Agenda

Business Committee

Date	4 April 2019	Time	12:00pm – 2:00pm
Location	ASX offices – Level 1, 20 Bridge Street, Sydney		

1. **Governance of industry advisory committees**   12:00pm-12:20pm

Industry-based advisory committees may be impacted by changes to the Competition and Consumer Act. ASX has arranged for Elizabeth Avery (Gilbert + Tobin) to give a short presentation on these changes to various ASX committees to provide guidance for the information of committee members.

2. **Service Performance**   12:20pm-12:30pm

Cash Market Clearing and Settlement - Operating Performance

3. **CHESS Replacement Project**   12:30pm-1:30pm

     a) CHESS Replacement

         - Software development update

         - Customer engagement activities

     b) Pricing and fee information update

     c) ISO 20022 Technical Committee Report and Minutes

4. **Clearing and settlement services**

Recap and update on Corporate Action STP Phase 2

5. **Administration**   1:30pm-1:45pm

     a) Minutes from the 29 November 2018 Business Committee Meeting

     b) Business Committee Membership

     c) Forward work program

     d) Other matters

6. **Next Meeting** - 18 July 2019

Business Committee Members

Company	Name	Job Title	Apologies
ABN AMRO Clearing	Matt McMahon (delegate)	Head of Operations	Barry Parker
ACSA	Rob Brown	Chief Executive Officer	
AFMA	David Lynch	Chief Executive Officer	
ASX	Peter Hiom	Business Committee Chair, Deputy CEO	
Bank of America Merrill Lynch	Rhys Cahill	Global Markets COO	
Bell Potter Securities	Rodd Kingham	Head of Operations – Transformation	
BNP Paribas	Mark Wootton	Head of Custody Product Australia & New Zealand	
Chi-X Australia	Mike Aikins	Chief Operating Officer	
Citi	Miles O'Connor	Director, Direct Custody & Clearing Securities & Funds Services	
CMC Markets	Andrew Rogers	Director, Broking	
Commonwealth Bank of Australia	Sheridan Thompson	Head of Strategic Development, CommSec	
Credit Suisse	Winston Loke	Australia Equities COO	
Deutsche Bank AG	Geoffrey Plaisted	Chief Operating Officer, Equities	
Goldman Sachs	Yen Le	Executive Director	
HSBC	Peter Snodgrass	Head of Direct Custody and Clearing	
J.P. Morgan	Craig Twentyman (delegate)	Head of Custody & Products	Jonathan Evans
Macquarie Group	James Indge	Cash Equities Business Manager	James Indge
Morgan Stanley	Rebecca Hill	Chief Operating Officer	
Morgans	Daniel Spokes (delegate)	Associate Director, Clearing and Settlement Manager	Peter Chisholm
National Australia Bank	Greg Bowrey	General Manager, Self-Directed Wealth Products & Markets	
NSX	John Williams	Head of Admissions	Ann Bowering
Pershing Securities	Leigh Conder	Chief Operating Officer	
SAFAA	Andrew Green	Chief Executive Officer	
Sydney Stock Exchange	Antony Tolfts	Listings Director	
UBS	Conor Foley	Chief Operating Officer	

ASX Management

Name	Job Title	Apologies
Tim Hogben	Chief Operating Officer	
Daniel Moran	General Counsel	
Hamish Treleaven	Chief Risk Officer	
Cliff Richards	Executive General Manager, Equity Post Trade Services	
Dan Chesterman	Chief Information Officer	
Kevin Lewis	Chief Compliance Officer (Agenda Item 3b)	
Sally Palmer	Deputy General Counsel	
Katie McDermott	General Manager, Equity Post Trade Services	
Gary Hobourn	Senior Economic Analyst, Regulatory and Public Policy	
Karen Webb	Senior Manager, Equity Post Trade Services	
Keith Purdie	Senior Manager, Equity Post Trade Services	
Suzy Munro	General Manager, Post Trade Operations (Agenda Item 2)	

Guest

Name	Job Title	Apologies
Elizabeth Avery	Partner, Gilbert + Tobin (Agenda item 1)	

BUSINESS COMMITTEE MEETING PAPER AGENDA ITEM 1	
Topic	**Governance of Industry Advisory Committees**
Date	4 April 2019
Purpose of this paper	**To provide Business Committee members with a briefing on implications for committee governance of changes to the Competition and Consumer Act.**

OVERVIEW

Discussions within industry committees may be impacted by changes to the Competition and Consumer Act that prohibit a corporation from engaging with one or more persons in a concerted practice that has the purpose, effect or likely effect of substantially lessening competition.

ASX has arranged for Elizabeth Avery (Gilbert + Tobin) to give a short presentation on these changes to various ASX committees to provide guidance for the information of committee members.

ELIZABETH AVERY

Elizabeth is a partner in Gilbert + Tobin's Competition + Regulation group.

Elizabeth primarily focuses on competition/antitrust law matters under the Competition and Consumer Act. Her practice includes advising on enforcement litigation and investigations, merger clearances and ongoing strategic/operational advisory work, as well as compliance training. It spans a broad range of industries, including financial services, resources, infrastructure, technology, retailing and travel and hospitality. She has a particular focus on multijurisdictional matters.

Prior to joining Gilbert + Tobin, Elizabeth was an antitrust lawyer in the New York office of Weil, Gotshal and Manges LLP for 7 years, advising on litigation, government investigations, mergers and other advisory work, with clients across a broad range of industries, including in securities markets, private equity, credit cards, hotels and airlines.

Elizabeth commenced legal practice in Australia, with a major Australian national law firm, after having been Associate to Justice Ronald Sackville in the Federal Court of Australia.

Elizabeth is recognised as a leading competition lawyer in Australia by external peer and client surveys including Chambers Asia Pacific, Legal 500 Asia Pacific, the International Who's Who of Business Lawyers, Best Lawyers Australia, Euromoney Expert Guides and The Doyle's Guide. Elizabeth is a Vice Chair of the International Antitrust Committee of the American Bar Association's Section of International Law, actively involved in many of the Committee's activities, including speaking and writing on antitrust issues, particularly in the Asia-Pacific region.

Elizabeth obtained a Master of Laws from New York University, where she won the antitrust prize. She also holds a BA and LLB (Honours) from the University of Sydney. Elizabeth is admitted to the bar of New York, and also as a solicitor in the Supreme Court of New South Wales and the High Court of Australia.

BUSINESS COMMITTEE MEETING PAPER AGENDA ITEM 2	
Topic	**Cash market clearing and settlement services - Operational performance**
Date	4 April 2019
Purpose of this paper	To report on key performance metrics for ASX's clearing and settlement services.

OVERVIEW
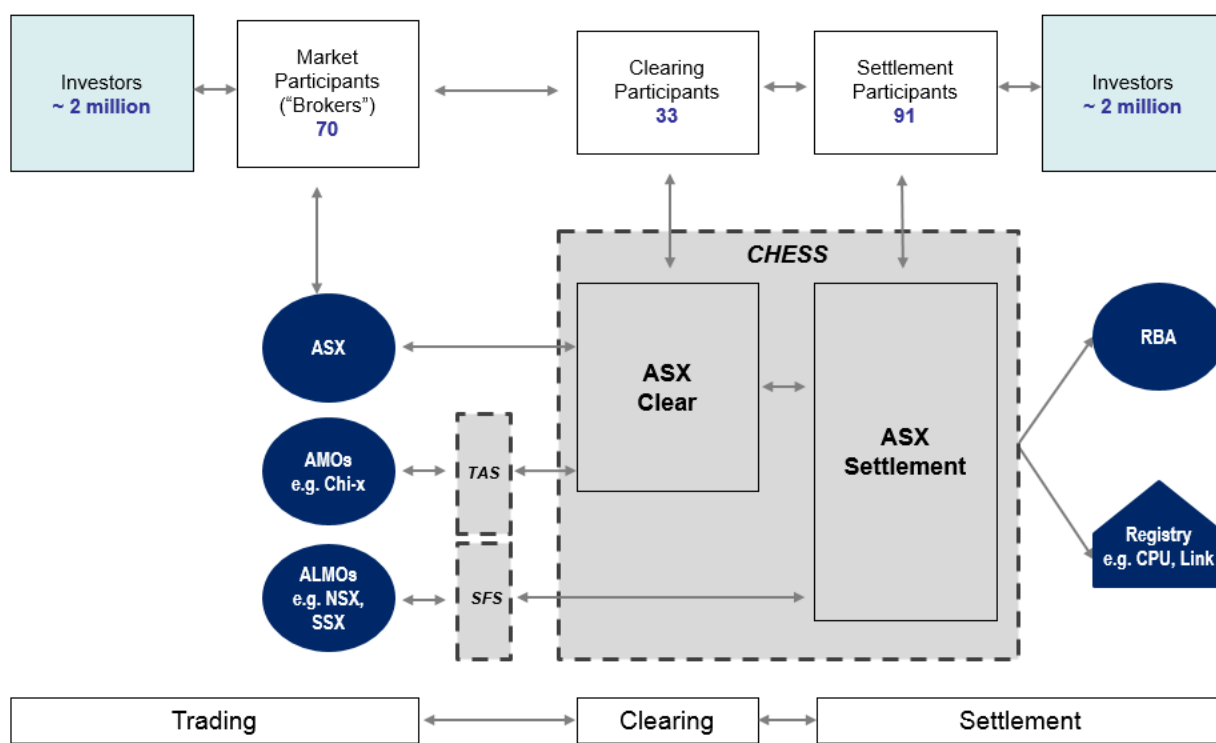
The clearing and settlement of equities performs a critical role in the operation of Australia's financial markets, helping to reduce counterparty and systemic risk, and provide transaction efficiency and certainty for end investors.

Core processes that provide these benefits include novation, netting and settlement.

Novation

Through a contractual process known as novation, ASX Clear becomes the seller to every buyer and the buyer to every seller, making it liable for completing all cleared transactions on the relevant market. Novation performs two important functions:

- it replaces the clearing participants' credit exposures to other clearing participants by substituting the clearing house as the central counterparty; and
- it maximises capital efficiency for clearing participants by permitting a single net exposure to be calculated and collateralised between the clearing house and each clearing participant.

Through novation, ASX Clear provides protection to non-defaulting clearing participants (and, indirectly, their clients) from the inability of a defaulting clearing participant to meet its obligations.

A key metric for monitoring novation is the percentage of on and off market trading that is novated.

Trades submitted for clearing and settlement by any market operator are verified prior to registration by ASX Clear. If the verification conditions are not satisfied then trades are rejected. Once a trade is registered it is novated. Novation is deemed to be effective from the matching of bid/offer (on market trades) or recording of the trade (reported trades) for all trade execution venues.

Netting

ASX Clear is approved as a 'netting market', and ASX Settlement is an 'approved netting arrangement', for the purposes of the Payment Systems and Netting Act. This gives legal certainty to the netting of settlement obligations. Settlement on a multilateral net basis maximises market efficiency by reducing participant transaction and funding costs.

A key metric for monitoring netting is the percentage by which novated value is netted down for settlement. This metric is termed "netting efficiency".

Settlement

ASX's model for settlement maximises efficiency, while minimising the risk of settlement failure. It does this by simultaneously transferring the legal ownership of shares and facilitating the transfer of money for those shares. This is done through a Model 3 multilateral net batch settlement mechanism with irrevocable settlement finality at the end of the processing cycle. The transfer of money occurs across the Exchange Settlement Accounts of payment providers in the RBA's Information and Transfer System (RITS).

A key metric for monitoring settlement is the percentage of scheduled settlement that successfully settles (i.e. the opposite of the "fail rate"). This metric is termed "settlement efficiency".

Service availability

ASX's critical processes of novation, netting and settlement and are supported in ASX's core system CHESS. It is critical for market operations, that CHESS remains stable and available for processing. A key metric for monitoring systems availability is the percentage of systems uptime as measured against target availability times. The service availability target for CHESS is 99.80%.

For the March 2019 quarter[1], the average monthly system availability was 100.00% for CHESS. The average monthly availability of CHESS has been 99.99% between November 2011 and February 2019.

Trade Acceptance Service

ASX Clear and ASX Settlement's Trade Acceptance Service (TAS) provides a mechanism for Chi-X to submit trades into CHESS. The CHESS system performs the clearing and settlement functions.

The Trade Acceptance Service availability target for TAS is 99.80% (the same as CHESS).

For the March 2019 quarter[2], the average monthly system availability was 100.00% for the TAS. The average monthly availability of the TAS has been 99.99% between November 2011 and February 2019 (which is the same as CHESS).

---

[1] Up to 28 February 2019
[2] Up to 28 February 2019

Reporting on clearing and settlement service performance

The key metrics noted above on novation, netting efficiency and settlement efficiency for the March 2019 quarter[3] are reported in Attachment A. They are also supported by charts demonstrating a longer reporting period in Attachment B.

---

[3] Up to 28 February 2019

ATTACHMENT A – SUMMARY METRICS RELATING TO THE PERFORMANCE OF ASX'S CLEARING AND SETTLEMENT SERVICES

	March 2019 Quarter[4]	December 2018 Quarter	September 2018 Quarter
System Availability (CHESS)	100%	100%	100%
System Availability (TAS)	100%	100%	100%
Total Trades Accepted (ASX)	59,379,132	89,266,278	82,955,381
Total Trades Rejected (ASX)	16	2	4
Total Trades Accepted (Chi-X)	21,181,559	29,462,225	27,723,310
Total Trades Rejected (Chi-X)	0	0	0
Total Settlements (SSX)	0	0	0
Total Value of Settlements (SSX)	$0	$0	$0
Total Settlements (NSX)	105	266	425
Total Value of Settlements (NSX)	$367,344	$958,920	$2,933,379
Daily Average Traded Value (On and Off Market)	$6.39 billion	$7.14 billion	$6.76 billion
Daily Average Cleared Value	$4.56 billion	$5.11 billion	$4.76 billion
Percentage Novated	71.3%	71.6%	70.5%
Daily Average Cleared Value Post-Netting	$1.84 billion	$2.03 billion	$1.99 billion
Netting Efficiency	59.7%	60.3%	58.1%
Daily Average Settled Value (Including Non-Novated)	$9.2 billion	$10.7 billion	$10.4 billion
Settlement Efficiency	99.95%	99.87%	99.95%

---

[4] Up to 28 February 2019

ATTACHMENT B – PERFORMANCE OF ASX'S CLEARING AND SETTLEMENT SERVICES FROM JUNE 2011 TO FEBRUARY 2019

Percentage Novated

Netting Efficiency

Settlement Efficiency
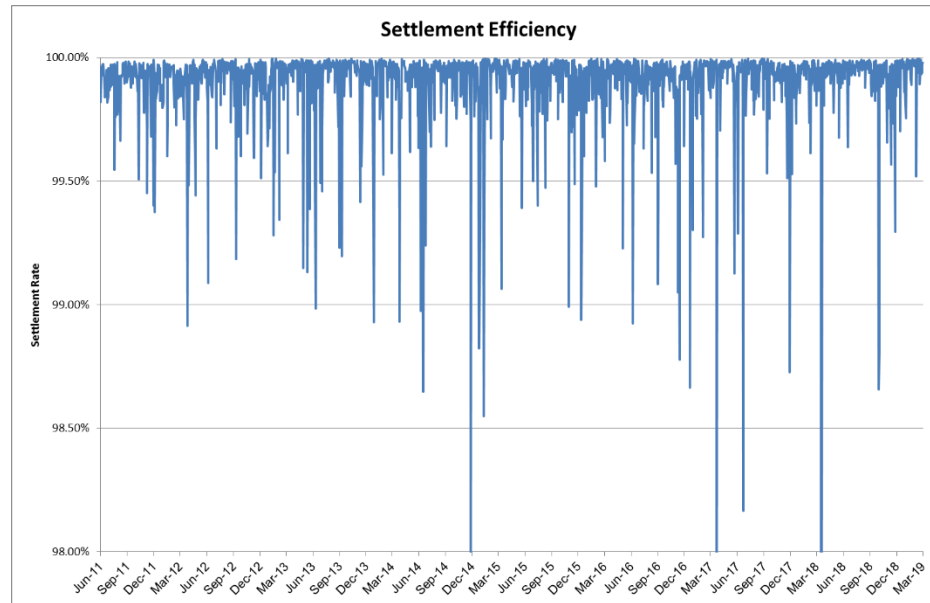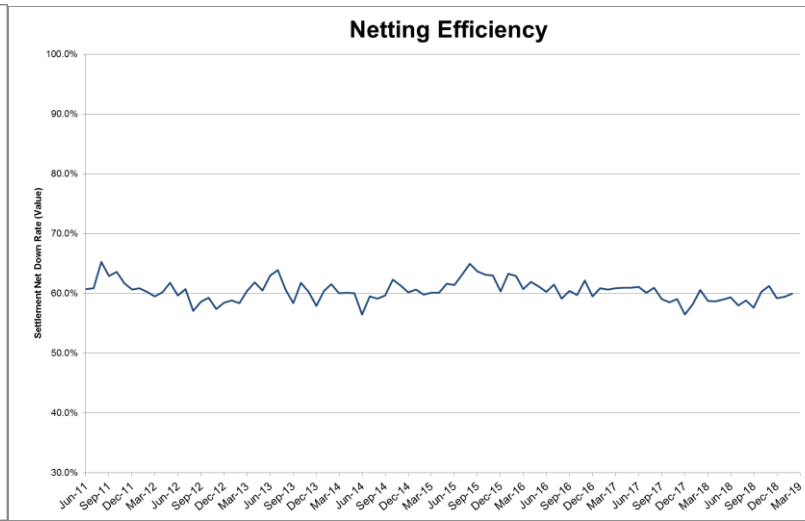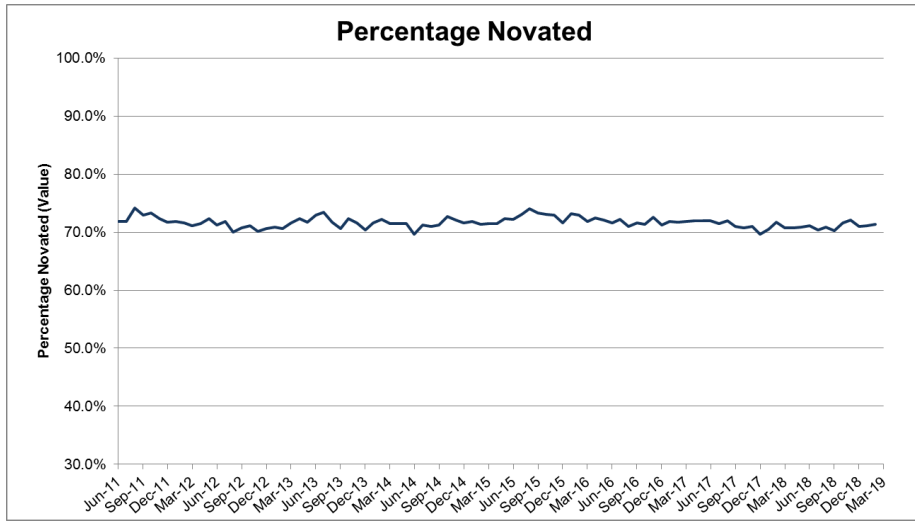
BUSINESS COMMITTEE MEETING PAPER AGENDA ITEM 3A	
Topic	**CHESS Replacement – Program Update**
Date	4 April 2019
Purpose of this paper	**Members will be provided with a program update including software development and stakeholder engagement activities.**

OVERVIEW

ASX delivered the first tranche of technical documentation in December 2018 to support CHESS users' readiness to develop and test in a Customer Development Environment from end April 2019.

Stakeholder engagement activities, including convening the first Implementation and Transition working group meeting in March 2019, tracks to the published timetable of events.

Software delivery is on schedule and continues tracking to plan.

The pricing for clearing and settlement participant access to the CHESS replacement system was released in March 2019.

Software Development Update

The CHESS Replacement project software delivery from Digital Asset (DA) is on track. Test script generation, test execution and integration development of this software by ASX is also tracking to plan.

Delivery of the Customer Development Environment is on track to be available for customers in April 2019 and will support all key connectivity options including direct access (via a DLT node), AMQP, and SWIFTNet. Each participant, user or vendor will be provided access to their own dedicated test environment.

The ISO 20022 work on 'to-be' message mapping state is in progress. See agenda item 3c for further details.

Stakeholder Engagement Activities

Technical Documentation

The first tranche of technical documentation was released to the market on 14 December 2018. This followed a webinar on 12 December, which provided an explanation on the new online portal and previewed some of its content to an audience of 157 people.

The documentation included functional specifications, messaging requirements and connectivity details. Over 400 people from a large number of different organisations have now registered for technical documentation.

ASX have structured the external facing documentation in an instance of the Atlassian Confluence™ online portal as opposed to static PDFs. This provides an improved user experience through a contemporary project collaboration tool.

ASX recently updated the documentation in early March 2019. This included releasing application forms for the Customer Development Environment. The next tranche of technical documentation is on track to be released at the end of March. This will include functional specifications for trade capture, trade registration, novation and payment facilities for batch settlement. The iterative release of technical documentation provides transparency on the technical solutions as development is progressed.

A dedicated mailbox has been set up to manage customer questions relating to technical documentation. All email enquiries received are triaged and responses sought from appropriate Subject Matter Experts (SMEs) working on the project. ASX will also give consideration to updating the Frequently Asked Questions (FAQ) section of the online portal for any commonly asked questions or where ASX feels the information should be shared more broadly with other users. Technical documentation may also be updated as a result of a user enquiry.

Connectivity & Integration Working Group

Since the last Business Committee meeting on 29 November, ASX have held four Connectivity & Integration working groups. The working group held on 4 December 2018 provided attendees with additional detail on direct integration, including key commands and functions of the Ledger API, and an introduction to master contracts by providing a demonstration on account opening.

The working group meeting on 12 December was a webinar that primarily focused on technical documentation and the forward work plan for stakeholder engagement.

The first meeting in 2019 was held on 5 February and included an overview of ASX Net onboarding, and ISO 20022 XML message signing.

The meeting held on 6 March provided an overview on the Customer Development Environment, including the application process.

There have now been eight Connectivity & Integration working group meetings to date, with the next meeting scheduled for 3 April 2019 on the topic of accreditation and infrastructure requirements.

Future topics have been published to the stakeholder engagement calendar of events on the CHESS Replacement webpage.

Implementation & Transition Working Group

ASX convened the Implementation & Transition working group on 20 March 2019, with participation from 120 individuals. The purpose of this new working group is to develop a market-wide implementation and transition plan and act as a key forum to help guide all stakeholders in defining and shaping their own individual implementation and transition plans. This will include migration rehearsals. The working group will run in parallel to the Connectivity & Integration working group. The key difference between the two is that Connectivity & Integration focuses on the planning and activities required to support the technical implementation. Implementation & Transition focuses on the planning and activities required to support the clearing and settlement operational readiness.

Membership of this newly formed working group includes any stakeholder who is impacted by CHESS replacement, including AMOs, Clearing and Settlement participants, share registries, payment banks, software vendors and relevant industry associations.

Meetings will be held, at a minimum, every other month throughout 2019 before ramping up the frequency in 2020. The next meeting is scheduled for 15 May.

Focus Groups

Focus Groups will also be held on a regular basis throughout 2019 on specific topics. Attendees include a cross section of industry participants and invitations will be tailored based on the relevance of the topic.

Focus Groups provide ASX the opportunity to test, with a small subset of industry stakeholders, a proposed solution design for new features prior to the release of technical documentation. This includes asking

participants and other users, where applicable, to consider key design principles and to respond with examples and rationale if they consider the proposed solution to be sub-optimal.

ASX have held five Focus Group meetings in 2019 on a range of topics. This included a meeting on 14 February to discuss the proposed solution design principles for transfers and conversions and account management, allowing share registries, software vendors and ASX to continue the discussions arising out of the ISO 20022 Technical Committee held on 8 February. ASX appreciated the feedback and remains open-minded to alternative solutions and agreed to revisit the solution design principles including the number of messages, the sequencing of messages and workflows. This involved further deep dives and bilateral discussions before reconvening the Focus Group on 19 March with participants and share registries to test an alternative solution. The session was replicated in another Focus Group for vendors on 26 March. In response to this feedback, ASX also re-examined the sequencing for testing solution design and reviewing the supporting messages in the ISO 20022 Technical Committee meetings. As a result, going forward the ISO 20022 Technical Committee agendas will tie in with the associated Focus Groups, that is, the Focus Groups will review functional change and solutions prior to the ISO 20022 Technical Committee review of how this is then represented in messaging.

Other Focus Group sessions held this year included a meeting on 29 January looking at trade registration and AMO connectivity, and a meeting on 12 March focused on payment provider connectivity and workflows.

Key Milestones & Calendar of Events

The next page details key project milestones and the calendar of events for stakeholder engagement.

ATTACHMENTS

Attachment A – Connectivity & Integration Working Group meeting materials (4 December 2018) – Direct Connectivity

Attachment B – Connectivity & Integration Working Group meeting materials (12 December 2018) – Technical Documentation

Attachment C – Connectivity & Integration Working Group meeting materials (5 February 2019) – ISO Message Signing and ASX Net onboarding

Attachment D – Connectivity & Integration Working Group meeting materials (6 March 2019) – CDE Overview and Application Process

Attachment E – Implementation & Transition Working Group (20 March 2019) – Kick off meeting

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2020 Jan - Dec	2021 Jan - Dec
Business Committee				4/4			18/7		19/9		28/11		Dates TBC	Dates TBC
ISO 20022 Technical Committee		8/2: Transfers & conversions – Participant to Issuer	26/3: Standardised registration details		7/5: Transfers & conversions; SRN enquiry 28/5: Investor info – all asset classes	25/6: Corp Actions - Framework, CEB, Security State	23/7: Corp Actions - Holdings Adjustments, Diary Adjustments	27/8: Corp Actions - Holdings Adjustments, Diary Adjustments		1/10 - Corp Actions - Takeover & Buybacks 29/10 : Corp Actions	26/11: Corp Actions - Elections, Exercise		Dates TBC	Dates TBC
Connectivity & Integration Working Group		5/2: ASX Net & ISO message signing	6/3: CDE overview and application process	3/4: Accreditation and Attestation	1/5: Direct Connectivity – ISO to DAML	5/6: AMQP design pattern	3/7: Multi-Channel Support	7/8: Topic TBC from list below	4/9: Topic TBC from list below	9/10: Topic TBC from list below	6/11: Topic TBC from list below	4/12: Topic TBC from list below	Dates TBC	
	Future topics include: (i) infrastructure requirements (hardware); (ii) security; (iii) non-functional requirements; (iv) browser and (v) reporting													
Implementation & Transition Working Group			20/3: Kick-off		15/5: Implementation & Transition strategy		17/7: Topic TBC from list below		18/9: Topic TBC from list below		20/11: Topic TBC from list below		Dates TBC	
	Future topics include: (i) planning & preparation; (ii) communication & documentation; (iii) testing & rehearsals and (iv) cutover & post cutover													
Focus Groups	29/1: Trade registration & AMO connectivity	14/2: Transfers & conversions (follow up to 8 Feb Technical Committee)	12/3: Payment provider workflows/connectivity 19/3 & 26/3: Accounts & std registration details (19/3: participants & registries, 26/3: vendors)	10/4: Transfers & conversions, SRN enquiry	7/5: Change of controlling participant	11/6: Corporate Actions related topics	9/7: Topic TBC from list below	13/8: Topic TBC from list below	10/9: Topic TBC from list below	15/10: Topic TBC from list below	12/11: Topic TBC from list below	10/12: Topic TBC from list below	Dates TBC	
	Potential future topics include: (i) warrants; (ii) transfer of novated transaction between clearing participants; (iii) corporate actions related topics; (iv) mFunds; (v) reporting; (vi) optional early settlement; (vii) investor information and (viii) administrative account & holder locks													
Technical documentation			28/3: Drop 2 - trade capture, trade registration, novation & payment facilities		Drop 3 - CHESS to/from Issuer Sponsored transfers & conversions, netting		Drop 4		Drop 5		Drop 6		Feb - Drop 7	
Drops of code				Drop 1 - Foundation setup/onboarding, accounts & holders, holdings transfers		Drop 2 - trade capture, trade registration & novation		Drop 3 - CHESS to/from Issuer Sponsored transfers & conversions, netting		Drop 4		Drop 5	Feb - Drop 6; May - Drop 7	
Customer Dev Environment (CDE)				Environment becomes available	Available								Available	Available until go-live
Industry Wide Testing													July 2020 onwards	Until go-live
Accreditation & operational readiness, migration rehearsals													Q3 2020 onwards	Until go-live
Target go-live														Mar/Apr

CHESS Replacement Project

Connectivity & Integration Working Group Direct (node) Connectivity

4th December 2018

ASX

Important Information – Competition Law Policy

Working group members are reminded to have regard to their obligations under competition law.

In particular, please note recent changes to the Competition and Consumer Act to prohibit a corporation from engaging with one or more persons in a concerted practice that has the purpose, effect or likely effect of substantially lessening competition.

ASX

Agenda

> Introduction

> Digital Asset Overview

> Transaction Flow

> Ledger API Connectivity

> Ledger API Demonstration

> Data Streaming

> Direct Connectivity vs Messaging

> Questions

ASX

Introduction

ASX

Introduction: Connectivity Options

Digital Asset Overview

ASX
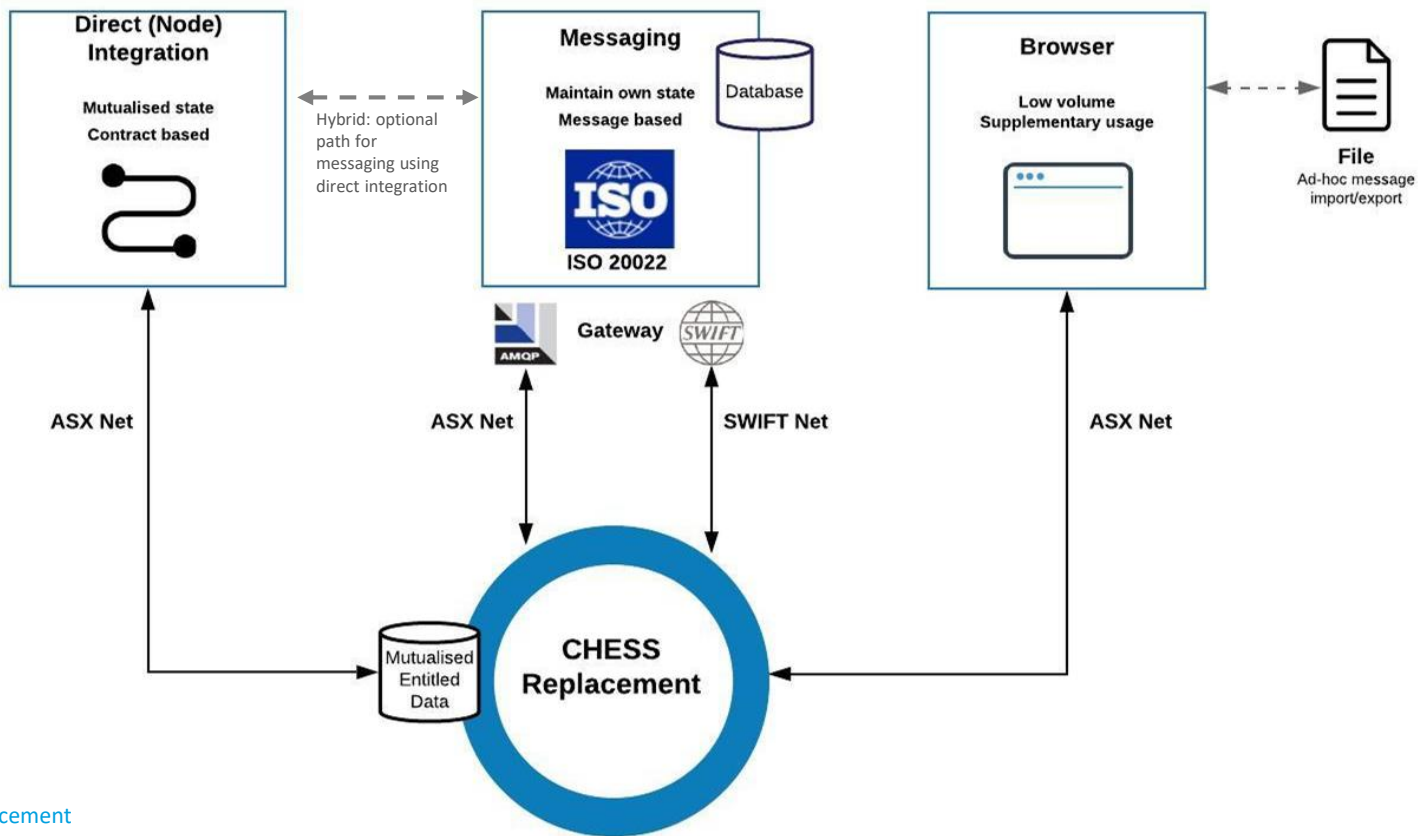
Digital Asset

Is a technology company that builds products based on Distributed Ledger Technology (DLT) for highly regulated institutions, such as financial market infrastructure providers, CCPs, CSDs, exchanges, banks, custodians, health insurers and their market participants.

Quick Facts

➜ We were founded in 2014 and now have over 180 employees across 6 countries

➜ We deliver flexible infrastructure for market participants to share processes and data securely, on a need-to-know basis, without the need for reconciliation

➜ Ours is the only platform being built to the production requirements of major institutions

➜ We have raised over $115m from more than 15 strategic investors across the financial ecosystem

➜ In December 2017, the Australian Securities Exchange announced its intention to replace its post-trade clearing and settlement system with DA technology

➜ In October 2018, Hong Kong Exchanges and Clearing Limited announced the completion of a successful prototype and are now collecting production requirements with the market.

ASX

What are we solving for?

The process of creating software in highly regulated financial markets is a process of **translation** - from legislation / market rules; to legal and compliance teams; to product and engineering; to functioning software systems – **and is expensive, difficult and error prone.**
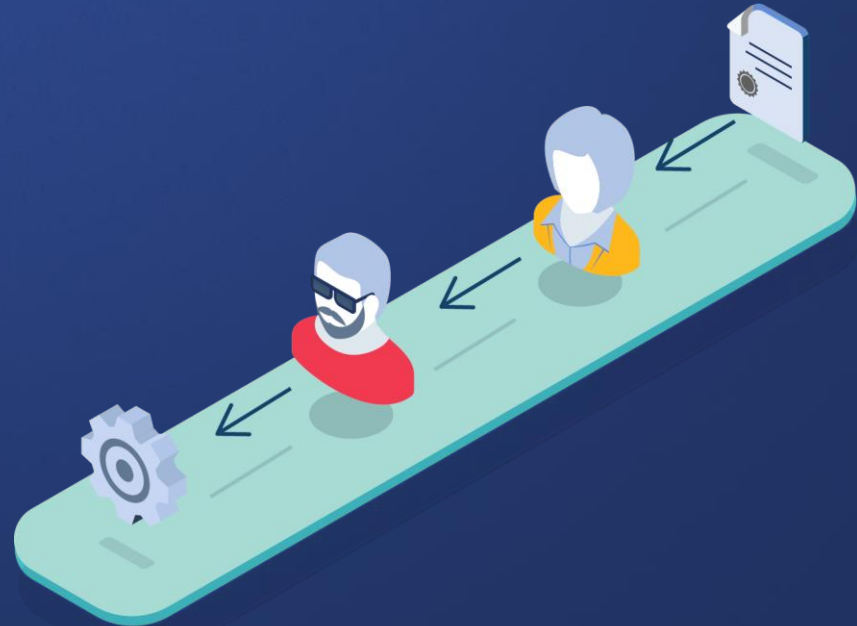
Everyone does it differently

Every institution undertakes this translation process independently – **leading to many different solutions to the same problem,** and inconsistencies across the market – there is no common domain model across participants
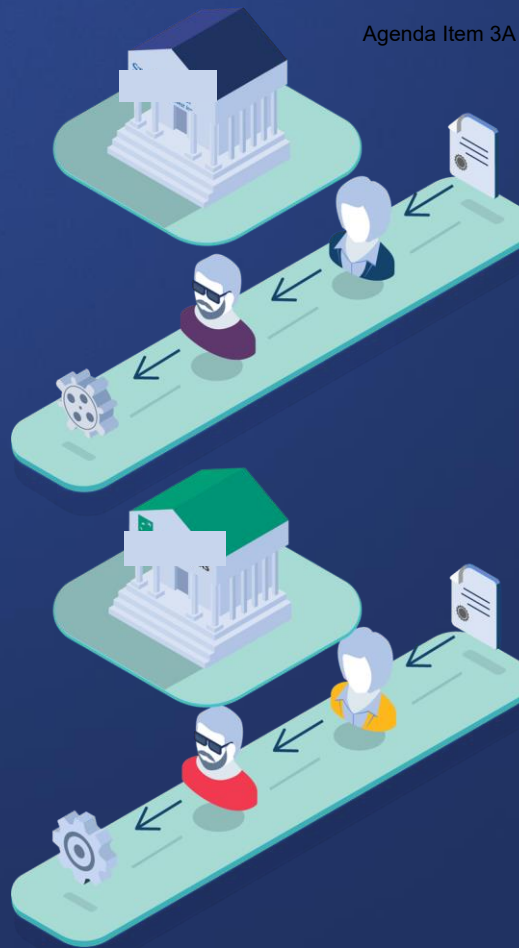
Markets rely on multi-party workflows

Participants in a market collaborate in complex multi-party workflows across institutions to deliver services for end investors.

