

ASX Limited

Independent Assessment of the ASX
CHESS Replacement Project 'Define &
Plan' Phase Final Report

Public Report

27 November 2023

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1. Executive Summary

Background

In November 2022, ASX paused the 'Clearing House Electronic Sub-register System' (CHESS) Replacement Program' to revisit the solution design. EY was engaged by ASX to conduct an independent review of the 'Define & Plan' phase of the CHESS Replacement (CHESSR) Project.

Scope

The review was to assist the Boards for ASX Limited, ASX Clear and ASX Settlement in determining whether an appropriate and robust process has been performed to select a solution and supplier(s) for the delivery of critical market infrastructure. The objectives of the review were to assess:

1. Deliverability of the 'Define & Plan' phase
2. Robustness of the Solution Options, Product/Solution Vendor and Solution Integrator (SI) assessment and selection process and related deliverables
3. Review of other key project deliverables and processes
4. Deliverability of the proposed solution and delivery model in preparation for the next 'Refine & Implement' phase
5. Implementation of CHESSR (CR) Actions relating to the CHESSR Program External (Accenture) Review Recommendations (November 2022)

We conducted an independent review of the process taken by ASX to determine the product/solution vendor and the SI through the 'Define & Plan' phase. The decisions throughout the phase have been made by ASX Management and the ASX Boards, and not EY.

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Approach

EY's review was conducted by the onsite core team of 6 members, leveraging over 30 local and global Subject Matter Resources (SMRs) and EY frameworks which are based on our local and global market experience. The review process was extensive and thorough, and EY had ongoing access to ASX Management which enabled strong engagement throughout the review.

The review involved a combination of desktop reviews, deliverable reviews, review workshops, observation of ASX processes/forums, review of mitigating actions planned and completed, interim progress reporting at governance forums and iterative assessments over the implementation of CR actions to address the CHESSR External Review Recommendations.

Conclusion

Overall, EY has concluded that ASX followed a robust and appropriate process to select a solution and supplier(s) for the delivery of their critical market infrastructure. EY's assessment found that the deliverables and processes aligned to ASX Frameworks, and were appropriate for the nature, scale and complexity of the CHESSR Project.

EY completed the review of Objectives numbered in the scope as 1 to 4, across 26 deliverables and/or processes, reviewing over 200 documents and holding over 150 workshops with ASX to review and confirm factual accuracy. A total of 48 risks were raised as part of the review, largely relating to the CHESSR Project deliverables as the review of project deliverables formed the majority of our independent review scope. ASX subsequently mitigated and closed 46 of these risks. As at the last RAID

(Risk, Assumptions, Dependencies and Issues) meeting held on 21/11/2023 prior to the finalisation of our report, 2 risks with 'Low' residual ratings remain open. The risks relate to the following:

1. Socialisation of the Industry Engagement Strategy with external stakeholder groups;
 - EY reviewed the planned mitigating actions that were developed by ASX to address this risk and confirmed the approach was appropriate, however the timeline to fully implement the action and demonstrate closure at the '24 November 2023 CHESSR Technical Committee' extended beyond EY's review period.
2. Approach to defining user personas within the Business Requirements Document (BRD);
 - ASX intends to complete the mitigating action once updated enterprise guidance on user experience analysis and personas is implemented by EPMO in 2024. The action is expected to be completed as part of detailed design activities within the 'Refine & Implement' phase of the CHESSR Project. EY's view is that this timeframe is appropriate for the completion of the mitigating action.

For the Objective numbered in the scope as 5, EY has completed the review of all 40 CR actions due in the 'Define & Plan' phase of the CHESSR Project. ASX has fully addressed 39 CR actions and 1 CR action (CR19.2) is partially addressed. For the 'partially addressed' action, our assessment concluded that work completed to date was appropriate towards addressing the recommendation, however ASX was yet to demonstrate that a single defect management tool was in operation. The 'partially addressed' assessment was an expected result based on the

current phase of the CHESSR Project. ASX will continue to address the outstanding CHESSR Program External Review Recommendations as part of the current and upcoming phases of the CHESSR Project.

