital asset that is designed to enable the instant peer-to-peer exchange of value at affordable rates. Litecoin Network went live on Oct. 13, 2011.



AVAX : Avalanche is a layer one Blockchain that functions as a platform for decentralized applications and custom Blockchain networks. It is one of Ethereum's rivals, aiming to unseat Ethereum as the most popular Blockchain for smart contracts.



BCH : Bitcoin Cash is a cryptocurrency created in August 2017, from a fork of Bitcoin. Bitcoin Cash increased the size of blocks, allowing more transactions to be processed and improving scalability.



ALGO : Algorand is a self-sustaining, decentralized, Blockchain-based network that supports a wide range of applications. These systems are secure, scalable and efficient, all critical properties for effective applications.



WBTC : Wrapped Bitcoin is a tokenized version of Bitcoin that runs on the Ethereum Blockchain. WBTC is also backed by Bitcoin at a 1:1 ratio via a network of automatically monitored merchants and custodians, ensuring that its price is pegged to Bitcoin.



ICP: The Internet Computer is the world's first Blockchain that runs at web speed with unbounded capacity. It enables the complete reimagination of software – providing a new way to build tokenized internet services, pan-industry platforms, etc.

Blockchain Applications: Far Beyond Crypto

Blockchain technology
is simply a ledger
of all transactions
across any
peer-to-peer
network

Financial Services & Cryptocurrencies:

Current & near-term future leader of Blockchain usage: **mkt cap \$2T** vs mkt cap of gold - \$11T. On Mar, 30 **Visa & PayPal started accepting cryptocurrencies for transactions.**

"It is a transitional point when cryptocurrencies move from being an asset class that you buy, hold and/or sell to becoming a legitimate source to make transactions in the real world"
-CEO of PayPal

Enterprise Blockchain:

Identity verification, cross-border payments, data verification, real-time reporting & accounting (digital invoices), audit of supply chain data.

*"Blockchain radically reduces the **cost of trust**", hence, offers higher returns for each dollar spent than most traditional internal investments"*
-PWC

Digital/real assets ownership regulations:

More lucrative investments in music, digital art & property with **NFTs**, *Forbes* forecasts implementation of virtual rights of any physical objects (incl. real estate) with no red tape.

An NFT by Beeple was sold at Christie's for \$69.3mln, declaring the artist among the top three most valuable living artists

Governmental Services:

Digital voting, smart contracts, land registries, data security, real-time analytics of fraud. 22 governments across the globe (incl. ECB) have piloted **central bank digital currencies.**

"Implementation of Blockchain affects fundamental aspects of society: trust in institutions, identity, and data protection"
-U4 Anti-corruption Resource Center, Norway

Perceptions on Blockchain: Blockchain Roll-Out Challenge

Margot James, Minister of State for Digital and Creative Industries from 2018 to 2019:

"We are investing over £10M through Innovate UK and our research councils to support Blockchain projects in diverse areas such as energy, voting systems and charitable giving."

2018

Mayank Prakash, Chief Digital and Information Officer at the Department for Work & Pensions:

"Blockchain has the potential to revolutionise the exchange of data between departments and for all financial transactions through simple, high-performing and secure methods"

2019

Giles Baxter CIO at Arthur J. Gallagher & Co's:

"We remain curious and watchful around emerging technologies. More and more are experimenting with Blockchain in financial services, for example, and we remain watchful until the time is right for us to join as a fast follower"

2020

Ruffer Investment Company:

"We think we are relatively early to this, at the foothills of a long trend of institutional adoption and financialisation of bitcoin"

2021



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Prospects for Blockchain Technology in the UK



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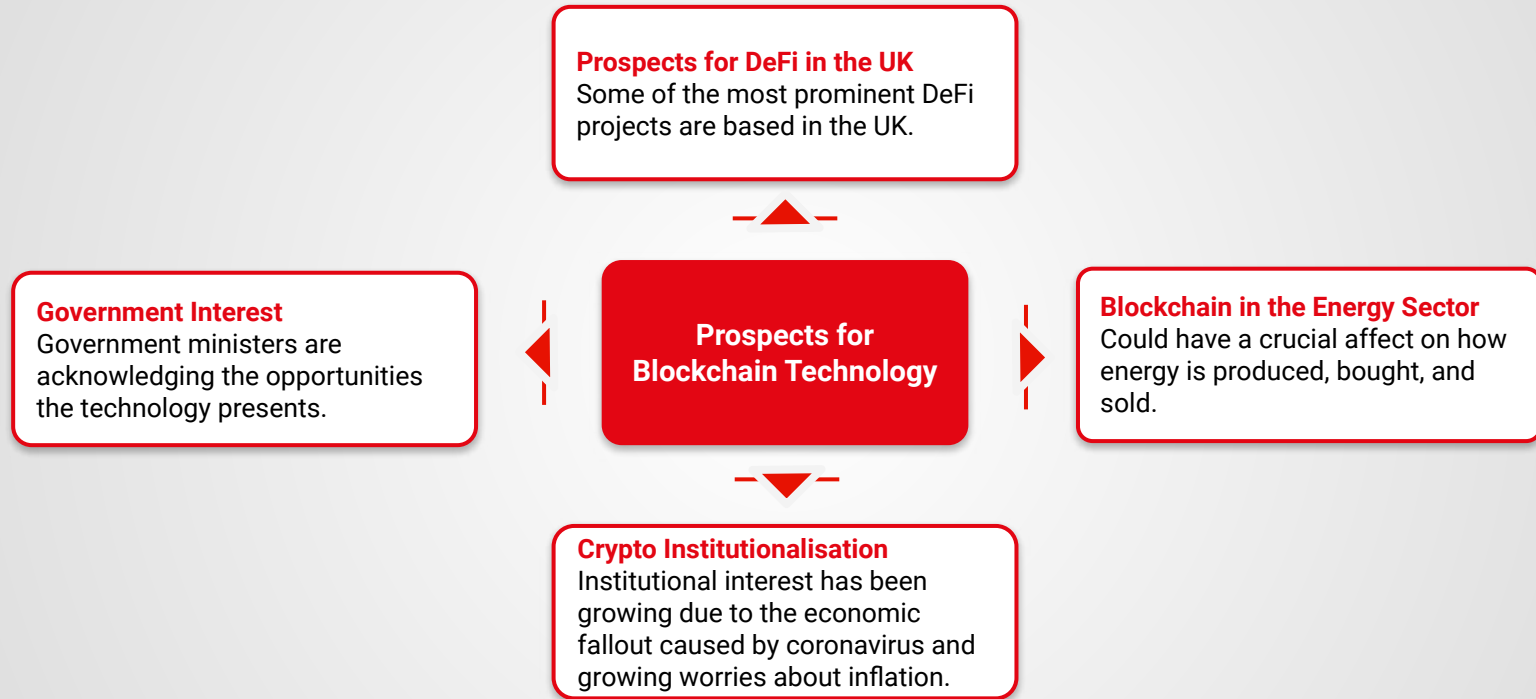


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www.dka.global

Prospects for Blockchain Technology: Overview

Blockchain is an attractive area to help organisations reduce costs, streamline processes and grow. The technology helps to improve traceability, transparency, and tradability and could have a massive impact on every sector that relies on a supply chain.



Prospects for Blockchain Technology: Government Interest

During a speech at U.K. Fintech Week on April 19 2021 U.K. Chancellor Rishi Sunak announced plans for a new sandbox targeting companies that aim to use DLT to improve financial market infrastructure. On the same day, the The Bank of England and HM Treasury announced joint creation of a Central Bank Digital Currency (CBDC) Taskforce to coordinate the exploration of a potential UK CBDC. The task force will look into possible use cases for CBDCs, as well as monitoring CBDC developments in other countries such as China.

There is recognition from other Government ministers of the need for the UK to seize the opportunity presented by emerging trends in the Blockchain space. UK policy speeches have also expressed the desire to urge the Treasury to find ways to prioritise innovation above regulation with regards to Blockchain in order to quickly capitalise on the opportunities that Blockchain presents.

It is clear that in an increasingly digitised world, the UK Government must support new technologies if Britain is to maintain a strong global presence in this rapidly evolving sector. By engaging proactively with developments in the Blockchain space, the UK can cement its position as a global fintech hub.

