

ASX CHESS Replacement

Implementation & Transition Working Group

6 August 2024



ASX

ASX acknowledges the
Traditional Owners of
Country throughout Australia.
We pay our respects to
Elders past and present.

ARTWORK BY: LEE ANNE HALL, MY COUNTRY MY PEOPLE



Housekeeping

Troubleshooting

- Please mute yourself when not speaking
- Please use the 'raise hand' feature on MS Teams if you would like to ask a question
- Please introduce yourself when talking for the benefit of all members
- Meeting is being recorded for the purposes of capturing decision and actions
- Dial in details (audio only):
 - +61 2 7208 4607
 - Phone Conference ID: 735 237 433#
- Presentation materials were distributed before the meeting and will be published on the website

Important Information

Competition Law Reminder

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

In particular, please note that the Competition and Consumer Act prohibits 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

01 – Welcome, Open Actions & Feedback

02 – Release 1 - Deferred Settlement

03 – Release 2 - Implementation Risk Discussion

04 – Release 2 - Timeline

05 – Release 2 - Consultation Paper

06 – Forward Engagement & AOB

01 – Welcome & Actions

For discussion

01 – Open Actions

August 2024

#	Topic	Action	Raised	Due	Owner	Status
1	Industry Test Approach	ASX to provide an update on when the industry test approach will become available	11 July TC	6 August I&TWG	ASX	In Progress
2	R2 Implementation	ASX to present the assessment of additional options, seeking industry input on viability and risk assessment. Discussion required on day 1 non settlement day, and incremental release of market settlements.	11 July TC	4 September I&TWG	ASX	Maintain as ongoing action
3	Deferred Settlement	ASX to provide further detail on deferred settlement for further consideration	5 June I&TWG	4 July I&TWG	ASX	Deferred from 4 July I&TWG refer to slide 10
4	Deferred Settlement	Working Group members to review pre-read content from 4 July I&TWG and provide feedback to CHESSReplacement@asx.com.au	4 July I&TWG	6 August I&TWG	I&T Member Organisations	In Progress
5	Staged Implementation	Working Group members to provide any additional feedback or suggestions on industry testing or otherwise to further de-risk Release 2 to CHESSReplacement@asx.com.au	5 June I&TWG	6 August I&TWG	I&T Member Organisations	Maintain as ongoing action
6	Staged Implementation	ASX to include additional industry benefit analysis to capture industry perspectives on staging options	4 July I&TWG	6 August I&T WG	ASX	Presented at July TC Propose to close - see Appendix
7	R2 Timeline	ASX to update Release 2 timeline to incorporate any T+1 assumptions and analysis requirements	5 June I&TWG	4 July I&TWG	ASX	Presented at 4 July ITWG - Propose to close
8	R2 Timeline	Working Group members to provide feedback on latest R2 timeline	4 July I&TWG	6 August I&T WG	I&T Member Organisations	Maintain as ongoing action

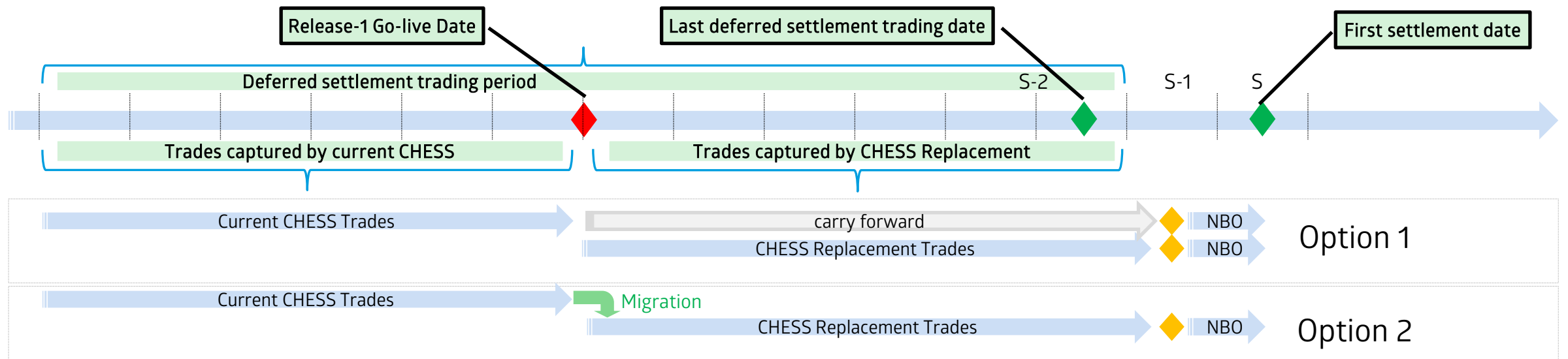
02 – Release 1 - Deferred Settlement

For discussion

02 – Deferred Settlement

Two High-level Options

- Deferred settlement trades are currently held gross and netted on S-1 when they reach settlement date
- If the deferred settlement trading period of a security spans the Release 1 go-live date, an approach is needed to determine how to deal with the trades matched prior to and post go-live
- Two general options are available:
 - **Option 1:** Manage deferred settlement trades in the system where they were captured (i.e. current CHES vs CHES Replacement) with two resulting sets of settlement instructions (either net or gross)
 - **Option 2:** Migrate trades captured in the current CHES system to the CHES Replacement system to allow them to net all deferred settlement trades on S-1



02 – Deferred Settlement

Options comparison

Options

Option 1 – Separate Settlements

Overview: Manage deferred settlement trades in the system where they were captured (i.e. current CHES vs CHES Replacement) with two resulting sets of settlement instructions (either net or gross)

Pros

- + Eliminate need for trade migration - lower overall effort and risk for ASX and the industry
- + Would utilise existing messages and processes supported by participant systems

Cons

- Non-typical scenario that may require regression testing in participant systems.

Option 2 – Migration

Overview: Migrate trades captured in the current CHES system to the CHES Replacement system to allow them to net all deferred settlement trades on S-1

Pros

- + No change to the existing process, would appear to be least impactful from a Participant's backward compatibility viewpoint

Cons

- A more complex solution requiring more effort, testing and carrying more risk
- Trades registered in current CHES would need to be removed and loaded into CHES Replacement.

Proposal

ASX proposes to go with Option 1

Ask: We would like feedback and to align on the proposed options and to set up a detailed working group, if agreed.

This applies to deferred settlement securities that span the Release 1 go-live weekend only.

02 – Deferred Settlement – Option 1 (split approach)

Sub options of Option 1

Options

Option 1 – Separate Settlements

Sub-option 1 – Net/Net

Overview: Net trades separately in current CHES & CHES Replacement resulting in two NBOs for the settlement date

Pros

- + Least number of settlement lines
- + Eliminate need for trade migration - lower overall effort and risk for ASX and the industry

Cons

- Results in 2 x:
 - NBOs per CP/Security
 - Batches of EIS134/138 messages per CP/Security

Sub-option 2 – Gross/Net

Overview: Settle trades gross in current CHES, net those registered in CHES Replacement resulting in an NBO and gross settlements for the same settlement date

Pros

- + Fewer settlement lines
- + Only 1 x NBO & EIS 134 per CP (likely to be less impactful)

Cons

- Still has potential to create high-volume of gross settlements

Sub-option 3 – Gross/Gross

Overview: Disable all netting and settle all deferred transactions on a gross basis

Pros

- + May be less impactful to participants

Cons

- Results in highest number of settlement instructions

02 – Deferred Settlement – Sub-option 2 (Gross/Net)

