Real-world uses of the blockchain today, from supply chain to equity

Real-world uses of blockchain, including supply chain monitoring, equity management cross-border payments and election voting

Computerworld UK Staff / SEP 4, 2019 9:29 AM PT

1. Travelport settles hotel commissions with blockchain

Travelport, the provider of a Travel Commerce Platform that processes over $83 billion of spending per annum across airlines, car rentals, tour operators, hotels and booking agencies, is developing a blockchain platform that validates commissions that hotels pay when travellers buy services through booking agencies.

The system aims to add clarity and speed to the commissioning process, which can cause disputes and inaccuracies when travellers make changes to their bookings, such as extending their stays, upgrading their rooms, or checking out early.

Travelport designed the platform through the IBM Garage, and then worked with travel management company BCD Travel to refine it to the needs of agencies and hotel chains. A proof of concept has already been developed, and Travelport plans to roll out beta versions of the platform in early 2020.

2. Empire Hotels turns to blockchain to protect hotel bookings

Empire Hotels has developed a hotel booking platform that increases security and reduces administration fees by processing payments through a decentralised blockchain system.

Hotel owners install the app and add their properties to the platform, which users can browse to find accommodation. They can pay for their bookings in either fiat, which includes a small booking fee, or with the London-based company's proprietary EmpireCash cryptocurrency, which charges no fee at all.

3. Pfizer pilots blockchain system that tracks who touched what drug and when

Pfizer and fellow pharmaceutical giants McKesson, Genentech, Gilead and AmerisourceBergen have teamed up for the MediLedger Project, which uses blockchain to track and trace compliance regulations and build a secure open network for the drug supply chain.

The initiative aims to help pharmaceutical companies comply with new regulations that require them to apply a unique identifier on each unit sold and pass the serial number information between trading partners. It does this through a permissioned blockchain network based on open standards that prevents verifies authenticity and provenance of each product prior to each transfer taking place.

4. Bumble Bee Foods uses blockchain to track fish-to-market journey

Bumble Bee Foods is using the SAP Cloud Platform Blockchain service to trace the journey of yellowfin tuna from the ocean to the table.

The technology allows consumers to access the complete origin and history of the Natural Blue by Anova yellowfin tuna sold by Bumble Bee Foods, North America's largest branded shelf-stable seafood company. The information available includes the size of the catch, point of capture and the fishing community that caught it. It also provides insights that help verify authenticity, freshness, safety, fair trade fishing certification and sustainability.

5. Verisart uses blockchain to verify the authenticity of art

Verisart, a US-based startup, is using blockchain to verify the authenticity of artworks.

The company has partnered with software developer ArtSystems to offer galleries blockchain-based certificates of authenticity that are embedded in their art inventory management systems.

It has also created a system for the auction market called P8Pass, which stores detailed provenance information on artworks on the Bitcoin blockchain, providing an immutable record of artworks being traded.

6. IBM develops blockchain system for oil and gas transactions in Abu Dhabi

The Abu Dhabi National Oil Company (ADNOC) has partnered with IBM to develop a blockchain-based system that securely tracks, validates and executes oil and gas transactions between ADNOC's operating companies.

"We believe this could be the first application of blockchain in oil and gas production accounting anywhere in the world," said Abdul Nasser Al Mughairbi, ADNOC Digital Unit Manager, at the 2018 World Energy Capital Assembly in London.

"It demonstrates how ADNOC is leveraging innovative partnerships to unleash the power of technology and creative thinking to enhance efficiencies and deliver greater performance."

7. SAP trials blockchain supply-chain tracker

SAP is trialling a blockchain-based supply chain tracker designed to work for any farm-to-consumer or pharmaceutical suppliers. So far, 16 companies have signed up to pilot the SAP Cloud Platform Blockchain technology, including Johnsonville, Naturipe Farms and Tate & Lyle. The software is primarily aimed at increasing security and safety in supply chains and decreasing the chance for fraud.

Existing users of the SAP cloud platform can easily opt in to trial the blockchain technology that will run on top of the application. "SAP's customers first connect to its [cloud-based] applications and then connect those applications to its blockchain platform as an option they can turn on," said Hala Zeine, president of SAP's Supply Chain and Manufacturing group.

8. IBM develops blockchain solution to facilitate cross-border payments

IBM has developed a banking solution to help financial institutions process cross-border payments using blockchain.

The idea is to leverage the distributed ledger technology to reduce the settlement time and lower the cost of processing global payments, while also offering greater transparency for all parties involved in the transactions.

