



ANNUAL STOCKBROKERS CONFERENCE

SPEECH BY ASX DEPUTY CEO

PETER HIOM

ADOPTING BLOCKCHAIN IN OUR FINANCIAL MARKETS: ASX PLANS AND THE BENEFITS FOR THE MARKET

1 JUNE 2016

Introduction

Good morning everyone. It's great to be here. The connection between ASX and the stockbroking community is longstanding, and we are delighted to support your annual conference once again.

I would also like to acknowledge the work of your CEO, Andrew Green. He is a strong advocate for the industry and a source of frank and fair feedback to ASX. Thank you, Andrew, for inviting me to speak today – and thank you all for the business you continue to give ASX. We appreciate your support.

Links, connections, collaboration – these are the themes I will talk about today.

On many fronts, the interests of Australia's financial markets are best served by ASX and brokers working closely together. This is especially relevant when the regulatory and technological changes sweeping financial markets today are as profound as they are.

We are aware of how this impacts on you – in particular, the heightened cost, capital and revenue pressures faced by the industry. It is no surprise that the evolution of the stockbroking business model is a key topic that will be discussed at this conference.

And it is why ASX is making investments in innovation and infrastructure to improve the efficiency and cost-effectiveness of Australia's financial markets.

It is these investments that I'd like to briefly touch upon now.

ASX and the broking community working together

- T+2 settlement** – smooth transition, improved efficiencies, reduced systemic risk
- New trading platform** – richer functionality, consolidated systems, global standards
- Blockchain** – exploring potential to solve market challenges, multi-year project, join ASX on the journey

Update on initiatives – T+2 settlement and new trading platform

I will later come to a topic that has received top billing in the global financial media – blockchain, or more accurately - ‘distributed ledger technology’. I will talk about what it is, what it isn’t, and how ASX is examining its potential application as we consider the technology to replace CHESS.

But first, let me focus on two important initiatives where collaboration between ASX and the broking community has been critical and where it is already generating positive results.

This is the perfect forum for me to publicly acknowledge everyone’s contribution to the successful implementation of **T+2 settlement** in March this year.

The smoothness of the transition to the shorter settlement period does not disguise the complexity of the task or the significance of the achievement.

The move to T+2 was the culmination of an extensive two-year consultation and testing program. It involved over 100 parties across the equity and debt markets of Australia and New Zealand. The new regime is now in place, after a virtually issue-free implementation, and is providing efficiencies for investors and market participants. It has also reduced overall systemic risk, and has kept Australia at the forefront of global best practice.

Daily settlement fail rates are now at or below pre-T+2 averages – that is, less than 0.25%. This maintains Australia’s position as having one of the lowest settlement failure rates in the world. And cash market margin requirements have declined 25 to 30%, meaning real savings for you.

The success of T+2 would not have been possible without your hard work and commitment; nor without the close cooperation between ASX and the broking community. Congratulations and thank you.

Let me now talk about the upcoming introduction of the **new trading platform**, which will consolidate the futures, equity options and cash markets of ASX onto the same technology.

The new trading platform is a major part of the technology transformation program to upgrade all of our major trade and post-trade platforms that we announced in February 2015. This investment in world-class technology addresses customer demands for richer functionality, improved performance and reduced costs of operation. By consolidating platforms and using global standards of connectivity, we aim to reduce your development and maintenance costs.