Eg
- Clearing and Settlement
- Pre-settlement workflows
- Corporate Actions
- Securities Lending

Messaging limitations

Standardised messages passed between institutions do not guarantee consistency of processing by different technical systems across counterparties or provide a common domain model of the problem space. As a result, a long tail of operational cost and risk remains in the system.

Message driven asynchronous systems developed across institutions are not well suited for complex, multi party workflows.

Technology islands create duplicated cost

Independent, bespoke systems at each institution can be optimised for STP within the institution; but are not easily extended or updated in concert with counterparties or the wider market.

Regulatory driven change forces market wide updates to technology systems – a major, ongoing duplicated cost that does not provide differentiating client value for participants.
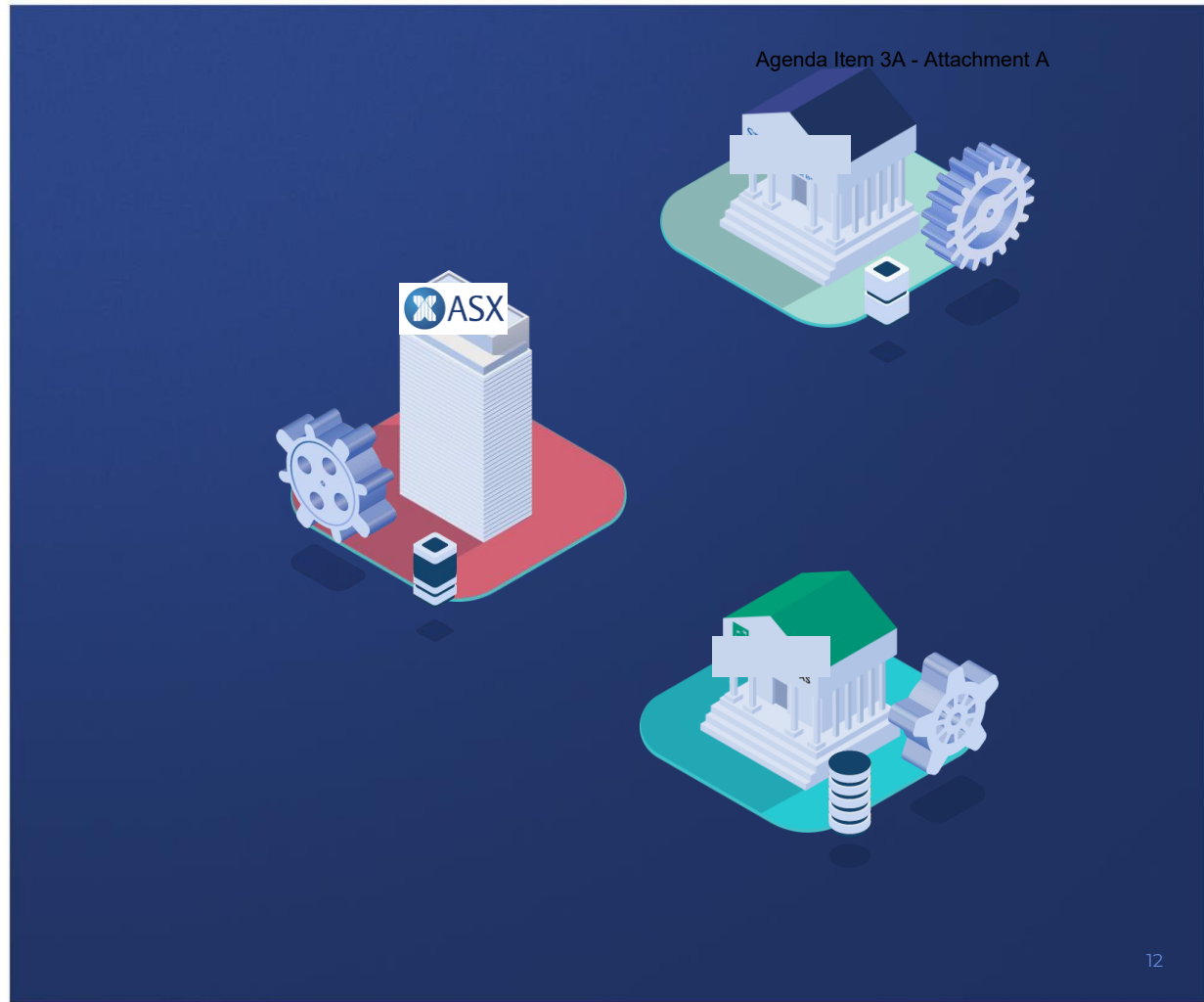
How do we solve for this?

The Digital Asset Platform is designed to provide a common platform for market participants.

1. Continuous data integrity across all market participants

2. Distributed straight through processing across institutions.

3. Extensible and upgradeable functionality for individual institutions or across market through apps.

Inside a node

APPLICATION LAYER
Modular and extensible through the development and installation of new apps (like a modern phone)
Facilitates integrations to existing Systems (eg by SWIFT/FIX/other format)

DAML BUSINESS LOGIC ENGINE
Common across all participants in the market
Enforces both market rules and contractual rights
Offers knowable finite set of outcomes
Built-in safeguards

PRIVATE CONTRACT STORE
Physically segregates confidential info
Contracts are Stored locally by parties involved

GLOBAL SYNCRONISATION LAYER
Globally synchronized amongst all participants
Does not reveal info about data itself (proofs only)
Provides integrity and transparency guarantees

ASX

Transaction Flow

ASX

DAML

- A key element of CHESS Replacement is the use of the DA Platform and Digital Asset Modelling Language, called DAML.
- DAML is a means of mapping the rights and obligations across all ASX participants and tracking their changes over time on the ledger.
- DAML guarantees to keep all participants synchronised and protect privacy and confidentiality of information.
- All modifications to the ledger happen via DAML commands, resulting in DAML events. The ledger is updated by a participant upon submission of a valid transaction (DAML command). The rules as encoded in DAML dictate under which conditions contract instances are added/archived.

DAML Libraries

- ASX DAML contracts will be grouped into DAML Libraries (or modules). Tip: think Java .jar file
- DAML Libraries represent the application rules (i.e. ASX market rules)
- The structure of commands and events are defined by the DAML Libraries being used
- Node users will be provided with the CHESS Replacement DAML Library and SDK (Software Development Kit)

Direct Node Access

Direct Node Access provides secure and direct connection to the DA Platform. Node access will allow Transaction Submission and Block Event queries of DAML based contracts on the distributed ledger. It maintains the complete state of a financial institution distributed among its participants.

The DA Platform is a continuously evolving software stack, which gives the following benefits:

- Eliminates the synchronization process and latencies caused by such a process
- Creates full transparency and provable state of the market
- Enforces market rules
- Handles distribution / persistence
- Constructs DAML contracts
- Performs validation
- Creates blocks on the blockchain and manages notifications

APPLICATION

PLATFORM API

DAML EXECUTION ENGINE

LEDGER STREAMING MODULE

PRIVATE CONTRACT STORE
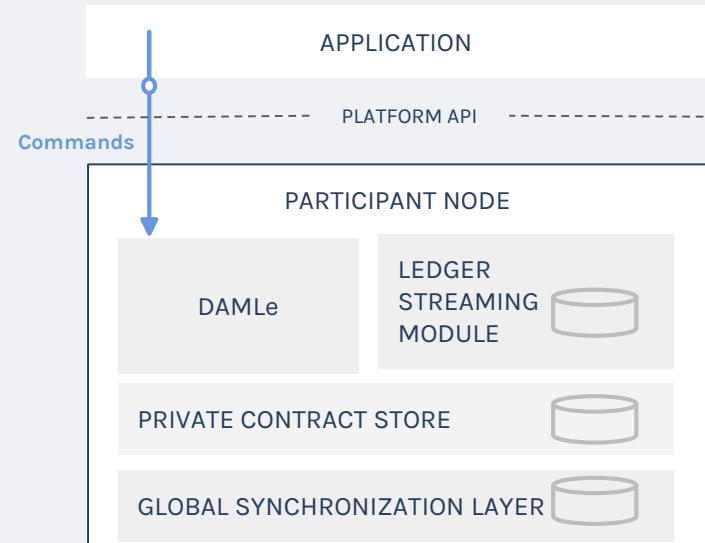
GLOBAL SYNCHRONIZATION LAYER

ASX
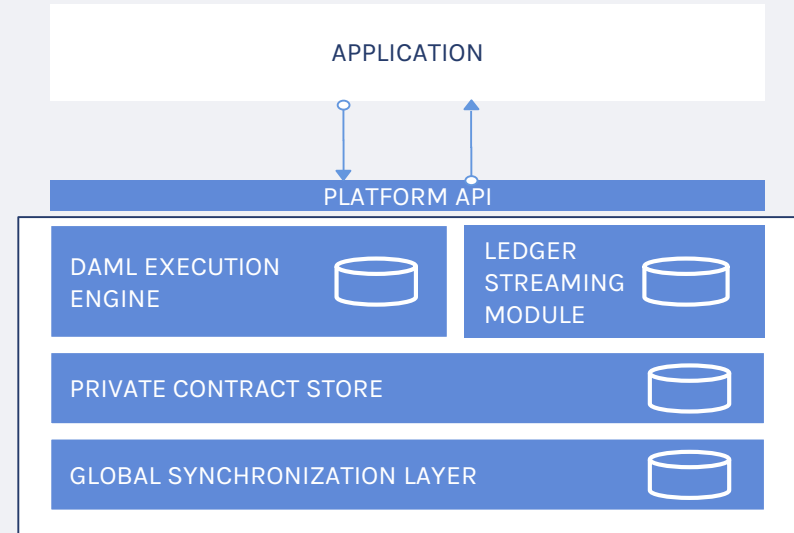
Direct Node Access

All modifications to the ledger happen via DAML commands. The DA ledger is updated by a participant when it submits a valid transaction command. The rules as encoded in DAML dictate under which conditions contract instances are added/removed.

A valid transaction command consists of:

- Type-checked and interpretable DAML update expression
- The Business Intent Message Commitment, which is the blinded hash over the customer-specific intent behind a command
- Maximum Record Time
- Ledger Effective Time

With the DA Time Model, the Application always has the ability to determine when a command is rejected, accepted, contains errors, or if a command gets lost. The structure of commands and events are defined by the DAML Libraries being used.

APPLICATION

PLATFORM API

Commands

PARTICIPANT NODE

DAMLe

LEDGER STREAMING MODULE

PRIVATE CONTRACT STORE

GLOBAL SYNCHRONIZATION LAYER

Reading via block-event queries

Transaction events are grouped in blocks. A transaction event contains an optional reference to the business intent message (BIM) that caused it, the ledger effective time of this transaction, the index within the block, and a list of events.

Block Events:

- A transaction event is the atomic building block of the transaction. It either creates a new contract or archives an existing one
    - Create event: contract ID + template ID + parameters
    - Archived event: contract ID + template ID
- Microservices in the Application Frameworks are listening to events to trigger automation processes
- A block also contains a possibly empty list of errors that occurred during the building of this block

Ledger API Connectivity

ASX
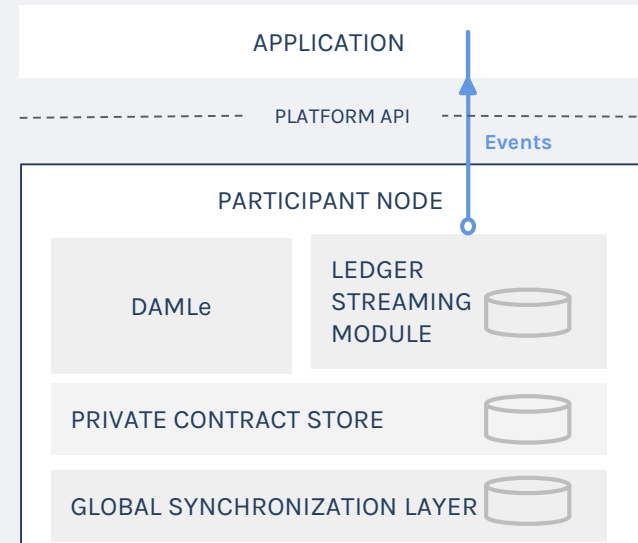
Why gRPC?

- Open-source, with many adoption examples and a vivid community of contributors

- Uses **protobuf**: a language & platform agnostic serialization format
  - Does not tie to a specific technology stack
  - Binary representation for wire transfer, designed for scalability and high performance
  - Optimized for low network footprint
  - Understood by off-the-shelf infrastructure components such as firewalls, load balancers, proxies etc.
  - Multitude of language mappings - simple generation of idiomatic language bindings
    - proto files are composable schema definitions
    - protoc (plugins) to generate bindings to all major ecosystems
    - SDK provides JAVA and Python client libraries.

- Built on top of HTTP2 - goes beyond the rigid set of verbs offered by HTTP
  - Supports both uni- as well as bidirectional streaming

- Authentication in the form of SSL/TLS and custom pluggable mechanisms

- Designed with simplicity in mind
  - Simplifies SDK deployment - just compile source files and copy sample code

ASX

Exploring the Endpoints

Administrative Services

- **LedgerIdentityService**
  - Returns the ID of a given ledger

- **LedgerConfigurationService**
  - Streams server-side configuration changes

- **PackageService**
  - Returns information about packages loaded onto ledger

ASX

Exploring the Endpoints

Command-related Services

- **CommandSubmissionService**
  - Submits commands to the ledger

- **CommandCompletionService**
  - Streams completions (OK / Error) for command submissions

- **CommandService**
  - Higher-level abstraction
  - Allows for the submission and subsequent completion of a command in a single call
  - Implements throttling (max requests in flight)

ASX

Exploring the Endpoints

Event-related Services

- **TransactionService**
  - Streams transactions containing ledger events
  - Streams transaction trees (contracts + provenance)
  - Allows transaction lookup
  - Allows filtering by template
  - Sandbox allows multi-party stream

- **ActiveContractService**
  - Streams only events required to build up ACS
  - Allows quick re-hydration
  - Suggested pattern is to catch up using ActiveContractService, and then subscribe to TransactionService with an offset to keep ACS up to date

ASX

Towards Application Frameworks

Capabilities

- Reactive / Stream library support

- Command Retry

- Command Backpressure / Throttling

- Event stream recovery

- In-memory contract store

- Persistent contract store

- High-Availability / Recoverable contract store

- Pending contract handling

- Strongly-typed contracts (code gen)

ASX

General Workflow for Direct Connectivity

What is a Command?
- A command is the exercise of a choice on the participant's Master Contract, eg, a command to open an account at CHESS Replacement.

What is an Event?
- An event is the resulting contract(s) creation(s)/archival(s) as a consequence of a command submission.

What is the general workflow for an ASX Participant to connect directly with CHESS Replacement ?
- Open a gRPC channel and connect to the ASX CHESS Replacement Ledger
- Download the DAML package containing the template for the participant's Master Contract
- Subscribe to the Transaction Service to receive transactions (which contain Events - the results of Commands)
  - Receive the Master Contract creation event on the Transaction Service stream.
- Send commands to exercise choices on the Master Contract, using the Command Submission Service.
  - Command Completions can be observed on the Command Completion Service
  - Resulting events (eg, contract creations/archivals) can be received on the Transaction Service stream

ASX

Ledger API Demonstration

ASX

Transaction – Account Registration Request
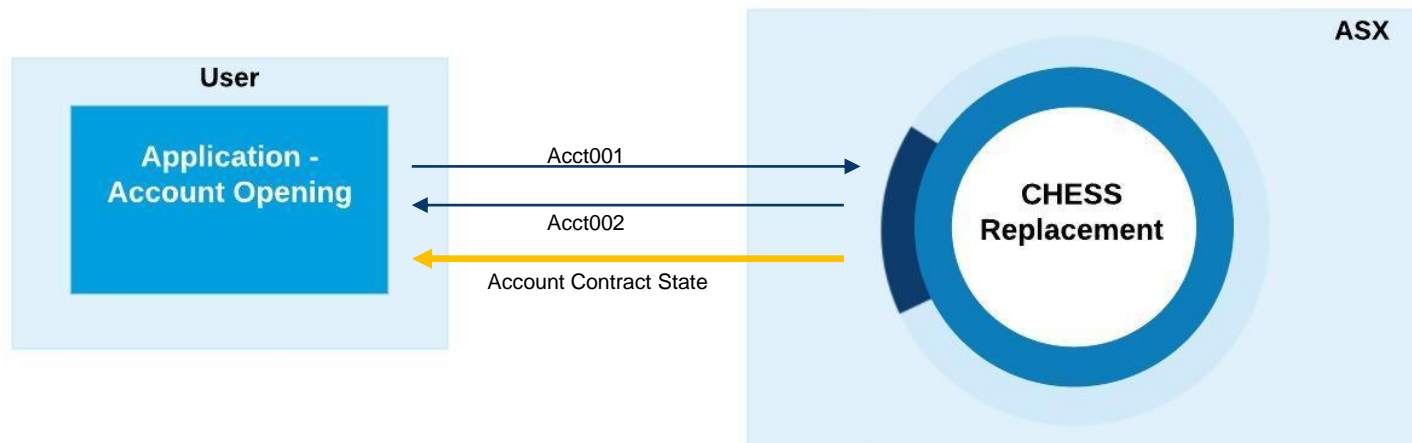
Message Gateway: Ledger API

Transaction Format: DAML

State: Managed on ledger

Data Streaming

ASX

Data Streaming

Direct connectivity provides data streaming capabilities directly from the Ledger Event Stream (part of ledger API)

User

Application (s) ACS

Application ODS

Application ADS

Streaming

Streaming

Streaming

ASX

CHESS Replacement
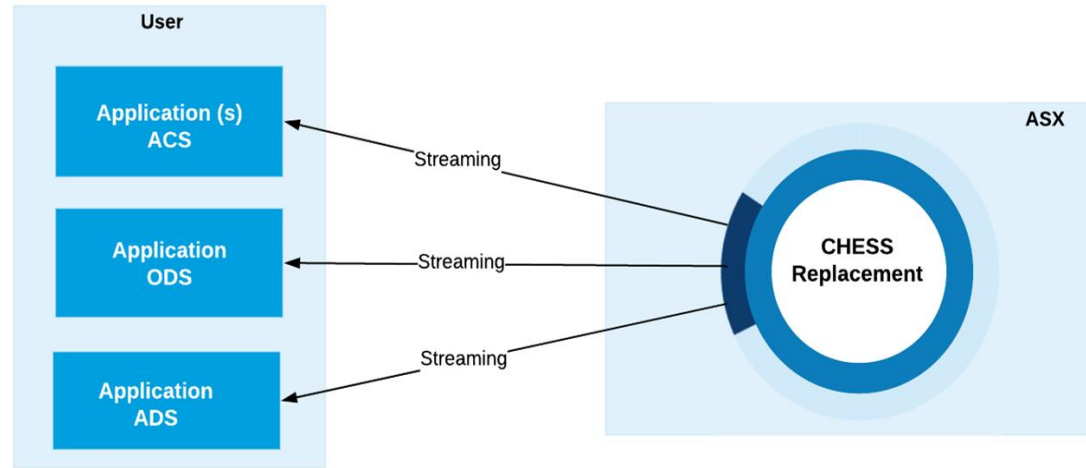
Active Contract Set (ACS)

- Current State
- Vendor / Participant developed application(s)

Operational Data Store (ODS)

- Current State and History
- ASX developed application

Analytical Data Store (ADS)

- History
- ASX developed application

Direct Connectivity vs Messaging

ASX

Direct Connectivity vs Messaging

	Ledger API	AMQP	SWIFT
Supports CHESS Replacement ISO 20022 instruction set	✔	✔	✔
Multifactor security	✔	✔	✔
ASX Net (VPN)	✔	✔	✘
SWIFT Net	✘	✘	✔
Access real time golden source data	✔	✘	✘
Extensible to future products and new applications	✔	✘	✘
Mutualised multiparty workflows	✔	✘	✘
Flexible infrastructure for regulatory and market change	✔	✘	✘

Questions?

ASX

Thank you

ASX

Disclaimer

This document provides general information only. ASX Limited (ABN 98 008 624 691) and its related bodies corporate ("ASX") makes no representation or warranty with respect to the accuracy, reliability or completeness of the information. To the extent permitted by law, ASX and its employees, officers and contractors shall not be liable for any loss or damage arising in any way (including by way of negligence) from or in connection with any information provided or omitted or from anyone acting or refraining to act in reliance on this information. The information in these slides is confidential and should not be disclosed to or shared with any third parties without the prior written permission of ASX.

CHESS Replacement Project

Technical Documentation

12th December 2018

Housekeeping: audio trouble shooting

> Check your system requirements

> Check that your computer's audio is unmuted

> If you are still experiencing audio difficulties, try downloading the GoTo Webinar Application on your phone, and enter the Webinar ID: **329-105-443**

GoToWebinar Attendee System Check for Webcast Webinars

Looks good! You can join a webinar.

- ⊘ **OS** - Windows 8.1
- ⊘ **Browser** - IE 11
- ⊘ **Internet connection** - Strong
- ⊘ **Flash** - Enabled

Test your system again   View System Requirements

Next steps

Join a webinar
Attendee

Learn How
Join guide

ASX
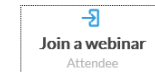
Housekeeping: how to submit questions

OR

Your Participation

- To submit your text questions and comments use the Questions panel
- Note that your questions will not be seen by other attendees

For more information - refer to the webinar tips published on the ASX CHESS Replacement web page

ASX presenters and introductions

Cliff Richards
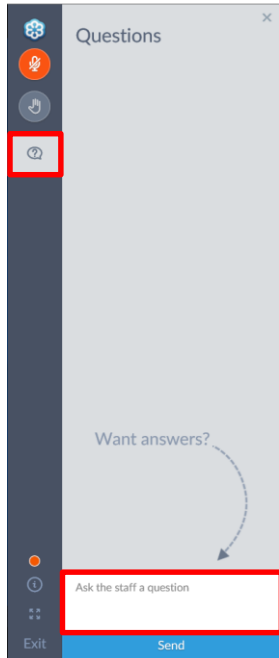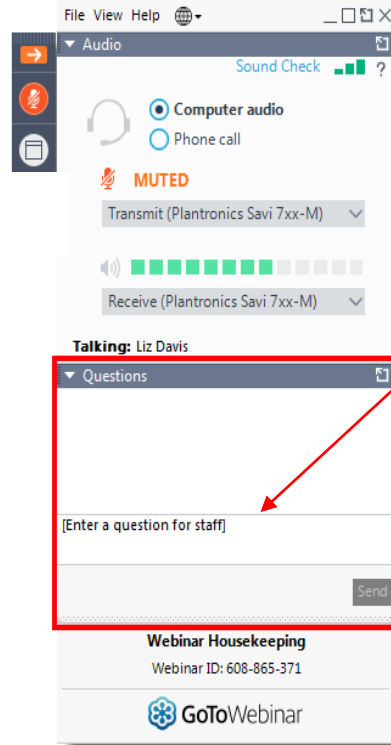
Executive General
Manager,
Equity Post Trade

Karen Hamilton

Manager, Business
Analysis, Corporate
Technology

Keith Purdie

Senior Manager,
Equity Post Trade

Agenda

> Project Update

> Overview of Technical Documentation

> Demonstration on how to navigate the Technical Documentation library

> SWIFT MyStandards and Readiness Portal overview

> Forward work plan for Stakeholder Engagement

> Q&A

ASX

Project Update

ASX

CHESS Replacement Engagement Plan - 2018

Scope of Release

ASX
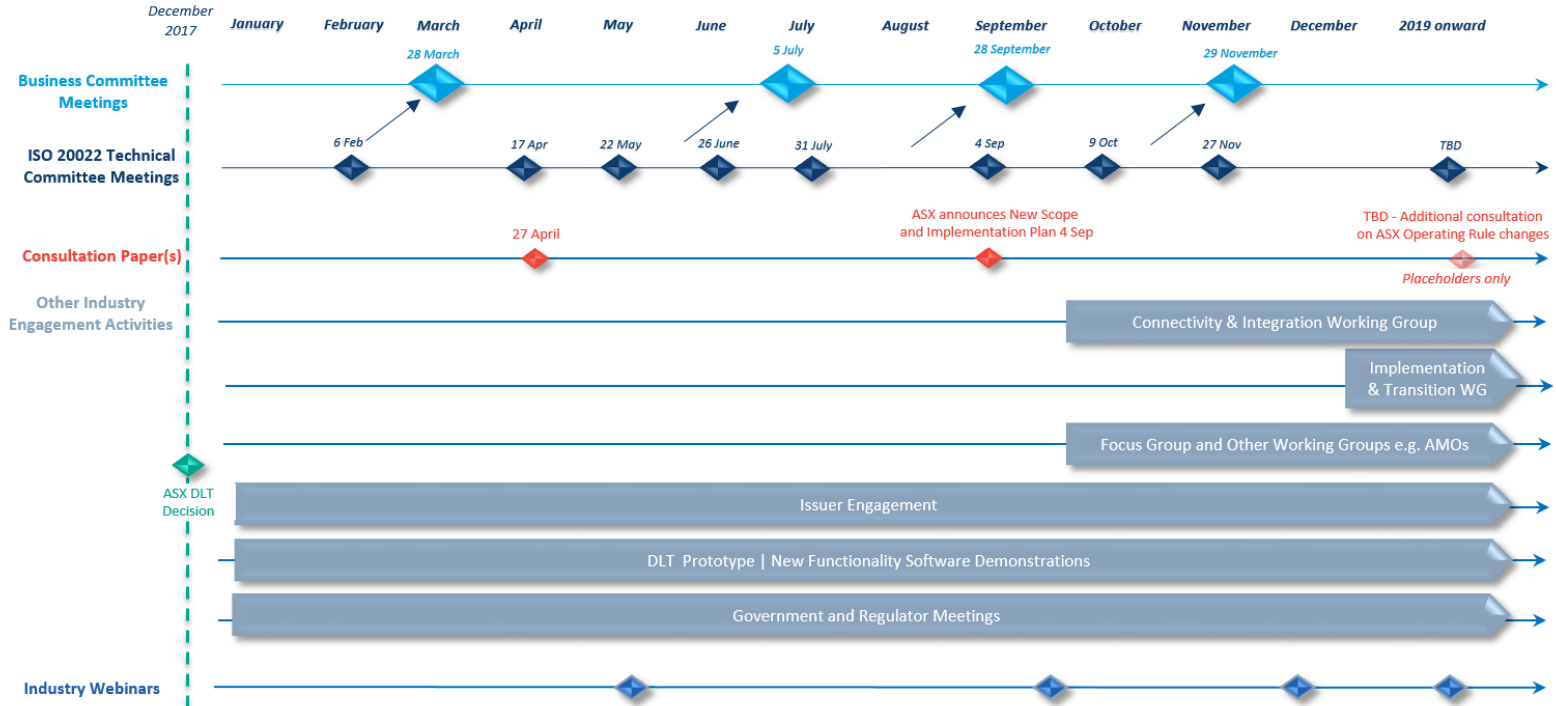
Technical Documentation

Guiding Principles

- Technical Documentation available at least three months prior to incremental software drop.

- ASX committed to six month rolling forward feature view of technical documentation.

- Wiki-style Confluence site replaces static PDFs.

- Dynamic environment enables search facilities and integrated links.

- Access via ASX Online & ASX CHESS Replacement homepage.

- Users register to access documentation.

- Documentation continually enriched & enhanced.

- Release Notes provided.

- Changes between documentation releases on "What's New" section.

- Subsequent documentation releases communicated to registered users.

- Dedicated email address for queries: CSPSupport@asx.com.au

Functional Specifications
Scope for Documentation Release 1

Functional Specifications

- Functional Specifications
  - Account Creation & Modifications
  - Holding Transfers
    - Bilateral Demand
    - Unilateral Demand
    - Bilateral Settlement Instruction
    - Unilateral Settlement Instruction
    - Bilateral Demand Settlement Instruction
  - Settlement Locks
  - Common Business Principles
  - Common Business Values

ASX
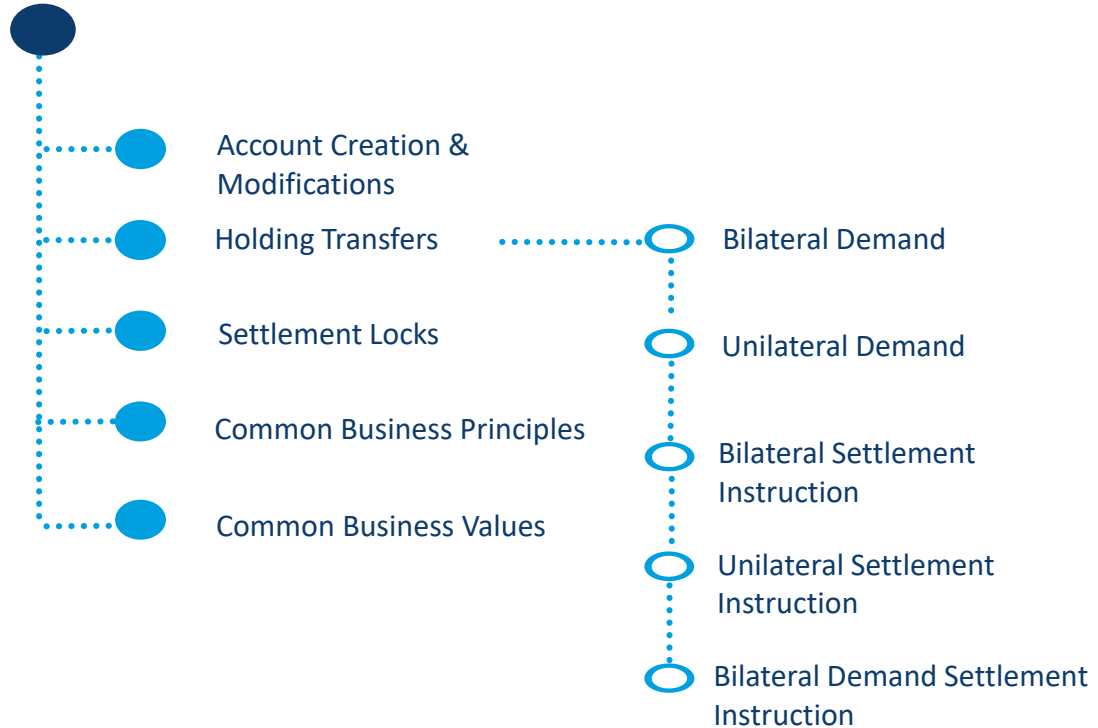
Messaging
Scope for Documentation Release 1

ISO 20022 Messaging

Messaging Catalogue

ISO 20022 Technical Manual

Links to

MyStandards Usage Guidelines

MyStandards User Guides

EIS Cross Reference Guide

ASX Proprietary Code List

ASX Error Code List
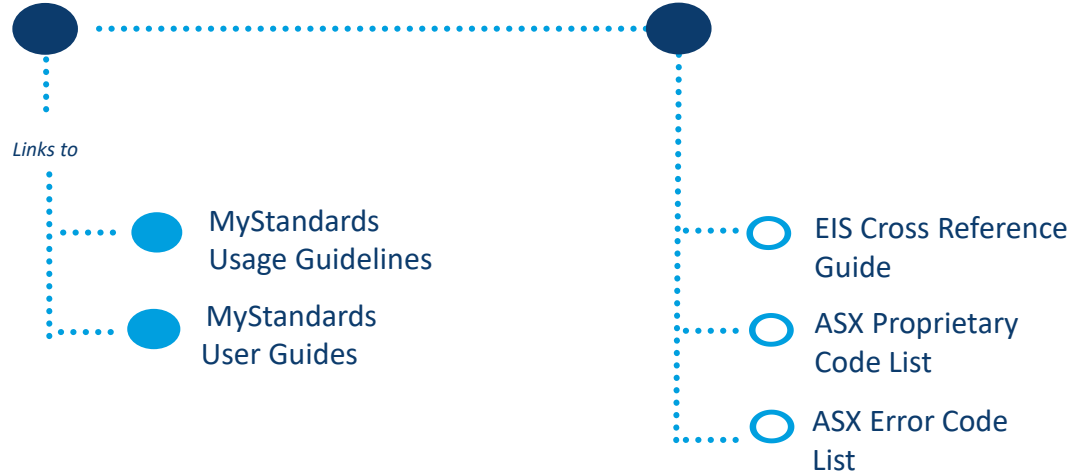
Connectivity
Scope for Documentation Release 1
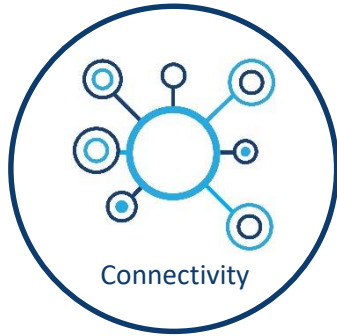
Connectivity Overview

- Direct (Node Integration)
- Advanced Messaging Queuing Protocol (AMQP)
- SWIFTNet Connectivity

Connectivity

ASX

Technical Documentation Overview

ASX
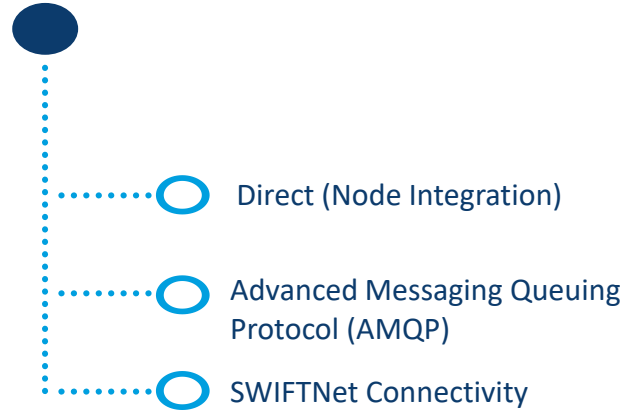
Overview of Technical Documentation
Overview of Current CHESS Documentation

APG Documentation

APG Sections

EIS Documentation

Disaster Recovery

Architecture

Connectivity

Messaging

Overall Documentation

Testing

Release Notes

Environments

ASX
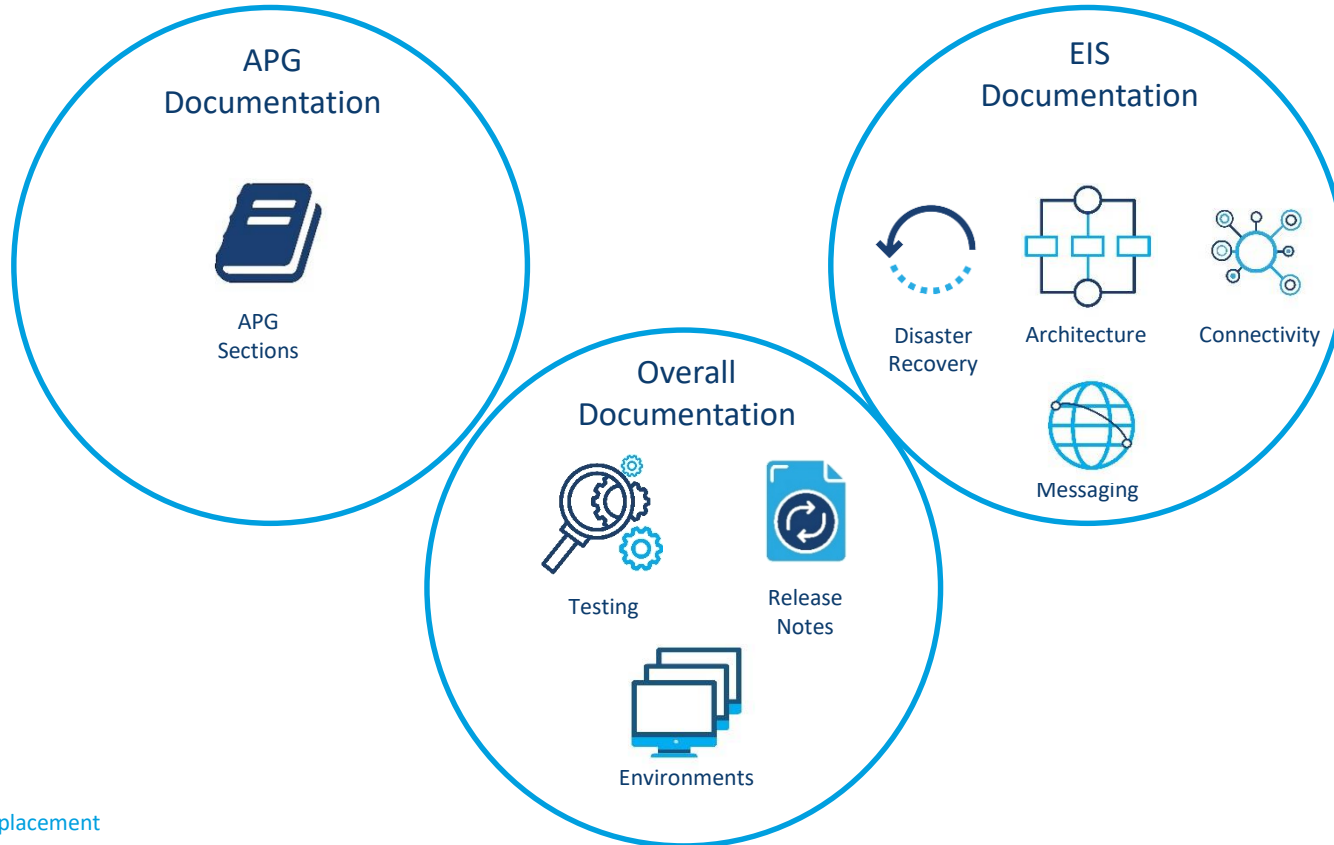
Overview of Technical Documentation
Overview of Documentation Package – Stage 1

