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OPEN ACCESS GOVERNMENT

BLOCKCHAIN INNOVATION

THE ROLE OF BLOCKCHAIN IN THE WORLD OF INVESTMENTS

OLGA FELDMEIER, CEO OF SMART VALOR AND DESCRIBED AS THE 'BITCOIN QUEEN OF CRYPTO VALLEY' SPEAKS TO US ABOUT THE ROLE OF BLOCKCHAIN IN INVESTMENTS

IN THIS ISSUE

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INTRODUCTION

A very warm welcome to the October 2018 Blockchain Innovation publication.

This extended edition includes a number of compelling interviews from some of the leading lights in the blockchain world. I was fortunate to attend MoneyConf in Dublin earlier this year and enjoyed meeting many people there.

One person I interviewed at MoneyConf was singer, songwriter, record producer and audio engineer, Imogen Heap who spoke to me about the potential blockchain has to support musicians in their work and the wider industry. Another highlight from the event was speaking with Philip Young, Director of Marketing and Business Development at Gibraltar Stock Exchange Group who explained his thoughts on the development of blockchain in Gibraltar.

Olga Feldmeier, CEO of Smart Valor and described as the 'Bitcoin Queen of Crypto Valley' engaged with me about the role of blockchain in the world of investments. I certainly found her insights to be both fascinating and helpful and I hope you enjoy reading them too.

I believe it is always very helpful to get different perspectives on topics such as blockchain, and as such, one of these comes from Brazil in the form of Director of Investor Relations at Atlas Quantum, Bruno Peroni who shares his expert views on building wealth through cryptocurrencies.

On this note of optimism, I hope that you find this supplement insightful. Do feel free to get in touch with me if you would like to contribute an opinion piece in the future. ■

Jonathan Miles
Editor

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Blockchain: Benefits for the supply chain

Chris Burruss, the President of the Blockchain in Transport Alliance (BiTA), explains how blockchain can benefit the supply chain

Currently, moving goods from origin to destination is complex and lacks a single source to store and track all transactions and participants involved. That can potentially be solved with blockchain technology.

Blockchain can simplify the complex and fragmented processes commonly found within the supply chain. Blockchain can create smart contracts and transparency in documents and transactions, increasing supply chains' efficiency, agility and innovation. Smart contracts are computer code hosted on a blockchain that defines/executes the terms of an agreement between parties.

For every shipment, numerous parties are involved; transactions get executed (bills of lading, invoices, proofs of delivery, etc.). Blockchain records transactions, tracks assets and creates a transparent and efficient system for managing those documents. Each transaction becomes a permanent ledger record that is easily validated.

The Blockchain in Transport Alliance (BiTA) is a consortium of transportation and supply chain leaders developing industry standards for blockchain use. BiTA members share a common mission to develop a standards framework, educate the market on blockchain applications and encourage the use of those applications.

BiTA is investigating use cases and developing a common framework the industry can use to build blockchain applications. Through think-tank events, networking, meetings, webinars and online collaboration, members work with peers on common issues and share best practices.

The BiTA community's focus is on community aspects (networking, education, marketing and commercial outcomes). It is BiTA's voice to members, external organisations and stakeholders. The BiTA Standards Council provides a forum to develop industry standards and best practices. It focuses on data formats and the interoperability of blockchain platforms. It is a separate industry group governed by a standards board.

The Council is developing industry standards that: improve trust and enable transparency in the supply chain; and drive technological efficiency, ideally resulting in cost savings for those that adopt the standards. BiTA is not defining a single technology solution; it seeks interoperability and compatibility between solutions used across the supply chain. BiTA standards will be open source and royalty-free.

The key issues that concern leading companies in the freight technology industries that have a vested interest in the development of blockchain technology

While there are challenges that blockchain can solve, it will not solve every problem. Questions to consider about blockchain are: can traditional database technology meet needs; does more than one participant need to update data; does data need to be private; will the database be attacked or censored; do users need to trust each other; is a trusted third-party needed; do changes need to be controlled?

If there is a need for transparency, security and the elimination of intermediaries, blockchain is a solution that allows real-time visibility of freight assets across the supply chain.

Blockchain benefits

1. Monitors performance history

Allows parties to see evidence of participants' past performance, including on-time deliveries, on-time pickups, etc.

2. Maintains high-value assets history

A trusted/accurate record of asset history is imperative to ensure it complies with standards from the factory floor to delivery.

3. Improves quality assurance
Every authorised member of a transaction can access data to validate milestones and reduce unsubstantiated disputes.
4. Monitors real-time freight capacity
Available truck capacity changes constantly. Through blockchain transparency, capacity is visible.
5. Improves payments and pricing processes
Payment processing/settlement is secure in a blockchain and transaction information is accessible.
6. Deters fraud
Every transaction is visible to those on the network. Nothing can be removed without detection; transparency deters fraud. Through notarization/non-repudiation, shippers can securely track the creation and modification time of a document or transaction, thereby confirming authenticity.
7. Prevents theft
A blockchain can contain detailed information and rules, such as requiring photo IDs for freight pick-up/delivery. Added precautions improve security and reduce freight theft. A blockchain also enables the secure transfer of titles for smart properties.
8. Proves provenance
Blockchain ensures that every shipped good includes a digital "passport" proving its authenticity/provenance. Passports include data, such as where/when the product was manufactured and what steps it took throughout its journey.
9. Issuance of smart contracts
Smart contracts are considered by many to be the most important blockchain feature. Entrepreneur magazine states: "With smart contracts, agreements can be automatically validated, signed and enforced through a blockchain construct – eliminating the need for mediators and therefore saving the company time and money."

Barriers to widespread blockchain adoption (risks/difficulties)

Despite blockchain benefits, there are concerns which are slowing the technology's widespread adoption. Among them are:

Lack of standards: For blockchain to succeed, all constituents must agree to data characterisations (i.e., what details will every bill of lading carry, what will the proof of delivery or invoice contain? What actions should trigger if data is missing or not validated?).
Cost: Developing/maintaining the software/hardware required to run blockchain is expensive. Additionally, companies need qualified people to run blockchain, which can be expensive.
Legacy system integration: Companies must integrate blockchain into legacy systems. According to nasdaq.com, "Many organisations are reluctant to make a move to blockchain solutions because of the meticulous planning, time and money that would be required to achieve successful company-wide implementation."
Maturity: Blockchain is an emerging technology. While many anticipate its impact, blockchain is still uncertain. Also, blockchain has few standards or industry specifications for its adoption and use (which is the reason for BiTA's existence).

Why the industry needs common standards

When businesses cannot agree on a common framework, the government steps in and regulates the activity. This slows down processes and creates bureaucracy that increases cost. There is no example of government intervention in which costs were reduced. If the industry does not define the framework within which blockchain resides, the result may render blockchain moot.

The potential blockchain has in the logistics industry

Quite simply, it has the potential to revolutionise the $8 trillion global logistics/transportation/freight industry. Blockchain may be the solution to transparency, security and reducing or eliminating third parties. There are many use cases – payments, provenance and visibility of commercial assets, driver ID, smart contracts, instantaneous settlement of transactions – virtually every challenge with freight tracking and delivery may be solved with blockchain. ■

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Distributed business networks can enhance public-private collaboration

Markus Hautala, Head of Blockchain solutions at Tieto argues that blockchain technology allows us to create more democratically governed distributed platforms and avoid vendor lock-in

The social media and e-commerce platforms of today have changed the landscape of business and social interactions for good. Platforms such as Facebook, Amazon, Alibaba and eBay are delivering immense value by enabling practically anyone to connect and trade on a global scale.

And whilst these platforms have gained global reach, we still lack the ubiquitous means to digitally conduct common interactions, such as signing a business contract, opening a bank account, founding a company and more. As our personal and business lives are becoming increasingly digital and global, we need to invent next-generation platforms that can be efficiently scaled across national borders whilst avoiding the risk for monopolies to emerge.

"During the company founding process, a digital identity is created for the company. This enables the company to be reliably identified and allows it to operate at full extent by sharing online verifiable information about itself."

Creating a public-private business network for founding companies fully digitally

During the past couple of years, distributed platforms based on distributed ledger technology have become more common providing the opportunity to establish new types of business and trust networks across multiple actors. Instead of relying on centralised platforms, we now have the means to establish new types of distributed business networks whilst avoiding vendor lock-in.