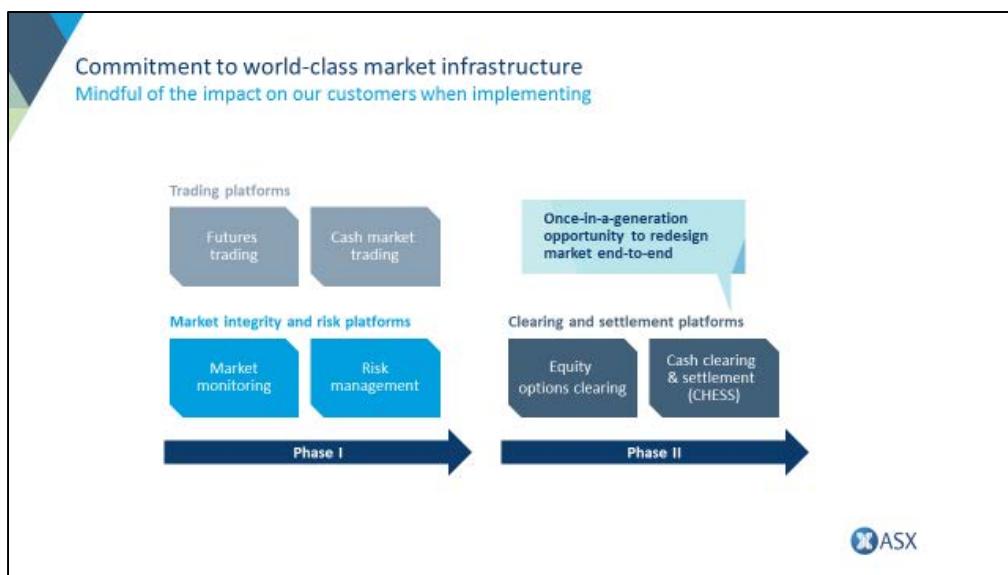
It will also help strengthen the competitiveness of the Australian market. And it once again demonstrates the value of close cooperation between ASX and the broking community.

With your input, we've taken measures to de-risk the transition to the new trading platform. It is on target to go-live by November 2016 for futures, with equities - including equity options - to follow in 2017.

This timeframe supports the delivery of a high-quality platform and gives you and your technology providers an appropriate period to prepare for and manage implementation.

We are in the fortunate position of having existing systems that are continuing to perform well. Currently, on average each day, the equities trading platform is transacting around 900,000 trades and the futures platform over 500,000 contracts. There is no need to rush. Having said this, we also understand ASX is not the only driver of change in your organisations, and that providing certainty in terms of implementation is important for your planning and resourcing purposes.

With this in mind, we are already working with you on readiness and we appreciate your cooperation and your insights. For ASX's part, not only do we want to implement a better trading platform than we have today, we also want to ensure a smooth transition for the whole market.



More broadly, as we progress with the technology transformation program over the coming years, we are mindful of the impact this has on you, and the importance of sequencing the implementation of new trading, clearing and settlement platforms to ensure we do not overload your technology and operational teams. This requires careful consideration and prudent management.

Distributed ledger technology – blockchain

Both of which are very much front of mind for the important initiative I now wish to speak about.

It's getting hard to remember what the world was like before the fascination with **blockchain** took hold in the financial services industry - and in global media headlines. As my own email inbox can attest, it has become the 'new black' among organisers of conferences, seminars and even bootcamps.

This fascination is understandable. Financial markets users across the world face substantial headwinds to their profitability and to many of them, blockchain represents a potential solution to structural (not cyclical) problems: costs are increasing, the capital and collateral required to do business is now higher, and revenues are under continuing pressure.

ASX was one of the first exchanges to publicly acknowledge the possibilities of this new technology and to commit to a program of careful exploration. Others, including financial institutions in Australia, are also carefully considering the technology – and you will hear from David Whiteing of CBA on this topic later this morning.

