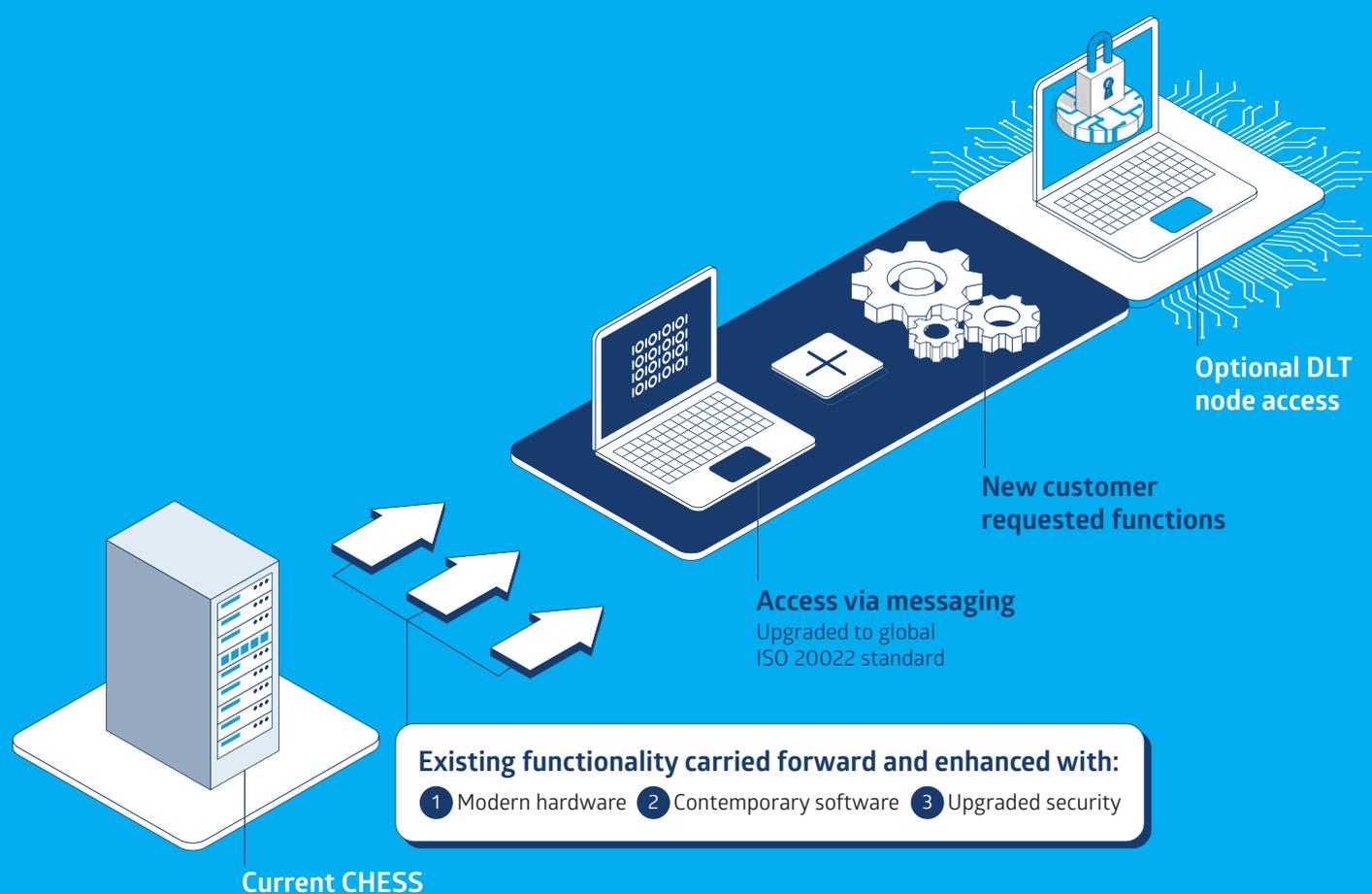


The replacement of CHES

ASX has a long and proud history of innovation. We were a leader in automating markets and embracing electronic trading, in removing the need for paper-based share certificates, in demutualising and self-listing, and in merging equities and futures exchanges. We are again leading the exchange world, this time with the replacement of CHES and the use of distributed ledger technology (DLT).



ASX is in the midst of a significant renewal of key information systems and infrastructure. A major part of this transformation is the replacement of CHES – ASX's 25-year-old proprietary Clearing House Electronic Sub-register System.

