Will blockchain disrupt the economic order?

Paris Blockchain Conference

April, 15 2019

Summary

Paris Blockchain Week (15 – 19 April)

Presentation of Paris Blockchain Week

Paris Blockchain Week, held in Paris from 15 to 19 April, will host an entire week of events on blockchain technology and digital assets attended by thousands of participants from all countries and walks of life: business heads, investors, researchers, academics and students. The week will showcase the wealth of the French blockchain ecosystem and present the initiatives to put in place a regulatory framework and a suitable strategy for the development of these technologies.

The week's main events

The week features a number of international profile events, boasting renowned speakers from among the most prominent players in the blockchain sector:

– **The Paris Blockchain,** Conference hosted by the Ministry for the Economy and Finance at the Ministry for the Economy on 15 April (9h00 – 12h30). This conference open to the general public will hold three round tables to address how blockchain is influencing the economic order, changing businesses' funding options and creating new opportunities for producers and consumers of goods and services. The event will also present the incentivising regulatory framework currently being put in place by the Act on the Business Growth and Transformation Action Plan (PACTE).

– **Blockchain Day:** Hosted by Crypto Asset France (France Digitale) at the National Assembly (Hôtel de Lassay) on 15 April (16h30 – 20h00), this two-part event will hold a session for large businesses, innovative start-ups and investors to meet each other followed by a discussion on "blockchain4good".

– **The Paris Blockchain Week Summit** will be held in Station F, the world's largest start-up incubator, on 16 and 17 April (9h00 – 18h00). It will be attended by over 1,500 participants and some one hundred speakers with keynotes, round tables and events focusing on the many technical challenges associated with blockchain and digital assets (regulation, the Internet of Things, decentralisation, tokenisation of the economy, etc.). It is a flagship event of the week and a celebration of the tenth anniversary of the creation of Bitcoin and blockchain.

– **The La Tribune Blockchain Summit,** hosted by La Tribune and Europlace at the Salons de l'Hôtel des Arts et Métiers on 18 April (9h00 – 18h00), will hold seven round tables and deliver seven keynotes addressing the blockchain opportunities for the banking and financial sector. Discussions on the agenda include blockchain and the future of currency, ICO/STOs and IPOs, digital transformation and the era of smart contracts.

Side events throughout the week

Paris Blockchain Week includes a series of smaller events that will attract an audience of experts in the different aspects of this new technology:

15 April (17h00 – 19h00)
Paris Blockchain Week Job Fair, by Datalents and Ecole 42.

15 April (19h00 – 22h00)
CryptoMondays Paris for the digital assets ecosystem (businesses, journalists, investors, etc.).

16 April
Chain Accelerator Demo Day. The Paris Blockchain Week Summit will present 12 start-ups supported by the largest start-up accelerator in Europe.

16 April (18h00 – 20h00)
Fintech Nights hosted by La Place at the Palais Brongniart.

17 April (17h00 – 19h00)
Datalents' Happy Hour.

17 April (19h00 – 22h00)
Binance x Woorton x Chain Accelerator closing reception for the Paris Blockchain Week Summit.

18 April (9h00 – 16h00)
TQuorum Paris, where the blockchain ecosystem will meet the luxury industry.

19 April (9h00 – 14h00)
Blockchain: new education by the ESCE International Business School.

19 April (18h30 – 20h00)
Dauphine Blockchain Day attended by IT and financial management experts, academics and leading researchers.

Ministers' editorials

Bruno Le Maire,
Ministry for the Economy
and Finance

Blockchain is an emerging technology, but one that harbours strong potential to decentralise trust and revolutionise the way we share information, produce goods and services, invest and finance our companies. Getting to grips with this expertise is a vital challenge both in modernising our economy and for public regulation as a whole.

With this in mind, France has decided to take this recent technology very seriously, and the Paris Blockchain Conference at the Ministry for the Economy and Finance will address these crucial issues.

Today marks the start of a new chapter in rolling out our ambitious blockchain strategy, with one key goal in mind – making France a pivotal country in the development of blockchain technology.

Cédric O,
Minister of State
for Digital Affairs,
reporting to the
Minister for
the Economy and Finance

Blockchain and so-called distributed ledger technologies hold a great deal of promise for our economy and our society, as they promise to enhance both the transparency and reliability of exchanges and transactions between stakeholders, developing trust that would not spontaneously exist. These new areas provide an excellent opportunity to reclaim control over data and offer new ways to share value among users.