APG Replacement Documentation

Changes

Glossary

Functional Specifications

Overall Documentation

What's New

Release Notes

Testing

EIS Replacement Documentation

Environments

Connectivity

Messaging
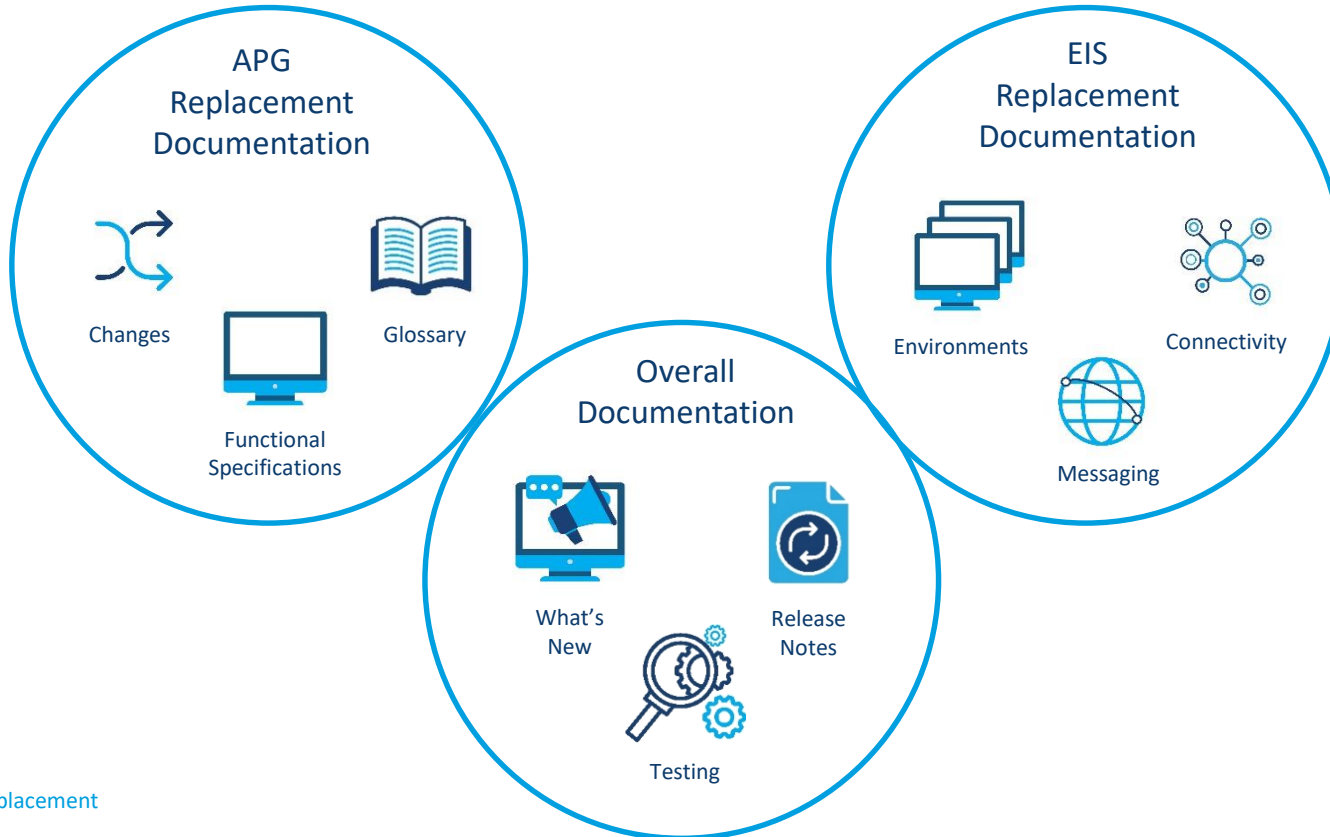
Overview of Technical Documentation

Overview of Documentation Package – Final Stage

APG Replacement Documentation

- Operational Procedures
- Changes
- Functional Specifications
- Glossary

Overall Documentation

- What's New
- Release Notes
- Testing

EIS Replacement Documentation

- Environments
- Architecture
- Connectivity
- Disaster Recovery
- Messaging

ASX
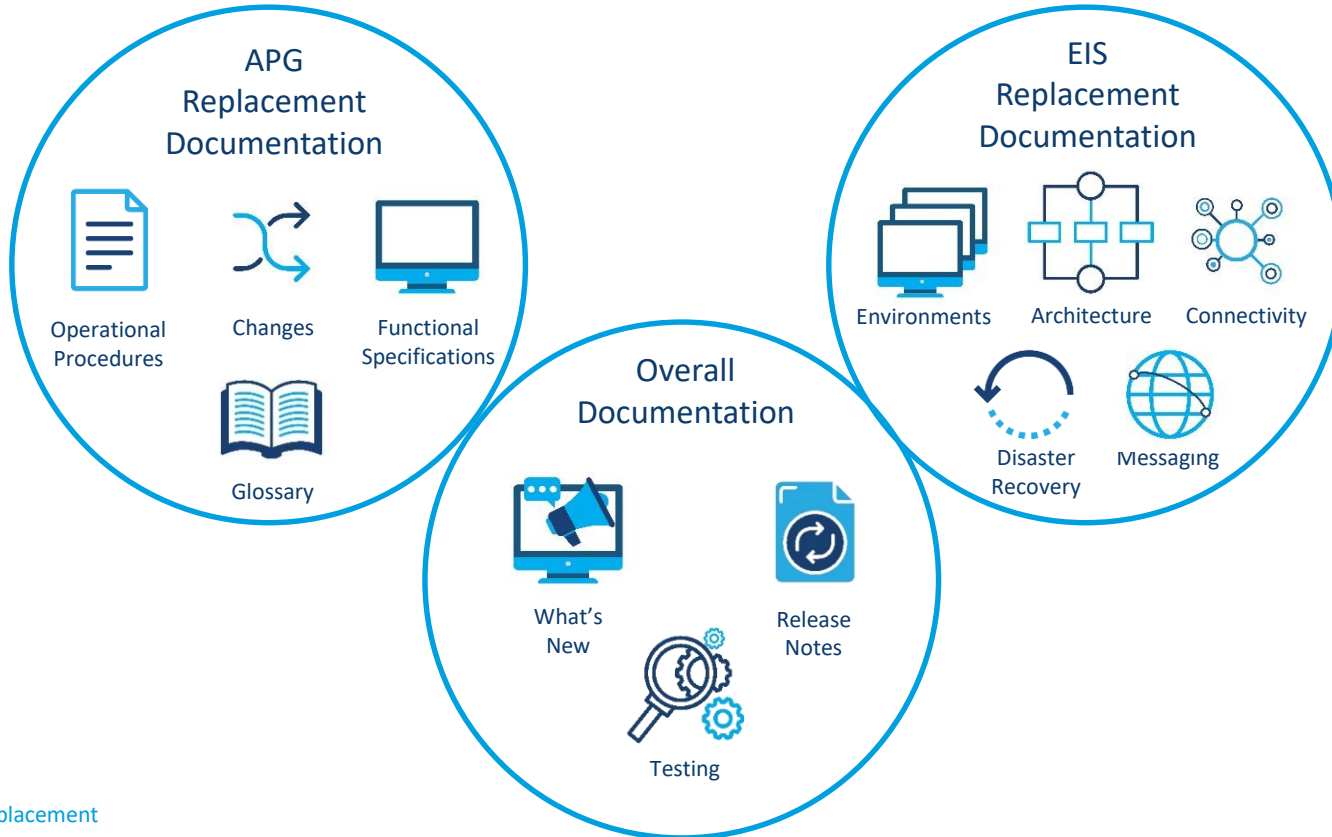
SWIFT MyStandards and Readiness Portal Overview

Nicole Jolliffe

Lead Standards Specialist, SWIFT

http://mystandards.swift.com/

mystandards@swift.com

ASX

Standards are created globally and used locally

MT 54x / sese.023

SMPG guidelines

NMPG guideline

ASX's implementation

MT / ISO20022

Global market practice

Local market practice

Market Infrastructure (MI)-specific practice
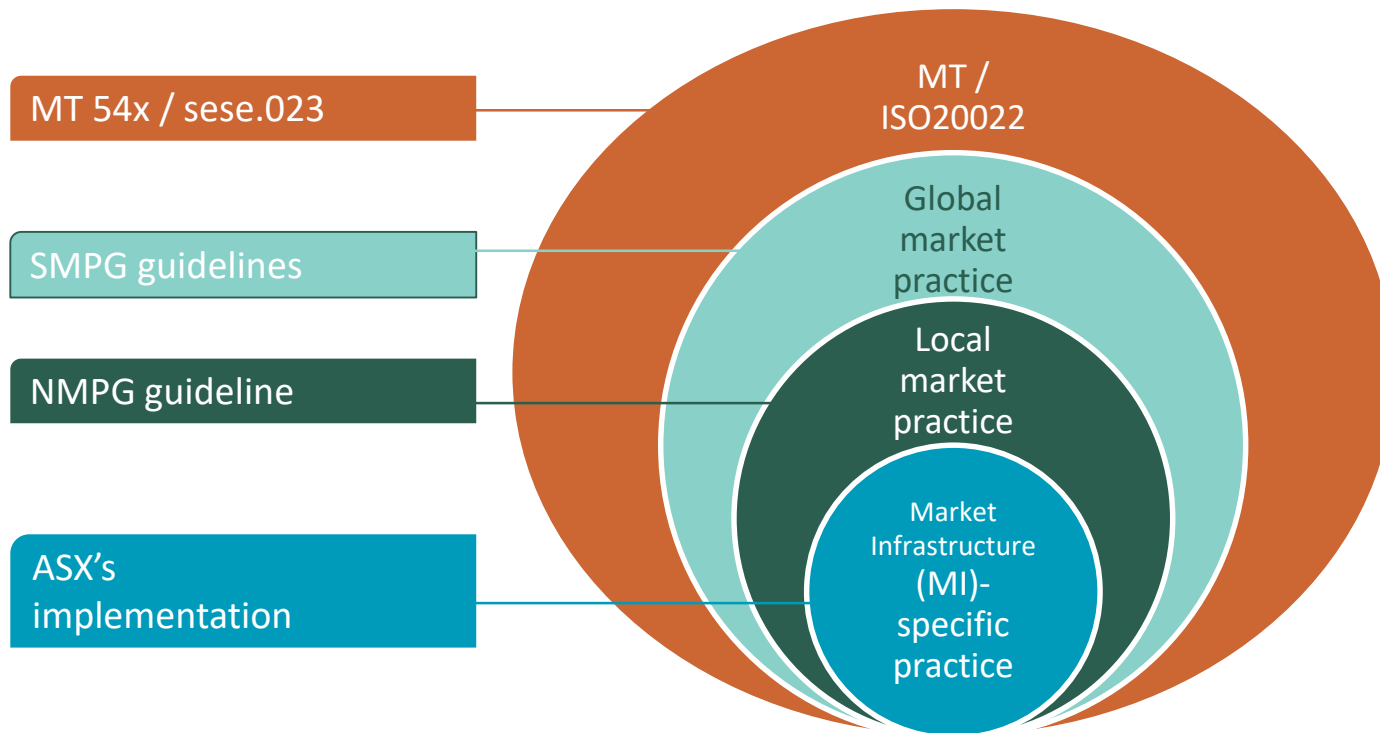
Problems

Fragmentation and **change** of message implementation guidelines

Cost of **onboarding** community

The same problem applies **across different channels**

MyStandards portfolio

A common industry approach to solving Standards-related issues

Consultation

Define MI usage of ISO20022 in **MyStandards** and consult community using SWIFT's **collaborative commenting features**

Education

Publish multi-format **documentation** and powerful **comparisons** to understand MI new format specifications using **MyStandards**

Migration

Onboard community using the **Readiness Portal** and SWIFT Translator to **streamline format translation**

Maintenance

Easy maintenance thanks to **automated impact analysis** and full integration of the **MyStandards** portfolio

ASX

How it works - getting standards-related issues out of the way

Member institution

MT& MX Documentation (online / PDF)

Feedback gathering

Machine specifications (schemas)

FREE ACCESS

Analysts

Implementers & systems

Implementers & testers

(also used by MI's own staff)

MyStandards

1. Market Infrastructure creates and manages/compares/updates specifications in MyStandards

Market Infrastructure

2. Publication for testing in a few mouseclicks

Readiness Portal

Test against specifications over internet
Both Member and MI can monitor completeness and progress.

3. Member can test against MI's message specifications, while they are developing.

ASX

MyStandards in numbers

Industry Adoption

120+
Publishing organisations

40.000+
Registered users

22.000+
Usage guidelines

MyStandards: a central source for all ISO 20022 information

MI implementations published

- T2S / Deutsche Bundesbank
- Clearstream
- Euroclear
- Monte Titoli
- London Clearing House
- ASX
- VP Securities Denmark & VP Lux
- VPS Norway
- DTCC
- National Bank of Belgium
- SGX
- Jasdec
- KDPW
- NSD Russia
- Payments Canada
- SADC / PASA / Bankserv
- HKICL

Market Practices available

- Settlement & Reconciliation
- Corporate Actions (main event types)
- Collateral Management
- Investment funds
- Settlement and related services used by T2S
- High value payments
- HVPS+
- Real Time Payments
- CGI
- SEPA

Product enhancements

- Business Application Header & Supplementary data:
  - Specify and document usage
  - Validate complete message in the Readiness Portal

- Publication of ISO 20022 draft messages in line with new version and release management cycle

ASX

External - Benefits

Faster time to onboard
Faster community testing

Autonomy
No dependency on testing window

Smooth participants experience
Easy to use

Risk Reduction
Reduce production issues

SWIFT MyStandards
Standards made simple

Applies across channels (SWIFT or other)

Validation scope
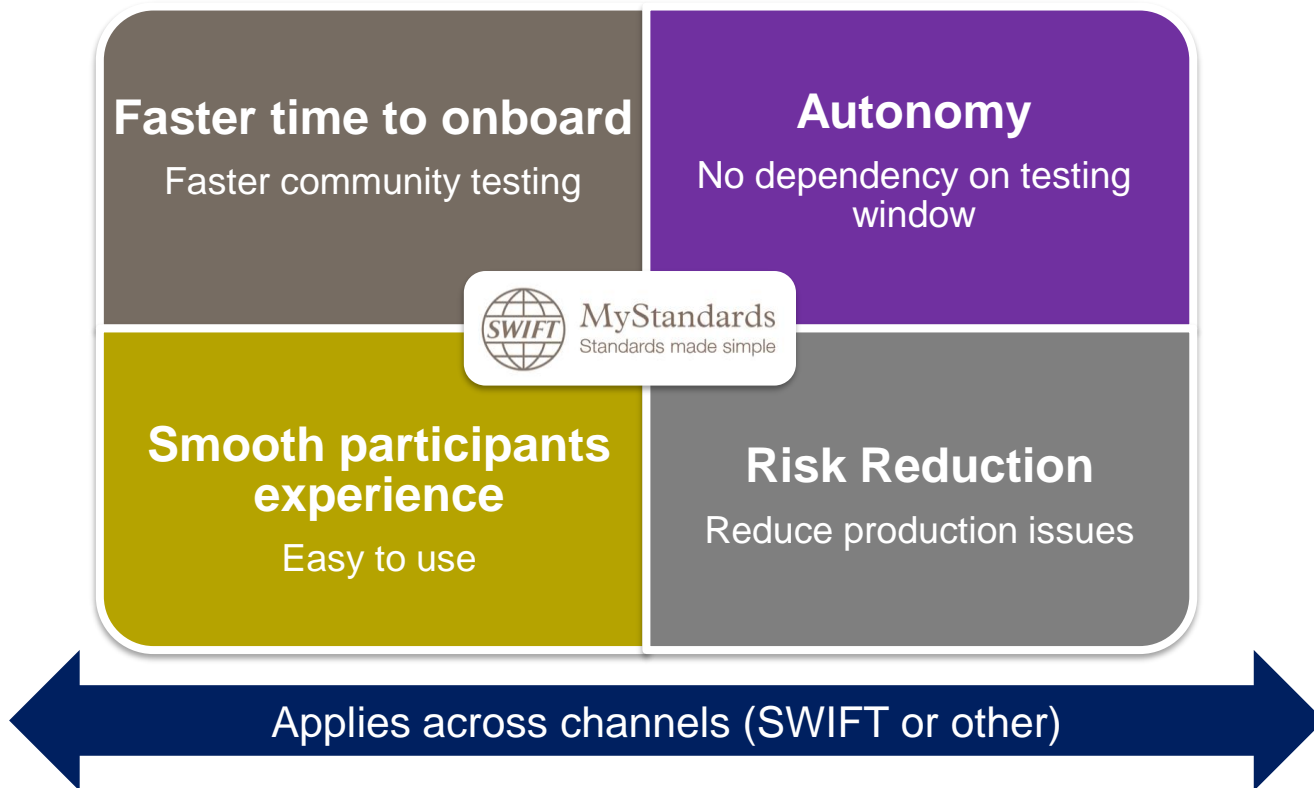
- **Immediate feedback**

- **ISO20022 Base message**
- **ISO20022 cross-element rules**
- **Reference Data (BIC, currencies, countries)**

- **MI restrictions**
- **MI cross-element rules**
  - **Define complex rules (quantifiers, if-then,…)**
  - **Define customized error messages for cross-element rules**

ASX

Screenshots : Readiness Portal

Access to the Readiness Portal

A discovery-based approach to understanding specific formats

1.Discover format issues

2.Easy to fix and re-test

A discovery-based approach to understanding specific formats

A discovery-based approach to understanding specific formats

Next Steps

Samples

History Export

Coverage

Migration

For more information about MyStandards
visit mystandards.swift.com

SWIFT MyStandards and Readiness Portal access

How to request access to the MyStandards Community – ASX CHESS Replacement:

- Email CSPSupport@asx.com.au
  - Include your name, email address (must be a corporate domain)

How to request set up of a Readiness Portal:
- Email CSPSupport@asx.com.au
  - Set up will be by organisation – so please coordinate within your organisation
  - Include your organisation name, all user names and email addresses
  - Users should already be set up in MyStandards, with access already provided to the ASX CHESS Replacement Community

More details on how to access MyStandards, the ASX CHESS Replacement Community and the Readiness Portal have been provided in the Technical Documentation.

Forward Work Plan for Stakeholder Engagement

ASX

Agenda Item 3A - Attachment B

Timeline columns: Dec 18, Jan 19, Feb 19, Mar 19, Apr 19, May 19, Jun 19, Jul 19, Aug 19, Sep 19, Oct 19, Nov 19, Dec 19

Connectivity & Integration Working Group

Customer Development Environment

- 6 Month Feature view 2
- 6 Month Feature view 3
- 6 Month Feature view 4
- 6 Month Feature view 5
- 6 Month Feature view 6
- 6 Month Feature view 7
- Technical Docs 1
- Technical Docs 2
- Technical Docs 3
- Technical Docs 4
- Technical Docs 5
- Technical Docs 6
- Code drop 1
- Code drop 2
- Code drop 3
- Code drop 4
- Code drop 5

Implementation & Transition Working Groups

Kick Off

Focus Group

- AMOs Trade Reg.
- Transfers & Conversions
- Payment Providers

Placeholders: Topic TBD

*Please note this is in draft form and subject to change

Forward Release Plan

CDE Release	Tech Doc. Release	Code Release	Capabilities / Features
CDE Release 1	December 2018	April 2019	Foundation Set-Up / Onboarding Account and Holders Demand Transfers
CDE Release 2	March 2019	June 2019	Trade Capture Trade Registration Novation
CDE Release 3	May 2019	August 2019	To be provided February 2019
CDE Release 4	July 2019	October 2019	To be provided April 2019
CDE Release 5	September 2019	December 2019	To be provided June 2019
CDE Release 6	November 2019	February 2020	To be provided August 2019
CDE Release 7	February 2020	May 2020	To be provided October 2019

ASX
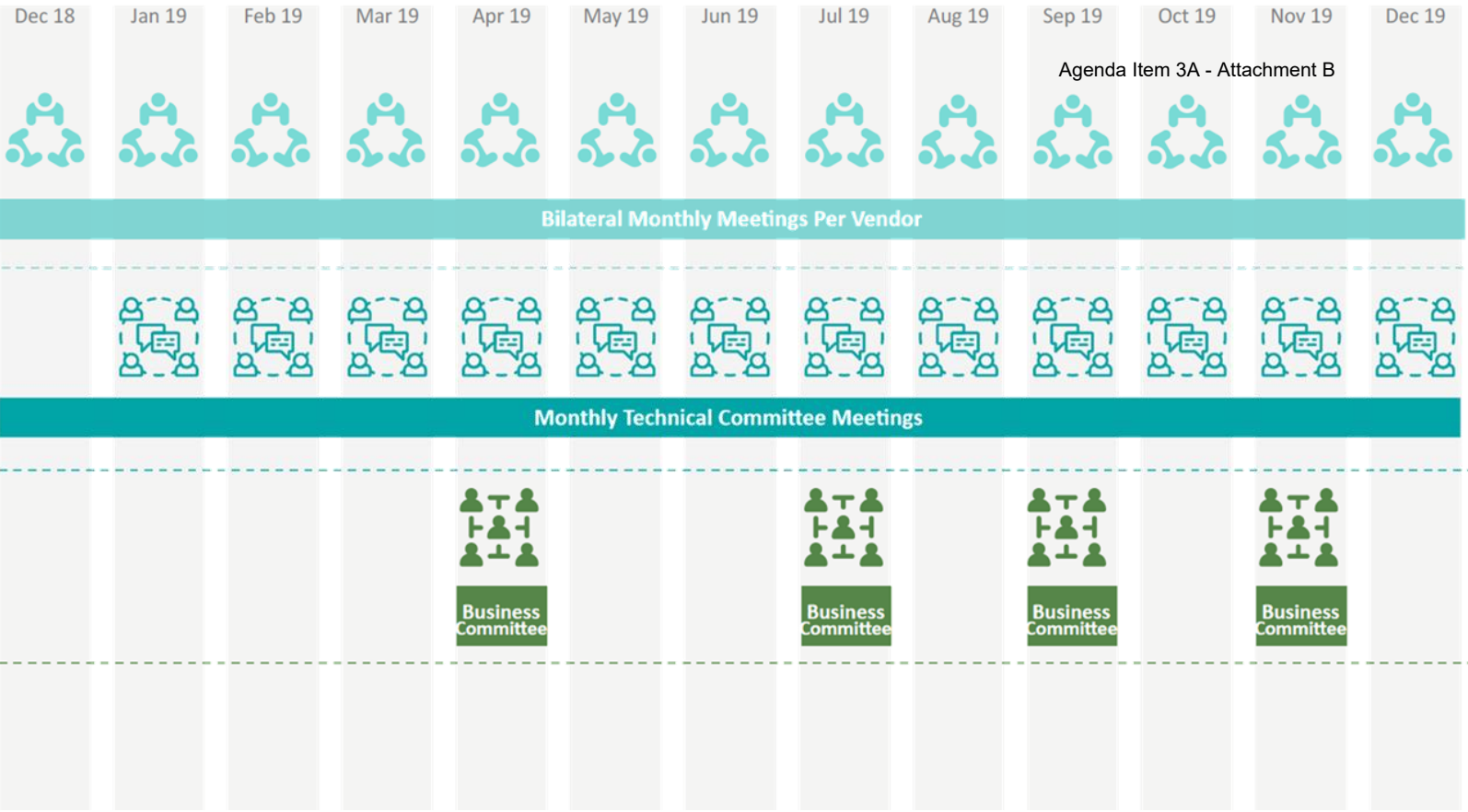
Agenda Item 3A - Attachment B

Q&A

ASX

Closing

> Technical documentation to be made available by end of the week – this will be announced by email

> Forward calendar of events will be updated on CHESS Replacement web page

> Webinar recording and slides will be published to CHESS Replacement webpage

> Contact **CSPSupport@asx.com.au** with any queries related to technical documentation

> Contact **CHESSReplacement@asx.com.au** with any other matters

ASX

Thank you.

ASX

Disclaimer

This document provides general information only. ASX Limited (ABN 98 008 624 691) and its related bodies corporate ("ASX") makes no representation or warranty with respect to the accuracy, reliability or completeness of the information. To the extent permitted by law, ASX and its employees, officers and contractors shall not be liable for any loss or damage arising in any way (including by way of negligence) from or in connection with any information provided or omitted or from anyone acting or refraining to act in reliance on this information. The information in these slides is confidential and should not be disclosed to or shared with any third parties without the prior written permission of ASX.

© 2018 ASX Limited ABN 98 008 624 691

CHESS Replacement Project

Connectivity & Integration Working Group

5th February 2019

ASX

Important Information – Competition Law Policy

Working group members are reminded to have regard to their obligations under competition law. In particular, please note recent changes to the Competition and Consumer Act to prohibit a corporation from engaging with one or more persons in a concerted practice that has the purpose, effect or likely effect of substantially lessening competition.

Agenda

> 2019 Engagement Plan

> Technical Documentation

> Connectivity Options Re-cap

> ASX Net Requirements / Overview

> ISO Message Signing

> CDE Overview

> Future Topics

> Q&A

ASX

2019
Stakeholder Roadmap

ASX

CHESS Replacement Project update
Engagement plan 2019
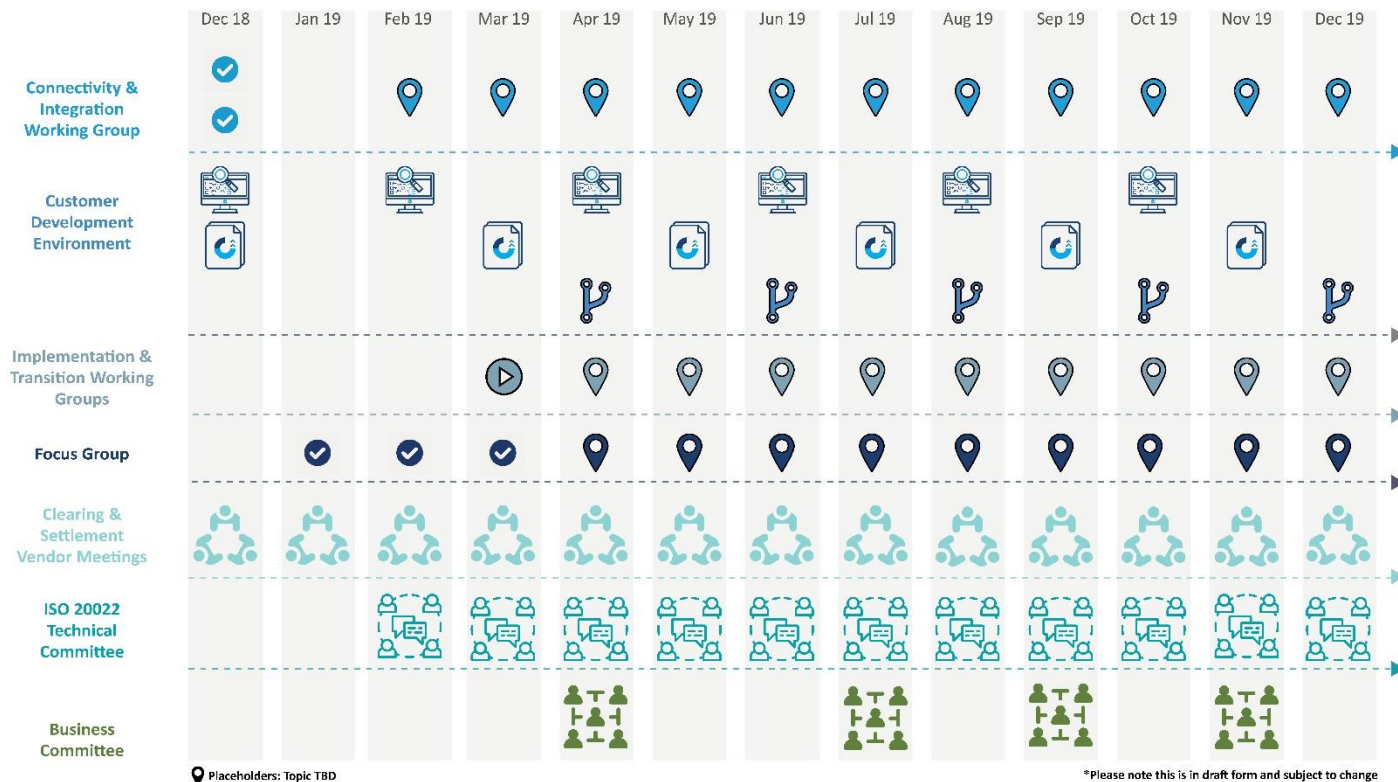
Placeholders: Topic TBD

*Please note this is in draft form and subject to change

Technical Documentation

ASX

Re-cap on Technical Documentation release December 2018

- **Technical Documentation hosted on a Wiki- style Confluence site went live on Friday 14th December**

- **Included functionality available in CDE Drop 1, scheduled for April 2019**

- **A six month rolling forward feature view of technical documentation was also provided**

- **Wiki-style Confluence site replaces static PDFs**

- **Dynamic environment enables search facilities and integrated links**

- **Access via ASX Online & ASX CHESS Replacement homepage**

- **Users register to access documentation**

- **https://www.asx.com.au/services/chess-replacement-technical-documentation.htm**

- **Documentation continually enriched & enhanced**

- **Release Notes provided**

- **Changes between documentation releases on "What's New" section**

- **Subsequent documentation releases communicated to registered users**

- **Dedicated email address for queries: CSPSupport@asx.com.au**

Connectivity Options

ASX

Connectivity Options

Connectivity – Focus Groups
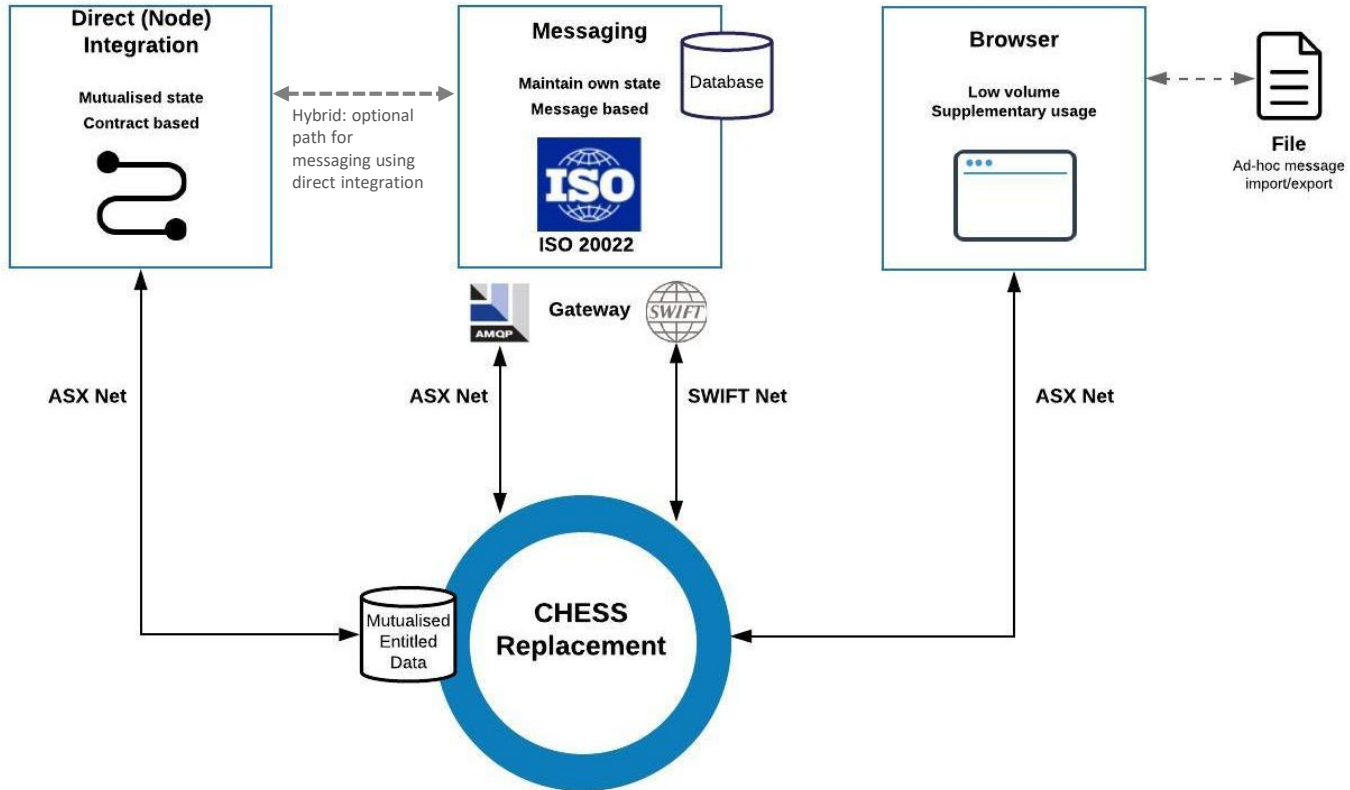
Real Time Non-Batch Settlement (Payment Providers Only)

- As part of the new solution real-time non-batch settlement will be introduced
- ASX reviewing New Payments Platform (NPP) or an RTGS style solution

Approved Market Operators (AMOs - Only)

- FIX message format will be used by all AMOs for trade registration and cancellation
- All AMOs subject to the same business rule validation and logic implemented once in the DLT
- Standard FIX Gateway features will be used for non ASX affiliated AMOs
- Connectivity via ASX Net

ASX Net

ASX

Connectivity Requirements

CDE – Customer Development Environment (from April 2019)

- **ASX Net**

- **IPSec VPN (Internet)**

- **SWIFTNet**

Majority of current CHESS participants have ASX Net within their organisation today however not all participants connect to CHESS via ASX Net

IWT – Industry Wide Testing (from July 2020)

- **Production style connectivity needs to be in place prior to IWT connectivity**

ASX

ASX Net

ASX Net Community

- Connected community of over 120 ASX Net customer sites Australia wide

- Broad range of data vendors, venues and ISVs over ASX Net

- ASX Net Global providing access to financial centres across the globe

ALC – Data Centre

- Dedicated to Australia's financial markets community

- 24/7 end to end customer support

- 100 + ALC customers making the ALC the most connected financial market ecosystem in Australia

Performance

- Low latency, high availability

- Quick access

- Increasing business agility and helping customers reduce risk, complexity, cost

ASX

Next Steps

Clients requiring ASX Net should start their planning activities now.