The solution has been developed on the open source Hyperledger Fabric platform. IBM has partnered with open source blockchain network Stellar.org to create the 'Lumens' which are being traded, and South Pacific financial services provider KlickEx Group to prove out the solution, with the aim of rolling it out to global banks.

In a press release, IBM says that this could enable "a farmer in Samoa to enter into a trade contract with a buyer in Indonesia. The blockchain would be used to record the terms of the contract, manage trade documentation, allow the farmer to put up collateral, obtain letters of credit, and finalise transaction terms with immediate payment," using the solution.

IBM has also released open source code patterns for blockchain (as well as AI, microservices and analytics) apps. These code patterns include packages of reusable code, GitHub repos and resources explaining the underlying code.

9. The World Bank launches blockchain bond to fund sustainable development

The World Bank, working with the Commonwealth Bank of Australia, has announced that it is launching a blockchain bond on Ethereum.

The Ethereum blockchain platform was selected due to its huge active community of developers worldwide. The infrastructure will run on Microsoft's Azure cloud platform.

Investor interest in the bond has reportedly been strong, and proceeds will be directed towards funding sustainable development.

Every year, The World Bank issues $50-$60 billion in bonds to fund global development projects. Because of this, the bank has often been at the forefront of financial innovation, issuing the first electronic bond in 2000.

10. Kodak creates photo intellectual property platform on the blockchain

After leaping some regulatory hurdles a blockchain image copyright system developed by Wenn Digital with Kodak will open for an initial coin offering on 21 May 2018 with a $50 million ceiling.

The two companies developed the “image rights management platform” KODAKOne to create a digital ledger for rights ownership. Photographers will be able to license new or archived work on the platform where they will be paid in KODAKCoin, a cryptocurrency designed for the system.

The KODAKOne platform itself is built to constantly crawl the web looking for intellectual property infringements.

KODAKOne co-founder Cam Chell told Reuters: "We really took a step back and decided we would ensure that all Ts were crossed and Is dotted before we embark on a public sale. We wanted to make sure that we got it right."

The coin offering will move through a tool compliant with the US Securities and Exchange Commission regulator called Simple Agreement for Future Tokens, or SAFT.

11. De Beers successfully delivers diamond-tracing blockchain pilot

Diamond business De Beers claims to have successfully traced 100 "high-value" diamonds along the supply chain from "mine to retail" for the pilot of its own blockchain platform.

The Diacore, Diarough, KGK Group, Rosy Blue NV and Venus Jewel diamond manufacturers collaborated with De Beers to develop the Tracr product.

According to De Beers CEO Bruce Cleaver, the pilot successfully demonstrated that a diamond can be traced through the supply chain in a “way that was not possible before”.

Rosy Blue NV managing director Amit Bhansali added: "Technology has already significantly contributed to improving transparency within the diamond industry. Initiatives that use blockchain can drive this process even further, as their implementation requires collaboration and trust creation among all industry stakeholders."

The diamond industry is controversial due to the mining of ‘conflict minerals’. It is thought that blockchain could help ensure these do not enter the supply chain.

Of course, 'legitimate' diamond mining businesses are not without controversy either, with De Beers facing criticisms for displacing indigenous people for its operations, described as a tribal "genocide" by Survival International.

12. Isle of Man turns to blockchain to prevent egaming fraud

The Isle of Man has a thriving egaming sector that its government believes can be boosted by blockchain.

In August 2017, the British Crown dependency granted gambling company Qanta a licence to operate a blockchain-enabled lottery using the Ethereum platform.

Brian Donegan, head of e-business operations for the Isle of Man Government, told Computerworld UK that blockchain will reduce the risk of fraud in the egaming industry.

"The immutability and the censorship resistance that is offered by blockchain technology is such that we can use blockchain to keep crime out and protect the consumer," he said.

13. Sierra Leone partially conducts presidential elections with blockchain

West African country Sierra Leone has become the first in the world to conduct presidential elections with the help of blockchain technology.

Swiss-based firm Agora says it offers decentralised voting based on blockchain. It has a team of cryptographers and security scientists, which the company claims have helped to develop a platform to "radically improve" voting – making votes tamper-proof, transparent, and verifiable from start to finish. The results are available to view here.

Sierra Leone's National Electoral Commission worked closely with Agora to rethink the voting process for the West Districts this March. The usual manual tally was considered a slow and costly logistical process, but Agora says that with its technology in place, the election results were counted "days ahead" of the previous approach.

Digital voting has long been a possibility but there are questions around security – especially with closed-door proprietary systems: can they be tampered with and where's the proof that they're transparent or otherwise free from corruption?

Agora boldly claims that it might have solved this problem and that its "unforgeable" solution in Sierra Leone paves the way for a wider rollout of blockchain-based voting worldwide.