Examples of Government's Initiatives

The Department of Works and Pensions, Department of Environment, Food and Rural Affairs, and the Department for International Development are considering proof of concept projects.

Through Innovate UK (a government lead agency) and other research councils, the UK government invested more than £10M into Blockchain projects in such areas as energy, voting systems and charitable giving.

The UK Government created a £20M GovTech Catalyst Fund to explore technology based solutions for public sector challenges, potentially including the use of DLT.

Prospects for Blockchain Technology: Energy Sector

Blockchain technology is building an interconnected world between producers and consumers in the energy sector. This will eliminate intermediaries and reduce pressure on investment in aging transmission infrastructure.

For Blockchain to work in the UK energy sector, two main things are needed. The first is consensus on the Blockchain standard across the energy industry. The second is the implementation of equipment that can supply the Blockchain with information at every stage of the energy value chain (generation, distribution and provision). Smart meters can be the cornerstone of a Blockchain system.

The use of smart contracts in the energy sector can help automate a number of transaction steps, such as payments made after conditions are met, allowing businesses to significantly save time and money. Smart homes allow devices in homes to automatically exchange electricity between themselves and the main grid. It is able to match energy consumption with energy production. All these interactions are then recorded in the Blockchain ledger.

Use Cases of Blockchain in Energy Sector

Peer-to-Peer Energy Trading

Financing Energy Access

Wholesale Trading through Mini-Grids

Energy Cryptocurrencies

Streamlining Access to Renewable Energy

Record Storing in One Place

Examples of Energy Blockchain Initiatives



ELECTRON

Electron is a UK-based startup established in 2015 that offers Blockchain-based energy trading and grid balancing solutions. It has worked with the national grid and local energy distributors throughout the UK when developing its product offering.



EDF ENERGY

EDF Energy uses a Blockchain-based digital trading platform to transfer Capacity Market Obligation to the UK Power Reserve. Instead of trading the usual five business days, the platform automatically checks if a trade complies with trading rules, streamlining the trading process as well as maintaining a secure, decentralised audit trail of all such trades.



**FRAZER-NASH
CONSULTANCY**

Frazer-Nash is working with the Energy Innovation Center, three distribution network operators, and Cardiff University to envision the future of the UK's energy distribution network. The company has developed a demo tool that helps operators explore distributed ledger technologies as a potential solution to challenges associated with the operators transitioning to being distribution system operators.

Prospects for Blockchain Technology: Crypto Institutionalisation

Institutionalization is the large-scale participation of both traditional and new players, within the global financial services ecosystem, in the cryptocurrency market. Institutionalization is seen by many as the next step required to build trust and scale cryptocurrency.

In 2021, the institutional adoption of Bitcoin grew rapidly – from companies incorporating digital assets into their treasury reserve strategy and purchasing Bitcoin for their general investment accounts, to corporate and investment banks seeking partners to offer crypto versions of traditional securities services to pensions, asset managers and other clients.

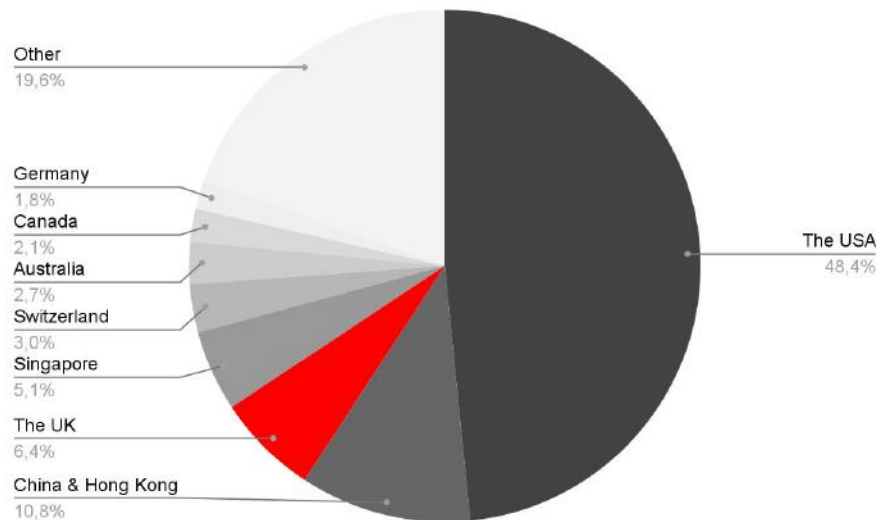


Ruffer, a London based asset manager allocated 2.5% of all of its assets under management to Bitcoin in November of 2020. It has since taken profits on its position.



Brevan Howard, a Jersey (GB) based hedge fund plans to allocate up to 1.5% of its \$5.6B main hedge fund to digital assets.

Number of Crypto Funds around the Globe, 2021



The number of crypto funds in the UK amounted to 53 in 2021. This puts the UK in third place globally, accounting for 6.4% of the world's crypto funds. Industry participants say that the UK market is set for a growth spurt.

DeFi in the UK and Abroad

The biggest development in the Blockchain space in 2020 was undoubtedly the emergence of Decentralised Finance (DeFi). DeFi allows for traditional financial services such as borrowing, lending, trading and insurance to be accessed in a decentralised manner through the power of Blockchain. Most of the major DeFi protocols exist on the Ethereum Blockchain and growth in the sector has been fast with \$200B in value now locked across all protocols.



Uniswap, is the biggest decentralised exchange platform in the DeFi space.



Maker, is one of the largest lending platforms in the DeFi space and responsible for Dai, a USD stablecoin backed by crypto collateral.

The Financial Action Task Force (FATF) released a draft that classifies DeFi platforms like DEXs as virtual asset service providers (VASPs). As a result, they would have to find a way to implement know your customer (KYC) and anti-money laundering (AML) checks similar to financial institutions. This would likely lead to major changes in how DeFi platforms operate moving forward and may initially lead to a dip in users and new projects. However, as regulatory clarity precedes institutional adoption, it is likely such regulation would eventually facilitate greater mainstream adoption and further investment in the DeFi space.



Aave, Aave is a London based open source and non-custodial liquidity protocol for earning interest on deposits and borrowing assets. It is the largest lending protocol in the DeFi space when measured by assets deployed as collateral.



Fractal ID, Fractal ID is a UK based DeFi platform that focuses on building a new data sharing infrastructure that runs KYC checks for other DeFi projects and public token sales. With a combination of integrated protocols and clear guidelines, mass adoption becomes more likely.



Radix DLT, a London-based DeFi startup is building a decentralised finance protocol, which provides frictionless access, programmability, and liquidity to any asset in the world.



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UK's Blockchain Network and Talent Pool



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Blockchain in UK: Selected Hubs, Think Tanks and Events



2030 Group



Autonomous NEXT



BBA (British Blockchain Association)



Big Innovation Centre



Blockchain & Climate Institute



Blockchain Live



Blockchain Expo



Blockchain for Business Summit



Blockchain Summit




Blockchain Technology World



Cambridge Blockchain Hub



Cambridge Blockchain Society



Construction Blockchain Consortium



Crypto Curry Club



Deep Knowledge Analytics



Future of Humanity Institute



Imperial College Center



London Blockchain Foundation



London Blockchain Labs



Oxford Blockchain Foundation



Qadre



Retail Blockchain Consortium



Unblocked



Z/Yen Group

Governmental, Regulatory & Standardisation Bodies that Make Blockchain Initiatives

CDEI - Centre for Data Ethics and Innovation

UK government's advisory body on the responsible use of AI and data-driven technology. CDEI has spent the past two years examining the issue of algorithmic bias and how it can be tackled.



APPG on Blockchain

The All-Party Parliamentary Group on Blockchain (APPG Blockchain) aims to ensure industry and society benefit from the full potential of Blockchain and other distributed ledger technologies (DLTs).



The Bank of England and HM Treasury have created a Central Bank Digital Currency (CBDC) Taskforce to coordinate the exploration of a potential UK CBDC.



UK financial services regulator is the anti-money laundering supervisor of UK crypto asset businesses under the Money Laundering, Terrorist Financing and Transfer of Funds Regulations 2017.