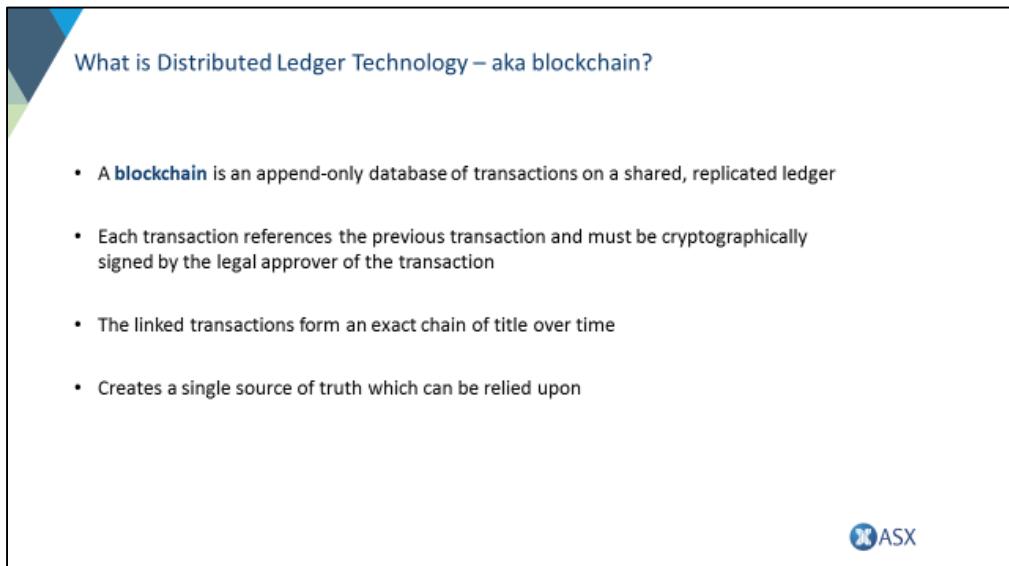
For our part, we believe the potential of the technology to improve post-trade efficiency and reduce costs is genuine. Our market is a complex organism, and there is a terrific opportunity for us to simplify how it works. In doing so, we can unlock a new era of collaboration and innovation. We also know that proving it - and doing it - will take time, resources and hard work. That journey is underway – but more on that later.

First - how have we arrived at this point?

The technology transformation program I mentioned earlier includes consideration of a replacement for CHESS. CHESS continues to serve the Australian equity market remarkably well - and is still the envy of many of our global peers - but as a piece of critical post-trade infrastructure it is around 20 years old.

When we started considering how we might replace CHESS, we came upon blockchain.

So what is it?



What is Distributed Ledger Technology – aka blockchain?

- A **blockchain** is an append-only database of transactions on a shared, replicated ledger
- Each transaction references the previous transaction and must be cryptographically signed by the legal approver of the transaction
- The linked transactions form an exact chain of title over time
- Creates a single source of truth which can be relied upon

ASX

Blockchain and distributed ledger technology are largely interchangeable names that are given to a combination of technologies, many of which have been around for decades, which create a better way to store asset information digitally. At its core, blockchain produces a perfect, secure, audit trail; a chain of title that cannot be altered and that can be distributed to those who are allowed access to it. This creates a ‘single source of truth’ upon which everyone can rely.

Blockchain also solves a traditional problem with databases.

What problem is blockchain solving?
The problem with traditional databases

- Digital data = copyable
- A feature for digital media, but a bug for digital assets: if a photo is copied and shared, that's great; if a share is copied, it breaks market integrity
- 'Double spending' problem
- Digital assets are a unique kind of data

ASX

The ability to instantly copy, amend and delete data – like photos – is an attractive feature in the digital world. But this is a problem when the data is a digital asset, such as shares. Copying a digital asset is known as the double spending problem. Because digital assets are a unique kind of data, we need to consider a new kind of database to solve this problem.

But why should we bother to do this? Well here's where it gets interesting. If we can create a single source of truth that we all trust, and address the double spending problem, the application of blockchain to our equity market has the potential to reduce the complexity of existing post-trade reconciliation processes and significantly reduce costs - something ASX knows is dear to your hearts. It also paves the way for other innovations.