14. DHL and Accenture team up for blockchain to stamp out pharma fraud

Global logistics company DHL has jointly created a life sciences and healthcare proof of concept based on blockchain with IT services business Accenture.

The serialisation prototype was designed to tackle the pharmaceutical black market – with Interpol claiming as many as 30 percent of pharmaceutical products in emerging markets are counterfeit.

The proof of concept contained nodes in six geographies to track the medicine and record its journey on a shared ledger with various stakeholders including manufacturers, warehouses, distributors, pharmacies, hospitals and doctors.

Andreas Baier, Accenture's lead for travel and transportation, said in a statement: "Using a common, indelible and secure ledger, the industry can achieve much higher safety standards, from the factory to the patient, at much lower cost. This is one of several opportunities blockchain affords to restructure business processes while reducing cost and complexity."

15. World Food Programme to avoid 98 percent of bank fees with Ethereum

The United Nations' World Food Programme (WFP) expects to save millions of dollars in bank transfer fees by using its own Ethereum-based payments system.

Speaking with Bloomberg, WFP director Robert Opp said that the organisation felt it could replace services offered by the banks with blockchain. "We're putting in place a financial infrastructure," he told the magazine.

The WFP started rolling out a blockchain-based system to aid with food assistance for Syrian refugees in Jordan. WFP innovation lab head Bernhard Kowatsch told Bloomberg that applying the Ethereum system to Jordan could cut out as much as 98 percent in bank transfer fees.

16. Singapore develops blockchain-based digital wallet for frequent flyers

Singapore Airlines is planning to deploy a blockchain scheme for registering frequent flyer miles and rewards, and will launch a digital wallet app with its retail partners in the next six months.

According to Reuters, the airline will invest "hundreds of millions" in digital technology as part of a wider revamp.
Chief exec Goh Choon Pong said that he believes Singapore Airlines will be the first airline to launch a customer-facing blockchain product through its Krisflyer frequent flyer programme – and this will be developed privately to operate only between the airline and its selected merchants and partners.

The airline first developed a proof of concept with KPMG Digital Village and Microsoft, and the app will roll out in the Singapore market before anywhere else.

"It is in line with our recently unveiled Digital Innovation Blueprint, under which we aim to be the world's leading digital airline," Goh Choon Pong said, reports Channel News Asia.

17. Lockheed Martin picks Guardtime Federal to reassure US government

Defence multinational Lockheed Martin contracted Guardtime Federal to integrate blockchain into the company's processes – with the aim of providing auditable reassurance to America's federal government.

Guardtime Federal's Black Lantern and its wider Federal Core blockchain infrastructure, Lockheed Martin said, would enable "more efficient and secure" software development, as well as improved supply chain risk management.

18. RBS partners with R3 to automatically send mortgage receipts to the FCA

Royal Bank of Scotland and the Financial Conduct Authority (FCA) partnered with New York-based software company R3 to make use of its Corda blockchain platform in September 2017. Corda automates the creation of mortgage delivery receipts on behalf of the banks, and this data is sent along to the FCA.

19. Toyota turns to blockchain for driverless car insurance data

Carmaker Toyota's research subsidiary – Toyota Research Institute – announced its intention to partner with MIT Media Lab to contribute to the development of driverless cars. The idea is to create and store motoring data in a trusted location, generated by the usage of the cars. This data in turn will inform insurance rates, a complex regulatory minefield for driverless cars at present.

At the time of the announcement in May 2017 Toyota Research Institute's director of mobility services and CFO said: "Hundreds of billions of miles of human driving data may be needed to develop safe and reliable autonomous vehicles.

"Blockchains and distributed ledgers may enable pooling data from vehicle owners, fleet managers, and manufacturers to shorten the time for reaching this goal."

20. Estonia builds its own blockchain platform

Baltic state Estonia is well regarded as being ahead of the pack in digital and technology in Europe, and blockchain is no exception. The country developed its own blockchain called Ksi, designed as a privacy-centric security solution to safeguard networks, systems and data. It's available in over 180 countries, and is used in a variety of sectors – from court data to e-identity.

21. Gibraltar launches regulated cryptocurrency

Estonia isn't the only territory to incorporate blockchain. Gibraltar recently announced its intention to create its own cryptocurrency with a stringent regulatory framework – with the initial public token sale event set to start February 2018, with 60 million 'Rock Tokens' issued.

Chief executive of the Gibraltar Blockchain Exchange said that the "introduction of rules-based systems" is absolutely necessary if the blockchain sector is to reach maturity and stability.

