

Blockchain playbook

isobar

A Dentsu Aegis Network company



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Blockchain. We've all heard about it.

But what many of us want to understand is, what is blockchain, and what is its potential, today and in the future?

It has been subject to huge amounts of hype, but we believe that blockchain, a distributed ledger technology, has the potential to disrupt entire industries and transform people's lives.

Blockchain has launched a decentralised technology revolution, with Gartner forecasting "By 2025, the business value added by blockchain will grow to slightly over \$176 billion, and then surge to exceed \$3.1 trillion by 2030." ¹

But its progress is constrained by computation capacity and distributed storage, and currently, network speed is preventing the technology from reaching its real-time full potential. But, as we know, technology moves fast, and once 5G networks roll out in key markets such as in US and China, prepare for businesses to start integrating it at scale.

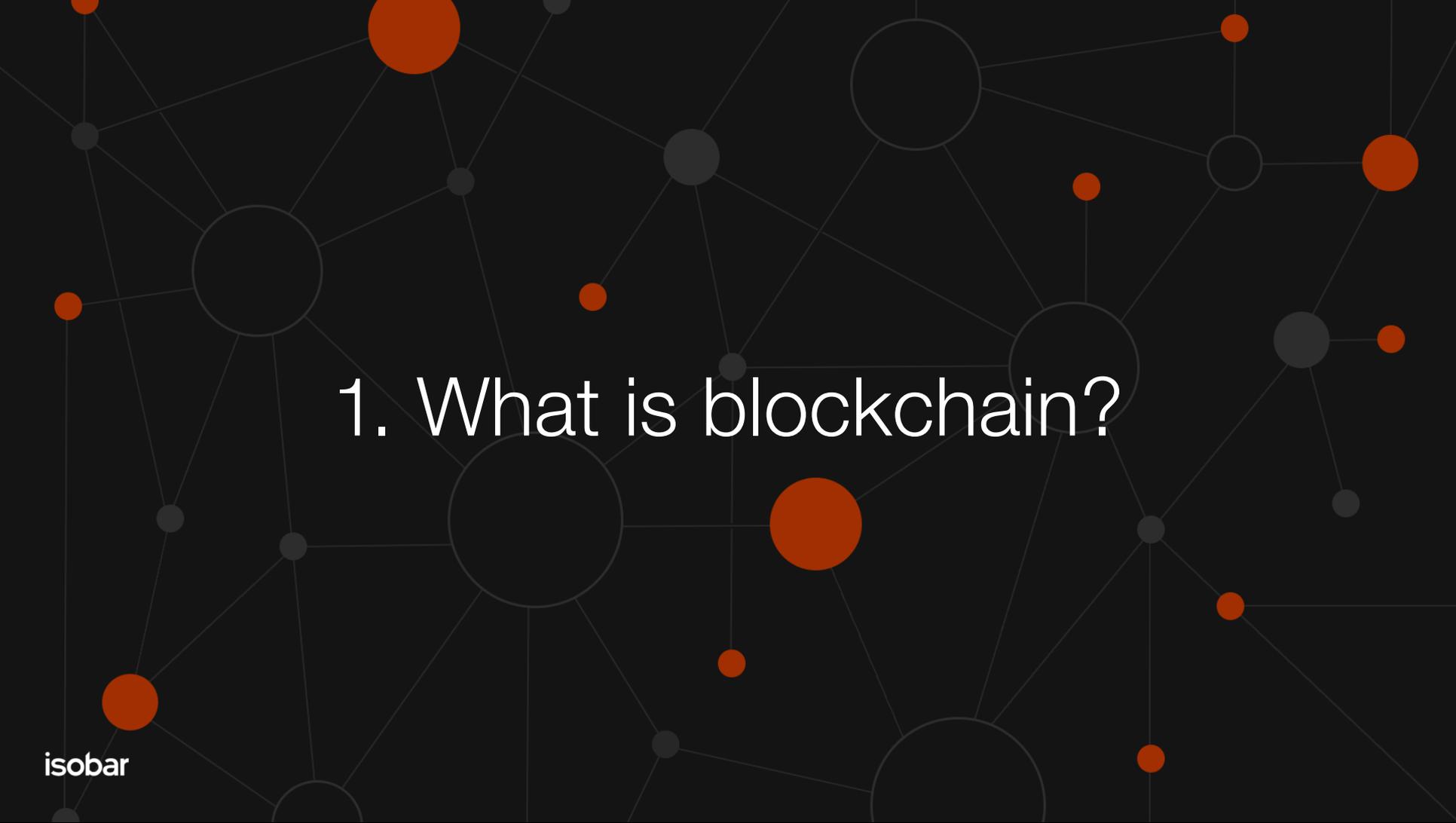
In this playbook, we cover cryptocurrency, but we see blockchain's potential beyond value stores and currency replacements, and in areas such as Supply Chain, Commerce, Transparency and Identity Management.

We unpack blockchain in practice, and how it's developing in high growth markets including Brazil, India and China. We dive into its impact on the Media & Marketing industry, including looking at Media Supply Chains, Transparency, Brand Management and Creativity.

Today, brands are more than how they look and what they say, brands are what they do. Blockchain has the potential to be the technology that enables brand experiences that are authentic, transparent and relevant.

Digital has changed the way we live and work forever. If the past is evidence, whenever a near monopoly emerges, a new technology also emerges that disrupts the industry. Blockchain could be that opportunity.

Vikalp Tandon, Global Chief Technology Officer, Isobar

A dark gray background featuring a network diagram. The diagram consists of numerous circular nodes of varying sizes, some filled with orange and others with gray, connected by thin, light gray lines. The nodes are distributed across the frame, creating a complex web of connections.

1. What is blockchain?

Current ledger systems

Blockchain is a new form of ledger.

Ledgers have been around since the start of human writing. They are a way of recording financial transactions. They're designed specifically for this purpose – they're not for generic data.

Currently systems have two main limitations:

1. Only one 'master' ledger exists.
2. An edit is made by only one person at a time, independently.

Even in current computer systems, there is only one master ledger that is live at any given moment. This is centralised (in one place), although it can have multiple backups and fail safes.