A summary of the completed reviews and the status of risks is provided in the following table:

Objective	# of Reviews	Summary
1	Objective 1: Deliverability of the 'Define & Plan' Phase	<ul style="list-style-type: none"> • 1 of 1 review completed • Total 7 risks raised • No open risks
2	Objective 2: Robustness of the Solution Options, Product/Solution Vendor and Solution Integrator (SI) assessment and selection process and related deliverables	
	Solution Options	<ul style="list-style-type: none"> • 4 of 4 reviews completed • Total 6 risks raised • No open risks
	Product/Solution Vendor	<ul style="list-style-type: none"> • 2 of 2 reviews completed • Total 3 risks raised • No open risks
	Solution Integrator	<ul style="list-style-type: none"> • 2 of 2 reviews completed • Total 3 risks raised • No open risks
3	Objective 3: Review of other key CHESSR Project deliverables and processes	<ul style="list-style-type: none"> • 16 of 16 reviews completed • Total 24 risks raised • 2 open risks
4	Objective 4: Deliverability of the proposed solution and delivery model	<ul style="list-style-type: none"> • 1 of 1 review completed • Total 5 risks raised • No open risks
5	Objective 5: Implementation of CR Actions relating to CHESSR Program External Review Recommendations	<ul style="list-style-type: none"> • 40 of 40 CR actions reviewed • 39 Fully Addressed • 1 Partially Addressed

Note: Risk statuses are as at RAID meeting held on 21/11/2023 and CR actions statuses are as at final Factual Accuracy Check meeting held on 27/11/2023.

This report should be read with respect to the limitations specified in Section 2.5.

2. Introduction

2.1 Background

CHESS is used by ASX as a core system to perform clearing, settlement and other post-trade services for the Australian equity market. In December 2017, ASX Operations Pty Ltd (ASX) announced the decision to replace the existing CHESS System with Distributed Ledger Technology (DLT) - this was known as the 'CHESS Replacement (CHESSR) Program'.

Due to ongoing delays and development issues, ASX engaged a third-party (Accenture) to provide an independent review (CHESSR Program External Review) of the CHESSR Application being developed, and to assess aspects of application delivery. The CHESSR Program External Review concluded with a report published in November 2022, which details 45 recommendations for ASX to address as part of the replanning exercise.

In November 2022, ASX paused the CHESSR Program to revisit the solution design. Since the pause, the reset 'CHESSR Project' has returned to the 'Define & Plan' phase.

During the 'Define & Plan' phase, the CHESSR Project has focused on key activities that have included the evaluation of solution options, assessment and selection of a product/solution vendor and solution integrator (SI), and the development of key project deliverables for the reset project.

2.2 Scope

EY was engaged by ASX to conduct an independent review to assist the Boards of ASX Limited, ASX Clear and ASX Settlement in determining

whether an appropriate and robust process has been performed to select a solution and supplier(s) for the delivery of its critical market infrastructure.

EY reviewed mandatory CHESSR Project deliverables and associated processes, deliverability of project phases, and the implementation of CR actions relating to the CHESSR Program External Review Recommendations. The scope of our review was focused on the following 5 objectives:

1. **Deliverability of the 'Define & Plan' phase**
 - Assessing the achievability of the schedule and whether the breadth of the activities was adequate for the expected outcomes of the phase.
2. **Robustness of the Solution Options, Product/Solution Vendor and Solution Integrator (SI) assessment and selection process and related deliverables**
 - Conducting a quality review of key deliverables for the assessment and selection processes including:
 - Evaluation of solution options
 - Assessment and selection of any product/solution vendor
 - Assessment and selection of a SI
 - For the avoidance of any doubt, EY's review was focused on the appropriateness and robustness of the assessment and selection process and not the selection decision.