One example of such is the DLT-based business network created in Project Mercury earlier during 2018 in cooperation with Finnish authorities and businesses. Asiakastieto Group, Nordea Bank, OP Group and Tieto jointly with advisors from Finnish Tax Administration and the Finnish Patent and Registration Office, developed the world's first DLT-based business network that enables the founding of limited liability companies on an entirely digital basis. The newly-developed based business network is a proof-of-concept project, but further development is planned for an even wider-ranging collaboration between a number of Finnish organisations.

The mission to reduce the administrative burden on entrepreneurs

The current end-to-end process for forming a limited company is very manual and time consuming for company stakeholders and involved entities. Typically founding a company can take several weeks as the company founders need to create and sign the founding documents manually, the documents have to be delivered through regular mail to public authorities and the company founders need to visit a bank branch to open a bank account for the company and so on.

Furthermore, there is no means to digitally identify foreign citizens nor to perform Know-Your-Customer (KYC) checks which further complicate the process. This is because current isolated systems do not cater for exchanging verifiable identity information concerning the individuals or organisations. There is neither a system that will manage the entire process and which can update company information to authorities and financial service providers both simultaneously and in real time.

In the future, Finns will increasingly be self-employed as entrepreneurs and as such, the mission of this pioneering development is to reduce the burden of administrative procedures and encourage more people to become entrepreneurs and create new jobs.

An additional key objective of this initiative is to attract foreign talent by making it easier for foreign entrepreneurs to found start-ups in Finland and therefore, to improve the country's economic performance.

Creating a frictionless user experience for founding a company Thanks to distributed ledger technology, the business network orchestrates the end-to-end process across different

actors and enables information about the company and its stakeholders to be updated and made available to every party in the network simultaneously.

During the company founding process, a digital identity is created for the company. This enables the company to be reliably identified and allows it to operate at full extent by sharing online verifiable information about itself. For example, the company can authorise its employees to represent the company digitally. Accounts can be opened for the company, it can be registered for VAT and Tax Administration prepayment register, the Finnish Patent and Registration Office can register the company and the company can manage its shareholder register – all this entirely digitally.

While the business network is developed in cooperation with Finnish organisations, it could also be used globally. The technology solution is not geographically limited as it combines the decentralised transaction network (Corda) and global identity network (Sovrin). By integrating these, we now have also created a model for other highly scalable global business networks that can serve the vast number of various industry use cases involving record keeping, asset trading, multiparty process management and decentralised contract signing.

A perfect marriage between Hyperledger Indy and Corda

This project combined for the first time the two major decentralised platforms in a practical implementation. Corda's process and contract-centric architecture formed the backbone of the network between the different actors, while Hyperledger Indy – the basis for the Sovrin network – provides a decentralised platform for exchanging verifiable data. Sovrin is a global decentralised identity network that allows people, organisations and things to have their own digital identity which they control.

> "An additional key objective of this initiative is to attract foreign talent by making it easier for foreign entrepreneurs to found start-ups in Finland and therefore, to improve the country's economic performance."

In Sovrin, the identity holder forms secure digital connections with entities (organisations, individuals or things) that can provide information about the identity holder. This information can literally be anything such as a personal identification number, home address, power of attorney or – in the context of Project Mercury – a right to represent a company. This information can then be shared by the identity holder to a party that requires these proofs. This provides for all kinds of rich digital interactions: Know-Your-Customer (KYC), contract and transaction signing (B2B, B2C, G2C), permits, asset ownership and so on.

Corda is an open source, blockchain-inspired distributed ledger technology (DLT) platform that removes costly friction in business processes by enabling organisations to transact directly using smart contracts while ensuring the highest levels of privacy and security. It is the outcome of over two years of intense research and development by R3 and its 100+ members. Corda's unique approach to privacy makes it well placed to support identity management on the distributed ledger as the platform combines privacy and confidentiality of business transactions with an ability to reuse business processes and data in the network.

Conclusion

During the past couple of years, DLT-based platforms have started to emerge, providing us with the means to establish new types of distributed business networks without vendor lock-in. The required technologies have matured at a rapid pace and during 2019, we will have reached a stage when they can be taken into use in large-scale production.

The public sector has a central role in digitalising today's society, as it provides core services – such as base registries – required for societies to function. The European public sector should follow the example of their Finnish counterparts and actively drive the adoption of new distributed business networks in collaboration with the private sector to ensure a wide market take-up. Private and public sector participants should jointly and iteratively prototype, pilot and develop such collaborative solutions to ensure that Europe will be at the forefront in adopting this technology and that the European economy remains globally competitive.

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Advancing the video game industry with blockchain technology

B2Expand, headed up by CEO Manon Burgel, is making an important contribution to advancing the video game industry with blockchain technology, as this profile details

B2Expand was launched as the brainchild of the Burgel family. Stemming from a video game project, Beyond the Void (BTV), was the first French team to utilize an ICO model to develop and launch a video game with blockchain technology in mind. Upon the ICO's success in Nov 2016, the family formalized their vision under the name B2Expand in January 2017 to support continued development. The team is led by Eric Burgel as Chairman with his daughter, Manon Burgel, overseeing daily operations as CEO. Her brother, Rémi Burgel, is their Smart Contract Developer, working alongside Maxence Burgel, their uncle and Lead Concept Artist.

The company vision is a simple idea with a grand design: "Bringing back true ownership to the players." Advancement of the video game industry with blockchain technology empowers game developers and players by creating a transparent relationship between them. B2Expand pushes the boundaries of blockchain implementation by building DApps (decentralized applications) and Ethereum Tools to be used inside of video games. Game design, programming, production, and distribution is all possible because of the blockchain.

Their first project, Beyond the Void, is available on Steam in Early Access with the full launch anticipated on October 24 this year. Players can interact with the game's stand-alone BTV web shop, the Nexarium, to buy, sell, and trade in-game assets on the blockchain with other players. A beta test for the decentralized mobile app will be introduced in September, leading to a final update in October to improve player experiences by replacing the former web shop.

With its melding of blockchain and games, B2Expand is committed to building the future of gaming, having participated in Ubisoft's start-up program from September 2017 to February 2018. Convinced of the blockchain community's interest in video games, B2Expand brought together leaders in these fields at their Blockchain Game Summit in late September 2018. Their goal is to push for the creation and implementation of common industry practices in favour of players and thus build a collaborative market to make video games more democratic.

A blockchain company that's also a successful game studio, they offer consulting and development services for companies looking to craft their dream DApp project. By providing blockchain tools for game developers, contributing technology articles, and leading the industry through educational events, B2Expand looks to inspire a unified approach for using blockchain to build the games of the future, today.

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Blockchain supports nurses in the continuity of health and social care

Secretary General of the European Federation of Nurses Associations (EFN), Paul De Raeve explains how blockchain technology supports nurses in Europe where the continuity of health and care is concerned

Blockchain has the potential to modify the way health and social data are traditionally collected, interpreted and connected, shifting from different bits of information held by a single 'owner', to the lifetime history, supporting the efficient and effective continuity of care, by offering a whole and secure way to capture, track and share a citizen's/patient's entire health and social experience.

The innovation of blockchain-inspired technologies has been acknowledged at EU level[1], with the EU investing in blockchain related projects and launching the EU Blockchain Observatory and Forum[2] to map existing initiatives on blockchain and informing policy debates and inspiring common actions, based on specific use-cases. Parallelly, several EU member states have joined the European Blockchain Partnership[3], with which the Commission aims to consolidate expertise across borders and address challenges such as disintermediation, trust, security and traceability by design. But where is the end-user in the co-design of policies impacting citizens?

To unlock the potential of blockchain in the health and social care sector, a common, systematic and end-user approach is needed, creating supporting tools for the frontline in their daily practice, ensuring high-quality continuity of care outcomes. However, only co-designed, fit for purpose digital solutions will smooth the deployment of the digitalisation of health and social care[4], and if not, the investment in innovation will not have a return on investment. In this sense, nurses and SMEs designing blockchain solutions can be joint leaders in reforming health and social ecosystems, leading to a triple win for citizens, industry and the service provider.

The nursing approach to blockchain in health and social care

The right of citizens to timely access, affordable, preventive and curative health care of good quality constitutes a crucial societal challenge in the EU. 'Moving care back to the community'[5] can address this issue, by design, in partnership with frontline nurses and a more holistic approach to value-based health and social care, placing the patient/citizen (prevention) at the centre of the process.