Also, an entry into one of these systems is effectively only created by one person at a time.

This means there's always a chance of fraud, errors, or exploitation (hacking) around that particular account.

What is blockchain?

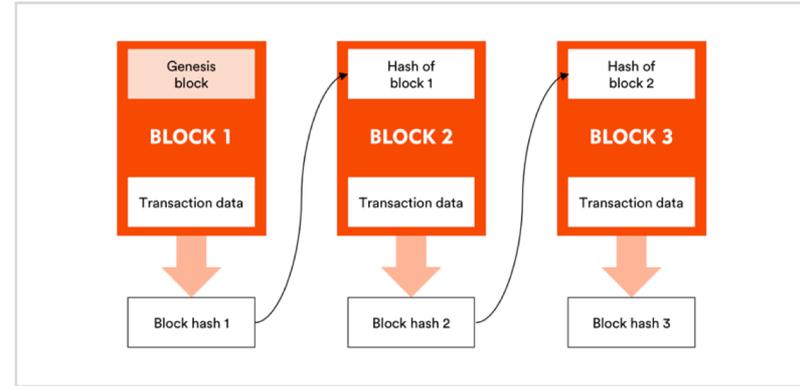
Blockchain is a record keeping system – a ledger – where multiple sources validate an entry before it gets added. Once it's added, it can't be changed, and the record is distributed, living in multiple places at once.

There are several features here that are unique to what has come before it. By being decentralised, there is no 'master' version, so it makes it much harder to tamper with.

To add a record (a block) to the chain, it needs to be verified by multiple third parties. In most cases this is done by a process called 'mining', where computers are given extremely complex cryptography problems to solve (hence the 'crypto' in cryptocurrency).

The first to complete the problem becomes the recognised 'block'. Once other miners approve this block, the original miner is rewarded with remuneration.

Each block has a reference to the prior block in the blockchain. This links them to form a chain and confirms the integrity of the previous block.



The blockchain analogy

A group of kids are exchanging trading cards. They each have a list of who has what cards. When they trade a card, they all check their lists are identical, and make sure several kids witness the trade take place. They agree it happens, then everyone records that trade in their lists. A couple of kids try to cheat. One changes their list, but the others rule it invalid since it's different to theirs. Another tries to trade cards privately, but without witnesses nobody acknowledges it. This is the basis of blockchain.

What is blockchain?

One of the most revolutionary features of blockchain is that it is decentralised. This enables it to live in countless different locations (called nodes) at the same time. For actions such as payments, this means that it doesn't go through a central entity, such as a bank or credit company, enabling peer-to-peer transactions. For certain enterprise applications, it means each of the invested parties can host a node, building a circle of trust.

There are two different types of blockchain distributions. The first, public blockchain, is the 'open' version, which means that anyone can participate in running and adding to the blockchain. This includes being a node, mining transactions, adding blocks, and reading the blockchain contents.

The other type is permissioned blockchain. This restricts all the capabilities listed above to authorised parties.

When talking about enterprise applications, the preferred method appears to be using a permissioned blockchain. The alternative is to 'piggyback' on a public blockchain, however their limitations in scalability seems to be a drawback.



Where did blockchain come from?

Blockchain was created as the technology that powers Bitcoin, the world's first cryptocurrency, Launched in 2008, its creator or creators are still unknown, instead using the pseudonym 'Satoshi Nakamoto. There are several theories on who Nakamoto is, but none have been proven.

A dark gray background featuring a network diagram. The diagram consists of numerous circular nodes of varying sizes, some filled with orange and others with gray. These nodes are interconnected by a web of thin, light gray lines, creating a complex, interconnected structure that resembles a blockchain network or a social network.

2. Blockchain in practice

Cryptocurrency

Cryptocurrency is where blockchain began, and it is still by far the most common use of the technology.

However, whilst it's been around for ten years, its popularity only started to take off early-to-mid 2017. Before then, Bitcoin was the dominant token in play, but its popularity has encouraged countless others.

The current market capitalisation (at the time of writing) is U\$209B, down from an all-time high of U\$819B in December. However, it is currently nearly five times higher than it was 12 months ago (U\$46B), which screams volatility.²

Unlike other markets, cryptocurrency trading is entirely speculative – there is no intrinsic value underwriting the currency. Each cryptocurrency has some form of token (or 'coin') that is traded as a unit of value, and this is normally linked to the mining process that is needed for transactions to function.

These tokens are used to power the blockchain, by incentivising miners to process transactions.

How efficient is it?

Currently blockchain has issues scaling to millions of transactions, but it's a technology this is actively undergoing rapid change. While volume may be an issue, size of transaction is not. Recently a transaction was made with Litecoin for U\$99M. The transaction took 2.5 minutes to complete, and cost only 40 cents in transaction (mining) fees.³

Initial coin offerings (ICO)

Whilst some of the most notable cryptocurrencies were created for value exchange, the majority have been created for different reasons. These are using blockchain as an underlying technology, but focus their main purpose on every industry imaginable.

A phenomenon that has occurred over the last year is the ICO, or initial coin offering. This is where a start-up creates what's effectively a seed funding round, allowing individuals to buy some of its tokens with another (such as Bitcoin or Ether). These ICOs can gain hundreds of millions in a matter of weeks. However, the success has led to issues of deceptive and fraudulent ICOs. In response, a number of big publishers have put a ban on their advertising, with both Facebook and Google banning ICO and crypto-advice related material on their platforms.

Different countries have also put bans and regulations on ICOs to varying degrees, most notably China and South Korea last year. While some of the rhetoric is around customer safety, the majority of resistance is around taxation, regulation and the movement of untraceable money. The economic potential is so great however, that South Korea is rumoured to be relaxing its laws once it can establish a form of government supervision.

Power Ledger is an example of an Australian blockchain start-up. Launching late last year, its goal is to create a peer-to-peer marketplace for renewable energy. Currently, all residential-collected energy gets sold back to the grid via the house's energy retailer.

