

Regulation, policy & technical developments shaping the future of Blockchain

Blockchain regulation and policy has become a key discussion point among banks, start-ups and financial regulators in Australia and internationally – particularly as more partnerships, use cases and technology designs emerge.

Financial institutions are now factoring in potential regulation requirements as they invest into Blockchain platforms, linking these requirements to technical and strategic decisions.

Ahead of [Blockchain 2016](#), we caught up with several specialists to discuss how the regulation landscape is taking shape for Blockchain technology. They also explore how regulatory developments will influence technical and strategic approaches to implementation.



Policy and Regulation for Blockchain Technology

with, Kate Romanova, Director – Management Consulting, Financial Services & Bluechips



Financial Services & Blue Chips



How would you characterise your involvement in Blockchain developments in the FinTech industry?

In the more-than-15 years that I've spent delivering large global initiatives across complex organisations, one of the key things I've noticed is there usually isn't an integrated approach. This is particularly the case at the intersection between compliance and technology.

Given the ongoing criticality of GRC, especially post GFC with the substantial increase in global regulatory obligations, I am convinced of the potential of Blockchain technologies to enable greater organisational and social interconnectivity.

How will policy and regulations correspond to the emergence of Blockchain technology?

Currently the pace of innovation is outpacing regulation, which has resulted in an approach to Blockchain technologies that is fractured, globally, along national lines. Having said that, Blockchain technology is on the Regulator radar.

And it's worth pointing out here – as an aside – that most global regulators, legislators and policy makers have proven to be supportive of Blockchain, but are facing a steep learning curve with regard to exponential technologies – many of which are not well or fully understood even by technologists.

In addition, and particularly with regard to the lag in regulating for innovation, I would venture to suggest they are challenged by the same resource constraints (not enough budget, not enough headcount) as the rest of us. I don't think any legislator ever woke up in the morning and thought: "What a wonderful day, today I'm going to stymie innovation and block the Blockchain."

In fact, in most countries and regions the reverse is true; for example the UK Financial Conduct Authority (FCA) has said it does not plan to regulate the Blockchain industry for now as it believes the technology will need "space" to grow.

Why do I mention this? I think if we understand the operational and systemic challenges that regulators, legislators and policy makers work under, we are then substantially more likely to willingly partner with them and drive optimal regulatory outcomes.

This model of government partnership already has precedent, including here in Australia with the newly established FinTech Advisory Group, and is a way to ensure that we retain a strong regulatory environment at the same time as supporting the growth of innovation. A number of other countries appear to be taking a similar approach (for example, Canada, US and UK).

The Blockchain space is nascent, however, some aspects of Blockchain could be regulated, including: smart contracts, industry and technical standards, common law and so on.

Regulator attention globally appears to be prioritising a number of key areas for focus:

- Privacy
- Data encryption
- Identity management (including KYC, and FCC)
- Virtual currencies (including tax implications)

Telling, in regard to the first three (privacy, data encryption, and identity management), is the recent outcome of the strongly contested – and at time vitriolic – [FBI vs Apple case](#), where the FBI was seeking to compel Apple to unlock the phone of one of the San Bernardino shooters.

There were technically no winners in this case, however, the FBI demonstrated the ability to unlock an encrypted iPhone without help from Apple.

So, the idea and implementation of identity security and individual privacy requires revisiting, by technologists and regulators alike, given that secure P2P banking is a fundamental promise of the Blockchain.

What should banks expect in the way of regulatory developments based on these trends?

In an increasingly interconnected world, a key challenge for regulators, legislators and policy makers is how to legislate for *global* connectivity, within a *national* framework. Whilst international policy bodies exist, agreement on policy statements can be slow and disparately implemented by the diverse nations who are party to the original agreement.

There is also the ongoing challenge of regulating effectively to provide a safe environment for participants in Blockchain technologies, whilst at the same time managing not only to keep innovation alive, but to foster the environment in which it can thrive.