Paul De Raeve, Secretary General of the European Federation of Nurses Associations (EFN)

Blockchain can support citizen/patients' empowerment in the management of their own health and social data, by guaranteeing citizens in the chain know how and where their data is being used. So, blockchain has the potential to address key health and societal challenges, such as vaccination hesitancy, by facilitating the keeping of a record of vaccination, with increased control by the citizen/patient of his or her own information. This is just one example where the EU implementation gap can be closed through innovation.

Nurses added-value in blockchain relates to boosting the continuity of care, facilitating the communication between the different actors involved to deliver the

best outcomes for patients and citizens. In particular, nurses are key to improving access and outcomes in a people-centred approach, ensuring the continuity of care across the primary and secondary health and social care sectors.

With co-designed blockchain technology, nurses responsible for accessing, recording and processing health and social care data are more secure in the knowledge that such data will be accurate and consistent, leading to improved patient care pathways and as such, the measurable outcomes. By having a distributed database for health and social care-related information, providers can benefit from improved accessibility, accuracy and safety, resulting in better outcomes for all. Therefore, blockchain becomes a technology supporting the frontline by recording the history of data.

Moreover, through the blockchain network, patients/citizens have access to synchronised databases, giving unprecedented benefits for frontline care provision. The regular and updated exchange of a patient's health and social history will allow nurses to advance the process of discharging patients and data sharing in the continuity of care, the consequence of which is reduced bureaucratic red-tape and an improved quality of nursing interventions, which are crucial in terms of decreasing the unmet needs of patients and citizens'.

A co-designed blockchain can become a solution in the value-based health and social care ecosystems, as the gatekeeper now becomes the patient/citizen, that will directly access his/her continuity of care pathway. In this sense, blockchain needs to show the evidence of its potential to decrease the burden of data collection pending on nurses, allowing them to spend more time in direct patient care.

Blockchain and value-based reimbursements

Value-based reimbursement models, such as capitation (a fixed payment per beneficiary across a defined population) and bundled (pay for an episode of care or condition during a defined period of time) payments should link the continuity of care and blockchain.

Matching personal data on chronic conditions with primary care and public health data simplifies the transition from fee-for-service payments towards value-based reimbursement models, that prioritise quality outcomes of the continuity of care. The promise of blockchain is redesigning the payments process from one that is system-centric, to one where patients' needs determine the services delivered across a condition or an episode. In this sense, blockchain aims to provide a new supporting infrastructure to address these issues, by creating a common platform to administer payments and adjudicate claims. Reflecting on financial models, including prevention, could make our ecosystems more sustainable, with the support of blockchain technology.

Conclusions

Blockchain can greatly contribute to enabling nurses to deliver on access to care, through the digitalisation of health and social care. To this end, blockchain needs to foster the integrated and the continuity of care policies, supporting nurses to deliver a safe and high-quality level of care. Engaging end-users, local frontline nurses, in co-designing 'fit for purpose' health and social care tools can make the systems more integrated, coordinated and sustainable. ■

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Blockchain: Success in government procurement requires more than just investment

Paul Parker from SolarWinds argues that where blockchain is concerned, success in government procurement requires more than just investment

Despite its relative infancy, blockchain is already one of the top five most important technologies in the IT strategy of 12% of public sector employees, with 15% (of those surveyed) stating that this will be the case in the next three to five years. This is according to the recent IT Trends Report from SolarWinds. The U.K. government is heavily encouraging blockchain-based technologies, with a £19 million investment in an innovative product or service delivery projects, including ones with distributed ledger technology announced in January of this year.

The promise of blockchain lies in how it can accelerate the verification processes using many connected computers (known as "nodes") to store blocks of information. Blockchain is transparent by design and that transparency allows data to be shared more easily between parties. In the procurement process, for example, blockchain creates added layers of trust by using its ledger of historical data to validate the authenticity of buyers, sellers and the product.

In addition, blockchain connects multiple systems and allows them to interact with each other. This means it creates a mechanism for more effective communication between different points of the procurement process.

Blockchain has the potential to revolutionise the way government agencies acquire services and solutions, just as it has impacted the way the world's banks handle the exchange of currency. But, as the financial world has discovered, network monitoring and management strategies play a critical role in blockchain's success within public sector organisations.

Distributed network monitoring and visibility

One of the design challenges that can arise from the distributed nature of blockchain is that comprehensive visibility is not easy. The success of blockchain in procurement is dependent on a high throughput of transactions and low latency. Unfortunately, those goals can be difficult to achieve over a disparate network, where each node is under pressure to process every transaction. In addition, according to the SolarWinds IT Trends Report, 58% of public sector IT professionals surveyed felt their network was not working at optimum levels. This increases the potential for roadblocks or point failures further down the line.

At the same time, much like the peer-to-peer system that makes blockchain function, many department networks are highly distributed. On-premises hosted, and hybrid network infrastructures are the norm. Teams need to be able to monitor data as it passes between all of these services to help ensure that their networks are operating efficiently and dependable. The best way to get this insight is by monitoring strategies that are designed to provide access and visibility into the entirety of the network, wherever it may exist.

Resilient, but not impervious

Better visibility can lead to better security. Indeed, following recent highly publicised breaches, blockchain technology has been suggested as potentially more secure, if used correctly. This is due to its decentralised nature, which can make it a harder target for hackers to hit. But nothing in this world is truly hacker-proof. Agencies must still make sure that they are maintaining the same high level of security practices they would do otherwise.

Implementing a security and information management system that patrols the network and scans for malicious activity is still extremely important. Continuous, proactive monitoring and encrypting data in transit and at rest must remain a fundamental part of an agency's security posture.

It is also important to remember that blockchain is a relatively new technology. As such, there may be vulnerabilities that have not yet been exposed – after all, during WWII, the Enigma Code was considered impossible to crack, until Alan Turing and his team at Bletchley Park came along. At this very moment, it is likely that many hackers are attempting to identify and exploit blockchain vulnerabilities. Maintaining a sound security position can help agencies fortify themselves against those efforts while taking strides to improve their procurement processes.

Innovation beyond the procurement process

Blockchain has considerable potential for the public sector in the U.K: it has been shown to be innovative and powerful in other industries and could very possibly revolutionise government procurement processes in the near future. However, this is only the start of the potential blockchain revolution – as a previous U.K. government report suggested. The same technology could work to track government loans and spending, protect critical infrastructure, or even help to deliver on the government's foreign aid commitments in a more secure and transparent way.

Success with blockchain, though, is contingent on supporting the technology with comprehensive network management. Clear visibility across all nodes and management of performance levels will be integral to helping maintain security and preventing blockages in the network. Only then can blockchain and distributed leger technology, successfully transform government digital services. ■

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Blockchain in manufacturing: The perfect match

The expertise of a thought leader on blockchain in the enterprise, Sadiq Quasim, Director from Loyakk Ltd is profiled here, as well as the important role of blockchain in manufacturing today

Sadiq, a thought leader on blockchain in the enterprise, runs Loyakk Ltd and is a frequent speaker on blockchain and its impact on Enterprises. Sadiq has been instrumental in defining the Loyakk's blockchain-anchored Value Web framework and the resulting solution portfolio. Sadiq has been a critical part of the team defining the blockchain-enabled Vega Business Relationship platform.

Prior to Loyakk, Sadiq's innovative efforts to bridge technology to business requirements have been applied in initiatives across major central government organisations like the Cabinet Office and the Department for Work and Pensions (DWP), as well as blue chip companies HP, EDS, CSC and Bupa. Sadiq's vision for Loyakk is to empower enterprises to reinvent the way they drive business and value across their fast-growing ecosystem of customers, channel, partners, distributors and suppliers.

Blockchain in manufacturing

Manufacturing is a key driver of the global economy. The sector alone accounts for nearly 17% of global GDP, according to the World Bank.

Unfortunately, manufacturing has always been rife with inefficiency and quality-control problems. Fake products can make their way to market because the current system lacks a way to track what's real and what's not.

In fact, the counterfeit goods market adds up to half trillion per year, based on data from the International Trademark Association.

Supply chains are unnecessarily complex and disconnected, so it isn't as easy to monitor as it should be. Meanwhile, customer expectations are increasing, which places even more pressure on manufacturers to deliver products at the price consumers want.

The many problems we see today in manufacturing – from counterfeiting and poor quality to inefficient processes and a lack of trust in production – are all due to the fact that manufacturers still operate as if we were all living in the 20th century.

Thankfully, blockchain technology can provide a solution to all the problems the manufacturing industry faces and helps to usher it into the 21st century.