Power Ledger raised A\$34M in its ICO, has been recognised by the Australian Government with a AUD\$8M grant, and already has pilot projects in Thailand and North America. ⁴

Financial services

Due to it being a ledger, blockchain has seen natural adoption in the financial services space. Like all industries, it is still in the experimentation phase, but is seeing success.

One of the large scale implementations of blockchain in finance is by the Australian Securities Exchange (ASX). Currently using a system called CHESSE, the transition to blockchain would mean that trading settlements that took up to two days post-trade to clear could settle almost instantaneously.⁵

In the U.S, the Federal Reserve is working with blockchain technology to develop a real-time retail payments system, using distributed ledger technology to develop new clearing and settlement services, and the supply of digital currencies by central banks.⁶

In 2017 Nasdaq and Citi made an announcement regarding the commercial application of blockchain technology. This partnership has been created to streamline payment transactions between multiple parties, bringing a greater level of liquidity to the private securities market.⁷

Supply chain transparency & proof of origin

Supply chains and the blockchain has also drawn a lot of attention. By having an immutable ledger, blockchain can record every step of a product or asset's journey. This record is not only permanent but can be shared and contributed to by multiple – ideally all – parties involved in that particular journey.

There are a number of issues that this could address: it would dramatically reduce time delays and associated costs, as well as strip out errors from manual handling. It currently takes days to make a payment between a manufacturer and a supplier, or a customer and a vendor. Contracts must be handled by lawyers and bankers, which means extra cost and delay.

Payments are one possible application for blockchain, but there are many others. A more recent application is the concept of 'smart contracts'. In essence, a smart contract is a program that leverages blockchain to protect its integrity. The smart contract program can be stored within the blockchain itself, and can react to different events that happen [on blockchain](#), such as an asset transferring between parties, or a payment being made. ⁸

Products can be particularly difficult to manage, with factors such as fraudulent goods being a massive concern to companies, especially when crossing international borders.

A body of leading diamond and jewellery companies from around the world have announced a unique blockchain collaboration called [TrustChain](#). In an industry where product can be from inhumane origins, it will be able to track diamonds and precious metals from the time they are mined up until they are sold, authenticated their movement each step of the way. ⁹

Data insights & protection

The adoption of blockchain could secure the sharing of information. For example, improving public services through insights garnered by improved data protection.

Data insights from health information from large numbers of patients could help improve patient quality outcomes across the entire vertical. But often opportunities are lost through the close protection of personal health information preventing access. Blockchain has the potential to safeguard these concerns and connect a diverse range of health providers.

The US Food and Drug Administration's Office of Translational Services is one such entity exploring this space. They are running a pilot with four major hospitals, and with the assistance of Booz Allen Hamilton, a technology consulting firm, are exploring how blockchain can be used as a universal platform to share information with hospitals, healthcare providers and the FDA.

"I strongly feel that Blockchain is here to disrupt in a big way because it essentially decentralises control and ensures that trust is achieved without the need for a centralised power."

Vikalp Tandon, Global Chief Technology Officer, Isobar

US Food & Drug Administration Office

The FDA implementation is based on the Ethereum network, with the core goal of never exposing sensitive information. Each piece of data on the chain has one owner who can share whatever pieces of data they own with other users or groups depending on their levels of access. This implementation puts access control at the document level. Of course to achieve this, the network is both private and permissioned (only writable by authorised parties). ¹⁰

Providing authenticity

Ensuring the provenance of food products is a concern for all consumers, but perhaps especially so in China, where the market has a greater volume of fake goods. As a response, we're witnessing innovative retailers invest in systems designed to provide authenticity and safety.

Alibaba Group (China's biggest retailer), PwC, Blackmores and Australia Post launched the [Food Trust Framework](#) last year in an effort to combat 'food fraud' – counterfeit or low quality food products being sold into China via Alibaba's online shopping platform, Tmall. New Zealand Post and Fonterra also joined the initiative later last year. ¹¹

In April, the first pilot orders of Fonterra product using the food tracking service launched from New Zealand. The orders demonstrate the potential of blockchain technology to track the supply chain process of food products and ensure food authenticity.

Food fraud costs the global food industry U\$40 billion each year, according to [research from PWC](#), which will provide services to the framework's participants, says 40% of food companies currently find food fraud difficult to detect. ¹²

Alibaba is not the only big Chinese retailer to explore this space. JD.com is also investing in blockchain to track its international grocery goods. They recently launched a partnership with InterAgri, an Australian beef exporter. This not only ensures its origin, but also promotes a transparent provenance story to customers, elevating the product's status. The new partnership follows JD opening its [first Australian office](#) in Melbourne last month to support Australian exporters selling to China. ¹³

The implementation can be extremely specific. When properly implemented, customers will be able to [track their piece of beef](#) all the way back to the individual farm in Australia where the cattle was reared. ¹⁴

China: market focus

China Internet giants – BAT's (Baidu, Alibaba & Tencent) investment on blockchain can be traced back to as early as 2015. However, in 2018, Crypto-related discussion has been discouraged by the Chinese government.

The focus of blockchain development then shifted to investigating the benefits of the technology rather than ICO specifically and the giants have focused on the area where blockchain will specifically benefit their current business. Baidu has integrated AI & [blockchain](#) to develop financial related applications including personal loan contracts, Alibaba is applying the technology to logistics giant Cainiao's distribution process, which is a crucial part of the feverish Chinese e-commerce marketplace, and Tencent's blockchain is looking into how it can enhance its service across finance, medical and gaming. ¹⁵

“As a marketer in China we expect exponential experiments using the technology, with both local business and consumers likely to quickly adapt to it. Whilst there are already a lot of start ups using the technology, it will be the more scalable, practical business cases that demonstrate real value that are yet to be commonplace.”

Cecilia Huang, Senior VP of Brand Commerce Consultancy, Isobar China

ZhongAn, an [Alibaba-backed technology incubator](#), has entered data agreements with over 100 hospitals across China to enable record verification and automatic claims. ¹⁶

The start-up is also looking at blockchain opportunities to offer a more effective information distribution between parties, anonymous data pools for research, and new ways to combat the production of counterfeit drugs.