In light of these kinds of challenges, it is likely that we will see a growing number of international connections between regulatory groups. A good example is the recent (23 March) agreement between the British Financial Conduct Authority and its Australian counterpart, Australian Securities and Investments Commission (ASIC).

A first-of-its-kind agreement, which provides innovative FinTech companies in Australia and the United Kingdom with more support from financial regulators as they attempt to enter the others' market. The EU has a similar approach.

The way forward has to be more of a global partnership model, given the acknowledged challenges of cross-border transactions, both from a regulatory and a transactional perspective.

Setting aside the outliers such as Russia, which appears at this point not to have settled on an agreed messaging around regulatory obligations and Blockchain (so many disparate perspectives coming out of there!), by far the greater percentage of countries appear to be heading along a similar regulatory path as with the development of the internet.

This trend is also supported by regulator commentary and helped in no small part by the existence of this precedent from the early days of the internet – and by the undeniable success that stemmed from such an approach.

It clearly makes sense to apply the light touch, “do no harm”, regulatory framework for the internet (for example, as detailed in the US Telecommunications Act of 1996 and the ensuing “Framework for Global Electronic Commerce”) to the development of Blockchain technologies.

This light touch approach suggests that governments and regulators should avoid undue restrictions, and support a predictable, consistent and simple legal environment, enabling the organic development of Blockchain technologies within a global context.

As with the growth of the internet, global bodies such as the World Trade Organisation and the Organization for Economic Cooperation and Development (OECD), could play a supporting role in ensuring a unified global approach.

In line with this supportive and lighter-touch approach, regulators in multiple jurisdictions are:

- Providing sandpit environments
- Exploring VCs as legitimate currency (on a spectrum from providing commentary around VCs as money, right up to exploring the potential for VCs as fiat currency)
- Legitimising Blockchain technologies and transactions (decriminalising, and in numerous cases providing supportive commentary)

Point of interest to watch for in the short term will be:

- The resolution of the current data encryption stoush between the US and EU around the current crop of laws proposing provision of encrypted data to government investigators
- Any policy response to the identity management and privacy challenges stemming from the FBI vs Apple outcome
- The status of VCs, and both the technology and law surrounding the development and use of smart contracts – such as what they can do and what the legal implications of their use are

How can banks and organisations address compliance as a strategic measure for adopting Blockchain solutions successfully?

Compliance should be re-imagined not so much as an onerous duty, but rather as an enterprise partner that provides the foundation for adoption of Blockchain technologies and acts as an enabler for implementation and operationalisation.

It's not a situation where it's Technology, Compliance and Operations standing in isolation, never to meet; Blockchain crosses and interlinks all of these areas and indeed compels the interaction and interconnection between these areas.

The RegTech industry is developing offerings in response to existing operational requirements, and providing solutions to specific organisational challenges. However, whilst this helps with approach, it is not yet an integrated and holistic offering.

The intersection of Compliance and the Blockchain needs to be viewed with a broader lens, an integrated and strategic approach will be required to maximise the opportunities that Blockchain presents.

How can distributed networks be monitored to anticipate information and privacy issues?

RegTech is developing tailored solutions, however, there is a need for GRC functions to become truly proactive enterprise partners. At the end of the day, Blockchain isn't going to benefit any organisation, or prove a differentiator, unless aligned with the regulations under which that organisation operates. Failure to do this has fairly substantial consequences in terms of massive fines, not to mention the unquantified amount of reputational risk.

Compliance isn't just a nuisance that comes along afterwards and shuts down all the good and exciting work you've done. Done properly, a strong GRC framework enables the delivery of disruptive technology, keeps you ahead of the competition, and proves a differentiator in the market.

What can delegates take away from your workshop at the conference?

Delegates will learn how to operationalise Blockchain technologies within a global environment.

Blockchain as a component of the 4IR (Fourth Industrial Revolution) is broader than just the technology; but it has to be operationalised to truly deliver on its promise. This workshop will provide a practical roadmap to implementation, focussing on the global regulatory environment, enabling delegates to build a global approach to ensure applicability worldwide.