We believe the replacement of CHES, together with a DLT capability, continues our history of innovating for the benefit of the market and our customers, and will support the growth of Australia's financial system for the next 25 years.

Why replace CHES?

It is usual for ASX, and for any exchange, to upgrade its core infrastructure. The current CHES system is 25 years old and it needs to be replaced. It is written in COBOL and uses a set of proprietary message formats (CHES messages) for communication with market users. While the performance and availability of CHES continues to serve the market well, the age of the application and the challenges associated with maintaining and developing it led ASX to start evaluating replacement options in 2015.

After significant exploration of the options, including using DLT, we are replacing CHES with a contemporary solution that delivers new functionality, will reduce risks and improve the efficiency of clearing and settlement, and other post-trade services, which our regulated businesses provide.

What system is replacing CHES?

ASX is developing a new system that will provide the clearing and settlement services offered by CHES today and other new services – including those requested by the market. It is being built in conjunction with Digital Asset (DA), a New York-based software company, on contemporary, open technology using the Digital Asset Modelling Language (DAML) – a new computer programming language.

The new system will provide upgraded security, resilience and performance; the ability to more efficiently implement enhancements; and will use the ISO 20022 protocol, which is the messaging standard being adopted by regulators and market infrastructures globally.

The new system also carries through the functionality of the existing equities clearing and settlement system, with the addition of new customer requested functions that were identified following an intensive 18-month stakeholder consultation process. Examples of new functions include the standardisation of investor registration details, additional bilateral settlement options, a range of improved automated corporate actions, and the option to receive investor CHES statements electronically.

How can users access the new system?

There are a number of different connection choices. Users can choose to connect via global standard ISO 20022 messaging, which will be an upgrade to the current suite of CHES messages. Or they can connect through a web browser, which will be the option most suitable for low activity users. Both of these options allow access to the new system in a way that is very similar to accessing CHES today.

Users also have the option to choose to connect to the distributed ledger by taking a DLT node, a new managed service that will be offered by ASX. Importantly, while the features of the new system are accessible through a DLT node, users do not need to take a DLT node if they prefer to access the system the traditional way.

What is DLT and DAML?

Distributed ledger technology – DLT, often referred to as 'blockchain' – is a suite of technologies that collectively create a new database architecture for record-keeping and the mutualisation of workflows across industries.

A distributed ledger is a database architecture that enables users to remain perfectly synchronised to source-of-truth data without the need for messaging and associated reconciliation.

ASX's distributed ledger will be secure, privately permissioned and operate behind ASX's perimeter firewalls. Users will be required to meet licence and regulatory obligations, and will only be able to access the information to which they are legally entitled. Through the design of the ledger, the privacy and security of users' data will be enhanced, with the system resiliency, tamper detection and cryptographic features of our DLT infrastructure making the ledger even more secure.

DAML, an acronym for the Digital Asset Modelling Language, is an open source smart-contracting computer programming language built to model assets and their workflows. DAML is particularly suitable for driving efficiency and innovation in financial markets, and enables rapid and efficient software development and delivery.

Why did ASX choose to provide DAML and build a distributed ledger connection option?

Having thoroughly explored and tested the benefits of DLT since 2015 – including the performance, security, scalability and resilience requirements necessary to operate critical market infrastructure – we believe that the option of connecting to a distributed ledger allows the market to use DAML to develop new services that improve the efficiency and standardisation of processes, reduce operational risk, and create new opportunities for growth and innovation.

Put simply, applications can be written more efficiently and will work on any DLT node. This is a powerful capability that can leverage investments in technology, reduce errors, simplify workflows and foster innovation for the benefit of the whole market.

What is the status of the CHES replacement project?

Following the decision to replace CHES in December 2017 and the finalisation of business requirements in September 2018, we are now in the build and test phase, and on track to deliver the replacement system and the distributed ledger in March-April 2021.

We are working closely with our regulators and customers, as well as their service providers, to help them get ready for the go-live of the new system.

What DLT-enabled opportunities exist beyond CHES replacement?

We are using the insights and experience of the CHES replacement project to think about how DLT-enabled solutions can deliver efficiencies and innovation to other areas of the Australian financial services industry. This work is being done by our newly created DLT Solutions team.

We believe in the transformative potential of DLT and want to help our customers unlock its value by developing better products and services and improving operational efficiency. This extends beyond equities into other asset classes and beyond clearing and settlement processes.

For the moment, however, our primary focus is on implementing the CHES replacement system.