Consulting on the broader regulatory approach to cryptoassets, and bringing certain crypto assets into scope of financial promotions regulation to enhance consumer protection;



BSI holds a royal charter and is the national standards body. It helps businesses improve performance, reduce risk and achieve sustainable growth.



HMRC publishes guidance for people who hold crypto assets. HMRC also publishes further information for businesses about the tax treatment of crypto asset transactions.



UK regulator the ICO has a programme to promote privacy in new technologies. The ICO's Sandbox programme supports innovation through engagement and a safe harbour.



Department for Business, Energy & Industrial Strategy is interested in using Blockchain and distributed ledger technologies to verify the provenance of goods.



The agency uses information to tackle the challenges, and contribute to addressing risks for the future. FSA completed a Blockchain pilot project where it was used as a regulatory tool in food production.

Significant Blockchain Initiatives in Universities



Centre for Blockchain Technologies, UCL

The UCL CBT researches the effects of DLT and Blockchain into socio-economic systems and to promote the organic development and adoption of Blockchain-based platforms. The CBT draws on its world-leading academic expertise to produce cutting-edge Blockchain solutions for industry, start-ups and regulators.

Imperial College London

Centre for Cryptocurrency Research and Engineering, Imperial College London

The goal of the Centre for Cryptocurrency Research and Engineering is to become a leading international centre for ongoing research and application activity related to cryptocurrency and Blockchain technology. The centre explores novel Blockchain-based applications across multiple domains.



Saïd Business School, University of Oxford

Saïd Business School, launched a digital open enrolment programme on Blockchain integration and regulation, the Oxford Blockchain Strategy Programme. The learning concentrates on the use of showcases to lead participants through the successful strategies taking place in this emerging field.



Surrey Blockchain, University of Surrey

The University undertakes cross-disciplinary research that is transforming domains. Surrey Blockchain research combines its expertise across three research centres: Centre for Vision Speech and Signal Processing (CVSSP), Surrey Centre for Cyber Security (SCCS), Centre for Digital Economy (CoDE).



Cambridge Centre for Alternative Finance, University of Cambridge

CCAF is an interdisciplinary academic research institute dedicated to the study of alternative finance. Alternative instruments are private placements and other 'shadow banking' mechanisms, social impact bonds used by non-profit enterprises, and alternative currencies such as Bitcoin.



KCL Blockchain, King's College London

King's College London Blockchain Society (KCL Blockchain) was established to provide a way for students to participate and engage with the Blockchain space. KCL Blockchain tries to get people excited about Blockchain by organising events, producing research and curating London Blockchain events.



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Cryptocurrency Overview: Outlook on the UK Market



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Cryptocurrencies: Outlook on the UK Market

Now that the UK has left the EU, the doors have opened for more helpful regulations to be drawn up. The EU's recently released Markets in Crypto Assets (MICA) directive could take years to implement. The FCA, no longer impeded by the slow bureaucratic processes of Brussels could act much faster in implementing its own regulations.

Possessing what is arguably the fintech capital of the world in London, the UK is the perfect environment for Blockchain and other distributed ledger technologies. As such, it is no surprise that the UK already plays host to a large number of Blockchain-centric startups and companies looking to deploy the technology in new product offerings.

Many of the companies looking to deploy DLT and Blockchain technology operating in the UK are crypto asset oriented, with groups such as Wintermute acting as a liquidity provider for the crypto markets and Argent - a platform that allows users to earn interest on their crypto asset deposits.

Non crypto asset orientated implementations of the Blockchain technology are also emerging though; Centrica is exploring how to decrease bills for customers using peer-to-peer energy trading and Everywhere is using the DLT to maintain the cold chain of medicines, ensuring their viability when used.

Numerous companies and startups in the UK are focusing on cryptocurrencies making them accessible and functional.



Wintermute was founded in 2017 with the mission to provide the much-needed liquidity to the crypto markets, thus contributing to the adoption of new decentralised finance. Funding: £17.2M



Argent, headquartered in London, is an Ethereum wallet for iOS and Android. The platform facilitates easy access to the emerging DeFi space allowing its users to earn interest on their crypto deposits. Funding: £11.5M



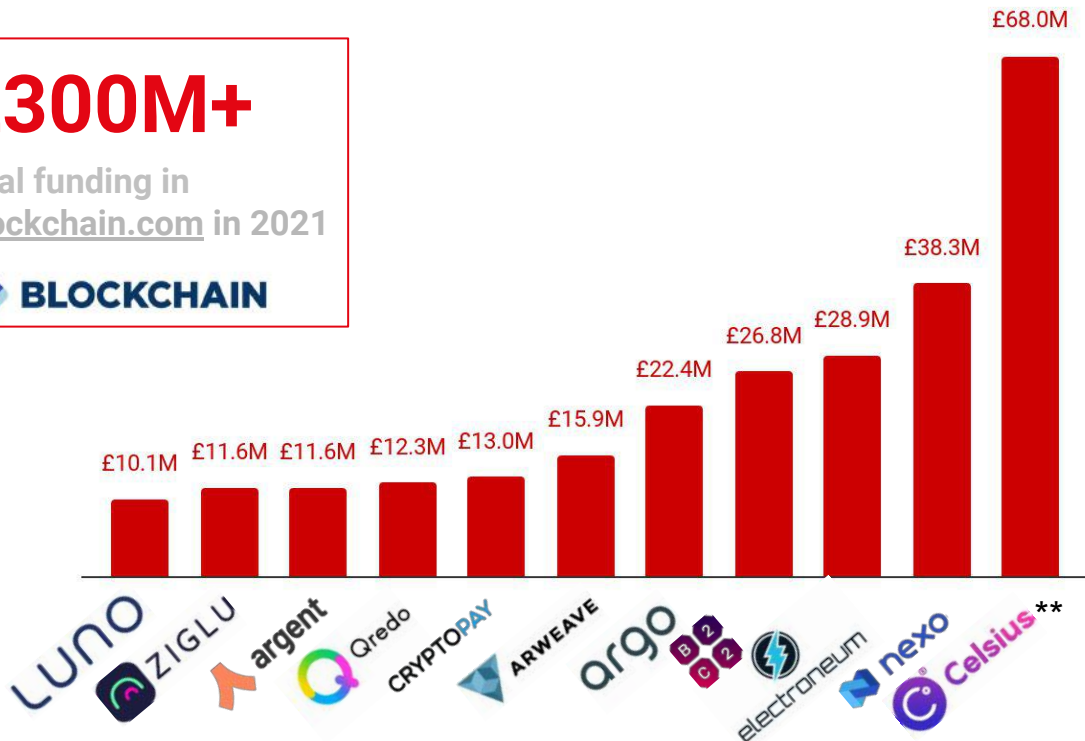
Coinfirm, based out of London, offers AML and regulatory technology for Blockchain and cryptocurrencies. It offers the industry's largest Blockchain coverage, supporting over 1,400 cryptocurrencies and protocols including Bitcoin, Ethereum, Hyperledger, and many more. Funding: £11.5M

Top Cryptocurrency Companies in the UK

Top Cryptocurrency Companies in the UK by Total Funding Amount in 2021*

£300M+

total funding in
Blockchain.com in 2021



Blockchain.com accounts for over a half of total funding in UK-based cryptocurrency companies. The company claims to be responsible for about 28% of all bitcoin transactions since 2012. Blockchain.com reached a valuation of £3.8B in March 2021.

Blockchain.com is a platform that offers ways to buy, hold, and use cryptocurrency. **50+ million customers** have signed up to use the Blockchain.com platform.

The company has had 2 funding rounds in 2021: £87M* and £217M* (3rd largest raise ever for a crypto company). Partners of Google Ventures (US), DST Global (Hong Kong), Baillie Gifford (UK), Lightspeed Venture Partners (US), VY Capital (UAE) and LG Group (South Korea) are led the rounds.

Notes: *Numbers are converted from USD to GBP using the average exchange rate

**Celsius has exited the UK since its fundraise

***Funding includes investments, donations, grants and subsidies.

****Other valuable UK crypto companies like Bitstamp did not have funding rounds in 2021



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Use of NFT Technologies and DLT



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Use of DLT to Help Fight COVID-19

British Hospital Network is Using DLT to track the temperature of COVID-19 Vaccines.

