DEEP KNOWLEDGE ANALYTICS

Scottish Enterprise

Blockchain in Scotland Landscape Overview

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Table of Contents and Introduction

"Blockchain Industry in Scotland Landscape Overview Q1 2023: Companies, Investors, Influencers and Trends", produced by Deep Knowledge Analytics on behalf of Scottish Enterprise, presents an updated and comprehensive overview of the entire Blockchain Industry Ecosystem in 32 Scottish council areas.

This Overview presents the first ecosystem map and landscaping analysis of Blockchain's economic opportunities for Scotland. It highlights how Scottish Blockchain initiatives can transform various tech sectors but also acknowledges existing obstacles, such as regulatory challenges or public awareness. The report categorises and profiles 60 distinct Blockchain-centric entities and examines 78 investors, 86 Blockchain Leaders in Scotland, and 33 Hubs, including R&D centers, Government initiatives, and Accelerators, etc.

The Blockchain in Scotland Ecosystem Framework developed by DKA encompasses a diverse range of sectors leveraging blockchain technology to create innovative and secure solutions and encourages collaboration and development within these sectors to foster growth in the Scottish Blockchain industry.

# Blockchain Industry Overview

History and Main Principles

Definition of Blockchain

What is Blockchain?

A blockchain is a digital ledger or database that is shared among a network of computers. It is designed to store information electronically in digital format and is best known for its use in cryptocurrencies such as Bitcoin. The innovative feature of a blockchain is that it allows for secure and decentralized record-keeping without the need for a trusted third party.

Unlike a typical database that structures data into tables, blockchain works by allowing digital information to be recorded and distributed across a network of computers in a decentralised manner. This information is stored in blocks that hold sets of data and are linked together through cryptography, forming a chain of data. New information is stored in the newly created blocks in the chain. The "decentralised" means users collectively control it without any single person or group having control. Blockchains are an ideal foundation for immutable ledgers or records of transactions because they are designed to be immutable, meaning that the data entered cannot be altered, deleted, or destroyed.

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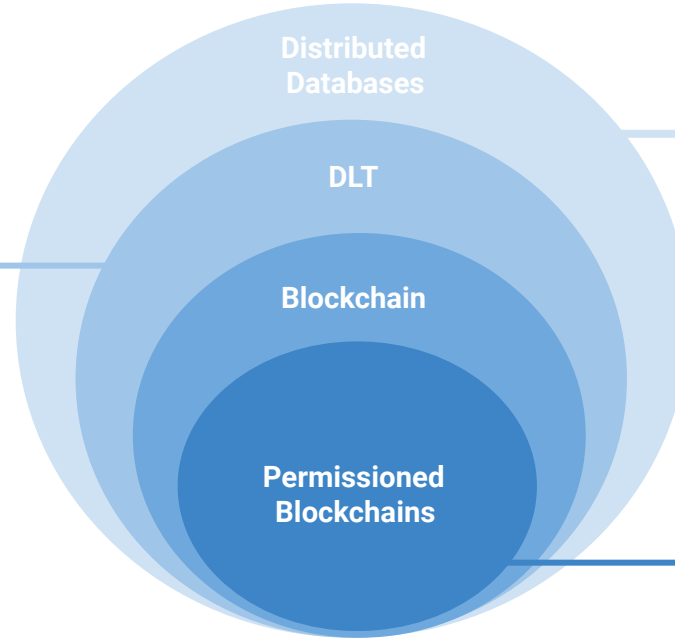
Distributed Databases

DLT

Blockchain

Permissioned Blockchains
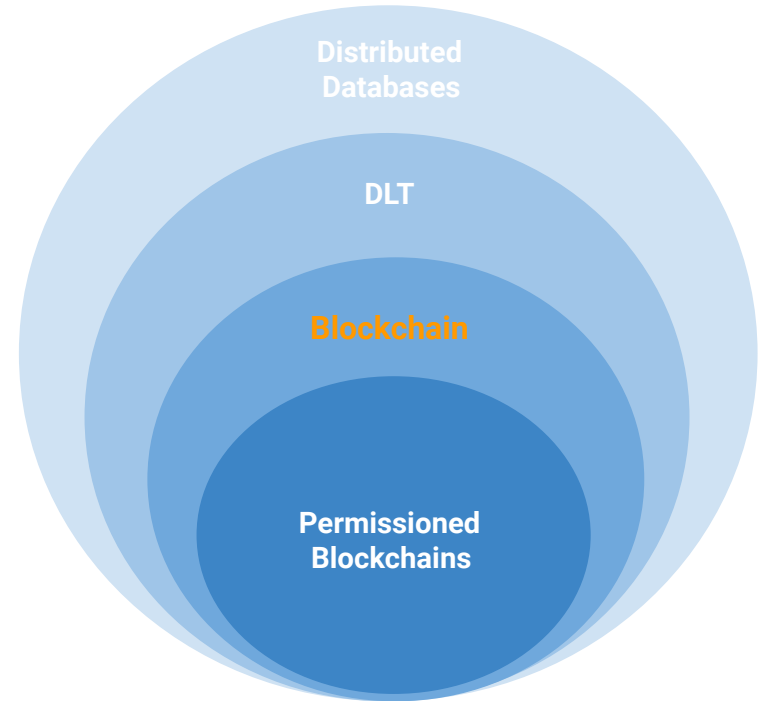
Distributed Ecosystem

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, Hadrea Hashgraph, etc.).

Distributed Databases

DLT

Blockchain

Permissioned Blockchains

Distributed Databases

A distributed database is a database that is stored and managed across a network of computers rather than in a single, centralised location. The key difference is that such databases mostly rely on a central authority or intermediary.

Permissioned Blockchains

Permissioned blockchains are a type of blockchain where access to the network and the ability to participate in the validation of transactions are restricted to a specific group of participants. These participants are typically known and identified.

The Advantages of Blockchain Technology

5 Common Features of Blockchains

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.
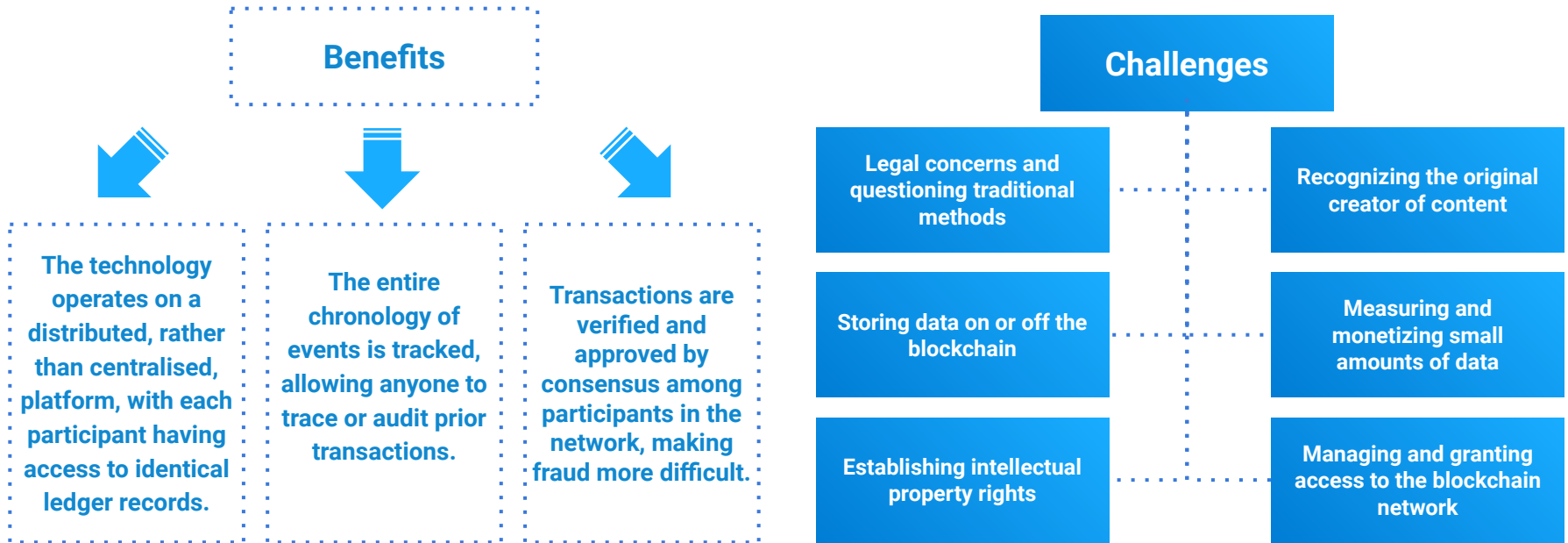
Distributed

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 transac-tions. The result is that the blockchain cannot be turned off by simply removing a single actor as can be done with centralised databases.
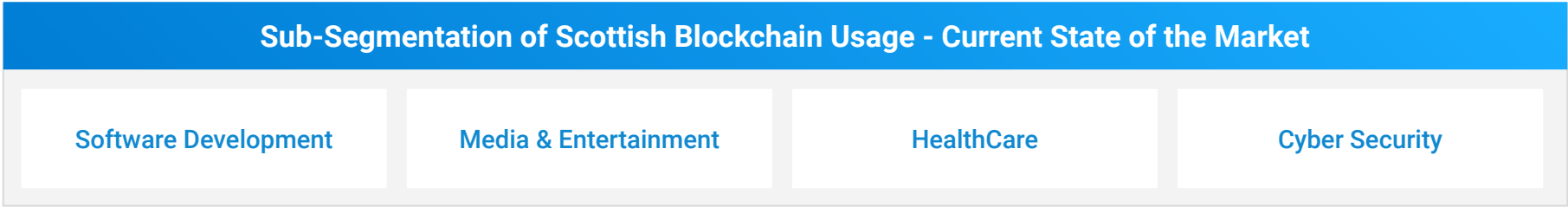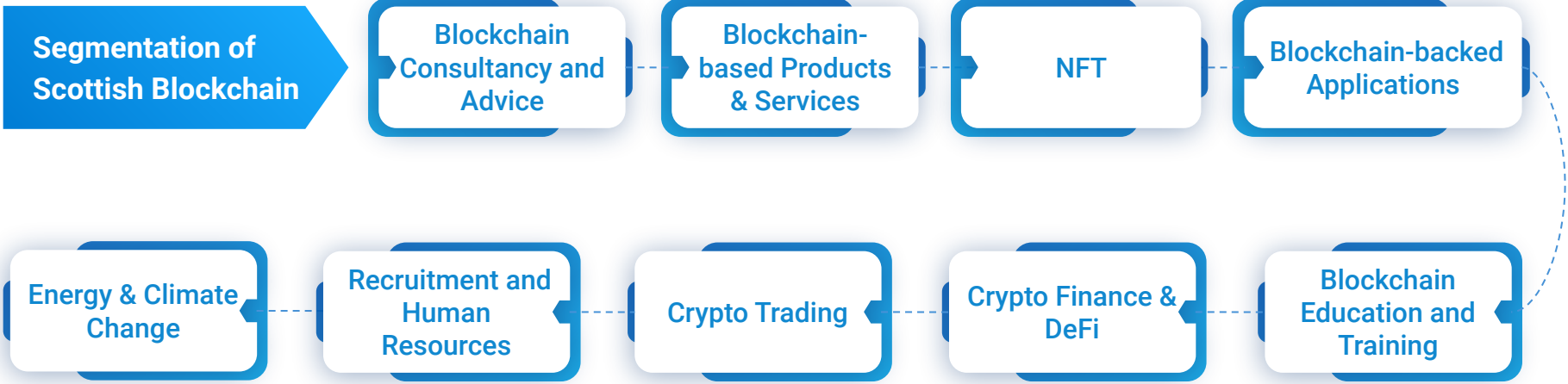
Immutability

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.

Source: Morioh, Lexology

The Benefits and Challenges of Blockchain

As blockchain technologies become more popular, bringing on their **benefits**, there arise multiple **challenges** to overcome for the significant increase of data-usage efficiency and overall quality of infrastructure. The most common challenges when talking about blockchain stem from the methodological and legal standpoint. With the industry itself being somewhat new and still in the process of self-defining. There is still a lack of fully-developed legislative and scientific backing for the sector. At the same time, it is apparent that both governmental and private entities are working towards rectifying these issues.

Benefits

The technology operates on a distributed, rather than centralised, platform, with each participant having access to identical ledger records.

The entire chronology of events is tracked, allowing anyone to trace or audit prior transactions.

Transactions are verified and approved by consensus among participants in the network, making fraud more difficult.

Challenges

Legal concerns and questioning traditional methods

Recognizing the original creator of content

Storing data on or off the blockchain

Measuring and monetizing small amounts of data

Establishing intellectual property rights

Managing and granting access to the blockchain network

Scotland Blockchain Industry Framework

Segmentation of Scottish Blockchain

Blockchain Consultancy and Advice

Blockchain-based Products & Services

NFT

Blockchain-backed Applications

Energy & Climate Change

Recruitment and Human Resources

Crypto Trading

Crypto Finance & DeFi

Blockchain Education and Training

Sub-Segmentation of Scottish Blockchain Usage - Current State of the Market

Software Development

Media & Entertainment

HealthCare

Cyber Security

Blockchain in Scotland Framework

Blockchain Consultancy and Advice

Entities that focus on business development and promotion for companies adopting blockchain technology. They also specialise in strategic and regulatory advice in the cryptocurrency industry.

Blockchain Education and Training

EdTech Innovators that develop secure and decentralised platforms for academic records and learning resources distribution. Blockchain-based solutions facilitating global collaboration between educators, students, and institutions

Crypto Trading

Crypto trading platforms and supportive solutions offer user-friendly interfaces, extensive charting tools, and diverse cryptocurrency support. They improve trading strategies with algorithmic trading, customisable bots, and risk management tools.

Recruitment and Human Resources

Blockchain can provide secure, transparent, and tamper-proof recording and sharing of HR-related data, such as employee credentials, performance records, and payroll information.

Blockchain-based Products & Services

Organisations use third parties to install, host, and maintain blockchain networks. BaaS lets non-blockchain industries use secure, transparent platforms, reducing costs and improving efficiency.

Crypto Finance & DeFi

Using blockchain technology, DeFi makes it possible to access traditional financial services such as borrowing, lending, trading, and insurance in a decentralised manner.

Energy & Climate Change

By offering energy cryptocurrencies, financing energy access, and consolidating record-keeping, blockchain enhances transparency, accelerates investment in sustainable projects, and simplifies compliance with climate change regulations.

Blockchain-backed Applications

This sector includes entities utilising blockchain's transparency, security, and immutability for innovative business and customer solutions, such as DeFi flash loans, which are not possible in traditional finance.

Blockchain in Scotland Framework

Software Development

Blockchain software development involves creating decentralised applications (dApps) that run on a blockchain network, writing and testing smart contracts, building and maintaining blockchain nodes, integrating blockchain technology into existing systems, and ensuring the security and proper functioning of the applications.

Cyber Security

- Cybersecurity in blockchain refers to the protection of blockchain networks and related digital assets from cyber threats such as hacking, ransomware attacks, and theft.
- It involves the use of various security measures such as encryption, digital signatures, and permissioned access to ensure the security and integrity of blockchain-based systems and applications.

HealthCare

- Longevity and healthcare in blockchain refer to the use of blockchain technology in the healthcare industry to improve patient outcomes, reduce healthcare costs, and enable secure and transparent patient data management.
- It involves the development of blockchain-based solutions for personalised treatment plans, drug development, clinical trials, and more efficient healthcare delivery.

NFT

- NFT (Non-Fungible Token) in blockchain refers to a unique digital asset that represents ownership of a specific digital asset or piece of content, such as artwork, music, or video.
- Each NFT is stored on a blockchain network, providing proof of ownership and authenticity and enabling secure and transparent transactions for the buying and selling digital assets.

Media & Entertainment

- Media and entertainment in blockchain refer to using blockchain technology in the media and entertainment industry to enable secure and transparent transactions, protect intellectual property rights, and facilitate more efficient content distribution.
- It involves the development of blockchain-based solutions for content creation, distribution, and consumption that can lead to a more fair and equitable system for creators, consumers, and distributors of content.

