#RegHackDownUnder

Learnings

When I arrived in Melbourne in April 2017, as part of a ConsenSys Inc. led exploratory trip to get a better understanding of the Australian blockchain landscape, I very quickly realized there is a lack of fundamental blockchain expertise and a disconnect between the market participants: regulators, incumbents, startups, guy/girl in a garage with an idea, academia and government led initiatives. Having run fifteen other hackathons, ranging from tech to social issues such as human trafficking to smart cities, I thought a Regulatory Hackathon would serve the market well and bring the community together over the core issues of regulatory compliance which is a win for everyone; the regulator, market participants and the consumer!

It was decided the hackathon would be held prior to Consensus NY Conference, which left only four weeks between idea to execution! Despite the skepticism, a handful of volunteers banded together. Michael Gord and Adam Lemmon were the first to offer their help – all the way from Toronto, and they flew down three weeks later! Josh Buirski was a tremendous support and gradually the volunteer team got bigger as David Burela, Roy Mahase, Katherine Noall, David Lam and Sahand Bagheri all jumped on board to make things happen.

Ronald Tucker, CEO of Bit Trade came forward to sponsor straight away, no questions asked. And within weeks of the hackathon, we had Jason Potts, Ellie Rennie and Anne-Laure Mention from RMIT not only sponsor a prize but also provided us a fabulous venue! It is also noteworthy to mention the support received by the ANZ Bank. An expert team led by Sean Kain, who jumped on the idea straight away, with the valuable support of Nick Reed and Mark Shaw.

The problem statement was published around Financial Services and the Energy sector:

Financial Services

Today, many governments and regulators struggle to keep up with the fast pace of technological innovation. Maintaining and creating appropriate regulations is almost impossible. One glance at the gig economy such as Uber and AirBnB and it is clear that governments are unable to catch up with their disruptive implications until long after the new service is established. How government and regulators function needs to change in order to be aligned with and responsive to new technologies and businesses when they present themselves.

On the other hand, current compliance systems are rife with manual, repetitive and tedious tasks. The government has recognised that some of these processes are a result of laws which require that a certain technology, or paper, be used. Other inefficiencies are simply a result of a failure by lawyers and compliance professionals to innovate.

Energy

The energy model is undergoing a revolution as the old centralized, command and control model is challenged by distributed energy resources, the sharing economy and consumer desire for control. New technology provides the potential for individual customers to buy and sell local energy resources. This model places energy consumption (and possibly generation) in the hands of the individual consumer instead of the incumbent providers. At the other end of the spectrum, we are unable to adequately meet our current energy needs. As the demand for energy increases over time, we need to ensure that this is met whilst reducing carbon emissions.

Blockchain technology may be leveraged to increase competition in the energy sector and create a new energy model. To do this we needed to work through a few complex questions. Those questions, and their solutions, are listed below.

With two weeks to go, we still only had 20 or so registrations and the participants needing more training. We then decided to run a few meetup sessions to help train the community. With just a week to go we went from 22 to 60 registrations and blockchain enthusiasts! On the 12th of May we had 96 registered participants with a few on a waiting list. **We were sold out!**

> **"I really liked the desire of the participants to make a difference and to find a way to solve problems by applying new technology and new thinking to legacy challenges."**
>
> – George Gerdan

The evening kicked off with opening remarks by **Daniel Mulino**, Parliament Secretary to the Treasurer and Minister of Finance. A quick message by the sponsors Bit Trade and RMIT led to the panel discussion by **Jonathan Hatch -** Senior Advisor, Innovation Hub, **ASIC, Nick Reed -** Group General Manager Risk at **ANZ, Mark Shaw -** Head of compliance and Op Risk and **ANZ, Anthony Seipolt -** Advisor to the **Australian Energy Regulator**, **George Gerdan -** Country leader ANZ&PNG at **GE** Grid Solutions

And thus the hackathon officially began! Whilst a few came with established teams some individuals spent the next two hours finding their teams and what problem statement they would address – matching skills and personality was quite the task.

