IoD TECHNOLOGY, SCIENCE AND INNOVATION EXPERT ADVISORY GROUP

Glossary of terms

This glossary was produced by the Institute of Directors' Technology, Science and Innovation Expert Advisory Group with the aim of simplifying specialist terms in this space. More terms will be added to this glossary in the future, and the EAG will look for input from members on terms they think would be useful to include.

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Please note, this glossary reflects the views and opinions of the members of the Expert Advisory Group, not the IoD itself.

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Blockchain

A digital database of transactions. The details of each transaction are recorded in blocks that are linked in a chain to other blocks. The database is distributed among its users to allow for validation of transactions and to prevent tampering of the data within each block.

Known use cases
Ether (or Ethereum) as one example, and various others running on Microsoft Azure Blockchain, IBM Blockchain etc.

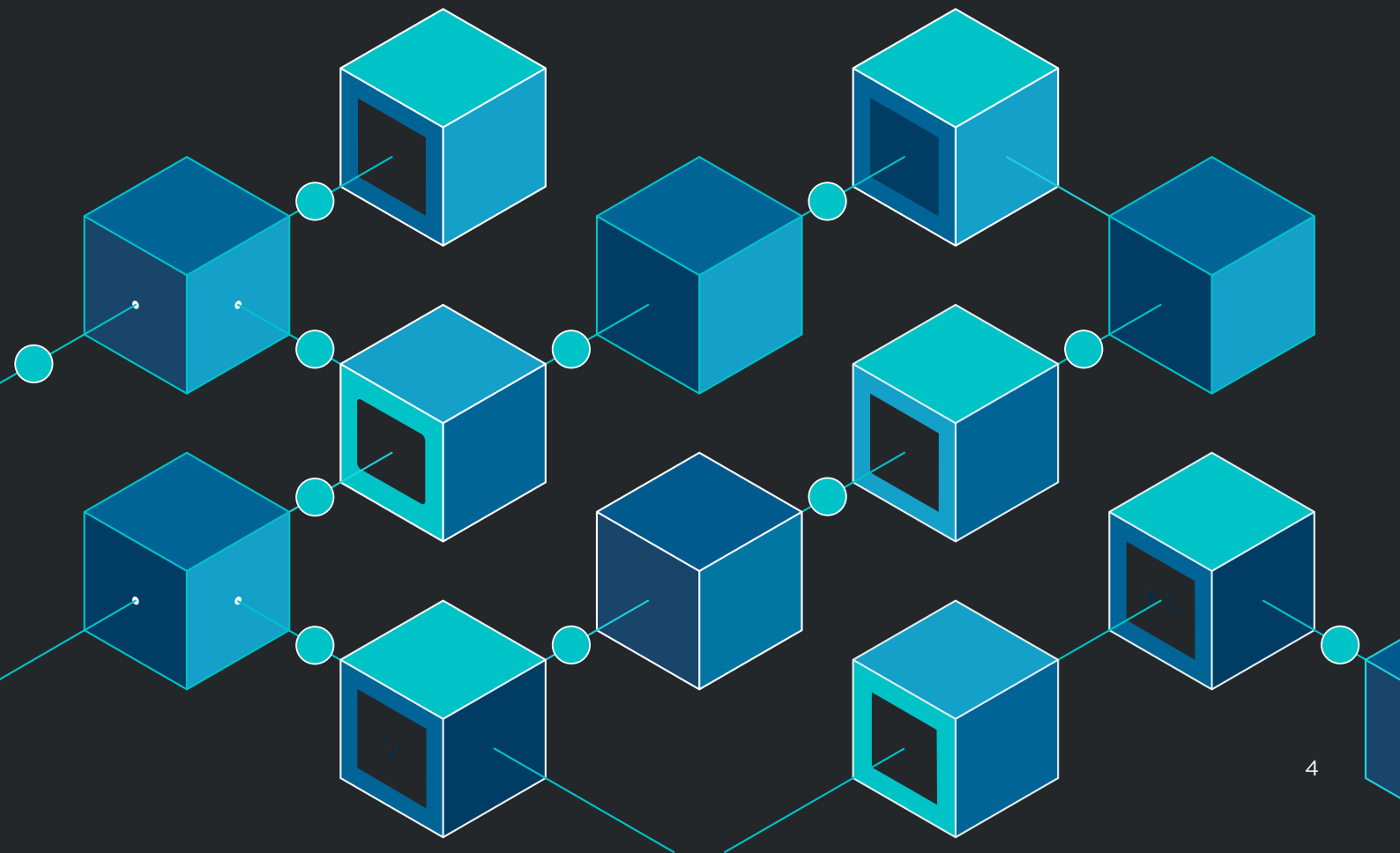
e.g. ibm.com/blockchain/use-cases/

Opportunity
A distributed ledger as an alternative to traditional record keeping.