Applications for IoT and Smart Systems

with, George Samuel Samman, Blockchain Consultant - Global Financial Institutions, Midasium

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How does your organisation advise banks on Blockchain technology?

Mainly it has been around education, but has since moved into providing how use cases would look using Blockchain, providing roadmaps to the next steps. Most major banks have been working with the technology for a year or so; it's the smaller banks and the other financial institutions that are starting to get involved now as well.

This also applies to a lot of the consulting firms as the opportunity grows larger. I also write a blog sammanatics.com, which describes in great deal Blockchain and its use cases and trends.

What are the opportunities and challenges of machine-to-machine interactions and automated devices in relation to Blockchain?

This is still the early days, but we have seen some use cases arise around M2M. Start-ups in the Bitcoin space are providing opportunities to mine via appliances and start-ups using *Ethereum*-inspired technology are doing some interesting things in the IoT space.

If you think about real-time data flows, which Blockchain will provide using bots to sift through the data and make sense out of it is on the way, particularly from a RegTech point of view.

What are the emerging applications of Blockchain for metered appliances, P2P & D2D transactions?

I think it is still early days, but if you think about smart contracts and what you can use them for, you can potentially embed other actions within a contract, particularly when talking about metered applications.

Think about a landlord who has tenants and sets up a smart contract for bill paying. Not only can you set it up for bill pay, but also smart meters so you can control and monitor things like electricity, heat, and air conditioning.

Think of all the data you can get from that. This also applies to payment flows; if you can watch payment flows between parties in real-time, you can start to look at things like real-time credit ratings and FICO scores.

We can take that a step further and think about smart grids for smart cities using smart contracts, and this also builds a framework for open data. There needs to be a two-data conversation for a sustainability basis.

How can major banks harness Blockchain technology for democratic & economic sustainability?

One of the best use cases for me is around provenance and supply chains. This brings about transparency in a way where it has not been there in the past. Inter-company and intra-company real-time audit trails will be available, and this is a really powerful way to stop bad actors and to monitor risk.

How should banks decide between permissioned and permissionless ledgers?

For now the war is won and permissioned ledgers seem to be what banks want. This allows them to know the counterparties and everyone else involved on the ledger, which is what banks are mandated to do by regulatory bodies.

However, just because they know who the other people are, doesn't mean they necessarily trust them. This is why permissioned ledgers are powerful, in that they allow for peer to peer transfer, and allow for the sharing of a database without a central authority, between parties that don't trust each other. It also gives permission management for who gets to write and read the ledger.

What other Blockchain trends will we see emerge as more banks and start-ups advance Blockchain capability?

I think it will be more than just how you can cut cost, to how one can start generating revenue once Blockchain is implemented. This comes from the application layer and I believe we are starting to see that in the sense of smart contracts.

Other areas where I see value going forward are where robotics, data analytics and Blockchain work together. The solutions of the future in my opinion won't originate from one piece, but how various technologies work with each other and on top of each other; this is where things will really start to scale.

What can delegates take away from your workshop at the conference?

The main takeaways will be around real use cases for the technology and how you can think about building a ledger, what types of consensus mechanisms and algorithms will be needed, and who needs to be on the ledger. The use case can be built around smart contracts and IoT, or anything the audience prefers. My goal is to give people a real sense of business cases using this technology.

Preparing for the Blockchain revolution – key considerations

with, Tim Lea, CEO, Veredictum.io



Why has Venture Capital become so attracted to Blockchain technology?

Blockchain is like the internet was back in 1995 – it's raw but full of potential. If we look at where and how the internet has grown in 20 years, the VCs see the same sorts of opportunity. As *Goldman Sachs* has often been quoted: "Blockchain can change... well everything."

What impact will Blockchain have on the financial services industry, in your opinion?

Its primary and speediest use in my view will be for international remittances – especially to the developing world where fees can be anywhere between seven per cent and 15 per cent of a remittance value.

It will also have the ability to decimate costs in the financial services arenas that require high degrees of trust and have high degrees of complexity – for example, share trading where it takes three days for shares to be transferred.