In France we have decided to take all possible steps to become a leader in this arena in light of the technology's strong potential.

The government has already taken a number of initiatives to develop a clear legal, tax and accounting framework and foster the emergence and growth of heavyweights in this sector.

This week's range of events in Paris embodies our essential goal of attracting sector stakeholders worldwide to France to drive forward our innovation momentum.

Program

8h30 – 12h00

8h30 – 9h15   Welcoming coffee

9h15 – 9h30   Introductory remarks by **Cédric O,**
Secretary of State for Digital Affairs

9h30 – 10h15   **Panel#1 — Is blockchain disrupting the economic order?**

- **Arthur Breitman**, CTO, Tezos
- **Jean-Pierre Landau**, Honorary governor, Bank of France
- **Dan Morgan**, Head of regulatory relations, Ripple
- **Pierre Person**, Deputy, French National Assembly
- **Lee Schneider,** General Counsel, Block.one

10h15 – 11h00   **Panel#2 — Cryptoassets, a new way of financing the economy?**

- **Eric Larcheveque**, CEO, Ledger
- **Frédéric Montagnon**, CEO, LGO and chairman, Arianee
- **Robert Ophèle**, President, Autorité des Marchés Financiers (AMF)
- **Ambre Soubiran**, CEO, Kaiko
- **Wei Zhou**, CFO, Binance

11h00 – 11h45   **Panel#3 — Blockchain, bringing new opportunities for businesses and citizens?**

- **Abdullah Albeyatti**, CEO, Medicalchain
- **Bibop Gresta**,Chairman, Hyperloop Transportation Technologies
- **Stéphane Quéré**, COO, Global Smart Business, ENGIE
- **Laure de la Raudière**, Deputy, French national Assembly
- **Laurent Vallée**, General Secretary, Carrefour

11h45 – 12h00   Closing Speech by **Bruno Le Maire,**
Minister for the Economy and Finance

Participants

Is blockchain radically changing the economic order?

Arthur Breitman,
Co-Founder of Tezos

Co-founder of Tezos, a blockchain protocol that has raised over $230 million (the funds are used essentially for Tezos research and development). Tezos is an energy-saving protocol that facilitates the formal verification needed for constant protocol upgrades.

Jean-Pierre Landau,
Former Deputy Governor, Banque de France

Jean-Pierre Landau was Deputy Governor of the Banque de France from 2006 to 2011. His previous positions include Executive Director at the IMF and the World Bank. Jean-Pierre Landau published a report on cyber-currencies in July 2018 at the request of Bruno Le Maire, French Minister for the Economy and Finance.

Dan Morgan,
Head of Regulatory Relations in Europe, Ripple

Dan Morgan is an expert on the financial sector, financial services regulation and public policy. He is also the co-founder of Blockchain for Europe, a non-profit that represents the international blockchain industry in Europe. Ripple is a distributed protocol that uses the native currency XRP.

Pierre Person,
Deputy, French National Assembly

Pierre Person represents the 6th Paris constituency and is a member of the National Assembly Finance Committee. In January 2019, he co-wrote with Eric Woerth a parliamentary report on virtual currencies, proposing an incentivising regulatory framework for ICOs.

Lee Schneider,
General Counsel, block.one

Lee Schneider has legal expertise in blockchain and is among the most prominent promoters of the technology. Block.one has developed a blockchain powered by the cryptocurrency EOS providing solutions to young blockchain projects.

Round Table No.2

Are digital assets the new way to fund the economy?

Eric Larchevêque,
CEO, Ledger

Ledger is a French company developing IT storage tools for cryptocurrency wallets. Eric Larchevêque has also been on the La Maison du Bitcoin board of directors since 2014.

Frédéric Montagnon,
Chairman, LGO & Chairman, Arianee

LGO is a secure, transparent exchange platform, a cross between traditional finance and blockchain, supporting the transparency of movements of funds. LGO raised $35 million by ICO in early 2018. Frédéric Montagnon is also Chairman of Arianee, a blockchain project applied to the traceability of branded products.

Robert Ophèle,

Chairman, French Financial markets regulator (AMF)

Economist Robert Ophèle has been Chairman of the Autorité des Marchés Financiers (AMF) since August 2017. The AMF has played a key role in the French regulation of blockchain. It operates a one-stop record-keeping centre of issues of tokens (ICO).