During the course of the weekend we had some fantastic presentations by - **Paul Xuereb**, *Senior Manager – Business Engagement & Solution Delivery Technology Services at* **AustralianSuper -** *"Blockchain for Super" and* **Rick Wingfield -** *Digital and Innovation Leader at* ***Australia Post***
On – *"Digital ID"*

We were honoured to have **Luke Donnellan** Minister for Roads and Ports grace the occasion and say a few words which led to the much awaited debate - ***Be It Resolved: Regulation Kills Innovation.*** **Oxford rules debate moderated by Michael Hendricks –** General Manager Credit Risk **ME Bank**

> **"RegHack provided an amazing opportunity for "outsiders" to contemplate how to shake up 2 heavily regulated industries for the betterment of customers, entities and regulators. How can we expect to get different outcomes unless we are open to being different and involving different people in solving the problems and challenges we face."**

"The energy and passion that participants had to understanding the problems faced and pushing for revolutionary ways of solving them was amazing to see"
– Nick Reed

Speaking in the Affirmative team were:
Mark Shaw – *Head of compliance and Op Risk and* **ANZ;** *and* **Simon Raik-Allen** – big data entrepreneur and a previous CTO at **MYOB**

The team started big referencing the fact that it takes up to 50 different applications to open a bar in Sydney and that is why all the cool innovative bars are in Melbourne. In addition, if you need a 63 page book to explain the definition of regulation then that is a problem in itself.

A great example was given of the "red flag act" that was introduced in the UK when the motor car came into existence that introduced a whole raft of regulations and rules to ensure that this new fandangle invention didn't go out of control. And hence Henry Ford in America took the early lead where there no such regulations.

Speaking in the Negative team were:
Antony Ugoni – Director Global Matching and Analytics at **SEEK** and Chairman Institute of Analytics Professionals, Australia; and **Jason Potts** – Professor of Economics **RMIT**

A super point this team made was that in the absence of regulation, critical issues would either be decided in court or via central government management. Regulation in fact allows the distribution of ideas. A favourite quote was that "regulation carries the weight of shared past experiences".

In the end it was a close win by Shaw/Raik-Allen duo who argued regulation does in fact kill innovation. But what else would you expect when put to a vote of a room filled of young, talented software engineers out to change the world!

"What a great event.....Smart people coming together to pool their intellect and generate great ideas pitting themselves against the constraints of regulation. This is the formula for innovation, and it was astounding to see what this group achieved in such a short period of time"

– Antony Ugoni

The judges Mark Pesce, Liming Zhu, Anthony Seipolt and myself had a very tough picking the top three winners. Some of the presentations were:

Team reVolt is a different sort of energy retailer. Renewables have a poor return on investment. It takes 5.4 years to pay off a basic system because current regulations make it difficult to increase the amount of money people get without retailers making a loss. They came up with a different source of revenue to increase it. reVolt allows their customers to refer friends to their service and increase the amount they make off the excess power that they sell. reVolt offers the highest feed-in tariff in all of Australia, the current is 5c whereby revolt can offer 20c.

Team BASIC**,** product name: ATO BAS Consortium noted that business in Australia , regardless of their revenue must pay and collect GST even in a B2B transaction, where the GST is paid to the ATO and claimed back. They created a distributed system on top of blockchain for businesses to pay each other without extra GST fee.

On one hand, Government has access to system to verify transactions and is able to inspect transactions (e.g. heat map/ node map) along with any necessary detail involved in them, on the other hand all transactions occurring in the network are encrypted for security. The system could reduce cash flow by 10% (annual GST rate) for business all over the nation; also reducing ATO cost and administration

> ***"I found the event provided opportunity for industry (including government) and free-lancers/students/developers to meet, integrate and share through the problem solving required to address the Hackathon 'problems'. Such meeting and team work opportunities are rear and often bound by the confides of conferences or meet-ups. The process of discovering new technologies and frameworks was just a bonus."***
>
> - Igor Simunovic, AUSTRAC

TeamGrid addressed a structural problem in the state electricity system. The fixed cost of maintaining the electricity grid increases electricity prices when usage decreases, and creates incentives for people to install solar panels and batteries and then disconnect from the grid. Their solution was to design a private blockchain peer to peer electricity trading market based around the local grid, with a pricing scheme based on the quantity of infrastructure required for the transaction to take place, and payments reconciled to the public blockchain. Imbalances and hence pricing are kept in check by the local network trading on behalf of its members with other local networks, using a recursive arrangement that can scale up to a city wide grid but also integrate into the existing energy market.