The ASX is looking at using Blockchain to eradicate the three day-wait – thereby freeing up liquidity in the market, cutting out substantial back and middle office costs.

What time scales are we looking at in terms of adopting and implementing mainstream Blockchain technology – any examples of accelerated projects, you could share?

In mainstream banking, the use cases are typically being developed as "Proofs of Concept". They will take a number of years to become truly mainstream, probably at least five years and maybe even as long as 10 years.

The technology currently does not easily allow for lightning-fast transactions, so it will slow the adoption down. One project that I really like is ABRA (www.goabra.com) – an international remittance use case, where expats (in the US for example) can send remittances back to family overseas.

This is typically geared towards Indonesians, Filipinos, and those from the India and Pakistan. The funds are remitted from your bank account in the US, converted at spot into crypto currency and then re-converted back into local currency overseas, with a trusted elder in the villages acting as a bank teller. It's so cool and they have just recently secured \$12million to develop the platform more.

How will SMART contracts emerge and benefit banks from a Blockchain capability perspective?

Smart contracts are being developed, mainly via the *Ethereum* platform, an independent, well-funded Blockchain that will enable the automatic transfer of funds to occur against a given event – using “IF THEN” statements.

Smart car leases are currently in development, where if you default on your contract, the car can be programmed automatically within its own operating system to lock the car in your own driveway.

The repossession agent, on the other hand, has a key that is automatically programmed that should the repayments not be made, give him access to drive the car away. No middlemen involved – it's all just programmed automatically in the form of a smart contract programmatically built into the car, the keys, the payment systems and the locks.

How will Blockchain converge with other technologies in financial services organisations – what will this integration look like and enable?

Unfortunately so many financial services companies have outdated legacy systems that will present many integration challenges to leading edge technologies such as Blockchain.

Blockchain will tend to converge more easily with contemporary technologies – especially in the mobile and web-based spaces, where so many of the banks are committing resources.

The major corporate integrators such as IBM and Microsoft have partnered with so many of the nascent technologies, and are working very closely with them not only to ensure they are offering the latest options to their financial services clients, but also to help drive the complexity of any integrations.

What can delegates take away from your workshop at the conference?

The Blockchain is raw but full of potential. It is also a complex technology that takes a while to understand. With the workshop, we will help delegates understand the power of the Blockchain and its potential to change almost every facet of economic and industrial life.

Equally, delegates will understand how to apply the technology to their own industry, by being exposed to worldwide use cases that are either in development or being worked on as live services. Finally, delegates will understand why venture capital is aggressively targeting this space as the powerhouse for the financial tsunami that is about to hit the finance sector.

Alternative economies & reputation-based systems

with, Hugo O'Connor, Head of Innovation, Bit Trade Australia Pty Ltd

 **itTRADE**
AUSTRALIA



How is your organisation involved in Blockchain developments?

The Bit Trade Group comprises a number of companies involved in the digital currency space. We have Bit Trade Australia and Bit Trade Canada, which provide a retail service for Australian and Canadian customers to buy and sell bitcoin. Bit Trade Australia launched in early 2013 and, along with Digital X, is one of the founders of the Australian Digital Currency Commerce Association.

We have Bit Trade Accounting, which provides specialist accounting services for businesses working with crypto currency in Australia. And recently, we launched Bit Trade Labs, a Blockchain product incubator that provides development and consulting services in addition to developing our own products in-house.

How will Blockchain solutions be able to achieve real-time optimisation and efficiency for banks and financial institutions?

Taking the view that Blockchains are a platform to create infrastructure, what pieces of infrastructure are banks and financial institutions currently lacking? The obvious solutions are in settlements. However, I'm of the opinion that the most sorely needed piece of infrastructure is around identity.

Our identity systems are archaic and are becoming progressively less secure as honeypots of personal data grow. An open, interoperable standard on distributed identity could drastically reduce costs for banks and financial institutions and provide for a seamless customer experience. It could also enable regulators to automate compliance at the point of transaction.