Blockchain in Scotland Ecosystem Mindmap

Blockchain Leading Companies - 60
Investors - 78
Scottish Blockchain Leaders - 86
Hubs - 33
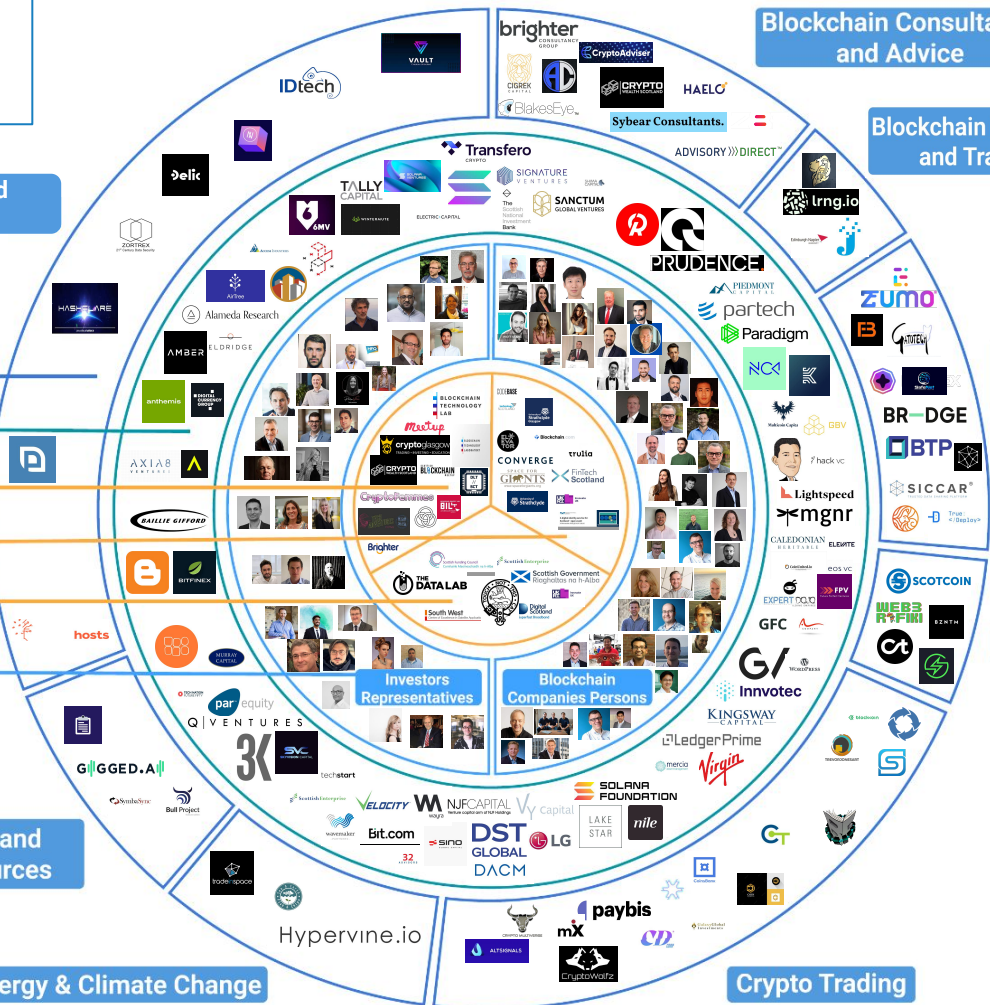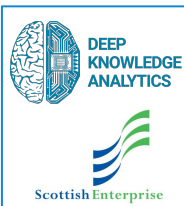**(R&D Centres, Government Initiatives, Accelerators)**

Blockchain Consultancy and Advice

Blockchain Education and Training

Blockchain-based Products and Services

Crypto Finance & DeFi

Crypto Trading

Energy & Climate Change

Recruitment and Human Resources

Blockchain-backed Applications

Companies
Investors
R&D Centres
Accelerators
Government Initiatives
Scottish Blockchain Leaders

Investors Representatives

Blockchain Companies Persons

Hypervine.io

Interactive Mindmap

Key Milestones of Blockchain Industry Development in Scotland

The number of registered blockchain companies in Scotland has reached almost 30, including the following ones: Galaxy Global Investments, Kubemake, and MaidSafe.

2010

On April 24, 2014, MaidSafe, a company focused on creating a decentralised and secure internet infrastructure, secured $6 million in funding through an equity crowdfunding round.

2014

In early 2016, the Scottish government committed to accelerate trials of digital voting.

2016

2011

The Scottish government acknowledged the potential of blockchain technology in their report titled "Scotland's Digital Future: A Strategy for Scotland"
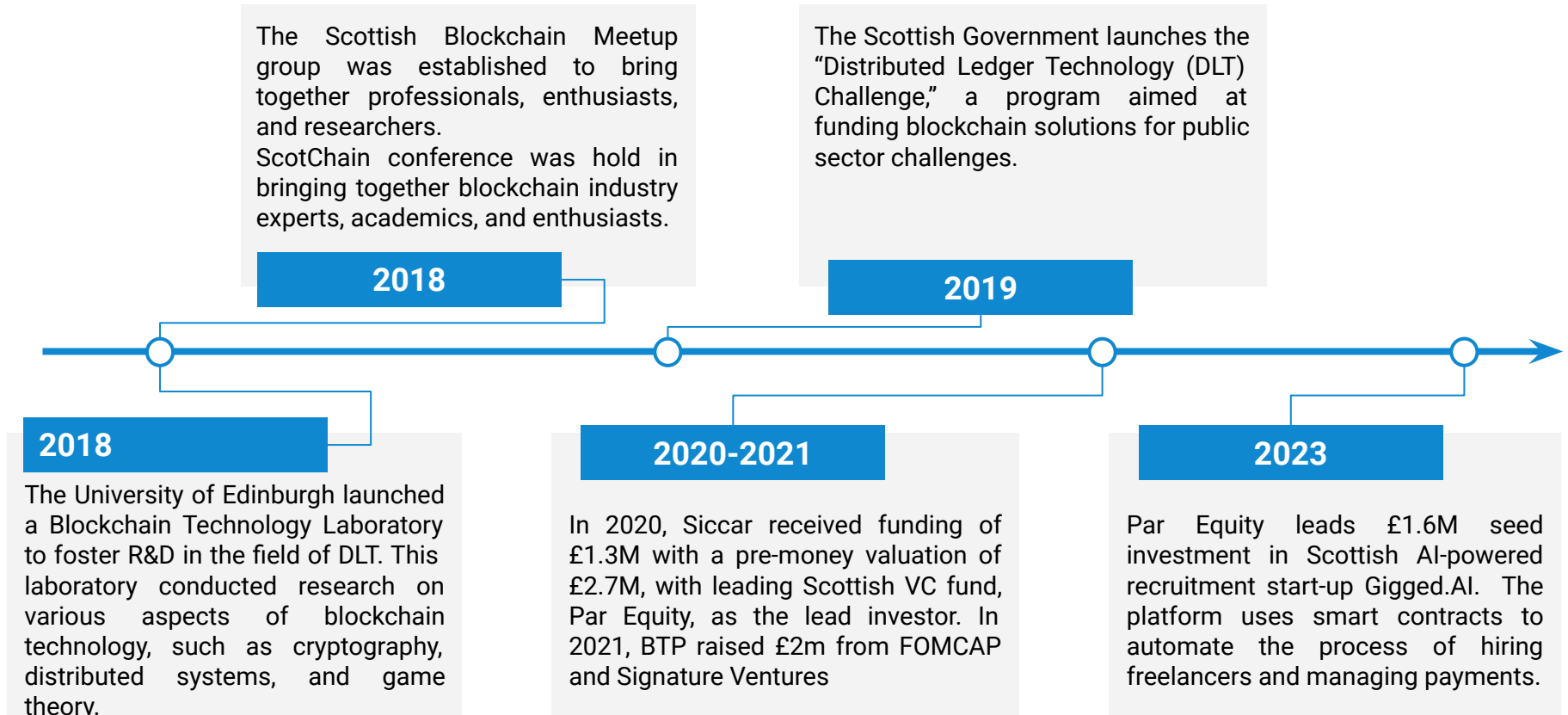
2016

The University of Edinburgh becomes the first university in Scotland to offer a course on blockchain technology.

2016

Edinburgh Napier University is building a pioneering new research lab to explore ways in which blockchain technology can protect personal data from online scammers and hackers.

Source: Pitchbook data, Crunchbase

Key Milestones of Blockchain Industry Development in Scotland

The Scottish Blockchain Meetup group was established to bring together professionals, enthusiasts, and researchers.
ScotChain conference was hold in bringing together blockchain industry experts, academics, and enthusiasts.

2018

The Scottish Government launches the "Distributed Ledger Technology (DLT) Challenge," a program aimed at funding blockchain solutions for public sector challenges.

2019

2018

The University of Edinburgh launched a Blockchain Technology Laboratory to foster R&D in the field of DLT. This laboratory conducted research on various aspects of blockchain technology, such as cryptography, distributed systems, and game theory.

2020-2021

In 2020, Siccar received funding of £1.3M with a pre-money valuation of £2.7M, with leading Scottish VC fund, Par Equity, as the lead investor. In 2021, BTP raised £2m from FOMCAP and Signature Ventures

2023

Par Equity leads £1.6M seed investment in Scottish AI-powered recruitment start-up Gigged.AI. The platform uses smart contracts to automate the process of hiring freelancers and managing payments.

Blockchain in Scotland Landscape Overview

Market Dynamics

Scottish Blockchain Companies - Regional Distribution

Blockchain Companies Incorporated in Scotland

Argyll
(Helensburgh)
2

Ayrshire
(Inverclyde)
2

Glasgow
(Glasgow City)
14

Central Belt
6

Aberdeen
(Aberdeen City)
5

Edinburgh
(City of Edinburgh)
29
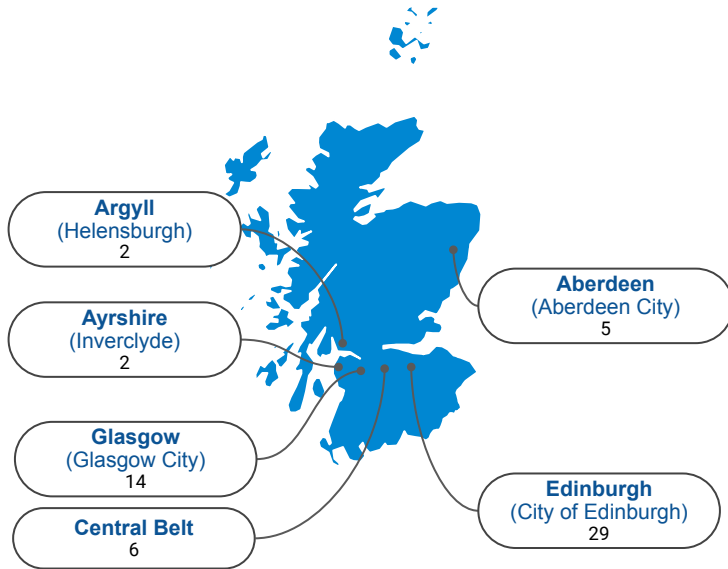
Blockchain Industry in Scotland Potential

Blockchain's safe and trustworthy data allows for innovative data use. Instant communication transformed the economy, and fully secure transmission has substantial economic, social, and societal benefits. Deep Knowledge Analytics (DKA) believes the Scottish economy is ready to adopt Blockchain and reap its many benefits. **Blockchain technology can contribute £4.48 billion to Scotland's GDP by 2030*.** Worldwide, **Blockchain is expected to generate $1.2trn to the global economy by 2030*.**

Deep Knowledge Analytics promotes the widespread adoption of blockchain solutions to help Scottish society. Socially accountable supply chain activities, user-friendly healthcare systems, and lower data exchange and intermediary financial costs can boost national wealth.

Most Blockchain companies are located in Edinburgh, accounting for 29 companies, which is almost half of the total number of companies. Glasgow comes next with 14 companies, followed by Central Belt and then Aberdeen.

Source: Statista, * "Time for trust" report of PWC (2020)

Blockchain in Scotland: Leading Companies

Blockchain-backed Applications

Delic · ZORTREX 21st Century Data Security · HASHFLARE · IDtech · hosts · VAULT

Crypto Trading

paybis · COIN · CoinsBank · blockcoin · mX · RYPTO MULTIVERS · CD CORP · CryptoWolfz · GalaxyGlobal Investments · ALTSIGNALS

Blockchain-based Products and Services

GATOTECH · BR—DGE · BTP · SafeNet · SICCAR TRUSTED DATA SHARING PLATFORM · Zumo · True: </Deploy> · BETDEX

Energy & Climate Change

tradeinspace · Hypervine.io

Recruitment and Human Resources

Bull Project · GIGGED.A · SymbaSync

Crypto Finance & DeFi

SCOTCOIN · WEB3 R1FIKI · Ct · BZNTM

NFT

TREVORJONESART

Blockchain Education and Training

Edinburgh Napier UNIVERSITY · lrng.io · J

Blockchain Consultancy and Advice

brighter CONSULTANCY GROUP · CryptoAdviser · Z3P · CIGREK CAPITAL · BlakesEye · ADVISORY DIRECT · HAELO · Sybear Consultants.

Source: Nasdaq, DeFiLlama, gov.scot, Crunchbase, DKA data
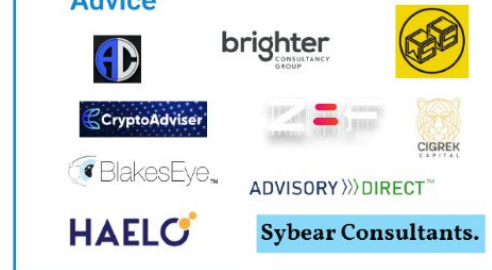
Blockchain in Scotland Sectoral Distribution

Distribution of Sectors by Number of Companies

Using blockchain to DNPS* 15.0%
Human Resources 6.7%
Energy & Climate Change 5.0%
Crypto Trading 26.7%

Blockchain consultancy and advice 16.7%
BlockChain-as-a-service model 16.7%
Blockhain education 5.0%
Crypto Finance & DeFi 8.3%
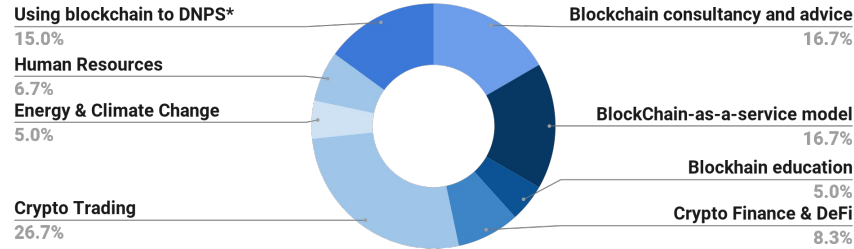
*- develop new products and services

The sectoral distribution of the Blockchain entities established in Scotland shows that the largest percentage (26.7%) is dedicated to companies focused on Crypto Trading. The second-largest percentage (16.7%) is split between blockchain consultancy and advice and blockchain-as-a-service model. Despite the leading crypto trading position, smaller segments are still majority, indicating diversification of blockchain technology in Scotland.