Message flows for deferred trading

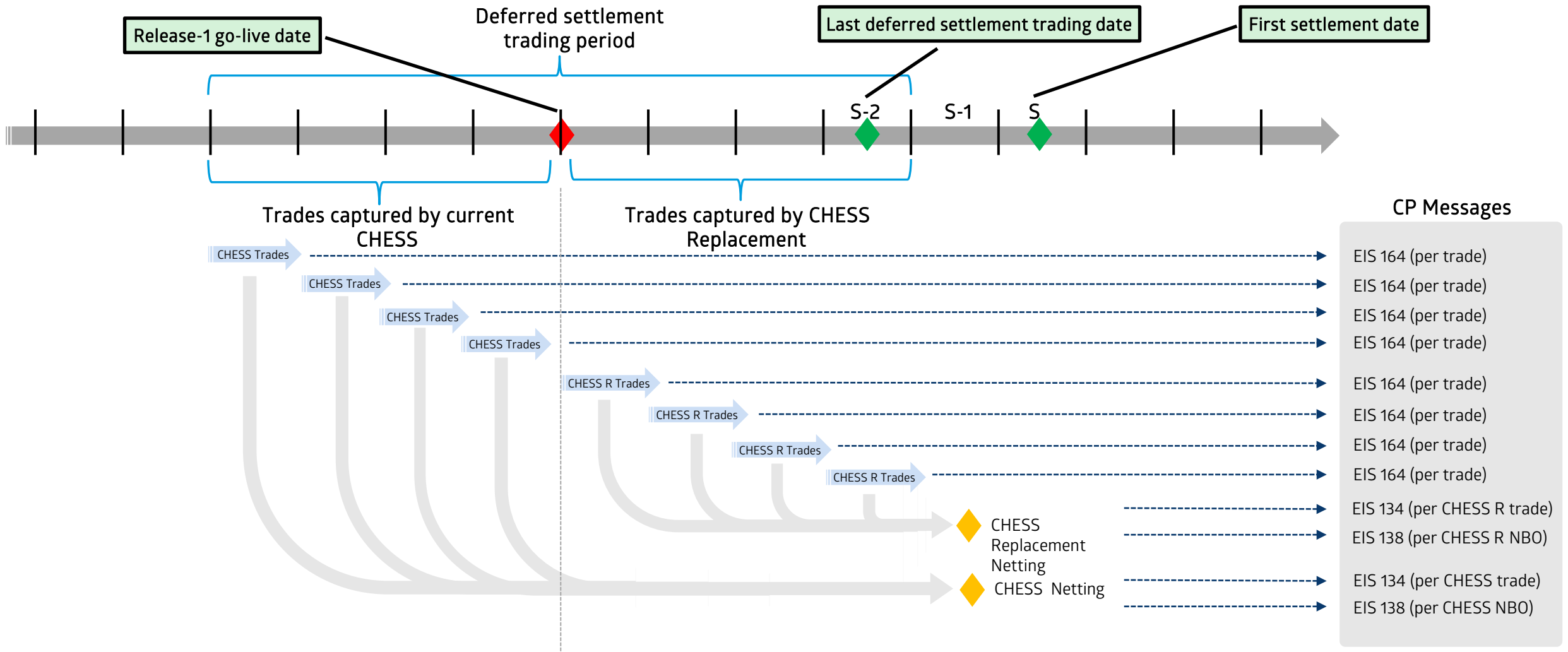
Sub-option 2 – Gross/Net

Overview: Settle trades gross in current CHES, net those registered in CHES Replacement resulting in an NBO and gross settlements for the same settlement date.

CHES	Before Go-Live	After Go-Live	S-1
Current CHES	New Trade <ul style="list-style-type: none">EIS 164 per Clearing Participant (receiver & deliverer) Updated First Settlement Date <ul style="list-style-type: none">EIS 124 per deferred trade per Clearing Participant (receiver & deliverer)	Updated First Settlement Date <ul style="list-style-type: none">EIS 124 per (current CHES) deferred trade per Clearing Participant (receiver & deliverer)	Code Merge <ul style="list-style-type: none">EIS 128 per (current CHES) deferred trade per Clearing Participant (receiver & deliverer)
CHES Replacement	n/a	New Trade <ul style="list-style-type: none">EIS 164 per Clearing Participant (receiver & deliverer) Updated First Settlement Date <ul style="list-style-type: none">EIS 124 per (CHES Replacement) deferred trade per Clearing Participant (receiver & deliverer)	Code Merge <ul style="list-style-type: none">EIS 128 per (CHES Replacement) deferred trade per Clearing Participant (receiver & deliverer) Netting <ul style="list-style-type: none">EIS 134 per (CHES Replacement) deferred trade per Clearing Participant (receiver & deliverer)EIS 138 per deferred trading security per Clearing Participant (receiver & deliverer)

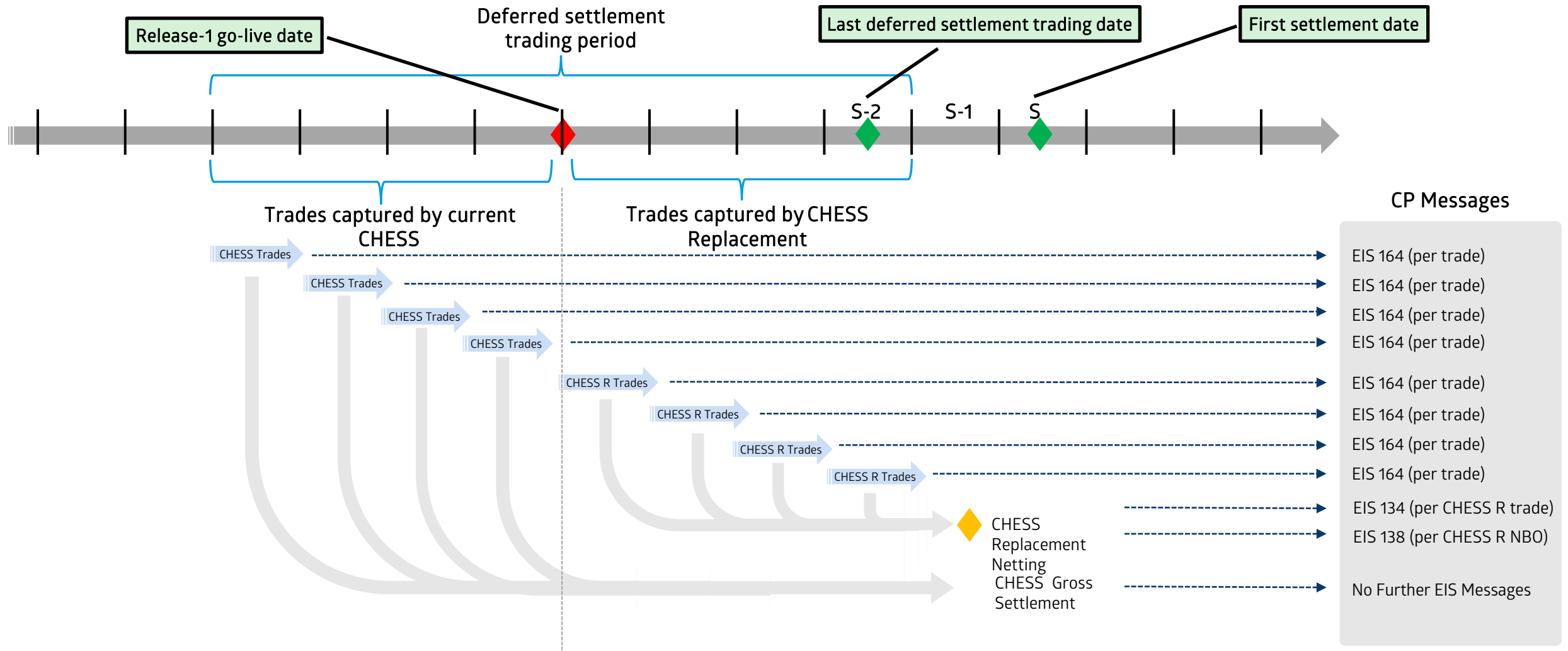
02 – Deferred Settlement – Net/Net Settlement