The UK has started to **use distributed ledger technology to track the handling of COVID-19 vaccines**. At the moment, two hospitals - in Warwick and Stratford-upon-Avon have already implemented DLT to monitor the storage and supply of temperature-sensitive COVID-19 vaccines

There are two companies involved: Everyware Ltd, which is a digital asset tracking and monitoring provider that already works with the NHS on monitoring other vaccines and treatments, and Hedera Hashgraph, a Texas-based distributed ledger provider. Everywhere's smart sensors log device temperature event data (e.g. fridge temperature readings) to the decentralised Hedera network.

Everyware's products and services are used by South Warwickshire NHS Foundation Trust to **keep track and assure that medicines, including COVID-19 vaccines, are being stored at the correct temperatures**.

Hedera's Hashgraph digital ledger uses a different kind of mathematical system to Bitcoin and Ethereum, called a directed acyclic graph (or DAG). The system does not require nodes in the network to solve complex mathematical puzzles as in cryptocurrency-based Blockchains. This allows Hedera to offer a very low cost per piece of information added to the ledger and allows the ledger to process updates at very high speed.

Hedera is **managed by a council that includes a number of large international companies** such as Avery Dennison, Deutsche Telekom, Boeing, DLA Piper, FIS (Worldpay), Tata Communications, Dentons, Google, IBM, LG Electronics, Magalu, Nomura, Swirls, University College London, etc.

Advantages of Using Blockchain Technology

Data Security

The use of digital ledger technology as part of the tech solution allows Everyware to ensure that the temperature data collected is valid.

Temperature Control

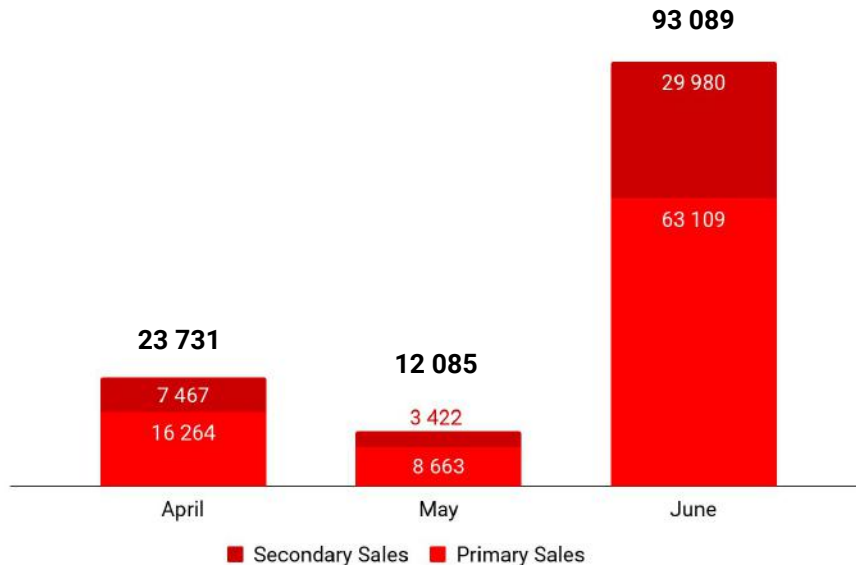
Accurately monitoring and recording the temperature that the COVID vaccine is stored at is particularly crucial for Pfizer and Moderna vaccines as they must be kept at temperatures of -70 degrees celsius until close to the time they are to be used.

Cost-Effectiveness and Fast

A very low fixed cost per piece of information added to the Blockchain: 0.01 of a US cent whilst quickly managing millions of data entries.

Usage of NFT (Non-Fungible Tokens) in the Art Sector

Total Number of Sales Involving NFTs in the Art Sector Worldwide, April - June 15, 2021



Non-fungible tokens (NFTs). Unlike most digital assets, Non-fungible tokens are unique and are not interchangeable for one another. This is in contrast to most cryptocurrencies e.g. any given bitcoin is fungible – one bitcoin is indistinguishable from another bitcoin. An NFT can represent ownership of a one-of-a-kind asset, such as a real painting, or one copy of many, such as a collectible card.

CryptoKitties is a video game, but the art pieces, the kitties themselves have been taken out of the video game and displayed in museums all around the world. They have been auctioned by companies like Christie's where a single "kittie" was bought for over \$140,000. Congestion of the Ethereum network and high network fees soon followed due to the large number of transactions associated with the game. However the onset of the bear market in January 2018 was followed by a 98.4% drop in transactions 6 months after launch.

Nevertheless, the development of the NFT space did not falter, with over 100 active projects from 2018 - 2019. As of 2021, the market is booming again with NFT specific market places such as OpenSea and Nifty Gateway specifically servicing this growing sector. The most popular by far are CryptoPunks. They are limited edition collectible characters constrained to 10000 in number and generate a majority of the trading volume. Other in-demand NFTs include Sorare which is a fantasy football game and an NBA Top Shot platform that allows fans to buy, sell and trade numbered versions of specific, officially-licensed video highlights.

Use of NFTs in the Creative Industries

The use of NFTs allows art collectors to own digital art in a completely new way. **Any given NFT could be attached to anything: a JPEG, GIF, MP4, even music.** The NFT represents ownership of whatever it is attached to. As the NFT is sent from one address to another, ownership is transferred from one owner to another.

Typically, one NFT represents one unique piece of art. In selling the NFT, a digital artists can sell their original works, which can be bought by collectors who now receive the NFT as a record of ownership.

Most NFTs exist on the Ethereum Blockchain. As a Blockchain network, Ethereum is a decentralised public ledger for verifying and recording transactions. The network's users can create, publish, monetise, and use applications on the platform, and use its Ether cryptocurrency as payment.

When artists decide to sell their artwork, they create a transaction on the Ethereum Blockchain through a token uniquely associated with the artwork in the artist's cryptographic wallet. The transaction is digitally signed by the artist, using asymmetric cryptography, in order to prove the authenticity of the artwork.

The UK has taken centre stage in the burgeoning NFT market as long established UK auction houses Sotheby's, Christie's and Bonhams have all been involved in the auctioning of NFT art in the last year. The most notable auction was a lot comprising of 5000 different pieces by Joseph Winkelmann (also known as Beeple) which fetched circa \$69 million in early 2021. The auction was conducted by Christie's.

Example of NFT artist



Michael Joseph Winkelmann

is known professionally as Beeple. He is digital artist, graphic designer, and animator. British auction house Christie's has called him "A visionary digital artist at the forefront of NFTs".



Use of NFTs for Marketing Purposes

NFT technology can provide **new user experiences and help build brand awareness and affinity**. Mobile advertising campaigns using NFT can be programmatically distributed across a variety of digital platforms. Brands can use NFT technology to provide their customers with personalized gifts, vouchers, etc.

Brands can monetize ads multiple times by turning them into NFTs, they can increase their capital through storytelling and collectible assets, or create hype ahead of events and product launches with Early Access Tokens. NFTs are opening up a whole new revenue stream for brands by selling products in a purely digital form or as a complement to a physical offering.

The rise of NFTs has rekindled talks about developing a new media ownership model to make the space more creator-centered. With Blockchain-based smart contracts, a new **distributed media ownership model without intermediaries would be possible**, allowing digital asset creators to directly profit in full.

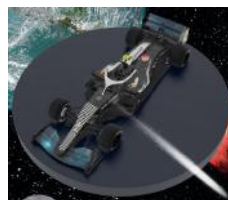
As NFT continues to gain mainstream attention, more brands are expected to join and experiment with digital collectibles. For brands, this is an opportunity to **generate additional revenue and interact with mainstream fans to create an exclusive experience**. New business models will be tested for digital media creators to help them bypass existing platforms and generate revenue directly from their audience.

Selected Examples

The logo for G7G, consisting of the letters 'G7G' in a bold, black, sans-serif font.

Generation 7 Group

is developing and implementing science and technology to improve efficiency, sustainability and longevity of the world's valuable heritage brands.