Cumulative Number of Established Companies

Legend: Number of Companies Established in the Year (grey) / Number of Companies Established by Year (blue)

Year	Established by Year	Established in the Year
2010	13	1
2011	14	1
2012	15	1
2013	18	3
2014	21	3
2015	24	3
2016	30	5
2017	37	8
2018	44	7
2019	47	3
2020	50	3
2021	61	11
2022	67	6
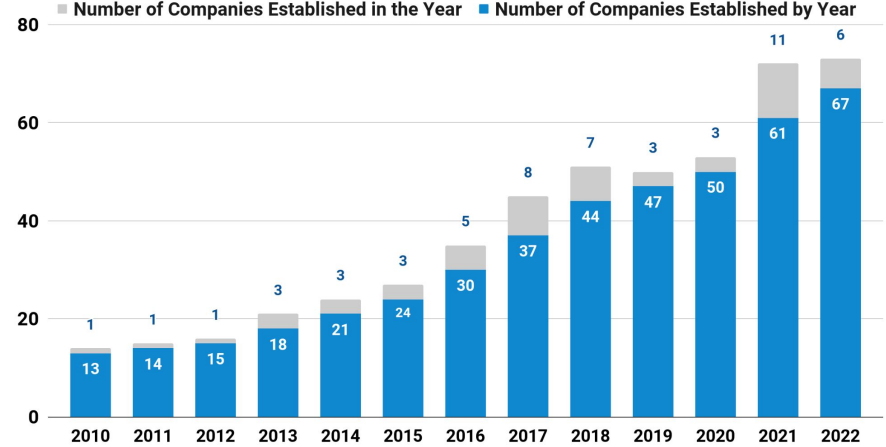
The data presented in the graph above demonstrates a consistent growth trend in the number of blockchain companies being established in Scottish areas. Starting with 13 companies in 2010, we see a steady increase in new establishments until reaching a peak of 11 new companies in 2021. While there was a slight decrease to 6 new companies in 2022, the overall trend suggests a healthy and expanding industry.

By focusing on the development of blockchain infrastructure, products and services for various industries, the Scottish-born companies offer a sustainable growth trajectory that is less vulnerable to market hype and cryptocurrency volatility.

Blockchain Private Investment Market Dynamics

Global Crypto and Blockchain VC & PE Funding Amount by Years
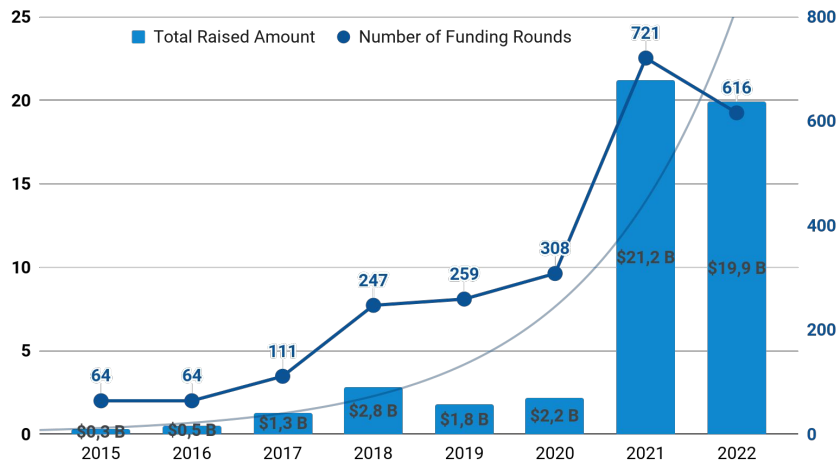
The amount of capital invested in crypto technologies is trending upwards with 2021 being a breakout year in the industry, reaching $21.2 billion in invested capital. The overall investment trend correlates with increased funding in blockchain and crypto technologies in the different sectors of the global economy in 2021-2022. The global blockchain technology market size is expected to reach $1.2 trillion by 2030, growing at a CAGR of 87.7% from 2023 to 2030.

Total Funding Amount and Number of Funding Rounds in the Scottish Blockchain Ecosystem
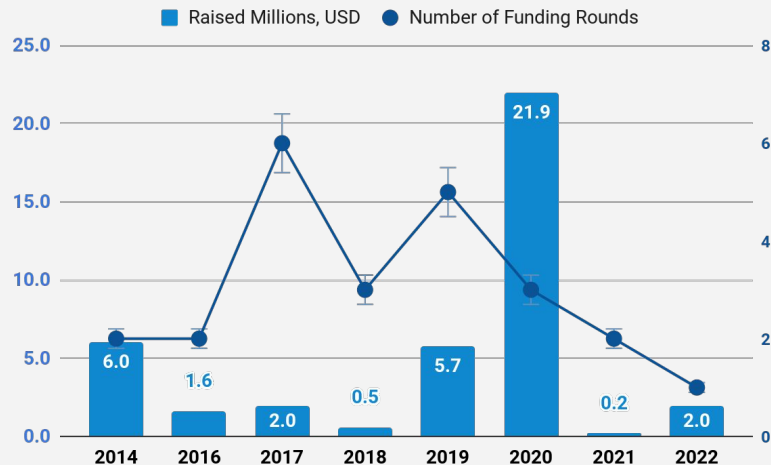
The bar chart above shows the 24 disclosed funding rounds within the Scottish blockchain ecosystem. The **median funding round** for a company within the Scottish blockchain ecosystem is **$2 million.** Since 2014 the total number of **$39.9 million** has been raised by 9 companies from the Scottish Blockchain Ecosystem (only disclosed deals are taken into account).

Source: Grand View Research, Pitchbook data, Blockchain in Longevity Industry Report

Blockchain in Scotland Landscape

Overview of the Segments

Overview of Scottish Companies Using Blockchain-backed Applications

Use Cases of Using blockchain to DNPS

Secure Identity Verification	Decentralized Cloud Storage
Advertising Network Tokenization	Supply Chain Management
Decentralized Hosting Services	Real-time Data Analytics

Scotland is home to a growing number of companies that are using blockchain technology to develop new solutions, referring to the process of leveraging the unique features of blockchain to create innovative solutions, offerings, or enhancements across various industries, from finance and healthcare to supply chain management and energy. According to the research by Deep Knowledge Analytics, most Scottish companies from the "Blockchain Backed Applications" sector belong to **Software Development** sub-segment (28.6%), which indicates a higher level of technology adoption across the market. Software Development sub-segment is followed by **Media & Entertainment, Crypto Finance**, and **Cyber Security** sectors in equal proportion (all 19%).

Company	Short info	Subsector	Money Raised, million USD	Lead Investors
TrueDeploy	Securing the software supply chain by using a novel blockchain innovation.	CyberSec	$91K	Scottish Enterprise
Onboard-ID	A technology company that specialises in identity verification and management solutions. - CyberSec	CyberSec	Undisclosed (Grant)	Onboard.ID is funded by the University of Edinburgh
Delic	Delic is the new operating system for the Music Business. Asset and rights management platform using digital and blockchain technologies.	Media & Entertainment	$0.8M	EXPERT DOJO, Velocity Capital Advisors, Innvotec

Overview of Blockchain-based Products and Services model

Use Cases of Using blockchain in BlockChain-as-a-service model

- Decentralized Internet Infrastructure
- Secure Data Sharing and Collaboration
- Asset Tokenization and Management
- Cryptocurrency Wallet and Exchange Services
- Cross-chain Interoperability
- Decentralized Betting Platform

Blockchain-based Products and Services business model describes the process through which third parties install, host, and maintain a Blockchain network on behalf of organisations. The service provider offers the setting up of Blockchain infrastructure and technology in return for fees. BaaS functions like a sort of web host, running the back-end operation for a blockchain-based app or platform. It eliminates the need for an enterprise to set up blockchain infrastructure by itself. BaaS can significantly leverage other non-blockchain industries by providing them with a secure and transparent platform for their transactions. It can help industries such as Software Development, Finance, Cyber Security, Media & Entertainment and more to reduce costs, increase efficiency, and improve transparency.

Company	Subsector	Short info	Blockchain	Money Raised, million USD	Lead Investors
BetDEX	Media & Entertainment	BetDEX is a decentralised sports betting platform that operates on the Solana blockchain and the Monaco Protocol.	BetDEX is a permissionless protocol, allowing anyone to build their own applications on top of it. BetDEX could also be used for a wide range of applications on the Solana blockchain.	$21M	FTX, Solana, Lightspeed Venture Partners, Hack VC, 6th Man Ventures
BTP	Blockchain-based Products & Services	Founded in 2018, and backed by FOMCAP and Signature Ventures, BTP is a digital provenance company, with a mission to make assets trustworthy. BTP is the company behind Chronicle, a product that allows organisations to record and query immutable provenance information on a distributed ledger, about any asset, in any domain	Sextant by BTP is a Kubernetes-native blockchain management and operations platform that facilitates the deployment of a digital provenance solution, Chronicle, as well as its integration with enterprise systems	$2.6M	Force Over Mass Capital, Signature Ventures, Martin Gilbert, Andrew Laing

Overview of Scottish Companies in Crypto Finance and DeFi

Use Cases of Blockchain in Crypto Finance and DeFi

- Decentralised Exchanges
- Lending and Borrowing Platforms
- Tokenization of Real-World Assets
- Yield Farming
- Decentralised Asset Management
- Access to Derivatives

Decentralised Finance is possible and efficient with the use of Blockchain

Decentralised Finance (DeFi) gains traction globally, offering financial services via distributed ledger technology outside traditional centralised banking. However, Scotland's DeFi regulatory landscape remains uncertain. Decentralised exchanges (DEXs) enable crypto trading without intermediaries, while stablecoins are pegged to real-world assets. Automated Market Makers (AMMs) facilitate decentralised crypto trading, and yield farming lets users earn interest by providing liquidity. Blockchain-based DeFi platforms enhance efficiency and transparency in lending and borrowing.

Company	Short info	Blockchain	Money Raised, million USD	Lead Investors
Byzantium	Byzantium is a boutique agency dedicated to business development and promotion for companies upgrading to or implementing blockchain technology.	Byzantium operates as Immersive marketing, PR, and consulting service provider, Fundraising aggregator.	Undisclosed	BYZANTIUM RENAISSANCE LP
StrongHands	StrongHands provides a platform for trading cryptocurrency. The StrongHands Community registered in Scotland a hybrid exchange called StrongHands Exchange (SHNDX) in may 2020.	In addition to their NFT marketplace, StrongHands is also developing a DeFi ecosystem that allows users to access financial services such as lending and borrowing in a decentralised manner.	$2M	Undisclosed

Overview of Scottish Companies in Energy & Climate Change

Use Cases of Blockchain in Energy Sector

Peer-to-Peer Energy Trading	Financing Energy Access
Energy Cryptocurrencies	Streamlining Access to Renewable Energy
Wholesale Trading through Mini-Grids	Record Storing in One Place

Energy security is a perennial cross-party concern, and has been a recurring theme in the governing party's case for Scottish independence.

Blockchain technology can enable innovation in the energy sector by creating new energy trading and financing models using smart contracts and automated protocols, potentially incentivizing energy conservation.

Peer-to-peer (P2P) electricity distribution with smart meters on a decentralised network allows users to buy energy directly from the grid. Additionally, blockchain-supported electrical grid management offers an interoperable platform for automated transactions, speeding up **Distributed Electricity Generation (DER)** integration, strengthening the grid, and lowering consumer costs.

Company	Short info	Blockchain
Hypervine	Hypervine is a tool for tracking people, materials, machines and carbon emissions on construction and mining sites.	Hypervine uses blockchain technology to improve the efficiency and transparency of the mining and construction industries.
SEA	Blockchain-based environmental data ecosystem	Sustainable Earth Alliance (SEA) is a blockchain project that funds ocean conservation and creates a global environmental data network on the Algorand blockchain. BSC and VSEA are the project's main tokens.

Overview of Scottish Companies in Recruitment and Human Resources

Use Cases of Blockchain in HR Sector

- Streamline the hiring process
- Self-Sovereign Identities
- Fast and secure payments
- Smart contracts

Blockchain is improving the security and efficiency of Recruitment and HR

Blockchain has potential to revolutionise HR management with tamper-proof digital ledgers for verifying employee credentials, improving transparency and security of data, while also possibly boosting efficiency and streamlining the processes. Scottish startups utilise this innovation with services such as verified CVs and decentralised hiring platforms. Adoption of blockchain in HR can benefit Scottish businesses with increased efficiency and transparency in workforce operations.

Company	Short info	Blockchain	Money Raised, million USD	Lead Investors
Gigged.AI	Gigged.AI is a AI-driven talent platform for quickly recruiting tech talent.	The platform uses AI-driven blockchain technology to create secure and transparent records of candidate qualifications, experience, and work history. Gigged.AI also uses smart contracts to automate the recruitment process, saving time and reducing the risk of errors.	$3M	Scottish Enterprise, Par Equity, Techstart Ventures, Nile HQ, The Sustainable Innovation Fund
SymbaSync	SymbaSync creates instant access to up-to-date employee skills and interests to source for temporary and permanent project teams.	SymbaSync uses blockchain to create instant access to up-to-date employee skills and interests to source for temporary and permanent project teams. The platform allows employees to create a secure, self-sovereign identity on the blockchain, which stores their skills, experience, and interests.	0.41K	NCA, Bootstrapped Debt Financing
Bull Project	Bull Project helps companies to recruit, hire, manage and pay salaries in Cryptocurrencies to distributed teams using Web3 and Blockchain technologies.	Bull Project allows companies to pay salaries in cryptocurrencies to their distributed teams. This is possible through blockchain technologies and web3 interfaces, which enable the secure and transparent transfer of funds.	$0.43M	Undisclosed
All Crypto Jobs	Every single crypto job aggregated to one simple feed.	A platform could potentially save job seekers time and effort by providing a centralized location for job opportunities in the crypto industry	$0.3M	Undisclosed

Source: The Switch, Forbes, The Engineer, Mondaq, BHESCo, The PHA Group

Overview of Scottish Companies in Blockchain Consultancy and Advice

Use Cases of Blockchain in Consultancy and Advice

Smart Contracts

Secure Record-Keeping

Digital Signatures

Payment Processing

Strategic Consultancy and Advice
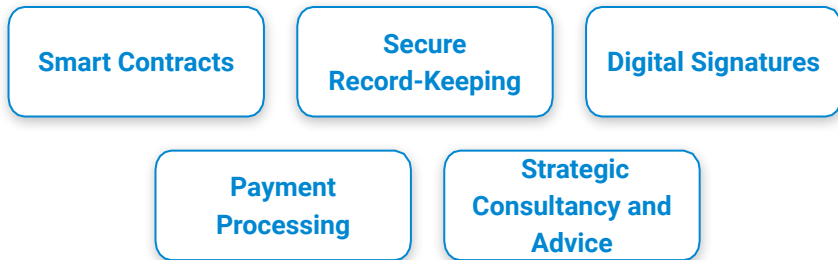
The number of of Blockchain Consultancy companies is increasing

Blockchain consultancy services in Scotland offer expert advice and support on investing in this innovative field to unlock its full potential. There are also training programs and workshops to educate individuals and teams on the fundamentals of blockchain technology and how it can be applied in various industries. With their in-depth knowledge and experience, blockchain consultancy services in Scotland are playing a key role in driving the adoption and integration of blockchain technology across different sectors, ultimately leading to greater innovation and growth in the Scottish economy.

Company	Short info	Blockchain
Cigrek Capital	Cigrek Capital provides investment, lending, funding, cryptocurrency, financial, and asset management services.	The company's cryptocurrency solutions allow clients to trade and invest in digital assets in a secure and reliable manner.The platf
Brighter Consultancy	Brighter Consultancy is a management consulting firm providing business consulting and advisory services for business transformation.	Brighter provide software solutions that utilize blockchain technology to help drive change and support business growth for their clients.
Crypto Wealth Scotland	Crypto Wealth Scotland is an educational platform	Crypto Wealth Scotland is good at empowering individuals with unbiased and accurate information about cryptocurrencies and blockchain technology.

Overview of Scottish Companies in Blockchain Education

Use Cases of Blockchain in the Education Sector

Financing Education

Copyright Protection

Record-Keeping

E-Transcripts

Decentralisation of the Institution

Blockchain in Education: Enhancing Security, Efficiency, and Transparency

Blockchain in education offers tamper-proof digital records for qualifications, streamlining storage, sharing, and transfer of academic credentials while preventing fraud. It improves data management with a secure, decentralized database for educational records. Decentralised learning platforms enable peer-to-peer learning and credentialing, fostering a flexible, merit-based system. Additionally, blockchain allows institutions to track funding sources transparently, ensuring effective resource allocation.