Brazil: market focus

In Brazil, research into the application of blockchain technology is developing quickly, but is being led by large financial institutions and technology companies like IBM and Microsoft.

In a market as fragmented as Brazil, the blockchain technology and more specifically smart contracts provide the opportunity for transparency and trust by automating of process and payment.

For example, the control and tracking of taxes, from the collection to distribution, is a hot topic for a country that has recently witnessed [corruption at scale](#). The technology would also make possible to eliminate several intermediaries that represent high risks and costs to the entire Brazilian fiscal system. ¹⁷

“We must emphasize the importance of this technology for agribusiness. Blockchain should contribute a lot to the supply chain, allowing greater control and visibility of each link in this chain.”

Pedro Augusto Olivan Birindelli, Senior Executive, Cosin Linked by Isobar

Recently, a [partnership](#) between BRF, Carrefour Brazil and IBM ¹⁸ has unveiled a blockchain-based solution for tracking the entire meat production process. The final consumer could, through a QR Code on the packaging of the product, check the factory of origin of that product, dates of production, packaging and transport, as well as its expiration date.

India: market focus

With the policies and restrictions of 'blockchain-backed cryptocurrency transactions' from the Indian government and the Reserve Bank of India, the growth of blockchain technologies in the countries slow, but catching up.

In India, typically 80% of people work on mutual trust rather than formal contracts to cement relationships.¹⁹ Smart contracts has real potential to transform the country. For example, the state of Telangana is using blockchain to enhance its land registry platform to arrest fraud and make the process more authentic. Its IT department along with Tech Mahindra are set to launch India's first Blockchain district to create Blockchain infrastructure.²⁰

Healthcare, education, and entertainment are the sectors with the highest potential for Blockchain in India. For example Blockchain can help create a distributed-ledger solution that is future-forward, secure, and scalable, for effective deployment of government programmes and drug distribution.

In education, Blockchain can come handy in storing educational records unviolated to have multiple downstream benefits. Also, in a country that is host to the world's largest movie industry by volume, and a related music

scene, rights management and revenue loss across distribution can be tackled efficiently using Blockchain technology.

Sectors such as Banking, Insurance, Retail, and Automotive are set to benefit from Blockchain in a country as complex and polarised as India. Kotak Mahindra Bank has already created a blockchain trading platform for one of its clients, thereby reducing the time taken for a letter of credit to just a few hours from a usual month.²¹ Bajaj Allianz General Insurance has been applying blockchain and artificial intelligence to simplify its customer experience across a range of digital products.²²

The future looks bright with Blockchain in India. Hon. Prime Minister Modi, has pitched the usage of this technology to bring in transparency in agriculture trade to arrest the problem of supplying bad quality seeds and fertiliser to the farmers that would eventually yield a bad crop.²³

"Blockchain can be utilised in a meaningful way to correct issues that have plagued various sectors in India for decades and move industries forward into new realms."

Shekhar Mhaskar, Executive Vice President, Isobar India

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3. Blockchain in media & marketing

“We expect every industry to adopt some form of blockchain in the coming years. A Gartner forecast says that “By 2025, the business value added by blockchain will grow to slightly over \$176 billion, and then surge to exceed \$3.1 trillion by 2030.”²⁴

As we all know, the monopoly of media and e-commerce by a handful of players is almost complete. There are hardly any challengers to existing players, and the cost of entry is too high. If the past is evidence, whenever a near monopoly emerges, a new technology also emerges that disrupts the industry.”

Vikalp Tandon, Global Chief Technology Officer, Isobar

Why is blockchain relevant?

Blockchain is being assessed by the digital marketing and media industry to see if it can be used to help solve its issues around transparency, privacy and fraud. It's still early days, but start-ups are making progress on solutions to advertisers' challenges, and 2018 will be a year of testing and learning.

The programmatic ecosystem is the primary focus on where blockchain can have the most benefit, bringing unprecedented transparency on process that can involve many third parties.

Due to the inherent relationship with cryptocurrency, it's also being considered to bundle payment facilitation across the different programmatic players.

Identity management is another area of interest for marketers, as Blockchain has the potential to assist companies comply with privacy laws.

Will blockchain change marketing?

It looks certain that it will change elements of the business of marketing.

The likely common denominator is that it will be used to verify components of the advertising ecosystem across the supply and buy sides. The verification element will focus on the presence of desired outcomes like human browsing, attention, viewability, and the validity of sites or audiences.

It may also with the use of smart contracts simplify how creators are managed, paid and credited. Either view a brand via the agency, or as consumers tip the creators directly. One such player in this space is [Gifto](#).²⁵ Gifto's core premise is that it will integrate into content platforms directly, enabling content consumers to reward the creators directly through a system of virtual gifts which can then be converted to cash or physical rewards.

We may see display advertising reduce or be replaced by a trade in attention like tokens (BAT, Brave). Or buzz generated by customer looking to decipher puzzles to gain access to a wallet. It may even usurp the current social media behemoths with decentralised, token driven platforms owned by their communities (STEEM, Akasha).

Unlike Gifto which integrates into other platforms, [Steemit](#) is the platform itself: a new, decentralised social network. Steemit's houses creator's content on the blockchain, and readers can up-vote content they enjoyed. Once a day, Steemit releases a number of STEEM tokens as rewards it back to the creators, based on how popular their content is.²⁶

How will marketers know it's for them?

It's essential for creatives and marketers to understand the 101s of blockchain so they can get beyond the hype and make something interesting, but ideally something meaningful.

While mainstream fever around cryptocurrencies has subsided, a few brands have did capitalise on the PR-able value from blockchain associated technology.

Notably Burger King Russia's [WhopperCoin](#) ²⁷, UNICEF's [Game Changers mining Ethereum](#) ²⁸, and [The Long Island Iced Tea Company announcing their pivot to blockchain](#) ²⁹ being three of the best examples.

In order move beyond opportunistic hype, longer-term opportunities, will need to have a deeper understand the client's business operations. These conversations will often need to push past the CMO to other areas of the client with the CDO/CTO/CIO and CEO.