Risks
Overkill for most challenges, speed and scalability is an issue - as is energy consumption - (Bitcoin alone burns 91.9 TWh per year as per the Cambridge Bitcoin Electricity Consumption Index).

Board risk appetite needed to explore
For crypto currencies, see below. For non-crypto currency uses: medium for tech-savvy organisations that have clear use case, high for everybody else.

Related terms
Distributed ledger technology, cryptocurrency.



Distributed Ledger Technology (DLT)

A digital system that allows secure records (or ledgers) of electronic transactions to be accessed and maintained simultaneously by a shared, or distributed, network of participants rather than a central authority.

Known use cases
See blockchain above.

Opportunity
See blockchain above.

Risks
See blockchain above.

Board risk appetite needed to explore
See blockchain above.

Related terms
Blockchain.

Cryptocurrency

Digital currencies that are not maintained by any central bank or authority, and which use a decentralised and distributed system to record transactions and the creation of new currency. They used advanced cryptography to help prevent fraud and maintain its integrity.

Known use cases
Bitcoin, Ether + a further 1000 or so being added every month according to investment site Motley Fool.

Opportunity
Extremely limited outside FinTech/organisations that act as professional speculators.

Risks
Too many to list - excellent recent Briefing Room episode from the BBC on the topic here as well as the FT's Tech Tonic series devoted to the topic.

Board risk appetite needed to explore
Extremely high - including if you're a FinTech startup.

Related terms
Blockchain, distributed ledger technology, Web3.

Non-Fungible Tokens (NFT)

A non-fungible token (NFT) is a record on a blockchain which is associated with a particular digital or physical asset. It is a unique, non-replaceable digital asset (I.e. non-fungible). The NFT acts as a certificate of authenticity or a proof of ownership of the digital asset to which it is assigned.

Known use cases
The Economist sold an NFT cover of one of their weekly issues and raised $422K for charity in the process. Sotheby's has organised art NFT auctions etc.

Opportunity
Extremely limited (at this stage) outside specialised art market.

Risks
Extremely high.

Board risk appetite needed to explore
Extremely high - including if you're a FinTech startup.

Related terms
Blockchain, distributed ledger technology, Web3.

Artificial Intelligence

A branch of computer science and engineering that attempts to train and utilise algorithm-based actions to emulate human intelligence through machine interfaces. This enables the machines to perform tasks and make rapid decisions independently. The algorithms (sets of codes) provide a method for independent decisions to be made.

Known use cases
All around you all hours of the day (e.g. a phone running iOS or Android). Chat bots, physical security, customer buying habits/behavioural analysis, credit scoring, content creation, production line monitoring, movie/retail recommendation engines, environmental monitoring.

Opportunity
Innovation which may generate competitive advantage in various areas: customer service, energy saving/net zero, reduction in waste/process quality control etc.

Risks
Clearview AI fined £7.5 million by the ICO for illegally processing personal data obtained online without consent, Dutch Government resigned due to being caught allowing automated racial profiling to cause harms. Amazon scrapped biased HR tool.

Board risk appetite needed to explore
Dependent on the purpose of the AI, and if processing personal data, very high risk if there is no governance structure in place.

Related terms
Machine learning.

Cybersecurity and cybersecurity risk management

An area of operational systems whereby individuals and organisations instigate methods to protect themselves and their company assets from digital and computer-based security breaches or attacks.

This can lead to criminal or unauthorised use of electronic data. Steps include use of security software and firewalls, strong password management, two-step verification, backing up data and ensuring all systems are up to date.

Known use cases
2 Factor Authentication, encryption, firewalls etc. all the way through to AI assisted solutions such as Darktrace.

Opportunity
Secure your assets, data and IP - and people.

Risks
'There are two types of companies: those that have been hacked, and those who don't know they have been hacked.'

Robert S. Mueller, III, former Director of the FBI

John T Chambers when CEO of CISCO British Airways fined £20 million by the ICO for failing to secure customer data, CISCO data breach after employee Google account hacked.

Board risk appetite needed to explore
Extremely high if not explored - should be top of any board agenda and risk register. The UK Government Cyber Essentials scheme provide a framework for risk mitigation. See NCSC (part of GCHQ).

About the Tech Science and Innovation EAG

The Tech, Science and Innovation Expert Advisory Group is one of a number of Expert Advisory Group that the IoD Governance and Policy Unit has established to help tap into the expertise of IoD members on the key issues for UK directors, providing insight from those who have substantial front-line experience.