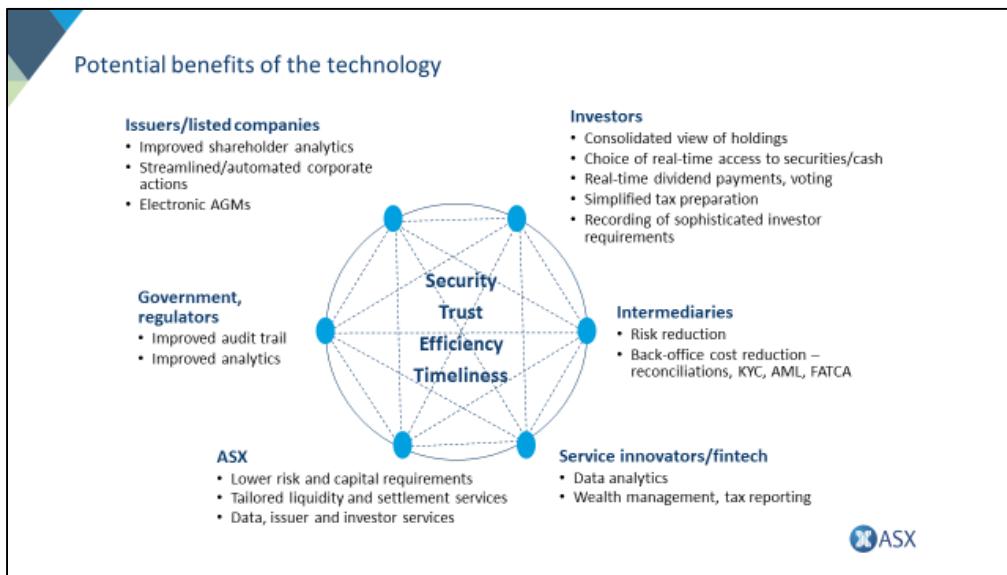
Now, a version of this technology is already in use today. You may have read or heard about the crypto-currency bitcoin and the application of blockchain technology. The public bitcoin-blockchain enables counterparties, who do not know or trust one another, to transact in a cryptographically – or coded – secure way, on an anonymous basis, through a publicly available network anywhere in the world.

This public bitcoin-blockchain evolved in a world where counterparties are unknown, where trust and regulation are absent, and in markets that are often 'colourful' and sometimes unlawful.

The claim of some observers (usually not from financial markets) is that this same public bitcoin-blockchain could be applied to capital markets to enable transparent, peer-to-peer, real-time settlement without the need for financial intermediaries.

But this is not the world we live in - nor should it be. Trust and confidence are cornerstones of our financial markets. It is why they are highly regulated. And for good reason. Investor protection, anti-money laundering, rights of reversal and error correction, privacy, and the operational benefits of net settlement are some of the reasons why it is necessary to have regulated entities that are responsible for the perfection of title to, and legal standing of, financial assets.

So when we think of the application of blockchain to Australia's financial markets, we think about a system that operates on a secure private network, where all participants who have rights to access that system are known, and where they all comply with ongoing and enforceable regulatory obligations. In fact, it is not that different to the world we live in today – it's just that the underlying database technology is different. It doesn't sound that exciting when you put it that way, but actually it is. As I mentioned earlier, when you create a single source of truth, a whole range of other things then become possible.