Supply chain tracking & traceability

With the emergence of the global economy, Luxury and FMCG verticals including alcohol, fashion and tobacco companies, are increasingly seeking to protect their brand and develop systems that ensure local market compliance and product protection.

“The future of retail is in providing greater transparency and power to the consumer. Consumers are taking deep interest in knowing the origins of a product and its sustainability. We also see growing interest by the brand manufacturers to play an important role in aftermarket commerce to manage brand perception and product value as their product change hands.” Vikalp Tandon, Global Chief Technology Officer, Isobar

Walmart [has just created a food safety programme](#) based on blockchain called the Walmart Food Traceability Initiative. Build on IBM's Food Trust Network, it's design to track product from paddock to plate, and is now a requirement for suppliers of leafy greens. ³⁰

Philip Morris, the global tobacco company, uses a suite of solutions with digital serialisation, [track and trace](#)³¹ and authentication built in and deployed across over 400 production lines, across 1,600 tracking locations in 105 countries.

With over 10 Billion items to trace, the brand is working with integration partner blue-infinity Linked by Isobar to ensure the full transparency and integrity of its supply chain, and then deliver exceptional customer service.

“Tracking and tracing down to pack level from manufacturing site to the first retail outlet is a vast challenge; having the right partner to deliver the solution is paramount to success. blue-infinity's expertise, solutions and packaged services really make it happen.”

Senior Manager Anti-Illicit Trade Technology R&D at Philip Morris International

Blockchain as a creative medium

Popular opinion would suggest Blockchain has no obvious opportunities for the creative industries, other than through the application of the basic benefits of the system: enabling the protection of IP, protecting payment, and tracking and certification.

There is clear potential for creatives to be directly recompensed for their work. By using smart contracts the complex world of royalties and credits can be simplified. Services like Mycelia aim to revolutionise music, Giffto helps content creators monetise their online video persona, and [Typerium](#)³² designed to protect the IP of its content creators.

Moreover, the creative merits and potential impact of Blockchain's development is already being interrogated as an artistic medium by artists world over.

For example, the "[Useless Ethereum Token](#)"³³ is a cryptocurrency that satirizes the hype around ICOs by inviting people to pay for seemingly worthless coins.

[Julian Oliver](#)³⁴, an engineer and artist, has created a piece of climate art that uses natural energy to mine ZCash currency. Where a lot of attention has been put on the cryptocurrency mining industry's massive energy use²⁸, his work, HARVEST, does it in a clean way, using wind energy to power his mining equipment. The currency mined is then donated into [climate-change research](#).³⁵

Kevin Abosch has collaborated with [Ai Weiwei](#)³⁶ to ask the question 'What is Priceless?'

Creative uses of blockchain

Looking beneath the surface of “crypto art” reveals an ingenious selection of artistic uses of Blockchains. These examples can help inspire us to think differently about our digital world and create new opportunities that benefit from the technology and interest in distributed systems.

\$10 Dogecoin³⁷: Lego Art that contains cryptographic keys to cryptocurrency or other content within its associated blockchain. Being the first to decipher the challenge rewards you.

Yellow #Lambo³⁸: Using a smart contract address to connect the physical and virtual world, to reassess our ideas of value.

Respiratory Mining (BRH):³⁹ Using the process of mining, to make a connection between hashing power and other uses of energy or existence.

Cryptograffiti.info:⁴⁰ Embed enable messages, objects, art to be secured in the blockchain. From secret surprises, to trolling to passing secrets, to a form a secure decentralized proof of existence.

Crypto Kitties:⁴¹ A main stream example of how the distributed, propagating nature of the blockchain can be used for entertainment. This idea tests the 21st Century question: Can a digital good be rare?

A dark gray background featuring a complex network diagram. The diagram consists of numerous circular nodes of varying sizes, some filled with a solid orange color and others as hollow gray outlines. These nodes are interconnected by a web of thin, light gray lines, creating a dense, interconnected structure that suggests a supply chain or a digital network.

4. Supply chain

Supply chain transparency

As noted in the previous section, blockchain is a viable technology to tackle problems with supply chains. When this comes to marketing, origin is not the issue that needs addressing, but transparency.

Today, over half of every dollar spent by advertisers in programmatic feeds into the ad tech ecosystem, including fees for services to verify results and mitigate fraud. This is considered standard and even normal, but that doesn't mean that advertisers are happy about it. In fact, the [IAB currently accepts a 10% discrepancy](#) ⁴² in results between agencies and publishers.

A possible solution to this [transparency](#) quagmire is to have all middleware parties leverage a blockchain solution. This can help create a marketplace where publishers and advertisers can buy and sell ads with fewer intermediaries. This, in turn, will help mitigate and eventually eradicate ad fraud. ⁴³

Supply chain transparency

“This would work by cutting out layers of resellers and exchange waterfall stacks and more directly connecting the ad buyer to the media seller through a blockchain audited and verified system. A fraud free environment could be created where the publisher earns more revenue and the advertiser pays less for the ad space. This consensual verification of sites or audiences at device level can therefore create a more credible brand safe and verified ecosystem.”

Stuart Broadhurst, Director – Activation Team, Amnet Group

For this to work however, all parties will need to be on board and participate: from the advertisers themselves, their agencies, to the ad tech providers and the publishers at the other end. They’d need to be on a shared blockchain, where the movement of each ad unit is traced. The blockchain ledger itself acts as the verification for fraud and mishandling, reconciliation, discrepancy management, and potentially even payments.

With the costs involved, blockchain isn’t just a solution to rectify advertisers’ disgruntlement, it’s a critical cost saver. It is estimated that [the technology could save up to \\$80 billion](#) through efficiencies by 2022.⁴⁴

Trial programs

Trial programs for using blockchain in programmatic buying has already started. [Salon.com](#), a popular American news and commentary website, has [teamed up with the non-profit AdLedger](#) to create a proof of concept blockchain for programmatic ad buying. ⁴⁵

This trial has been created to not only educate AdLedger's members about the potential of blockchain, but also be used as a basis for the way ad tech will integrate with the distributed ledger. Salon is playing the role of publisher, while IBM is playing the role of the advertiser as well as implementing the technology. The trial wants to demonstrate a live campaign running on the ledger system, in turn solving many of the challenges of how blockchain can be applied to this industry on a larger scale.