Deferred Settlement



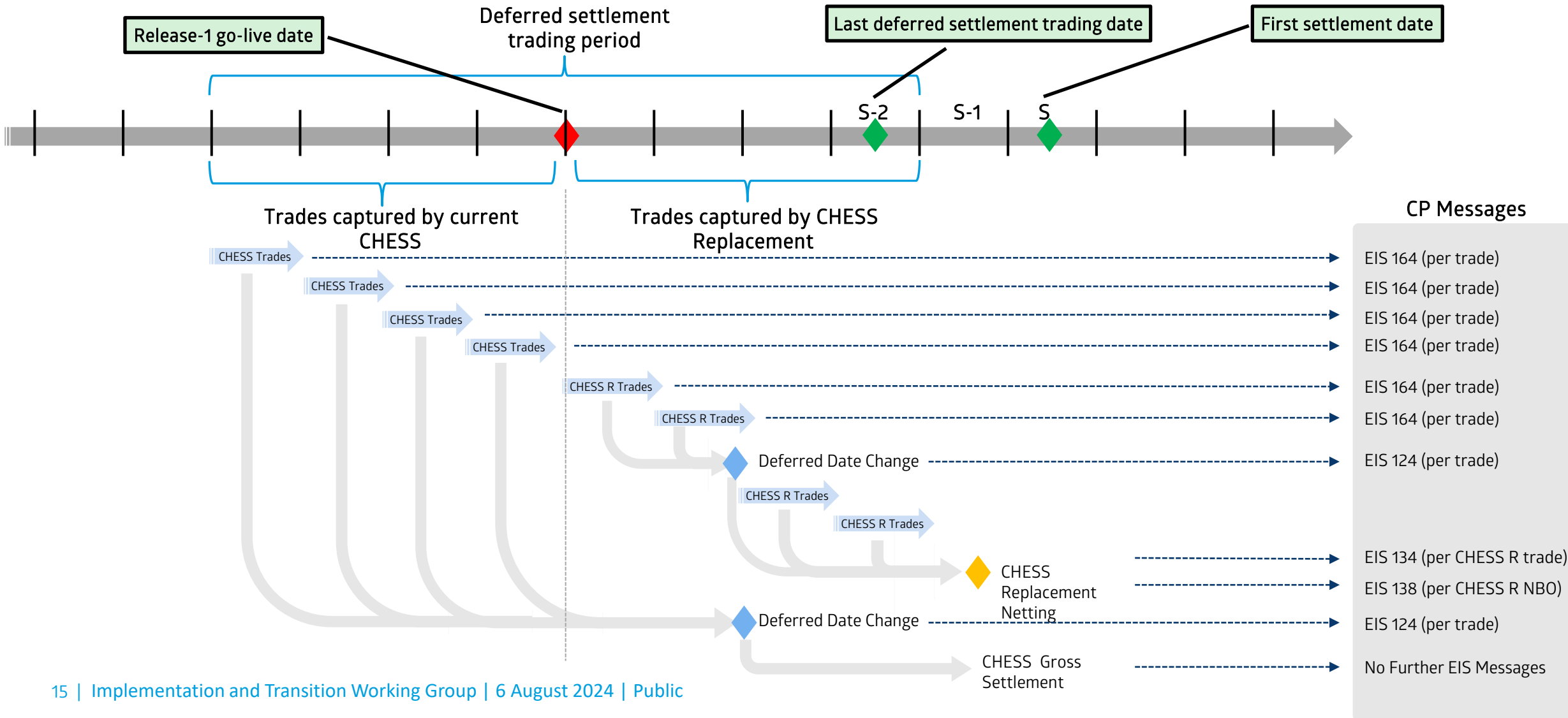
02 – Deferred Settlement – Gross/Net Settlement

Deferred Settlement



02 – Deferred Settlement – Change in Deferred Settlement Date

Deferred Settlement



02 – Deferred Settlement – Option 1 (split approach)

Sub-options of Option 1

Options

Option 1 – Separate Settlements

Sub-option 1 – Net/Net

Overview: Net trades separately in current CHES & CHES Replacement resulting in two NBOs for the settlement date

Pros

- + Least number of settlement lines
- + Eliminate need for trade migration - lower overall effort and risk for ASX and the industry

Cons

- Results in 2 x:
 - NBOs per CP/Security
 - Batches of EIS134/138 messages per CP/Security

Sub-option 2 – Gross/Net

Overview: Settle trades gross in current CHES, net those registered in CHES Replacement resulting in an NBO and gross settlements for the same settlement date

Pros

- + Fewer settlement lines
- + Only 1 x NBO & EIS 134 per CP (likely to be less impactful)

Cons

- Still has potential to create high-volume of gross settlements

Sub-option 3 – Gross/Gross

Overview: Disable all netting and settle all deferred transactions on a gross basis

Pros

- + May be less impactful to participants

Cons


- Results in highest number of settlement instructions

Proposal

ASX proposes to go with Sub-option 2.

Ask: We would like to seek feedback and alignment on the proposed option and to set up a detailed working group if agreed.

This applies to deferred settlement securities that span the go-live weekend only.



03 – Release 2 – Implementation Risk Discussion

03 – Recap

What has been discussed to date?

1. Staging Options for Release 2

2. Risks for Release 2

3. Deep Dive on Industry Testing and Parallel Test Case Study



- Presented staging options for Release 2 to help reduce implementation risks
- Present and align risks for further staging
- Focus on risks mitigants
- Provide high-level summary of Industry Testing and how it will mitigate risk
- Further discussion and deep dives into Industry Testing & Go-Live Readiness
- Provide summary of case studies relevant to CHES Replacement
- Overview and key learnings from the B3 Integration Project

The slide shows a hierarchical diagram of implementation options. It includes sections for '03 - Staged Implementation' and '03 - Staged Implementation' with various sub-points and a flowchart at the bottom.

03 – Release 2 Implementation Risks
The overall risk for Release 2 can be reduced through targeted mitigation strategies involving ASX and industry participants.

Area	Risk Description	Mitigation	Risk Rating
Industry readiness	Some participants are not ready resulting in a delay to Go-Live	• Intensive tracking throughout industry testing to identify lagging readiness • Contingency planning to consider industry readiness readiness and increased industry testing if required	Medium
Functional issues	Major functional issues or 'edge case scenarios' functionality	• Provide sufficient time to perform industry testing on Production like environments and data, including industry Wide Testing and Industry Parallel Testing	Medium
Technical connectivity	Participants experience connectivity issues once live	• Verification of participant connectivity tests feed into weekend Go / No Go decision. Process development through direct referrals • Consistent connectivity and/or bandwidth across all environments	Low
Migration	Migration issues either delay market open or results in data issues once live	• Dress rehearsals will reflect Go Live weekend process • High migration testing to test newly updated migration scenarios • Data quality reports and early migration of account data	Low
Performance issues	Major performance issues causes major market disruption	• Scheduled windows of simulated volume during CHES user testing and BBT • Software Providers and CHES users to conduct performance testing to their internal system connections • Extensive internal performance testing forms part of overall ASX Test Strategy	Low
CHES user downstream issues	Participants feed issues with their internal integrated systems	• CHES users to establish end to end environments for CHES user testing, industry wide testing and industry parallel testing	Low

03 – How risk will be mitigated through Industry Testing
The industry testing programme, Software Providers, which will be used to test the new system and ensure it is ready for release.

CHES user Industry Test Phase	Objective	Duration	Release Readiness	Release Issues	Release Readiness	Release Issues
CHES User Readiness	CHES users to identify test to track, remove software from the system providers or developed in-house. This test phase will also provide the opportunity to enable performance testing and simulated network usage testing	0 - 6 months	✓	✓	✓	✓
Industry Migration Testing	Operational readiness to readiness test phase providing ASX assurance that CHES users are ready to go live and that they are able to successfully operate their Business As Usual Back Office using the CHES replacement system	3 months (overlaps with other testing)	✓	✓	✓	✓
Operational Readiness	Provides an opportunity for CHES users to participate in a simulated production-like testing environment. ASX will facilitate an organized industry wide testing to provide CHES users the ability to perform business critical functions with other counterparties	3 months	✓	✓	✓	✓
Implementation Stress Behaviour (ISB)	Ensures all required activities to implement the Release 2 target state can be completed within the required time frame over a single weekend	4 months + 1 month per test	✓	✓	✓	✓
Industry Parallel Test	Industry Parallel Testing will validate a subset of business processes, comparing the data from CHES Replacement test against the current system. This involves conducting activities across all CHES users to ensure functional accuracy to replicated where possible	4 months	✓	✓	✓	✓

03 – Staging Release 2 further

Recent focus has been on assessing potential options to stage Release 2 implementation to reduce risk

ASX has assessed the options put forward by stakeholders against factors relating to operational risk, delivery risk, technical feasibility, and market impact, and whether the alternatives would reduce overall implementation risk compared to implementing Release 2 as one release. The assessment indicated that the proposed implementation of Release 2 as one release remains the approach that presents the least operational and delivery risk. It is also the option that is least likely to introduce additional technical complexity and delay completion of CHES Replacement.