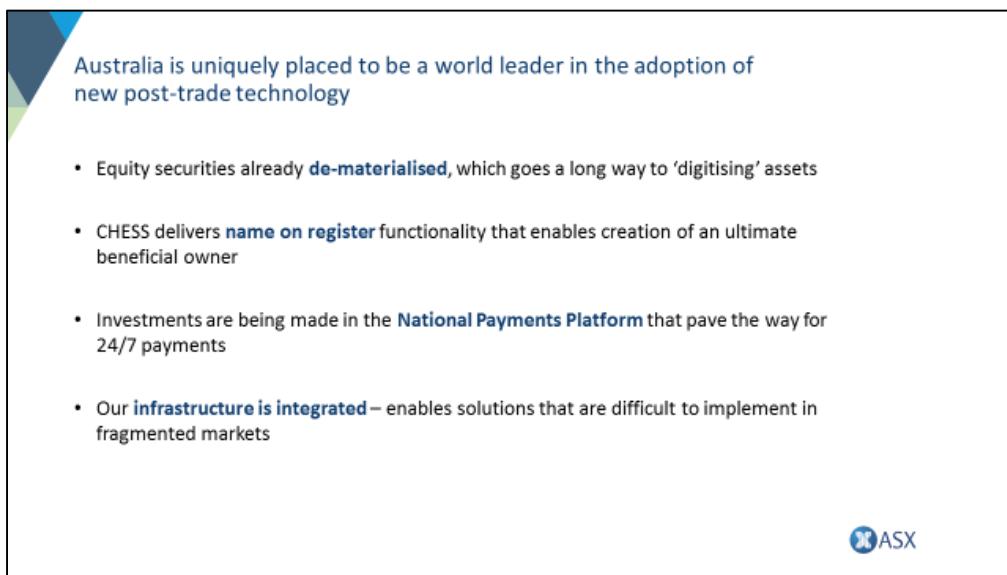
There are benefits for listed companies and for regulators in performing their role.

For you, the technology could reduce risk, back-office administration costs, and compliance costs in areas such as audit, reconciliations, KYC, AML and FATCA.

While for your clients, the technology could allow them to receive cash, shares and dividends significantly faster, and obtain a simplified, consolidated view of their holdings.

We would also hope that if the technology was adopted it would stimulate greater innovation to develop new services for you, your clients and listed companies. This would create an enriched, more competitive Australian financial marketplace.

And Australia is well placed to access the benefits of this new technology. As we looked more closely at blockchain, we realised that Australia has a number of characteristics that suit its potential adoption.



The Australian equity market is already de-materialised - which means we already rely on a digital, not paper, record of share ownership. That is a key hurdle for the adoption of a blockchain solution. CHESS has name-on-register functionality that goes some way to facilitate the creation of an ultimate beneficial owner – also helpful. Investments are being made by the banks and the RBA in

the National Payments Platform that paves the way for 24/7 payments; and Australia's post-trade equity infrastructure is integrated, enabling solutions that are difficult to implement in markets that are more fragmented such as those in Europe and the US.

So Australia is a good candidate for change. Now let us pause for breath.

We understand what blockchain is, and the potential for its application in Australia's financial markets. We can see that replacing CHESS presents a once-in-a-generation opportunity to rethink how our equity market operates.

We also do not underestimate the substantial task of replacing CHESS. It is a functionally rich platform on which our customers have 'barnacled' their own processes and bespoke technologies. Its replacement will take several years to complete - whatever technology we use. In the meantime, while 20 years old, CHESS will continue to operate reliably and effectively and, as with our trading platforms, there is no need for us to rush.

Our first aim must be to fully assess the technology. There are important questions regarding scalability, security and performance that must be answered. And we must ensure that the current processes of our equity market can be performed by the new platform.

We must also engage with you, our customers, to ensure the platform meets your requirements – both existing and new - and with regulators to ensure we continue to comply with the highest regulatory and operational standards.

So that brings us to where we are now.

As we have previously announced, ASX has selected US firm Digital Asset Holdings as a technology partner. Digital Asset is a world leader in distributed ledger technology and its application to financial markets.

When we decided to explore the use of blockchain last year, we engaged with a number of potential technology partners. If you google blockchain, you will find that there are a large number of companies and associations that are looking to deploy distributed ledger technology in one form or another.

If you dig a little deeper, you will find that there are relatively few that understand its application to financial markets – including the regulatory constraints that this places upon those that operate within them. We spoke to most of these companies to understand their capabilities. After a period of evaluation, late last year we invited a shortlist of candidates to come to Sydney and build a working blockchain to process equity market transactions and to showcase their abilities.