"To be clear, the goal is not to develop production-ready software; the goal is to really expose the potential of blockchain and show our members what it can do so they feel comfortable putting those rules and standards into place."

Christiana Cacciapuoti, Executive Director, AdLedger

AdLedger are a non-profit research and development consortium charged with implementing global technical standards and solutions for the digital media and blockchain industries.

They are currently developing two proof-of-concept projects: one is the media campaign described here, the other is focusing on GDPR compliance.



5. Commerce & payment

Paying for attention

Using blockchain for programmatic trading is a relatively logical application, however there are far more extreme examples out there as well, looking to challenge the platform duopoly status quo. A growing number of start-ups are looking at how blockchain can be used to reward brand interactions. They're creating platforms where consumers have a more direct involvement in the digital advertising ecosystem, going so far as having them sell their own data directly to advertisers.

The [Basic Attention Token](#)⁴⁶ is taking this to further extremes, by rewarding users directly (with cryptocurrency) for interacting with ads. To measure the integrity of this process, it sits on what is called the Brave Browser, which has built-in adblocking. Brave then serves new ads, and monitors the specific ways users interact with them, such as dwell time and click throughs. Deeming the advertising model as lacking an efficient means of valuing consumer attention, it claims it can determine a more appropriate ratio of ads per content, and attach a fair price to each placement.

80 percent of American ad-block users surveyed in the [most recent report](#)⁴⁷ from Adobe and Pagefair said they would be willing to view at least some ad formats, suggesting that a more amenable compromise could pay big dividends.

A similar proportion said in a previous year's [report](#) that they would actually like to see more personalised ads.⁴⁸

[ClearCoin](#)⁴⁹ is offering realtime buying and selling of media on blockchain.

[Ternio](#)⁵⁰ is developing 3rd party verification software for programmatic transactions built on blockchain, and claims to be the fastest blockchain ever.

[MetaX](#)⁵¹ is creating the adChain Registry dApp, a community curated list of ad-supported domains, with the intent of creating a transparent buying platform from advertiser to ad space using blockchain.

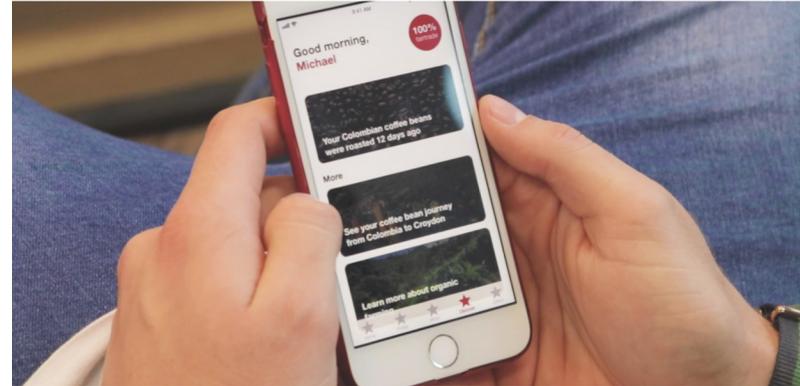
Payments & identity

Transparency isn't only challenge for programmatic. Payments are also a big issue, and with different stakeholders using different billing terms, cash flow can become a real concern for agencies, ad tech companies and publishers alike.

The beauty of blockchain is that if a supply chain has been set up with the technology, it has the potential to be used for payments as well. Not only is this convenient, it addresses the latency times, meaning parties can get paid as soon as a trade is complete.

By combining payments with the supply chain ledger adds an extra level of assurance of its authenticity. It can provide the same level of transparency as any current auditing system.

Whilst it may not seem that appealing for an ad tech company to participate in a blockchain revolution (especially if there is any question around their practices), immediate payments might help motivate them. Payments aside, there's been a lot of focus on blockchain to manage the identity of users. Given the implementation of GDPR and the Cambridge Analytica scandal, the main philosophy here is putting the control of personal data back in the hands of users.



In the majority of instances, a user's identity sits across a multitude of locations such as apps, websites and devices. Not only is this inconvenient (and potentially vulnerable) for users, it also makes it difficult for marketers to target them, as it's a constant guessing game of probability and lookalikes – with no guarantee the information is accurate. Many start-ups are looking at how to wrap identity into the blockchain, often with marketers as the 'enemy'. [Momentum](#) on the other hand is a novel example looking to combine a user's control of their data with a cross-brand loyalty program. This will allow brands to leverage Momentum to reward users with various cryptocurrencies based on their actions, as well as getting greater insights into consumer behaviour. ⁵²

Commerce

Merchants and marketplaces continue to grapple with problems relating to authenticity, fraud, fulfillment, security, and transparency – problems that traditional technologies have not been able to fully address.

However, blockchain is beginning to deliver on its promise of addressing these challenges and more. [For example, to improve Product Verification and Authenticity SAP is collaborating with Hyperledger](#), whose members include American Express, JPMorgan, IBM and more, to use digital ‘thumbprints’ to trace movement of goods and certify their authenticity. This will help online retailers gain their customers’ trust. ⁵³

Using blockchain, without a central payment clearing house and associated costs, companies are looking to improve payment security, pricing and authentication where Buyers, Sellers and Reviewers can be verified quickly and easily.

With increased accuracy of inventory tracking and management, [Blockchain makes scalable dynamic and competitive pricing achievable for retailers](#), whilst making it easier for consumers to check pricing of customised or white labelled products. ⁵⁴

Blockchain could be the holy grail of online to offline brand experiences. Instead of retailers relying on cookies and other customer identifiers to track shoppers across channels. Blockchain, with its non-repudiable logging attributes, could help retailers identify customers easily regardless of the channels.