Company	Short info	Blockchain
Bitcoin College	**Scottish-based financial education provider.**	**A company that offers cryptocurrency and blockchain-related courses and training programs.**
Jump Digital	**Online education provider concentrating on emerging technologies.**	**Offers a Business Blockchain Certificate, in association with Edinburgh Business School: learning key concepts, use cases, corporate strategy and value innovation modelling.**

Overview of Scottish Companies in Media & Entertainment

Use Cases of Blockchain in Media & Entertainment

- **Facilitating Fan Engagement**
- **Digital Rights Management**
- **Tokenization of Art-related Assets**
- **Crypto News Aggregation**
- **Smart Contracts Empower Greater Collaboration within the Industry**

Revolutionising Media & Entertainment: Unleashing the Power of Blockchain

Blockchain technology holds great potential to transform the Media and Entertainment Industry, with companies like Delic, Blockchain Comics, and Dopamine Games Limited from Scotland poised to capitalize on this trend. Platforms like Delic's and VAULT's offer new revenue streams, while BetDEX's decentralised sports betting attracts users and benefits content creators. Blockchain enhances fan engagement via tokenization, improves advertising transparency, and supports decentralised social networks. These applications revolutionise content creation, distribution, and consumption, empowering creators, streamlining processes, and promoting transparency.

Company	Short info	Blockchain
Dopamine Games Limited	Dopamine Games Limited is a games development studio based in Scotland that aims to create a new virtual Universe MMO experience.	By combining deep development experience and partnerships in procedural generation, artificial intelligence and blockchain technologies, Dopamine aims to generate new and exciting content.
Blockchain Comics Ltd	The purpose of Blockchain Comics is to empower the community to take ownership of a unique comic series by publishing both digitally and physically through their decentralized publishing portal.	Blockchain Comics started with the idea of a comic book being created on the blockchain, which could be a parody of the invention of blockchain technology.

Source: The Switch, Forbes, The Engineer, Mondaq, BHESCo, The PHA Group

Blockchain in Scotland Landscape

Case Studies

Cyber Security Sector Case Studies

Founded: 2021
Headquarters: Edinburgh
Employees: 2-10

Founded: 2020
Headquarters: Edinburgh
Employees: 2-10

Securing the software supply chain by using a novel blockchain innovation.

Onboard-ID is a technology company that specialises in identity verification and management solutions

TrueDeploy focuses on securing the software supply chain in the field of cybersecurity . It addresses the security challenges faced in the software supply chain, especially in relation to open-source software and the interconnectedness of software between organizations. The project aims to enhance digital trust and strengthen the security of software development, supply, and deployment processes.

The project has received additional support from Scottish Enterprise. TrueDeploy is associated with the School of Computing, Engineering & the Built Environment (SCEBE) at Edinburgh Napier University. The project involves innovative techniques and technologies, including the use of blockchain

Onboard-ID's proprietary technology verifies users' identities using a range of biometric and document verification methods. This includes facial recognition, document scanning, and data analysis, all in real-time. The company's solutions are highly scalable and customizable, making it ideal for businesses of all sizes across various industries. Their team of experts includes experienced professionals in AI, cybersecurity, and identity verification.

The company is committed to providing world-class customer service and support, working closely with clients to understand their unique needs and provide customized solutions that meet their specific requirements. With Onboard-ID's solutions, businesses can reduce the risk of fraud, streamline their identity verification process, and enhance customer experience.

Media and Entertainment Sector Case Studies

BETDEX

Founded: 2021
Headquarters: Glasgow, Edinburgh and New York
Employees: 11-50

Delic

Founded: 2013
Headquarters: Edinburgh
Employees: 11-50

BetDEX is a decentralised sports betting platform that operates on the Solana blockchain and the Monaco Protocol.

Delic is an asset and rights management platform for music business using digital and blockchain technologies.

The company's platform is designed to enable sports betting operators to offer their customers an unparalleled betting experience, with real-time odds and highly accurate predictions on a wide range of sports and events. The platform's algorithms are constantly evolving to provide the most up-to-date and reliable data, making it the ideal solution for sportsbooks and betting operators looking to stay ahead of the curve.

In addition to its platform, BetDex also offers a range of professional services, including data analysis, risk management, and consulting, to help sports betting operators optimise their operations and maximize profits. The company's team of experienced professionals is dedicated to providing the highest level of service and support to its clients.

Delic's platform provides users with a fair, smart, and efficient release management solution. The platform will allow music creators to take full ownership of their catalogues, from stems to sync and remixes, in one fully integrated and scalable hub. With its progressive asset and rights management services, Delic provides a transparent and real-time accountability process for assets and funding. Delic's vision is to optimize the management of music catalogues, making it an enlightening and efficient process.

The company is poised for success, with Velocity EIS Technology Fund bringing significant experience in growing businesses and a strong understanding of the music sector. Delic is the new operating system for the music business, and with its solution, it will become the new digital hub for the music industry.

Crypto Trading Sector Case Study

CoinsBank

Founded: 2016
Headquarters: Edinburgh
Employees: 11-50

Cryptex

Founded: 2016
Headquarters: Edinburgh
Employees: 11-50

Coinsbank is a financial institution, as well as a secure online platform for buying, selling, transferring, and storing cryptocurrencies.

Cryptex Exchange is Privacy-First Crypto Trading Platform.

As with most cryptocurrency exchange platforms, CoinsBank's platform is their very own web-based trading platform that's compatible across all desktop computers and mobile devices. The platform's interface is very simple and easy to use which is enticing for beginner traders. The exchanges platform has a strong emphasis on user experience which is evident through the intuitive design and feasibility.

Traders can easily manage orders and monitor real-time exchange data. As well, the charting package offered by CoinsBank is very nice. Traders have access to sophisticated charts, complete with a number of technical indicators and charting and analysis tools. Also, traders can trade safer by setting stop losses and take profits orders.

Cryptex is a privacy-first crypto exchange that provides a secure and anonymous platform for buying and selling cryptocurrency. With Cryptex, users can easily convert their digital assets into cash in over 10 countries and 150 cities worldwide, making it an ideal solution for those seeking to trade in cryptocurrency without the hassle of traditional financial institutions.

One of the core competencies of Cryptex is its fiat trading service. Customers can exchange between Perfect Money and Advcash, as well as currencies like US dollars, USDT, and BTC, all for free. Depositing money from Perfect Money or Advcash is also free, with only minimal fees charged. Security is another priority for Cryptex. They offer various authentication methods that customers can combine according to their preferences.

HR on Blockchain Sector Case Study

GIGGED.AI

Founded: 2020
Headquarters: Glasgow
Employees: 11-50

Bull Project

Founded: 2020
Headquarters: Edinburgh
Employees: 51-200

Gigged.AI is a Talent Platform that connects companies with expert tech talent through our AI-driven internal and open talent marketplace software.

Bull Project is a Web3 platform to recruit, hire, manage and pay remote workers in a fully decentralised way.

In July 2021, the company launched its Open Talent Marketplace that utilizes the power of Artificial Intelligence to help hiring companies create outcome-based SOW and then efficiently match them with a rapidly growing community of highly skilled tech freelancers to complete project work. The platform's technology enables companies to save time and money while ensuring that their projects are completed by the most qualified professionals.

In addition to its Open Talent Marketplace, Gigged.AI's Internal Talent Marketplace provides a unique opportunity for larger companies to achieve internal talent mobility by effectively matching internal talent to projects before hiring externally. This helps companies to maximize their internal resources and reduce external hiring costs.

Bull Project is a company that strives to help other businesses recruit, hire, manage, and pay salaries to remote teams in cryptocurrencies. Their mission is to provide scalable business process outsourcing services for startups by building and managing remote teams from Latin America. It is possible by leveraging blockchain technologies and web3 interfaces to create a fully decentralized platform that allows companies to select candidates, onboard remote workers, and pay all their collaborators with ease.

By reducing management and operating costs for businesses, Bull Project aims to enable more companies to embrace the remote work model. They offer a single monthly invoice that makes it easier for businesses to manage their finances.

Blockchain Application in Energy Case Study

Local energy trading using blockchain is now live in **the Orkney islands** off the coast of **Scotland**. The project is led by UK entech company, London-based **Electron**. Over 1,100 trades have taken place at the time of writing since the end of March, 2020. Project TraDER supported by the UK Department for Business, Energy & Industrial Strategy (BEIS) aims to deliver a marketplace for multiple energy services in the renewable sector.

ELECTRON

Decentralised architecture
Electron's core platform can be thought of as a decentralised micro-services architecture that enables many different parties to host data sets and stand-up markets and/or services across a shared set of functions and rules.

API Connection
The Platform can interact with many different types of connected asset as long as they are controlled. Integration with these internet of things (IoT) systems only requires communication through our available APIs and enrollment on the blockchain-based asset register

Energy Trading Platform
Issues addressed by the platform include the development of digital solutions for island grids and the integration of local heating networks, electric vehicles and the electricity grid into a single controllable system. TraDER builds on both these foundational developments as well as those by Electron in its earlier projects.

Collaborative Approach
Project TraDER is a £3 million project in partnership with EDF, Scottish and Southern Electricity Networks, Kaluza (OVO Group) and others running from July 2019 to March 2021.

Crypto Finance and DeFi Sector Case Study

Founded: 2017
Headquarters: Edinburgh, Scotland
Employees: 1-10

Byzantium is an end-to-end fundraising services provider.

Byzantium is a marketing and fundraising provider with first-hand expertise gained since the crypto industry inception, significant trust within the community, and profound understanding of both the crypto market and its actors.

Byzantium an all-star team of blockchain practitioners, each with immense background in either business development, investment, marketing, PR or consulting.

Byzantium is a community of people and businesses ideologically involved in the development of cryptocurrencies and blockchain, decentralisation of outdated institutes and business models, and mass adoption of the new technological wonder.

Decentralised finance, or DeFi, is a fast-growing sector of the blockchain industry that aims to provide financial services without intermediaries. DeFi applications use smart contracts to execute transactions, offer lending and borrowing platforms, enable trading and investing, and create new digital assets. There are many examples of DeFi projects that are using blockchain technology for social good, such as providing access to financial inclusion, education and healthcare.

BWEB3 RAFIKI LTD was founded in 2022 by Natalie Kloc. The company from Dunfermline, Scotland provides blockchain development services, such as smart contract development, DApps, and ICOs. Its mission is to spread awareness of tech solutions to friends in Africa and connect impact-driven marketers and SMEs.

Blockchain in Scotland - Leaders

Top Scottish Blockchain Companies, Investment and
Academia Leaders: Profiling

Scottish Blockchain Companies Leaders

Chief Product & Technology Officer & Co-Founder - BTP: London	Co Founder & CEO - Zumo: London	M.D. - Siccar: Edinburgh, Lothian
Kevin is co-founder of Chill Code, a platform that allows designing and deploying software infrastructure asocial activity (GitHub for infrastructure). Previously, Kevin worked at JPMorgan (Vice President). BTP provides blockchain solutions, streamlining deployment and management of DLT with one-click deployment.. Notable clients include the Tel Aviv Stock Exchange.	Nick is a veteran of the tech start-up scene, having teamed up with fellow entrepreneur Paul Roach in 2018 to found Zumo, where he is currently CEO. Beginning his career at the height of the Dot Com boom in 2000 with the launch team of Goto.com (latterly Overture Service). Between 2012 and 2018 Nick was a full time Angel Investor and held multiple Chairman, Non Executive and Advisory roles in the Tech space.	Stuart has 30+ years of computing experience in energy, banking, and scientific sectors, from embedded control to Internet, Information Security, and HPC engineering. Siccar, a Scottish blockchain startup, offers business solutions. According to M.D. Stuart Fraser, blockchain technology could transform supply chain management and financial services.
Kevin O'Donnell	**Nick Jones**	**Stuart Fraser**

Scottish Blockchain Companies Leaders

Chairman and Cofounder - BetDEX Labs Inc: New York, United States	CEO & Co-founder at BTP: Edinburgh, Scotland	Founder - SICCAR: Edinburgh, Scotland	Founder and CEO - TrackGenesis: Aberdeen, Scotland	Founder and Managing Director - Trade in Space: Glasgow, Scotland
Nigel Eccles is an experienced entrepreneur and co-founder of multiple successful companies, including FanDuel and Flick, with a focus on building innovative solutions in the sports, blockchain, and entertainment industries.	Duncan Johnston-Watt is an experienced entrepreneur. BTP is his third startup. Prior to this, he founded Cloudsoft Corporation and served as its CEO for nine years. Previously he was founder & CTO of Enigmatec Corporation which was sold to iWave which was acquired by EMC.	Peter Ferry is an IT industry executive with 2 decades engineering, consulting, business development and channel management experience. Co-founder and CEO of SICCAR.	Rajesh Kumar Plamthottathil with over 14 years of experience in the IT industry as a Programmer, Senior Developer and Software Architect, is at the forefront of pioneering technology and excited to take on what lies ahead.	Following a 15 year career working with cube-sats, including working as part of the team to build and launch Scotland's first satellite into orbit, Founder Robin Sampson leads the team and drives strategy within the business.
Nigel Eccles	**Duncan Johnston-Watt**	**Peter Ferry**	**Rajesh Kumar Plamthottathil**	**Robin Sampson**

Scottish Blockchain Companies Leaders

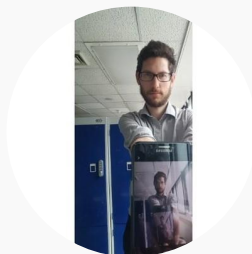| Rich Wilson	David Irvine	Brian Coburn	Kenny Scott
CEO and Co-Founder at Gigged.AI: Edinburgh, United Kingdom	**Founder of Maidsafe**: Kilmarnock, United Kingdom	**Founder & Chief Strategy Officer - BR-DGE**: Edinburgh, United Kingdom	**Chief Technology Officer BR-DGE**: Edinburgh, United Kingdom

Franco Di Stefano	Ed Stack	Craig Short	Hanspeter Rosenberg
Co-Founder & CEO - Bull Project: Edinburgh, United Kingdom	**Co-founder, - Delic, decagram.co :** Edinburgh, United Kingdom	**Co-founder, - Delic, decagram.co :** Edinburgh, United Kingdom	**CFO, - Delic, Greener Clarity :** Edinburgh, United Kingdom

Scottish Blockchain Companies Leaders

Rebecca Meldrum
CEO & Founder- Greener Clarity: Zurich

Andrew McQuarrie
Co-Founder - Happy Hosts Scotland Ltd: Scotland

Jason Steedman
Founder of Crypto Labs Scotland: Edinburgh, Scotland, United Kingdom

Harjyot Singh
Founder- Provenance Labs: London

Paul Duddy
Director at Hypervine: United Kingdom

Neil McEvoy
Founder and Transform Consultant at Cloud Experts Network: Edinburgh

Thomas Gillan
Chief Financial Officer -BR-DGE : Greater Edinburgh Area

Paul Roach
Co-Founder, Chief Product Officer-Zumo: Edinburgh

Scottish Blockchain Companies Leaders

Dean Manning

CEO-Brighter Consultancy Group Limited: Harrogate

Philip Shaw-Stewart

COO & Co-Founder - Citizen Ticket: London

Temple Melville

Director - Scotcoin: United Kingdom

Laura Barscevska

Founder, Chief Executive Officer, and Managing Director- Cigrek Capital: Riga

Shahid Chaudhry

CEO - Sekopay: United Kingdom

Daniyal Bilal

Co-Founder & CTO at Pace Ventures: St. Andrews, Scotland

Scottish Blockchain Companies Leaders

Milan Jandik	Thomas Sichel	Bill White
Chief Executive Officer and Developer - Frictionless-Network and COO - SEA: City of Cape Town	**Founder - Nova Finance:** Edinburgh	**CEO - Mayside Partners:** Edinburgh
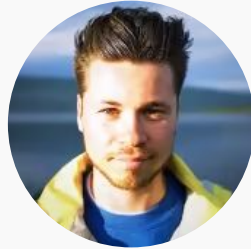
Evangelos Pappas	Simon Montford	Bob Crozier
Head of Technology - IndiGG: Edinburgh	**Co-Founder at MX3 CS:** Edinburgh	**Chief Architect at Allianz Technology:** Dollar, Scotland