#	How to transition	Key enabler	Summary of risk relative to Release 2 as one release
1	Stage by Participant	Full message backwards compatibility (EIS to ISO 20022 like-for-like)	<ul style="list-style-type: none"> • Significant increase in delivery risk due to the need to implement a like-for-like interim release • Significant delay to implementing CHES Replacement target state • Increase in operational risk and market impact due to a phased ISO release approach • Participant cutover risk remains with single cutover from like-for-like to enhanced ISO state
2	Stage by Issuer	ASX and the market operate two separate systems in Production for settlement	<ul style="list-style-type: none"> • Increase in operational risk and market impact due to operating two production systems for settlement • Increase in delivery risk relating to complexities of running two production settlement batches
3	Stage by function a) Bilateral Settlement matching b) Account maintenance c) Holdings d) Pass-through transactions	CHES users to interface to both EIS and ISO 20022 Requires systems to be synchronised for functions in scope	<p>a) Increase in delivery risk and market impact moving to final settlement matching ISO state</p> <p>b) and d) Increase in delivery and operational risk due to need for interim like-for-like translation and complexities of data synchronisation between CHES and CHES Replacement</p> <p>c) Not technically feasible due to significant change requires in current CHES</p>



Industry Testing and Go Live Readiness are key mitigants for Release 2 implementation risks and the I&TWG seeks consensus (subject to market consultation) on the approach to do this

Additional mitigation options currently under review

- Early access of migrated accounts
- Go Live day 1 as non-settlement day
- Incremental release of market settlements (for further discussion in the September I&TWG)

03 – Release 2 Key Implementation Risks

The overall risk for Release 2 can be reduced through targeted mitigation strategies involving ASX and industry participants.

Area	Risk Description	Mitigation	Residual Rating
Industry readiness	Some participants are not ready resulting in a delay to Go Live	<ul style="list-style-type: none"> ✓ Readiness tracking throughout Industry Testing to identify lagging indicators early ✓ Contingency planning to consider Industry Readiness scenarios and increased Industry Testing if required 	Medium
Functional issues	Major functional issues or “edge case scenarios” found once live	<ul style="list-style-type: none"> ✓ Provide sufficient time to perform Industry Testing on Production like environments and data, including Industry Wide Testing and Industry Parallel Testing 	Medium
Technical connectivity	Participants experience connectivity issues once live	<ul style="list-style-type: none"> ✓ Verification of participant connectivity tests feed into weekend Go / No Go decision. Process demonstrated through dress rehearsals ✓ Consistent connectivity and on-boarding process for all environments 	Low
Migration	Migration issues either delay market open or results in data issues once live	<ul style="list-style-type: none"> ✓ Dress rehearsals will reflect Go Live weekend process ✓ In-flight migration testing to functionally validate post migration scenarios ✓ Data quality reports and early migration of account data 	Low
Performance issues	Major performance issues causes major market disruption	<ul style="list-style-type: none"> ✓ Scheduled windows of simulated volume during CHES user testing and IWT ✓ Software Providers and CHES users to conduct performance testing for their interfaces when connected to ITE ✓ Extensive internal performance testing forms part of overall ASX Test Strategy 	Low
CHES user downstream issues	Participants find issues with their internal integrated systems	<ul style="list-style-type: none"> ✓ CHES users to establish end to end environments for CHES user testing, industry wide testing and industry parallel testing 	Low

03 – How risk will be mitigated through Industry Testing

The Industry Testing phase allows Software Providers and CHES users to validate software solutions and business processes, building confidence and demonstrating readiness for Go Live.

Prior to CHES user Industry Testing, it is proposed that Software Providers will have 12 months to progress build and test as functionality is delivered. Additionally, it is proposed that an additional 4 months of Software Provider readiness testing will support final testing, ensuring 1 month of regression following any defect patch release.

Implementation risks mitigated through Industry Testing

CHES user Industry Test Phase	Description	Duration	Industry Readiness	Functional issues	Technical connectivity	Migration	Performance issues	CHES user downstream
CHES User Readiness	CHES users to internally test on newly delivered software from the software providers or developed in-house. This test phase will also provide the opportunity to conduct performance testing and simulated network outage testing	5 - 9 months	✓	✓			✓	✓
Inflight Migration Testing	Demonstrates workflows starting in current CHES complete successfully in CHES Replacement	3 months (overlaps with other testing)	✓	✓		✓		✓
Operational Readiness	Operational readiness is a mandatory test phase providing ASX assurance that CHES users are ready for go-live and that they are able to successfully operate their business-as-usual (BAU) functions using the CHES Replacement system	4 months	✓	✓				✓
Industry-Wide Testing	Provides an opportunity for CHES users to participate in a simulated production-like working environment. ASX will facilitate co-ordinated industry-wide testing to provide CHES users the ability to perform business related functions with other counterparties	3 months	✓	✓			✓	✓
Implementation Dress Rehearsals (IDRs)	Ensures all required activities to implement the Release 2 target state can be completed within the required timeframe over a single weekend	4 weekend events over a 4-month period	✓		✓	✓		✓
Industry Parallel Test	Industry parallel testing will validate a sub-set of business processes, comparing current CHES to CHES Replacement over a period of time. This involves coordinating activities across all CHES users to ensure production processing is replicated where possible	4 months	✓	✓		✓		✓