Ambre Soubiran

CEO, Kaiko

Kaiko provides aggregated data to financial institutions covering the major cryptocurrencies. It collects and distributes market data from over 30 exchange platforms. Ambre Soubiran previously worked at HSBC.

Wei Zhou,

Chief Financial Officer, Binance

Binance is a platform for the exchange of over 120 cryptocurrencies, which has developed its own cryptocurrency, BNB. Wei Zhou previously worked in investment banking at Goldman Sachs for four years.

Round Table No.3

What opportunities does blockchain create for business and people?

Abdullah Albeyatti,

Co-Founder and CEO, Medicalchain

Abdullah Albeyatti graduated as a doctor from Imperial College London. Medicalchain uses blockchain to store users' medical data and share it in a secure universe.

Bibop Gresta,
Chairman and Co-Founder, Hyperloop Transportation Technologies

Hyperloop is set to use blockchain for users to pay for their journey using a smart contract and to enjoy bespoke travel services.

Stéphane Quéré,
COO Global Smart Businesses at ENGIE

Stéphane graduated from ESCP in Paris. He has dedicated a large portion of his career to the Group where he has previously held the following positions: Financial Controller at Lyonnaise des Eaux, Chief Financial officer, then General Manager of the TV channel "Paris Première" (SUEZ Group), Senior Vice President in charge of Sustainable Development at SUEZ, Senior Vice president in charge of Urban development at GDF SUEZ. He was previously Senior Vice President Innovation.

Laure de la Raudière,
Deputy, French National Assembly

Laure de la Raudière represents the 3rd Eure-et-Loir constituency. Her previous positions include Regional Councillor of Centre-Val de Loire and Mayor of Saint-Denis-Des-Puits. Laure de la Raudière is the author of an information report on blockchain presented to the National Assembly in December 2018.

Laurent Vallée,
General Secretary, Carrefour

Legal expert Laurent Vallée has served as a lawyer and Secretary General of the Conseil Constitutionnel, France's constitutional council (2015-2017). He was General Corporate Secretary of the Canal+ Group before being appointed General Secretary of the Carrefour Group in August 2018. Carrefour has been using blockchain since 2018 for the traceability of certain foodstuffs in the Carrefour 2022 transformation plan.

Innovative framework
for blockchain in France

The French authorities have been working on blockchain technology and in particular its uses in the financial sector for several years now. This commitment took shape in 2016 and continues today with the creation of an innovative framework via the PACTE Action Plan for Business Growth and Transformation bill. This legislation offers parties involved in the blockchain segment a new ground-breaking legal structure, **with the aim of providing answers to the full range of questions facing all stakeholders in this emerging eco-system – whether regulatory, tax or accounting – out to summer 2019.**

Technology granted legal status in 2016

France has built an ambitious and innovative framework that provides for the use of blockchain technology in the financial sector, starting in 2016, when legislation allowed for the application of this technology in crowdfunding. The 2016[1] order on interest-bearing notes or *bons de caisse* provided for the use of blockchain for the transfer of so-called *minibon* debt securities used in crowdfunding.

Later in 2017, a further order[2] allowed the use of blockchain across a much wider range of financial instruments, such as fund units, marketable debt instruments, and unlisted shares and bonds, potentially involving assets worth as much as €2,000bn.

The PACTE Act lays out an innovative and ambitious framework for digital assets traded via blockchain on both the primary and secondary markets

On the **primary market, the PACTE Act sets out an individual framework for initial coin offerings, or ICOs.** France sees these initial coin offerings as a less costly alternative for SMEs to finance their businesses, and this fully warrants a balanced framework for this process, ensuring a secure legal structure for both issuers and investors.

1. Order no. 2016-520 dated 28 April 2016
2. Order no. 2017-1674 dated 8 December 2017

Under Article 26 of the PACTE bill, issuers can request a visa from the French financial markets regulator (Autorité des Marchés Financiers or AMF) before any coin offerings. Approval of this visa is dependent on compliance with the following rules:

– the issuer is a legal entity established or registered in France;

– funds collected during the ICO are monitored and safeguarded;

– anti-money laundering and counter terrorist financing obligations are fulfilled during the ICO.

This visa system will be optional, so issuers may conduct an ICO without requesting a visa in advance. However, any issuers who do opt for a visa will enjoy enhanced visibility as ICOs conducted by issuers with a visa feature on an AMF white list, while these issuers will also find it much easier to interact with traditional market participants, e.g. opening an account with a bank. This flexible regulation is in proportion to requirements and will not discourage SMEs from conducting ICOs.