The Kinahan's branded 3D Formula Racing Car released as an NFT at Rarible.com during the Lewis Hamilton's thrilling win at the British Grand Prix. An exclusive token to this 3D/AR art piece of a hyperrealistic formula racing car, which was available for preview at the Silverstone Circuit race.

The logo for Ekstasy, featuring the word 'EKSTASY' in a white, outlined, sans-serif font, with the letter 'K' in red.

Ekstasy

is a London based creative advertising agency that builds brand communication platforms that uses strategy, creative and media.



Ekstasy has launched the world's first NFT auction of an integrated ad campaign, to support the charity Magic Breakfast. Proceeds go to the charity, which provides healthy school breakfasts to children at risk of hunger in disadvantaged areas of the UK.



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State of Regulation



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Blockchain Industry Growth Framework

Stakeholders Groups

Entrepreneurs /
Corporations

Investors & Founders

Governments

Research Org's &
Academics

Banks / Financial
Institutions

Regulators &
Standards Bodies

Think tanks / Events

Assets Markets
& Exchanges

Society & End Users

Use Cases

Healthcare

Financial
Applications

Critical
Infrastructures

Data Management

Blockchain City

Asset Management

Education

Adoption Challenges

Inefficient
Technological
Design

Security Problems

Lack of Adequate
Skill Sets

The Criminal
Connection

Regulation

Blockchains Can Be
Slow

Low Scalability

Difficulties with
Implementation

High Energy
Consumption

Future Scope

Quality
Improvements

Opened Sectors for
Usage

Enterprise
Blockchain
Development

Secure Infrastructure
by Integration with
IoT

More Functional
Blockchain by
Integration with AI

Indicative Overview of Global Regulation

USA

- Jan 2018: Financial Stability Oversight Council form a cryptocurrency working group to study the crypto marketplace
- Oct 2019: FinCEN, SEC & CFTC release a joint statement on how digital assets will be defined and regulated
- **July 2020: OCC confirmed that national banks and saving associations can provide custody services for crypto. Additionally, banks can provide crypto-fiat exchanges, transaction settlement, trade execution and tax services**
- Sep 2020: Kraken becomes the first crypto exchange to receive a state banking license which enables users to bank between digital assets and national currencies
- Jan 2021: OCC grants a national trust bank charter to crypto custodian Anchorage to launch America's first federally chartered digital asset bank

Gibraltar

- May 2017: Proposals for a DLT regulatory framework paper published by the HM Government of Gibraltar, Ministry for Commerce and Gibraltar Finance
- **Jan 2018: Gibraltar became the first jurisdiction in the world to introduce legislation around Distributed-Ledger-Technology (DLT) through its DLT framework**
- 2018 – 2019: Several Blockchain/crypto companies are awarded a DLT license by the Gibraltar Financial Services Commission (GFSC) including Huobi, B21 and Lendingblock
- Sep 2020: Gibraltar updates its regulations surrounding DLT to include the new Financial Action Task Force rules
- Jan 2021: Gibraltar extends the regulatory guidelines by adding a '10th Principle' to include digital asset exchanges
- Jan 2021: Gibraltar grants Xapo (a digital asset custodian) a banking licence

United Kingdom

- Oct 2018: UK Crypto assets Taskforce published a report that set out the UK's policy and regulatory approach to crypto assets and distributed ledger technology
- July 2019: FCA releases guidance on what type of cryptoasset activity falls within existing FCA regulation
- Jan 2020: New regulation for crypto asset activity that requires compliance with the Money Laundering, Terrorist Financing and Transfer of Funds (Information on the Payer) Regulations 2017 and registration with the FCA
- Jan 2021: HM Treasury publishes a consultation and call for evidence for the UK's regulatory approach to crypto assets and stablecoins

Usage of Blockchain in Britain for Scalability, Competing and Policy

It is plausible that in three years Britain could be a global Blockchain hub, but what must it do to achieve this goal?

What is the aim?

Building Blockchain interoperability for scalability is the biggest issue in the UK.

Technically, Blockchain interoperability seeks to achieve one fundamental goal, namely ensuring the integrity of both information exchanges (data exchange among business systems) and value transfers (digital assets exchange, e.g. crypto, tokens).

In 2020, the APPG on Blockchain explored the governance models of Blockchain networks and data management. Relevant use-cases were discussed to fight the current COVID-19 pandemic and other areas related to the application of Blockchain in education.

Where are our world leading companies?

Coinbase is arguably the leading cryptocurrency exchange. It IPO'd on the NASDAQ with a circa \$50B market capitalisation in 2021, has been proactive in engaging with regulators in multiple jurisdictions and has funded multiple innovations in the Blockchain space.

As we have seen in this analysis, the **UK does have some excellent Blockchain companies but it needs to ask why it has yet to produce a Coinbase of its own.** If the largest companies in the space continue to be produced in the USA then this is where the technology will find its global hub and where the tax base associated with the space will be domiciled.

Regulatory Framework

The USA, Switzerland and Gibraltar have awarded banking licences to crypto native companies. This suggests a high degree of comfort with the space that the UK regulators do not yet have. In the US, this comfort likely stems from the very active regulatory and political dialogue that is taking place there; recently the bipartisan infrastructure bill was held up, in part, by cryptocurrency-related issues as senators debated the tax reporting obligations of entities operating in the Blockchain ecosystem.

UK regulators and politicians need to move quickly to gain the same understanding of the space that these competing jurisdictions have.

What are others doing?

Apart from Gibraltar and the USA the EU has laid out its plans to regulate the cryptocurrency space via the Markets in Crypto Assets Directive (MiCA).

EU directives are based on Napoleonic civil law and as such are very proscriptive. Such a restrictive legal code does not lend itself to regulating a rapidly evolving ecosystem based on a novel technology.

The principle-based common law system that the UK has should allow it to adapt more readily to developments in the space and so give it an advantage over its European neighbours when fostering Blockchain talent.



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Prominent Reports, Series of Journals and Conferences & Events on the Blockchain Topic



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Blockchain Series or Journals (1/2)



Series of **APPG Blockchain Policy Briefs:**

Selected reports and articles:

- [Digital Assets And Tokenisation](#)
- [Agriculture And Food](#)
- [How Can Blockchain Help in The Time of COVID 19?](#)



Series of **British Blockchain Association (BBA) Journal:**

Selected reports and articles:

- [Blockchain Network as a Platform: Conceptualising its Adapted Layered Architecture Design](#)
- [Blockchain is dead! Long live Blockchain!](#)



Blockchain Series or Journals (2/2)



Series of [European Blockchain Observatory and Forum](#).

Selected reports and articles:

- [Central Bank Digital Currencies and a Euro for the Future](#)
- [Blockchain and Digital Identity](#)
- [EU Blockchain Ecosystem latest developments](#)



Series of [Frontiers in Blockchain](#).

Selected reports and articles:

- [Tax Treatment of Block Rewards](#)
- [Hyperparameter Optimization Using Sustainable Proof of Work in Blockchain](#)
- [Digital and Decentralized Management of Patient Data in Healthcare Using Blockchain Implementations](#)



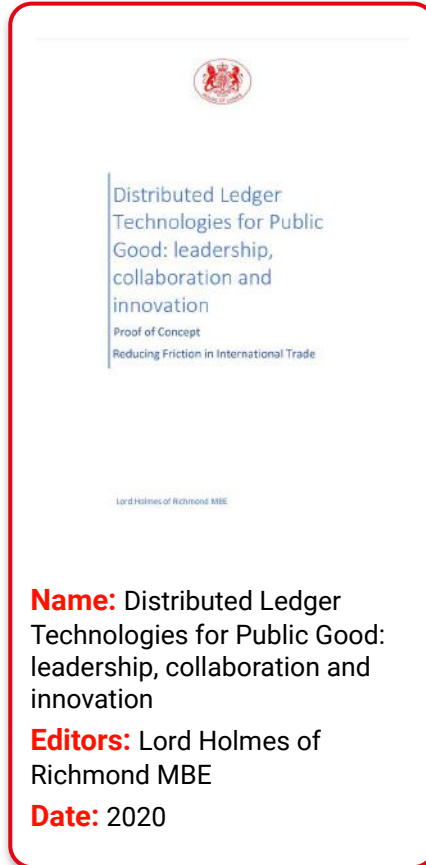
Prominent UK Reports on the Blockchain Topic