- **For new clients they should contact Adam Bradley adam.bradley@asx.com.au or CHESSReplacement@asx.com.au**

- **For clients who have ASX Net but don't use it for CHESS today consideration should be given to migrating now**

- **Participants need to be mindful of lead times for implementation of infrastructure and current contract commitments if they use another VPN providers**

ASX

ISO 20022 XML Message Signing

ASX

Agenda

> Messaging Challenges

> Creating a Signature

> Message Signature XML Tag

> Canonical Form

> Validating Signatures

> Key Takeaways

Messaging Challenges

ASX's DLT

- **Stores transactions and events on an immutable ledger**

- **Receives messages from multiple customers and systems**

Key challenges

- **Prevent impersonation of originator through multiple systems**

- **Guarantee message authenticity**

- **Provide audit trail in event of a dispute**

Message Signing provides data integrity, authentication, and non-repudiation for ISO 20022 XML messages

Direct Ledger integration will have a similar signature feature

Creating a Signature

```
<BizMsg>
  <AppHdr>
  </AppHdr   >
  <   Document>
  </Document>
</BizMsg>
```

Canonicalise XML Message

```
<BizMsg>
  <AppHdr>
  </AppHdr>
  <Document>
  </Document>
</BizMsg>
```

SHA256 Digest

```
AEE611F6BE505
981E342AB31CB
45AEE0FFC4377
306E00B14910A
71F320F099D3
```

Encrypt with Private Key

```
1B5E77FCF07C1
CB5A11CAD3C85
3FAED6BB170BF
7ABF51708A272
7BE8A28C1DDF
```

Becomes <SgntrValue> Field
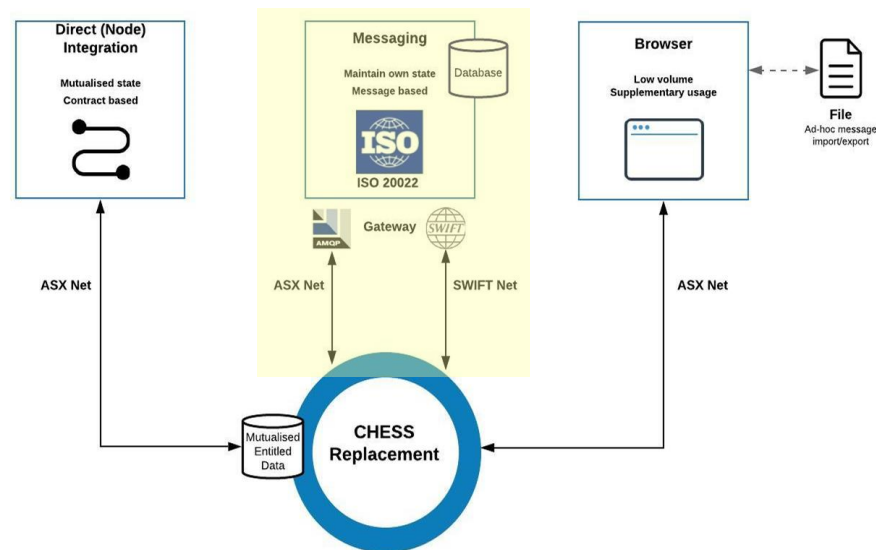
Normalize XML

- **Standardise XML formatting prior to signing**
- **Ensures validator processes without breaking signature**

Data Integrity

- **Guarantees message has not been altered in transit**
- **Allows for audit of message**

Authentication and Non-repudiation

- **Guarantees message actually came from sender**
- **Sender can't deny sending or signing message**

AMQP users note, business message wrapper is not included in the signature calculations

ASX

Message Signature XML Tag

Wildcard Signature Inclusion

Full ISO 20022 XML Signature Section

```xml
<?xml version="1.0" encoding="UTF-8"?>
<BizMsg xmlns="urn:iso:std:iso:20022:tech:xsd:head.002.001.01" xmlns:xsi="
    <AppHdr xmlns="urn:iso:std:iso:20022:tech:xsd:head.001.001.01" xmlns:
        <Fr>…
        </Fr>
        <To>…
        </To>
        <BizMsgIdr></BizMsgIdr>
        <MsgDefIdr>DRAFT6reda.018.001.01</MsgDefIdr>
        <BizSvc>acct_001_001_02_!p</BizSvc>
        <CreDt></CreDt>
        <Sgntr>
            <n1:auto-generated_for_wildcard/>
        </Sgntr>
```

```xml
<!-- signature section not included in the calculation for business application header signing -->
<Signature xmlns="http://www.w3.org/2000/09/xmldsig#">
    <SignedInfo>
        <CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-c14n2#"/>
        <SignatureMethod Algorithm="http://www.w3.org/2001/04/xmldsig-more#rsa-sha256"/>
        <!--this reference section contains digest of KeyInfo section -->
        <Reference URI="#Unique-id-to-KeyInfo" Type="http://www.w3.org/2000/09/xmldsig#KeyInfo">
        </Reference>
        <!-- this reference section contains digest of ISO 20022 XML business application header section -->
        <Reference URI=""> …
        </Reference>
        <!-- this reference section contains digest of ISO 20022 XML document section -->
        <Reference URI=""> …
        </Reference>
    </SignedInfo>
    <SignatureValue><!-- value from signing and encryption of <SignedInfo> section --></SignatureValue>
    <KeyInfo Id="Unique-id-to-KeyInfo"> …
    </KeyInfo>
</Signature>
```

Canonical Form

Canonicalisation:

- **Places attributes in alphabetical order, normalises spacing and quotes**

- **UTF-8 encoding**

- **New line character used as return**

- **Encodes empty elements a start and end pairs**

Examples:

- **<class = 'x'   action ="z"> becomes <action="z" class="x">**

- **Uses minimum of one byte for character encoding**

- **Lines end in 0x0A**

- **<element /> becomes <element></element>**

Many common cryptography libraries will use the defined canonicalisation method in the signature section and perform operations automatically.

Validate Signature
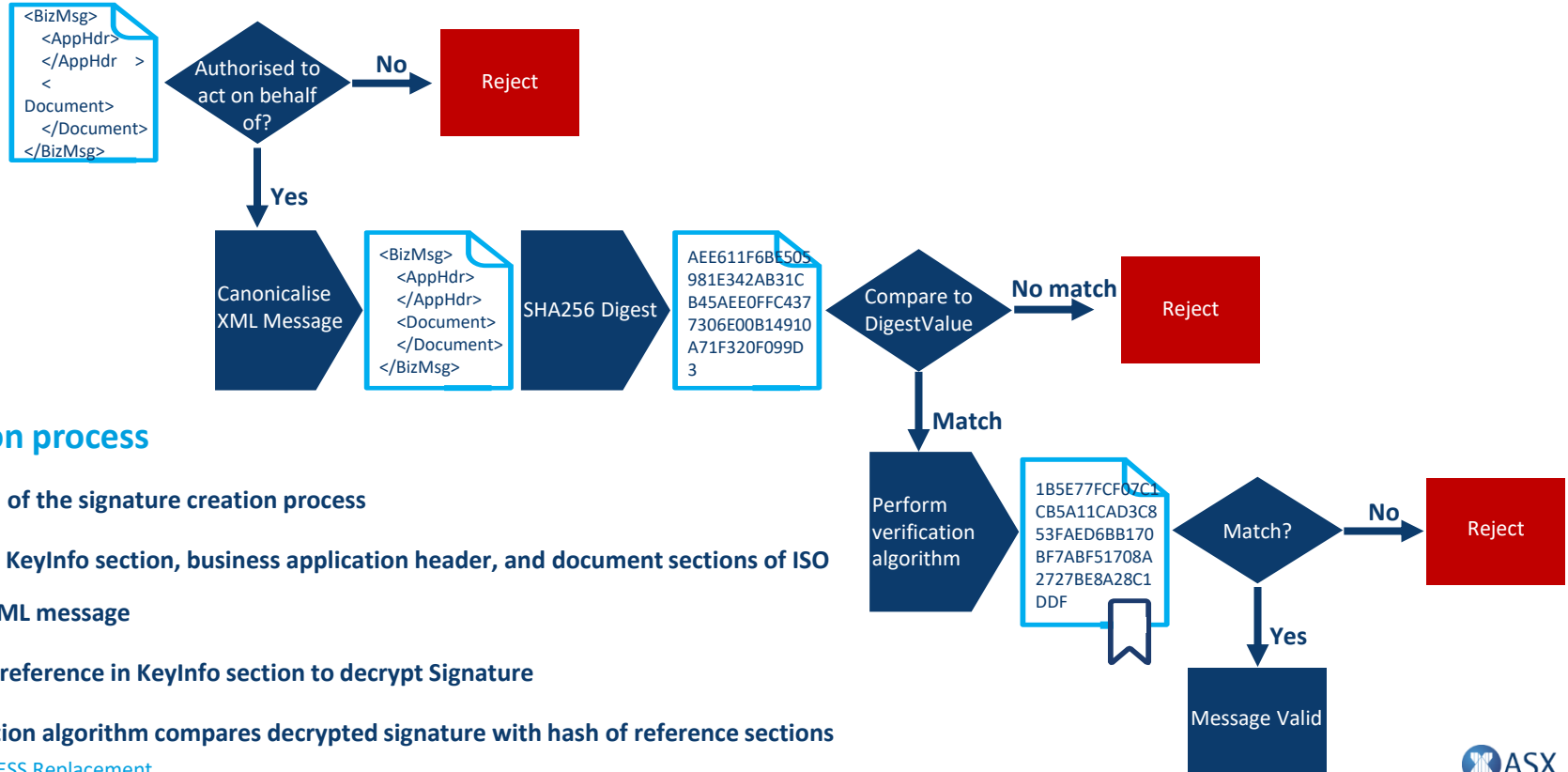
Validation process

- **Reversal of the signature creation process**

- **Validate KeyInfo section, business application header, and document sections of ISO 20022 XML message**

- **Use key reference in KeyInfo section to decrypt Signature**

- **Verification algorithm compares decrypted signature with hash of reference sections**

Key Takeaways

- **Message signing provides data integrity, authentication, and non-repudiation for ISO 20022 XML messages**

- **Message signing process normalizes, digests, and encrypts information within the KeyInfo, BizMsg, and Document sections of the ISO 20022 XML message**

- **AMQP users should not include the business message wrapper in the message signature creation process**

- **Common cryptography libraries have the ability to create a signature of defined XML sections based on a provided signing private key**

CDE - Overview

ASX

CDE 1 - Overview

Next Working Group will focus on CDE 1 (Wednesday 6th March)

Key concepts;

- CDE is a development environment both from an ASX and participant perspective

- Each participant or vendor will be provided access to their own dedicated test environment

- Drop one will support all key connectivity options, Direct, AMQP, SWIFTNet

- UIC's will be pre-configured allowing participants to play different roles (base static, securities, calendar will be hydrated)

- Functionally; account creation, unilateral & bilateral functionality will be available

- Data within CDE environments will not be retained when upgrading to future releases, i.e. CDE2, 3 etc., (or in the event of a restart) therefore clients should develop re-runnable scripts that allow them to re-run tests

ASX

Future Topics

ASX

Future Topics

- **Infrastructure Requirements (hardware)**

- **Direct Connectivity**

  - **ISO to DAML**

  - **Ledger Event Streaming**

  - **ODS / ADS**

- **AMQP – recommended design pattern**

- **Multi-Channel Support**

- **Browser**

- **Security**

- **Non-Functional Requirements**

Q&A

ASX

Thank you.

ASX

Disclaimer

This document provides general information only. ASX limited (ABN 98 008 624 691) and its related bodies corporate ("ASX") makes no representation or warranty with respect to the accuracy, reliability or completeness of the information. To the extent permitted by law, ASX and its employees, officers and contractors shall not be liable for any loss or damage arising in any way (including by way of negligence) from or in connection with any information provided or omitted or from anyone acting or refraining to act in reliance on this information.

© 2019 ASX Limited ABN 98 008 624 691

CHESS Replacement Project

Connectivity & Integration Working Group

6th March 2019

ASX

Important Information – Competition Law Policy

Working group members are reminded to have regard to their obligations under competition law. In particular, please note recent changes to the Competition and Consumer Act to prohibit a corporation from engaging with one or more persons in a concerted practice that has the purpose, effect or likely effect of substantially lessening competition.

Agenda

> CDE Overview

> CDE Application Process

> CDE Connectivity

> CDE Drop 1 Included Functionality

> CDE Testing

> Q&A

CDE Overview

ASX

CDE Environment - Overview

The Customer Development Environment (CDE) provides users with an initial test environment for functional and low volume usage.

- **CDE drop 1 is a development environment both from an ASX and participant perspective**

- **The first CDE release (CDE drop 1) is targeted for April'19**

- **ASX will incrementally add functionality every 2 months up to May'20**

- **Each Clearing & Settlement Platform (CSP) user will be provided access to their own dedicated test environment**

- **UIC's will be pre-configured allowing users to model different roles**

- **Data within CDE drop 1 will not be retained when upgrading to future releases, i.e. CDE drop 2, 3 etc., (or in the event of a restart) therefore clients should develop re-runnable scripts that allow them to re-run tests**

- **All primary connectivity options will be supported from CDE drop 1, Direct, AMQP and SWIFTNet**

CDE Overview - Architecture

CSP CDE DROP 1 TEMPLATE

UIC: 01100
UIC: 01102
UIC: 20001
Etc...

SEC: AMP
SEC: BHP
SEC: CBA
Etc...

CSP User A

UIC: 01100
UIC: 01102
UIC: 20001
Etc...

SEC: AMP
SEC: BHP
SEC: CBA
Etc...

CSP User B

UIC: 01100
UIC: 01102
UIC: 20001
Etc...

SEC: AMP
SEC: BHP
SEC: CBA
Etc...

CSP User C

UIC: Supplied
UIC: Supplied
UIC: Supplied
Etc...

SEC: AMP
SEC: BHP
SEC: CBA
Etc...

CONNECTIVITY LAYER

ASX NET
(DIRECT/AMQP)

ASX NET
(DIRECT/AMQP)

SWIFTNet
(SWIFT)

ASX

CDE Environment – Key points

Environment

- Each CSP user will have access to their own dedicated CDE

- ASX have architected CSP to support future use cases supporting multiple CDEs per user

- Note, this means all users will have the same set of UICs (except SWIFTNet users)

- Multiple UICs allow CSP users to test bilateral message flows within their own environment but not with other CSP users, the test auto-responder can also be used for auto-matching

Functional versus non-functional

- Functional only environment for low volume message testing and should not be used for performance testing

- Does not contain enterprise security, resilience or fail-over models

- Should not be used for non-functional testing

ASX

CDE Environment – Key points

Security

- **ASX Net and IP Sec VPN (direct and AMQP) will be secured with TLS**

- **SWIFTNet will use existing enterprise level security**

- **ISO signatures will not be implemented for CDE drop 1**

Data

- **No CHESS production configuration or account data to be used in CDE**

- **CDE environments will be seeded with base static (calendars and securities)**

- **CSP user transactional data will not be migrated when CDE environments are upgraded**

- **Where a CDE environment is refreshed CSP transactional data will not be persisted, therefore users should develop re-runnable scripts to seed environments with their own test data**

- **CDE includes test auto-responders allowing users to simulate bilateral test scenarios**

ASX

CDE Application Process

ASX

CDE - Forms

Forms

- **Subscriber Technical Access agreement**

- **CDE Application including SWIFTNet Appendix**

Please return both these completed forms to your Business Development Manager

SWIFTNet Subscription

- **SWIFTNet closed user group (CUG) order**

SWIFTNet – Subscription to Closed User Group

- **SWIFT Users can connect using Market Infrastructure Closed User Group (CUG) on InterAct network**

- **To subscribe go to SWIFT.com and order "ASX Clearing Settlement Platform (Test) !pilot service"**

- **Requires ordering rights granted by your SWIFT.com administrator**

- **Participant nominates a connected Institutional "BIC8" as part of the SWIFTNet address (Distinguished Name)**

- **ASX approves CUG request and configures CDE environment**

- **Standard traffic billing by SWIFT with reimbursement by Participant of certain ASX expenses**

CDE Connectivity

ASX

Connectivity Overview

TLS Authentication
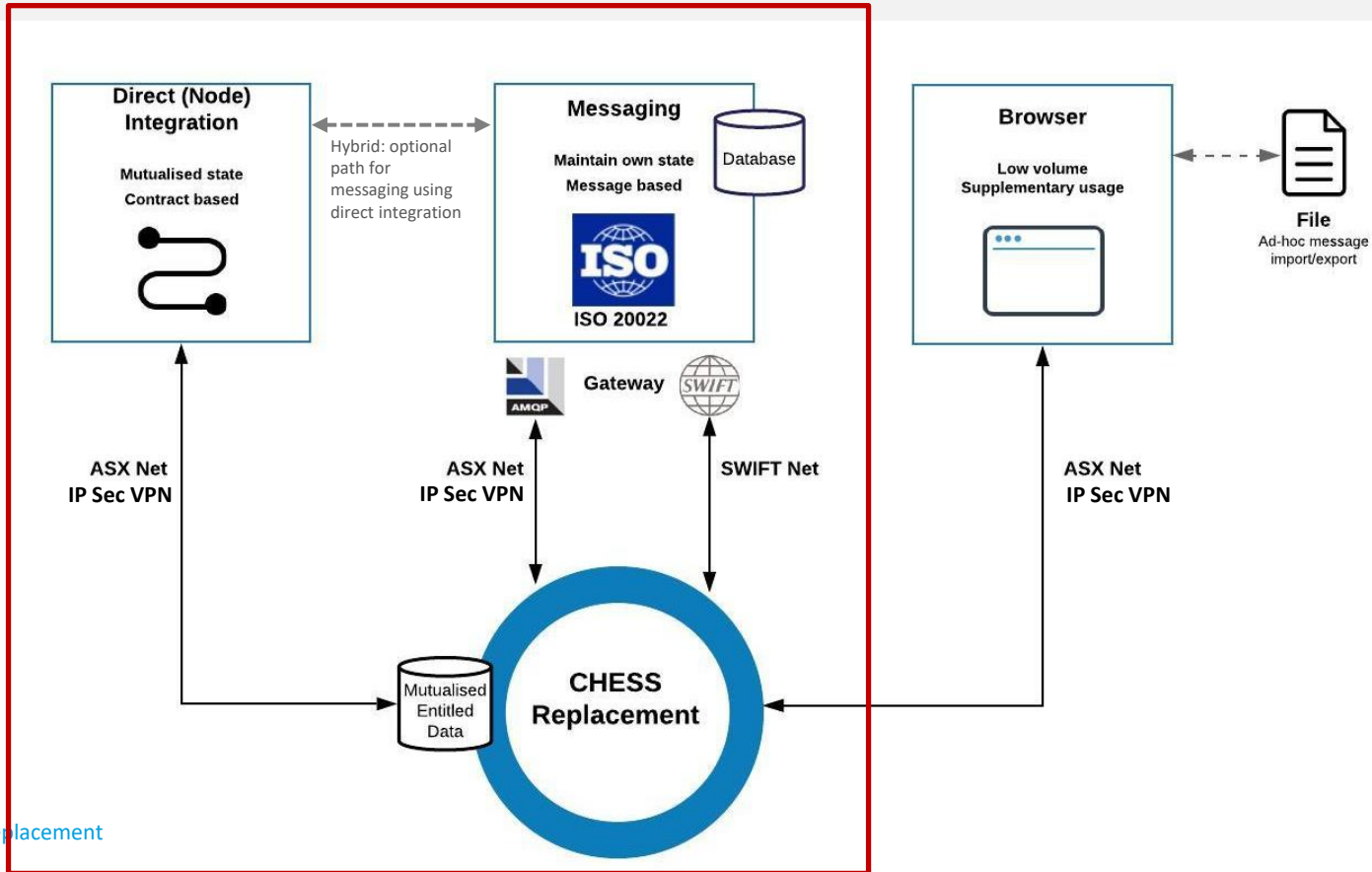
- **TLS (Transport Layer Security) Authentication is required for both ASX Net & IPSec VPN (covering both AMQP and direct)**

- **ASX will issue certificates for TLS for CDE drop 1**

- **Deployed as .pfx file (private, public key, issuing certificate public key, root certificate's public key)**

- **Files will be deployed using an ASX sFTP server**

- **Certificates can be uploaded onto a client side server connecting to CSP (for example JAVA key store) or for clients with an enterprise grade key store they can be uploaded here**

- **Certificates are valid for 2 years**

- **ASX will become a Certificate Issuing Authority (CA) in the future *subject to security approval**

- **Note SWIFTNet does not require any additional certificates**

AMQP Architecture

Features

- **Four dedicated, durable queues per customer (two for CDE drop 1)**

- **All queues hosted by the ASX**

- **ASX will define user queues and endpoint naming convention**

- **Access ASX Net (or IP Sec VPN)**

- **Recommendation to implement a synchronous message model for CDE 1 drop 1**

- **ASX working on a design pattern to ensure market consistent model for resiliency and failover**

ASX Provided

ASX firewall

User 1 System

custID.cde.posttrade.csp.amqp.trx.request

custID.cde.posttrade.csp.amqp.rpt.request

custID.cde.posttrade.csp.amqp.trx.notify

custID.cde.posttrade.csp.amqp.rpt.notify

SWIFTNet – Addressing InterAct Messages
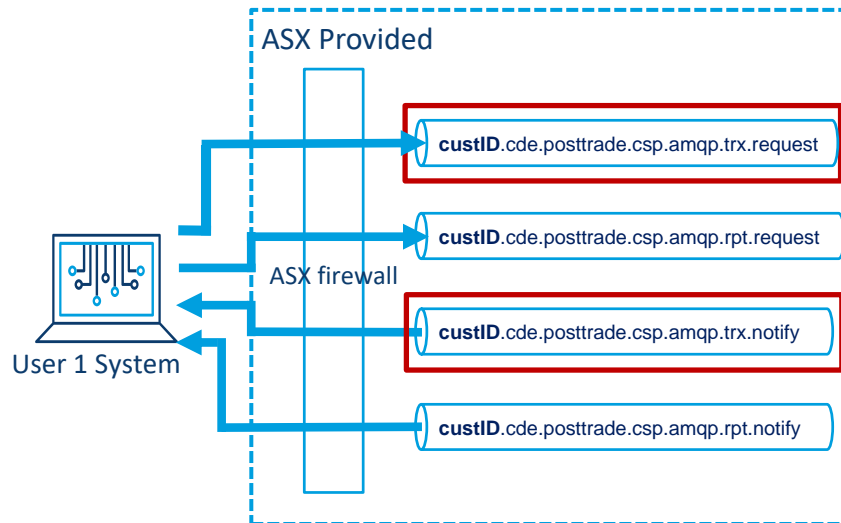
- **InterAct addressing uses**
  - <Requestor> (Sender)
  - <Responder> (Receiver)
  - <Service> name

- **CDE messages from ASX will have:**
  - <Requestor> value of ASX's "CDE" Distinguished Name "ou=cde,ou=asx-csp,o=xasxau2s,o=swift"
    - "ou=cde" is an environment segment to segregate CDE from other !pilot CUG traffic
  - <Responder> value of the Participant's "CDE" Distinguished Name (DN)

- **CDE messages to ASX must have:**
  - <Responder> value of ASX's "CDE" DN and
  - <Requestor> value of Participant's "CDE" DN
  - Participant "CDE" DN in the format "ou=cde,ou=asx-csp,o=<YourBIC>,o=swift"

- **Any SWIFT Users that aren't able to configure the full Participant "CDE" DN should consult ASX**

CDE Drop 1 Functionality

ASX

CDE Drop 1 - Static Configuration

CDE drop 1 has been populated with the following static data to help facilitate testing.

- **ASX settlement calendar**

- **UICs – a range of UICs has been created to support CSP testing including;**

  - Trading, Clearing and Settlement

  - Third Party Clearing

  - Account Participants

  - etc.

- **Securities – incl. equities, fixed interest securities, convertible notes, company options. Warrants and mFunds will be included in subsequent releases**

- **Entrepots and Accounts (HINs)**

ASX

CDE Drop 1 - Initial Functionality

CDE drop 1 contains the following functionality.

- **Account Opening (Entrepots and Accounts)****

- **Unilateral demand transfers**

- **Bilateral demand transfers**

- **Bilateral Demand Settlement Instructions**

** ASX currently reviewing account opening process as part of stakeholder feedback

CDE Testing

ASX

Testing Approach – Offline to Online

Offline: xml validation

- **Sample business messages for each ASX Usage Guideline are attached to each message collection in MyStandards.**

- **Test documents can be validated 'offline' by parsing the xml against the xml schema (.xsd) using:**

  - xml editor and schema package exported from MyStandards and/or

  - MyStandards Readiness portal
    - This SWIFT tool is integrated with the message definitions and locates errors within the Usage Guideline

Online: xml, business validation and workflow

- **Test business messages (Business Application Header and Document) can be sent through the nominated channel(s) to the CSP environment for processing.**

- **xml and business rule validations are applied as part of the business event workflow and response messages returned to the sender**

ASX

Test Auto-Responders

- **Allows a testing party to have a bilateral request matched and transfer units to or from a HIN**

- **Available from Drop1 for:**
  - Bilateral Demand Transfer (hold.201) and
  - Bilateral Demand Settlement Instruction (sett.105)

- **For auto-matching, requests sent <To> ASX (UIC format "00001") with Delivering/Receiving Settlement <Party1> of "99000"**

- **Auto responder will "mirror" the allegement with a matching Request**

- **For a hold.201, a Demand Transfer Confirmation (hold.202) results and the units are moved to the Receiver's Account (HIN)**

- **For a sett.105, a Settlement Instruction Response (sett.106) results but a payment is required for DvP**
  - In CDE Drop 1, the Payment Service process is automated with Settlement Amounts <= $100,000 approved, and > $100,000 rejected
  - If payment is approved, a Settlement Instruction Status Advice (sett.109) results and units are moved to the Receiver's Safekeeping Account (HIN)

Bilateral Demand Transfer

CDE Testing Support
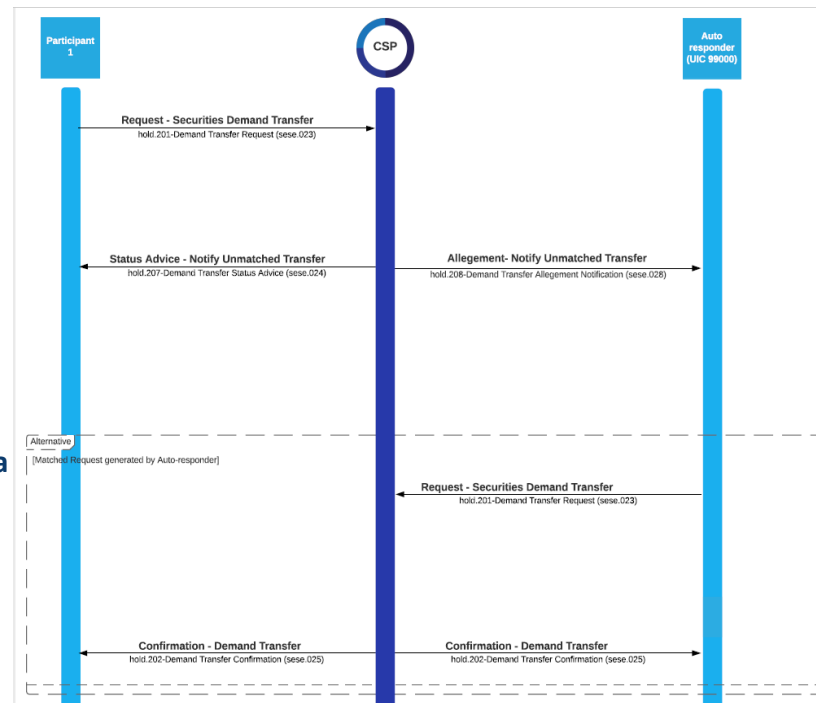
Type of support ▲	Information
Technical Support	Email: CTS@asx.com.au Phone: +1800 663 053 | +61 2 9227 0372 Hours of Support are 9pm to 5pm (AEST), business days
Operational or Functional Support	CSPSupport@asx.com.au

ASX

Q&A

ASX

Thank you.

ASX

Disclaimer

This document provides general information only. ASX Limited (ABN 98 008 624 691) and its related bodies corporate ("ASX") makes no representation or warranty with respect to the accuracy, reliability or completeness of the information. To the extent permitted by law, ASX and its employees, officers and contractors shall not be liable for any loss or damage arising in any way (including by way of negligence) from or in connection with any information provided or omitted or from anyone acting or refraining to act in reliance on this information. The information in these slides is confidential and should not be disclosed to or shared with any third parties without the prior written permission of ASX.

© 2019 ASX Limited ABN 98 008 624 691

CHESS Replacement Project

Implementation and Transition Kick Off

20 March 2019

Housekeeping: audio trouble shooting

> Check your system requirements

> Check that your computer's audio is unmuted

> If you are still experiencing audio difficulties, try downloading the GoTo Webinar Application on your phone, and enter the Webinar ID: 718-279-339

GoToWebinar Attendee System Check for Webcast Webinars

Looks good! You can join a webinar.

- ⊘ **OS** - Windows 8.1
- ⊘ **Browser** - IE 11
- ⊘ **Internet connection** - Strong
- ⊘ **Flash** - Enabled

Test your system again   View System Requirements

Next steps

Join a webinar
Attendee

Learn How
Join guide

ASX

Housekeeping: how to submit questions

Your Participation

- To submit your text questions and comments use the Questions panel
- Note that your questions will not be seen by other attendees

For more information - refer to the webinar tips published on the ASX CHESS Replacement web page

Agenda
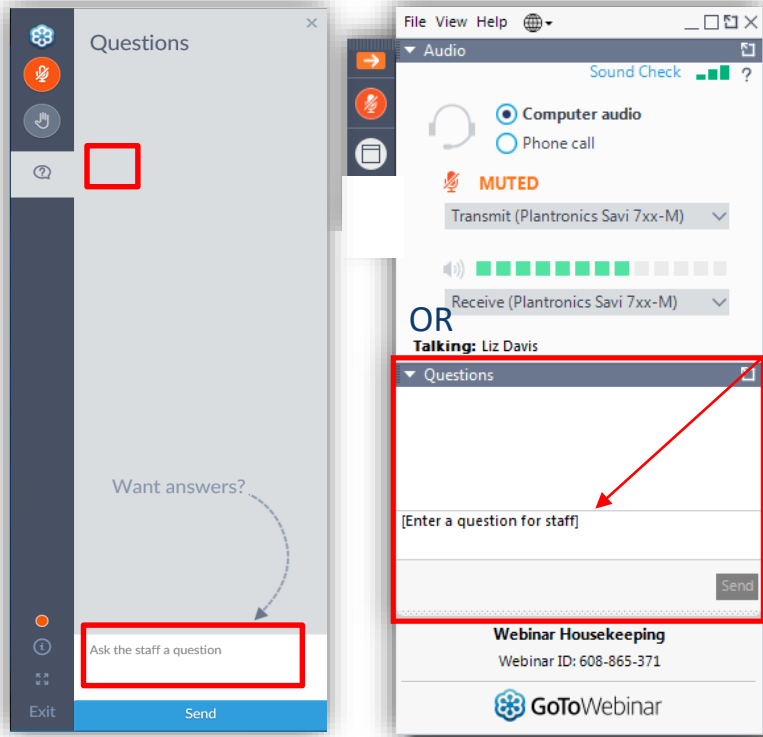
> Project Update

> Purpose and Guiding Principles

> Implementation and Transition Working Group Topics

> Key Milestones

> Data Migration

> Accreditation and Operational Readiness

> Q&A

Presenters and introductions

Cliff Richards

Executive General Manager
Equity Post Trade

Katie McDermott

General Manager
Equity Post Trade

Deepa Iyer

Lead Business Analyst
Technology

Keith Purdie

Senior Manager
Equity Post Trade

Project Update

ASX

CHESS Replacement Project Update

> Overall project schedule on track for March/April 2021 go live

> Technical documentation site went live in December 2018

> > Over 400 registrations

> > Recently updated including forward release plan, CDE application forms and test features

> > Next drop of technical documentation late March

> Customer Development Environment (CDE) will be available from late April

> Details provided on the cost to access the CHESS replacement system

> Regular Focus Groups, Connectivity & Integration Working Groups and ISO 20022 Technical Committee meetings

ASX

Purpose, Guiding Principles, and Key Milestones

ASX

Purpose of the Implementation & Transition Working Group

To develop a market-wide implementation and transition plan to support users' transition from CHESS over a single cutover weekend

Responsibilities of the working group include:

> Be the key forum for ASX to communicate with industry stakeholder representatives on the implementation and transition of CHESS replacement in Australia's equity post trade environment

> Members of the working group are expected to provide advice and expertise to help define and shape market wide implementation and transition plans

> Be a key forum to help guide stakeholders individual implementation and transition plans

ASX

Implementation & Transition Working Group Topics

> Planning & Preparation

>> Implementation and transition strategy

>> Transition and migration plan

>> Test and risk mitigation plan

>> Cutover runbook

> Communication & Documentation

>> Market wide progress updates

>> Operational processes, procedures, & policy updates

>> On-Boarding process and rule amendments

> Testing & Rehearsals

>> Industry wide functional testing

>> Disaster recovery & performance testing

>> Migration rehearsals

>> Accreditation and operational readiness

> Cutover & Post Cutover

>> Control room for market wide co-ordination and go/no go decision

>> Cutover weekend

>> Reconciliation and reporting

>> Incident management and service releases

Working Group Membership

Working group membership:

> AMOs, Clearing and Settlement participants, Share registries, Payment banks, software vendors and participants with in-house solutions, and industry associations

> Meetings will be up to 2 hours in duration and will be held at least every two months throughout 2019, and are likely to increase in frequency from mid 2020

> Organisations are asked to nominate up to two primary representatives to participate in the working groups

> Nominated members should have the appropriate skills and business responsibilities to actively contribute and follow up on activities for their own organisation's implementation plans

Guiding Principles

Maintain market integrity through the execution approach

ASX to provide ongoing support to customers and continuity of service, to deliver a transparent and seamless cutover for investors and issuers.

Reduce complexity and risk

Where possible, avoid running old & new ASX production systems in parallel. Single cutover weekend.

Maximise pre-work to minimise migration weekend risk

Streamline migration efforts by maximising pre-work activities and minimising in-flight transactions and corporate action activity for cutover.

Adopt automation to maximise efficiency and minimise risk

Automate activities wherever possible to minimise risk and support a successful transition.

Ensure overall market preparedness for a seamless transition

Test environments to validate processes and procedures, internal systems and connectivity option(s). This includes migration rehearsals.