A legal framework is set up for various service providers.

France transposes into national law the obligations outlined in the European Directive on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing[3]. The government has also developed an optional accreditation system for all providers of services on digital assets. This optional set-up provides a set of rules specific to the various digital asset service businesses.

Supervision and provision of the accreditation will be managed by a one-stop shop system set up by the AMF, with support from the French banking and insurance supervisor *Autorité de contrôle prudentiel et de résolution* (ACPR) on the issue of anti-money laundering and counter terrorist financing. The AMF will draft a white list of legitimate value-creating initiatives.

The PACTE bill also requires non-discriminatory access to credit institution services for approved service providers and authorised issues. It also allows professional funds – professional specialised investment funds and professional private equity funds – to invest in digital assets.

The Act also includes steps to protect investors, with a ban on the use of banners for marketing purposes for non-approved service providers and initial coin offerings not accredited by the AMF.

French tax legislation was modernised to take on board the challenges raised by digital assets

The 2019 budget act provided important clarification leading to a clear tax framework for individuals who invest on an occasional basis.

Trading of digital assets does not lead to taxation per se: these transactions are deemed to be neutral for such times as the digital assets involved are not converted into legal tender currency, or used to acquire goods or services. In the event of conversion or use, capital gains are taxed at a rate of 30% i.e. 12.8% in income tax and 17.2% in social levies.

3. Directive (EU) 2015/849 (revised in 2018)

The applicable VAT system depends on whether consideration is provided in return and what the nature of this consideration is i.e. delivery of goods or provision of services. Cryptocurrency trade is deemed equivalent to a financial transaction exempt from VAT.

Lastly, professionals will benefit from the considerable planned reduction in corporation tax, with the rate slated at 25% for 2022.

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Accounting framework also reviewed

France is one of the first countries worldwide to provide an accounting framework for token issuers when they are not treated as financial instruments.

Token issues – accounting treatment of liability	Token buyers – accounting treatment of asset
Assessment of rights and obligations related to token issues depends on an analysis of the white paper and/ or implicit obligations	*Does the investor intend to use the related goods or services beyond the current year*
•Tokens with the characteristics of repayable debt, even temporarily booked as **loans and similar debts** •Tokens representative of services remaining to be provided or goods remaining to be delivered booked as **deferred income.** •Case of donations and tokens with no obligations *booked as* **immediate income**	•If so: token booked as intangible asset •If not: booked under account "5202 - tokens held"

New phases in France's national blockchain strategy

The **first phase in the French government's national blockchain strategy** involved setting up a clear legal, accounting and tax framework so that blockchain technology could be used securely to transfer ownership of financial instruments and to issue cyber assets (see page 13).

A permanent **task force** of national experts from all horizons (entrepreneurs, regulators, manufacturers, non-profits and public stakeholders) was set up and coordinated by the Directorate General for Enterprise (DGE) to take forward the consultations with the ecosystem and implement this ambitious strategy for France.

To determine the new challenges associated with blockchain development in France, a consultation process was launched with ecosystem stakeholders. In February and March 2019, written contributions were solicited, resulting in an inventory of more than 200 use cases.

Following this consultation work, the government plans to launch a new phase aimed at driving further technological development, fostering ownership of blockchain technology by all segments of the economy, and strengthening neutrality and security guarantees related to blockchain use.

Track 1: Strengthen the excellence and structuring of the French industrial sectors in order to initiate ambitious projects based on distributed ledger technologies (by end 2019)

Aware of the potential that blockchain technology represents to them, major groups are actively running pilot tests in their companies in France and worldwide.

The National Industry Board (CNI) has been solidly structuring the industrial ecosystem since 2013. The Strategic Sector Committees (CSFs), which work with French manufacturers on ambitious sector projects, are a particularly strong driving force for French industry to speed up the blockchain project transition.

Against this backdrop, three major industrial sectors have already committed to working together on innovative solutions involving blockchain:

– **Construction industries:** A platform of construction professionals working on energy-smart housing retrofits will use the blockchain technology to secure the steps in the retrofit chain.

- **Food industries:** With the National Association of Food Industries (ANIA) and Coop de France at the helm, a working group will identify the most promising use cases (e.g. enhancing sector transparency and product traceability). This working group may also focus on the obstacles to the deployment of blockchain technology by producers and processors.