“Based upon principles of decentralisation and community consensus, the GBX seeks to create a new era of trust, openness and global acceptance for the crypto industry, one quality token listing at a time,” he added.

22. MasterCard files a patent for its own blockchain money transfer service

Patent filings from MasterCard hint that the American financial services firm is building a blockchain-like system for real-time payments.

In short, the patent describes Mastercard's intention to deploy distributed ledger technology to develop a 'method and system for instantaneous payment using recorded guarantees'.

MasterCard has expressed interest in the blockchain before, and now it is indicating that this technology could provide an irrefutable record of transactions, payment networks and produce a response code to verify payment.

MasterCard wrote in the patent filing that it has developed: "A method for processing a guaranteed electronic transaction, includes: storing account profile, each include an account number and balance; receiving a transaction message from an acquiring financial institution via a payment network, the message including a specific account number, transaction amount, and payment guarantee data."

23. ING launches a blockchain solution for improving confidentiality in a public ledger

Protecting private information on the public ledger is a challenge for many financial services looking to adopt blockchain technology.

In a bid to combat this, Dutch multinational bank ING has launched its Zero-Knowledge Range Proof solution, which allows a party to 'verify the accuracy of a statement without conveying the actual information in the statement'.

The technology works by adding a 'range’ factor and enabling users to prove they have a secret number that lies in a known range. For example, when applying for a mortgage a candidate can prove that their salary qualifies without disclosing the exact amount.

"Until recently, one of the primary challenges for applying distributed ledger technology in the banking sector was ensuring that data privacy was protected while simultaneously meeting regulatory reporting requirements," said Mariana Gomez de la Villa, global head of ING's blockchain programme.

24. Walmart turns to IBM for food transparency

One of the largest retailers in the world, Walmart, is running a trial with IBM to trace and track every step of the produce supply chain by using the blockchain.

The idea arose from a 12-month project to understand how technology could help the enormous business make its food supply chain more efficient and get fresh produce out to consumers more quickly.

Food safety VP Frank Yiannis told Computerworld UK that if the scheme works it should benefit all stakeholders – it would create trust about exactly where food is coming from, how safe it is, and cut down on waste in the instance of contaminated goods.

"The issue of being able to track and trace where food comes from, and how it flows from the farm to the table, has always been something companies have had an interest in," Yiannis explained. "People have attempted to do it – but the way it's done today is very inconsistent, there's no standard."

"Our view is for a solution like this there is the need to collaborate. This food system of ours is pretty complex, there are a lot of actors and players in it, so we envision a blockchain solution for food transparency to be collaborative, and we want as many people in food production to be involved and engaged in that."

25. BNP Paribas and EY explore private blockchain for global internal treasury operations

BNP Paribas has successfully completed a pilot project with EY to apply blockchain technology to its global internal treasury operations.

The French bank announced in October 2017 that the ALM Treasury department, which manages the bank's internal treasury, looked to test whether a private blockchain could be used to improve operational efficiency by allowing for more flexible and real-time cash management processes between businesses. The blockchain also allows BNP Paribas to have a common view of liquidity positions across its global business units.

BNP Paribas has also been investigating how to optimise cross border payments within its transaction banking business.

Xavier Toudoire, head of ALM Treasury IT strategy and architecture at BNP Paribas said: "Although it is still too early to determine how the technology will evolve and whether it is suitable for large-scale deployment, our pilot has demonstrated the clear strengths of private blockchain and its potential as one of the most effective ways to improve the existing internal processes between different businesses on an international level."

26. Maersk uses blockchain to track shipping containers

Danish shipping giant Maersk built blockchain technology based on Hyperledger to manage and track its tens of millions of shipping containers that traverse the oceans every year.

Ninety percent of goods shipped worldwide travel in shipping containers at some point. According to research from Maersk in 2014, refrigerated goods from East Africa to Europe can go through as many as 30 people and organisations, with 200 communications interactions between them.

Maersk enlisted the help of IBM to digitise the process for a proof of concept in September. Each participant was able to view exactly where goods were in the supply chain, plus customs documents, bills, and other data. The transparency, IBM said, helped to reduce fraud as well as cut down on waste and cost.

27. Northern Trust automates out manual processes in private equity

Financial services firm Northern Trust announced earlier this year that it had deployed its first private equity blockchain – assisting with transparency for both clients and regulators.

Also built on the Hyperledger Fabric and created in partnership with IBM, the platform was aimed at tackling existing problems in the private equity marketplace.

Private equity is still a very laborious and manual class of assets, with many documents going back and forth being different organisations and people before finally meeting approval.

The most immediate and obvious value, Northern Trust's Peter Cherecwich told Computerworld UK , is in increasing the speed of transaction verifications along with transparency across those transactions.