“Digital Commerce has always embraced technology to redefine shopping, and will be one of the earliest adopters of Blockchain to continue be the disruptive force globally”.

Shawn Mishra, SVP, Global Managing Partner, Isobar Commerce

A dark gray background featuring a network diagram. The diagram consists of numerous circular nodes of varying sizes, some filled with orange and others with gray, connected by thin, light gray lines. The nodes are scattered across the frame, creating a complex web of connections.

6. Conclusion

What's holding blockchain back?

As you can see, there's an amazing amount of potential in blockchain to revolutionise not only programmatic, but anywhere transactions are made. 2018 is turning out to be an arms race between technology, publishers & agencies to design a blockchain technology suitable for digital advertising. That said, there are several core challenges that need to be resolved before blockchain can see widespread adoption.

Speed: Current scaled blockchain frameworks cannot support needs of the real-time ad ecosystem, which currently processes several million transactions in milliseconds. Blockchain is incredibly slow in this regard, and can currently only handle about seven transactions per second. However, the technology is rapidly evolving: [Ternio, mentioned previously, claims to be capable of over one million transactions per second.](#)

Resistance: Blockchain can be disruptive, but that also means it could dismantle a lot of businesses. The lack of transparency in digital advertising isn't because of a technology limitation – it's a business problem. A lot of Adtech companies' would need to change their current model.

Structure: The appeal of blockchain is the shared security & transparency of

a decentralised network. However, to increase processing speed on current blockchain technology the number of nodes involved must be reduced into "teams"; think a state voting system rather than individual voters. This makes the blockchain easier to hack and compromises the benefits of a decentralized network.

Permanence & the right to be forgotten: The establishing of GDPR has fuelled interest in blockchain-based identity solutions, but it also caused a potential, critical problem.

What should marketers do next?

Now is the time to test and learn, watch closely what others are doing, and explore what potential blockchain has to offer.

Depending on what area of marketing, there are two key things that marketers should do:

1. Take a watch and act approach. Blockchain is evolving rapidly, and while we've listed a number of marketing-related initiatives using the technology, there are plenty more. Keep an eye on the appropriate industry and category news sources, and when something appears that might affect your function, reach out and get involved.
2. Communicate with other parts of your business. The biggest potential with blockchain and your company most likely isn't in marketing directly, but another part of your business, such as procurement, logistics or finance. It may well be that the one thing you broadcast about blockchain is related to a process that you would not traditionally consider noteworthy, but by applying this technology it massively changes how that part of your business works – something definitely worth talking about.

"Remembering the very early days of digital before 'paid search', the early search engines actually considered it too 'compromising' of the user experience to charge a revenue for search results. Whereas that probably seems hard to believe now."

Stuart Broadhurst, Director – Activation Team, Amnet Group

The most important thing to remember, besides it being very early days, is that blockchain itself is simply a tool, and the focus should first be on trying to solve real problems. It has fantastic potential in some areas, but for others the current data storage methods (and their accompanying software) are actually far more suited to purpose.

Blockchain & Isobar

We recognise that there's great potential in blockchain, not only in how it can be used within the digital supply chain, but also how it can address challenges within our clients' businesses.

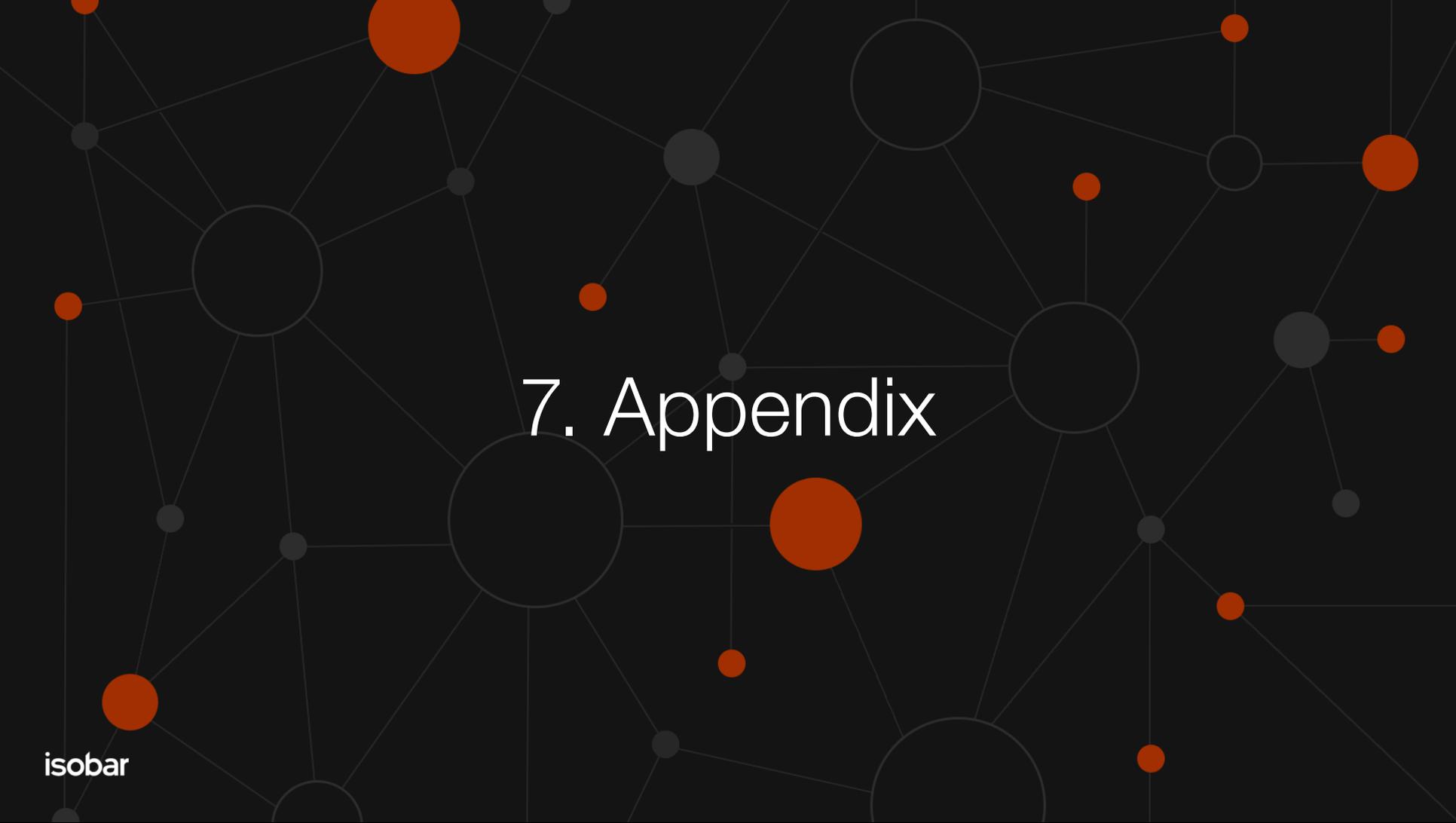
In addressing these client challenges, there's more capacity to be nimble, experiment, and ultimately assess if blockchain is a viable and realistic solution, rather than something over-engineered for the sake of it.