Name: Blockchain For Local Government - Cities Committee Taskforce

Editors: Big Innovation Centre

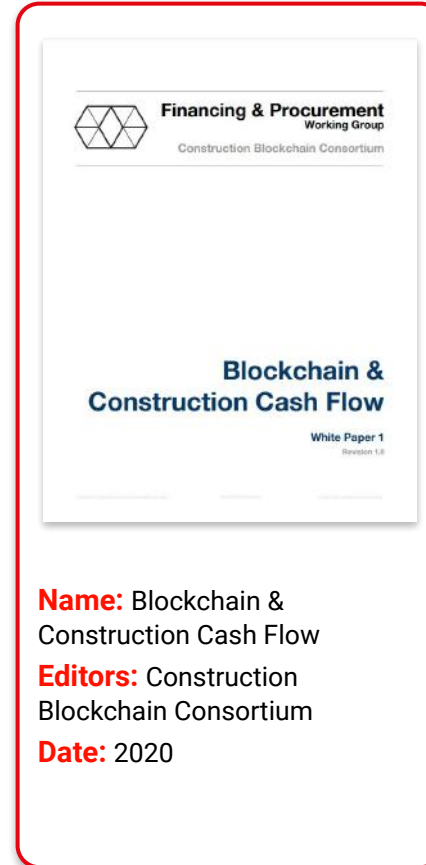
Date: September 2020



Name: Distributed Ledger Technologies for Public Good: leadership, collaboration and innovation

Editors: Lord Holmes of Richmond MBE

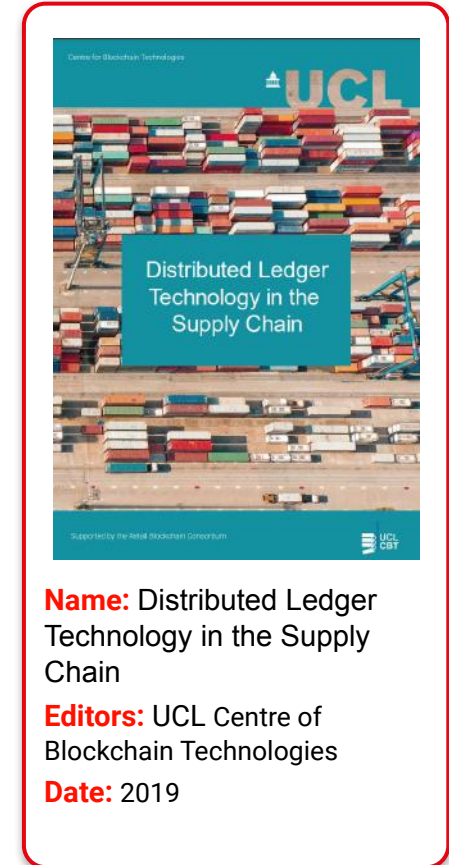
Date: 2020



Name: Blockchain & Construction Cash Flow

Editors: Construction Blockchain Consortium

Date: 2020



Name: Distributed Ledger Technology in the Supply Chain

Editors: UCL Centre of Blockchain Technologies

Date: 2019

Blockchain News Outlets (1/3)

Specialised Blockchain News Outlets



Bitcoin News



COINBEAT



THE BLOCK

The Block

CRYPTOAM.io

Crypto AM



Blockchain News



COINTELEGRAPH



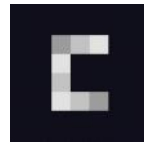
Ledger Insights

**THE
FINTECH
TIMES**

Fintech Times



COINDESK



CRYPTOSLATE

Decrypt

Decrypt

Blockchain News Outlets (2/3)

Other News Outlets in the Blockchain Community



Blockleaders



Coingape



Crypto Potato



Crypto Craft



Bitcoin Insider

be [in]crypto

Be in Crypto

Coinspeaker®

Coinspeaker

AMB CRYPTO

AMB Crypto



Coin Rivet

the Cryptonomist

The Cryptonomist



Cryptelicious

Blockchain News Outlets (3/3)

Magazines That Are Writing on Blockchain Topic



Forbes



Wired



Independent



Investing.com





BBC News






ITPro.




Conferences & Events on the Blockchain Topic (1/5)

Date	Name	Format	Key Objectives of the Event
<p>18-22 October 2021</p>	 <p>Security Tokens Realised</p>	<p>Online / Offline, London, UK</p>	<ul style="list-style-type: none"> ▶ Bringing the traditional funding and listing players together with the new digital exchange and platform opportunities. ▶ Exploring both listed securities and private tokenization of securities along with educating investors on the opportunities. ▶ A focus on the institutional adoption of digital assets, covering the full spectrum including the technology, crypto, and securities.
<p>20-21 October 2021</p>	 <p>Digital Assets Realised</p>	<p>Online / Offline, London, UK</p>	<ul style="list-style-type: none"> ▶ This series is focused on the continuing realisation of Digital Assets across the finance ecosystem. ▶ The conference will look in-depth at investing in digital assets and the best of breed digital listing platforms and bulletin boards for companies and investors.



Conferences & Events on the Blockchain Topic (2/5)

Date	Name	Format	Key Objectives of the Event
20-22 October 2021	 <p>Construction Blockchain</p>	Online / Offline, London, UK	<ul style="list-style-type: none"> ▶ Explore the latest technological developments of Industry 4.0 that are driving transformations in the built environment across the world ▶ Present progress with its most recent white paper on Distributed BIM
27 October 2021	 <p>APPG BLOCKCHAIN</p> <p>CENTRAL BANKS DIGITAL CURRENCY (CBDC) AND STABLECOINS: Assessing a new monetary paradigm What is Central Banks Digital Currency (CBDC)?</p>	Online or UK Parliament, London, Westminster	<ul style="list-style-type: none"> ▶ Which are the opportunities and challenges for CBDC, and how should CBDC be designed? ▶ Should CBDC be a substitute or a complement to physical notes? ▶ What technology could CBDC use?
15-16 November 2021	 <p>Blockworks Digital Asset Summit</p>	London, UK	<ul style="list-style-type: none"> ▶ DAS is the institutionally focused crypto conference for asset managers and financial services professionals. ▶ Returning in 2021 as a two day, in person event, industry leaders from the world of finance and digital assets will gather to discuss crypto from the perspective of industry practitioners.



Conferences & Events on the Blockchain Topic (3/5)

Date	Name	Format	Key Objectives of the Event
24 November 2021	 <p>APPG BLOCKCHAIN</p> <p>CONVERGENCE & SINGULARITY: Singularity, Blockchain, Artificial Intelligence & Internet of Things</p>	<p>Online or UK Parliament, London, Westminster</p>	<ul style="list-style-type: none"> ▶ How Blockchain, artificial Intelligence and Internet of Things (IoT) convergence can be a paradigm shift? ▶ Which are the main benefits, barriers and risks when combining Blockchain, artificial intelligence and IoT? ▶ What are the existing integrations across emerging technologies? What will the future look like? And when? ▶ How can policymakers and regulators catalyse the convergence?
25-28 November 2021	 <p>CoinFestUK 2021</p>	<p>Manchester, UK</p>	<ul style="list-style-type: none"> ▶ Free workshops, speaker presentations, crypto activities, a bitcoin lightning bar, exhibitors from around the world and crypto artwork (both physical and digital).
1 Feb 2022	 <p>APPG BLOCKCHAIN</p> <p>BLOCKCHAIN AS A SERVICE (BAAS): Commoditising Blockchains</p>	<p>Online or UK Parliament, London, Westminster</p>	<ul style="list-style-type: none"> ▶ What is “Blockchain as a Service”? ▶ How could Blockchain be commoditised? Through IP licensing or other methods?