- **The new energy services industry:** This sector will implement the Solar Solidarity Initiative, which harnesses blockchain to issue and secure solar energy generation certificates. These certificates will be auctioned to fund the fitting and management of photovoltaic installations by social landlords in their housing estates. The power and profits generated by these installations will be passed on to the tenants.

The initiatives spearheaded by these sectors could receive funding from the Invest for the Future Programme's (PIA) **"Sector Support and Transformation" call for projects**, open until the end of 2019.

Track 2: Foster innovative projects based on distributed ledger technologies

The government will invest a total of €4.5 billion in all the measures to finance disruptive innovation in the next five years, notably via its Deep Tech Plan, for which blockchain projects are eligible.

The **"Innovation – Growth Competition"** call for projects funded by the Invest for the Future Programme (PIA), open until 14 May, will finance innovative projects with strong potential for the French economy. Blockchain has been identified as one of the key disruptive technologies for this wave of the competition, in particular its Digital Deep Tech track. The purpose of this call for projects is to fund near-market projects presenting a disruptive innovation for a budget of €600,000 to €5 million[4].

4. For details on the call for projects, see: https://www.bpifrance.fr/A-la-une/Appels-a-projets-concours/Appel-a-projets-Concours-d-innovation-Croissance-38041

The Deep Tech Plan

Blockchain technology projects are eligible for funding under several components of the government-funded **Deep Tech Plan**:

– The **French Tech Seed** fund, designed to support seed-phase Deep Tech projects by covering development costs for disruptive technological innovations. This fund will support over 1,500 innovative start-ups by 2023

– The **Fund for Innovation and Industry (FII)**, which takes three forms:

   • Setting up Deep Tech **French Tech Emergence** grants to support preliminary project study and feasibility phases for a maximum sum of €90,000

   • Scaling up the **i-LAB Innovation Contest**, which offers financial assistance for innovative technology start-ups

   • Stepping up **individual grants for Deep Tech businesses**. These grants finance projects in R&D, scale-up and pre-production phases to promote market access for deep tech firms.

Track 3: Be on the cutting edge in tackling the major technological challenges (by October 2019)

To be a leader in solving blockchain-related technical and technology challenges, it is crucial to identify the key scientific and technical building blocks and hurdles for ramping up performance, security and sustainability.

A **task force** will be set up soon to identify ways to improve the consensus methods, to underpin governance and sovereignty in the blockchain world, and to guarantee interoperability and accessibility in blockchain use.

Track 4: Assist blockchain project initiators with their questions, especially legal and regulatory issues (by April 2019)

France has developed a secure legal framework for ecosystem players with the Action Plan for Business Growth and Transformation (PACTE) bill and the 2019 Budget Act. In the other areas of application, **France Expérimentation** will provide blockchain project initiators with solid priority assistance for the legal challenges they encounter so that they can legally secure their innovative projects.

In addition, free workshops will be held at French Tech Central in Station F to facilitate exchanges between the relevant government departments and the ecosystem's start-ups and businesses.

Uses for blockchain technology in the financing sector

Some of blockchain's primary uses are in the financial sector, as blockchain and other distributed ledger technologies irrevocably guarantee ownership and peer-to-peer transfer of valuable digital assets using a consensus protocol or algorithm.

The technology provides a system to manage transactions both securely and seamlessly between several market participants and also allows issues to be conducted for investors in a secure environment via ICO, STO, IEO, etc.

Trading platforms have developed gradually, enabling users to trade digital assets for other digital assets, and sometimes for fiat currencies.

Blockchain technology also ensures increased security and transparency in transaction ledgers, without the need for a central custodian or certain intermediaries to record changes in ownership.

Some French companies that use blockchain for financial purposes

APPI is a RegTech that offers an electronic multi-currency wallet on a B2B2C basis (fiat currency or cryptocurrency), along with a KYC service to manage client identities.

Blockchain **ARK** also stands out from the crowd with its SmartBridge concept, enabling it to connect to other blockchains and take advantage of their specific features. The company has its own cryptocurrency, Ark, which is one of the 50 leading cryptocurrencies worldwide.

BELEM offers a blockchain platform that facilitates secure trading and digital data traceability as well as digitisation of financial assets.

Blockpulse has developed a product to help start-ups simplify management of their first fund-raising process.

Big Block is a blockchain calculation expert and mining farm manager.

The **Bitit** platform stands out via its diverse range of payment methods that the buyer can use i.e. card payment, bank transfer, vouchers, etc.