28. Everledger builds Chai Method to prevent fraudulent wine shipments

In 2013, it was reported that counterfeit wine accounts for as much as 20 percent of global wine sales. And a high-profile counterfeiter who tricked the wealthy into splashing out for fake fine wine at auctions was made the subject of a 2016 documentary, Sour Grapes.

All this led wine verification specialist Maureen Downey to join forces with blockchain company Everledger – to judge the 'provenance' of valuable wines, tracking and tracing the full journey of a bottle of wine.

Everledger and Maureen Downey announced the 'Chai Wine Vault' in late 2016. It collects more than 90 data points, including high resolution photography, records of ownership and storage to create a digital 'thumbprint' certified on the blockchain.

“Similar to the diamond supply chain, the wine industry has been fraught with the movement of counterfeits and the threat of fraudulent bottles being traded through trusted sources,” said Everledger founder Leanne Kemp. “We have the potential to apply this technology to solve these problems and add a layer of transparency and trust to the good we trade and sell globally.”

29. Microsoft to open source Coco Framework - the 'confidential consortium'

Blockchain can simplify data management by creating a trusted digital ledger that all parties agree on. For example, a blockchain for government data could help public sector bodies keep a verified record of official data that could be accessed across departments.

And it could make changing data on those records simpler, allowing users to transfer data from one government department to another, cross-checked against the blockchain.

Something that might help along the adoption of blockchain in the enterprise is Microsoft’s Coco Framework, announced August 2017. Short for 'confidential consortium', the Coco Framework will be able to bolster data confidentiality without sacrificing performance, Microsoft says, as well as being capable of processing more than 1,600 transactions per second.

The Framework, Microsoft says, will be compatible with "any" ledger protocol, on the cloud or on-premises, and on any OS or hypervisor as long as it supports a compatible trusted execution environment. It will be open sourced on GitHub in 2018.

For now, early implementations will include Intel Hyperledger Sawtooth, JP Morgan Quorum, Ethereum, and R3 Corda.

30. Co-Op Food builds blockchain to track food sustainability

The Co-operative Food Group began building an alpha-stage blockchain platform with Provenance in the middle of last year – with a view to tracking and tracing the sustainability of fish products, from the catch to the plate.

The partnership went on to include other kinds of produce, with data generated at the farm, factories, and linked to systems data at Co-op's warehouses and retail stores to build a "real-time digital history".

31. BHP Billiton puts rock samples on the blockchain

Enormous mining business BHP Billiton is using an Ethereum-based blockchain to track and trace its rock and fluid samples – something that's usually recorded manually and with more traditional processes like spreadsheets and email communications between people.

The Australian Financial Review notes, the blockchain allows technicians to attach data like collection time or add notes to existing entries, creating a record that's visible to everyone while also providing transparency.

This product was built by blockchain startup BlockApps.

32. Everledger digitises Kimberley diamond certifying process with blockchain

Everledger built a platform on top of IBM Bluemix to digitally verify diamonds and bring more transparency to an industry that was once riddled with both counterfeits and conflict stones or 'blood diamonds'.

The 'Kimberley Process' is a three-step verification system dating back to a 2003 United Nations resolution, agreed by 81 countries. And although the industry believes the process has helped – Everledger says almost all of the world's diamonds are now from conflict-free zones – the method has faced criticism from campaigners for failing to address severe ethical concerns about the sourcing of diamonds.

While Everledger might not be able to solve these problems, the company believes its platform will cut down on insurance fraud and the tampering of Kimberley Process certificates.

33. SecureKey picks IBM 'blockchain as a service' for identity verification

Identity management business SecureKey has announced it will be using of IBM's "blockchain as a service" platform – based on Hyperledger Fabric v1.0 – to make it easier for customers to verify their identities.

The product, which is currently in the trial phase in Canada, will launch officially later this year. SecureKey's customers in Canada include Canadian banks such as BMO, CIBC, Desjardins, RBC, Scotiabank and TD.

Customers will be able to opt-in to the new verification scheme with a smartphone app. This app will allow users to pick which identifying information they share and to which organisations, with a view to speeding up verification and validation of the user for accessing new services.

For instance, if a customer has proven their identity with a credit agency, they will then be able to share that verification data with a utilities customer to quickly create a new account.

IBM explains: "Since the bank and the credit agency have already gone through extensive verification of the consumer's identity, the utility can choose to rely on the fact that the information is verified, and the consumer can be approved for new services."

Source:

https://www.computerworld.com/article/3430225/real-world-uses-of-the-blockchain-today-from-supply-chain-to-equity.html