The blockchain can improve verifiability and transparency in manufacturing

Do you remember the Chipotle E. Coli outbreak of 2015? To this day, no one knows what ingredient or meat caused the outbreak. That's due to issues with tracing the source of the bacteria. Chipotle's supply chain was just too complex and disconnected.

Had Chipotle's supply chain been on a blockchain, the company could have easily pinpointed where the contamination originated from. That's because the blockchain is an immutable distributed ledger that enables real-time tracking of parts and supplies from origin to manufacturer to retailer.

By unifying the supply chain on a decentralised blockchain platform, suppliers, manufacturers and retailers can record at any time something changes hands or is bought and sold.

So, whether you're a corporation or a small business, putting the supply chain on the blockchain can and will have enormously beneficial consequences. Not only does it increase overall transparency, it also makes recognising (and solving or stopping) supply chain issues a whole lot easier.

What's an immutable, distributed ledger, again?

An easy way to understand how blockchain technology could completely revolutionise both manufacturing and supply chains is by comparing it to a living dossier of activity logs. These digital logs – which are automatically updated every time a meaningful transaction occurs – allow anyone to easily observe and trace the flow of parts and goods between companies.

This 24/7 eagle's eye view provides manufacturers with a never-before-seen level of control and compliance. They'll be able to see and address problems in real time, as well as eliminate the ability for copying or theft.

For instance, in a computer manufacturer's supply chain, various components are sourced from suppliers all over the world. Running the supply chain on a blockchain-based platform would enable the entire network to identify a faulty part immediately or prevent an unscrupulous player from pushing the part through to the next step in the supply chain.

In short, a blockchain-based solution like the Loyakk Vega blockchain-powered enterprise relationship platform, built for companies operating on a large scale within a global network of suppliers and partners, can ease the burden of trust manufacturers face.

With the right blockchain platform, manufacturers and shippers can ensure quality products at the right price that are protected from tampering and unfair competition.

Helping manufacturers meet the demands of the modern customer

In today's Amazon and Alibaba-led world, the modern consumer demands choice, quality and affordability. They also want whatever they order to arrive as quickly as possible. Blockchain technologies have the potential to deliver on all of those demanding expectations.

In addition to improving security, a blockchain-based platform removes the need for middlemen, like lawyers and banks, by enabling a direct connection between manufacturers and suppliers. This is largely thanks to smart contracts, which rely on an immutable code, ensuring certain terms and conditions are met in an agreement between two or more parties. The smart contract will only send a payment or asset to a party once they meet those terms and conditions. This ensures that all parties adhere to the agreement, in turn, guaranteeing the highest level of accountability.

A blockchain-based solution can also streamline processes by simplifying data management and reducing the time it takes to complete certain tasks. For example, as experts note, this enables the creation of a thorough end-to-end audit trail. Traditional audits are not only very expensive, they're also very time-consuming and inefficient. Streamlining quality assurance checks will go a long way towards improving accountability and trust along the supply chain.

Everyone will benefit when the supply chain is put on the blockchain, from maker to consumer, as higher quality products can be produced at a lower price.

Blockchain and the future of manufacturing

Many industry experts claim that 3D printing is the future of manufacturing. And they're absolutely right. The mass printing of rapid prototypes and customisable products is a game-changer for manufacturing as a whole.

But manufacturers have serious concerns about security. In a manufacturing marketplace of fail-fast prototypes and constantly re-optimised products, how do you protect your intellectual property and prevent someone from simply stealing a great idea?

The blockchain puts an end to this concern by using smart contracts, which automatically negotiate terms and conditions, protect the design by giving creators full control over important files and guarantee that the additive manufacturing process meets requirements for design quality and materials.

Innovators won't have to worry about factory personnel stealing an idea or production quality not being up to snuff. By encrypting and maintaining digital product memories on the blockchain and overseeing product production through smart contracts, 3D printing and additive manufacturing can be carried out efficiently and securely.

Bright days are ahead for manufacturers

There are a lot of new technologies redefining the way companies do business. But the blockchain is the one that can bring trust, quality, security, provenance and governance to the manufacturing process.

As blockchain technology continues to advance and becomes more defined, the supply chain and service supply chain, in particular, could begin seeing truer forms of transparency, accountability and efficiency.

The sooner manufacturers adopt blockchain technologies, like Loyakk's Vega platform, the sooner they can benefit from a much better way of doing business.

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Blockchain: How a treasury system will foster better collaborative intelligence for cryptocurrencies

Bingsheng Zhang from Lancaster University reveals how a treasury system will enable a better collaborative intelligence for cryptocurrencies

Blockchain technology has pioneered a new consensus approach to build a distributed public ledger globally. One of the key features expected from cryptocurrencies and blockchain systems is the absence of a centralised control over the operation process. That is, blockchain solutions should neither rely on "trusted parties or powerful minority" for their operations nor introduce such centralisation tendencies into blockchain systems.

On the other hand, real-world blockchain systems require steady funding for the continuous development and maintenance. Given that blockchain systems are decentralised, their maintenance and developmental funding should also be void of centralisation risks. Therefore, secure and "community-inclusive" long-term sustainability of funding is critical for the health of blockchain platforms.

During the early years, the development of cryptocurrencies, such as Bitcoin, mainly relies on patron organisations and donations. Recently, an increasing number of cryptocurrencies are funded through initial coin offering (ICO) – a popular crowd-funding mechanism to raise money for the corresponding start-ups or companies. A major drawback of donations and ICOs is that they lack sustainable funding supply. Consequently, they are not suitable as long-term funding sources for cryptocurrency development due to the difficulty of predicting the amount of funds needed (or that will be available) for future development and maintenance.

Alternatively, some cryptocurrency companies, such as Zcash Electric Coin Company, take a certain percentage of hair-cut/tax (a.k.a. founders reward) from the miners' reward. This approach would provide the companies with a more sustainable funding source for long-term planning of the cryptocurrency development.

Nevertheless, all the aforementioned development funding approaches have risks of centralisation in terms of the decision-making on the development steering. Only a few people participate in the decision-making process on how the available funds will be used. However, the decentralised architecture of blockchain technologies makes it inappropriate to have a centralised control of the funding for secure development processes. Sometimes disagreement among the organisation members may lead to catastrophic consequences.

Ideally, all the cryptocurrency stakeholders are entitled to participate in the decision-making process on funding allocation. This democratic type of community-inclusive decentralised decision-making enables a better collaborative intelligence. The concept of the treasury system has been raised to address the highlighted issue. A treasury system is a community controlled and decentralised collaborative decision-making mechanism for sustainable funding of the underlying blockchain development and maintenance.

At Lancaster University, the research team led by Dr Bingsheng Zhang has been actively developing a novel treasury system for blockchain in collaboration with IOHK. This project aims to resolve the funding sustainability issue for long-term cryptocurrency development and maintenance. Figure 1 illustrates an overview of the treasury system and it consists of iterative treasury periods.

During each treasury period, project proposals are submitted, discussed and voted for; top-ranked projects are then funded. In particular, Lancaster research team has developed the world's first universally composable provably secure distributed decision-making system that supports liquid democracy with privacy assurance – to achieve better collaborative intelligence.