Blockchain Partner was created in 2017 from the merger of two start-ups set up in 2015 i.e. Blockchain France, which focuses on training and consulting, and Labo Blockchain, which specialises in R&D and technical development.

Coinhouse formerly la Maison du Bitcoin) was set up in 2014, and is a pioneering digital asset investment company, with an online platform and a physical store.

CoinStruction Network is a market-making service that provides liquidity on recently-listed tokens on the secondary market (centralised/decentralised exchanges).

Le Crédit Agricole announced that it would soon be launching a programme aimed at facilitating the transfer of funds for cross-border transactions using Ripple-developed blockchain, which cuts transfer time from three days to just a few minutes.

Dether is an application that enables users to buy and sell ether via their smartphone and even spend the cryptocurrency in stores.

The **Electrum** ewallet is accessible offline and via computer. It is compatible with the main hard wallets Trezor, Ledger Nano, KeepKey for example.
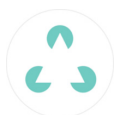
IOV (Internet of Value) provides a universal interconnection protocol between electronic wallets and blockchain.

Kriptown offers a new type of investment known as ITO or Initial Token Offering. The ITO is based on the traditional IPO but is also designed to maintain the advantages of the ICO (Initial Coin Offering).

Just Mining offers several types of services:
- Cloud mining: Just Mining rents out its calculation capabilities to clients, enabling them to mine cryptocurrencies without needing to own the actual equipment themselves;
- Sale and storage of mining equipment.

Ledger is a leader in blockchain and digital asset application security, providing wallets for individuals and companies so they can access and control digital assets that they hold on their own behalf or on behalf of third parties.

LiquidShare is designed to simplify post-trade processing for unlisted and listed SME shares.

Napoleon Index is an index administrator as defined by the benchmark directive (accreditation currently under way with the AMF).

The aim of **Novasecur's** blockchain project is to provide users with a simple way to monetise their personal data securely and transparently, and also pool KYC checks.

Onbrane is a French fintech that operates on the money market. It offers an over-the-counter market that allows companies to access short-term funding from other companies and financial institutions via commercial paper. https://www.onbrane.com/en

Paymium is one of the longest-standing trading venues in the sector, offering purchase and sale of bitcoins via bank transfer at market prices.

Solid is a platform for ICOs, and also supports clients in looking for funds.

Woorton provides crypto liquidity to trading exchanges worldwide, OTC trading desks, brokers, asset managers, private banks and payment service providers.

Uses for blockchain technology in the industry, services and non-profit sectors

Blockchain technology was initially famed for digital assets, but the intrinsic features of the system provide a broader opportunity for the economy as a whole.

The expected benefits of distributed ledger technologies are as follows:

– Enhanced data security as a result of the technology's decentralised features, greater trust and improved transparency between the various stakeholders;

– Parties involved in the sector reclaim control of data, as they can each keep an "authentic" copy of the ledger and decide whether to share it or not;

– A reduction in processing costs as a result of disintermediation and automation of value transfer;

– The development of new markets and services e.g. blockchain can be used as a way to secure and interface connected objects.

This wide range of uses has now been subject to several use cases in traditional industry and services sectors, and so the French government wanted to further drive this momentum by developing a national strategy on distributed ledger technology, including blockchain.

Some French companies that use blockchain technology in industry and services

Ark technology enables users, developers and start-ups to launch their own blockchain.

Auctionity is an auction house with decentralised real-time auctions on the Ethereum blockchain for all types of tokenised assets, with the aim of making auctions more secure, swift and reliable.

Blockchain My Art is an application designed to explore the opportunities that blockchain technology creates for cultural events using a cashless payment solution.

BTU Protocol is a decentralised reservation protocol that uses blockchain and BTU tokens.

Connecting Food is a blockchain-based digital platform that traces products batch by batch as they transit via production chains, and audits them in real time.

Daxos is a marketplace for data exchange and predictive analytics.

Dawex is a global data marketplace, where companies can monetise their data on a dedicated platform.

EDF is developing the Design and Use Reliable Blockchains (DURIN) project, aimed at developing blockchain-based distributed systems in the energy sector.

Engie set up a partnership with Ledger in October 2018 to track energy generation from its wind turbines.

Eureka offers training courses for professionals on distributed ledger protocols, or blockchain.

Axa has developed a platform based on the blockchain, known as **Fizzy**, which enables policyholders to receive direct and automatic compensation if their flight is delayed.