"Community efforts like these are helping to ensure Australia's place as a leader in the global Blockchain and digital economy. Bit Trade is proud to support |important initiatives in RegTech to make sure we get policy and tech settings right early on."

- Ron Tucker

To facilitate direct user interaction with smart contracts in the blockchain, they designed a brand new user interface architecture to integrate the Truffle Framework into an ioL/Hipe stack. The Ethereum platform cries out for an interactive user interface without the burdensome deployment overhead of a web-based approach. Their innovative approach enables graphical user interfaces for dApps to be served directly from the smart contracts themselves with minimal overhead in the blockchain. Smart contracts return Turing-complete markup code through the use of constant (cost-free) methods, which is then parsed and executed by ioL in order to build up the user interface on the client's machine, and the return data from the user's interactions are, in turn, used to execute further blockchain instructions via the Truffle Framework. Their initial findings were highly promising, and given the resources for further development, might potentially revolutionize blockchain applications in the medium term.

"RegHackDownUnder was a fantastic event that brought together 100 individuals, with a focus on using new innovative technology solutions to solve problems in the Energy and Finance sectors. Melbourne needs more events like these to help drive a culture of innovation and entrepreneurship."

- Paul Xuereb

> **Reghack was an amazing experience, again, and it was inspiring to see such a young blockchain community so excited about the technology and thrilled to have this great opportunity to get started.**
>
> **It was very rewarding to be able to support this event and help kickstart the Melbourne blockchain development community.**
>
> - Adam Lemmon

Team ElectriKey from Canada looked at addressing security vulnerabilities in smart meters. There are 100s of millions of smart meters installed globally today. The majority of which have no regulation, standards, |encryption, network monitoring and no one is making use of the abundance of usage data that is now available. There are significant security vulnerabilities and the amount of smart meters in use is set to increase rapidly. Their solution was based out verification client for within smart meters to enable decentralized consensus of network activity as well as immediate network monitoring and notification systems. Enable smart meters to act as peers and secure their network. As the quantity of smart meters scales the security and decentralization of these networks thus improves proportionally. Decentralized authentication etc as well, broad security as well as being able to enforce standards and regulation through these autonomous verification processes and allow other bodies, oracles, such as regulators to plug in in real time. Added bonus is now the abundance of data they can provide through this transparency layer, retail, network visibility, regulation, trends, prediction, analytics.

Team D.U.M., product name: blocked, identified that power companies have a network that is inherently wasteful due to providers targeting individual house holds. Power companies main concern are fiscally based. Their inherent bias is towards profit. Consumers look for individual deals in order to get the cheapest deal. Their solution was collective grouping of consumers within local areas, to allow for individual companies to own areas of the market.

"First Press decided to sponsor this event because we believe in this cause. Things need to be move faster and be less delayed by unnecessary regulation. For this to occur, we need creative thinking and deep work. We want the innovators in this field to know that First Press can be used to assist in elevated performance both mentally and physically."

- Jimmy Elias

Vacancy Ledger addressed the global problem of investors creating property bubbles by parking their money in real estate, keeping the properties empty and pristine to maximise resale value. In 2018 the Australian state of Victoria is introducing a vacancy tax to raise $80M using current manual techniques of reading water meters, with a further estimated $320M if monitoring techniques are refined. They proposed the creation of a third-party analytics company that would use AI to spot artificial electricity usage through data from smart meters, supplemented by data received from other utilities, neighbour reporting, and aerial photos. The company would alert the taxman of vacant properties, or provide corroborative evidence in the belief there is unpaid tax. The Vacancy Ledger consisting of kWh usage, exists on a blockchain of public records, accepted as immutable in pursuing fraudulent behaviour. Over time, other uses of the smart meter data could be used in areas of smart grid and smart city planning.