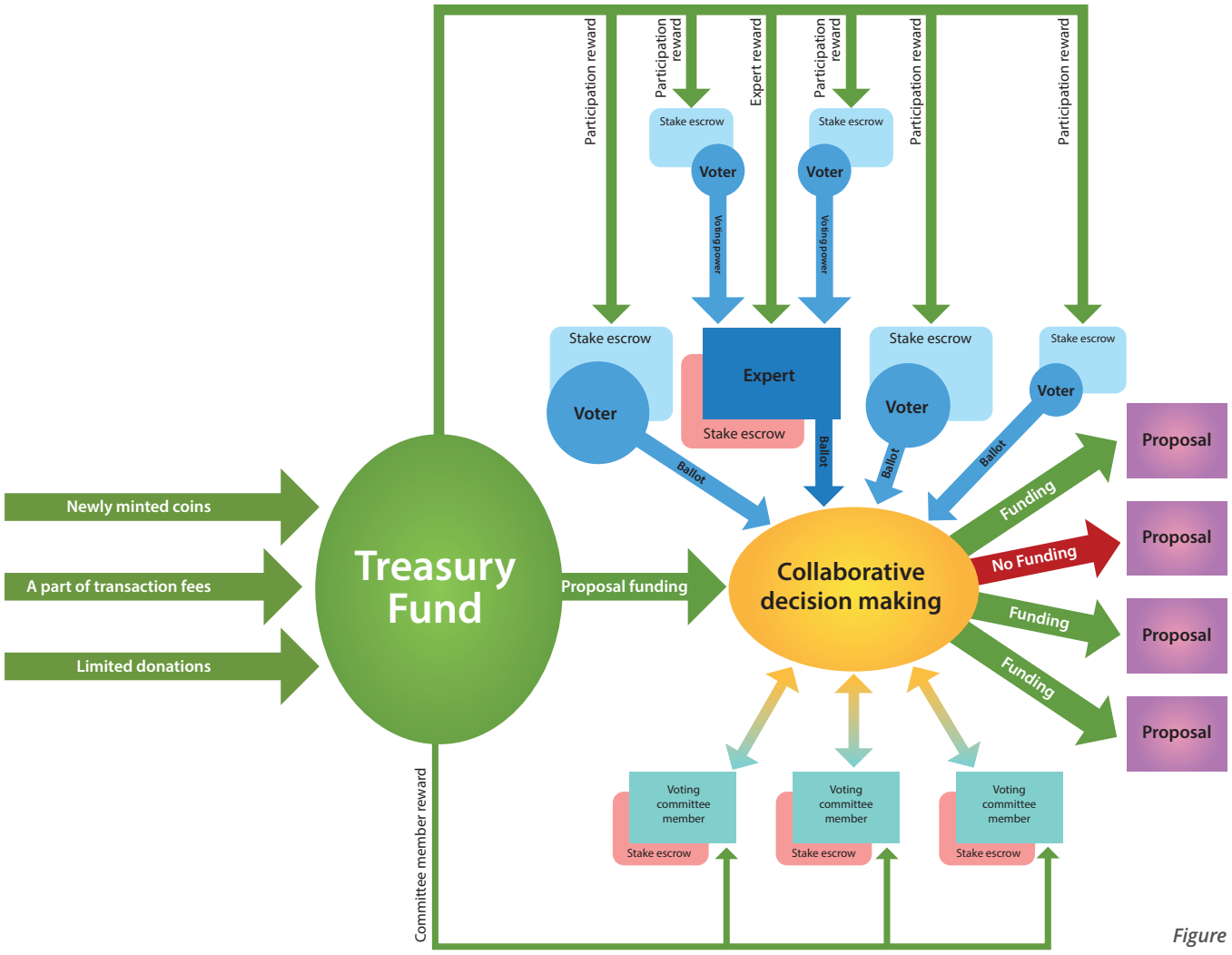

Figure 1

Liquid democracy (also known as delegative democracy) is a hybrid of direct democracy and representative democracy. It provides the benefits of both systems (whilst doing away with their drawbacks) by enabling organisations to take advantage of experts in a treasury voting process, as well as giving the stakeholders the opportunity to vote. For each project, a voter can either vote directly or delegate his/her voting power to an expert who is knowledgeable and renowned in the corresponding area.

The proposed treasury system is compatible with most existing off-the-shelf cryptocurrencies/blockchain platforms, such as Bitcoin and Ethereum. The system is self-sustainable, robust, private and end-to-end verifiable. Any stakeholder in the community can participate in the treasury voting and their voting power are proportional to their possessed stake. The system collects funding via three potential sources: (i) Minting new coins, (ii) Taxation from Miners' reward, (iii) Donations or charity.

In this proposed system, coin ownership is distinguished from stake ownership. That is, the owner of a coin can be different from the owner of the coin's stake. This allows blockchain-level stake delegation without transferring the ownership of the coin. It means that the user can delegate his/her stake to someone else without risk of losing the ultimate control of the coin(s). To achieve this, we introduced a stake ownership verification mechanism using the payload of a coin.

We also provide prototype implementation of the proposed treasury system for running and benchmarking in the real world environment. Our implementation is written in Scala programming language over Scorex 2.0 framework. It is fully decentralised and resilient up to 50% of malicious or faulty participants.

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Blockchain: Potential to help the music industry

We spoke to singer, songwriter, record producer and audio engineer, Imogen Heap about the potential blockchain has to help musicians and the wider industry

Singer, songwriter, record producer and audio engineer, Imogen Heap speaks to us about the potential that blockchain has to help musicians and the industry more generally. She founded the company Mycelia, the mission of which is to "empower a fair, sustainable and vibrant music industry ecosystem involving all online music interaction services."

Imogen believes that blockchain has the potential to ease the collaboration in business for music-makers and services and also to help those in the industry to be acknowledged for their creative work. This fits in with one aspect of the firm's mission, which is to ensure that commercial, ethical and technical standards are set to exponentially increase innovation for the music services of the future.

> "Our aim now is to start now with our Creative Passport, which together with music-makers enables us to put a foot forward and create our home for the future so that we can integrate with blockchain and are not left behind."

Imogen explains more on these areas plus the extent to which blockchain has the potential to provide a quicker and more seamless experience for anyone involved in creating or interacting with music. Imogen also strongly believe in connecting the dots with all those involved in the shift from our current outdated music industry models to exploring new technological solutions to enliven and positively impact the music ecosystem.

"The real magic is The Internet of Agreements® is how do we integrate them into our daily lifestyle? Anything has to be easier than it is right now, indeed, today there is no shared database for songs, and as a result, there is no ecosystem there. We need to build that, and

Imogen Heap, Founder of Mycelia

we will be able to do this thanks to blockchain technology where lots of people are now thinking in the same way, which means we are not dealing with the current issues all by ourselves. This means that for the first time, the plight of musicians is suddenly interesting to people because there are technological solutions that work towards a better place for the future of the industry. Also, there is essentially money to be made in terms of innovation in music services."

In terms of how blockchain could store a musician's online profile, such as tour dates and press images,

Imogen believes that while we talk about such technology, it is really an empowering tool that will augment the internet as we know it. She explains the notion behind the Creative Passport, a digital container that holds verified profile information and uses blockchain technology. Featuring a 'smart contracts' template, it aims to facilitate direct payments, simplify and democratise collaboration from meaningful commercial partnerships that encourage creativity in the music industry.

"We do not understand everything about how the internet works, so it is the same with blockchain in that we don't need to understand it. We can simply use it in the future and it should enable us to create easier collaboration, so when something becomes so useful and easy to use then it will be adopted.

"Our aim now is to start now with our Creative Passport, which together with music-makers, enables us to put a foot forward and create our home for the future so that we can integrate with blockchain and are not left behind."

Also, Imogen remembers three years ago, meeting Vinay Gupta the then project launch manager for Ethereum, an open-source, public, blockchain-based distributed computing platform as she was introduced to their smart contract functionalities. "This really changed the game for me. It was so clear the huge positive impacts these could have on our current music ecosystem, I just had to get stuck in.

A conversation last year with RChain's president Greg Meredith had Heap take another step in realising the Creative Passport. "We discussed RChain and its open governance, how Greg looks to nature and viable systems for inspiration and problem-solving. I felt they were the right blockchain to run with for Mycelia. It's vitally important for music makers that we don't recreate century old problems of the past and take this technological leap of an opportunity to solve tired old issues such as lack of transparency, acknowledgement and flow of payment."

In closing, Imogen explains why now is the time for the music industry to take the long-view look and explore blockchain together with its creatives for the sake of its sanity and future.

"Other industries are talking about possibilities and innovation, so that is a very different story from what it was. The music industry can look at other sectors, such as banking and health, to move blockchain forward in terms of helping musicians and the industry." ■

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The role of blockchain in the world of investments

Olga Feldmeier, CEO of Smart Valor and described as the ' Bitcoin Queen of Crypto Valley' speaks to us about the role of blockchain in investments

Olga Feldmeier, CEO of Smart Valor and described as the 'Bitcoin Queen of Crypto Valley', is one of the world's foremost blockchain and cryptocurrency experts. Olga regularly delivers keynotes and presentations at industry events and on global broadcast slots.

Previously a UBS banker, Olga is now CEO of Smart Valor, a new blockchain-powered platform that concerns making alternative investments accessible for everyone. We were fortunate to speak with her at 2018's MoneyConf in Dublin to learn more about her seasoned views on blockchain and cryptocurrency.

Assuming that you have little or no knowledge of blockchain, how would you explain the concept of blockchain? Olga makes it simple, by taking us on a journey in our imaginations to imagine a network of computers all over the world on the intranet run from the same programme. Olga is keen to explain this point further to us in her own words. "This programme enables us to validate transactions and to prove that data is real."