Transition over a single cutover weekend

> Cutover from CHESS to the new system will be over a single weekend

> Lower complexity and risk compared to a phased transition:

>> Avoids the need for users to run parallel production systems

>> Avoids the need to synchronise and reconcile multiple sources of truth

> Full benefits realisation on cutover

> The cutover event will be rehearsed multiple times to ensure industry wide readiness

Migration and Cutover Roadmap

Mar 2019	Q2-Q4 2019	Q1-Q2 2020	Q3 2020- Q1 2021	Mar/Apr 2021	Q2-Q4 2021
Kick off I&T Working Group	Develop detailed migration approach & cutover plan	Preparation for migration	Accreditation & operational readiness, migration rehearsals	Go Live	BAU

ASX

Data Migration

ASX
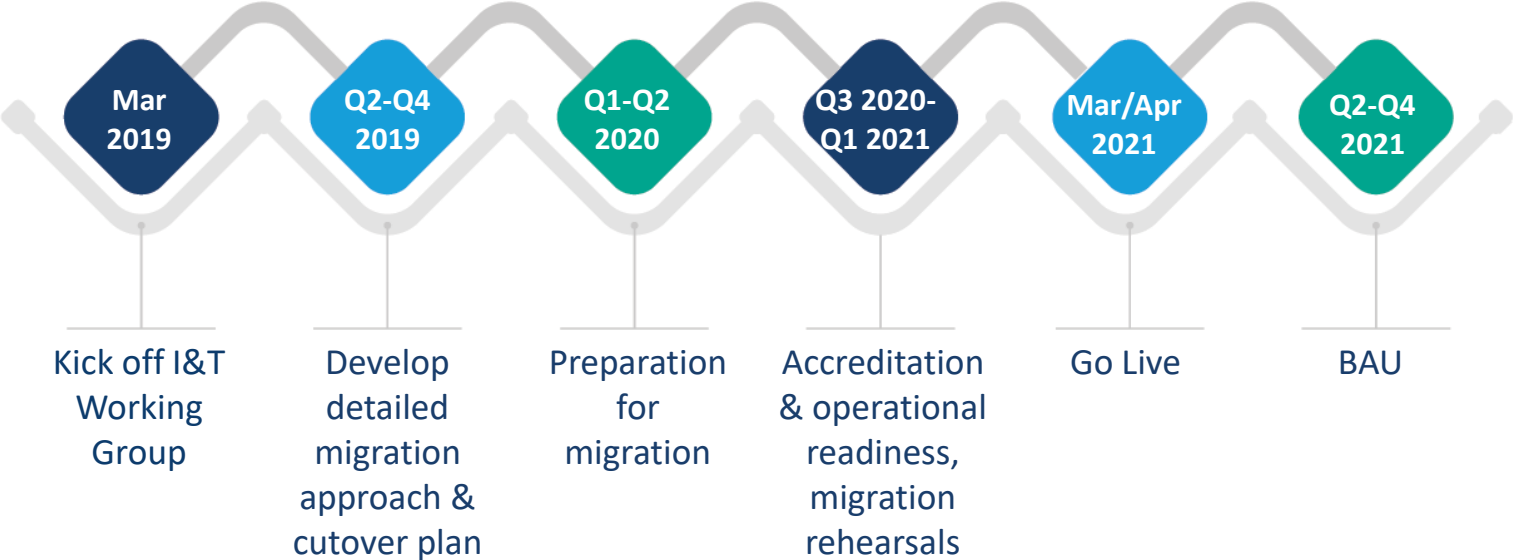
ASX Data Migration Scope

Data to be migrated (by ASX)	Under analysis	Key considerations
> Accounts > Holding Balances > Holding Sub-positions > Account and holding locks > Scheduled settlement obligations	> Unmatched Demand Transfer Requests > Unmatched Bilateral Settlement Instructions > Pending requests related to participants/accounts (create, update, cancel) > In flight transfers & conversions > In flight collateral requests pledge/withdrawal > Scope of transaction history	> Account Registration Details (HINs) – migration to ISO standard

ASX High Level Data Migration Approach

CHESS to Distributed Ledger

PRE-CUTOVER

CUTOVER

POST CUTOVER

CHESS

EXTRACT

TRANSFORM

LOAD

RECONCILE

CSP

ASX

Customer Account (HIN) Migration
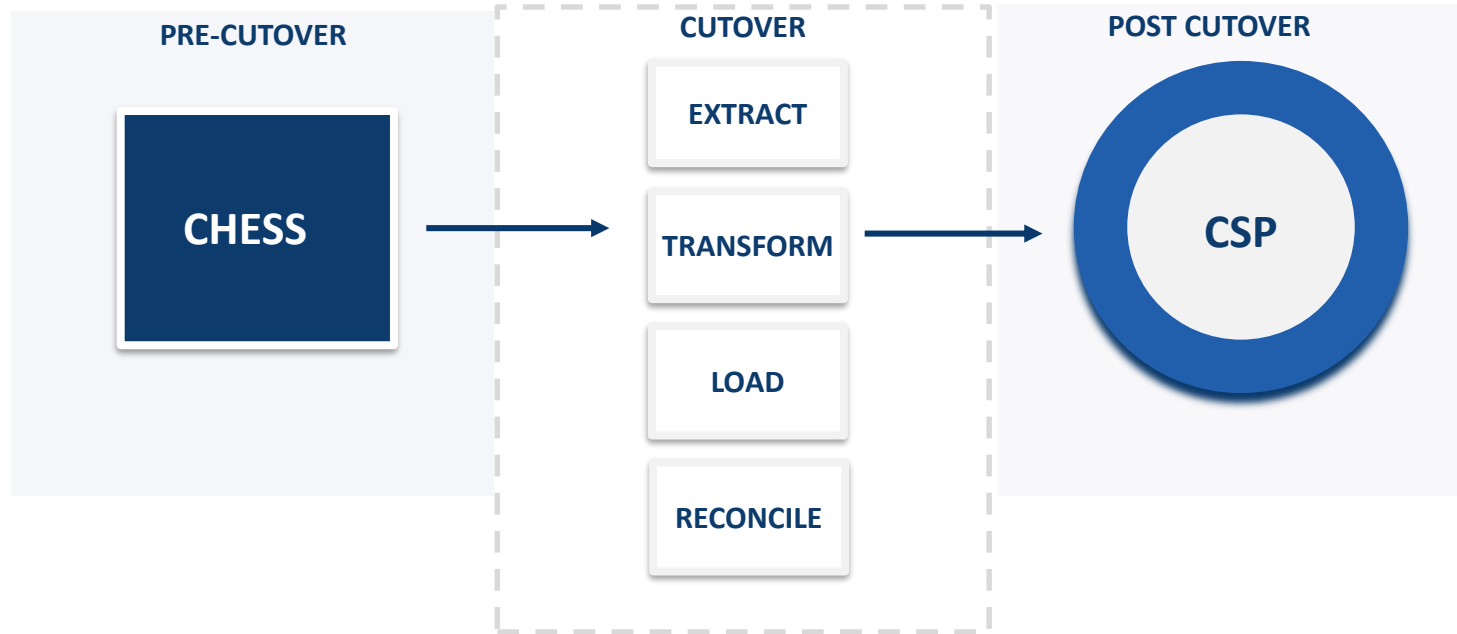
> ASX will reformat account registration details to the ISO 20022 standard

> ASX will provide sponsoring participants and registries with both existing and new account registration details

> Opportunity to cancel unused accounts

ASX

Accounts Migration Example

CHESS

Line 1 MR JOHN ALEXANDER CITIZEN +
Line 2 MRS JANE SMITH-CITIZEN
Line 3 <SAMPLE INVESTMENT ACCOUNT>,
Line 4 EXCHANGE SQUARE
Line 5 LEVEL 1, 20 BRIDGE STREET
Line 6 SYDNEY NSW   2000

Account

CSP

Account Name Mr John Alexander Citizen + Mrs Jane Smith-Citizen
Designation Sample Investment Account
Registered Address
Address Line 1 Exchange Square
Address Line 2 Level 1, 20 Bridge Street
Address Line 3
Town name Sydney
Country Sub-division NSW
Post Code 2000
Country AU

Account

Name Mr John Alexander Citizen
Holder 1

Name Mrs Jane Smith-Citizen
Holder 2

ASX

Accreditation and Operational Readiness

Accreditation and Operational Readiness

Connectivity Accreditation

> Successfully connect, handle failure scenarios and achieve required performance for chosen connectivity channel(s)

Functional System Accreditation

> Successfully test transaction processing for target stakeholder group

Operational Readiness

Provision of attestation which includes but not limited to:

> updates to processes and procedures

> staff training and knowledge shared

> participation in IWT, migration rehearsals and go-live readiness

SYSTEM VENDORS &
IN-HOUSE SOLUTIONS

SYSTEM USERS

ASX

Q&A

ASX

Closing

> Forward calendar of working group meetings will be updated on CHESS Replacement web page

> Webinar recording and slides will be published to CHESS Replacement webpage

> Nominate two primary representatives to participate in the working group

> Contact CHESSReplacement@asx.com.au with any additional questions/matters

> Next working group meeting 15 May 2019:

>> Proposed topic – Implementation & Transition strategy

Thank you.

ASX

Disclaimer

This document provides general information only. ASX Limited (ABN 98 008 624 691) and its related bodies corporate ("ASX") makes no representation or warranty with respect to the accuracy, reliability or completeness of the information. To the extent permitted by law, ASX and its employees, officers and contractors shall not be liable for any loss or damage arising in any way (including by way of negligence) from or in connection with any information provided or omitted or from anyone acting or refraining to act in reliance on this information.

© 2019 ASX Limited ABN 98 008 624 691

BUSINESS COMMITTEE MEETING PAPER AGENDA ITEM 3B

Topic	Equity post-trade services: Pricing and fee information update
Date	4 April 2019
Purpose of this paper	To provide Business Committee members with an update on ASX's work on pricing for the new clearing and settlement system.

Background

ASX and market users have been working on the application of distributed ledger technology (DLT) to replace CHESS. This paper provides an update on the development of pricing for the new system. This includes:

- Access to the CHESS replacement customer development and test environments – ASX has previously announced that these will be made available with no access charges;

- Access to the CHESS replacement system in production – ASX recently announced the access costs to connect to clearing and settlement services once the new system is in production. This is outlined in more detail below: and,

- Clearing and settlement fees - these are under development and subject to consultation with customers.

Access to CHESS replacement in production (announced on 12th March 2019)

The use of a DLT-based system will provide organisations with the option to connect directly to the new system via a node, enabling access to build or run DLT applications on real-time, synchronised, source-of-truth data. This is an innovative feature of the new platform designed to reduce costs and complexity, and facilitate new business opportunities for intermediaries, issuers, investors and other users.

ASX is also providing other options to access clearing and settlement services – these being the ISO 20022 global messaging standard via AMQP and SWIFT, and a web browser option for low volume, infrequent usage. These options will help minimise costs for those who need traditional connectivity options.

These options are not mutually exclusive - meaning that simultaneous connection via two or more options is possible. For example, a customer may choose to simultaneously connect via direct, ISO messaging and browser connections. Designing a new service with the needs of customers in mind has been paramount.

Direct service access and distribution

A direct node connection gives users a synchronised, real-time view of their data. Direct node connections can empower intermediaries, issuers, investors and other users to develop their own services for distribution across ASX's DLT infrastructure Moreover, direct node connections can be used – at the customer's option – to connect organisations to new services developed by ASX and by third parties. The ability of the new technology to create growth opportunities for its universe of users is one of its key attractions.

AMQP access

AMQP (Advanced Message Queuing Protocol) is an open standard application layer protocol for message-oriented middleware. Features of AMQP are message orientation, queuing, routing (including point-to-point

and publish-and-subscribe), reliability and security. Access to the AMQP service will be via an AMQP session over ASX Net or an ALC cross connect. This is a TCP/IP connection using the AMQP 1.0 Protocol which can send and receive clearing and settlement messages and request and receive clearing and settlement reports over multiple defined queues.

Swift InterAct access

SWIFT InterAct is a messaging service for exchanging XML-based financial messages and data between users, including ISO 20022- based settlement instructions, statements and reports. It is used by market infrastructures around the world. Access will be via Participants SWIFTNet connections. Participants will be able to send and receive ISO20022 messages in accordance with the published specifications.

Access pricing

The pricing model for clearing and settlement participants to access the CHESS replacement system to acquire ASX's clearing and settlement services in production is as follows:

1. **Direct Access (via a DLT Node):** Provide for free for three years from the go-live date, a managed Direct Access service (connected via a DLT node). See Appendix 1.

2. **AMQP 1.0:** Provide for a monthly per user access session fee of $495, connectivity via AMQP 1.0 protocol for ISO 20022 XML messaging. See Appendix 1.

3. **SWIFT InterAct**: Provide for cost plus an administration fee, connectivity via the SWIFT InterAct service for ISO 20022 XML messaging, noting that:

   a. ASX-incurred SWIFT-related infrastructure uplift costs will be passed through to participants who choose the SWIFT connection option. This infrastructure uplift cost will be divided equally among the number of participants choosing this option and charged at go-live. See Appendix 1.

   b. ASX-incurred SWIFT message-related costs for managing and sending messages over SWIFT InterAct will be passed back to the participant using this connection option. This is an equivalent commercial treatment to ASX Austraclear's SWIFT charging model.

4. **Web Browser:** Pricing details for the use of the web browser option in production will be determined and made available for the Industry Wide Testing (IWT) phase of the project.

While ASX encourages adoption of the Direct Access (via a DLT Node) model because we believe it will deliver the most benefit to customers and the industry overall, we appreciate the importance of giving customers choice of access options and continuing to work closely with them to address their needs as we move to replace CHESS.

Moreover, regardless of the access options chosen by clearing and settlement participants, when the new system is implemented the fees for clearing and settlement will be the same.

Clearing and Settlement fees

Current fee model

Cash equity clearing fees are currently changed on an ad valorem basis at 0.225 basis points on cleared value reflecting the considerable capital ASX provides for clearing member default protection.

Cash equity settlement fees are currently charged on a per CHESS EIS message basis as a proxy for an underlying per transaction service.

New Fee model analysis

The CHESS replacement system is being developed to support the ISO 20022 message format and as such this will result in a consolidation of the number of message types used relative to the CHESS EIS messages used today. This will also increase the number of messages used in certain cases.

Furthermore, the option to connect to the replacement system in multiple ways (outlined above) may bypass messaging and will require a different basis for charging.

Transaction-based fee models where different users use the system in different ways may not incentivise full utilisation of system benefits. A different basis of service charging may be better for users in who wish to use the system to improve workflows and operational efficiency – thereby maximising the benefits that they get from the system in a cost effective way.

Because of these reasons, we are working to ensure that the changes to messaging types and the option to interact directly with the ledger (without using some messaging) do not result in unknown, unintended or adverse fee impacts to users. We will also ensure that clearing and settlement fees are fair and non-discriminatory regardless of the access option chosen.

ASX is now in the process of comprehensively analysing potential new fee structures before consulting with customers to get their feedback. A further update will be provided at the next meeting.

APPENDIX 1 – ACCESS PRICING NOTES

Direct Access

- One production primary and one secondary (DR – disaster recovery) session connection.

- Direct Access pricing beyond the three-year free access period will be discussed with participants no later than 12 months prior to the expiry of the fee-free period.

- ASX Net or ALC cross connect connectivity is required*.

AMQP 1.0

- One clearing and settlement participant AMQP user access session includes one user with one transaction queue pair (send/receive) and one reporting queue pair (send/receive).

- ASX Net or ALC cross connect connectivity is required*.

SWIFT Interact

- Participants connecting via SWIFT Interact after the go-live date may be charged a set-up and connection fee to access this service.

* Fees for ASX Net are found at www.asxonline.com/content/dam/asxonline/public/documents/schedule-of-fees/asx_016046.pdf

BUSINESS COMMITTEE MEETING PAPER AGENDA ITEM 3C	
Topic	**ISO 20022 Technical Committee Report and Minutes**
Date	4 April 2019
Purpose of this paper	**To provide Business Committee members with a copy of the report and minutes from recent meetings of the ISO 20022 Technical Committee**

OVERVIEW

The ISO 20022 Technical Committee met on 27 November 2018, 8 February 2019 and 26 March 2019. A copy of the Technical Committee's report and minutes for the first two of those meetings are attached.

A verbal update on the third meeting will be provided at the meeting.

The Forward Work Plan for the ISO 20022 Technical Committee is provided in Attachment D.

ATTACHMENTS

Attachment A – ISO 20022 Technical Committee Report – 27 November 2018 and 8 February 2019 meetings

Attachment B – ISO 20022 Technical Committee Minutes – 27 November 2018 meeting

Attachment C – ISO 20022 Technical Committee Minutes – 8 February 2019 meeting

Attachment D – ISO 20022 Technical Committee Forward Work Plan

ISO 20022 Technical Committee Report to the Business Committee

This report provides an overview of the ISO 20022 Technical Committee meetings held on 27 November 2018, 8 February and 26 March 2019. All three meetings were held in Sydney and by webinar, and detailed minutes are attached for the November and February meetings.

MEETING AGENDA (NON STANDARD ITEMS) – Business and Technical Matters for Consideration

27 NOVEMBER 2018	8 FEBRUARY 2019	26 MARCH 2019
a) MyStandards Community – 'to-be' usage guideline feedback b) Re-cap on principles of adoption c) Bilateral Demand Settlement Instructions d) Focus Group Meeting outcomes	a) Re-cap on register of upstream / downstream matters b) Re-cap on Technical Documentation release December 2018 c) Transfers / Conversions – Participant to Issuer d) Review of 'to-be' messages e) Focus Group outcomes – FIX for trade reporting	a) Follow up meeting & Focus Group outcomes – Transfers & Conversions b) Account creation, modification, report c) Review of 'to-be' messages d) Focus Group outcomes - Payments

ACTION ITEMS

- Two additional action items were raised in the 27 November meeting, and 4 additional action items at the 8 February meeting.

- At the conclusion of the 8 February meeting, 7 action items remain open, while 66 actions have been closed (8 of these actions closed at the 27 November and 8 February meetings).

KEY ISSUES DISCUSSED

- At each meeting committee members were provided with an update on the CHESS Replacement project.

- At the 27 November 2018 meeting ASX stepped through its proposed **approach to engagement with the committee during 2019**, focused on any significantly changed/new business processes and messages. Going forward ASX would also provide the Technical Committee members with an update

on outcomes from Focus Group meetings held between each Technical Committee, and their relevance to the work of the Technical Committee and impact on ISO 20022 messaging. Otherwise the formal Technical Documentation to be published from December 2018 onward would provide members with the published functional descriptions and specifications for implementation.

- At the 27 November 2018 meeting ASX also provided a re-cap on its **principles for the adoption of ISO 20022**, in response to comments from members around the level of message consolidation being performed, and to seek committee member agreement with these principles going forward. Members were asked to review the principles and respond at the 8 February 2019 meeting. While the principles were accepted by members at the 8 February meeting, a member questioned how ASX was testing adherence to the principles, particularly regarding the last principal ("to be mindful of the impact on the system behaviour, including development effort") and the relative cost/benefit to ASX and customers. A further action was agreed for members to provide feedback on where they considered the principles were not being followed, and for ASX to consider how it measures and tests its principles of ISO 20022 adoption from a cost/benefit perspective, and clearly articulate why changes are proposed. This remains an outstanding action with ASX confirming at the 26 March 2019 meeting it would provide a response at the next (7 May 2019) meeting.

- At the 8 February 2019 meeting ASX provided members with a **re-cap on the technical documentation release in December 2018**. A member asked a question about message mapping, including a request that ASX be more transparent in its mapping intentions and to leverage the expertise of committee members in reviewing and performing that detailed mapping exercise. An AMO member requested that AMOs be granted access to ASX's CHESS Replacement community on MyStandards – to broaden the consultation. The Chair committed to considering this request and it has been actioned.

- ASX provided an overview of **key functional areas and associated message sets** including:

  - An overview of the **new Bilateral Demand Settlement instructions**, including message flows, at the November 2018 meeting. ASX confirmed it was considering a number of payment service options to support this function. Members raised a number of questions about the solution including whether these instructions would settle gross line-by-line (yes), whether the cut-off time for cash payment would be later in the day (yes, later than the existing 11.30 am cut-off) and whether foreign currency options had been considered (no, given the potential payment solutions only support AUD). Members sought clarification around the message and process flows, including the timing of receipt of messages, cancellations and the process flow if a participant had insufficient funds or stock.

  - At the 8 February 2019 meeting ASX presented its **proposed changes to processing of Transfers and Conversions for Participant to Issuer movements**, including the proposed messages. The proposed solution generated substantial discussion amongst the committee members, with numerous questions and challenges to ASX's proposed solution because it added complexity and points of failure. ASX committed to setting up a separate meeting with share registries to further the discussion. ASX convened three follow up meetings (Focus Group meetings) including share registries, participants and vendors on this and related topics to listen to the objections in further detail and to propose an alternate solution. In this instance the test against the principles for ISO 20022 adoption was applied and ASX responded to member feedback that the initial solution represented significant change and cost to stakeholders. ASX worked through February and March to identify and propose a replacement solution for the underpinning accounts and standardisation

of registration details, with the associated message review presented in the Technical Committee meeting held on 26 March 2019.

- ASX provided an **overview of Focus Group meetings** to members at all three meetings, including the following Focus Group meeting dates and topics:

  - 31 October 2018 – accounts and standardised registration details

  - 7 November 2018 – demand transfers and settlement instructions

  - 29 January 2019 – Trade Registration (for AMOs)

  - 14 February 2019 – Transfers & Conversions (follow up to 8 February Technical Committee meeting)

  - 12 March 2019 – Payments (for payment providers)

  - 19 March and 26 March 2019 – Accounts & Standardisation of Registration details

MINUTES OF THE ISO 20022 TECHNICAL COMMITTEE

Tuesday 27 November 2018

ASX offices, Sydney; Webinar

1. **Welcome, Agenda**

2. **Minutes from last meeting, open actions**

3. **CHESS Replacement project update by ASX**

4. **ISO 20022 project update by ASX**

5. **Update from Business Committee**

6. **Matters for Consideration (Business and Technical Matters)**
   a) MyStandards Community – 'to-be' usage guideline feedback
   b) Re-cap on principles of adoption
   c) Bilateral Demand Settlement Instructions
   d) Focus Group Meeting outcomes

7. **Next Meeting** - tbc - late January 2019

Technical Committee Members

Company	Name	Job Title	Apologies
Australian Payments Network Limited	Andy White	Chief Operating Officer	Apology
Australian Payments Network Limited	Paul Creswick	Security Standards Manager	
Bank of America Merrill Lynch	Andree Hindmarsh	Head of GMOT Australia	
Bank of America Merrill Lynch	Jimmie Alam		
Bell Potter Securities	Dean Surkitt	Managing Director Retail	
BNP Paribas Securities	Penelope Stafford	Manager Settlements	
BNP Paribas Securities	Wayne Murphy	Project Manager	
Boardroom Limited	Tony Robinson	Senior Software Engineer	
Boardroom Limited	Michael Mullins	CIO	
Broadridge (Australia)	Manoj Mathew	Business Analyst	
Broadridge (Australia)	Mabel Chow	Development and Support Manager	
Broadridge (Australia)	Tomas Kliman	Senior Project Manager	Apology
Broadridge (Australia)	James Marsden	APAC Business Development & Strategy	
Broadridge (Australia)	Andy King	Product Specialist	
Broadridge (Australia)	Anil Wali	Product Specialist	
Broadridge (Australia)	Alok Ranjan	Technology Specialist	
CBA Equities	Joel Cox	Technical Business Analyst	
CBA Equities	Carolyn Webb	Test Manager	
CBA Equities	Ben Lowe	Manager Settlements	
Chi-X Australia	Mike Aikins	Head of Solution Development	
Chi-X Australia	Suketu Adhvaryu	Senior Solution Architect	
Citicorp	Miles O'Connor	Director, Direct Custody & Clearing Securities Markets & Securities Services	
Citicorp	Andrew Gibson	Director – Head of Direct Custody and Clearing Australia & NZ	
Citicorp	Brett Dennis	Head of Operations – Party Clearing	
Citicorp	Lyall Herron		
Citicorp	Janice O'Brien	Markets & Securities Services Technology	
Citicorp	Matthew Warner		
Citicorp	Ashok Kumar Balusa		

ASX

Company	Name	Job Title	Apologies
Citicorp	Glenn Pahilan		
Citicorp	Stephen Rylands	Product Manager	
Citicorp	Pradeep Pandian		
CMC Markets Stockbroking	Nikola Vanstan	Change Manager	
Computershare	Paul Walton	Senior Manager, Corporate Actions & New Business Development – Investor Services	
Computershare	Leanne Bailey	Senior Business Analyst Product & Innovation	
Computershare	Laik Tan		
Deutsche Securities	Kevin Novini		
Digital Asset	Fil Mackay	Senior Product Architect	
Dion Global Solutions	Craig Gray	Product Manager – Australia and NZ	
Dion Global Solutions	Nikki Gleisner	Account Manager	
GBST	Sue Schafer	Product Owner	
GBST	Khanh Le	Systems Architect	
Goldman Sachs	Darrel Schwarz	Technology Vice President	
Goldman Sachs	Josh Rice		
Goldman Sachs	Nidhi Luthra		
HSBC Securities Services	Gregory Wilkin	Head of HSBC Operations	
HSBC Securities Services	Salih Kulic	Manager Custody	
HSBC Bank Australia Limited	Michael Macintosh	Senior Client Account Manager, Global Liquidity and Cash Management	
HSBC Bank Australia Limited	Anna Fratini	Senior Product Manager – High Value Payments, Clearing and Financial Institutions,	
HSBC Bank Australia Limited	Phyllis Yeung	Senior Analyst	
HSBC	Herman Wong	Manager, Change Management & Delivery	
HSBC	Edmond Chan	Senior IT Development Manager	
HSBC	Cherrie Xu	Head of IT Securities Service	
HSBC	Asri Asat	Optimisation Manager, Securities Service	

ASX

Company	Name	Job Title	Apologies
HSBC	Chang Gao	Business Consultant	
JP Morgan	Ed Lawson	Settlements Manager	
JP Morgan	Danny Ng	Middle and Back office AD Manager	
JP Morgan	Scott Oakland	Direct Custody Product Manager Australia	
JP Morgan	Ned Miglez		
JP Morgan	Daniel Smith	VP, Network Management	
JP Morgan	Lesley Henderson	Technology Product team	
Link Group	Ian Batterham	Business Applications Architect	
Link Market Services	Sue Julian	National Manager, Corporate Actions	
Link Group	Robert Watson		
Macquarie Group	Paul Bragg	Senior Manager Equities Clearing ANZ	Apology
Macquarie Group	Merrilyn Auton	Manager Operations	
Morgans Financial	Matt Neaubauer	Team Leader, Service Management Team	
Morgans Financial	Ed Strike	IT Manager	
Morgan Stanley	Dorothy Wilson	Executive Director, Morgan Stanley Wealth Management, ISG Technology	
Morgan Stanley	Kirsty Venters	VP, Prime Brkrg Funding & Fin Tech	
Morgan Stanley	Oscar Dela Cruz		
Morgan Stanley	Andrew Fielder		
Morgan Stanley	Gordon Davies	VP/Firmwide Ops	
Morgan Stanley	Andrew Sime		
NAB Asset Management	Suresh Chinnappa	Head of Custody Service Operations	Apology
National Australia Bank	Sachin Patel	Senior Analyst, Regulatory Affairs	
National Stock Exchange	Lina Lim	Head of Technology	
Nomura Research Institute	John Ryan	Senior Consultant	
Nomura Research Institute	Ashish Jha		
Nomura Research Institute	Sayantan Majumdar		
Northern Trust	Yen Pan Chung	Senior BA, Market Advocacy and Innovation Research	
Securitease	Anton Smith	Director	

Company	Name	Job Title	Apologies
Securitease	Chris Werry	Business Analyst	
Securitease	Angela Losurdo	Business Systems Analyst	
Share Investing	Phil Barnes	Senior Manager, Platforms	
SWIFT Standards	Nicole Jolliffe	Senior APAC Standards consultant	
Sydney Stock Exchange	Leo Zhang	Manager – Market Control	
Sydney Stock Exchange	Omar Obol	Market Control Officer	
Sydney Stock Exchange	Antony Tolfts	Listing Director	
UBS	Phillip Drury	Phillip Drury, Executive Director, Equities IT	Apology
UBS	Duncan Earl	Executive Director, Head of Change, UBS Group Operations	
UBS	Neil Martin	IT – Project Management	
Wealthhub Securities	James Channon	Manager, Capital Markets Trading	

ASX Management

Name	Job Title	Apologies
Tim Hogben	Chief Operating Officer (Chair of the Technical Committee)	
Cliff Richards	Executive General Manager, Equity Post Trade Services	
Katie McDermott	General Manager, Equity Post Trade Services	Apology
Karen Webb	Senior Manager, Equity Post Trade Services	
Russell Eyre	Enterprise Architect	Apology
Anne-Marie Fisher-Taylor	Project Subject Specialist	
Priscilla Ferri de Barros	Senior Business Analyst, Equity Post Trade	
Gary Hobourn	Senior Economic Analyst, Regulatory and Public Policy	Apology
Fraser Moodie	Manager, Integration and Connectivity, CHESS Replacement	Apology
Karen Hamilton	Manager, Business Analysis	
Frederik Van den Weghe	Senior Manager, Business Analysis	

The meeting commenced at 3.00pm.

Agenda item 1: Agenda overview

The Chair welcomed Technical Committee members to the meeting including members attending by webinar.

The Chair noted the release of the November Standards release, including associated upgrading of Austraclear interfaces. Momentum is building globally for the adoption of ISO 20022, in light of the movement onto SWIFT's cross-border GPI platform.

The Chair outlined the Agenda for the meeting, referring to the presentation slides prepared by ASX.

Agenda item 2: Minutes from last meeting, open actions

The Chair noted that the minutes from the last meeting held on 9 October 2018 had been finalised, with one amendment requested by a member, to clarify certain minuted information. The minutes had been distributed and published on the web page.

The Chair noted the outstanding actions from the last meeting as outlined on slide number 5 and 6 of the ASX presentation.

Action item 20 was for ASX to provide a proposed plan for the remaining training webinars. The Chair noted that ASX is hosting Connectivity & Integration Working Groups, and expects to reassess what training is required after the Groups have been completed. **This item remains on hold.**

Action item 51 was for ASX to consider how impacted stakeholders could be engaged on the standards for registration details prior to the next meeting. The Chair noted that a Focus Group meeting on this topic had been held, with feedback from the session attendees open until 30 November 2018. **This item was closed.**

Action item 58 was for ASX to publish proposed "to-be" messages for updates to accounts – reda_023, reda_020, reda_021 for member review. The Chair confirmed that ASX would release these as part of the first tranche of technical documentation in December. **This item was closed.**

Action item 60 was for ASX to prepare and publish a consolidated list of all actions and outcomes from Technical Committee meetings, and update after each meeting going forward. ASX has commenced publishing this list on the ISO 20022 web page, and the content is up to date as of the last committee meeting. **This item was closed.**

Action item 62 was for ASX to review the intended timing for housekeeping of unmatched messages, any standardisation opportunities, whether settlement requests could be future dated. ASX would also consider the visibility of holding locks to issuers on an intra-day basis. The Chair explained that ASX will address these topics in the Focus Group meetings, with information relayed back to this committee as it becomes available. **This item remains open.**

Action item 64 was for ASX to advise members the confirmed date for Technical Documentation release in December, and the associated webinar details. The Chair advised that the webinar will be held on 12

December 2018, and the first drop of technical documentation will follow shortly thereafter. The Chair proposed the item be closed. **This item was closed.**

Action Item 65 was for ASX to consider if information such as participant party identification and preferences would be available within the node (in addition to published) and confirm to members as part of migration activity. The Chair advised that ASX was yet to consider this, and **this item remains open.**

Action item 66 was for Members to consider any specific topics regarding settlement, holding locks for inclusion in the agenda of the upcoming Focus Group and advise ASX. The Chair advised that ASX did not receive any feedback, and the Senior Manager, Business Analysis advised that the matter had been discussed at a Focus Group, with the deadline for feedback still open. Given that the session had already been held the Chair proposed the item be closed. A member asked when people who did not attend the Focus Group would find out the outcomes of the meeting, and reiterated that the impact of locks on corporate actions was of particular concern to the member's organisation. The Senior Manager, Business Analysis confirmed that the particular Focus Group in question focused on settlement locks applicable to bilateral and unilateral settlement instructions, and did not contemplate corporate actions. A dedicated Focus Group related to locks and corporate actions will be convened in 2019. **This item was closed.**

Action item 67 was for ASX to review level of consolidation for Unilateral and Bilateral settlement instructions usage guidelines. The Chair advised that further consolidation has been performed, and it was a topic of discussion included in the agenda today. The Chair proposed the item be closed. **This item was closed.**

A member asked how ASX would notify members of the outcomes of the Focus Groups, given that not all members received invitations. The Senior Manager, Business Analysis, confirmed the intent of the Focus Group is to elicit specific feedback on elements of the solution build. The way all participants will receive information – detailed technical and functional information – relating to all aspects of CHESS Replacement will be through the release of technical documentation. The member further enquired whether participants will have the opportunity to provide further feedback once technical documentation has been released. The Executive General Manager, Equity Post Trade Services confirmed that ASX will receive feedback, and on a case-by-case basis address any feedback that presents a significant problem.

Agenda item 3: CHESS Replacement project update by ASX

The Chair invited the Executive General Manager, Equity Post Trade Services to provide an update on the project.

The project is on track. ASX's internal build schedule – a hybrid agile project approach – is tracking to the scheduled curve. The scheduled delivery of software on a fortnightly basis is being met, the code being received is of a high quality, and defects being detected in the code are being turned around in a timely manner. ASX does two things once it receives the code: runs it through an automated testing capability; and integrates the software into the upstream and downstream systems via adaptors to a service bus.

The delivery of the first tranche of technical documentation (targeting release in mid-December 2018) was also on track. This will provide necessary information for another milestone, the target date for the Customer Development Environment (CDE) availability in April 2019, which was also on track.

The Executive General Manager provided a recap on external engagement activities. 4 Connectivity & Integration working groups have been held to date, with 2 further sessions scheduled this year. 2 Focus Groups have been held to date, with 1 further session scheduled this year. Planning is underway for the series of Connectivity & Integration working groups to be held throughout 2019, and the first Implementation & Transition working group will commence in Q1 2019. Planning is also underway for the Focus Group meetings to be held throughout 2019. Further details will be provided on the CHESS Replacement webpage in due course.

The Connectivity & Integration working group sessions held to date have centred on access, to messaging formats, ISO 20022 over SWIFTNet and AMQP, and via direct integration (i.e. taking a node).

The Executive General Manager noted the recent announcement from the Hong Kong Stock Exchange (HKEX), that they have selected Digital Asset to build a distributed ledger technology solution to address some of the allocations and bookings challenges/inefficiencies between mainland China and Hong Kong markets. The implication that clients of ASX who also operate in the Hong Kong market would be operating on the same technology was noted as a positive development.

A member asked whether AMOs had been included in the Connectivity & Integration working group meetings to date. The Executive General Manager confirmed that AMOs will be invited to a working group about the functions that they need to integrate for. These sessions have not been held yet, and the Senior Manager, Business Analysis added that a Focus Group with AMOs is tentatively slated for early next year on the specifications for trade submission, and the connectivity options. The Executive General Manager committed to providing a narrower timeframe for when the session will be held, and provide sufficient notice to AMOs regarding the agenda and opportunity for AMOs to provide input on that agenda. **(Matters Arising 1 – Action item 68).**

A member sought clarification that the Connectivity & Integration working group meetings to date have been for participants. The Executive General Manager confirmed that the Connectivity & Integration working group meetings to date have been for existing clearing and settlement participants, and their existing back-office vendors. The reason the AMOs have not been invited stems from the differing use case and connection method.

A member enquired whether the forthcoming Implementation & Transition working groups would be for a wider audience (i.e. include AMOs), or would they also be specific to participants only. The Executive General Manager confirmed that AMOs will be invited, to the extent they are impacted by the transition.

Regarding the announcement from HKEX, a member asked whether the solution being built for that use case would also be provided to the Australian market. The Executive General Manager confirmed ASX's understanding that HKEX have decided to adopt Digital Asset technology, for their use case regarding mainland China and Hong Kong. A member added that their understanding of HKEX's use case is that it is an internal use case to create a proof of concept to run in parallel to the existing link between the two CSDs, i.e. to create inter-CSD connectivity. The member highlighted that this is not a use case that would be exposed to a participant in any way. The Executive General Manager confirmed that ASX would work to gain a better understanding of HKEX's use case with Digital Asset.

Agenda item 4: ISO 20022 project update by ASX

The Senior Manager, Equity Post Trade Services provided an update on the ISO 20022 project. The latest 'to-be' mapping topics under review by the team included updates to unilateral scheduled and bilateral scheduled message set where needed (particular changes for discussion at this meeting), bilateral demand settlement (for discussion at this meeting), payment facilities – create and update (in progress), updates per agreed changes to registration details and accounts. Work was also continuing on refining the Technical Documentation for release in December.

ASX continued its engagement in global ISO groups, attending the monthly Securities Standards Evaluation Group (SEG) meetings. Some of the discussion at that forum has been about ASX's business justification submission to the ISO 20022 registration authority. ASX has also been participating in the T2S Evaluation team, currently on hold at the moment. Currently waiting for the four central banks (4CBs) in Europe sponsoring the T2S messages to decide their next plan of action. ASX anticipates the group will re-convene again in early 2019. ASX has been working to prioritise the messages ASX has an interest in progressing to that group.

A member enquired as to the meaning of those messages being "on hold" with the T2S Evaluation team, and the implications of that for work required by committee members. The Senior Manager confirmed the implication that right now ASX is working with draft T2S messages, while T2S is working through a registration process for those messages so that they will be included in the standard, as a whole. The Senior Manager confirmed that while these messages are in draft state there is potential scope for future changes, and that the Evaluation team would consider feedback from members of the Evaluation team (including ASX) regarding any future changes. The member further enquired whether this creates additional risk to the timeline of the next 12 months of designing messages. The Senior Manager responded that risk to the timeline was unlikely, rather the potential risk is for a little more work, and ASX would need to make a decision regarding go-live should the messages still be in draft state at go-live date. The Chair clarified whether the registration process is at a point in time (i.e. whether ASX will know at go-live date whether the messages are registered). The Senior Manager confirmed that T2S is working iteratively, to review approximately 80 messages, and they have worked through around a dozen to date. ASX is working closely with T2S to prioritise the messages ASX has an interest in, to ensure reasonable comfort that the messages ASX has interest in will be registered in time.

With regard to the change request ASX had submitted to the ISO 20022 registration authority for the Business Application Header (BAH) to include Business Date, a representative from SWIFT provided an update that the Technical Support Group (TSG) convener (the owner of the BAH) is calling all of the various sub-conveners to clarify the changes in the BAH (ASX's change request was one of four change requests). Once this has been completed the TSG will propose a solution, for submission to the SEG for final approval.