Specter a team of six lawyers and developers who flew all the way from Sydney Tackled the problem of neighbours, families or small communities wanting to share solar power generated by some of them using the existing grid (for example, a neighbour with poor sun access sharing a solar panel on next door's roof) but not knowing where to start give the plethora of complex rules and regulations in the area.

The solution was a journeyed contract generation and regulatory platform that guides the user through a series of plain English questions: highlighting regulatory issues and limitations and advising on the consequences of choices whilst automatically drafting the legal documents. The output being a suite of required contracts and associated regulatory registrations that can be automatically actioned by the micro-grid members. This is wrapped into a marketplace that makes available to the users the various products and services they require to set up their virtual micro-grid; together with a real-time dashboard showing all the micro-grid members their usage, savings, other relevant information and providing them with regulatory compliance warnings and legal support as required.

> **"RegHack was about bringing old and new industries into contact with regulatory bodies to rethink the rules and dismantle cumbersome processes. The teams worked on ways to make distributed systems viable, which is the real path to real social impact"**
>
> - Ellie Rennie

> "It was really exciting to see technologies like blockchain catalysing new business models and government innovations with great community involvement. That's why Data61, CSIRO believes in seeding new industries such as RegTech and cybersecurity through technology breakthroughs and vibrant talent networks."
>
> - Liming Zhu

Powercoin.io came in at third place when they addressed the issue of Transmission and distribution network monopoly which has exacerbated the retail price for electricity, making Australia one of the most expensive countries in the world for electricity. This has resulted in household prices skyrocketing to an excess of $0.40 per kWh for residential electricity users. Low feed-in tariffs for renewable energy generation of $0.06-$0.08 has also reduced the attractiveness for residential home owners to consider this as a viable investment. Powercoin's solution aims to create a self-regulating decentralised micro grid which will allow residential home owners to participate in the electricity marketplace as an independent power producer. This is achieved through the installation of smart meters which is capable of communicating with the Ethereum blockchain to fetch the current electricity prices and trade between other Powercoin participants on the local grid network.

FinPass, the second placed team identified that lenders are missing the opportunity to capture a large and growing segment of the market called 'slashies' ('slashy' is someone who describes their job title with slashes, i.e. I'm a painter / bike messenger / writer / barista). If a slashy wants a loan, it is difficult to prove their income as they don't have verified "payslips".

FinPass verifies their income by digitally signing it and putting a hash into the Blockchain. The lender can then enter the hash with a QR code on Finpass website, which acts as a portal to the Blockchain, and the income will be confirmed or denied allowing the Lender to sell the loan while still meeting their regulatory requirements under the National Credit Protection Act.

And the winning team of RegHackDownUnder: **ShareEnergy**

The Sharenergy team developed an innovative approach to one of the key challenges of rooftop solar in Australia. Currently rooftop solar is not financially feasible for exporting to the grid as the buy back from retailers is lower than the cost of solar systems. It is also only a fraction of the electricity prices households pay. Their model allows communities to operate an internal market that benefits both households with and without solar. Through the RegHack they managed to identify the regulatory framework that enables this. Their vision is to pursue the idea as part of the transition to a 100% renewable market.

#RegHackDownUnder (www.reghack.org) was a mammoth success. Close to 100 participants spent three days exploring tech solutions to regulatory issues. My only advice to the teams was: electricity was not an iteration of candles, do not build bigger candles, and they took note as we saw some very cool applications that may go to market very soon.

Three teams coming together to form three potential blockchain start ups! One of the participants had literally just moved to Australia and he contributed to one of the winning teams!

We now have 100+ blockchain enthusiasts, that I expect would grow to over 1000+ by the end of the year. I'm hoping to see some world class blockchain applications coming out of Australia and I'm stoked to be part of this boost to the ecosystem.

PRE-EVENT MEDIA

ANZ Bank's Blue Notes - RegTech creating value not disruption
https://goo.gl/dl2p83

Cointelegraph - First Australian "RegTech" Hackathon Focuses On Energy Sector
https://goo.gl/VXoJF8