Scottish Blockchain Investment Leaders

Techstart Ventures(_VC_)- Partner: Belfast, United Kingdom **Blockchain Portfolio Companies**: Net AI and Heysummit, Scottish-based Siccar	**Techstart Ventures(_VC_)- Principal**: London, United Kingdom	**Founder and CEO Wintermute**: London **Blockchain Portfolio Companies:** Zerion	**Non Executive Director**: **Soirbheas Trading Limited** **Partner: Par Equity** **Number of Partner Investments** :65	**Managing Director**: Enterprise Digital Resources **Number of Partner Investments** :Unknown
Mark has spent over fifteen years in venture capital, with a particular focus on the early stages of high growth technology companies.	Patrick Watson is a principal at Anthemis Group, a company that focuses on digital financial services and fintech innovation. He has written several articles on Medium about blockchain technology and its impact on various sector.	CEO Wintermute Trading Evgeny has a track record of consistently growing market share in Europe's top cash exchanges,.He has publicly said blockchain technology is transforming finance and creating new opportunities.	Andrew is a Chartered Accountant and has a MA in Jurisprudence from Oxford University. His career prior to Par Equity took in corporate finance and restructuring as well as serving at PLC board level.	David Fitzgerald is a blockchain expert who has worked on Solidity, Blockchain. David is an experienced executive and entrepreneur. He has held senior leadership positions in several tech companies, including CEO of Curvature and Managing Director of HP UK & Ireland.
Mark Hogarth	**Patrick Watson**	**Evgeny Gaevoy**	**Andrew Castell**	**David Fitzgerald**

Scottish Blockchain - Academic Think Tanks Leaders

Prof. Bill Buchanan

Blockpass Identity Lab
Edinburgh Napier

Professor Aggelos Kiayias

Blockchain Technology Lab
University of Edinburgh

Professor Lei Zhang

Moshan Blockchain Lab
University of Glasgow

Markulf Kohlweiss

Security and Privacy research group
University of Edinburgh

Nanik Ramchandi

Resident Entrepreneur
Edinburgh Napier

Motjaba Tefagh

Input Output Blockchain
Lab at Bayes

Prof. Muhammad Imran

Professor of Communication Systems
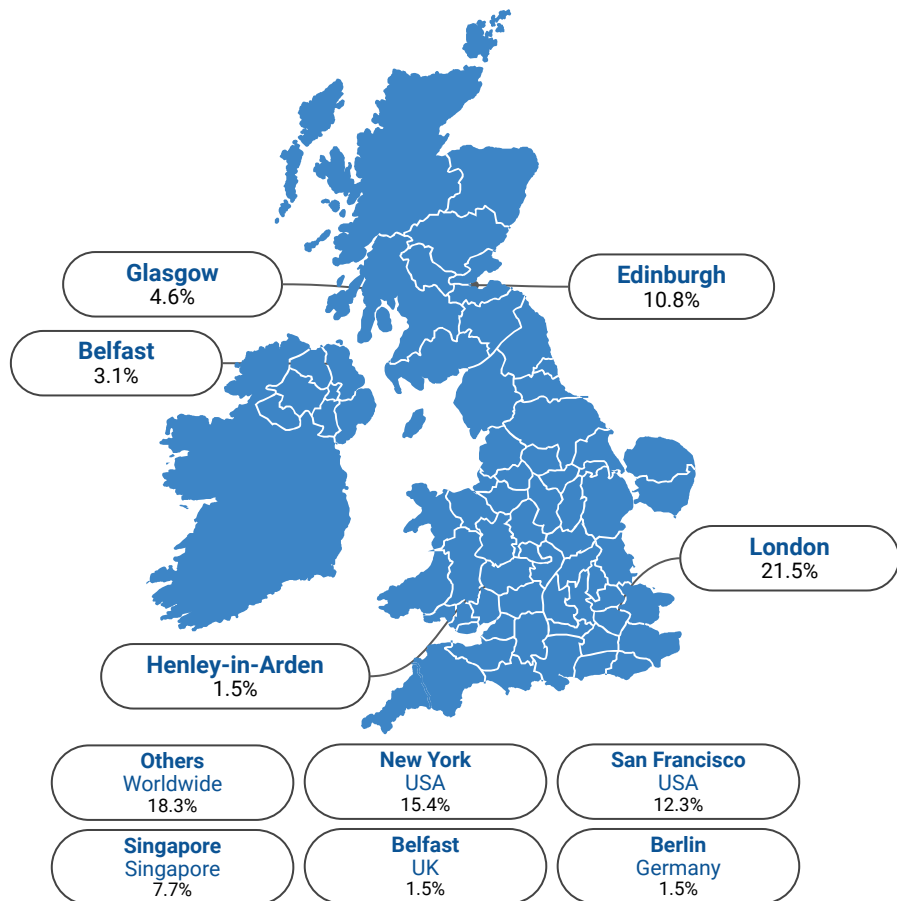University of Glasgow

Zakwan Jaroucheh

Head of Research
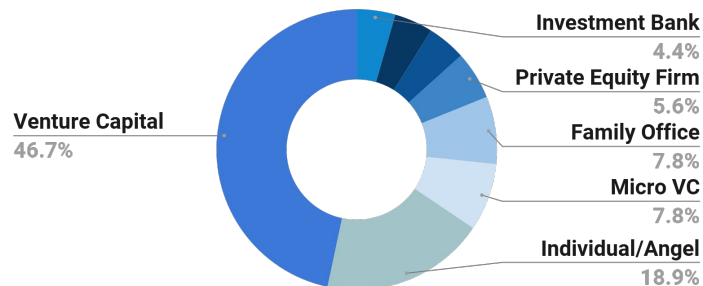Millicent

Blockchain in Scotland - Investors

Global Landscape Overview

Overview of Investors in Scottish Blockchain-Centric Companies

Map Labels

- **Glasgow** 4.6%
- **Edinburgh** 10.8%
- **Belfast** 3.1%
- **London** 21.5%
- **Henley-in-Arden** 1.5%

Others Worldwide 18.3%	**New York** USA 15.4%	**San Francisco** USA 12.3%
Singapore Singapore 7.7%	**Belfast** UK 1.5%	**Berlin** Germany 1.5%

Cumulative Number of Established Companies

- **Venture Capital** 46.7%
- **Investment Bank** 4.4%
- **Private Equity Firm** 5.6%
- **Family Office** 7.8%
- **Micro VC** 7.8%
- **Individual/Angel** 18.9%

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.

The UK and in particular London are becoming a true innovation and investors epicentre for everything around Blockchain.

Overview of UK Investors

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.

Furthermore, the UK's investments in Scottish blockchain companies have been steadily increasing over the years. Scotland's blockchain industry has attracted significant investment from British investors, including Anthemis Group, Velocity Capital Advisors, Force Over Mass Capital, Techstart Ventures and Wintermute. These investors have chosen to support Scottish blockchain companies due to the country's strong talent pool, supportive regulatory environment, and innovative approach to the industry.

Investor		Investor Type	City Location	Typical Funding Round	Investments in Scottish Blockchain Company
Velocity Capital Advisors	VELOCITY	Venture Capital	London	Pre Seed Round	Delic is the new operating system for the Music Business. Asset and rights management platform using digital and blockchain technologies.
Force Over Mass Capital	ForceOverMass	Venture Capital	London	Series A	Founded in 2018, and backed by Force Over Mass and Signature Ventures, BTP is a digital provenance company, with a mission to make assets trustworthy.
Techstart Ventures	techstart	Venture Capital	Belfast	Early Stage Venture, Seed	Gigged.AI is a AI-driven talent platform for quickly recruiting tech talent.
Wintermute	WINTERMUTE	Hedge Fund	London	All	Zeta Markets develops decentralizes finance (DeFi) futures and options exchange built on Solana.

Source: gov.scot, Scottish Enterprise

Overview of Scottish-based Investors

The investment and financing market in Scotland currently provides financing across a range of investment products, from early stage and venture capital, to scale-up growth capital and senior, mezzanine and subordinated debt. The Scottish Loan Scheme can provide loan funding of £250,000 to £2 million for growth-focused Scottish companies.

Additionally, Scotland has a robust angel investment community, with groups such as the Scottish Angel Network and the Edinburgh-based Archangels providing funding and support to start-ups and early-stage companies. Angel investors usually invest less capital compared to venture capitalists, but they often provide valuable expertise and mentorship to help entrepreneurs grow their businesses. Scotland is also home to a number of public sector funding bodies, including Scottish Enterprise and Highlands and Islands Enterprise, which offer grants, loans, and equity investments to eligible businesses.

Investor		Investor Type	City Location	Typical Funding Round	Investments in Scottish Blockchain Company
Par Equity	par equity	Venture Capital	Edinburgh	Early-Stage	Siccar and Gigged.AI
Scottish Investment Bank		Investment Bank	Glasgow	Series A	Zumo is the trusted and sustainable digital asset-as-a-service platform for institutions and individuals.
Baillie Gifford	BAILLIE GIFFORD	Investment Bank	Edinburgh	Series C	Blockchain.com is a platform that offers ways to buy, hold, and use cryptocurrency.
Nile HQ	nile	Venture Capital	Edinburgh	Seed Round	Gigged.AI is a AI-driven talent platform for quickly recruiting tech talent.
Murray Capital	MURRAY CAPITAL	Private Investment Office	Edinburgh	Seed Round	Zumo is the trusted and sustainable digital asset-as-a-service platform for institutions and individuals.

Source: gov.scot, Scottish Enterprise

Overview of USA Investors

The Scottish business ecosystem presents attractive investment opportunities for several American venture capital firms, including Lightspeed Venture Partners, Shima Capital, EXPERT DOJO, EOS VC Fund, and Multicoin Capital. With a focus on different sectors ranging from technology, healthcare, and consumer goods to blockchain and cryptocurrency, these firms have already made investments in Scottish companies and continue to seek out promising investment opportunities in Scotland.

The Scottish government has also partnered with some of these firms to support the growth of Scottish startups, further indicating the potential for a thriving ecosystem. With a strong presence in Scotland and a track record of successful investments in the country, these venture capital firms are well-positioned to capitalise on the promising growth prospects of the Scottish business landscape.

Investor		Investor Type	City Location	Typical Funding Round	Investments in Scottish Blockchain Company
Lightspeed Venture Partners	Lightspeed	Venture Capital	Menlo Park	Series A	BetDEX, an online sport betting platform provider, raised $21M in Seed funding from Paradigm and FTX Multicoin Capital and others in 2021
EXPERT DOJO	EXPERT DOJO	Accelerator	Santa Monica	Pre Seed Round	Delic is the new operating system for the Music Business. Asset and rights management platform using digital and blockchain technologies.
EOS VC Fund	eos vc	Micro VC	New York	Seed Round	Zumo is the trusted and sustainable digital asset-as-a-service platform for institutions and individuals.
Multicoin Capital	Multicoin Capital	Hedge Fund	Henley In Arden	Seed Round	BetDEX, an online sport betting platform provider, raised $21M in Seed funding from Paradigm and FTX Multicoin Capital and others in 2021

Overview of Other Investors

Scotland's blockchain landscape has drawn the interest of a number of European and Asian venture capital firms, namely Partech, Signature Ventures, Wayra, BnkToTheFuture, and Amber Group. These firms have a relatively narrow range of focus areas such as technology, blockchain, DeFi and crypto. Scotland's economy is becoming more attractive to investors, and with the support of these venture capital firms, Scottish businesses can access the resources they need to grow and succeed. Each of the venture capital firms invested in a blockchain or crypto company whose mission and focus areas align with their investment criteria.

With the backing of these venture capital firms, Scottish start-ups can access the resources and support they need to thrive in a highly competitive marketplace. The future looks bright for Scotland's blockchain and technology sectors, and with the right investment, the country could emerge as a leading player in these exciting new markets.

Investor		Investor Type	City Location	Typical Funding Round	Investments in Scottish Blockchain Company
Signature Ventures		Venture Capital	Berlin	Early-Stage	Founded in 2018, and backed by Force Over Mass and Signature Ventures, BTP is a digital provenance company, with a mission to make assets trustworthy.
Wayra		Venture Capital	Madrid	Pre Seed Round	Ocyan aims to solve the financial exclusion of European Expats by offering a way to get their first mobile, insurance, banking and credit.
BnkToTheFuture		Micro VC	Hong Kong	Early-Stage	MaidSafe provides developers with a distributed platform that enables them to engineer fast and very secure applications.
Amber Group		Venture Capital	Singapore	Seed Round	Zeta Markets decentralizes finance (DeFi) futures and options exchange built on Solana.

Overview of Major Funding Deals in 2021-2023

Company	Sector	Money Raised, million USD	Pre-Money Valuation, million USD	Funding Type	Announced Date	Lead Investors	Number of Investors
Gigged.AI	Human Resources	$1.9m		Seed	2023	Nile HQ, Par Equity, Techstart Ventures	3
Delic	Media & Entertainment	$0.05m	$1M	Pre-Seed	2022	EXPERT DOJO	1
Gigged.AI	Human Resources	$0.13m		Grant	2022	Par Equity, Nile HQ	1
BetDEX	Media & Entertainment	$21.0m		Seed	2021	FTX, Paradigm	10
BTP	Blockchain-based Products & Services	$2.7m		Seed	2021	FOMCAP, Signature Ventures	2
Gigged.AI	Human Resources	$0.8m		Pre-Seed	2021	Techstart Ventures	1

Economic Opportunities for Blockchain in Scotland

Benefits Overview

Economic Opportunities for Blockchain across Scottish Industries

Manufacturing

HealthCare and Longevity

Education

Fast-Moving Consumer Goods

Agriculture

SpaceTech

Finance

Energy and Utilities

Main Economic Opportunities for Blockchain in Scotland
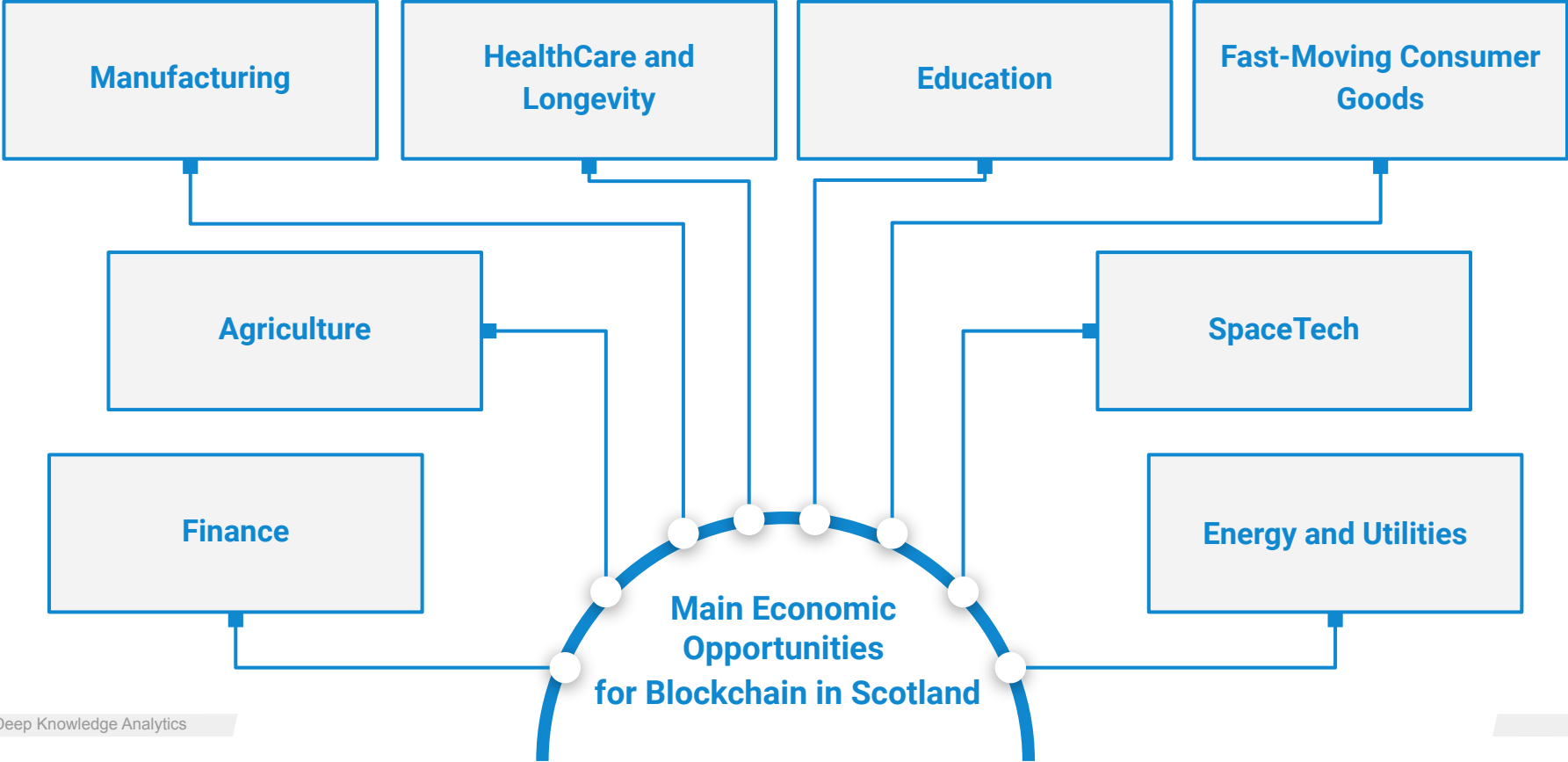
Economic Opportunities for Blockchain in Scotland - Finance

Scotland has several unique advantages that make it an ideal location for businesses working with blockchain technology. Scotland has a supportive regulatory environment and numerous research universities, as well as a vibrant technology ecosystem that 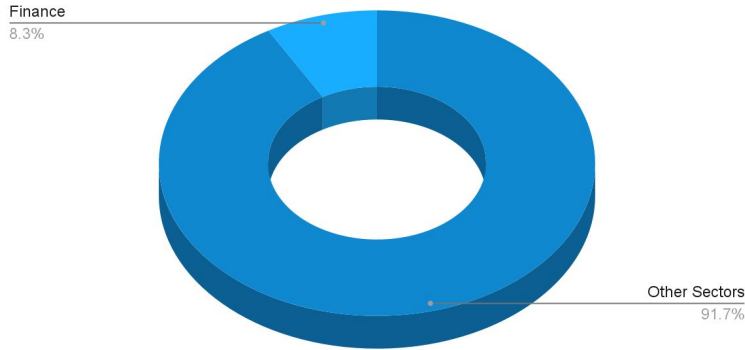encourages innovation. Additionally, Scotland has a strong financial sector, making it an attractive home for new finance businesses.