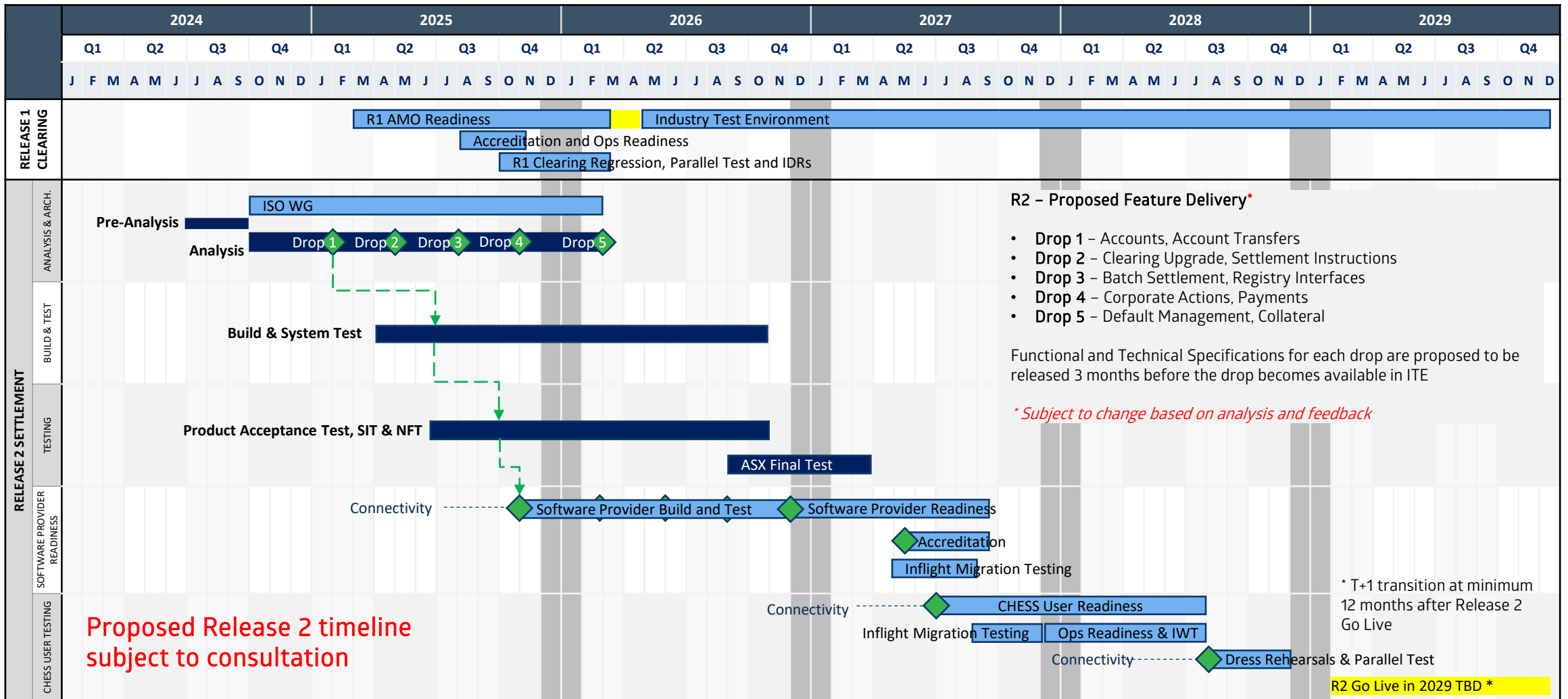
04 – Release 2 – Timeline

For discussion

04 – Implementation and Transition WG update

Proposed R2 timeline subject to industry consultation & assessment

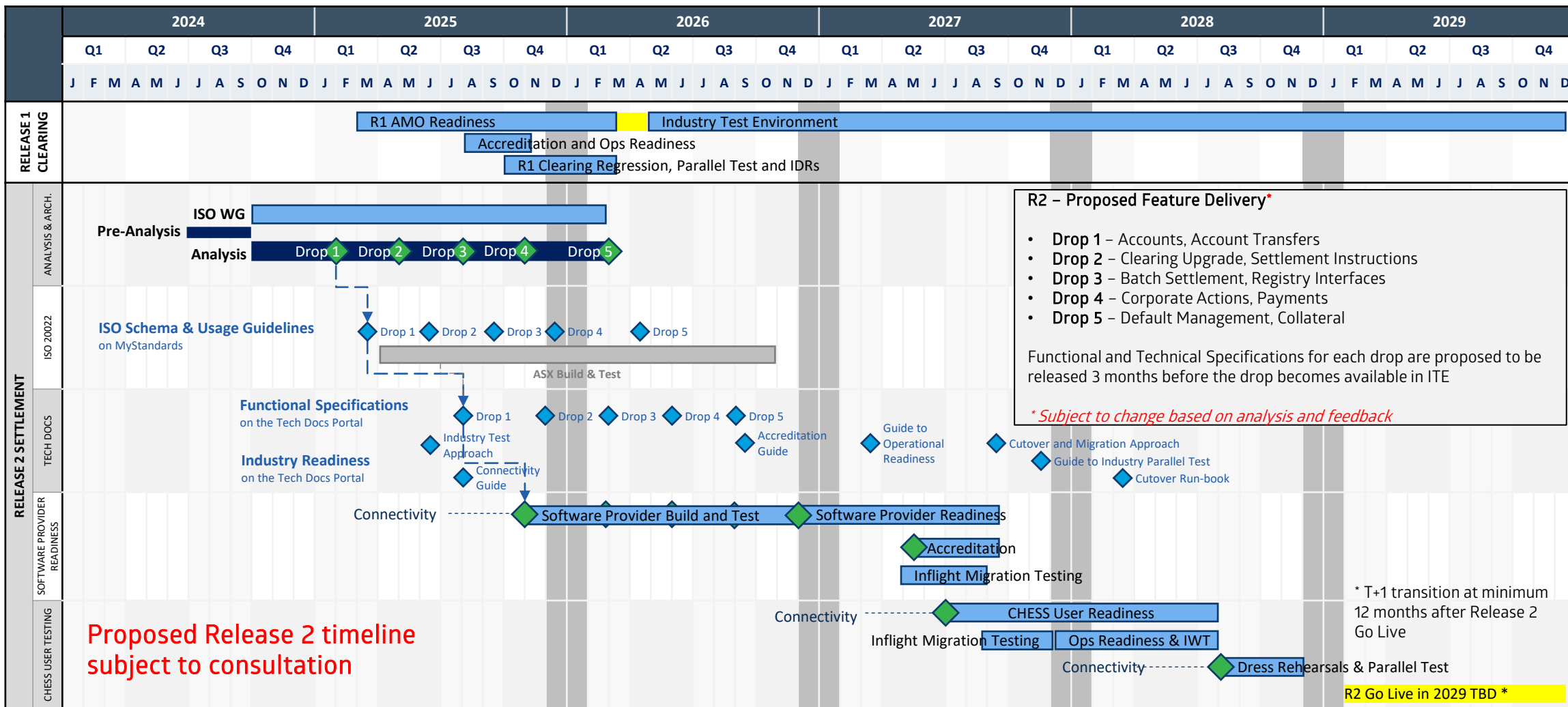
ASX is considering a number of scenarios for the timing of Release 2 in 2028 and 2029. One 2029 scenario is set out below:



04 – Implementation and Transition WG update

Proposed R2 timeline subject to industry consultation & assessment

ASX is considering a number of scenarios for the timing of Release 2 in 2028 and 2029. One 2029 scenario is set out below:



05 – Release 2 – Consultation Paper

For discussion

05 – Consultation Paper on Release 2

Overview

Summary

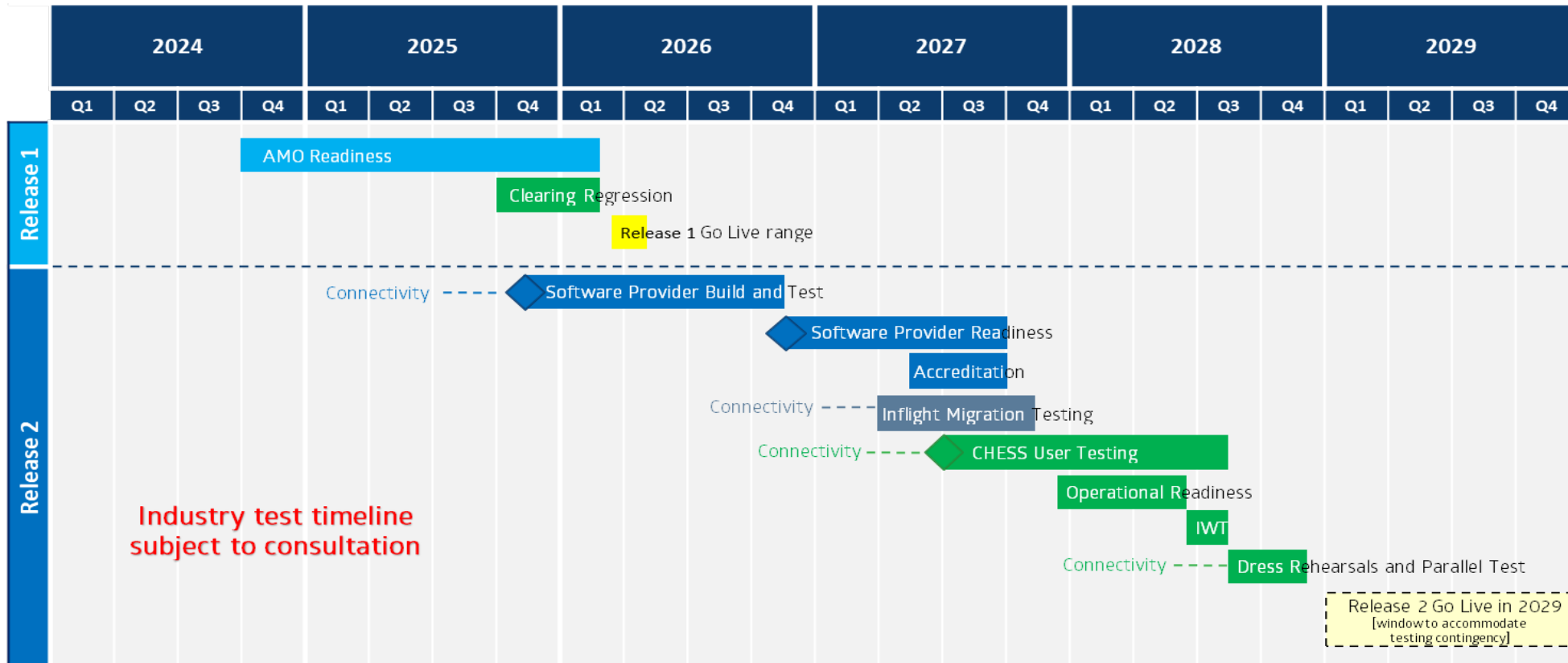
- The Consultation Paper has been informed by industry engagement to date and outlines ASX’s proposed approach to Release 2 of the CHESSE replacement system
- The paper invites feedback on the proposed:
- **Design, scope, and schedule** for Release 2;
 - **Testing and industry readiness approach** for Release 2
 - Approach to **interoperability** for CHESSE replacement
 - High level plan for the timing and approach for a transition to a **T+1 settlement cycle** (noting that any such transition will not form part of the CHESSE replacement project)
- Responses are due six weeks after publication via one of the following methods:
 - The electronic form via Qualtrics
 - An editable Excel
 - Email to CHESSEReplacement@asx.com.au in a format suitable to their organisation
- ASX is targeting a response to feedback in Q4 2024.