Blockchain is limited by network speed, computational capacity and distributed storage. While in the last 5 years we have seen exponential progress in computation capacity and distributed storage, network speed is still not a match to the real-time requirements of blockchain. The clear unlock is expected to happen post 5G network roll-out in [US and China](#) where most of the blockchain effort is focused.⁵⁶

"The best use case of blockchain in Marketing will be to address the fraud and billing concerns in Media supply chain. As digital media influence is growing and more brands are paying by click and impression, the trust is depleting because it is hard to validate if the click is by a real human or a bot and how impression is determined.

Agencies are forced into a performance to pay model shifting the fraud risk completely to the media agency. This will force us to innovate as our margins are in the line now as compared to the pass through model prevalent with traditional media."

Vikalp Tandon, Global Chief Technology Officer, Isobar



7. Appendix

Bitcoin: Bitcoin is the world's first cryptocurrency and introduced blockchain technology to the world. It is open source and decentralised, running on a global peer to peer network that anyone can join.

Block: A block is the segment of data that is the payload of each 'chain' in blockchain.

Blockchain: A technology framework to create ledgers with a linked set of immutable records. Each record is added by way of a complex cryptographic equation that needs to be solved, then verified, then propagated throughout the blockchain network.

Confirmation: The term used when a transaction is successfully hashed and added to the blockchain.

Consensus: The verification process undertaken to verify a transaction, ensuring all copies of the ledger on the network are identical.

Cryptocurrency: The industry initially build on blockchain that attaches worth to the by-product of transactions – commonly referred to as tokens.

Distributed Ledger: a more generic term for the ledger system that blockchain abides to. It stores data across a network of decentralised nodes.

Distributed Ledger Technology (DLT): Distributed ledger technology is the umbrella term for this area of technology, of which blockchain is a part of – but not the only kind.

Digital Signature: the code, or ID, that's attached to a digital document to verify its contents and the sender's identity. Usually generated by a public key encryption.

Hash: The function used on the output of data to confirm a transaction.

Node: A participant of the blockchain network who hosts a copy of the ledger.

Mining: the term used for the process of validating a blockchain transaction. In traditional blockchains, the contribution you give to validating and verifying transactions are rewards with

a token, which is the unit of measure that is traded (and therefore has worth) in cryptocurrency.

Peer to Peer: Peer to Peer (P2P) is the term used when interactions happen directly between to parties (peers) without going through a centralised source. A slightly more specific term than 'decentralised'.

Public Address: an address that can be published and made accessible that is the result of cryptographic hashing of a public key.

Public (un-permissioned) Blockchain: A public blockchain such as Bitcoin allows anyone to read the chain, be a node and join the network, and be a miner and service the network.

Permissioned Blockchain: A permissioned blockchain restricts who can add and verify on a blockchain, and optionally who can read the chain (a private permissioned blockchain).

Private Key: A private key acts like a password but consists of a much longer set of generated characters. You use it to access the tokens in a specific wallet.

Proof of Stake: An algorithm of distributing tokens to miners based on how much of that token they possess. The more tokens you have, the more you are rewarded when mining.

Proof of Work: Unlike a proof of stake method, this algorithm rewards the miner by how much they participate. The more computational power provided, the more tokens are rewarded.

Transaction Fee: A fee that is attached to all cryptocurrency transactions. Depending on the system, they either accumulate to the reward that the miner receives, or they act as incentive for the miner to verify your transaction.

Wallet: A destination that stores a users' private keys (and therefore access to its tokens). It is often a piece of software that has been designed or tailored for that particular cryptocurrency but can also be as extreme as a printed QR code of the private key (called an offline wallet).

1. [Gartner, A Guide to Demystifying Blockchain for ERP](#)
2. [Coinmarketcap.com](#)
3. [Someone transferred \\$99 million in bitcoin — and it only cost them \\$0.40 in fees](#)
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5. [ASX Exchange Targets 2020 for DLT Settlement System](#)
6. [Innovation, Technology and Payments System](#)
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8. [How Blockchain Can Transform the Supply Chain](#)
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10. [FDA builds blockchain-based health data sharing platform](#)
11. [Alibaba's Blockchain Food Tracking Program Launches In New Zealand](#)
12. [Fighting \\$40bn food fraud to protect food supply](#)
13. [China's JD.Com Arrives In Melbourne To Push Cross-Border Ecommerce](#)
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15. [BAT grabs blockchain: Baidu is deep, Ali is wide, Tencent is thoroughly](#)
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54. [Blockchain's Promise](#)
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56. [Decoding the present blockchain patent landscape](#)

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What is NowLab?

NowLab is Isobar's global initiative and accelerator that fosters a culture of innovation.

Technology and innovation are at the heart of everything we do at Isobar. We help businesses navigate the ever-changing landscape to craft the best experiences in new and emerging technologies.

NowLab is our space to make, experiment, prototype, and workshop innovative business solutions in 14 locations across America, Europe and Asia, as well as a virtual community that connects our global teams.

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