Scotland's Finance Sector at a Glance

In 2021 the Scottish Finance sector contributed £173.6bn to the UK economy, 8.3% of total economic output.

Finance
8.3%

Other Sectors
91.7%

Finance is the biggest sectoral contributor to Scotland's economy representing £13.6bn or 9.2% of GVA (Gross Value Added) and accounting for 160,000 jobs (9% of national employment).

Finance
9.2%

Total GVA
90.8%
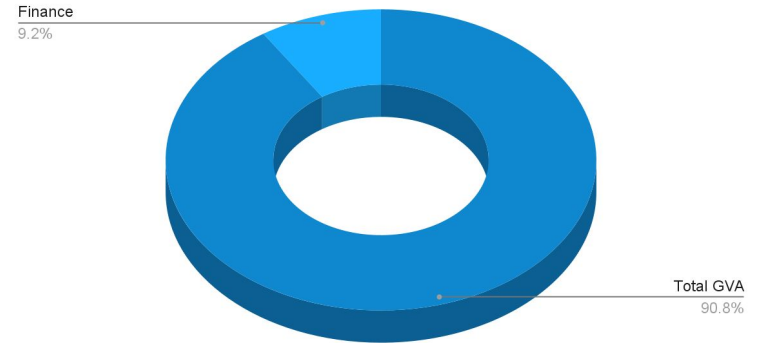
Scotland's Finance Sector at a Glance

| **Scotland is a leader in FinTech, with Edinburgh known as one of Europe's leading FinTech hubs** | **Scotland has a strong academic base in finance-related topics and a pool of finance and technology talent** | **The growing Fintech sector is estimated to generate £598m GVA for Scotland FinTech Roadmap** | **91% of banks have invested in Blockchain for financial service** |

Source: The House of Commons Library, Financial Services in Scotland, IBM

Economic Opportunities for Blockchain Application in Finance

Payment processing & Money transfer

Cost-effective and secure payment processing and money transfers for Scottish businesses.

Blockchain for global payments

An international bridge for financial institutions in Scotland to strengthen their position in global payments.

Blockchain for peer-to-peer payments

A cost-effective and secure solution for peer-to-peer payments without intermediaries or high fees.

Blockchain for trading

Greater efficiency and transparency for trading systems in Scotland's finance sector, with reduced counterparty risk and simplified settlements.

Blockchain for credit scoring

Efficient credit history tracking and more accurate credit scores for financial institutions in Scotland.

Blockchain for cybersecurity

Protection against cyber attacks with strong cryptography and decentralisation.

Blockchain for insurance claims

Faster, easier and more secure insurance claims processing for financial institutions in Scotland.

Blockchain for loyalty reward programs

More secure and cost-effective loyalty rewards programs for financial institutions in Scotland.

Blockchain for sustainable finance

Smart contracts and automated compliance for a sustainable and responsible approach to finance in Scotland.

Blockchain for digital identity verification

Streamlined, secure and accessible digital identity verification for customers across different financial institutions in Scotland.

Blockchain for regulatory compliance & audits

A single source of truth for compliance with regulations and efficient audits.

Blockchain for automated loans

Automation and transparency for loan decisions, creating a secure and transparent lending platform.

Deep Knowledge Analytics

Source: Scottish Development International , insider.co.uk , Royal Bank of Scotland, FinTech Scotland, University Of Dundee

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Case Study: Blockchain Application in Scottish Finance

Founded: 2021
Headquarters: Edinburgh
Employees: 11-50

Founded: 2017
Headquarters: Edinburgh
Employees: 11-50

Nova Finance is a non-custodial asset management protocol that offers the creation and automation of crypto, stablecoins, tokens, and NFTs.

Zumo is a Enterprise-ready digital asset infrastructure. They help successfully embed regulated crypto solutions built for scale, security, and compliance.
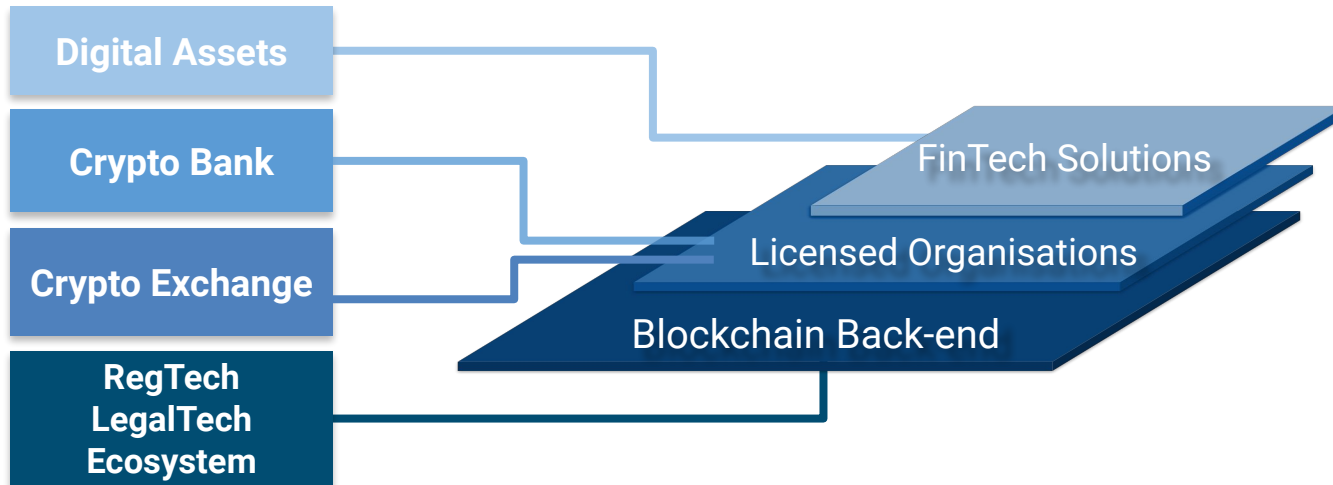
Edinburgh-based Nova Finance describes itself as a "non-custodial programmable asset protocol" built for decentralised finance (DeFi).

The platform allows users to develop investment portfolios while automating traditionally complex investor and yield strategies, thus improving accessibility for every day crypto investors. Co-founded by Adam Greenberg and Tom Sichel, the duo behind SageCity, Nova Finance secured $3 million in funding in 2021.

Nick Jones, CEO and co-founder, said:

Most projects in the space are aimed at the 2-3% of people who've already got cryptocurrency, but there aren't that many aimed at bringing in a wider audience. From the start we designed Zumo to be easy-to-use without sacrificing security. Our app allows anyone to easily buy, sell, and store cryptocurrency using only their smartphone and an internet connection. We have no hidden fees, and don't charge users for adding or removing their funds, only a 0.5% fee when they convert between currencies.

Crypto Economy

A crypto-economy offers economic relations that are not directly mediated by the state, opening possibilities for a financial organisation that does not comply with the state's conception of economic order. In the absence of state control, the crypto economy needs to focus on its internal modes of governance.

The real potential is in cryptocurrencies as units of account: modes of measuring economic activity conceived differently from those intrinsic to fiat money. Fiat money has become tied to conventional framings of profit and loss, income and expenditure, and a market-centered calculus. Non-fiat funds have the potential for developing new ways to calculate economic activity, ways that represent different social and economic values, and measure performance by criteria other than profit.

Digital Assets

Crypto Bank

Crypto Exchange

RegTech
LegalTech
Ecosystem

FinTech Solutions

Licensed Organisations

Blockchain Back-end

Economic Opportunities for Blockchain in Scotland - Agriculture

Since 2019 farmers in Scotland have used blockchain to assure gluten-free oats. Six farmers in north-east Scotland are working with SAC Consulting and a data company to develop distributed ledger, or blockchain, technology that will allow shoppers to trace their oats right back along the supply chain and be completely sure they are gluten-free.

Access to capital:
Small-scale farmers in Scotland often lack access to the capital needed to invest in sustainable farming practices or scale up production. Blockchain-based crowdfunding and micro-financing initiatives can help farmers access capital and build a more resilient agricultural sector.

Food traceability:
Scottish farmers must comply with Scottish regulations and standards when it comes to food traceability. Blockchain-based traceability systems can help farmers ensure compliance and provide consumers with greater transparency into the origins of the food they are buying.

Weather:
Scottish agriculture faces unique weather conditions that can disrupt harvests and production. Blockchain technology can be used to provide a secure and transparent tracking system, allowing manufacturers to track products from raw material to finished goods, ensuring that all components are authentic and have been produced to the highest standards.

Farm-to-table supply chain:
Scottish farmers need to create more efficient supply chains in order to get their products to market more quickly and efficiently. Blockchain can help facilitate the seamless exchange of data between farmers, distributors, and retailers, allowing for more efficient and secure transactions.
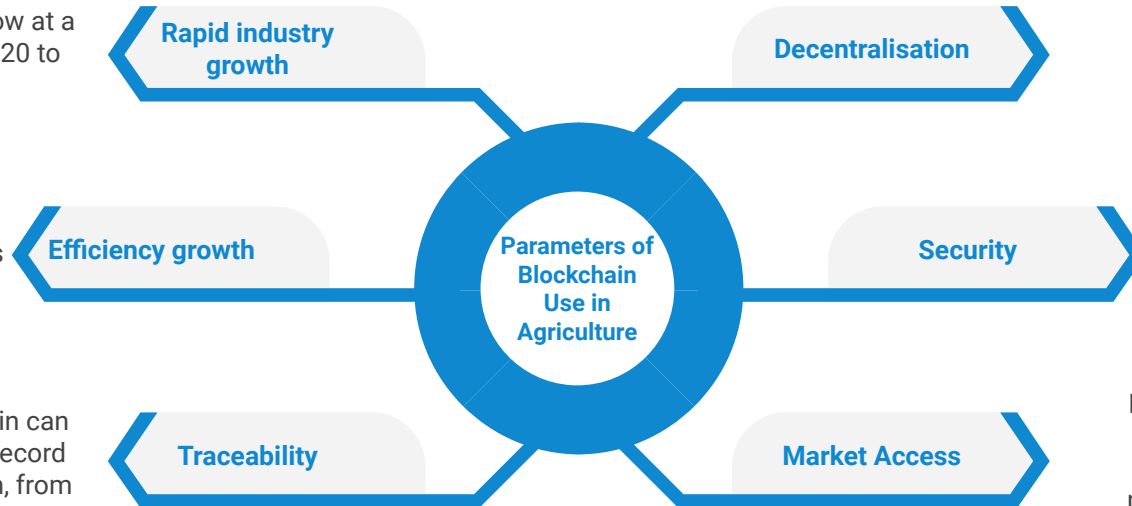
Economic Opportunities for Blockchain Application in Agriculture

The use of blockchain in agriculture can have a significant economic impact on the industry by providing transparency, efficiency, traceability, decentralisation, cost savings, sustainability, security, and improved market access. Blockchain can help reduce transaction times, increase profitability, and improve the overall efficiency of the supply chain, making it easier for farmers and other stakeholders to participate in the market.

Global blockchain in agriculture market is expected to grow at a **CAGR of 47.8%** from 2020 to 2030

Blockchain can reduce transaction times by up to **80%**, leading to significant improvements in efficiency and cost savings

FAO notes that blockchain can provide a tamper-proof record of the entire supply chain, from farm to fork, improving traceability and food safety

Rapid industry growth

Efficiency growth

Traceability

Parameters of Blockchain Use in Agriculture

Decentralisation

Security

Market Access

A survey by Deloitte found that **70%** of respondents believe that blockchain can provide a more secure and decentralised system for managing agricultural data

Study by Accenture found that blockchain can help reduce the risk of food fraud by up to **85%**.

Blockchain can help improve market access for smallholder farmers by providing a more transparent and efficient system for buying and selling agricultural products

Source: ReportLinker

Case Study: Blockchain Application in Agriculture in Scotland

Six Aberdeenshire farmers are part of a project to develop a supply chain that can guarantee provenance, assurance and traceability of gluten-free oats. Although oats are naturally gluten free there is a risk storage and milling facilities may be contaminated with gluten from other cereal grains.Distributed ledger technology (DLT) is being used in the project, which is being helped by a group funded by the Rural Innovation Support Service (RISS).

Information within the audit trail gives full traceability and assurance, which ensures complete trust in the supply chain, as well as earning farmers associated crop premiums

A team mapped the oat growing and post-harvest storage process and used existing data and farm documentation, including field records, storage documentation and photographs taken from the farms to create what's known as the ledger

Blockchain Use in Oat Growing
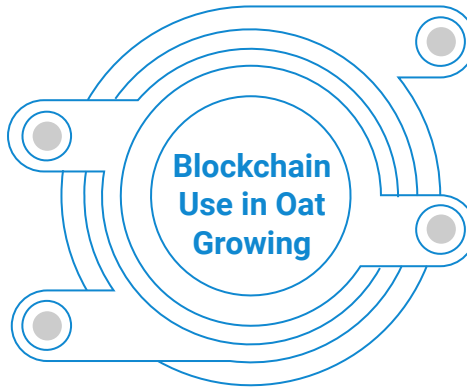
On the back of the RISS group findings, two farmers have invested in an oat processing mill in Savock that will process the farmers' combined annual production.

All farmers records, from shed-cleaning to crop-spraying and harvesting are digitised and can be interrogated by anyone with access to the system.

Economic Opportunities for Blockchain in Scotland - Manufacturing

Scotland's manufacturing industry is particularly vulnerable to supply chain issues, making anti-counterfeiting measures, streamlining processes and improving digital identity management particularly important. The Scottish manufacturing industry is also experiencing rapid changes due to globalisation, with competition from low-cost countries, as well as technological advances that are disrupting traditional ways of working. These developments create a need for manufacturers to become more agile and efficient, and blockchain technology can help to address these challenges by providing trustless and secure solutions.

Anti-Counterfeiting: Blockchain technology can be used to detect and prevent counterfeit goods entering the supply chain. Through the use of digital certificates, manufacturers can ensure that their products are authentic and traceable.