ASX noted that its Business Justification submission was proceeding through the review process, with recent activities covering a response to comments raised by SEG members who wanted to better understand the drivers behind the submission. The submission was now with the ISO 20022 Registration Management Group who have one month to perform a final review. ASX expects an indication before Christmas of whether its Business Justification will be approved.

The Senior Manager noted that ASX had made a number of updates to the SWIFT MyStandards communities being used for CHESS Replacement. The existing community being used to publish usage guidelines for the Technical Committee has been renamed the "ASX ISO 20022 Technical Committee" –

users do not need to make any changes. ASX has created a new community entitled "ASX CHESS Replacement" for the purpose of publishing the technical documentation. ASX still intends to expose draft usage guidelines to the committee via the former community, and the latter will be a broader community.

ASX continues to work to get the MyStandards Readiness Portal set up for the December release of technical documentation. The Senior Manager reminded the committee of the overview provided by SWIFT at the 31 July Technical Committee. Further information regarding accessing the Readiness Portal will be provided in the webinar on 12 December 2018.

Referring to ASX presentation slide number 10, the Senior Manager, Equity Post Trade Services presented ASX's approach to engagement with the committee during 2019. ASX had reviewed methods and processes used throughout 2018, acknowledging the occasional lag between presentation of material to the committee and its feedback and ASX's development phase in 2018. ASX proposed to schedule monthly Technical Committee meetings throughout 2019. ASX will present the committee with particular topics for discussion, coinciding with build phase for ASX. ASX proposes to bring to the committee: any significant changes compared to 'as-is'; any new business processes or new messages; and any message consolidation ASX is seeking to implement. In the case of consolidation, ASX will ask the committee to review only one set of the Business Process.

The Senior Manager noted that ASX wouldn't respond to all comments provided against shared usage guidelines, but only as they relate to the above topics. For topics already covered and agreed, including certain principles, ASX would not continue to review and reply to associated comments.

A member enquired whether the forward work plan for the committee in 2019 extended to defining new values or retiring values for certain fields. The Senior Manager confirmed ASX's intended approach is for ASX to present to the committee draft usage guidelines and process.

The Senior Manager, Equity Post Trade Services sought feedback that the committee was comfortable with the large program of work ASX proposes for the committee in 2019. No feedback was provided. The Chair reiterated the importance of developing the forward work plan ahead of time to allow members to do their own planning. The Senior Manager confirmed that the 2019 meeting dates would be published before Christmas, and confirmed ASX could provide a 2-3 month outlook of the agenda.

Agenda item 5: Update from Business Committee

The Chair noted that the Business Committee had not convened since the last meeting of this group. The next Business Committee meeting was scheduled for Thursday 29 November, and the agenda includes an update from the Chief Risk Officer on technology governance and operational risk matters, an update on ASX's Corporate Actions Straight Through Processing Phase 2 project, an update regarding the Securities Market Practice Group convened in Sydney prior to Sibos, in addition to the regular updates on the Technical Committee and the CHESS Replacement project.

Agenda item 6: Matters for Consideration

a) MyStandards Community – 'to-be' usage guidelines feedback

The ASX Senior Business Analyst advised that since the last Technical Committee ASX received 57 comments from 5 members on the 14 published draft guidelines. The comments related to unilateral and bilateral settlement instruction and error messages.

Some of the key themes from the feedback included:
- Suggestion to remove the Settlement Transaction Condition and rely on the elements inside the message. ASX considered this feedback and met with other vendors and participants to discuss, who reiterated that the Settlement Transaction Condition within the message is the key element inside the message for the member to build their system. They also suggested having the element inside the message also acts as a double control to reduce the chance of error. ISO 20022 does not have a standard on how the message should be consolidated, and based on the feedback received ASX will keep the Settlement Transaction Condition.
- Suggestion to change the mapping of Linkages from Securities Settlement Transaction Identification to Pool Identification. Whilst ASX agrees that Pool Identification would be a better mapping, the Securities Settlement Transaction Identification was the only element found across all (request, status and confirmation/response) messages.
- Suggestion to add Processing Position to explain why Settlement Instructions are linked. ASX will not add Processing Position due to an ISO rule that if it is used, all linked instructions must be executed together. Further details on why and how linkage will be used will be contained in the functional specifications to be released in December.
- Suggestion to review the cancel response flow mapping. ASX is conducting further investigation into the cancel flow with SWIFT standards consultants, and will change the cancel flow based on the feedback received and further review what will be the best message to use when the participant wants to cancel the settlement instruction.

The Manager, Business Analysis provided an overview of the Settlement Lock, a topic on which ASX also received feedback. The purpose of the Settlement Lock is to lock the holdings for settlement. It is a completely different lock to a Holding Lock or an Account Lock, and has been introduced as part of the CHESS Replacement project. The three ways to request a Settlement Lock include as part of the transfer request, on match, or via a separate commitment of settlement instructions, depending on the transfer type. The Manager stepped through a number of transfer types and the implication for Settlement Lock. Partial locking is not supported; all units for the purpose of settlement of a Settlement Instruction are locked, or no units are locked. If a lock is requested on match and there are insufficient units in the participant's delivering from HIN, the Settlement Instruction will be matched but units will not be locked.

The ASX Senior Business Analyst walked through the usage guidelines feedback on this feature. If the units are not available on an unmatched settlement instruction, ASX will reject the transaction. If however the units are not available on a matched settlement instruction, ASX will not reject the transaction.

The ASX Senior Business Analyst also stepped through feedback from a member to change the mapping of security lock when the participant sends a sett.105 instruction. Previously the mapping was from Hold Indicator (more to lock the settlement instruction instead of the securities), and ASX has changed it to Settlement Transaction Condition to map the security lock.

Regarding the sett.115, when the participant wants to lock the securities after the settlement instruction has been sent, ASX changed the mapping of Target Transaction Id from Transaction Id to Linkage>Reference>Securities Transaction Id, based on member feedback.

The Senior Manager, Equity Post Trade Services also noted ASX had actioned a member request to publish the MyStandards comments in Excel format in addition to PDF format, to enable sorting by usage guideline, person who provided the feedback etc.

b) Re-cap on principles of adoption

Referring to ASX presentation slide number 19, the Senior Manager, Equity Post Trade Services provided a re-cap on ASX's principles of ISO 20022 adoption, in light of comments received from members around the level of message consolidation being performed by ASX, and to ensure committee agreement with these principles going forward.

The Chair invited feedback from members on these principles prior to the next meeting (**Matters Arising 2 – Action item 69**).

c) Bilateral Demand Settlement instructions

Referring to ASX presentation slide number 20, the Manager, Business Analysis, noted that this is a new transaction allowing demand settlement with payment, and it was a prime example of new functionality being brought to the Technical Committee for discussion. It will enable the transactions to be settled outside of the settlement batch in Demand. ASX is in the process of evaluating payment services to use for this workflow. From a process perspective, there are many similarities with Bilateral Settlement instructions – the same concepts will apply around matching, and tolerances will be applied. Because this instruction is on demand, the units will be mandatorily locked by the seller on request (because it is real time). When matched a message will be sent to the participants to indicate matched, and that the instruction is pending payment. ASX will then initiate payment with the chosen payment provider. Once the payment provider has approved the payment, ASX will effect the DvP transfer. Any unsuccessful payments will result in the transfer being rejected. Further details will follow, once ASX has selected a payment provider, and seek further guidance and feedback from this community in due course.

The Chair sought clarification of the payment options under consideration by ASX, and the Manager, Business Analysis confirmed that RITS and NPP are the two potential options. ASX was engaging with the payment provider community this week to seek their feedback.

A member asked whether the Bilateral Demand Settlement instructions are gross DvP settlement. The Chair confirmed that from ASX's perspective the model was line-by-line gross, in that ASX will not apply any aggregation or netting, however that this does not preclude a participant from netting on their side. The member further enquired whether the cut-off time for cash would be later than it currently is for settlement of the CHESS Batch. The ASX Manager, Business Analysis confirmed that the current cut-off is 11.30am, and with real-time line-by-line settlement this would be later, but will be dependent on which payment option is chosen.

A member asked if ASX had considered a currency option for Bilateral Demand Settlements. The ASX Senior Manager, Business Analysis confirmed that the two payment options ASX is considering only support AUD. In its April 2018 Consultation Paper ASX contemplated the introduction of a bilateral settlement instruction in foreign currency, however this is not being progressed as a Day 1 scope item.

The ASX Senior Business Analyst then stepped through the message that will be used for the Bilateral Demand Settlement instruction – the same message as Unilateral Settlement instruction and Bilateral Settlement instruction. The message flows for an unmatched instruction, matched instruction, payment system confirmation were illustrated.

A member asked about the business processing flow, and what messages will be generated, when a participant received an alleged settlement instruction and they were delayed to input their settlement instruction, and then they input it later and it became matched. In this case would the participant receive a sese.024, or another message? The ASX Manager, Business Analysis confirmed that after matching is complete, that is when confirmation messages are sent. Details of process flows will be contained in the forthcoming technical documentation.

With regard to Bilateral Demand Settlement instruction, a member asked what would happen if one participant sent a cancellation, and the other participant sent a match, and the match arrived at ASX before the cancellation, is there a cancel rejected scenario. The ASX Senior Business Analyst confirmed that if the transaction is unmatched, and participant one sends an unmatched cancellation, participant one will receive a 'Cancellation Confirmation' notification and participant two will receive an 'Allegement Notification Cancellation". If the transaction was matched before ASX received or processed the cancellation, the cancellation would be rejected.

A member asked what would happen in the scenario where a participant had insufficient funds or stock, is there a re-try facility or is the whole transaction cancelled. The ASX Manager, Business Analysis confirmed that there is no re-try facility. The Chair added that the intent is not to treat such a case as an event of default if the funds were not available at that time (the payment was rejected).

Regarding the 'To-be' Transaction Ids for the Bilateral Demand Settlement instruction, and with reference to ASX presentation slide number 27, the ASX Senior Business Analyst explained that the same approach has been followed as applied to Unilateral and Bilateral Settlement instructions.

The ASX Senior Business Analyst explained the sett_105 Settlement Instruction Request, sett_106 Settlement Instruction Response and sett_119 Bilateral Demand Settlement Confirmation and called out key features.

With reference to ASX presentation slide number 32, the ASX Senior Business Analyst provided a summary of the messages and flows for Bilateral Demand Settlement instructions discussed during this meeting, and noted the usage guidelines would not be published in the Technical Committee collection, given the close proximity of the Technical Documentation release. The usage guidelines would be published as part of the December release. The Chair noted that it was exciting to introduce new functionality in CHESS and to discuss this with the committee.

d) Focus Group Meeting outcomes

The ASX Senior Manager, Business Analysis provided an overview of the Focus Group meeting held on 31 October 2018, on accounts and standardised registration details. ASX had proposed that account attributes be structured differently to address the issue of Registration Details and the disconnect between its two users, namely registration address and registered holder for legal purposes. The reasons for the change were outlined, along with the questions ASX had posed to the Focus Group attendees. Feedback from the attendees was due by end November, and to date ASX had received feedback from five attendees (largely supportive).

A member asked ASX to share the proposed structure with the committee, to ensure members are familiar with the new structure and how significantly different it is. The ASX Senior Manager, Business Analysis noted he did not intend to go through business processes and business requirements in this forum; for

the Technical Committee ASX will be releasing the message suite that supports the business requirement as part of the December documentation release. The member questioned when (Technical Committee) members would have the chance to review and comment on features, given the business requirement will have been finalised by the time ASX releases the message suite. The Chair noted that review was more the purpose of the Focus Group than this committee, which is more about structure of messaging and being able to process it through the workflow. The member noted they did not believe the Focus Group was representative of the market, and that the broker community was inadequately represented. The Chair confirmed that ASX had received that feedback, and that participants had been contacted after the session to elicit feedback.

The ASX Senior Manager, Business Analysis then provided an overview of the second Focus Group meeting held on 7 November 2018, on demand transfers and settlement instructions. ASX stepped through proposed solutions including: using supplementary reference as matching criteria; providing contemporary tolerance options; use of a Settlement Link Id for unilateral and bilateral instructions and broker sponsored locking of demand transfers and settlement instructions. ASX published a list of questions it is seeking feedback on, and that feedback was due on 23 November 2018.

Agenda item 7: Next meeting

The Chair noted a number of existing actions and new actions from the meeting, as would be noted in the minutes and action list.

The Chair confirmed the actions arising this meeting:
- ASX to advise AMOs in good time of the proposed AMO working group meeting date and agenda.
- Members to revert on ASX's principles for adoption, with any comments.

The Chair noted that ASX would continue to pursue progress on review of the draft T2S messages in order to capture ASX's needs and to minimise rework. ASX would also provide further detail on the forward work plan, monthly committee meetings throughout 2019, with the next meeting to be held in late January 2019 in Sydney.

The Chair thanked members for their input throughout 2018, and for participating in today's meeting. The Chair reminded members of the upcoming webinar on Technical Documentation scheduled for 12 December 2018, and that the work of ASX and its stakeholders was really moving to a 'doing' phase and appreciated everyone's support. The meeting closed at 4.45 pm.

Signed as a correct record of the meeting.

24 / 1 / 19

Technical Committee Chair   Date

ACTION ITEMS

No.	Meeting Date	Open Action Items	Owner	Due Date
20	2 May 2017	Provide details of a proposed plan including potential topics for the remaining training webinars for feedback, standard training provided by SWIFT, and including identification of business vs. technical topics.	ASX	On hold
62	4 September 2018	ASX to review the intended timing for housekeeping of unmatched messages, any standardisation opportunities, whether settlement requests could be future dated. ASX would also consider the visibility of holding locks to issuers on an intra-day basis.	ASX	Jan 2019
65	9 October 2018	ASX to consider if information such as participant party identification and preferences would be available within the node (in addition to published) and confirm to members as part of migration activity.	ASX	Jan 2019
68	27 November 2018	ASX to provide timeframe for when session with AMOS will be held, and provide sufficient notice to AMOs regarding the agenda and opportunity for AMOs to provide input on that agenda.	ASX	Jan 2019
69	27 November 2018	Members to provide feedback on principles for adoption of ISO 20022 per agenda item 6b.	Members	Jan 2019

![ASX logo]

No.	Meeting Date	Closed Action Items	Owner	Closed Date
1	13 December 2016	Amend the Charter to reflect that the Chair "will" (instead of "may") forward copies of the minutes to the Business Committee for endorsement. ASX to publish and distribute final Charter.	ASX	13 December 2016
2	13 December 2016	Provide members with information on how to access SWIFT MyStandards.	ASX	14 March 2017
3	13 December 2016	Provide members with an overview of ISO 20022 training options.	ASX/SWIFT	7 February 2017
4	7 February 2017	Provide members with list of current scope of messages for detailed mapping during first half 2017.	ASX	14 March 2017
5	7 February 2017	Schedule training webinar for the attendance by members and seek and review feedback after the initial webinar.	ASX / SWIFT	14 March 2017
6	7 February 2017	Add link to relevant ISO 20022 information websites to the CHESS Replacement web page	ASX	14 March 2017
7	7 February 2017	Provide more details on access to online education available at swift.com.	SWIFT	14 March 2017
8	7 February 2017	Provide members with the current list of Market Identification Codes (MICs)	ASX	14 March 2017
9	7 February 2017	Provide members with more information on the use of BIC vs. UIC as the party identification code.	ASX / SWIFT	14 March 2017
10	7 February 2017	Market Operators to advise the preferred MIC to be presented in trade related messages as the "Place of Trade".	ASX, Chi-X, NSX, SSX	6 June 2017
11	7 February 2017	ASX to conduct analysis on whether the identification of a financial instrument is a fixed value or true value of the proprietary code issuer.	ASX	14 March 2017
12	7 February 2017	Provide list of proposed code (i.e. condition or BOM) in ISO 20022 format (4 character) mapped against CHESS codes.	ASX	14 March 2017

No	Meeting date	Closed Action items	Owner	Closed date
13	7 February 2017	Add a general CHESS Replacement update to the standing agenda for meetings.	ASX	14 March 2017
14	7 February 2017	Check the next Technical Committee meeting date planned for March and advise members of any change.	ASX	14 March 2017
15	14 March 2017	Schedule future agenda item to discuss transition arrangements, including any changed values (e.g. party identifiers).	ASX	2 May 2017
16	14 March 2017	Create register of matters that may impact upstream, downstream systems or processes, including codes, identifiers and ISO 15022.	ASX	2 May 2017
18	14 March 2017	ASX to draft procedures for change requests to usage guidelines and code lists	ASX	2 May 2017
21	2 May 2017	Provide a list of standard training topics to share. Noted this action item is combined with action item 20.	SWIFT	6 June 2017
22	2 May 2017	Provide members with a copy of the presentation material from the trial training webinar held on 27 April 2017.	ASX	6 June 2017
24	2 May 2017	Resolve issue with Comments function on MyStandards and advise members when fixed.	ASX/SWIFT	6 June 2017
25	2 May 2017	Provide samples of the proposed consolidation and rationalisation scenarios for EIS 138 and EIS 134.	ASX	6 June 2017
26	2 May 2017	Provide proposal to broaden the engagement and method to seek feedback on key concepts such as consolidation/rationalisation.	ASX	6 June 2017
27	6 June 2017	Publish list of comments received on MyStandards with ASX responses regularly, around the time of each meeting.	ASX	18 July 2017
28	6 June 2017	Re-publish ISO 20022 equivalent of EIS 138 with corrected default value INFO for issuer of financial instrument code.	ASX	18 July 2017
29	6 June 2017	Review EIS 102 mapped equivalent message with Scott Oakland, JPM – optional inclusion of HIN.	ASX	18 July 2017
33	6 June 2017	Provide a presentation of CHESS EIS mapping to ISO 20022, and typical ISO 20022 flows to assist committee discussion of key topics (e.g.	ASX	18 July 2017

No.	Meeting Date	Closed Action Items	Owner	Closed Date
		rationalisation, consolidation, descope of certain processes like allegement modify). ASX would also seek input from key members about the best process going forward.		
34	6 June 2017	Add the overview of transaction ids to the July meeting agenda.	ASX	18 July 2017
31	6 June 2017	Sample consolidated (EIS 138) and rationalised (EIS 138 and 134) messages published in the MyStandards community – in a separate collection "Sample Message Review". Members to review and provide further comments via MyStandards, email.	Members	22 August 2017
32	6 June 2017	For Cancel/Correct & Modify, ASX recommendation revised to only do cancel/correct for bilateral modifications (and not allow modify – removal of EIS 121). ASX to contact users of EIS 121, and action remains open until all members confirmed their agreement with the recommendation.	ASX, Members	22 August 2017
30	6 June 2017	Obtain international usage comparisons on the use of UTC time format. Members to provide input from international offices where possible.	ASX, members	22 August 2017
35	18 July 2017	ASX to publish all final draft usage guidelines in MyStandards and highlight to members those usage guidelines that need their review. SWIFT to advise if a flag is available in MyStandards to indicate particular review items.	ASX, SWIFT	22 August 2017
36	18 July 2017	Provide members with details of feature in MyStandards to affirm a comment.	ASX, SWIFT	22 August 2017
17	14 March 2017	Provide further information on party identification for issuers – UIC or BIC and proposed process.	ASX	10 October 2017
37	18 July 2017	Provide comparisons to other market implementations of transaction ids.	ASX, SWIFT	22 August 2017
38	22 Aug 2017	Review consistency of the application of UTC date, date and time, zulu format, and add item to upstream/downstream considerations log re the use of UTC for Trade Date confirmations	ASX	10 October 2017

No.	Meeting Date	Closed Action Item	Owner	Closed Date
		from AMOs (with flow on impact to EIS 164 equivalent).		
40	22 Aug 2017	Provide list of CHESS EIS messages in scope for detailed mapping during 2nd half of 2017, including identification of descoped messages.	ASX	10 October 2017
44	10 Oct 2017	ASX project team to consider effective housekeeping of rights that expire worthless – and whether this could be improved.	ASX	21 November 2017
45	10 Oct 2017	Review recommendations put to committee in Agenda item 6c) – approach to ISO best practice exceptions and provide feedback to ASX.	Members	21 November 2017
46	10 Oct 2017	Review recommendation put to committee in Agenda item 6d) – inclusion of unique event id in Market Infrastructure Tx id (MITI) field.	Members	21 November 2017
47	10 Oct 2017	Allow for future use of Party2+ identification in messages, and ensure discussion on same point at working group meetings re business requirement.	ASX	21 November 2017
19	2 May 2017	Provide sample of demonstration of comparison between ISO 20022 and ISO 15022 messages.	Scott Oakland, JPM	On hold
23	2 May 2017	Further review of the ASX CHESS demand reporting summary and responses to questions contained in that summary. ASX to continue review of reports and provide further candidates for descope at meetings.	Members / ASX	21 November 2017
39	22 Aug 2017	Chair to contact members seeking feedback on the approach of the Technical Committee, any suggestions to improve the process.	ASX	21 November 2017
41	22 Aug 2017	Conduct bilateral discussions with share registries and mailing houses regarding structuring of registration details and associated static data.	ASX	21 November 2017
42	22 Aug 2017	Conduct bilateral discussions with share registries regarding current holding balance changes associated with corporate actions and proposed withdrawal of EIS 421.	ASX	21 November 2017

No.	Meeting Date	Closed Action Item	Owner	Closed Date
43	10 Oct 2017	Provide a proposed governance method for Technical Committee input to and review of all matters tabled at the Standards Evaluation Group (SEG), including any matters raised by ASX on behalf of community.	ASX	21 November 2017
48	21 Nov 2017	Members to review information provided in agenda item 6d) and respond to the question – was there appetite for using xml in model 1b or 2a as presented or keep the mapping 1 to 1.	Members	6 February 2018
49	6 February 2018	ASX to confirm additional 'as-is' usage guidelines that could be published in Q2 and members to provide expression of interest in reviewing this set.	ASX	17 April 2018
50	22 May 2018	Digital Asset to review the NDA regarding the DAML SDK and respond to questions around one way vs. two way.	DA	26 June 2018
52	22 May 2018	ASX to give consideration to how it would advise users of any change to the external code lists and report back to members.	ASX	31 July 2018
54	26 June 2018	Members to review and advise ASX of any feedback on the recommendation that Transaction Date Time (<TxDtTm>) in the sett_101 message is UTC.	Members	31 July 2018
55	31 July 2018	A member asked where change requests for SR2019 would be visible. The Senior Manager confirmed ASX would send information on where to find the information. The information is also published on MyStandards.	ASX	4 September 2018
53	22 May 2018	Members to answer 4 questions if they are considering using a BIC as their party identification: whether they would use a new or existing BIC, whether the BIC was connected or non-connected, whether it was a BIC8 or BIC11, and if that BIC would apply to all activity for that organisation or actor, or for multiple activities. Examples would be helpful.	Members / ASX	9 October 2018
56	31 July 2018	Provide members with more information on the Corporate Actions STP Phase 2 project.	ASX	9 October 2018
57	31 July 2018	Members to review the consideration to provide a complete set of settlement obligations (net broker, gross broker - per slide #12 from 31 July presentation) and advise feedback to ASX.	Members	9 October 2018

No.	Meeting Date	Closed Action Items	Owner	Closed Date
59	31 July 2018	Share registries to share findings from study of registration details at the 4 September meeting.	Share registries	9 October 2018
61	4 September 2018	ASX to ensure coverage of possible scenarios for locking in the requirements, particularly those that are participant driven for certain reasons.	ASX	9 October 2018
63	4 September 2018	Members to review ASX's recommendations regarding changes to the sett_101 as presented in Agenda item 6d) and provide feedback by 18 September 2018.	Members	18 September 2018
51	22 May 2018	ASX to consider how impacted stakeholders could be engaged on the standards for registration details prior to the next meeting.	ASX	27 November 2018
58	31 July 2018	ASX to publish proposed to be messages for updates to accounts – reda_023, reda_020, reda_021 for member review.	ASX	27 November 2018
60	4 September 2018	ASX to prepare and publish a consolidated list of all actions and outcomes from Technical Committee meetings, and update after each meeting going forward.	ASX	27 November 2018
64	9 October 2018	ASX to advise Members the confirmed date for Technical Documentation release in December, and the associated webinar details.	ASX	27 November 2018
66	9 October 2018	Members to consider any specific topics regarding settlement, holding locks for inclusion in the agenda of the upcoming Focus group and advise ASX.	Members	27 November 2018
67	9 October 2018	ASX to review level of consolidation for Unilateral and Bilateral settlement instructions usage guidelines.	ASX	27 November 2018

Minutes

ISO 20022 Technical Committee Meeting

Date	Friday, 8 February 2019	Time	9.00am – 11.00am
Location	ASX Offices – Level 1, 20 Bridge Street, Sydney and via webinar		

1. **Welcome, Agenda**

2. **Minutes from last meeting, open actions**

3. **CHESS Replacement project update by ASX**

4. **ISO 20022 project update by ASX**

5. **Update from Business Committee**

6. **Matters for Consideration (Business and Technical Matters)**

   a) Re-cap on register of upstream / downstream matters

   b) Re-cap on Technical Documentation release December 2018

   c) Transfers / Conversions – Participant to Issuer

   d) Review of 'to-be' messages

   e) Focus Group outcomes – FIX for trade reporting

7. **Next Meeting** - Tuesday 26 March 2019

Technical Committee Members

Company	Name	Job Title	Apologies
Australian Payments Network Limited	Andy White	Chief Operating Officer	Apology
Australian Payments Network Limited	Paul Creswick	Security Standards Manager	
Bank of America Merrill Lynch	Andree Hindmarsh	Head of GMOT Australia	
Bank of America Merrill Lynch	Jimmie Alam		
Bell Potter Securities	Dean Surkitt	Managing Director Retail	
BNP Paribas Securities	Penelope Stafford	Manager Settlements	
BNP Paribas Securities	Wayne Murphy	Project Manager	
Boardroom Limited	Tony Robinson	Senior Software Engineer	
Boardroom Limited	Michael Mullins	CIO	
Broadridge (Australia)	Manoj Mathew	Business Analyst	
Broadridge (Australia)	Mabel Chow	Development and Support Manager	
Broadridge (Australia)	Tomas Kliman	Senior Project Manager	
Broadridge (Australia)	James Marsden	APAC Business Development & Strategy	
Broadridge (Australia)	Andy King	Product Specialist	
Broadridge (Australia)	Anil Wali	Product Specialist	
Broadridge (Australia)	Alok Ranjan	Technology Specialist	
CBA Equities	Joel Cox	Technical Business Analyst	
CBA Equities	Carolyn Webb	Test Manager	
CBA Equities	Ben Lowe	Manager Settlements	
Chi-X Australia	Mike Aikins	Head of Solution Development	
Chi-X Australia	Suketu Adhvaryu	Senior Solution Architect	
Citicorp	Miles O'Connor	Director, Direct Custody & Clearing Securities Markets & Securities Services	
Citicorp	Andrew Gibson	Director – Head of Direct Custody and Clearing Australia & NZ	
Citicorp	Brett Dennis	Head of Operations – Party Clearing	
Citicorp	Lyall Herron		
Citicorp	Janice O'Brien	Markets & Securities Services Technology	

Company	Name	Job Title	Apologies
Citicorp	Matthew Warner		
Citicorp	Ashok Kumar Balusa		
Citicorp	Glenn Pahilan		
Citicorp	Stephen Rylands	Product Manager	
Citicorp	Pradeep Pandian		
CMC Markets Stockbroking	Nikola Vanstan	Change Manager	
Computershare	Paul Walton	Senior Manager, Corporate Actions & New Business Development – Investor Services	
Computershare	Leanne Bailey	Senior Business Analyst Product & Innovation	
Computershare	Laik Tan		
Deutsche Securities	Kevin Novini		
Digital Asset	Fil Mackay	Senior Product Architect	
Dion Global Solutions	Craig Gray	Product Manager – Australia and NZ	
Dion Global Solutions	Nikki Gleisner	Account Manager	
GBST	Sue Schafer	Product Owner	
GBST	Khanh Le	Systems Architect	
Goldman Sachs	Darrel Schwarz	Technology Vice President	
Goldman Sachs	Josh Rice		
Goldman Sachs	Nidhi Luthra		
HSBC Securities Services	Gregory Wilkin	Head of HSBC Operations	
HSBC Securities Services	Salih Kulic	Manager Custody	
HSBC Bank Australia Limited	Michael Macintosh	Senior Client Account Manager, Global Liquidity and Cash Management	
HSBC Bank Australia Limited	Anna Fratini	Senior Product Manager – High Value Payments, Clearing and Financial Institutions,	
HSBC Bank Australia Limited	Phyllis Yeung	Senior Analyst	
HSBC	Herman Wong	Manager, Change Management & Delivery	
HSBC	Edmond Chan	Senior IT Development Manager	
HSBC	Cherrie Xu	Head of IT Securities Service	

Company	Name	Job Title	Apologies
HSBC	Asri Asat	Optimisation Manager, Securities Service	
HSBC	Chang Gao	Business Consultant	
JP Morgan	Ed Lawson	Settlements Manager	
JP Morgan	Danny Ng	Middle and Back office AD Manager	
JP Morgan	Scott Oakland	Direct Custody Product Manager Australia	
JP Morgan	Ned Miglez		
JP Morgan	Daniel Smith	VP, Network Management	
JP Morgan	Lesley Henderson	Technology Product team	
Link Group	Ian Batterham	Business Applications Architect	
Link Group	Robert Watson	IT Architect, Technology & Innovation Division	
Link Group	Stephen Dear	Project Manager	
Macquarie Group	Paul Bragg	Senior Manager Equities Clearing ANZ	Apology
Macquarie Group	Merrilyn Auton	Manager Operations	
Morgans Financial	Matt Neaubauer	Team Leader, Service Management Team	
Morgans Financial	Ed Strike	IT Manager	
Morgan Stanley	Dorothy Wilson	Executive Director, Morgan Stanley Wealth Management, ISG Technology	
Morgan Stanley	Kirsty Venters	VP, Prime Brkrg Funding & Fin Tech	
Morgan Stanley	Oscar Dela Cruz		
Morgan Stanley	Andrew Fielder		
Morgan Stanley	Gordon Davies	VP/Firmwide Ops	
Morgan Stanley	Andrew Sime		
Morgan Stanley	Emily Krezlewski	Operations	
NAB Asset Management	Suresh Chinnappa	Head of Custody Service Operations	
National Australia Bank	Regina Gosney		
National Stock Exchange	Yemi Oluwi	Head of Technology	
Nomura Research Institute	John Ryan	Senior Consultant	
Nomura Research Institute	Ashish Jha		
Nomura Research Institute	Sayantan Majumdar	Chief Manager, Business Solutions	
Nomura Research Institute	Diptesh Chakraborty	Solution Architect	

Company	Name	Job Title	Apologies
Northern Trust	Yen Pan Chung	Senior BA, Market Advocacy and Innovation Research	
Northern Trust	Pawel Kalbrun		
Securitease	Anton Smith	Director	
Securitease	Chris Werry	Business Analyst	
Securitease	Angela Losurdo	Business Systems Analyst	
Share Investing	Phil Barnes	Senior Manager, Platforms	
SWIFT Standards	Nicole Jolliffe	Senior APAC Standards consultant	
Sydney Stock Exchange	Leo Zhang	Manager – Market Control	
Sydney Stock Exchange	Omar Obol	Market Control Officer	
Sydney Stock Exchange	Antony Tolfts	Listing Director	
UBS	Phillip Drury	Phillip Drury, Executive Director, Equities IT	
UBS	Duncan Earl	Executive Director, Head of Change, UBS Group Operations	
UBS	Neil Martin	IT – Project Management	
Wealthhub Securities	James Channon	Manager, Capital Markets Trading	

ASX Management

Name	Job Title	Apologies
Tim Hogben	Chief Operating Officer (Chair of the Technical Committee)	
Gary Hobourn	Senior Economic Analyst, Regulatory and Public Policy	Apology
Con Korkofigas	Senior Legal Counsel	
Tegan Jones	Senior Legal Counsel	
Cliff Richards	Executive General Manager, Equity Post Trade Services	Apology
Katie McDermott	General Manager, Equity Post Trade Services	
Karen Webb	Senior Manager, Equity Post Trade Services	
Russell Eyre	Enterprise Architect	Apology
Anne-Marie Fisher-Taylor	Project Subject Specialist	
Fraser Moodie	Manager, Integration and Connectivity, CHESS Replacement	Apology
Frederik Van den Weghe	Senior Manager, Business Analysis	Apology
Karen Hamilton	Manager, Business Analysis	
Priscilla Ferri de Barros	Senior Business Analyst, Equity Post Trade	
Sachin Zope	Business Analyst, Equity Post Trade	

The meeting commenced at 9.00am.

AGENDA ITEM 1: AGENDA OVERVIEW

The Chair welcomed Technical Committee members to the meeting including members attending by webinar, and noted a number of new members had joined the Committee.

The Chair outlined the Agenda for the meeting, referring to the presentation slides prepared by ASX.

AGENDA ITEM 2: MINUTES FROM LAST MEETING, OPEN ACTIONS

The Chair noted that the minutes from the last meeting held on 27 November 2018 had been finalised and no comments had been received from members. The minutes had been distributed and published on the web page.

The Chair noted the outstanding actions from the last meeting as outlined on slide number 5 of the ASX presentation.

Action item 20 was for ASX to provide a proposed plan for the remaining training webinars. The Chair noted that ASX is hosting Connectivity & Integration Working Groups that have covered ISO 20022, and that ASX's 2018 Consultation Paper also provided further information on ISO 20022 messaging. ASX expects to reassess what training is required after the Working Group has been completed, and requested that members advise ASX if there were any particular needs for training. **This item remains on hold**.

Action item 62 was for 1) ASX to review the intended timing for housekeeping of unmatched messages, any standardisation opportunities for timing; 2) whether settlement requests could be future dated; and 3) ASX would also consider the visibility of holding locks to issuers on an intra-day basis. The Chair explained that 1) the housekeeping is still under review, 2) no forward scheduling of non-batch settlement requests would be possible, and 3) ASX's consideration of the visibility of holding locks to issuers on an intra-day basis will likely fold into the Corporate Actions Focus Groups planned in the future. **The second part of this item was closed, with the first and third parts remaining open.**

Action item 65 was for ASX to consider if information such as participant party identification and preferences would be available within the node (in addition to published) and confirm to members as part of migration activity. The Chair advised that ASX did not have a definitive position on this at this point in time, and **this item remains open**.

Action item 68 was for ASX to provide a timeframe for when session with AMOs will be held, and provide sufficient notice to AMOs regarding the agenda and opportunity for AMOs to provide input on that agenda. The Chair advised that the session was held on 29 January 2019, and **this item was closed**.

Action item 69 was for members to provide feedback on the principles for the adoption of ISO 20022 (per ASX presentation slide number 6). The Chair noted that ASX had not received any comments from members.

A member confirmed they were comfortable with the principles but sought clarification about the process where the Committee is reviewing messages, when proposed changes are being made, adherence and consistency with the principles of ISO 20022 adoption, and who is the 'gatekeeper'. The member called out the specific example of the last principle (being mindful of the impact on the system behaviour, including development effort), and the relative cost/benefit. The General Manager, Equity Post Trade Services, noted that ASX is indeed intending to be mindful of the impact, but the community has agreed to adopt ISO 20022, hence the solution design needs to minimise the impact on systems but the overarching deliverable needs to be adoption of ISO 20022. The General Manager, Equity Post Trade provided the example of feedback from Focus Groups, such as the feedback from registries on the impact of the registration details change on their systems, which has been factored into the solution design. The Chair requested the member send through examples of where they believe the principles have not been followed. ASX would also consider how it measures and tests its principles of ISO 20022 adoption from a cost/benefit perspective, and clearly articulate why the changes are proposed. **(Matters arising 1 – Action item 70)**

A member noted that ASX had defined a number of different uses of "sese" messages for example vs. the EIS equivalents, and was there opportunity for consolidation into a single message. The Senior Business Analyst, Equity

Post Trade confirmed that ASXs approach for consolidating messages is to ensure the consolidation makes sense by business area, including consideration of related business events. This is a balance vs. using consolidated messages that may rely on external documentation (like T2S) to describe all scenarios and usage.

Notwithstanding the discussion that this action item prompted, the Chair **closed this item**, with general consensus that the principles remained right and relevant.

A member noted that ASX's CHESS Replacement technical documentation does not have revision marks, or is dated as at, and hence a reader must read the documentation in its entirety in order to surmise what had changed, and that revision marks would be much easier for the reader. The Manager, Business Analysis, noted that since the first release of technical documentation in December 2018, the only change that has been made was one update to one number in one UML message, and this was called out in the section 'What's New'. When the second drop of documentation is released in March 2019, ASX will use the Release Notes to make explicit what is changing, and any revisions/version control will be visible.