Conferences & Events on the Blockchain Topic (4/5)

Date	Name	Format	Key Objectives of the Event
5 April 2022	 <p>APPG BLOCKCHAIN SUSTAINABILITY: Energy Consumption And Other Issues</p>	<p>Online or UK Parliament, London, Westminster</p>	<ul style="list-style-type: none"> ▶ Can Blockchain ensure energy sustainability, or is it causing a sustainability crisis? ▶ How can data mining on Blockchains become sustainable or 'green'? (e.g. Green data) ▶ What are other sustainability issues associated with Blockchains?
21 June 2022	 <p>APPG BLOCKCHAIN DeFi – DECENTRALISED FINANCE: A New Paradigm For The Banking Sector?</p>	<p>Online or UK Parliament, London, Westminster</p>	<ul style="list-style-type: none"> ▶ What is Decentralised Finance (DeFi)? ▶ Will DeFi transform financial services? ▶ Are the traditional commercial banking models at risk, or is this a new opportunity for the sector?

Conferences & Events on the Blockchain Topic (5/5)

Date	Name	Format	Key Objectives of the Event
<p>13 September 2022</p>	 <p>APPG BLOCKCHAIN</p> <p>CYBERSECURITY: New Opportunities Or New Risk?</p>	<p>Online or UK Parliament, London, Westminster</p>	<ul style="list-style-type: none"> ▶ Will Blockchain technology enable increased cybersecurity help or be a hindrance? ▶ To which cyber-attacks could Blockchain networks be suitable for a suitable protection mechanism? ▶ Are the existing cybersecurity standards useful for Blockchain adoption? What are the new and emerging standards in this respect? ▶ Will it be necessary to harmonise new and existing security standards for Blockchain networks? ▶ How will the intrinsic characteristics of Blockchains (i.e. the distributed architecture and consensus mechanism) impact in the security of the network?
<p>15 November 2022</p>	 <p>APPG BLOCKCHAIN</p> <p>BLOCKCHAIN USE-CASES: State-Of-Art, Industry Trends And Blockchain Forecast</p>	<p>Online or UK Parliament, London, Westminster</p>	<ul style="list-style-type: none"> ▶ How far has Blockchain adoption become a reality? ▶ Which sectors have seen the largest implementation of Blockchain technologies, and for what purpose? ▶ Are there winners or losers of the Blockchain irruption?



**INNOVATION
EYE**

Conclusion



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In Summary (1/2)

The UK is the host of a highly sophisticated Blockchain innovation ecosystem bringing investment confidence, talent, and industry growth and Blockchain-community spirit together

In a cautious deep dive to show the true economic picture of UK's Blockchain industry, our analysis of 18 industries that are using Blockchain technology can identify 523 UK Blockchain-centric companies and 250 investors, who have invested more than £1B into those businesses.

To conclude, the UK is on its way to becoming a true epicentre for everything Blockchain. So, what are the strengths from which the UK can build?

The UK hosts a highly sophisticated Blockchain innovation ecosystem integrating the ingredients for a vibrant and dynamic Blockchain industry – science, technology, talent, entrepreneurial community with financial backing, Blockchain business model applications, and location advantages. The UK is the host of hundreds of Blockchain experts or influencers across businesses, academia, influencers and policies.

UK Blockchain markets and industry are moving fast, and there is strong political will for Blockchain solutions and integration. However, the UK regulators are finding themselves in a catch-up position with the potential of Blockchain technology adoption and applications.

At a glance, we found that the majority of the investments into the UK Blockchain space has been into Fintech (17%) and Crypto Trading (14%) companies. Investment into Gov-tech (2.3%) and Insur-tech (1.7%) is much lower.

The leading Blockchain investment in London's financial sector is no surprise. London is a global financial HQ ready for a Blockchain transformation in the second quarter the 21st century, and at the same time the entrepreneurial Blockchain community is located close to the finance that is needed to grow it. As such, 450 out of UK's 520+ Blockchain companies are located in the London region. Investment houses which have shown an interest in the space include Ruffer Investment and Brevan Howard.

Blockchain tokens, digital asserts and DLT are also being adopted in the creative industries where the world-leading British auction houses Christie's and Sotheby's are among the first movers, accepting how Blockchain can transform the industry's management of authenticity or originality behind pieces of art.

The relatively small investment in Blockchain Gov-tech indicates how there's still underinvestment in those public-purpose sectors compared to the huge potential. Indeed, initiatives in the Department of Works and Pensions, Department of Environment, Food and Rural Affairs and the Department for International Development could soon move from their proof-of-concept projects into application. We identify 15 government agencies involved in Blockchain initiatives, and the UK Government's £20M GovTech Fund must catalyse some of these opportunities. The energy sector also shows promising public-purpose Blockchain application use-cases by Electron, EDF energy and Frazer Nash in areas as peer-to-peer energy trading, wholesale trading through mini-grids, energy crypto economy and much more.

In Summary (2/2)

During the COVID-19 pandemic both, research and use-cases were developed showing how Blockchain applications can enable track and trace of data, medicines, symptoms and the spread of the pandemic, while enabling security. Two UK hospitals in Warwick and Stratford-upon-Avon have applied DLT to monitor the storage and supply of temperature-sensitive COVID-19 vaccines.

The highly networked Blockchain talent pool comes from 50 hubs showcasing a network of Blockchain initiatives from (i) both research and teaching programmes at UK universities (in particular from the University of Oxford, Cambridge, Surrey, Imperial College London and University College London), (ii) Blockchain networking and events companies (Crypto Curry Club or Blockchain Summit), (iii) think-tanks (Z/Yen Group or Big Innovation Centre), and even (iv) scientific associations with their own journals (British Blockchain Association BBA who have their own scientific journal). Finally (v) the All-Party Parliamentary Group on Blockchain (APPG Blockchain) functions as the permanent authoritative voice within UK Parliament (The House of Commons and The House of Lords) on all Blockchain-related matters, while engaging with this entire network to bring experts and use-cases to inform parliamentarians.

Thus, the UK's Blockchain innovation and investment ecosystem brings together

1. An entrepreneurial Blockchain **industry system** which is becoming a magnet for **entrepreneurial finance**.
2. A **top-talent and Blockchain science system** from our education system, research base, and universities.
3. Those industry, finance and talent systems are **mixed with a network of Blockchain think-tanks and events companies**, that are building the UK's world-leading Blockchain communities. They are closing the gap between research base and Blockchain market-adoption, as well as the gap between a growing Blockchain industry and entrepreneurial finance.

There are many application use-cases from art, fintech and energy which shows how Blockchain can support a more sustainable livelihood for people. Also, good health means good wealth (as became evident during the COVID-19 pandemic), and Blockchain applications are also now being adopted into the health sector.

The UK has a unique potential to become a true Blockchain epicentre, but the government needs to cement this position

This combination of the UK and in particular London being a leading global financial hub, a density of Blockchain entrepreneurship and talent as well as in proximity with regulators means the UK has a unique potential to become a true epicentre of purposeful, innovative, and safe international Blockchain-integration and cooperation. However, the government must solidify this unique position by passing suitable regulation and it must do so in a timely manner. The concentration of Blockchain activity in London also means that the industry develops in proximity to the regulators and politicians that can shape policy to drive its development further.

Regulation and policy engagement must however happen at the same speed as the sector develops if the UK is to not lose its status and potential due to other jurisdictions such as those in Gibraltar and the USA which have been quicker to respond to advancements like DeFi.

About Innovation Eye

Innovation Eye was jointly founded in March 2019 by the Big Innovation Centre and Deep Knowledge Analytics to provide sophisticated market analytics, industry intelligence, comparative industry classification frameworks and benchmarking case studies.



The company develops advanced tools for analysis and visualization of technology and innovation ecosystems through reports, custom-made consultancy products and services, and dynamic interactive online IT-platform with the aim of optimizing the strategic agendas of international corporations and technocratic governments seeking to implement, stabilise and optimise their global positions in advanced technology-driven industries.

The Big Innovation Centre has substantial expertise in these areas, having run cross-industry task forces since 2011 on building innovation and investment ecosystems, future proofing corporate businesses models, and being the secretariat company for the UK All-Party Parliamentary Group on Blockchain and the All-Party Parliamentary Group on Artificial Intelligence. Meanwhile, Deep Knowledge Analytics has established itself as the leader of sophisticated DeepTech industry intelligence and analytics relating to DeepTech sectors including AI, FinTech and GovTech.