05 – Consultation Paper on Release 2

Proposed R2 Timeline

Timeline Overview

ASX expects to communicate the target go-live date to the market with at least 12 months' notice. ASX will continue to provide updates on timelines to allow the industry to plan and prioritise work relating to the CHES replacement project during the build and test phases of the project.



05 – Consultation Paper on Release 2

Overview

Key Topics

- *R2 Go Live Date*
 - The go-live date for Release 2 and completion of the CHES replacement project will follow successful industry testing, readiness and accreditation of the CHES replacement system. ASX is seeking feedback on the proposed timeline for Release 2 which would culminate in a go-live in 2029.
- *Interoperability*
 - The CHES replacement project proposes to deliver the technical foundations for interoperability in the Australian cash equities market.
 - ASX will test six specific core scenarios to demonstrate and confirm the technology can support multiple combinations of interoperability models.
- *Account Segregation*
 - R2 supports the following models:
 - a. Segregated house & omnibus client positions
 - b. Individual client segregated positions
 - c. Segregated positions for third party clearers.

05 – Consultation Paper on Release 2

Proposed Approach to transition to T+1 Settlement

For the avoidance of doubt, a decision to move to T+1 has not been made. If a decision is made to move to T+1, ASX recommends option 4, and proposes that a T+1 go-live date be at least 12 months after the CHES replacement Release 2 go-live date, and at a minimum 18 months after a decision to transition to T+1.

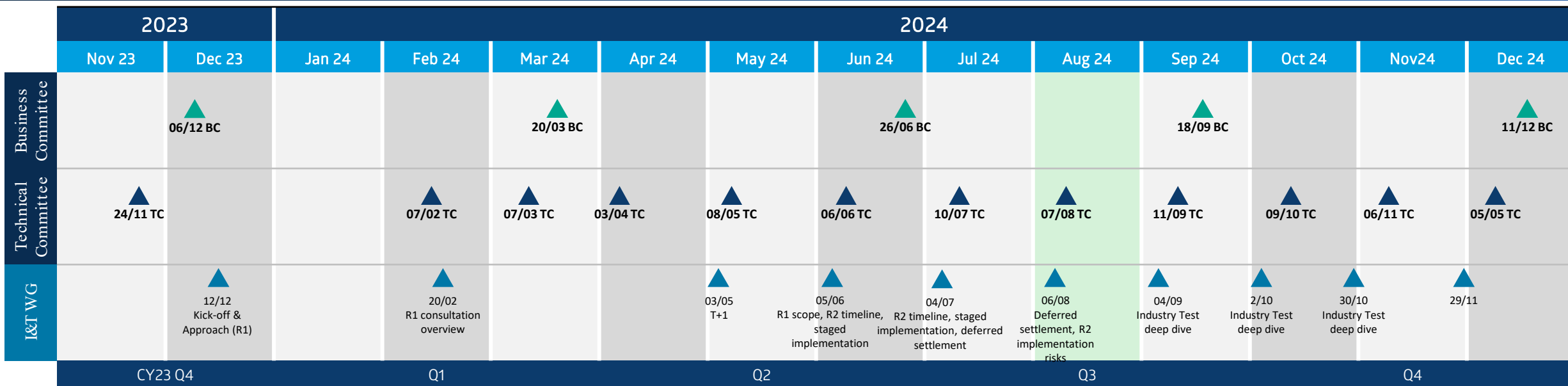
T+1 potential timing	Considerations	Expected impact on CHES replacement
<p>1. Immediately before CHES replacement Release 1</p> <p>Indicative dates: Late 2025 - 2026</p>	<ul style="list-style-type: none"> • Benefits to Australia still uncertain • Limited time to ‘watch and observe’ the North American experience. • The timetable for Europe and the UK as well as many Asia Pacific neighbours is still unclear. • Substantial change for industry to absorb on top of existing projects. • Less time for the market to automate back offices, increasing the costs of administration. • FX markets have not indicated any change to settlement process in the near term to accommodate T+1 in markets such as Australia. • Current CHES is less flexible and adapting to T+1 will take longer than under the CHES replacement system • Likely requirement to accelerate move to intra-day margining to facilitate T+1 	<p>Delay to Release 1 and Release 2 of 18-24 months (2030-2031)</p> <p>Delaying Release 1 will postpone the removal of CHES’s capacity constraints</p>
<p>2. Between CHES replacement Release 1 and Release 2</p> <p>Indicative dates: 2026-2028</p>	<ul style="list-style-type: none"> • Will have more clarity on benefits to Australia and impact on North America and global T+1 timetable will be more certain (noting there is very little guidance from Asian countries yet) • Industry change still significant considering overlay of UK and Europe’s potential move to T+1 • Although Clearing will have been upgraded via Release 1, the benefits of upgrading settlement in Release 2 will not yet be available to assist the move to T+1 	<p>Delay to Release 2 of 18-24 months (2030-2031)</p> <p>Delays new settlement functionality and other foundational changes such as interoperability</p>
<p>3. At the same time as Release 2</p> <p>Indicative dates: 2030+</p>	<ul style="list-style-type: none"> • Going live with both projects simultaneously increases risk • Likely insufficient capacity across industry to handle both projects simultaneously • Feedback from Whitepaper that this is not a desirable option 	<p>Delay to Release 2 depending on industry readiness</p>
<p>4. After Release 2</p> <p>Indicative dates: 2030+</p>	<ul style="list-style-type: none"> • Pushes T+1 target go-live beyond current targets for major international markets (noting that European and UK dates are not yet confirmed) • Simplifies the move to T+1 in the CHES replacement system as core enabling functionality will be built into the new system • Industry back-office automation will likely be embedded and manual processes to handle T+1 mature 	<p>No delay to Release 2 (2029 target go live)</p>

06 – Forward Engagement & AOB

For discussion

06 – Upcoming Engagement

What's on the Implementation & Transition WG horizon?