A member asked whether questions raised to ASX will be published to other committee members, given the likely relevance to other committee members. The member noted he had 12 questions outstanding, and the lack of granular response to these questions is hindering progress. The Chair committed ASX to reviewing SLAs around response times to queries and questions, including acknowledging questions where ASX may not currently have an answer. (**Matters arising 2 – Action item 71**) The Senior Manager, Equity Post Trade Services suggested ASX could address these comments later in this meeting, given the agenda item regarding technical documentation.

AGENDA ITEM 3: CHESS REPLACEMENT PROJECT UPDATE BY ASX

The Chair invited the General Manager, Equity Post Trade Services to provide an update on the project.

The General Manager noted that the project was on track. Digital Asset (DA)'s software delivery is moving ahead at pace, and the project team continues to grow. Sue Julian, a previous member of this committee, was recently hired by ASX from Link Market Services.

Blythe Masters had stepped down as CEO of DA, but will remain a member of DA's board, shareholder and strategic advisor. AG Gangadhar has been appointed Chairman of the Board and acting CEO whilst the search for a permanent CEO occurs. Blythe's stepping down has no impact on the timeline for CHESS Replacement.

The next key milestone is the availability of the Customer Development Environment (CDE) in April 2019; a development environment for both ASX and participants. Each participant or vendor will be provided access to their own dedicated test environment. Drop one will support all key connectivity options – direct, AMQP and SWIFTNet. Functionality in drop one will include account creation and unilateral and bilateral instructions. The data within CDEs will not be retained when upgrading to future releases (for example CDE drop 2, 3 etc) – the entire environment will be refreshed. ASX would encourage development of re-runnable test scripts.

The next Connectivity & Integration working group will be held on 6 March, focused on CDE, and this will likely occur via webinar given the broad interest.

The first tranche of technical documentation went live on 14 December. Over 300 people from various organisations have registered to access the documentation, and the link can be found on the ASX CHESS Replacement homepage. Of note, the documentation included a six month rolling feature view within the release notes. This covers the capabilities/features that will be included in the next tranche of technical documentation to be released in March, for the code to be released in June (CDE drop 2). ASX will update the rolling forward feature view for the August drop of code (CDE drop 3) by the end of February. ASX will host the application forms to register to access CDE on the technical documentation site – also by the end of February.

Referring to ASX presentation slide number 7, the General Manager, Equity Post Trade Services provided an update on the stakeholder engagement plan for 2019. The first Focus Group and Connectivity and Integration Working Group for 2019 have occurred. The topic of the Focus Group was AMO connectivity and trade registration, and Chi-X, NSX, SSX

and ASX Trade attended. The Connectivity and Integration Working Group was held earlier that week, and focused on ASX Net requirements and ISO message signing. Although the majority of current CHESS participants have ASX Net within their organisation today, not all participants use it to connect to CHESS. Production style connectivity needs to be in place prior to Industry Wide Testing (IWT) connectivity, commencing from July 2020, so clients who have ASX Net connectivity but do not use it for CHESS today should give consideration to migration now. Message signing provides data integrity, authentication and non-repudiation for ISO 20022 XML messages, and ASX will release further information on this topic at a later date. ASX is working towards kicking off the Implementation and Transition Working Group on 20 March 2019, likely via webinar due to the number of interested parties. ASX will send out an email inviting people to register to attend in due course. The stakeholder engagement calendar of events for 2019 can be found on the CHESS Replacement homepage, and comments or feedback were welcomed via email to chessreplacement@asx.com.au.

A member enquired how much notice ASX would provide should anything on the 2019 stakeholder engagement calendar of events substantially change, given the flow-on effects for organisations' resourcing. The General Manager, Equity Post Trade Services confirmed that ASX would communicate any change as soon as it became aware of changes to deliverable dates or key milestones. The Chair noted similar concern expressed through the Business Committee, and reiterated that the market would be notified of changes as soon as known to ASX.

AGENDA ITEM 4: ISO 20022 PROJECT UPDATE BY ASX

The Senior Manager, Equity Post Trade Services provided an update on the ISO 20022 project. The technical documentation release in December 2018 contained 37 finalised messages and 4 EIS messages were confirmed as descoped. Topics being worked on by the team, alongside the functional team, included transfers and conversions (for further discussion at today's meeting), corporate actions and the mFund service. It was noted that the draft usage guidelines discussed at the 27 November 2018 meeting were not published for committee review, rather were part of the December 2018 technical documentation release. No comments were permitted via MyStandards in relation to the technical documentation, and comments should be submitted via email to CSPSupport.asx.com.au.

A member queried whether the intention at the last (27 November) meeting had been to go through payment facilities, or whether it had dropped off the agenda. The Senior Manager, Equity Post Trade Services confirmed that the team had been working on different flavours of payment functionality, and given that the analysis work is still underway it was decided that tabling with this committee would be deferred in lieu of other topics where ASX's analysis was more mature.

A member queried how to identify exactly what functionality will be contained in each code drop, specifically for the registries. For example it wasn't clear if the issuer side of party information was included in the December documentation release. The Manager, Business Analysis confirmed that each drop will be accompanied by detailed release notes, which will specify exactly what will and will not be included. In addition, summary release notes will be provided as part of the documentation drop three months in advance of the code drop. The member queried whether the detailed release notes would specify which groups would be involved, and the Manager, Business Analysis confirmed that this feedback would be taken into consideration for drafting of the first detailed release notes to accompany the first April 2019 code drop.

The Senior Manager noted that the SWIFT MyStandards maintenance periods had changed from mid-week to weekend Australian time following ASX discussions with SWIFT, where ASX and the Australian community had been negatively impacted on a regular basis by the maintenance scheduling

On a global ISO 20022 engagement front, ASX continued to join the monthly meetings of the ISO 20022 Securities Standards Evaluation Group (SEG). ASX also continues to participate in a sub-group within SEG, the T2S Evaluation Team, given that ASX have identified a number of draft T2S messages that could be adopted for CHESS Replacement. The next meeting of the T2S group was planned for March, and a number of messages will be reviewed, with ASX having interest in around 10 messages under review. The Business Application Header (BAH) change request submitted by ASX is progressing well, and ASX is happy with the proposed updated BAH. The Business Justification submitted by ASX to cover

new messages that ASX may seek registration for went through a review process late last year with the SEG (and other groups), and was approved in December. The next stage is for ASX to continue to work through the functionality behind those new messages and get them ready for the process of seeking review and registration.

AGENDA ITEM 5: UPDATE FROM BUSINESS COMMITTEE

The Chair noted that the Business Committee last met at the end of November. The agenda included a briefing on the CHESS Replacement project, with a focus on the first release of technical documentation and the extensive customer engagement program. An update was also provided on ASX's 'Licence to Operate' initiatives, including providing critical market infrastructure and contemporising the technology environment at ASX. This includes everything from relocating the secondary data centre, to the CHESS Replacement project, to ASX Net upgrades, to making data repositories more contemporary. An update was also provided on ASX's Corporate Actions Straight Through Processing Phase 2 project. The Chair noted that the Business Committee would next meet on 4 April 2019, and the agenda had yet to be published.

AGENDA ITEM 6: MATTERS FOR CONSIDERATION

a) Re-cap on register of upstream / downstream matters

The Senior Manager, Equity Post Trade Services explained the purpose of the register that ASX was maintaining as a result of discussions and actions arising from previous meetings. An update was provided on each of the items.

The first item referred to the adoption of BIC as an identifier for participants. It was noted that this item had been closed out through various meetings – where BIC as an alternate identifier was available. This matter was considered closed by ASX. A member queried whether a participant could have one BIC but split its business into two UICs in the CHESS replacement solution. The Senior Manager, Equity Post Trade Services noted the guidance ASX had already provided that this would not be allowed, and that a 1 BIC to 1 UIC relationship is required.

The second item referred to considerations to those in the market who use ISO 15022, and whether any backward compatibility considerations arose. This matter had been discussed and closed in prior meetings. The Senior Manager, Equity Post Trade Services also noted that the Registration Authority for ISO 15022 and 20022, through its various working groups, do ensure that any changes to the base messages are aligned across both standards. This matter was considered closed by ASX.

The third item was with regard to the documentation of procedure changes, including procedures for how to request change requests for example to code lists, usage guidelines. The Senior Manager noted this item remains open. And that ASX was ramping up its internal activities around how to operationalise the replacement of CHESS, and this item will be front of mind for procedures and how ASX gives its customers information on how change will be approached.

The fourth item was with regard to the adoption of four character codes to identify values (in place of 2, 3, 4 character codes), and mapping considerations to other systems. The Senior Manager noted that ASX's approach at present will be to adopt 4 character codes in CHESS Replacement, and do any necessary translation/mapping so as not to force any changes on upstream or downstream systems.

The fifth item referred to the need to outline a post implementation change schedule. The Senior Manager noted this item was being considered by ASX as part of the operationalisation activities. A member queried whether it was a November release date for ISO messages. The Senior Manager, Equity Post Trade Services confirmed that it was for ISO 15022 messages, but there was no hard cut off date for ISO 20022 messages. The changes are published in the same cadence but it is not necessarily a mandatory change – each market must agree what version of the standards it is using. ASX had adopted the ISO 20022 harmonisation principles, including the principle that it should not be more than two versions behind the latest standard. ASX will review this as part of its ongoing releases.

The final item referred to the review of the consistency of the application of UTC date and time format. The Senior Manager noted this topic had been spoken to at some length in committee meetings. The formats to be used in the ISO 20022 messages have been agreed, and ASX will provide translation where necessary to and from other systems. This is also a topic for particular attention at the AMO focus group.

b)   Re-cap on Technical Documentation release December 2018

Referring to ASX presentation slides numbered 14 to 17 the Manager, Business Analysis provided an update on the release of the first tranche of technical documentation on 14 December 2018. The release included functionality available in CDE drop 1, and where possible an early view of documentation was also provided, for example the documentation for bilateral and unilateral settlement instructions, which will not be included in CDE drop 1, but released to provide a holistic view. To date, over 340 people had registered to access the documentation, 41 people had registered within the MyStandards community, and 5 companies had registered within the readiness portal (comprised of 21 individual users).

Feedback on the documentation via the CSPSupport asx.com.au mailbox had been constructive, and where themes emerge in the feedback ASX will update the Frequently Asked Questions (FAQs) on the site as well as update the documentation as necessary. Any changes to documentation will be clearly called out in the 'What's New' section. Where the query is more specific to an individual user, ASX will continue to respond bilaterally over email.

The documentation will be continually enriched and enhanced. In February the testing documentation will be released, including the CDE application form. In March ASX will release further functionality documentation, alongside messages and likely an update to connectivity.

The Manager, Business Analysis provided a re-cap on the contents of the first tranche of technical documentation, including functional specifications, messaging catalogue and ISO 20022 technical manual, and connectivity options.

A member asked why there was approximately only 50 EIS equivalent messages contained within the EIS Cross Reference Guide, and the Manager, Business Analysis confirmed this documentation would be enriched with each release until it contained a complete mapping of all EIS messages. The member queried why ASX wasn't publishing something akin to the MyStandards page containing a mapping of every, or at least a substantial majority of, EIS messages, together with the new elements that are not in EIS. The Manager, Business Analysis advised that ASX had worked closely with SWIFT to complete a mapping exercise of all EIS messages to ISO messages as a base message, based on like for like, prior to ASX's detailed functional analysis to determine whether changes or enhancements to the business process would be made. ASX cannot guarantee those will be the final messages used (rather this is being communicated via the tranches of technical documentation), but it is a guide/reference.

The member noted ASX had had the time and ability to explore and review the messages, and requested this be opened up to members, to enable them to likewise explore and review given each members' subject matter expertise in their own businesses. The member further clarified that ASX's focus to date had been around business areas it had expertise in – for example trade, netting, settlement, whereas little of the world of the member (e.g. registry) had been exposed via the technical documentation or this committee. The Chair noted that the first release was the first step in a process, and further information will follow with regard to the issuer related functions. The member cited statistics where over the past year the member's organisation consumed 18 million CUM balance records and 18 million holder updates. The Chair noted these figures, and reiterated that there is a prioritisation process. ASX was not in a position to release everything right now, is managing a broad group of stakeholder interests, and is cognisant of the significance of the issuer stakeholder group.

An AMO member queried how their organisation not being permitted access to the ASX's CHESS Replacement community on MyStandards served as the best solution, when that organisation (and indeed other AMOs) would bring expertise and knowledge to the dialogue around post trade products and services. The General Manager, Equity Post Trade Services reiterated the prioritisation of the users of the messages that will be impacted. It was not clear to ASX why AMOs, connecting via the alternative medium FIX, would need to be part of this community. The member responded that if ASX wanted the best solution it should have the broadest consultation, and AMOs would be additive to that process, rather than disruptive, adding value on matters unique to products ASX doesn't trade, or unique to functions that do not default to ASX. The Chair noted the member's request to join the MyStandards community, which ASX would consider. (**Matters Arising 3 – Action Item 72**).

Referring to ASX presentation slide number 18 the Senior Manager, Equity Post Trade Services re-capped on the two communities now available in MyStandards – the 'ASX ISO 20022 Technical Committee' community for continued publication of draft usage guidelines, and the new 'ASX CHESS Replacement' community for publication of ISO 20022 messages in line with releases of Technical Documentation. Comments from the former community are to be directed to the CHESS Replacement mailbox, and the latter, a more formal process via the CSP mailbox.

Referring to ASX presentation slide number 19, the Senior Manager, Equity Post Trade Services re-capped on the activities of this committee for 2019.

c)   Transfers / Conversions – Participant to Issuer

Referring to ASX presentation slide number 20, the Manager, Business Analysis, commenced by providing an overview of what a Transfer and Conversion is; the holding movement from a Participant controlled account within the ASX Clearing and Settlement Platform (CSP) to an Issuer Sponsored account. The Manager noted that today's discussion was restricted solely to movements from Participant to Issuer, with Issuer to Participant movements to be covered in the next meeting. A member queried the accuracy of the definitions of Conversion and Transfers put forward by ASX in the presentation slide, noting that a Conversion out of CHESS doesn't 'move' the holding, it 'releases' it, and that there are more things that happen off the back of a conversion. In the case of Transfers, the member noted these were not necessarily to another account holder, to which the Manager, Business Analysis noted that yes it was not necessarily, but it could be. ASX's Senior Legal Counsel provided clarification that the references to Conversion and Transfer in the slide related to movements of financial products between the CHESS Subregister and Issuer Sponsored Subregister, with Conversions involving movements where there was no change of legal ownership and Transfers involving movements where there was a change of legal ownership.

With reference to ASX presentation slide number 21, the Manager, Business Analysis provided an overview of the change to the process – account registration details will no longer be provided within the Conversion or Transfer messages. A member noted that ASX's proposed solution presented a substantial shift from the draft message seen in December 2017, and that the substantial complexity of this solution flowed directly from standardised registration details. The member queried whether ASX would tie together all of the messages a user would receive, and stressed that a registry could not receive a Transfer without receiving alongside this the target information. The member noted they were not so concerned with the detailed fields but the process flow presenting risks and delays, and that the complicated change didn't agree with existing registry structures. The Manager, Business Analysis noted that the process would be presented later in today's meeting.

Referring to ASX presentation slide number 22, the Business Analyst, Equity Post Trade provided an overview of the 'To-be' Participant to Issuer Transfer and Conversion message consolidation, comparing current EIS messages to the 'to-be' messages. A member queried whether the process would add to broker costs, to which the General Manager, Equity Post Trade Services replied that while ASX had not finalised the fee schedule for CSP, it was not the intention that additional messages would increase costs. The member cited an example where an investor who had not chosen to be sponsored by the broker who was initiating the Transfer from CHESS to Issuer Sponsored, and who had consciously decided they did not need a CHESS HIN and wanted their stock on the Issuer Sub-Register – what would differentiate the request that the broker sends to CSP that says to create that account and holder, and then map that to the identity that you are trying to send the stock out of CHESS to the Issuer's world. The Chair sought clarification that the member was referring to the situation where a client was not sponsored by a broker, and they wanted to become Issuer Sponsored from the trade they have asked the broker to execute, i.e. the trade only 'touches' CHESS/CSP for the purpose of settlement. The Chair noted that the described process wasn't changing, but the member suggested it was, because ASX was creating an identity to package up with the Transfer. The Senior Business Analyst, Equity Post Trade confirmed that ASX was creating a new Account Type called Registration Identifier.

Referring to ASX presentation slides numbered 23 and 24, the Business Analyst stepped through the 'to be' Participant to Issuer Conversion message flow – the Participant to Issuer Conversion Request and Confirmation.

A member enquired whether the hold.206 – Account Report, acct.016 – Party Report and hold.216 – Transfer/Conversion Confirmation would be received as one package, as well as whether the rules would need to change given that at the moment this is one EIS message. The Project Subject Specialist confirmed ASX's intention that the messages would be sent as a package. Another member agreed with the sentiment of the earlier feedback, that this represented a fundamental change that will greatly increase the complexity of the process. Another member noted that a CHESS to Issuer Transfer today is commonly used to register stock in the name of a buying client who wants to be Issuer Sponsored, and that this can be achieved by one message, whereas it appeared that the process proposed by ASX involved sending multiple messages. The Chair confirmed that this feedback was noted.

A member enquired whether ASX's proposed flow was used in other markets globally. The Chair confirmed that ASX would validate if that was the case. Another member supported the sentiment of the feedback that the proposed solution would introduce many more points of failure on the broker side, linking all of the legs together. A member enquired whether it was the intention that CSP would package all the account and holder messages together only after all of those things are in play, to which the Project Subject Specialist confirmed that this was correct.

The member commented that the process look like the off market paper transfer process. ASX's Senior Legal Counsel noted that the process applicable to settlement participants that are not market participants of having to send a hard copy signed transfer form separately to the message for a transfer to the CHESS Subregister, is a separate business requirement, for which ASX has released a consultation paper and is continuing discussions with ASIC around how that process could be streamlined. A member re-iterated concern around how complicated ASX's proposed Transfer/Conversion solution was, and suggested it was a prime example of a contravention of ASX's principles of ISO 20022 adoption, specifically making something far more complicated for the sake of producing less messages in definition. A member queried the transfer load, and whether the intention was for that to be able to carry a security holder reference number (SRN) that the issuer may have in their register, that may decide that the account and the holder are different to that SRN, and it would have to decide the consequences of that, particularly for a conversion. The Project Subject Specialist suggested it would be the same workflow as today. The member clarified that in a Conversion today, need to have the same holder on the other side – the CSP doesn't have the detail of Issuer Sponsored holders. The Chair committed to setting up a separate meeting with the Registries to further these discussions, the outcomes of which will be presented back to this committee (**Matters Arising 4 – Action Item 73**).

Referring to ASX presentation slide numbers 25 to 37, the Senior Business Analyst, Equity Post Trade stepped through the 'To-be' Participant to Issuer Transfer message flow, including holder creation, account creation and transfer request.

d) Review of 'to-be' messages

The Senior Business Analyst, Equity Post Trade advised that ASX would not publish draft messages at this point, rather they will be published after the March committee meeting, and also include Transfer and Conversion Issuer Sponsored to Participant.

A member queried where the UID for a party came into play, and whether a registry was supposed to use the UID as a reference to the party in their systems. The Business Analyst, Equity Post Trade confirmed that each report would have the UID. The General Manager, Equity Post Trade Services re-iterated that this could be discussed further at the separate session ASX would schedule with Registries.

A member queried how CSP would handle the situation where an organisation had an account created (UID, account details etc) and they also had a client who was selling an issuer sponsored, which they were not going to convert onto their account. Based on the account creation documentation received to date, the member does not know a field that could be used when you do not want to give back a HIN.

A member noted the focus today had been on Participant to Issuer, but the current operating rules around the conduct of a broker accessing an Issuer-Sponsored holding requires the Issuer to give up the registration details of the transferor. The Chair confirmed that Issuer to Participant Transfers and Conversions would be covered at the next meeting.

The Chair thanked members for this feedback, which ASX would take on board.

e) Focus Group outcomes – FIX for trade reporting

Referring to ASX presentation slide number 39 the Chair provided an update on the latest AMO Focus Group, held on 29 January 2019 on Trade Registration. The General Manager, Equity Post Trade Services noted ASX had received a lot of feedback from AMOs on connectivity options, and that any further feedback was due from AMOs by 12 February 2019.

AGENDA ITEM 7: NEXT MEETING

The Chair thanked members for a very constructive meeting, and noted a number of existing actions and new actions from the meeting, as would be noted in the minutes and action list.

The Chair re-stated particular queries raised by members that would be addressed by ASX outside the committee:

- ASX to consider how changes to technical documentation can be identified to ensure they are clear and easy to understand;
- ASX will consider its engagement plan with Issuers and registries, and when they fold into the program of work with regard to the business workflows that impact them specifically.

The Chair confirmed actions arising from the meeting:

- ASX to consider how it measures and tests its principles of ISO 20022 adoption from a cost/benefit perspective, and clearly articulates why the changes are proposed;
- ASX to review SLAs and the timing of responses to queries submitted to both CHESS Replacement and CSPSupport mailboxes;
- ASX to consider an AMO's request to join ASX's CHESS Replacement Community on MyStandards;
- ASX to set up a meeting with Registries to further discuss Transfers and Conversions, prior to the Focus Group meeting currently scheduled for 27 February 2019;

A member enquired whether ASX was working toward a particular date to release cost information. The General Manager, Equity Post Trade Services noted that for connectivity, ASX had committed to providing pricing information by April 2019 (before CDE 1), and ASX was working to release it as soon as possible. For clearing and settlement fees, ASX was not in a position to publish the fee schedule several years before the service goes live. ASX wanted to incentivise use of the platform, and the fee schedule would not discriminate between different connectivity options. ASX's broad principal was not to increase fees if the number of messages increased.

The Chair noted that the next meeting would be held in March 2019 in Sydney, and the minutes from today's meeting would be disseminated as soon as possible.

A member queried the frequency and date of committee meetings for the remainder of 2019, and the Senior Manager, Equity Post Trade Services confirmed that the normal meeting date was Tuesday afternoon, and the dates were contained on ASX presentation slide number 42. Another member asked whether meetings would be split between Sydney and Melbourne, and the Chair confirmed that ASX will review the location based on demand.

The meeting closed at 11.00am.

Signed as a correct record of the meeting.

_____   ___8 MARCH 2019.___
Technical Committee Chair   Date

ACTION ITEMS

No.	Meeting Date	Open Action Items	Owner	Due Date
20	2 May 2017	Provide details of a proposed plan including potential topics for the remaining training webinars for feedback, standard training provided by SWIFT, and including identification of business vs. technical topics.	ASX	On hold
62	4 Sep 2018	ASX to review 1. the intended timing for housekeeping of unmatched messages, any standardisation opportunities for timing, 2. whether settlement requests could be future dated. **(this item was closed – ASX response that future dating would not be supported)** 3. ASX would also consider the visibility of holding locks to issuers on an intra-day basis.	ASX	Mar 2019
65	9 Oct 2018	ASX to consider if information such as participant party identification and preferences would be available within the node (in addition to published) and confirm to members as part of migration activity.	ASX	Mar 2019
70	8 Feb 2019	Members to provide feedback on where they considered the principles for ISO 20022 adoption not being followed, and ASX to consider how it measures and tests its principles of ISO 20022 adoption from a cost/benefit perspective, and clearly articulate why the changes are proposed.	Members and ASX	Mar 2019
71	8 Feb 2019	ASX to review SLAs and the timing of responses to queries submitted to both the CHESS Replacement and CSP Support mailboxes, including acknowledging questions where ASX may not currently have an answer.	ASX	Mar 2019
72	8 Feb 2019	ASX to consider an AMO's request to join ASX's CHESS Replacement community in MyStandards.	ASX	Mar 2019
73	8 Feb 2019	ASX to setup a meeting with Registries to further discuss Transfers and Conversions, prior to the Focus Group meeting currently scheduled for 27 February 2019.	ASX	Mar 2019

No.	Meeting Date	Closed Action Items	Owner	Due Date
1	13 Dec 2016	Amend the Charter to reflect that the Chair "will" (instead of "may") forward copies of the minutes to the Business Committee for endorsement. ASX to publish and distribute final Charter.	ASX	13 Dec 2016
2	13 Dec 2016	Provide members with information on how to access SWIFT MyStandards.	ASX	14 Mar 2017
3	13 Dec2016	Provide members with an overview of ISO 20022 training options.	ASX/SWIFT	7 Feb 2017
4	7 Feb 2017	Provide members with list of current scope of messages for detailed mapping during first half 2017.	ASX	14 Mar 2017
5	7 Feb 2017	Schedule training webinar for the attendance by members and seek and review feedback after the initial webinar.	ASX / SWIFT	14 Mar 2017
6	7 Feb 2017	Add link to relevant ISO 20022 information websites to the CHESS Replacement web page.	ASX	14 Mar 2017
7	7 Feb 2017	Provide more details on access to online education available at swift.com.	SWIFT	14 Mar 2017
8	7 Feb 2017	Provide members with the current list of Market Identification Codes (MICs)	ASX	14 Mar 2017
9	7 Feb 2017	Provide members with more information on the use of BIC vs. UIC as the party identification code.	ASX / SWIFT	14 Mar 2017
10	7 Feb 2017	Market Operators to advise the preferred MIC to be presented in trade related messages as the "Place of Trade".	ASX, Chi-X, NSX, SSX	6 Jun 2017
11	7 Feb 2017	ASX to conduct analysis on whether the identification of a financial instrument is a fixed value or true value of the proprietary code issuer.	ASX	14 Mar 2017
12	7 Feb 2017	Provide list of proposed code (i.e. condition or BOM) in ISO 20022 format (4 character) mapped against CHESS codes.	ASX	14 Mar 2017
13	7 Feb 2017	Add a general CHESS Replacement update to the standing agenda for meetings.	ASX	14 Mar 2017
14	7 Feb 2017	Check the next Technical Committee meeting date planned for March and advise members of any change.	ASX	14 Mar 2017
15	14 Mar 2017	Schedule future agenda item to discuss transition arrangements, including any changed values (e.g. party identifiers).	ASX	2 May 2017
16	14 Mar 2017	Create register of matters that may impact upstream, downstream systems or processes, including codes, identifiers and ISO 15022.	ASX	2 May 2017

No.	Meeting Date	Closed Action Items	Owner	Due Date
18	14 Mar 2017	ASX to draft procedures for change requests to usage guidelines and code lists.	ASX	2 May 2017
21	2 May 2017	Provide a list of standard training topics to share. Noted this action item is combined with action item 20.	SWIFT	6 Jun 2017
22	2 May 2017	Provide members with a copy of the presentation material from the trial training webinar held on 27 April 2017.	ASX	6 Jun 2017
24	2 May 2017	Resolve issue with Comments function on MyStandards and advise members when fixed.	ASX/SWIFT	6 Jun 2017
25	2 May 2017	Provide samples of the proposed consolidation and rationalisation scenarios for EIS 138 and EIS 134.	ASX	6 Jun 2017
26	2 May 2017	Provide proposal to broaden the engagement and method to seek feedback on key concepts such as consolidation/rationalisation.	ASX	6 Jun 2017
27	6 Jun 2017	Publish list of comments received on MyStandards with ASX responses regularly, around the time of each meeting.	ASX	18 Jul 2017
28	6 Jun 2017	Re-publish ISO 20022 equivalent of EIS 138 with corrected default value INFO for issuer of financial instrument code.	ASX	18 Jul 2017
29	6 Jun 2017	Review EIS 102 mapped equivalent message with Scott Oakland, JPM – optional inclusion of HIN.	ASX	18 Jul 2017
33	6 Jun 2017	Provide a presentation of CHESS EIS mapping to ISO 20022, and typical ISO 20022 flows to assist committee discussion of key topics (e.g. rationalisation, consolidation, descope of certain processes like allegement modify). ASX would also seek input from key members about the best process going forward.	ASX	18 Jul 2017
34	6 Jun 2017	Add the overview of transaction ids to the July meeting agenda.	ASX	18 Jul 2017
31	6 Jun 2017	Sample consolidated (EIS 138) and rationalised (EIS 138 and 134) messages published in the MyStandards community – in a separate collection "Sample Message Review". Members to review and provide further comments via MyStandards, email.	Members	22 Aug 2017
32	6 Jun 2017	For Cancel/Correct & Modify, ASX recommendation revised to only do cancel/correct for bilateral modifications (and not allow modify – removal of EIS 121). ASX to contact users of EIS 121, and action remains open until all members confirmed their agreement with the recommendation.	ASX, Members	22 Aug 2017

No.	Meeting Date	Closed Action Items	Owner	Due Date
30	6 Jun 2017	Obtain international usage comparisons on the use of UTC time format. Members to provide input from international offices where possible.	ASX, members	22 Aug 2017
35	18 Jul 2017	ASX to publish all final draft usage guidelines in MyStandards and highlight to members those usage guidelines that need their review. SWIFT to advise if a flag is available in MyStandards to indicate particular review items.	ASX, SWIFT	22 Aug 2017
36	18 Jul 2017	Provide members with details of feature in MyStandards to affirm a comment.	ASX, SWIFT	22 Aug 2017
17	14 Mar 2017	Provide further information on party identification for issuers – UIC or BIC and proposed process.	ASX	10 Oct 2017
37	18 Jul 2017	Provide comparisons to other market implementations of transaction ids.	ASX, SWIFT	22 Aug 2017
38	22 Aug 2017	Review consistency of the application of UTC date, date and time, zulu format, and add item to upstream/downstream considerations log re the use of UTC for Trade Date confirmations from AMOs (with flow on impact to EIS 164 equivalent).	ASX	10 Oct 2017
40	22 Aug 2017	Provide list of CHESS EIS messages in scope for detailed mapping during 2nd half of 2017, including identification of descoped messages.	ASX	10 Oct 2017
44	10 Oct 2017	ASX project team to consider effective housekeeping of rights that expire worthless – and whether this could be improved.	ASX	21 Nov 2017
45	10 Oct 2017	Review recommendations put to committee in Agenda item 6c) – approach to ISO best practice exceptions and provide feedback to ASX.	Members	21 Nov 2017
46	10 Oct 2017	Review recommendation put to committee in Agenda item 6d) – inclusion of unique event id in Market Infrastructure Tx id (MITI) field.	Members	21 Nov 2017
47	10 Oct 2017	Allow for future use of Party2+ identification in messages, and ensure discussion on same point at working group meetings re business requirement.	ASX	21 Nov 2017
19	2 May 2017	Provide sample of demonstration of comparison between ISO 20022 and ISO 15022 messages.	Scott Oakland, JPM	On hold

No.	Meeting Date	Closed Action Items	Owner	Due Date
23	2 May 2017	Further review of the ASX CHESS demand reporting summary and responses to questions contained in that summary. ASX to continue review of reports and provide further candidates for descope at meetings.	Members / ASX	21 Nov 2017
39	22 Aug 2017	Chair to contact members seeking feedback on the approach of the Technical Committee, any suggestions to improve the process.	ASX	21 Nov 2017
41	22 Aug 2017	Conduct bilateral discussions with share registries and mailing houses regarding structuring of registration details and associated static data.	ASX	21 Nov 2017
42	22 Aug 2017	Conduct bilateral discussions with share registries regarding current holding balance changes associated with corporate actions and proposed withdrawal of EIS 421.	ASX	21 Nov 2017
43	10 Oct 2017	Provide a proposed governance method for Technical Committee input to and review of all matters tabled at the Standards Evaluation Group (SEG), including any matters raised by ASX on behalf of community.	ASX	21 Nov 2017
48	21 Nov 2017	Members to review information provided in agenda item 6d) and respond to the question – was there appetite for using xml in model 1b or 2a as presented or keep the mapping 1 to 1.	Members	6 Feb 2018
49	6 Feb 2018	ASX to confirm additional 'as-is' usage guidelines that could be published in Q2 and members to provide expression of interest in reviewing this set.	ASX	17 Apr 2018
50	22 May 2018	Digital Asset to review the NDA regarding the DAML SDK and respond to questions around one way vs. two way.	DA	26 Jun 2018
52	22 May 2018	ASX to give consideration to how it would advise users of any change to the external code lists and report back to members.	ASX	31 Jul 2018
54	26 Jun 2018	Members to review and advise ASX of any feedback on the recommendation that Transaction Date Time (<TxDtTm>) in the sett_101 message is UTC.	Members	31 Jul 2018
55	31 Jul 2018	A member asked where change requests for SR2019 would be visible. The Senior Manager confirmed ASX would send information on where to find the information. The information is also published on MyStandards.	ASX	4 Sep 2018

No.	Meeting Date	Closed Action Items	Owner	Due Date
53	22 May 2018	Members to answer 4 questions if they are considering using a BIC as their party identification: whether they would use a new or existing BIC, whether the BIC was connected or non-connected, whether it was a BIC8 or BIC11, and if that BIC would apply to all activity for that organisation or actor, or for multiple activities. Examples would be helpful.	Members / ASX	9 Oct 2018
56	31 Jul 2018	Provide members with more information on the Corporate Actions STP Phase 2 project.	ASX	9 Oct 2018
57	31 Jul 2018	Members to review the consideration to provide a complete set of settlement obligations (net broker, gross broker - per slide #12 from 31 July presentation) and advise feedback to ASX.	Members	9 Oct 2018
59	31 Jul 2018	Share registries to share findings from study of registration details at the 4 September meeting.	Share registries	9 Oct 2018
61	4 Sep 2018	ASX to ensure coverage of possible scenarios for locking in the requirements, particularly those that are participant driven for certain reasons.	ASX	9 Oct 2018
63	4 Sep 2018	Members to review ASX's recommendations regarding changes to the sett_101 as presented in Agenda item 6d) and provide feedback by 18 September 2018.	Members	18 Sep 2018
51	22 May 2018	ASX to consider how impacted stakeholders could be engaged on the standards for registration details prior to the next meeting.	ASX	27 Nov 2018
58	31 Jul 2018	ASX to publish proposed to be messages for updates to accounts – reda_023, reda_020, reda_021 for member review.	ASX	27 Nov 2018
60	4 Sep 2018	ASX to prepare and publish a consolidated list of all actions and outcomes from Technical Committee meetings, and update after each meeting going forward.	ASX	27 Nov 2018
64	9 Oct 2018	ASX to advise Members the confirmed date for Technical Documentation release in December, and the associated webinar details.	ASX	27 Nov 2018
66	9 Oct 2018	Members to consider any specific topics regarding settlement, holding locks for inclusion in the agenda of the upcoming Focus group and advise ASX.	Members	27 Nov 2018
67	9 Oct 2018	ASX to review level of consolidation for Unilateral and Bilateral settlement instructions usage guidelines.	ASX	27 Nov 2018

No.	Meeting Date	Closed Action Items	Owner	Due Date
68	27 Nov 2018	ASX to provide timeframe for when session with AMOS will be held, and provide sufficient notice to AMOs regarding the agenda and opportunity for AMOs to provide input on that agenda.	ASX	8 Feb 2019
69	27 Nov 2018	Members to provide feedback on principles for adoption of ISO 20022 per agenda item 6b.	Members	8 Feb 2019

Attachment D: ISO 20022 Technical Committee Forward Work Plan

Friday 8 February 2019

- Re-cap on upstream/downstream matters
- Re-cap on Technical Documents
- Transfers / Conversions – Participant to Issuer
- Focus Group outcomes

- Meeting cancelled, pending follow up, focus group meetings

Tuesday 5 March 2019

Tuesday 26 March 2019

- Account creation, modification, report
- Focus Group outcomes
- Review of 'to-be' messages

- ISO 20022 mapping feedback
- Transfers / Conversions
- Settlement – batch
- Review of 'to-be' messages
- Focus Group outcomes

Tuesday 7 May 2019

Tuesday 28 May 2019

- ISO 20022 mapping feedback
- tbc
- Focus Group outcomes

- ISO 20022 mapping feedback
- tbc
- Focus Group outcomes

Tuesday 25 June 2019

Tuesday 23 July 2019

- ISO 20022 mapping feedback
- tbc
- Focus Group outcomes

- ISO 20022 mapping feedback
- tbc
- Focus Group outcomes

Tuesday 27 August 2019

Tuesday 1 October 2019

- ISO 20022 mapping feedback
- tbc
- Focus Group outcomes

- ISO 20022 mapping feedback
- tbc
- Focus Group outcomes

Tuesday 29 October 2019

Tuesday 26 Nov 2019

- ISO 20022 mapping feedback
- tbc
- Focus Group outcomes

The Forward Work Program is an evolving document and is presented above as at March 2019.