What would be the impact of potential de-monopolisation of traditional measurements of economic value, in your opinion?

The old joke is that an economist knows the price of everything but the value of nothing. Indeed, large swathes of value created in the world are not captured or rewarded by economic measures; unpaid labour in the home and in the community, for example. Externalities, such as the impact on the natural environment are not properly measured, either.

Now that anyone can issue and create a currency with just a few lines of code, I imagine that we'll see in the coming years the emergence of new systems of recording value. We can look to experiments happening on the fringes as an example of how those new systems might operate.

Local exchange trading systems, for example, which encourage co-operation and utilise latent talents within the community, could be easily ported to the Blockchain and scaled up. In the sharing economy, reputation is becoming a form of currency. How long will it be before some kind of reputation system is implemented on the Blockchain?

The impact of these competing value systems will be a more robust and resilient economy. Bernard Lietaer has written extensively on the subject, arguing that the monoculture of national currencies creates economic instability, and that the emergence of monetary diversity in complementary currencies is vital for the health of our economic systems. I tend to agree with him.

How can competing value systems emerge and influence Blockchain capability for organisations?

The emergence of DAOs, or Decentralised Autonomous Organisations, could radically alter the way we organise our productive capacities. The idea of a DAO is an organisation that is run by software. Whereas we typically think of automation replacing low-skill jobs, this is a case of automation coming for the executive level.

It may still be ten or twenty years away, but it is not inconceivable to imagine the convergence of AI with Blockchain to create a future where executive decision-making is either replaced by software or re-distributed to the constituents of the organisation.

Frederic Laloux has documented a number of organisations that are innovating their core organisational processes; providing greater autonomy to their workers, forming something akin to mesh networks, and are driven by purpose rather than profit.

Many of these organisations are hugely successful, have an advantage in attracting talent, and are more resilient in the face of economic downturns. For organisations wanting to innovate with their core processes, Blockchain provides a terrific test-bed to develop on.

On a macro-level, Blockchain could provide for more efficient marketplaces for individuals to contract with one another, bringing down the transactional costs that Ronald Coase identified as the driver for forming partnerships and organisations.

Perhaps, this might empower individuals to find work they are passionate about and have the skill to deliver on and the future of work will be much more fractured or more fluid, depending on your perspective.

What are your thoughts on when banks consider between permissioned and permissionless ledgers – what should they address?

I don't see how it's possible to separate 'Bitcoin' from 'Blockchain'. Without a crypto currency like Bitcoin, there isn't an incentive mechanism to maintain the network.

Similarly, if you have pessimistic assumptions about trust, then the only solution is an open ledger that rewards the maintainers of that ledger (the miners) with a crypto-token. There is an economic foundation to the integrity of the network.

If, on the other hand, you can assemble a consortium of trusted participants, perhaps the economic foundation is not necessary for the network to have integrity. In this instance, you would have a so-called 'permissioned' ledger. I find this less interesting than an open ledger, as it replicates existing power structures that we've seen fail so abysmally in the past.

Should we really be recreating institutions that are 'too-big-to-fail', outsourcing the risk of that failure onto the taxpayer? As I understand it, the question is political rather than technical. I can only speak for myself, but I'd like to see a future where Blockchain ameliorates systemic risks within our financial system and innovation is fostered through the use of open, interoperable standards.

What can delegates take away from your workshop at the conference?

We've been working on a collaboration to build an open-source standard for distributed identity on Blockchain. Delegates will get to see a working prototype of the project and hopefully will come to appreciate the transformative potential of such a system.

We view Blockchain as a form of public infrastructure. I hope delegates will come away thinking about what transformative public works they could contribute to on top of Blockchain. I also hope they will be convinced that open, interoperable standards are the best way to create value in this ecosystem, and that there is potential to create way more value than one needs to capture.

Be sure to checkout the Blockchain Summit in June, where organisations involved in Blockchain developments will come together to discuss the latest trends, examine current case studies and engage with panel discussions.

[Download the brochure](#) or visit www.blockchainsummit.com.au to know more.