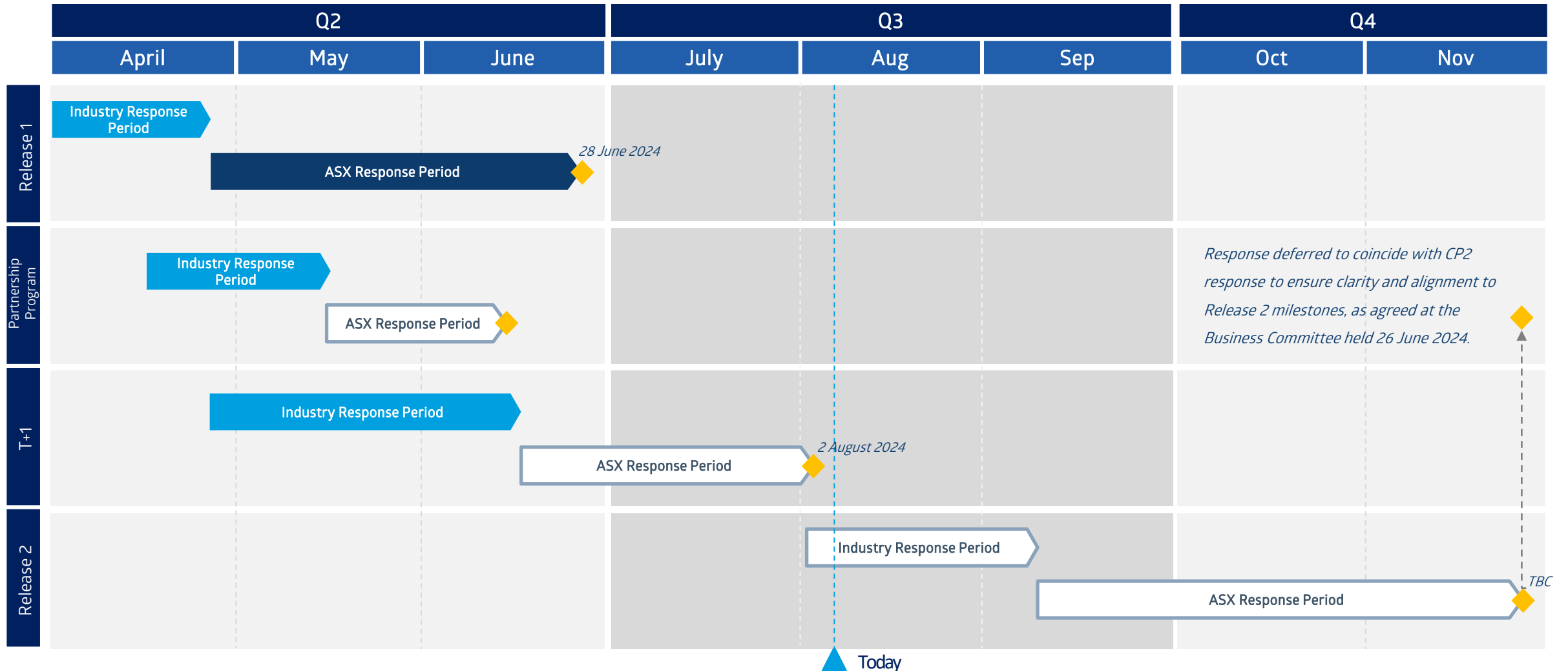


Month	Date	Time
Technical Committee		
September meeting	Wednesday 11 Sept	2pm – 4pm
October meeting	Wednesday 9 Oct	2pm – 4pm
November meeting	Wednesday 6 Nov	2pm – 4pm
December meeting	Thursday 5 Dec	2pm – 4pm

Month	Date	Time
Business Committee		
September meeting	Wednesday 18 Sept	12pm – 2pm
December meeting	Wednesday 11 Dec	4pm – 6pm

06 – Public Consultation Update

Indicative inflight & planned CY 2024 public consultation





Q&A



Thank you.



Appendix – Staging Opportunities

Presented July I&T WG

Staged Implementation

Staging by Participant

Options	Enablers	Current CHES	CHES Replacement	Benefits (Operational Risk Reduction)	Operational Risk	Technical Feasibility	Market Impact	Delivery Risk	Overall Risk Assessment
Enhanced	<ul style="list-style-type: none"> Stateful universal centralised message translation requiring complex rules Supplementary temporary interfaces 	<ul style="list-style-type: none"> EIS messaging 	<ul style="list-style-type: none"> All data and business logic 	<ul style="list-style-type: none"> Incident vectors constrained to one or a small number of Participants at a time Single release 	<ul style="list-style-type: none"> Increased incidents due to stateful and complex message translation 	<ul style="list-style-type: none"> Not viable – low technical feasibility 	<ul style="list-style-type: none"> Does not avoid build in legacy systems Schedule increase 	<ul style="list-style-type: none"> Complex build (likely not even possible) Schedule increase 	<ul style="list-style-type: none"> Not technically viable
Like-for-like	<ul style="list-style-type: none"> Centralised universal message translation 3 phase approach (Phase 0, 1, 2) Restricted to 'like-for-like' for Phase 1 	<ul style="list-style-type: none"> EIS messaging 	<ul style="list-style-type: none"> All data and business logic 	<ul style="list-style-type: none"> Incident vectors constrained to one or a small number of Participants at a time 	<ul style="list-style-type: none"> 3 major market impacting releases, including one for current CHES Support complexity of message translation 	<ul style="list-style-type: none"> Viable – but large build due to large number of CHES message types 	<ul style="list-style-type: none"> Schedule increase Cost increase Build needed for Phase 0, 1 and 2 Enhancement Phase 2 is a still single cutover Enhancements delivered late 	<ul style="list-style-type: none"> Phase 0 = current CHES build Phase 1 = TCS build to match current CHES + large build for CMT Phase 2 = redo TCS build to target state Schedule increase 	<ul style="list-style-type: none"> Significantly increases market impact and delivery risk, without addressing original concern of single-cutover avoidance

Note: All options will have an impact to project timelines with specifics to be determined post analysis of each option

Summary of risk relative to Release 2 as one release

Key | Neutral De-risk Med increase in risk High increase in risk



Staged Implementation

Staging by Issuer

Options	Enablers	Current CHES	CHES Replacement	Benefits (Operational Risk Reduction)	Operational Risk	Technical Feasibility	Market Impact	Delivery Risk	Overall Risk Assessment
Staging by Issuer	<ul style="list-style-type: none"> • CHES users connect to two systems • 2nd settlement batch • Data synchronisation (Accounts) 	<ul style="list-style-type: none"> • EIS messaging • All holdings, obligations and logic for Issuers that have not migrated • Account maintenance and data (master) 	<ul style="list-style-type: none"> • ISO 20022 messaging • All holdings, obligations and business logic for Issuers that have been migrated • Account data (replicated) 	<ul style="list-style-type: none"> • Potentially initial reduced market wide impact from incidents occurring in new systems (assuming small number of issuers are initially transitioned) 	<ul style="list-style-type: none"> • ASX/market operating two separate systems in Production for settlement • Operation of two settlement batches 	<ul style="list-style-type: none"> • Account data replication would be asynchronous and therefore out of date in CHES • Replacement for a short time 	<ul style="list-style-type: none"> • CHES user systems must support connecting to both CHES and CHES Replacement based on Issuer • Participants, banks and RBA must support 2nd batch • Potential batch netting inefficiency 	<ul style="list-style-type: none"> • Rules changes / default process / reporting impacts from having two batches • RBA / Payment bank alignment • Schedule increase 	<ul style="list-style-type: none"> • Arguable reduction in operational risk offset by need to operate two systems for settlement, increased market risks and delivery risk



Note: All options will have an impact to project timelines with specifics to be determined post analysis of each option