By combining AI-driven big data analytics with advanced infographic mind-maps and the production of state-of-the-art data visualization and dynamic data analytics, industry intelligence platforms, Innovation Eye aims to provide multinational corporate and governmental clients with an advanced - and user-friendly - suite of tools, frameworks and solutions for formulating, optimising and stabilising their development and execution plans underlying their specific strategic interests. In summary, Innovation Eye:

- implements advanced ecosystem mapping projects relating to interactive online IT-platforms using dynamic infographic mind-maps and smart-matching capabilities for industry stakeholders
- does tangible technological forecasting of advanced tech-driven industries and innovation economies
- informs international corporations and governments on how to become and remain competitive and utilise their resources in a maximally efficient and synergetic manner

About Big Innovation Centre

Big Innovation Centre is one of the biggest, best and most exclusive technology and innovation consultancy networks in the world. Launched in September 2011, Big Innovation Centre exists to build a global innovation hub by 2025, create great companies, and make the world more purposeful and inclusive through the enormous potential of technology, creativity and innovation.



Big Innovation Centre's technology and innovation consultancy brings together world leaders, regulators and executives of the world's biggest companies and key decision-makers to shape the future with Artificial Intelligence, Blockchain and digital transformation. Twice voted Think Tank of the Year, the Big Innovation Centre is the founding Secretariat of the UK All-Party Parliamentary Groups on Artificial Intelligence and Blockchain (APPG AI and APPG Blockchain) and is at the centre of mapping global and regulatory trends in these areas.

Big Innovation Centre is featured in the prestigious 2020 listing of 5 top Digital Transform Consulting/Service Companies in UK by CIO Applications Europe Magazine, and has received the Greater London Enterprise Award for its communication services. In 2021 the centre became an accredited by the Continuous Professional Development (CPD) standardisation body of the UK as professional training provider.

Values

Humane

We drive the ways that society will benefit from AI, Blockchain and digital transformation while managing the risks to social cohesion.

Transformational

AI, Blockchain and digital are changing the world and our network is at the forefront of shaping that transformation.

Sustainable

Our mission is to ensure that AI, Blockchain and digital advance the sustainability of our natural, social and cultural environments.

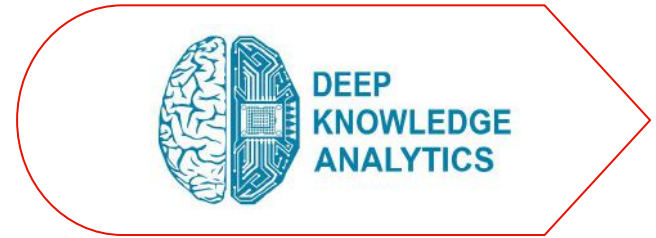
Expansive

We think big. The global benefits of AI, Blockchain and digital are endless. Wherever we find a limit to the benefits of these tech's, we find a way to push beyond.

Join our Blockchain and AI networks on our Pavilion <https://uk.bicpavilion.com/> | Website <https://biginnovationcentre.com/> | Twitter <https://twitter.com/BigInnovCentre>

About Deep Knowledge Analytics

Deep Knowledge Analytics is a DeepTech focused agency producing advanced analytics on DeepTech and frontier-technology industries using sophisticated multi-dimensional frameworks and algorithmic methods that combine hundreds of specially-designed and specifically-weighted metrics and parameters to deliver sophisticated market intelligence, pragmatic forecasting and tangible industry benchmarking.



It is an analytical subsidiary of Deep Knowledge Group, an international consortium of commercial and non-profit organizations focused on the synergetic convergence of DeepTech and Frontier Technologies (AI, Longevity, MedTech, FinTech, GovTech), applying progressive data-driven Invest-Tech solutions with a long-term strategic focus on AI in Healthcare, Longevity and Precision Health, and aiming to achieve positive impact through the support of progressive technologies for the benefit of humanity via scientific research, investment, entrepreneurship, analytics and philanthropy.

Deep Knowledge Analytics specialises in conducting special case studies and producing advanced industry analytical reports on the topics of Artificial Intelligence, GovTech, Blockchain, FinTech and Invest-Tech. It has produced a number of comprehensive analytical reports in coordination with the UK All-Parties Parliamentary Groups on AI and on Blockchain, including its AI in UK Landscape Overview 2018 and Blockchain in UK Landscape Overview 2018, unprecedented in their scope and length, and collectively more than 3,000 pages. The company has also recently deployed advanced interactive online IT-platforms that feature dynamic mind maps and filterable, customizable databases updated with new industry developments in real-time.

Deep Knowledge Analytics will continue to expand the scope, depth and topics covered by its analytical reports on frontier technology-driven industries, with the aim to develop the next iterations of their analytical frameworks with a wider breadth and depth of metrics and overall analytics, to apply efficient methods to cross-sector analysis between different industries, and to apply both existing and new analytical frameworks to the design of the new Invest-Tech solutions (novel investment technologies and strategies relevant for the third decade of the twenty-first century), which is the only relevant way to implement the long-term strategic vision of Deep Knowledge Ventures.

About Greengage

Greengage has been servicing the cryptoasset sector for over three years and are currently on the FCA temporary register for the Crypto MLR. Greengage are currently considering pursuing a banking licence which will allow them, once secured, to provide a full suite of classic products and services across fiat currencies (£, €, \$) and cryptoasset classes.



It is Greengage's mission to deliver merchant banking services to crypto-asset companies and SMEs – providing a robust digital banking platform using advanced technologies, facilitating cost-effective transactions within and across traditional currency and cryptoassets, by adhering to the highest established standards of compliance and security.

Since Greengage's incorporation in March 2018, the company has built an extensive network and market presence in the cryptoasset sector. To further build this network and to achieve initial revenues as Greengage builds the business, it is also currently undertaking the following unregulated activities, which it will continue to offer alongside the launch of bank:

- **Crypto lending introduction:** Greengage has several partners in the traditional financial services space which offer wholesale Business to Business "B2B" lending against crypto-asset exchange tokens. Greengage refers clients or contacts in its network to these institutions.
- **Crypto OTC:** Greengage introduces requests for crypto-asset exchange token trading.

About APPG Blockchain*

The APPG Blockchain functions as the permanent authoritative voice within UK Parliament on all Blockchain-related matters. The method of working is research, round tables, webinars, showcasing, and events.

The UK Blockchain Community (of business leaders, entrepreneurs, investors, academics, politicians, policymakers and civil society) brings evidence, use cases and future policy scenarios into the UK Parliament.

The aim of the All-Party Parliamentary Group on Blockchain (APPG Blockchain) is to ensure industry and society benefit from the full potential of Blockchain and other distributed ledger technologies (DLTs). Focus areas include:

BLOCKCHAIN READINESS

- Scalability & interoperability
- The Future of Trade Finance & Supply Chains
- Data and Network Governance
- DLT (Distributed Ledger Technology)
- Crypto Economy and Digital Assets
- Industry practices and emerging new routines
- Infrastructure development (physical and digital).
- Policy and regulation landscaping

INNOVATION AND IMPLEMENTATION

- Blockchain for National and Local Governments.
- Types of Blockchain for different purposes
- Supply chain optimisation
- Digital assets and Cryptocurrency
- Business models and e-commerce
- Smart contracts
- Fraud and security

POLICY AREAS

- Definitions and concepts.
- Governance (Data, Networks).
- Use-cases: Finance, Education, Supply chains, Industry, Public services, NGOs.
- The future of trade
- Data strategy



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*Selected sources are mentioned on the slide. Sources not seen here are visible at the bottom of slides that pertain to them



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Innovation Eye Disclaimer

“Blockchain Industry in the UK Landscape Overview 2021: Companies, Investors, Influencers and Trends” is produced by Innovation Eye (and powered by Big Innovation Centre, Deep Knowledge Analytics and Greengage). It presents a birds-eye overview of the fast-growing Blockchain ecosystem in the UK. This report is provided for informational purposes only. It is not to be construed as an offer to buy or sell, or a solicitation of an offer to buy or sell, any Blockchain solutions or to participate in any particular Blockchain standard or trading strategy in any jurisdiction.

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