Supply chain tracking and transparency: Blockchain technology can be used to provide a secure and transparent tracking system, allowing manufacturers to track products from raw material to finished goods, ensuring that all components are authentic and have been produced to the highest standards.

Digital identity management: Blockchain technology can be used to securely store digital identities of customers, suppliers and other stakeholders. This can help manufacturers build trust with customers, increase efficiency and reduce costs associated with traditional identity management systems.

Streamlining processes: Blockchain technology can be used to streamline processes and reduce administrative costs. By providing a secure, transparent and trustless environment, manufacturers can move away from manual processes and reduce the need for staff to manually record and process data.

Case Study: Blockchain Application in Manufacturing in Scotland

Circulor is a London-based global tech company and a leader in supply chain traceability . They offer supply chain traceability solutions that track emissions across the supply chain, enabling manufacturers to prove the source of raw materials, and are committed to helping extractive industries to overcome environmental and ethical concerns related to their products .

Circulor is working with Vulcan Energy to ensure a fully traceable production of zero-carbon lithium in 2024. The collaboration will allow Vulcan to develop the world's first fully traceable, transparent and zero-carbon lithium product extracted and consumed in Europe.

In 2019, Circulor established a full chain of custody tracking for cobalt used in Volvo Cars' electric vehicles. This award-winning work has continued apace. Multiple battery materials are now tracked across numerous supply chain legs, along with attributable ESG metrics.

In a world first in 2021 Circulor partnered with Jaguar Land Rover and leading Scottish leather manufacturer Bridge of Weir Leather Company to trial the use of traceability technology in the leather supply chain, garnered a large degree of interest.

24% of industrial manufacturing CEOs are planning, piloting or implementing blockchain technology	**62%** of PwC survey respondents have a blockchain project underway	**45%** of respondents cited lack of trust as a hurdle to blockchain adoption	**12%** said industrial manufacturing is a leader in the space, trailing only financial services

Case Study: Blockchain Application in Manufacturing in Scotland

Currently there are no Scottish blockchain companies that exclusively focus on the manufacturing sector. However, several Scottish blockchain companies are engaged in supply chain management and have the potential to provide solutions applicable to the manufacturing industry. These companies include:

Siccar

This Scottish blockchain company provides supply chain management solutions using blockchain technology to improve supply chain transparency and reduce fraud. While they are not specifically focused on manufacturing, their solutions could be applicable to the manufacturing industry.

Blockverify

This company provides a blockchain-based anti-counterfeit solution for supply chains that could be useful for manufacturers. By using blockchain technology to track and verify the authenticity of goods, Blockverify helps to reduce counterfeiting and improve supply chain transparency.

Bellrock Technology

This blockchain company that offers supply chain management solutions to enhance transparency and reduce fraud in various industries, including manufacturing. Their Lumen solution leverages blockchain technology to optimize supply chains and improve efficiency for their clients.

Economic Opportunities for Blockchain in Scotland - SpaceTech

Scotland has been actively exploring the potential economic opportunities offered by blockchain technology and SpaceTech. The combination of blockchain and SpaceTech can create several promising avenues for economic growth and innovation.

Enhancing the Satellite Value Chain:
As a smart contract, Blockchain can be used to create transparency, trust, and efficiency in the satellite value chain. For example, intelligent contract-based applications can be developed to launch and operate satellites, access transparent information for insurance purposes, and monitor space operations.

Tracking the Satellite Supply Chain:
Blockchain can be established as a tracking system to ensure and verify data during each phase of satellite procurement, design, testing, and launch. Blockchain can also be used to monitor a satellite's motion, share space data with all stakeholders, and enforce rules of any updates made to the satellite system.

Enabling Cloud Services in Space:
Leveraging both blockchain and AI can enable cloud transformation and processing in space. Blockchain over satellites removes the dependence on terrestrial networks for storage, broadcasting, or processing space data, thereby eliminating significant data breaches or distortion vulnerabilities.

Designing Open-Source Satellites:
Large space companies have begun to develop blockchain-based open-source satellite networks to provide many services to end-users on the ground and enable them to access satellite services directly.

Economic Opportunities for Blockchain in Scotland - SpaceTech

Space companies in Scotland:

spire

Ecometrica

ORBEX

SKYRORA

AAC CLYDE SPACE

ASTROSAT

albaorbital

STAR-Dundee

bird.i

DCAT

The intersection of Blockchain and SpaceTech in Scotland presents several economic opportunities, including:

Satellite Communication & Data Security
With Scotland's strong presence in the space industry and growing expertise in blockchain, the combination of these two technologies can create a niche for secure space communication services, attracting more companies to invest in Scotland's space industry.

Space Resource Utilization
Blockchain technology can be used to create a secure and transparent marketplace for space resources, such as minerals and rare metals. Scotland's rich reserves of cobalt, gold, and other minerals, coupled with its strategic location for space launches, can help position Scotland as a leader in space resource utilization.

Space Tourism
The combination of blockchain and SpaceTech can create a secure and transparent marketplace for space tourism services. Scotland's unique geography, with its mountainous terrain and proximity to the North Sea, makes it an ideal location for space tourism launches and experiences.

Satellite Imagery & Remote Sensing
Blockchain can be used to secure satellite imagery and remote sensing data, which can be used for environmental monitoring, resource management, and other applications. Scotland's growing expertise in geospatial data analysis and its strong research and development ecosystem can attract more companies and investments to Scotland's SpaceTech.

Source: Scottish Development International

Economic and Longevity Opportunities for Blockchains - Healthcare

"Blockchain in Longevity Industry" Report produced by Deep Knowledge Group's leading subsidiary Aging Analytics Agency

The Longevity Industry includes entities related to scientific research into aging and its diseases (i.e., geroscience research) but also to a set of synergies between different intersecting sectors, such as P4 (personalised, precision, preventive, participatory) Medicine, with the combined potential to extend healthy life span. While the majority of practical outcomes in healthy Longevity will be driven by precision health technologies, they will also require an assembly of other Low- and DeepTech components, for example, Blockchain Healthcare Management Solutions and Platforms, as well as Blockchain Economy projects such as DAOs, NFTs, etc.

Blockchain and Crypto in Longevity Industry

2023

www.aginganalytics.com

https://www.aginganalytics.com/blockchain-longevity

Supply chain management and traceability: One main direction for leveraging blockchain in the healthcare industry is to use blockchain for supply chain management and traceability in HealthCare. This would involve tracking medical supplies, equipment, and drugs throughout the entire supply chain to ensure transparency, traceability, and reduced counterfeit products.

Secure data storage and sharing: Another main direction for leveraging blockchain in the healthcare industry is to focus on secure data storage and sharing. This includes creating a tamper-proof platform for electronic health records, ensuring data integrity and patient privacy. With this approach, patients can have better control over their own medical records and decide who can access their data. This would also enable seamless and secure sharing of medical records between healthcare providers, patients, and other authorized parties, promoting better collaboration and care coordination.

Economic Opportunities for Blockchain in Scotland - FMCG

The FMCG industry, also known as the fast-moving consumer goods industry, is a critical part of the Scottish economy, generating significant employment and contributing to Scotland's GDP. Blockchain technology has the potential to address many of these challenges, offering a range of benefits to FMCG companies operating in Scotland. In this slide, we will explore the economic opportunities that blockchain can provide to the FMCG industry in Scotland.

Improved Customer Experience:
The ability to track and verify the origin and authenticity of products using blockchain technology can enhance the overall customer experience, leading to increased brand loyalty and customer satisfaction.

Supply Chain Transparency:
Blockchain technology can provide end-to-end traceability, ensuring transparency and accountability in the supply chain process, which can increase consumer trust and reduce the risk of counterfeit products.

Efficiency and Cost Savings:
By automating processes and eliminating intermediaries, blockchain technology can help reduce the costs of transactions and improve the efficiency of supply chain management.

Data Analytics:
With the help of blockchain technology, companies in the FMCG industry can gain valuable insights into consumer behavior and preferences, allowing them to make informed decisions and develop more targeted marketing strategies.

Economic Opportunities for Blockchain in Scotland - Education

Edinburgh University has been developing a number of systematic procedures for exploring the potential benefits of blockchain in education

Access to Education:
Blockchain technology can provide access to educational resources and courses for people in remote areas of Scotland by creating a decentralised platform for educational content.
This platform could be used to store educational materials, such as textbooks, lecture notes, and videos, and to facilitate peer-to-peer learning.

Increased Efficiency:
Blockchain technology can increase efficiency in record keeping, allowing institutions to reduce administrative costs and redirect resources towards other educational activities.
This could create economic opportunities by enabling institutions to offer more programs and services.

Enhanced Security:
Blockchain technology can assist educational institutions in protecting sensitive student data from being compromised by cybercriminals by offering a decentralised and secure data storage solution.
This could open up opportunities in the business world by lowering the risk of damaging data breaches and reputations that are both expensive.
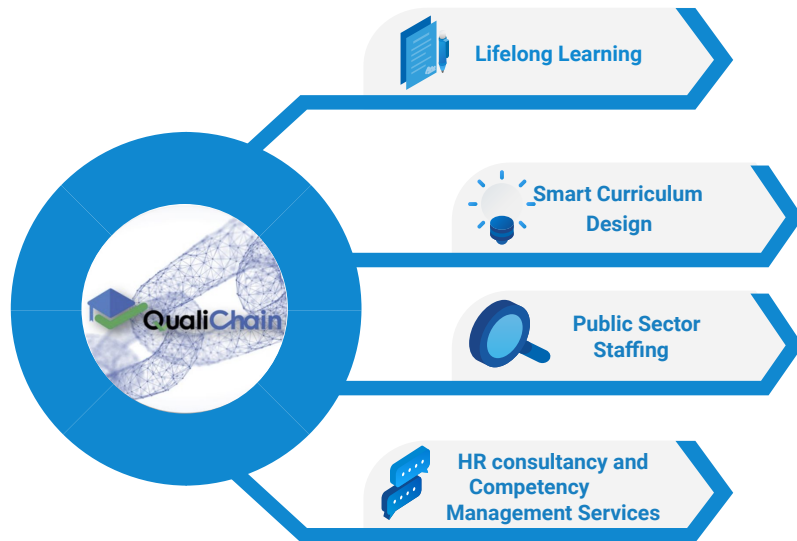
Expanded Credentialing:
Blockchain technology can facilitate the verification and sharing of academic credentials, enabling students to more easily demonstrate their qualifications to employers.
This could create economic opportunities by helping students secure better jobs and enabling employers to better identify qualified candidates.

Case Study: Blockchain Application in Education in Scotland

QualiChain project, aiming at supporting lifelong learning through the combined use of Smart Badges and personalised recommendations. QualiChain uses Blockchain technology to decentralise lifelong learning and provide lifelong learners with transparent and immutable educational accreditation. At the same time, lifelong learners are provided with personalised recommendations that help them reach their personal and professional learning goals.

Lifelong Learning

Smart Curriculum Design

Public Sector Staffing

HR consultancy and Competency Management Services

1. **Validation and recognition:** The platform enables the validation and recognition of qualifications and learning achievements across different educational institutions, sectors, and countries. It provides a common language and framework for assessing and comparing educational qualifications and achievements.

2. **Transferability:** QualiChain facilitates the transferability of learning achievements and qualifications across different educational and employment contexts. It enables users to showcase their skills and competencies to potential employers and educational institutions.

3. **Privacy and security:** The platform ensures the privacy and security of users' data by using advanced cryptographic techniques and decentralised storage. Users have full control over their data and can decide who has access to it.

4. **Interoperability:** QualiChain aims to promote interoperability between different educational systems and institutions. It provides a standardised way of exchanging and verifying educational qualifications and achievements, making it easier for users to move between different educational and employment contexts.
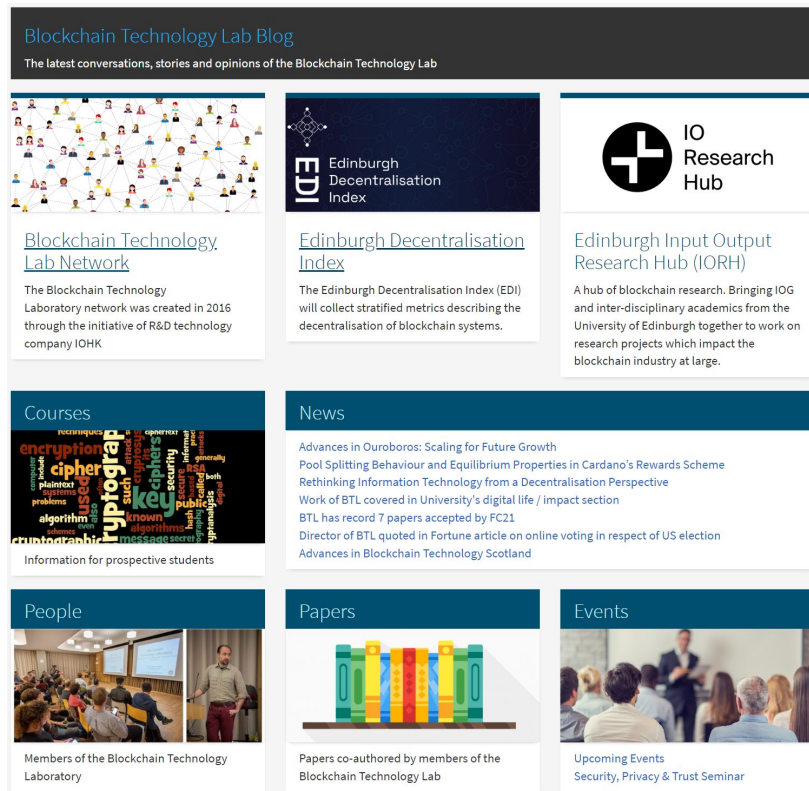
Source: eLmL 2020 : The Twelfth International Conference on Mobile, Hybrid, and Online Learning

Blockchain Research in Scotland: Scotland has 4 Established Blockchain Labs

The Blockchain Technology Laboratory at **the University of Edinburgh** was established in 2016 through a collaboration between the university and IOHK, a research and development technology company.

The lab conducts open-access research of applications of blockchain technologies and decentralised systems within finance and society in collaboration with industry and government partners. Led by **Professor Aggelos Kiayias,** the lab is also building a pioneering new research lab to protect personal data from online scammers and hackers with blockchain, as part of a **£600,000** collaboration between **the University of Edinburgh** and **Hong Kong-based Blockpass**.

The Moshan Blockchain Lab, a **£1.3M** research partnership between the University of Glasgow's James Watt School of Engineering and Chinese tech company **Victory Bench (VB) Hyperledger**, has been launched to improve blockchain scalability, suitability for high-volume applications, and environmental-friendliness. The plan is to develop new algorithms for accessing, verifying and amending blockchain records, and simplify blockchain processes on mobile devices.

The Moshan Blockchain Lab researchers aim to achieve major breakthroughs in the basic theory of blockchain by integrating the advantages and characteristics of related disciplines, including mathematics, computing, communications, and finance.

Blockchain Technology Lab Blog
The latest conversations, stories and opinions of the Blockchain Technology Lab

Blockchain Technology Lab Network
The Blockchain Technology Laboratory network was created in 2016 through the initiative of R&D technology company IOHK

Edinburgh Decentralisation Index
The Edinburgh Decentralisation Index (EDI) will collect stratified metrics describing the decentralisation of blockchain systems.

IO Research Hub
Edinburgh Input Output Research Hub (IORH)
A hub of blockchain research. Bringing IOG and inter-disciplinary academics from the University of Edinburgh together to work on research projects which impact the blockchain industry at large.

Courses
Information for prospective students

News
Advances in Ouroboros: Scaling for Future Growth
Pool Splitting Behaviour and Equilibrium Properties in Cardano's Rewards Scheme
Rethinking Information Technology from a Decentralisation Perspective
Work of BTL covered in University's digital life / impact section
BTL has record 7 papers accepted by FC21
Director of BTL quoted in Fortune article on online voting in respect of US election
Advances in Blockchain Technology Scotland

People
Members of the Blockchain Technology Laboratory

Papers
Papers co-authored by members of the Blockchain Technology Lab

Events
Upcoming Events
Security, Privacy & Trust Seminar

Blockchain Research in Scotland: Scotland has 4 Established Blockchain Labs

Blockpass Lab is a research collaboration between **Edinburgh Napier University** and **Blockpass**, a Hong Kong-based blockchain company. Its primary objective is to develop cutting-edge research and innovation related to citizen-focused systems that uphold the fundamental right to privacy using blockchain. It develops alternatives to centralizing the storage of personal user data and allows users to retain control of their identity.