BUSINESS COMMITTEE MEETING PAPER AGENDA ITEM 4	
Topic	Corporate Actions STP Phase 2 project
Date	4 April 2019
Purpose of this paper	To provide Business Committee members with a recap on the project objectives and solution, and an update on progress of the Corporate Actions STP Phase 2 project.

RECAP ON THE PROJECT OBJECTIVES AND SOLUTION

ASX will provide a presentation during the meeting to provide a recap on the project objectives and solution.

Update on Project Progress

ASX is progressing the detailed work on the project with activities during the last quarter focused on:

- Amendments to the Phase 1 event online forms for the announcement of dividend, interest payment, consolidation, split and cash return of capital events. The amendments are a consequence of the proposed ASX listing rule changes outlined in ASX's consultation paper "Simplifying, clarifying and enhancing the integrity and efficiency of the ASX listing rules" released on 28 November 2018, as well as additional enhancements identified by ASX and through feedback provided by industry stakeholders.

- Detailed requirements and development of three new online forms related to the announcement of issues of securities and changes to securities on issue. The three new forms are also proposed in the above consultation paper, including a revised Appendix 3B (notification of proposed issue of securities), new Appendix 2A (application for quotation of securities) and new Appendix 4A (statement of CDIs on issue). The scope for the Appendix 3B and 2A forms also includes facilitating the straight through processing of capital issue corporate action events including bonus, non-renounceable, renounceable, share purchase plan, and priority offers.

- Detailed review and updates of the Phase 1 event ISO 20022 messages including adopting the latest version of the base message, and additional data changes where relevant.

- Creation of an initial draft of the ISO 20022 message (schemas) for all Phase 2 corporate action events.

  It is also important to note that the project team are aligning general principles and structures for the ISO 20022 message set with those set in the CHESS Replacement project, as well as taking into account the requirements of the CHESS Replacement project as a consumer of the same corporate action notification messages.

Delivery timeline

The project is currently tracking to two releases – the first in July 2019, and the second in Q2 2020.

Indicative Timeline - Corporate Actions STP Phase 2	2018				2019				2020				2021	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Corporate Actions STP Phase 2 - Delivery period			●━━━━━━━━━━━━━━━━━━━━━●											
ASX listing rule changes consultation				●━━━━━●		●– – –●								
Industry Working Group meetings (every 4-6 weeks)			●━━━━━━━━━━━━━━━●											
Customer Testing available (issuers, ISO 20022 consumers)						●━━━━━━━━━●								
Target Go-Live* (2 releases)							◆			◆				
CHESS Replacement Target Go-Live													◆	

*1st release dependent on effective date for ASX listing rule changes

The first release is tied to the effective date of the proposed ASX listing rule changes, given the changes relative to the Phase 1 online forms and associated events, and the proposed three new online forms. The current target date for the rule changes is 1 July 2019, and ASX will continue to keep stakeholders updated on the fidelity of this date. The first release will focus on the online form changes for issuers and the associated ASX database changes. ASX also plans to make available at this time the updated ISO 20022 schemas for the Phase 1 events, with message test availability in an industry wide testing environment.

The second release will cover the remaining scope of the project.

Stakeholder engagement

The Corporate Actions STP Phase 2 industry working group has continued to meet regularly with meetings held on 6 December 2018, 7 February and 7 March 2019. The next meeting is planned for 11 April 2019.

ASX has provided members with pre-reading material prior to each meeting, with an overview of topics and particular questions for member consideration and discussion during the meetings. The focus to date has been on:

- An overview of the proposed ASX listing rule changes and the particular parts of that consultation relevant to the project.

- Proposed changes to the Phase 1 online forms and event information directly related to the proposed rule changes;

- A draft proposal for the inclusion of additional data fields in the Notification of a Dividend/Distribution, as they relate to components of a distribution as typically announced via a notice complying with Subdivision 12-H of Schedule 1 to the Tax Administration Act 1953;

- An overview of the types of changes ASX would be making to the ISO 20022 messages and agreement on the ISO event types that should be applied to each event;

- Announcements of issues of securities and subsequent quotation – revised Appendix 3B and new Appendices 2A and 4A, including particular questions of interest for members; and

- Discussion on the business requirement "ISIN for entitlement in non-renounceable issues". This requirement was raised by the CHESS Replacement corporate actions working group and has been confirmed by ASX as a deliverable for the STP project.

Members have been asked to provide responses to specific questions raised by ASX within the meeting or within two weeks of a meeting to assist ASX's progression of requirements. A number of members have also been forthcoming with example information from their own operations to assist with ASX's analysis and solution design.

Additionally ASX has met with representatives from the key issuer associations AIRA (Australasian Investor Relations Association) and GIA (Governance Institute of Australia) along with issuer representatives to discuss particular issuer perspectives on both the CHESS Replacement and Corporate Actions STP Projects and other related initiatives and future engagement plans.

BUSINESS COMMITTEE MEETING PAPER AGENDA ITEM 5A	
Topic	**Minutes from 29 November 2018 Business Committee Meeting**
Date	4 April 2019
Purpose of this paper	**To provide Business Committee members with the minutes and Business Committee report to the ASX Boards from the 29 November 2019 meeting.**

OVERVIEW

Draft minutes and the draft report to the Boards of ASX Clear and ASX Settlement from the 29 November 2018 Business Committee meeting were emailed to all members of the Business Committee on 14 December 2018 for comment. The Secretariat did not receive any comments from members.

The Business Committee report and minutes will be formally presented to the next meeting of the ASX Clear and ASX Settlement Boards.

ATTACHMENTS

Attachment A – Business Committee Report and Minutes from the 29 November 2018 Meeting.

Business Committee Report to the Boards of ASX Clear and ASX Settlement

Business Committee Meeting

At its 29 November 2018 meeting, the Business Committee was updated on:

- the operating performance of CHESS for the December Quarter 2018 to date;

- ASX's technology governance and operational risk management ;

- the CHESS replacement and Corporate Action STP Phase 2 projects; and

- the ISO 20022 Technical Committee's progress in developing the new message standards.

KEY ISSUES DISCUSSED

At a member's request, the Committee was updated on the work being undertaken under the *Building Stronger Foundations* program to enhance ASX's technology governance and operational risk management process. The Committee was also provided with an overview of the major technology projects underway to accelerate the replacement or upgrading of existing infrastructure.

The Committee was briefed on the progress with the CHESS replacement project leading up to the first release of technical documentation due in mid-December as well as the extensive stakeholder engagement program for 2019 to assist ASX with designing the new features of the replacement system and to commence migration and implementation planning. There were questions from members on the precise timing of both documentation release and pricing features of the new system.

The Committee was also updated on the current work and stakeholder engagement being undertaken in relation to the Corporate Action STP Phase 2 project.

Agreed Actions

None

Minutes

Business Committee Meeting

Date	29 November 2018	**Time**	4:00pm – 6:00pm	
Location	ASX Offices – Level 1, 20 Bridge Street, Sydney			

1. Service Performance

    a) Cash Market Clearing and Settlement - Operating Performance

    b) ASX Technology Governance and Operational Risk Management

2. CHESS Replacement Project

    a) CHESS Replacement
- Software development update
- Customer engagement activities

    b) Update on Corporate Action STP Phase 2

    c) Report on the Sydney meeting of the Securities Market Practice Group

    d) ISO 20022 Technical Committee Report and Minutes
Members will receive reports from the September, October & November meetings.

3. Administration

    a) Minutes from the 28 September 2018 Business Committee Meeting

    b) Forward work program

    c) Other matters

4. Next Meeting - 4 April 2019

5. End of Year Drinks

Business Committee Members are invited to stay for end-of-year drinks to thank members for participating throughout 2018.

Business Committee Members

Company	Name	Job Title	Apologies
ABN AMRO Clearing	Matt McMahon (Delegate)	Head of Operations	Barry Parker
ACSA	Rob Brown	Chief Executive Officer	
AFMA	David Lynch	Chief Executive Officer	
ASX	Tim Hogben (Delegate)	Business Committee Chair, Chief Operating Officer	Peter Hiom
Bank of America Merrill Lynch	Rhys Cahill	Global Markets COO	
Bell Potter Securities	Rodd Kingham	Head of Operations – Transformation	
BNP Paribas	Mark Wootton	Head of Custody Product Australia & New Zealand	
Chi-X Australia	Mike Aikins	Chief Operating Officer	
Citi	Miles O'Connor	Director, Direct Custody & Clearing Securities & Funds Services	
CMC Markets	Andrew Rogers	Director of Broking Business	
Commonwealth Bank of Australia	Sheridan Thompson	Head of Strategic Development, CommSec	
Credit Suisse	Winston Loke	Australia Equities COO	Winston Loke
Deutsche Bank AG	Geoffrey Plaisted	Chief Operating Officer, Equities	
Goldman Sachs	Yen Le	Executive Director	
HSBC	Peter Snodgrass	Head of Direct Custody and Clearing	
J.P. Morgan	Jonathan Evans	Head of Custody and Markets Operations	
Macquarie Group	James Indge	Cash Equities Business Manager	
Morgan Stanley	Craig McGuire	Head of Operations	
Morgans	Peter Chisholm	Manager, Transactional Services & Settlement Systems	
National Australia Bank	Greg Bowrey	General Manager, Self-Directed Wealth Products & Markets	
NSX	Ann Bowering	Managing Director	
Pershing Securities	Leigh Conder	Chief Operating Officer	
Stockbrokers and Financial Advisers Assoc	Andrew Green	Chief Executive Officer	
Sydney Stock Exchange	Antony Tolfts	Listings Director	
UBS	Conor Foley	Chief Operating Officer	

ASX Management

Name	Job Title
Daniel Moran	General Counsel
Hamish Treleaven	Chief Risk Officer
Eloise Wett	Executive General Manager, Operations
Cliff Richards	Executive General Manager, Equity Post Trade Services
Dan Chesterman	Chief Information Officer
Sally Palmer	Deputy General Counsel
Katie McDermott	General Manager, Equity Post Trade Services
Gary Hobourn	Senior Economic Analyst, Regulatory and Public Policy
Karen Webb	Senior Manager, Equity Post Trade Services
Keith Purdie	Senior Manager, Equity Post Trade Services

INTRODUCTION

The Acting Chair welcomed members and delegates to the fourth and final meeting of the year, noting that Peter Hiom was an apology for this meeting.

He welcomed a new member, CMC Markets, to the Business Committee replacing ANZ following the transfer of the equity market business, indicating that Andrew Rogers would be attending as their nominated representative. The Chair noted Winston Loke (Credit Suisse) was an apology and ABN AMRO Clearing had nominated a delegate, Matt McMahon, to attend on behalf of Barry Parker.

The Chair advised the Committee that Dan Chesterman, ASX's Chief Information Officer, will be attending Business Committee meetings going forward to bring a technology focus as CHESS replacement moves into the implementation phase.

Four members dialled in to the meeting: Rhys Cahill (BAML), Peter Snodgrass (HSBC), Peter Chisholm (Morgans) and Matt McMahon (ABN AMRO Clearing).

AGENDA ITEM 1: SERVICE PERFORMANCE

a)   Operating Performance Report

The ASX Executive General Manager, Operations noted that there was one extension to CHESS batch settlement during October in response to a customer's technical issue. She noted that clearing and settlement metrics in October were generally in line with the previous quarter.

The Chair noted that the National Stock Exchange (NSX) and ASX have been doing a lot of work together on NSX's application to join the Trade Acceptance Service for the clearing and settlement of their listed securities. The process is well advanced and he thanked NSX for their engagement. The Chair also noted that ASX Clear has commenced clearing and settlement of Chi-X's Unsponsored Depositary Receipt product [TraCRs].

b)   ASX Technology Governance and Operational Risk Management

The Chair thanked a committee member for suggesting that ASX's technology governance and operational risk management practices be added to the agenda for this meeting given its importance.

ASX's Chief Risk Officer noted that ASX has important regulatory obligations relating to its licences to operate critical market infrastructure and the reliability of these services is also an important value proposition for our business. ASX has been undertaking a significant body of work over the past two years around reviewing and, where necessary, enhancing, risk management practices and outcomes but he noted that the work is not yet complete.

He outlined that ASX's Vision Strategy and Execution (VSE) framework includes a strategic pillar around enduring trust, integrity and resilience including in areas such as technology and operations.

ASX has undertaken a range of initiatives that are focused on reducing inherent risk levels. These include replacing and contemporising ASX's infrastructure and applications through replacing aging, albeit well-performing infrastructure and contemporising other infrastructure. The largest example of this being CHESS replacement.

ASX is also introducing a range of new management tools and updating some of our business practices to reduce risk back to target levels. In the second half of 2016, the ASX board and senior management instituted some changes to organisational structure and personnel to bring all the technology and operations functions under the Chief Operating Officer.

The following year ASX refreshed its strategies and developed improvement plans around enterprise risk and technology. These were subsequently reviewed and validated by an external professional services firm. The external appraisal was also something that ASX's regulatory agencies, ASIC and the RBA, had requested following the ASX Trade outage in September 2016.

With regards to operational risk ASX has: reviewed its Risk Appetite Statement; refreshed the key risk indicators; and is currently implementing a new governance, risk and compliance (GRC) tool to assist in monitoring and managing

risks. In addition, the three lines of defence risk management organisational structure around roles, responsibilities, accountabilities and consequences is currently being rolled out across ASX.

From a technology governance perspective, the focus is on how ASX arranges its technology resources and ensures clarity around staff roles and responsibilities.

The body of work around implementing enhanced policies, processes, and tools is just over half completed and the rollout will be finalised by the end of 2019.

ASX's Chief Information Officer outlined some of the key technology initiatives, outside of CHESS replacement, where infrastructure is being replaced to reduce inherent risk. This includes the replacement of ASX's internal data storage and transport system (Core); consolidating six customer networks onto a single platform; and the relocation of ASX's secondary data centre. These initiatives, when combined with earlier technology upgrades, will represent a significant renewal of ASX's infrastructure.

In addition there are initiatives to strengthen ASX's technology risk management function, including hiring additional staff and enhancing service management practices and processes around responding to incidents and supporting new technology releases.

Members had no questions on ASX's technology governance and operational risk management practices.

AGENDA ITEM 2: CHESS REPLACEMENT PROJECT

a) CHESS Replacement

ASX's General Manager of Equity Post-Trade indicated that the project remains on track, with weekly drops of code from ASX's software partner Digital Asset being tested and any defects being quickly remediated.

The technical documentation to support the first drop of code will be released in mid-December, four months prior to the code being made available in the customer development environment (CDE). ASX is also actively working to finalise and publish the pricing framework for access and connectivity and hopes to be in a position to do so as soon as possible.

She noted that the Hong Kong Stock Exchange recently announced that they would be using DLT and partnering with Digital Asset for the settlement of their Stock Connect service with mainland China.

The Senior Manager Equity Post-Trade Services updated members on recent stakeholder activities and the forward plan for 2019.

The Connectivity and Integration Working Group was convened, commencing with webinars in the first half of October. The first webinar provided information to a wide audience regarding the different connectivity options and allowed ASX to respond to some of the more common questions received through the recent consultation paper. A second webinar, held two weeks later, involving clearing and settlement participants and their software vendors drilled down into more detail on the direct integration connectivity option, including the key features of taking a node, the ledger API, and data streaming.

Then two classroom style meetings of the Connectivity and Integration Working Group were held to foster a more collaborative and interactive environment. The first drilled down on more details for the Advanced Message Queuing Protocol (AMQP) option, including how to connect and get started. The second focussed on digital messaging using SWIFTNet including an overview of messaging, the components of user connectivity, how to connect to the CDE and some complimentary tools and resources.

There have also been three focus group meetings to date. The focus groups consider solution design for the new features for CHESS replacement prior to ASX releasing the technical documentation.

The first focus group discussed the different structure for holder registration, including how ISO 20022 standards differ between accounts and holders.   There was a robust discussion of the impact of the new business requirements: additional investor information, data capture and storage (e.g. ABN, TFN, LEIs, bank account details) and the

electronic provision of holding statements. ASX asked attendees to respond to some questions to allow further consideration of some matters raised during the meeting. Subsequent feedback received to date has been generally very supportive, but the closing date for responses is 30 November.

The second focus group examined demand transfers and settlement instructions including bilateral and unilateral demand settlement instructions. The discussion focused on supplementary references to support matching, that ASX was contemplating changing how tolerances work (cash value of bilaterals), and broker sponsored locking of demand transfers and settlement instructions. Attendees were asked to consider a series of follow-up questions and ASX is currently digesting the feedback received.

The third focus group was held with payment providers to seek input on the real-time payment options (RTGS and NPP), the decommissioning of some EIS CHESS messages, and connectivity options. ASX has been meeting with the payment providers every six months as part of the Equity Settlement Payment Providers Sub-Committee (ESPPSC) but the frequency of this engagement will be increased to at least quarterly.

He then outlined the forward work plan for stakeholder engagement:

- A third Connectivity and Integration Working Group meeting for CS participants and vendors scheduled for early December on direct integration and nodes to step through the fundamentals of a node, the ledger API, key considerations for different connectivity options and some example use cases.
- A webinar on the technical documentation release in mid-December covering: functional specifications and message requirements (i.e. a user guide, technical manual and a mapping guide between the ISO 20022 and the CHESS EIS messages); technical details on connectivity options; testing environments; and release notes that will accompany every tranche of technical documentation. There will also be a one-stop shop released around the same time to host all CHESS replacement technical documentation through an online confluence website.
- A series of other working group meetings will occur throughout 2019, around every 4-6 weeks with webinars to cover issues where there is broad interest. The use of webinars could be expanded if stakeholders find the classroom style meetings too limiting, although the more interactive format allows for more two-way discussion. ASX is interested in any feedback members have on the structure of the working groups going forward.
- Technical documentation for each software drop will be provided at least 3 months prior to the code becoming available in the CDE and ASX will provide a six month forward rolling view of upcoming code releases.
- Implementation and Transition Working Groups will kick off in the first quarter of 2019 covering the migration plan, the strategy for a successful cutover, key milestones, tools to facilitate migration, and accreditation testing. The group is likely to meet at least monthly, but the precise frequency will be set to support the project timeline.
- Focus groups will recommence in January. The first will be with AMOs (on trade registration) followed by one on transfers and conversions in February and then with payment providers in March. The plan is that these groups will continue throughout 2019 meeting once a month.
- ASX has offered to hold bilateral meetings with software vendors, in addition to their attending working groups.
- The Corporate Actions, STP working group has commenced work and will continue into 2019.
- The frequency of ISO 20022 Technical Committee meetings will increase from every six weeks to monthly and there will four Business Committee meetings next year.
- There will continue to be bilateral meetings with stakeholders (where necessary) as well as separate engagement plans for groups such as issuers.

The Chair noted that this represents a substantial program of stakeholder engagement and acknowledged that ASX recognises the importance of providing sufficient information to enable forward planning as this intensive consultation places significant resource demands on firms in addition to the other projects they are working on.

A member asked about the expected timing of the release of the first tranche of technical documentation and information on pricing. It was noted that the document release was expected to occur as soon as practicable after the webinar on 12 December and ASX is working to release something on pricing well in advance of the original April 2019 timeline.

Another member noted that most participants are currently in a holding pattern waiting for information on pricing and technical documentation and questioned whether ASX thought this may impact on the planned project timelines.

In response, the Executive General Manager, Equity Post-Trade Services noted that ASX is working on the pricing framework for the connectivity options for the new system. The first option is via ISO 20022 XML messages over SWIFTNet or AMQP and the second is direct integration through taking a node as a managed service. There will be a no charge for any of the access options in the development and testing environments, so participants can choose one or all, if they wanted, and there'll be no charge for taking those up to go live. In addition, he indicated that the choice of connectivity will not affect the price for clearing or settlement services.

b)   Update on Corporate Action STP Phase 2

The Senior Manager Equity Post-Trade Services updated members on the work ASX has been doing to progress the Corporate Action STP Phase 2 project and the associated engagement activities.

ASX has established a project team comprising ASX staff, consultants and vendor representatives which is working closely alongside the CHESS replacement team. Technical environments have been established based on the current technical solution for corporate actions which remains fit for purpose, although a number of system upgrades have been identified that will be executed during the project to deliver contemporary infrastructure.

The project team has started work on the detailed specifications to deliver on the high-level business requirements identified earlier in the year. Some enhancements to events that are already in production (e.g. dividends) have been prioritised, including upgrading them to the latest version of ISO 20022 and identifying any changes (including any data changes) that need to be made.

The team has also commenced investigation of the corporate action events that will be included in phase two to understand those events in more detail, their processes and associated data, to enable business requirements to be defined and solutions developed. The first aspect to be examined will be capital raising or capital change events, which are currently described in an Appendix 3B to the listing rules. These are onee of the most common announcements to market, numbering about 10,000 a year.

With regards to stakeholder engagement, the first meeting of the Corporate Actions STP Phase 2 Industry Working Group was held on 15 October. There are currently around 20 members, including clearing and settlement participants, some vendors, share registries, AMOs and issuer representative associations (over time more individual issuers will be added). The first meeting covered the project scope and objectives, an overview of the current technical solution and the expected timeline.

ASX recently released a consultation paper on listing rule changes which touches on quite a few of the deliverables of the corporate actions project, including those specifically related to corporate action announcements and some of the activities identified through the earlier CHESS replacement working groups. At the next meeting (6 December) the working group will discuss that consultation paper in more detail, specifically how those changes relate to the phase one change event work that ASX is currently undertaking. Submissions to this consultation closes on 1 March 2019.

It is anticipated that the working group will meet every 1-2 months going forward. In addition to the current listing rule consultation it is anticipated there will be a subsequent public consultation on the second phase events. This means the project will likely be delivered through two distinct phases.

A member asked if ASX was comfortable with the extent of industry representation in the working group. In response it was noted that ASX will be working to achieve greater direct issuer engagement given the success of the project is reliant on issuers being comfortable adopting the new process. This includes working with industry associations such as the Governance Institute of Australia and the Australasian Investor Relations Association to get their assistance to reach out to issuers.

c)   Report on the Sydney meeting of the Securities Market Practice Group

The Senior Manager Equity Post-Trade Services provided members with a report on the recent meetings of the Asia Pacific and Global Securities Market Practice Group that ASX hosted around the SIBOS conference. The group

comprises experts from many different countries and exchange views on how international standards are being adopted in different markets. The group usually convenes monthly by phone but also arranges face to face meetings in the margins of significant global events.

There were over 30 organisations (45 representatives) from 19 countries represented at the Sydney meetings. It provided an opportunity for international visitors to get to know more about our market and our region as well as discussing current global initiatives. Discussion typically focuses on detailed matters around securities settlement and reconciliation as well as corporate actions.

The meetings also provided a good opportunity to promote the Australian equity market's adoption of ISO 20022 and to help other representatives understand the nuances of our market and to indicate where we will be seeking new messages to be added to the global standard to support some unique Australian features.

The discussions highlighted the significant global regulatory change and innovation programs that are being progressed, particularly by market infrastructures. It also identified: the growing adoption of global standards (particularly ISO 20022); the changing technology around API and data; and the increased work (proof of concepts and projects) in DLT. There was a lot of interest in Australia's leading position in DLT and ASX (and Digital Asset) conducted a number of demonstrations of the technology that will underpin CHESS replacement.

d) ISO 20022 Technical Committee Report and Minutes

The Chair spoke to the recent activities of the ISO 20022 Technical Committee. He highlighted that the ISO 20022 work being undertaken in Europe for the T2S settlement platform is being leveraged by Australia where possible to support our own initiatives.

A readiness portal for customer testing of ISO 20022 messages will complement the technical documentation being released in mid-December to assist developers. The alignment of the messaging protocol to the CHESS technology build and the code drops is important and ASX will coordinate processes so that the business and the technical side of participants and their vendors are all looking at a similar message schema at any given point in time.

A member asked if ASX has received any feedback that the amount of work required to map existing CHESS messages to the new ISO 20022 standard has been greater than originally anticipated.

The Chair responded that there has been a lot of positive feedback on the simplicity of the ISO standard and the ability to consolidate the number of messages used in our market place to a much smaller set. However, the challenge has been to translate some of the Australian market's existing bespoke messages and data to the global ISO standard. This involves balancing the views of those who favour a pure global standard with those who want to retain the benefits that have been delivered from more customised message schemas. The approach taken to date is to have messages that are as close as possible to the global standard because otherwise it introduces complexity for those who are looking to do business in our market.

ASX hasn't received feedback to date that this is going to involve a lot more work. A survey of Technical Committee members a couple of months ago found that members thought they have been receiving sufficient information. However, it is possible that that this view could change as developers and users increasingly start to build to the new ISO messages.

AGENDA ITEM 3: Administration

a) Minutes from the 28 September 2018 Business Committee Meeting

The minutes of the 28 September 2018 meeting were approved without further change.

b) **Forward work program and BC Meeting dates for 2018**

The Chair noted that the forward work program focuses heavily on CHESS replacement and the corporate actions project but members were encouraged to suggest any other agenda items.

The next Business Committee meeting is scheduled for 4 April, with three other meetings pencilled in for July, September and November.

c) **Other matters**

There were no other matters raised by members.

Next meeting

The next meeting is scheduled on 4 April 2019.

The meeting closed at 5.20pm.

Signed as a correct record of the meeting.

_____   _____
Chair   Date

BUSINESS COMMITTEE MEETING PAPER AGENDA ITEM 5B	
Topic	**Business Committee Membership**
Date	4 April 2019
Purpose of this paper	**To advise Business Committee members that ASX is proposing to extend the membership of the Business Committee.**

BACKGROUND

Given the importance of CHESS replacement to a broad set of stakeholders, it will be a key focus of the Business Committee up to the introduction of the new system in March/April 2021. Over that period the emphasis will increasingly be on matters related to system design, implementation and transition arrangements.

Given the current stage of the project, ASX considers that it is timely to extend the membership of the Business Committee to include other stakeholders that will bring an issuer and investor focus to the Committee's discussions.

ASX anticipates that this will include up to an additional five new members. ASX will approach prospective members shortly to gauge their interest in joining the Committee. It is hoped that any new members will be in place in time for the next Business Committee meeting in July.

The Charter of the Business Committee has been revised (see marked-up version) to reflect the new membership structure of the Committee.

ATTACHMENTS

Attachment A - Charter of the ASX Business Committee

CHARTER OF
THE ASX BUSINESS COMMITTEE

The ASX Business Committee was convened by ASX Limited (ASX) under its Code of Practice in August 2013. In October 2016, ASX updated its Code of Practice (the ASX Cash Equities Clearing and Settlement Code of Practice) to set out its commitment to comply with the Regulatory Expectations for the Conduct of Cash Equity Clearing and Settlement Services in Australia (Regulatory Expectations), and its commitments to users in managing clearing and settlement infrastructure and services for the Australian cash equities market. Under the revised Code of Practice, the role of the Business Committee was updated as a mechanism for input in to ASX's governance framework.

This charter draws from the commitments made by ASX in the Code of Practice and the Regulatory Expectations. It sets out the role, membership and administrative matters for the effective functioning of the Business Committee.

1.   Role of the Business Committee

1.1   The role of the Business Committee is to provide:

- input for consideration by ASX Management and the Boards of ASX Clear and ASX Settlement on the ongoing operation of cash equities clearing and settlement infrastructure and services provided by ASX;

- input for consideration by ASX Management and the Boards of ASX Clear and ASX Settlement on setting the ASX investment strategy for cash equities clearing and settlement infrastructure and services development, and the system design, operational arrangements and implementation plan for new cash equities clearing and settlement infrastructure and services provided by ASX;

- advice to ASX Management to assist in progressing cash equities clearing and settlement initiatives of interest to the industry, with the aim of facilitating service innovation and improving overall market efficiency; and

- a mechanism for ASX Management and the Boards of ASX Clear and ASX Settlement to consult clearing participants, settlement participants and other market operators regarding their strategic plans and investment decisions in relation to the design, operation and development of the core clearing and settlement infrastructure and services for the Australian cash equities market.

2.   Membership

2.1   The Business Committee will comprise representatives of clearing participants, settlement participants, alternative market operators, other relevant stakeholders and ~~relevant~~ their associated industry organisations. ASX Clear and ASX Settlement will appoint members of the Business Committee.

2.2   Each Business Committee member is expected to:

- nominate a representative to attend meetings of the Business Committee who has the authority to speak on its behalf and has the expertise to make a meaningful contribution at such meetings;

- represent the views and interests of its organisation or constituency, as the case may be, on matters being considered by the Business Committee; and

- share with the Business Committee appropriate and useful information relevant to the role of the Business Committee.

2.3 The objective is for the Business Committee to comprise executives with a deep understanding of clearing and settlement, for example, Chief Operating Officers. In some circumstances, it may be appropriate for the Business Committee to appoint and convene technical committees to assist in the performance of its role. Technical committees will report to the Business Committee. Members of the Business Committee and ASX Management may nominate technical committee members. The technical committees may comprise representatives of Business Committee members and/or other individuals with appropriate expertise.

2.4 A member of the Business Committee may resign its membership by giving notice in writing to the Chair of the Business Committee.

3. Chair of the Business Committee

3.1 ASX shall appoint the Chair of the Business Committee.

3.2 The role of the Chair is to:

- convene, set the agenda for, and preside over meetings of the Business Committee;
- take a leadership role in facilitating discussion and forging a consensus among Business Committee members on matters being considered by the Business Committee;
- keep and approve the minutes of meetings of the Business Committee; and
- report to, and from, the Boards of ASX Clear and ASX Settlement in relation to recommendations of the Business Committee and other matters raised by the Business Committee.

4. Meetings of the Business Committee

4.1 The Business Committee will meet at least four times a year.

4.2 The Chair may determine, in consultation with members of the Business Committee, that more than four meetings be held in a year.

4.3 The Chair may invite ASX management, or other organisations, to attend meetings of the Business Committee.

4.4 Draft meeting agendas will be electronically circulated to members prior to meetings of the Business Committee to provide members with an opportunity to contribute to the agenda setting process.

4.5 Meeting agendas and associated papers will be circulated to members one week prior to the relevant meeting.

4.6 A quorum for a meeting of the Business Committee is a majority of its members and the Chair. All recommendations of the Business Committee to ASX Management and the Boards of ASX Clear and ASX Settlement shall be made on the basis of a broad consensus of those members present at the relevant meeting of the Business Committee.

4.7 The Chair will determine whether a broad consensus has been achieved by confirming with each member present whether they support the proposed recommendation. If a member represents an industry association, the member will confirm which of its members support the recommendation. In making this determination, unless notified to the contrary by the member concerned, the Chair shall be entitled to assume that a member who does not attend a meeting is prepared to accept any recommendation on a matter, of which notice was given in the agenda for the meeting, made by those members who are present at the meeting.

4.8 All meetings of the Business Committee are to be minuted. The minutes will be circulated to members electronically following each meeting for comment and approval to allow the minutes to be included in the agenda for the next meeting of the Boards of ASX Clear and ASX Settlement.

4.9   Any reports from the Business Committee to the Boards of ASX Clear and ASX Settlement will be prepared by the Chair and will be circulated to members electronically following each meeting for comment and approval to allow the reports to be included in the agenda for the next meeting of the Boards of ASX Clear and ASX Settlement.

5.   Business Committee Secretariat

5.1   ASX shall provide a secretariat service to the Business Committee, and will provide the facilities and services required to convene meetings of the Business Committee.

5.2   The secretariat will:

- arrange the venue and circulate notices for meeting of the Business Committee;
- prepare agendas, minutes and other documents for meetings of the Business Committee;
- maintain the pages of the ASX website dedicated to the Business Committee; and
- arrange the publication of meeting agendas, minutes and other relevant documents of the Business Committee.

April 2019

BUSINESS COMMITTEE MEETING PAPER AGENDA ITEM 5C	
Topic	**Forward Work Program**
Date	4 April 2019
Purpose of this paper	**To update Members on the forward work program of the Business Committee for 2019.**

OVERVIEW

It is proposed to have three further meetings of the Business Committee over the course of 2019. The proposed Business Committee dates are:

- Thursday, 18 July 2019;

- Thursday, 19 September 2019; and

- Thursday, 28 November 2019.

Subject to any input from members who wish to add additional items, the forward work program of the Business Committee in 2019 will be predominately focused on aspects of CHESS replacement.

A second major stream of work which is expected to run until the first half of 2020 is Corporate Action STP Phase 2.
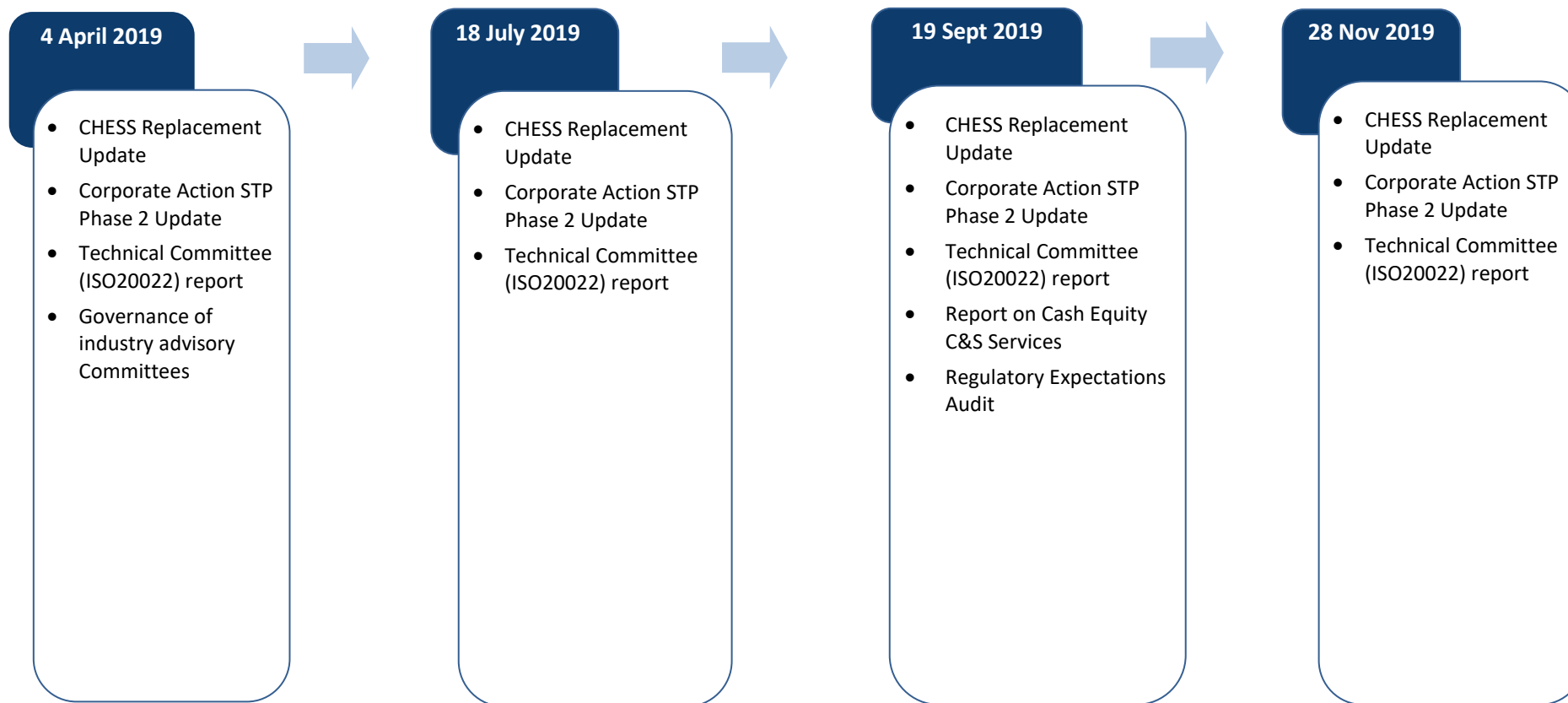
Members of the Business Committee are invited to suggest topics for inclusion in the forward work program at any time by contacting the Business Committee Secretariat.

Meetings of the ISO 20022 Technical Committee are expected to be held every month during 2019.

ATTACHMENTS

Attachment A – Business Committee Forward Work Program

Attachment A: Business Committee Forward Work Plan

4 April 2019

- CHESS Replacement Update
- Corporate Action STP Phase 2 Update
- Technical Committee (ISO20022) report
- Governance of industry advisory Committees

18 July 2019

- CHESS Replacement Update
- Corporate Action STP Phase 2 Update
- Technical Committee (ISO20022) report

19 Sept 2019

- CHESS Replacement Update
- Corporate Action STP Phase 2 Update
- Technical Committee (ISO20022) report
- Report on Cash Equity C&S Services
- Regulatory Expectations Audit

28 Nov 2019

- CHESS Replacement Update
- Corporate Action STP Phase 2 Update
- Technical Committee (ISO20022) report

Note: the forward work program does not include the standing agenda items for each meeting.