The conversation then moves to Olga's thoughts on fractional ownership, by that, she explains that this concept is a very powerful one because where investment opportunities are present, the average person cannot afford them. One can become involved in exciting investment opportunities by the creation of intermediaries, such as large financial institutions and funds for real estate, for example. Olga then explains this fascinating point to us in more detail, as well as the role that blockchain in investments.

"With blockchain, you don't need central bodies to take part in investment opportunities. Any asset itself can be fractionalised, using a number of tools and can then be sold. Fractional ownership can also achieve digital shares in a company, but the really great thing about this is how ownership can be exchanged by participating. With blockchain, the transfer of ownership happens on a peer to peer global network and is instant and cost-effective.

"Any physical investment, such as real estate, makes you think about digital ownership, for example, in a

Image: © RnD photography GmbH

Olga Feldmeier
Founder and CEO
Smart Valor

company share. It takes a few days for the settlement clearing process to take place, which will involve going to the bank, for example. The bank will send the information into the centralised registry where the ownership of a share is recorded. Imagine instead, a centralised and distributed network of computers writing the same ledger in real time, so that method can be used for just about anything when it comes to owning things."

Looking at Switzerland, we know that this country has surged ahead as the world's leading hub for blockchain and cryptocurrencies. Olga is well-positioned to explain her thoughts on this to us, including the fact that in Switzerland, Ethereum was introduced there in 2014 and gained much attention in the country. A Bitcoin company where Olga used to work gained a license from the financial regulator in Switzerland to operate as a financial intermediary as opposed to a bank, she reveals. Olga also explains the ambition from a political standpoint for Switzerland to become a global blockchain hub.

"That was a great signal to the rest of the world that Switzerland is open to Bitcoin and during the last year, there was a huge wave of Initial Coin Offerings (ICO's) in the country. Around 1 billion was raised through swiss entities and approximately 400 companies were created in Switzerland. The President of Switzerland likes to talk about Crypto Nation Switzerland, rather than Crypto Valley Switzerland. This shows that the ambition to established Switzerland as a global blockchain hub, so this comes from a very high political level.

"This is the case because Switzerland is one of the leading nations in terms of innovation and the banking sector. If you combine these two things together, you can see that when it comes to innovation, FinTech and blockchain, it is very natural for Switzerland to embrace these technologies. Switzerland has the chance to become home to the next generation of financial infrastructure. Crypto banks are the future – and smart countries such as Switzerland, Luxembourg, Singapore need to accumulate expertise to reach this point."

Finally, Olga explains her thoughts on what is really exciting about blockchain, in that the technology has arrived to challenge the balance of power between people and state. But how? With decentralised money – taking the example of the country Ukraine – where the government says money can be printed money and wealth distributed. Today, as a citizen, you have the right to buy Bitcoin, which distances you from the local currency.

"At the end of the day, we can influence monetary policy to some extent which means the government no longer has the power over their people, so this means that there will be radical changes ahead to the social contract in terms of the relationship between people and state.

"Also, if people can move their wealth completely out of the banking system, then they become independent of the will of their government. Isn't it my right to decide what I do with my money? If I am excited about Apple or Google, for example, then why can I not invest in them? At the end of the day, if there is freedom of speech then should there not also be the freedom of money? This is not the case today." ■

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eHarvestHub gives small farmers centre stage on the global market

Our global economy is leaving our small farmers behind, yet they produce more than 60% of the fresh food we consume. eHarvestHub gives farmers direct access to the global market making our food more affordable and accessible, as this analysis from Alvaro Ramirez at eHarvestHub reveals

We produce enough fresh food to feed the world, however, affordability and accessibility are a big problem. Fresh food is a global business, yet consumers pay high prices, while the farmers who feed us are financially being left behind. This can all be attributed to the complexity of our food chain. To make fresh food more affordable and accessible, we must radically change the food supply chain; from seed to the grocery store to the lending institutions who finance our small farmers each year.

To make this happen, "true decentralisation is needed and blockchain technology is perfect for it", notes Alvaro Ramirez, CEO and Founder of eHarvestHub. The company's approach to solving the affordability and accessibility of fresh food not only uses blockchain technology to achieve it, eHarvestHub's business model removes the layers of middlemen leaving only key market participants: the grower, the trucker, the grocer and the consumer. The company brings the small farmer to the global stage, giving grocers direct access to their inventories that today can only be accessed through the existing layers. Let's take a closer look.

According to World Bank agricultural data, more than 60% of our global fresh food production comes from the more than 480 million small farmers. The eHarvestHub marketplace gives these small farmers a global stage. Regardless of the geographical location, eHarvestHub has found that small farmers face the same core problems: 1) not enough volume; 2) dependent on middlemen to market their product and arrange transportation and; 3) high-interest loans.

Developed countries with high population and economic power drive food imports today. Twenty-five countries import more than $1 trillion of the world's food production and 66 countries also rely on imported food. For example, last year the United States imported more than $136 billion in fresh food, most of which came from the over 19 million farmers in Latin America. One of the main reasons why the United States imports fresh food from Latin America is because of food safety. Many farmers in Latin America follow Good Agricultural Practices (GAP) and similar food safety practices as American growers.

Small farmers don't produce enough volume to meet supermarkets' demand on their own, forcing them to sell to the multiple middlemen who clutter our food supply chain giving grocers little visibility to small farmers' available inventories. This leaves farmers making pennies on the dollar for their product, while consumers pay high prices and the middlemen profit the most in this ecosystem. The product

moves through the value chain – sometimes exchanging hands seven to 10 times – increasing the risk of contamination, food fraud, lowering shelf life and increasing costs each time a product exchanges hand.

Technology alone is not the answer. To solve the accessibility and affordability problem, eHarvestHub goes to the root of the problem: increase the farmer's margin using blockchain technology with its business model to give the small farmer a stage on the global market. eHarvestHub's CEO says that technology providers fall short because while they may have sound technology, they end up taking percentages from the farmers' profits, only becoming the new middleman. For technology to be effective, the business model must enable growers to have access to the technology without fear of losing their hard-earned money. With eHarvestHub's flat trans-

action fees and no middlemen, these two factors increase margins for the farmer and enable growers to gain the maximum use of the company's technology. This not only creates true transparency for grocers and consumers, but it gives farmers access to consumer-driven lending.

eHarvestHub's full enterprise technology solution provides its customers with traceability, a real-time inventory, order management, direct access to truckers a marketplace where grower, grocer and trucker can interact directly, and it is intuitive and built with not so tech-savvy customers in mind. eHarvestHub's use of blockchain, smart contracts and cryptocurrencies not only to help farmers give full transparency on their products, but to be paid soon after the product has been delivered. Farmers currently must wait up to 90 days after the product has been delivered to be paid. The marketplace smart contract places the funds for a transaction in an escrow account, which gives the buyer a peace of mind as funds only get released if the seller and carrier fulfil all their contracted obligations. Once all parties have fulfilled their obligations, the smart contract releases the funds to the seller and carrier.

Ed Treacy, Sr. Vice President of the Product Marketing Association, describes fresh produce logistics as a web because of the multiple times that fresh produce exchanges hands and locations. eHarvestHub simplifies that web by removing the middlemen. With the goal of making fresh food more affordable and accessible, lowering cost includes "not only removing the need for the supply chain middlemen but also the agricultural lender", explains Alvaro Ramirez. At the start of their planting season each year, farmers borrow from banks often paying up to 17% in interest.

Other financial institutions, unregulated in most countries, can charge up to 60% in interest. Since blockchain can truly connect farmer and consumer – regardless of their geolocation – consumers can see where the food they purchase comes from and where their money is going then they are most likely to support grocers who pay farmers higher. This transparency that eHarvestHub provides, coupled with its cryptocurrency, allows consumers to crowdfund loans for farmers at much lower interest rates than farmers currently pay. This truly gives the power back to consumers and putting the value where it belongs, with our farmers.

eHarvestHub's approach to solving fresh food affordability and accessibility through blockchain technology and its social-economic business model truly disrupt and rewrite how our food reaches consumers. Helping farmers make more money will allow farmers to become more sustainable, as they will possess the funds to do so. Food waste can dramatically be decreased as farmers could plant fresh food based on market needs. The company's approach to consumer lending for farmers has the potential to uplift many farmers from poverty while helping consumers make an extra income.