The creation of the Blockpass Identity Lab provides a space for further research and innovation, leading to newer and more advanced grounds in blockchain and cryptography discussions. The lab aims to contribute to the building of a new world, based on blockchain technology.

Input Output Global (IOG) has funded a new research hub at the **University of Edinburgh**, called the **Input Output Research Hub**, which aims to accelerate the development of blockchain technology in the UK. The hub will serve as a place for university students and researchers to propose new projects for blockchain and distributed ledger technology, which will be reviewed by a steering committee featuring both IOG and university representatives, and funding will be allocated. IOG has previously established a blockchain technology lab within the university's School of Informatics and its funding of the research hub builds on its existing relationship with the university.

Source: Blockpass Identity Lab, University of Edinburgh
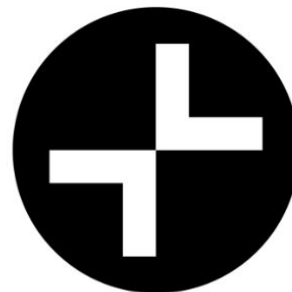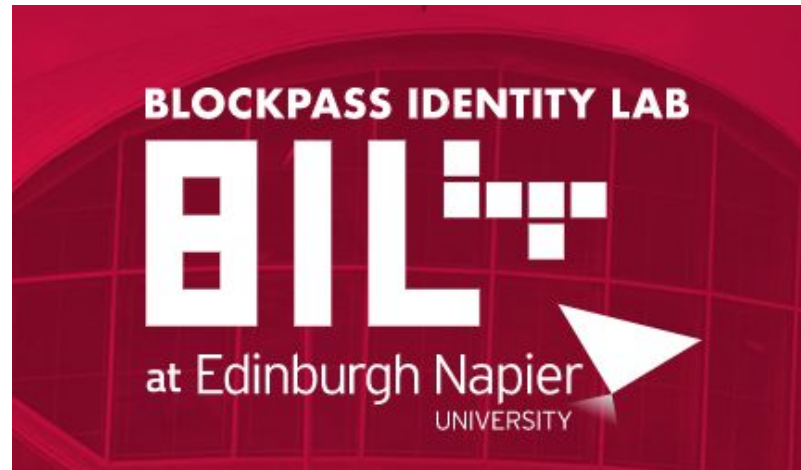
Blockchain in Scotland Landscape

Hubs - Non-Profits, Networking and Incubators, GovTech

Blockchain Non-Profits

Incubator

SCOTCOIN

Founded date: 2013
Headquarters: Glasgow, UK
Type: Non-Profit

Scotcoin is a digital currency managed by the Scotcoin Project CIC, designed to facilitate blockchain transactions within Scotland. The project has also developed a decentralised education platform that provides courses on cryptocurrency and blockchain technology.

Scotcoin is used as a means of payment within the platform, which offers secure and transparent education and training accessible from anywhere in the world. This type of platform is increasingly popular as more people seek new skills and knowledge in emerging technologies.

Women's Coin

Founded date: 2018
Headquarters: Glasgow, UK
Type: Non-Profit

Women's Coin is a digital currency that supports women's equality by providing micro-finance and credit to help women set up small businesses. The Women's Coin security token ensures secure and transparent transactions. The platform is curated in Scotland with the support of FinTech Scotland, Scottish Enterprise, Zortrex Ltd, and Napier University. Women's Coin partners with stakeholders and Glasgow Caledonian University to provide micro-credit business loans for women.

CODEBASE

Founded date: 2014
Headquarters: Edinburgh, UK

CodeBase is a technology incubator and coworking space with locations across the UK.

1. CodeBase mentors startups and entrepreneurs at all stages. CodeBase helps startups succeed with hubs in Aberdeen, Edinburgh, and Stirling and partnerships with other UK cities.

2. CodeBase supports startups and educates aspiring entrepreneurs. These programs teach business skills and knowledge for different stages of growth.

3. CodeBase values community and inclusivity. Their code of conduct encourages members to be outward-looking, promote diversity, and think globally.

4. CodeBase offers funding, mentorship, coaching, networking, and office space to help businesses grow. A team handles CodeBase's finance, HR, IT, legal, health and safety, and office needs.

5. CodeBase promotes tech innovation and growth. As one of the UK's largest technology incubators and one of Europe's fastest-growing, they help startups connect, collaborate, and find the needed resources.

Scottish GovTech Initiatives

Scotland has been promoting technology and innovation initiatives to strengthen its digital economy and drive growth. The Scottish Government has been investing in various initiatives and programs to create a thriving tech ecosystem.
The top key GovTech initiatives in Scotland:

CivTech is a Scottish Government-funded program that aims to drive innovation and economic growth by bridging the gap between public sector organisations and technology startups. It provides a safe and cost-effective environment for organisations to co-produce solutions to public sector challenges, with the potential for successful solutions to be scaled up and implemented across Scotland. The program received £10m in funding for 2023 to bring innovation into the public sector.

The Scottish Government launched a new Digital Strategy in March 2021, which aims to create a robust digital economy, digital Government, and digital services in Scotland. The strategy is based on embracing the opportunities of technology and data to ensure Scotland is recognised as a digital nation globally.

The Scottish Government's Tech Ecosystem Fund provides funding for events, meetups, and other projects that support Scotland's tech ecosystem. The fund has made awards for delivering various initiatives, such as Glasgow Tech Fest, which aims to bring together the Scottish tech community.

Scotland has a long tradition of innovation, and the Scottish Government is committed to supporting businesses in the country to drive innovation. The Government's innovation policy aims to support businesses to create new products, services, and processes to boost economic growth.

NatureScot, the public body that advises the Scottish Government on the natural environment, recently secured up to £1.25m funding to work with digital innovation companies to improve planning around Scotland's most valuable natural sites.

Innovations and Potential of Blockchain in Scotland

Blockchain technology has been gaining traction in Scotland, with the government and businesses exploring its potential in various sectors. The latest data suggests that Blockchain could bring significant benefits to Scotland, from improving public services to boosting the economy and creating new opportunities for innovation and entrepreneurship.

Blockchain technology could facilitate the creation of more efficient and transparent public services, such as voting systems, land registry, and identity management. This could increase citizen trust in the government and reduce instances of fraud and corruption.

Scotland has already started exploring the potential of Blockchain in different sectors, such as healthcare or finance. For example, the Scottish Government has partnered with the University of Edinburgh and other organizations to establish a Blockchain R&D centers to investigate the application of Blockchain in various fields.

The country has a rich history of innovation, and its growing interest in Blockchain technology is no exception. The technology has the potential to bring significant benefits to Scotland's economy, such as reducing fraud, improving supply chain management, and increasing transparency in public sector operations.

Blockchain technology could also boost Scotland's economy by attracting more investments and creating new job opportunities. According to a report by Big Four accounting firm PwC, Blockchain could add up to £3.7 billion to Scotland's GDP by 2025.

Scotland has already seen the emergence of several Blockchain-based startups, such as Siccar and Hypervine, which have received funding and support from local and international investors.

In summary, the state of Blockchain in Scotland looks promising, with ongoing research, pilot projects, and startup activity. As the technology continues to mature and evolve, it could play a crucial role in shaping Scotland's future, delivering more efficient and transparent public services, and fostering economic growth and social prosperity.

Source: PwC: The trillion-dollar reasons to rethink blockchain

Blockchain Networking Initiatives in Scotland

The Fintech Blockchain Collective (FBC) has been set up by Fintech Scotland in partnership with Scottish Enterprise to bring together a network of Fintech's, Financial service companies, Blockchain SMEs and academics to develop opportunities for Scotland's finance sector using blockchain technology. The purpose of the group is to develop and action initiatives which leverage and adopt Scotland's distinctive distributed ledger technology innovation capabilities and expertise in line with the ambitions set out in the Fintech Scotland Research and Innovation 10 year Roadmap.

Crypto Lab Scotland has been set up by Jason Steedman from Steedman & Co Accountants. The group aim to promote the benefits and opportunities available to SMEs, corporations, individuals and organisations associated with the Web3 and crypto assets industry in Scotland. Promoting knowledge sharing and best practice across the sector. Through a range of seminars, online content and working groups, we aim to discuss key topics such as policy, regulation, technical challenges, tax, data, security and general culture, enabling guests to enhance their knowledge, activity and network in the sector.

The Scottish Blockchain Meetup is an event where blockchain enthusiasts gather to share their knowledge, experiences, and ideas about the emerging technology. The meetup is organized by a group of passionate individuals who are committed to promoting the adoption of blockchain in Scotland. Meet up group chaired and ran by Maciej Zurawski with over 2k members. The group holds a monthly meet up at Codebase in Edinburgh and invites a range of speakers to discuss Blockchain in Scotland. With regular meetings and guest speakers from the industry, the Scottish Blockchain Meetup is a must-attend event for anyone interested in blockchain and its applications.

Blockchain in Scotland Landscape

Summary

Obstacles on Blockchain Solutions Adoption in Scotland

Blockchain technology operates in a regulatory grey area, which can make it difficult for businesses and organizations to navigate the legal landscape. Uncertainty around regulations and compliance can create a risk-averse environment, where companies are hesitant to invest in blockchain solutions.

Blockchain is often associated with cryptocurrency, which can create negative perceptions due to the association with illicit activities. This perception can create a barrier to adoption, as businesses may be hesitant to associate themselves with blockchain technology.

Regulatory Uncertainty

Lack of Technical Expertise

Public Perception

Interopera-bility

Blockchain is a complex and emerging technology, and there is currently a shortage of skilled professionals who can develop, implement and maintain blockchain solutions. This makes it difficult for organizations to integrate blockchain into their operations, and there is a risk that poorly implemented blockchain solutions could lead to security vulnerabilities or other issues.

Blockchain solutions are typically developed in isolation, which can create issues when trying to integrate them with existing systems or other blockchain solutions. Interoperability standards need to be developed and implemented to ensure seamless integration and compatibility across different blockchain solutions.

Key Takeaways

Scotland's blockchain ecosystem is vibrant and growing, with numerous startups, academic institutions, and public-private partnerships engaged in blockchain research and development, starting ventures and scaling them up. The Blockchain in Scotland Ecosystem Framework comprises various sectors leveraging blockchain technology for innovative solutions. Key sectors include Blockchain-as-a-Service (BaaS), providing third-party blockchain services, and blockchain consultancies offering strategic advice for companies. Additionally, the framework supports the growth of blockchain-based education platforms. The goal is to foster collaboration and development within these sectors to strengthen the Scottish blockchain industry.

The Blockchain technology has the potential to significantly boost Scotland's economic growth and create personal value across various sectors. **Blockchain technology can contribute £4.48 billion to Scotland's GDP** by 2030* through information openness, economic savings, and usage. The widespread adoption of blockchain will lead to improvements in supply chain activities, healthcare systems, and financial transactions, ultimately enhancing national wealth.

Scotland's energy sector is exploring the use of blockchain technology to enable peer-to-peer energy trading and incentivise renewable energy generation.

Blockchain technology can enhance the security and privacy of Scotland's healthcare data by enabling secure sharing of patient records and preventing unauthorised access.

Blockchain technology has the potential to improve the efficiency and transparency of Scotland's public sector by reducing administrative costs, enhancing data security, and increasing trust in government services.

Key Takeaways

The sectoral distribution of blockchain entities in Scotland reveals that the majority (28.77%) are focused on exploring innovative applications of the technology. Crypto trading follows as the second-largest sector (16.44%), while the BlockChain-as-a-service model, offering blockchain-based solutions to other businesses, accounts for the third-largest share (12.33%).

Blockchain technology holds great potential to transform the UK Media and Entertainment Industry, with Scottish companies like Delic, VAULT, and poised to capitalise on this trend. By facilitating fan engagement and enabling monetisation through transparency and exclusivity, these companies offer new revenue streams. Digital rights management and micropayments offer increased control and income opportunities for artists and content creators. Smart contracts foster industry collaboration, simplifying tasks like music rights clearance for films or TV shows.

London, as a global financial hub, has established itself as a prominent epicenter for blockchain innovation and investment. In Scotland, the investment market provides financing across diverse products, attracting American venture capital firms like Lightspeed Venture Partners and Digital Currency Group. These firms, focusing on sectors such as technology, healthcare, and blockchain, have already invested in Scottish companies and continue to seek opportunities. The Scottish government's partnerships with these firms further support a thriving startup ecosystem, showcasing Scotland's growth potential.

Some key GovTech initiatives in Scotland include CivTech, the Digital Strategy, the Tech Ecosystem Fund, and NatureScot's funding for digital innovation companies.

These initiatives aim to drive innovation and economic growth by bridging the gap between public sector organisations and technology startups, embracing the opportunities of technology and data, supporting Scotland's tech ecosystem, and improving planning around Scotland's most valuable natural sites.
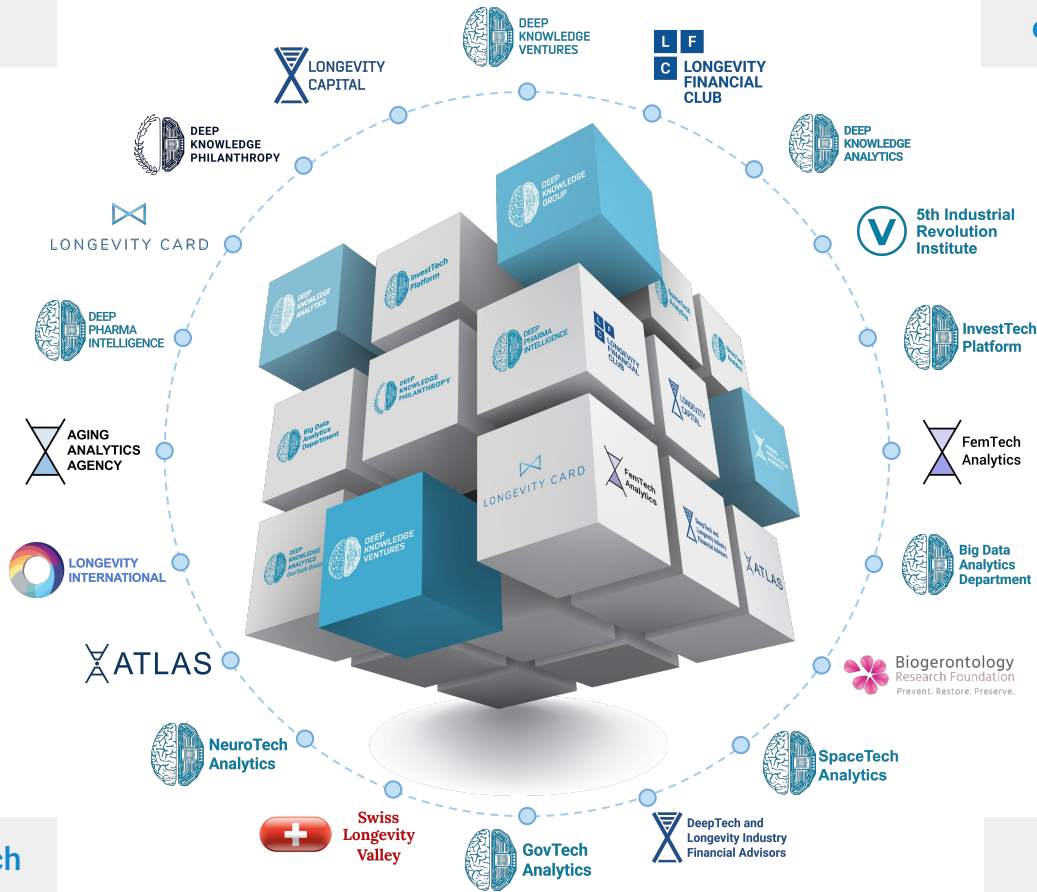
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www.longevity.network