In September 2018, Carrefour announced that it would be using the IBM **Food Trust** blockchain to enhance product traceability. The group aims to ensure traceability for all its 300 supply chains worldwide in the future.

GoodsID offers a solution to secure and manage high-value goods for the luxury goods industry, tracking changes in ownership for these items right throughout the product life.

iExec is a decentralised marketplace for IT resources.

IPOCAMP specialises in data certification to protect intellectual property on work under way or when it is published.

IPwe holds a register of patents worldwide, based on blockchain technology.

The French post office group La Poste is setting up a consortium to develop a product offering in the production of certification services in the broadest sense of the word, for all public and private companies and institutions.

The connected beehive **Label Abeille** tracks various pieces of information via sensors located under beehives managed by beekeepers and companies.

Meditect is a French start-up that has developed a blockchain-based solution to strengthen the distribution of legal medication in West Africa.

Neurochain is a blockchain infrastructure designed to host AI and machine learning applications. It relies on a specific Proof of Involvement and Integrity protocol, whereby intelligent bots replace miners.

MonOrdo has developed a medical prescription tracking system via private blockchain (hyperledger) to tackle false prescription fraud (private health insurance, French social security, pharma) and enhance communication between sector professionals and patients.

MYPL offers a medical complex decision-making dashboard for healthcare professionals, particularly for use at hospital staff meetings.

MyTVchain is a web TV platform for sports clubs and athletes developed using blockchain technology.

Mubiz is a marketplace for direct peer-to-peer buying and selling.

OSIRX is a non-destructive characterisation system for highly recoverable waste. OSIRX provides collectors with the value of their goods, so they can negotiate to ensure a fair price.

Ositrade is an agricultural marketplace for grain and products that have undergone initial processing.

Pack'n Drive seeks to automate vehicle insurance policies. It is based on connected cars that produce a vast range of information stored on the blockchain.

Pictia helps safeguard and manage picture copyright via three services i.e. certification, monitoring, and litigation management.

Request is infrastructure that facilitates interaction between invoicing software and national electronic invoicing initiatives such as «Chorus Pro» in France.

Specialised neurology start-up **Rythm** launched Morpheo in April 2017. This open-source platform aims to improve diagnosis of sleep-related conditions by collecting data and storing them on a blockchain system.

Sunchain develops a blockchain solution to support innovative renewable energy use patterns.

Tezos is a blockchain network platform that supports projects based on smart contracts. The company's ICO was conducted in 2017 when it raised the equivalent of $233m. Tezos hosts projects such as an online betting platform and a peer-to-peer lending solution based on the blockchain.

Tilkal is traceability and transparency software infrastructure designed to monitor product life cycles in industrial supply chains.

Traceparency ddevelops a secure digital certificate system on the blockchain for high value-added products that are subject to fraud, counterfeit or theft.

Uziit is a software programme that manages customer reviews and recommendations stored on the blockchain, ensuring greater transparency in a company's relationships with clients.

Wiji is a collaborative and decentralised application aimed at creating a worldwide database where all products and components are rated by the community. Information is recorded in the blockchain to ensure traceability and trustworthiness.

Wiztrust enables companies to certify their communication documents via blockchain.

WPO delivers the first blockchained renewable energy production certificates on the world market, GoCerts, with the aim of improving the performance and management of worldwide renewable energy generation assets.

Examples of French non-profit projects and general interest initiatives using blockchain technology

The French National Frequency Agency (Agence Nationale des Fréquences or ANFR) has developed an innovative frequency management solution, making it the first European public body to develop a radiofrequency management ledger using blockchain.

The French national trade court clerk council (Conseil National des Greffiers des Tribunaux de Commerce or CNGT) uses the blockchain network developed by IBM to make management of trade court clerks' legal acts for companies more transparent and efficient.

The Higher Council of the French Association of Notaries (Conseil supérieur du notariat) is working on a blockchain solution to manage enforceable copies in electronic format and provide for transmission of electronic enforceable copies, ensuring integrity and monitoring of enforceable copy issuance via a consortium blockchain including notaries, banks and bailiffs.

The French Order of Land Surveyors (Ordre des géomètres-experts or OGE) is working on developing a land blockchain listing all land documents produced by surveyors along with their exact geopositioning (land registry areas) thereby making them tamper-proof. http://www.geometre-expert.fr/oge/accueil-stu_5078 (website in French only)

«Nous citoyens», is a social liberal political party set up in 2013 by businessman Denis Payre, which recently used blockchain technology to ensure security and transparency for internal party elections.