Summary of risk relative to Release 2 as one release

Key | Neutral De-risk Med increase in risk High increase in risk



Staged Implementation

Staging by Function

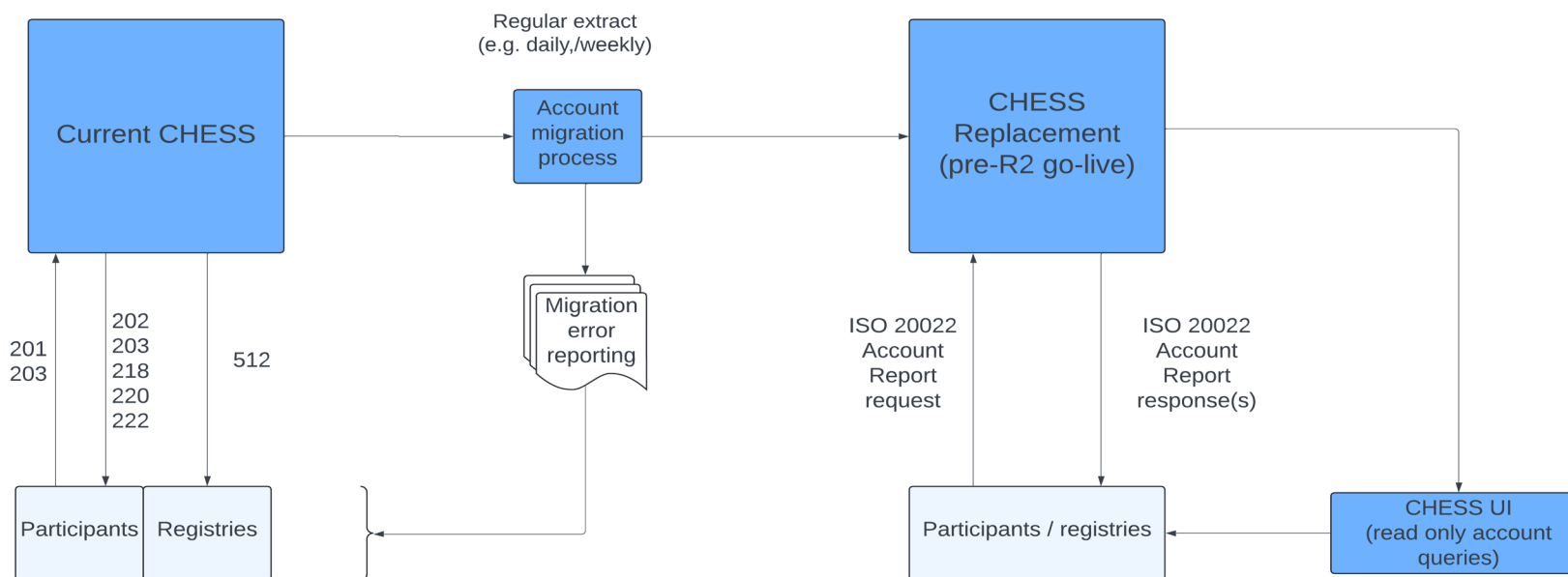
Options	Enablers	Current CHES	CHES Replacement	Benefits (Operational Risk Reduction)	Operational Risk	Technical Feasibility	Market Impact	Delivery Risk	Overall Risk Assessment
Clearing – with EIS backwards compatibility (Release 1)	<ul style="list-style-type: none"> Interoperability between CHES Replacement (clearing) and current CHES (settlement) EIS backwards compatibility for Clearing 	<ul style="list-style-type: none"> EIS messaging Subregister (accounts/holdings) Settlement (matching/obligations management/batch) 	<ul style="list-style-type: none"> AMO Interface (FIX) Trade acceptance and registration Trade cancellation Netting 	<ul style="list-style-type: none"> Solves trade scalability in shortest timeframe Isolates majority of ASX and AMO build from market build 	<ul style="list-style-type: none"> ASX operating two systems in Production Solves trade scalability in shortest timeframe 	<ul style="list-style-type: none"> Leverages existing CHES interface No technical blockers 	<ul style="list-style-type: none"> No interface changes for CHES users (regression test only) AMOs welcome FIX interface 	<ul style="list-style-type: none"> Current CHES release (internal only) Interface between systems Throw away TCS build for R1 Schedule increase 	<ul style="list-style-type: none"> Stages project in a technically feasible way to solve and trade scalability in the shortest timeframe without impact CHES users
Clearing – with optional 20022 and/or CHES UI	<ul style="list-style-type: none"> ISO 20022 messaging TCS BaNCs™ UI 	<ul style="list-style-type: none"> As above 	<ul style="list-style-type: none"> As above + optional ISO 20022 version of clearing messages and CHES UI 	<ul style="list-style-type: none"> Ability to validate trade notifications in Productions before R2 	<ul style="list-style-type: none"> Supporting multiple interfaces 	<ul style="list-style-type: none"> No technical blockers 	<ul style="list-style-type: none"> Optional and can be in parallel 	<ul style="list-style-type: none"> Schedule increase 	<ul style="list-style-type: none"> Market demand would need to justify schedule impact
Settlement – Bilateral with message translation	<ul style="list-style-type: none"> CHES users must (optionally) interface to EIS and ISO20022 Data synchronisation (Accounts) Centralised message translation for bilateral messages only 	<ul style="list-style-type: none"> All data and logic, except bilateral matching 	<ul style="list-style-type: none"> ISO20022 bilateral matching (101, 135, 102, 194, 166, 116) Allegements Data synchronisation (Accounts) 	<ul style="list-style-type: none"> Incident vectors constrained to one or a small number of Participants at a time, but only for this specific function 	<ul style="list-style-type: none"> Support complexity of message translation and account synchronisation Dual connectivity 	<ul style="list-style-type: none"> Requires “like-for-like” message translation for 6 message types Account data replication would asynchronous and therefore out of date in CHES Replacement for a short time 	<ul style="list-style-type: none"> Restricted to “like-for-like” Requires subsequent release for enhanced process Optional CHES user build to support EIS and ISO20022 concurrently 	<ul style="list-style-type: none"> CHES and TCS build Schedule increase 	<ul style="list-style-type: none"> Market demand would need to justify increase in support complexity, need for a subsequent release to introduce target state and schedule and cost increased
Subregister – Account maintenance	<ul style="list-style-type: none"> CHES users must interface to EIS and ISO 20022 Data Synchronisation (Accounts) 	<ul style="list-style-type: none"> All data and logic, except bilateral matching 	<ul style="list-style-type: none"> ISO 20022 Account maintenance Accounts (master) 	<ul style="list-style-type: none"> Isolates migration to new account model from other functionality 	<ul style="list-style-type: none"> Support complexity of account synchronisation Dual connectivity 	<ul style="list-style-type: none"> Retail account data replication would be asynchronous and therefore out of date in CHES for a short time 	<ul style="list-style-type: none"> Mandated CHES user build to support EIS and ISO 20022 concurrently 	<ul style="list-style-type: none"> CHES and TCS build Schedule increase 	<ul style="list-style-type: none"> Technical risk due to need to replicate retail level account details
Subregister – holdings	<ul style="list-style-type: none"> CHES users must interface to EIS and ISO 20022 Settlement to Subregister interoperability 	<ul style="list-style-type: none"> All data and logic, except accounts and holdings 	<ul style="list-style-type: none"> ISO20022 Account maintenance, holdings/ subposition maintenance demand transfers Accounts & Holdings 	<ul style="list-style-type: none"> Isolates migration of holding related functionality from other functionality 	<ul style="list-style-type: none"> Introduces complexity and risk into batch settlement process Dual connectivity 	<ul style="list-style-type: none"> Requires settlement (current CHES) to Subregister (CHES Replacement) interoperability. Major build in current CHES 	<ul style="list-style-type: none"> Mandated CHES user build to support EIS and ISO20022 concurrently 	<ul style="list-style-type: none"> Complex build Schedule increase 	<ul style="list-style-type: none"> Major changes to current CHES increases risk significantly
Pass-through transactions	<ul style="list-style-type: none"> CHES users must (optionally) interface to EIS and ISO 20022 Data synchronisation (Accounts/Holdings) 	<ul style="list-style-type: none"> All data and logic, except validation of pass-through messages 	<ul style="list-style-type: none"> ISO 20022 SRN enquiry and investor details Accounts and holding (replicated) 	<ul style="list-style-type: none"> Incident vectors constrained to one or a small number of Participants at a time, but only for these specific functions 	<ul style="list-style-type: none"> Support complexity of account/holding synchronisation Dual connectivity 	<ul style="list-style-type: none"> Requires “like-for-like” message translation for 6 message types Account data replication would be synchronous and therefore out of date in CHES Replacement for a short time 	<ul style="list-style-type: none"> Optional CHES user build to support EIS and ISO20022 concurrently 	<ul style="list-style-type: none"> Schedule increase 	<ul style="list-style-type: none"> Technical risk due to need to replicate retail level accounts and holding details

Note: All options will have an impact to project timelines with specifics to be determined post analysis of each option

Staged Implementation

Early Access to Migrated Accounts Reporting

Options	Enablers	Current CHES	CHES Replacement	Benefits(Operational Risk Reduction)	Operational Risk	Technical Feasibility	Market Impact	Delivery Risk	Overall Risk Assessment
Early access to migrated accounts reporting	<ul style="list-style-type: none"> Account migration process ISO 20022 messaging TCS BaNCS™ UI 	<ul style="list-style-type: none"> EIS messaging Account maintenance 	<ul style="list-style-type: none"> Migrated accounts (updated periodically) ISO 20022 account detail reporting 	<ul style="list-style-type: none"> Validate end to end processing / CHES UI access ahead of R2 Receive explicit advice from ASX on migrated accounts rather than relying only on tool 	<ul style="list-style-type: none"> ISO 20022 is optional, and for reporting only 	<ul style="list-style-type: none"> No technical blockers 	<ul style="list-style-type: none"> ISO 20022 and CHES UI reporting for accounts is optional 	<ul style="list-style-type: none"> Schedule increase 	<ul style="list-style-type: none"> Market demand would need to justify schedule impact
				↓	↓	↓	↓	↑	→



Note: All options will have an impact to project timelines with specifics to be determined post analysis of each option

Disclaimer

© 2024 ASX Limited (ABN 98 008 624 691)

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.

© 2024 ASX Limited ABN 98 008 624 691