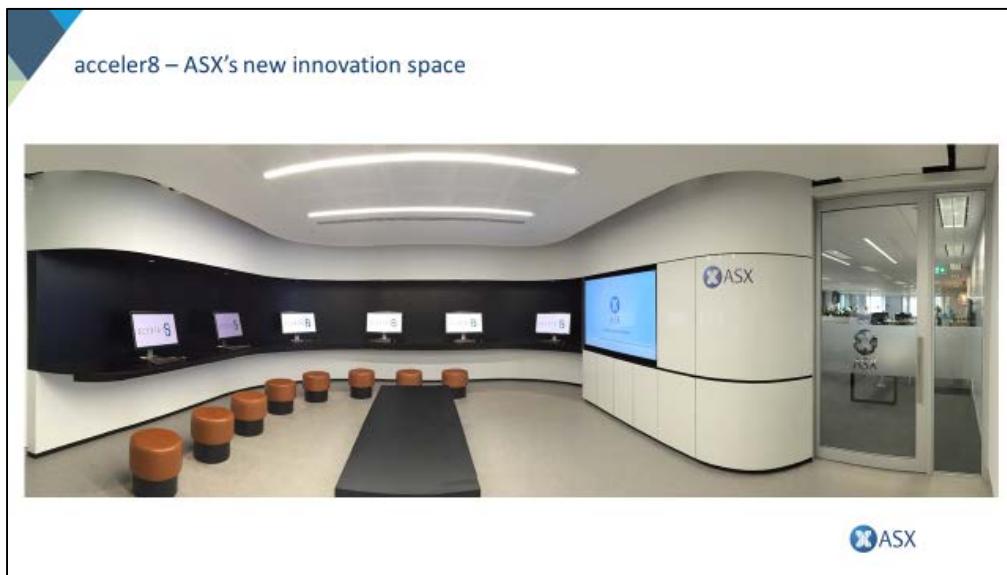
It was from that process that we chose Digital Asset to work with us.

Together, we have now begun an intensive period of development to create a blockchain platform to test and demonstrate the capabilities of the technology. It is one thing to talk about blockchain, but in order to really understand its capabilities, you need to see it in action. This initial evaluation began in January and is ongoing.

We expect to be able to make a final decision on our post-trade infrastructure in 2017 and any decision to use blockchain technology will of course be made in consultation with all of our stakeholders.

As with T+2 settlement and the new trading platform that I spoke about earlier, exploring distributed ledger technology as a replacement for CHESS depends on our working closely together.

We'd like to know what you want from a replacement of CHESS and we are very keen to hear what you think.



To this end, we've built a dedicated showcase space called 'acceler8' in our head office at Exchange Centre in Sydney. Here we will demonstrate the blockchain platform and gather your feedback and requirements to help us develop the best possible post-trade solution. We wish to speak with all interested parties and take the time to get it right. We look forward to welcoming you to acceler8 in the near future.

Having said that, we'd like to take the opportunity to start the engagement process with you right now. We have a stand here at the conference dedicated to the exploration of the technology and the opportunity that this represents – and we'd like to speak to you in more detail.

If you visit the stand, you will see words asking you to: 'Join us on the journey'. Those words are sincerely expressed, and I invite anyone with a curiosity to drop by and chat to one of our specialists. We have a team from ASX and Digital Asset ready to talk, listen, and to answer questions you may have.

Conclusion

And that brings me back full circle to the themes I outlined earlier.

We have an understanding and appreciation of the challenges facing the industry. The links and connections between ASX and the stockbroking community are unquestionable, and as we have seen, our close collaboration can be invaluable in surmounting these challenges and embracing the opportunities ahead of us.

As ASX invests in the future, we recognise that operating at the heart of Australia's financial marketplace comes with an ongoing responsibility to work closely with intermediaries, listed companies and end investors.

Our significant program of technology transformation means we must do this, and you should quite rightly expect this as we enter an important period for our market over the next few years - one of careful change management and increasing innovation.

Together, we have a terrific opportunity to position Australia as one of the leading financial markets in the world.

So, I hope to see you at the stand! Thank you very much.