The French citizen vote system **(vote contributif citoyen)** allows anyone to organise on-line votes: it is open to all French citizens via the FranceConnect system (which enables users to log into various government service sites with the same identification information).

Blockchain: the key concepts

What is blockchain?

Blockchain is a distributed decentralised ledger that validates and tracks transactions.

This "distributed" database is not held by an intermediary in a centralised location, but is available at all times via blockchain-participant computers, which are the blockchain's "nodes". Transactions are grouped together in blocks. Users ("miners") validate each block using specific techniques that vary by the type of blockchain.
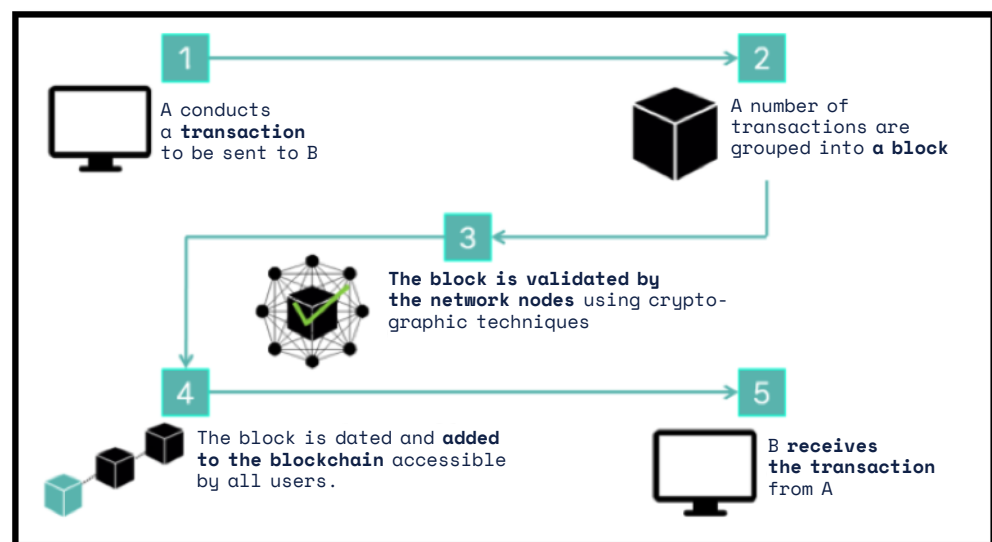
What are digital assets?

Digital assets are binary assets exchanged on a blockchain. There are different categories of digital assets depending on the "rights" attached to them:

- Cyptocurrencies (such as Bitcoin), which are representations of value and means of exchange transmitted on a blockchain;

- Tokens that entail rights, such as a share in business capital or a payment in advance for the service the business is developing. Issues of these tokens are known as STOs (Security Token Offerings) when the token has the characteristics of a financial security and ICOs (Initial Coin Offerings) when the token does not have these characteristics.

What is an ICO?

An ICO (Initial Coin Offering) is a fund-raising method that operates by issuing tokens that can be exchanged for digital assets or legal tender in a project start-up phase. These tokens can then be sold on a secondary market.

ICOs differ from classic fund-raising in that tokens are acquired, rather than a business's financial securities (in which case the fund-raising on the blockchain is called a Security Token Offering – or STO[5]). These tokens can offer a right to use the service developed or to be developed by the business. ICOs give start-ups access to funding very quickly and reach a broad-based international audience of potential investors.

What is a smart contract?

The smart contract concept was established in the 1990s and represents the digital equivalent of a traditional contract. Unlike the traditional contract, performance of the smart contract requires no third party mediator: it is governed by a computer code that includes the performance conditions. It uses the blockchain technology to secure the terms of its performance.

Blockchain's potential

The decentralisation, security and transparency of blockchain have the potential to support a large number of uses:

– Transfers of assets (monetary, but also securities, votes, shares, etc.);

– Product tracking and traceability;

– Automatic execution of contractual conditions (smart contracts) without any human intervention.

Their scope is broad: banks, insurance, healthcare and supply chains, but also energy management, voting procedures and many others.

5. Security Token Offerings (STOs) are similar to ICOs, but differ in that the token issued represents a share of the business's capital. From this point of view, STOs are closer to « classic » fund-raising.

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