For more information on how to get involved with eHarvestHub, you can contact Alvaro Ramirez at Alvaro@eHarvestHub.com or visit their website at www.eHarvestHub.com

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Gibraltar: The development of blockchain

Philip Young, Director of Marketing and Business Development at Gibraltar Stock Exchange Group explains his thoughts on the development of blockchain in Gibraltar

The Gibraltar Blockchain Exchange (GBX), is part of the Gibraltar Stock Exchange Group. In an interview with the firm's Philip Young, Director of Marketing and Business Development, we learn more about how he perceives blockchain in Gibraltar. He explains that it is important to start by being aware that the country is a jurisdiction, in terms of being a self-governing British territory with its own government and regulator. He is keen to explain this vital point to us further.

"We are pretty much self-governed in all aspects, but when it comes to defence we rely on the UK. It is important to say that two and a half years ago, the government and the regulator started engaging in a conversation as to how they could provide regulations in the area of blockchain capacity, for example. That was a three-way engagement between the government, private sector and regulators that really culminated over a period of two and a half years before 1st January 2018.

"This date marked one of the first countries in the world to have a distributed ledger technology legislative framework. That said, as a jurisdiction, Gibraltar can provide three things. Regulatory certainty – that comes with blockchain, as well as the legal and financial certainty – due to the ecosystem that the country had created with the private, banking and legal sectors.

"All these sectors are working together to support the development of the global blockchain community within one of the first regulatory frameworks in the world. As a result of that, during 2017 and this year, Gibraltar has been one of the global hubs now for the blockchain movement. With the launch of the new regulations this year, we are seeing global companies looking to come to Gibraltar and be regulated."

Philip adds that this really replicates what Gibraltar did 25 years ago when all the online games community was based in the country. Over the years, 25-30 of the franchisees in Gibraltar control 30 to 40% of the global gaming business, we discover. Looking back at this example, we can see that the country created a legislative framework and encouraged quality businesses to come to Gibraltar. What Gibraltar Stock Exchange Group wanted to do was to take that model and replace it with the blockchain industry.

"Gibraltar Stock Exchange Group began applying for its own licence in 2012/2013 because we recognised that the country was the last EU jurisdiction without a stock exchange. We wanted to use the stock exchange itself to be the catalyst for Gibraltar in terms of financial services and also very importantly, our association with the UK. We wanted to look at fundamental issues with small to medium-sized enterprises (SMEs) which cannot tap the capital market or come to a stock exchange because it is too expensive and takes too long.

"The capital market for SME's has always been broken, so we wanted to open up the market and raise money through equities or bonds, for example, through a regulatory framework to get SMEs to the market faster and by being economic. That has always been the fundamental cornerstone of what the Gibraltar Stock Exchange Group is doing."

Philip says the Gibraltar Stock Exchange Group ordered their license in 2015, but this was before they even became aware of the blockchain movement, but then they looked at it closer to see how they could take global leadership in terms of how to embrace the technology and use it to make things faster and cheaper.

"It could help to bring together buyers of regulated

Philip Young, Director of Marketing and Business Development at Gibraltar Stock Exchange Group

products with the issuers that are wanting the capital across the regulated platform. We began to work with the regulator and did our own assessment to get comfortable with what is a fast-moving space, indeed, every week feels like a year in terms of what is happening with blockchain technology. This is a challenge for policymakers, regulators and the private sector. Keeping up is a tough job."

In addition, Philip says that one of the world's first asset-backed securities was the first asset class that was linked to the Bitcoin. Gibraltar Stock Exchange Group also wanted to see how they could open up cryptocurrencies to see how they could be opened up to institutional investors. The industry today is very small and main retail-driven, but how do we get institutional players into the market? The answer, he says, lies in regulated exchanges and to start applying them to blockchain, cryptocurrencies and tokens.

Finally, Philip leaves us with a profound thought. If you go back just one year ago, would you have been able to forecast where blockchain is at today? Although Gibraltar only has a population of 32,000 people, they remain a global centre and people come through their door from all over the world, Philip explains before offering his final thoughts.

"From schools up to senior management, they need to get their heads around a technology that is quite simple as a distributed ledger, but its application is yet to come following the current experimental phase. There will be clear winners coming out in ways that we cannot see." ■

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Blockchain from a compliance perspective

Michelle McGuire, Head of Risk and Compliance at GECKO Governance shares her views on blockchain from a compliance perspective

When it comes to blockchain, Michelle McGuire, Head of Risk and Compliance at GECKO Governance argues that financial compliance is key, however many regulators are not moving as fast as the industry itself is moving, she observes. Jurisdictions such as are leading the way, such as Singapore, Malta, Gibraltar and the Isle of Man. Having said that, jurisdictions such as the U.S. are lagging behind, something that GECKO Governance is hearing a lot about, Michelle adds.

"In the U.S., there are investors who are quite concerned about how the blockchain space could be regulated, so they are holding back in fear of what is to come. It is the view of our firm that the blockchain industry needs regulation and compliance and must to be brought in line with traditional markets, to bring institutional players in.

"Transparency is very important where a system is built on blockchain, which integrated with Hyperledger fabric, allows you to permission access into the system. That way, you are giving transparency to your investors, regulator or partner. You are giving accountability this way."

Michelle then explains that her firm does not feel that cryptocurrencies should be wedged into an asset class and that requires some thought leadership and some insight from the industry in collaboration with the regulators to bring it forward. This is because you do not want to stamp out innovation and the creativity of individual people, Michelle stresses. Michelle also offers her thoughts on how she would define blockchain itself from the risk compliance perspective.

"It is a form of software that secures data safely and blockchain helps businesses to manage data and not have to repeatedly ask their employees information such as date of birth, in terms of risk compliance."

"Transparency is very important where a system is built on blockchain, which integrated with Hyperledger fabric, allows you to permission access into the system. That way, you are giving transparency to your investors, regulator or partner. You are giving accountability this way."

The conversation then turns to Initial Coin Offerings (ICO) token sales, including the fact that from the perspective of GECKO Governance, the system they know is all on the blockchain with Hyperledger fabric. Michelle elaborates on this point further to us, from the perspective of managing cryptocurrencies and ICO investment needs.

"It can provide a level of comfort and assurance that you are doing what you need to and you can prove it. By bringing this into the blockchain space, you are really bringing in a high level of compliance, but when we are faced with the competition, this challenges us to expand our platform and therefore, to manage cryptocurrencies and ICO investment needs.

"It is important for any project to prove that they are as compliant as they can be in the world of blockchain. In this vein, we need to learn the process of token sales, find out where the pitfalls are and where the key obligations should lie and therefore, develop a platform from there."

Isle of Man

> "It is important for any project to prove that they are as compliant as they can be in the world of blockchain. In this vein, we need to learn the process of token sales, find out where the pitfalls are and where the key obligations should lie and therefore, develop a platform from there."

Following on from this, Michelle adds that software can be developed to manage the end to end process when it comes to token sales, so a number of projects need to be managed in terms of developing a white paper through to security wallets and smart contracts. A centralised platform can be used to manage this and GECKO Governance is an example of a firm working from a number of jurisdictions to meet the requirements of smart cards, digital wallets and custodial.

Finally, in terms of being regulated by the Isle of Man, GECKO Governance sees this as a positive move when it comes to hefty regulation. This is something that any company to take comfort from, Michelle concludes, in terms of taking the most compliant approach they can. ■

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Financial services: The explosion of cryptocurrencies

Erik Voorhees, CEO of ShapeShift speaks to us about the explosion of cryptocurrencies from a financial services perspective. In this interview, he shares his thoughts on swapping digital currencies and the role of innovation in the field

ShapeShift is a part of today's cryptocurrency ecosystem, which enables one to quickly swap between assets. As an expert in the field of cryptocurrencies, we enjoyed a conversation with the firm's CEO, Erik Voorhees to find out more about cryptocurrencies, as well as swapping digital currencies and the role of innovation in this space.

Firstly, assuming that the reader has little or no knowledge of cryptocurrencies, Erik is eager to reveal that cryptocurrencies, such as bitcoin and Ethereum are defined as decentralised currencies. This means that they are not controlled by any government and rely on technology, cryptology to be redistributed and are transferable from peer-to-peer (P2P) around the globe, very quickly.

"Cryptocurrencies value generally comes from people who are buying and selling them in markets where there is a limited supply, so as people buy and sell them their value goes up and down. They run on a blockchain, which is a distributed digital ledger. This allows them to settle without having to trust anybody else in the world. As long as we trust mathematics, we can trust that these things are going to work."

The conversation then moves to Erik's thoughts on swapping digital currencies and just exactly how safe and secure he thinks they are. He tells us that in terms of swapping from one digital currency to another, there are a couple of things to consider. Firstly, Erik says that when it comes to sending a digital currency on a blockchain, is extremely secure and is backed by the power of those networks.

"The main point of cryptocurrencies is to make it easier to transfer value securely, across borders, without having to trust any third party.

> "Cryptocurrencies value generally comes from people who are buying and selling them in markets where there is a limited supply, so as people buy and sell them their value goes up and down. They run on a blockchain, which is a distributed digital ledger. This allows them to settle without having to trust anybody else in the world. As long as we trust mathematics, we can trust that these things are going to work."

"There are a few different ways to swap from one digital currency to another. There are centralised exchanges where you can do this. You need to set up an account, deposit your funds and then set up orders to quickly exchange from one digital currency to another. Those have varying levels of security. You are essentially trusting that the exchange, which is holding your funds is not going to run off with their money or be shut down.

"There are other exchanges, such as ShapeShift, which are non-custodial and far safer than a centralised exchange. We never actually hold customer funds. It is like a vending machine – you pop one asset in and another one comes out, and therefore you always remain in control of your assets."

Erik then shares his views on the extent to which the cryptocurrency ecosystem is changing today and where he sees it heading in the future. He explains that the cryptocurrencies industry has grown by leaps and bounds, especially during the last year and a half. Erik goes on to explain this interesting point to us in further detail and also his thoughts on what financial services could look like in the future.

"Cryptocurrencies have exploded in value in terms of global interest, but in the long-term, they will become the backbone of a new financial system. This will disrupt and disintermediate many banks and middlemen who have traditionally provided such services.

"Eventually, it will go far beyond financial services and it will disintermediate everything that requires trust. We will move to a system where we will not have to trust third-parties. Instead, we'll be trusting mathematics, which is much better than trusting governments and people."

When it comes to the role of innovation in the field, Erik explains that the entire field of cryptocurrency concerns this. Cryptocurrencies, he believes, are one of the most important innovations to happen to humanity since the internet and even before that, when the idea of paper currencies was invented. In closing, he elaborates on this fascinating point.

"These platforms essentially allow for permissionless innovation. Right now, if you are trying to innovate in the FinTech space, you tend to be held back by the fact that all of these traditional financial systems require permission. Cryptocurrencies and blockchain technology are permissionless. This allows innovation to take a much faster pace than we've seen in the financial space in centuries." ■

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Building wealth through cryptocurrencies

Director of Investor Relations at Atlas Quantum, Bruno Peroni shares his expert views on building wealth through cryptocurrencies

Director of Investor Relations at Atlas Quantum, Bruno Peroni is an expert on building wealth through cryptocurrencies. As a start-up and venture capital enthusiast, he believes that anyone should be able to invest in any business. The firm's mission is to make institutional investment techniques accessible for everyone - through cryptocurrencies. We were fortunate to speak with him to learn more about the exciting world of building wealth through cryptocurrencies.

By way of an introduction, we know that Bitcoin is one way of exchanging value without a third-party, which is the main value proposition of cryptocurrencies. As such, everything in this vein is based on codes and algorithms, so you do not need to trust another party to exchange money, Bruno explains.

Where cryptocurrencies are concerned, this is the first time that value has been transferred over the internet, so in this respect, a unique piece of software represents value and cannot be copied. Bruno says that cryptocurrencies are borderless and can be transferred to anybody in the world, a point he goes on to develop, in addition to his thoughts on the distinctive nature of tokens.

"It cannot be copied because it is transferred through a distributor network that cannot be attacked. The exchanges are where these transfers take place which are negotiation platforms for those who want to trade between currencies such as the Euro and the Pound and cryptocurrencies, or between different cryptocurrencies. The various cryptocurrencies are in competition to be the main cryptocurrency.

"There has been much confusion between cryptocurrencies and tokens. The fact that there are than 3,000 cryptocurrencies is simply not true. There are actually around 40-50 cryptocurrencies, all of which have very similar features and are distinct, for example, in terms of more privacy. For example, in Bitcoin blockchain, which is the registry of all transactions, companies are doing analytics on that, so it is easy to track where you have other forms of cryptocurrency. It is impossible to track the origin of that transaction and the owner of it.

Bruno Peroni
Director of Investor Relations

"Tokens are a more difficult concept to track, but it helps to think in the form of a digital asset which you can transfer over the internet and it is unique and cannot be copied. That can be applied to a specific use case on the blockchain, for example, where identities are concerned, instead of having your identity held by a centralised institution such as Facebook, you have your identity held on a blockchain. A token represents your identity to trade between these."

The conversation then moves to Bruno's reflections on regulation and cryptocurrencies and the extent to which we are making progress in these areas. Regulations do change very quickly, but most regulators are open to cryptocurrencies, even though it is not an easy concept to understand. This is because some of these tokens are securities and at the same time, some are used as a payment method so as a new asset class blockchain has to fit in with the existing laws, Bruno tells us.

"I think we are still figuring out how that will go, but I think that regulations are admirable and will happen in various jurisdictions. Having said that, this is a borderless platform by definition, but this is also a hard concept to grasp because you can trade anywhere with a Bitcoin as regulations do not apply to it. I do think that cryptocurrencies will be regulated when they interact with the current financial system, for example, within exchanges."

Concerning the continued volatility of virtual currencies, Bruno reveals why he thinks they will prevent cryptocurrencies from going mainstream. He explains that virtual currencies remain volatile for a number of reasons, one of which is that there are more professional companies and institutions who are having fewer incidents that will make people scared.

"You will also get more mature investors because there are a lot of panic buyers and sellers in this market due to news, so it is a real infinite market in terms of trading where you have a lot of new people in financial market trading. So, it is definitely important that ways of using cryptocurrencies are managed well but at the same time, you can see other solutions such as Stable Coins. These are coded cryptocurrencies to have a stable price.

"Stable Coins are basically cryptocurrencies, so when money comes into the market they produce a supply, so there are always mechanisms to maintain a price, so it can be used by merchants, for example. These assets have to be managed in order to lose money with volatility, which is a great way to trade currencies instantly and accept payments."

In closing, Bruno tells us that when it comes to the future of cryptocurrencies, he sees a few of them being used in the future for daily activities, such as business-to-business operations and remittances.

"At the same time, we will have tokens in the future, which can be used as digital assets for other reasons such as tokenizing existing assets. I think we will have millions of these for different purposes, for example, we might be able to tokenize the production of soy and it will be the cheapest way to ensure the securitization of assets and there will be millions of tokens for different purposes." ■

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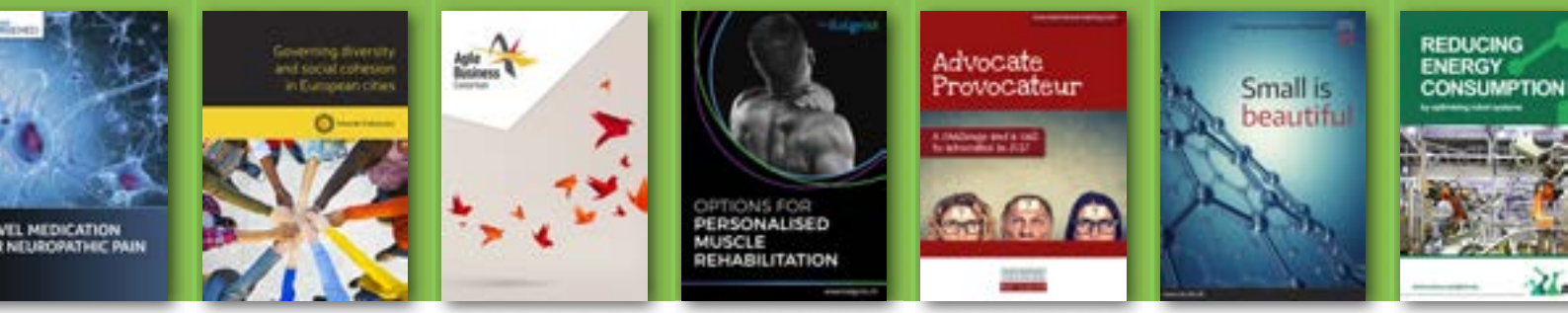

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