3. Review of other key CHESSR Project deliverables and processes

- Conducting a quality review of other key CHESSR Project deliverables for the 'Define & Plan' phase, including the CHESSR business case (Business Case).
- Reviewing the implementation of the strategy, plans and processes ASX has in place for engaging with industry stakeholders (i.e., Technical Committee members), including the 'CHESS Replacement Technical Committee (TC)'.

4. Deliverability of the proposed solution and delivery model

- Assessing the deliverability of the proposed solution and delivery model to determine whether:
 - The appropriate Project Management and Governance processes are in place or planned (relative to current status/phase of the project) to support successful delivery
 - The complexity profile of the proposed solution is understood and clearly documented
 - Alignment of capability and maturity to the complexity profile associated with the proposed solution and delivery model (considering ASX, product/solution vendor and SI) is appropriate

5. Implementation of CHESS Replacement (CR) Actions relating to the CHESSR Program External Review Recommendations (November 2022)

- Assessing the implementation of CHESSR Project actions (CR actions) due in the 'Define & Plan' phase to determine whether ASX has addressed the relevant recommendations

from the CHESSR Program External Review conducted on the previous iteration of the project.

2.3 Approach

Global and Local Team of Subject Matter Resources (SMRs)

EY leveraged Subject Matter Resources (SMRs) and EY frameworks based on its local and global market experience to assess the approach undertaken by ASX, compared to approaches taken by EY for projects of a similar nature, scale and complexity to the CHESSR Project.

The SMRs reviewed ASX deliverables and frameworks and provided findings, observations and recommendations based on their combined industry experience across:

- Architecture and Delivery
- Alternative Technology Architecture and Delivery
- Cyber Security
- Risks and Controls
- Exchange Experience
- Program Management

Core Steps of the Review

The following core steps were performed by EY to review the 'Define & Plan' phase of the CHESSR Project for Objectives 1 to 4:

- **Initial Desktop Review:** EY conducted a detailed review and analysis of evidence provided by ASX. Evidence included ASX deliverables, ASX frameworks and templates, supporting

CHESSR Project delivery framework documentation and extracts of various ASX project collaboration tools.

- **Draft Deliverable Reviews:** EY conducted a review of the First Draft and/or Final Draft versions of key ASX CHESSR Project deliverables
 - *First Draft Review:* EY reviewed an initial draft of the ASX deliverable and documented draft findings with corresponding risks and recommendations.
 - *Final Draft Review:* EY reviewed an updated draft of the ASX deliverable to determine whether prior recommendations from the First Draft Review had been incorporated. Any findings and corresponding risks which remained unresolved were formally reported.
- **Review Workshops:** A series of meetings were held between ASX and EY to facilitate discussions:
 - *Walkthrough:* ASX described the deliverable/process that was in scope for the EY review. In Final Draft review sessions, part of the agenda included ASX presenting on how EY's recommendations from the First Draft review had been addressed.
 - *Q&A:* ASX discussed and answered EY's pre-submitted questions and validated the understanding of the deliverable/process and supporting evidence provided.
 - *Alignment:* ASX confirmed the factual accuracy of EY's draft findings and provided any further context and evidence to support the review process.
 - *Closing:* Used by ASX and EY to finalise EY's draft findings, agree risk ratings using the ASX Risk Management

Framework, assign ASX Owners and finalise next steps (e.g., agree that risks will be formally reported in ASX project collaboration tools and triaged at the fortnightly RAID meeting).

- **Observation:** EY attended and observed workshops and forums held by ASX between product/solution vendors and industry stakeholders (i.e., Technical Committee members). This formed part of the process reviews for 'Review of Solution Options, Product/Solution Vendor and SI Assessment and Selection Process' and 'Industry Engagement Activities & Process'.

Process for Raising and Monitoring Risks

As part of EY's reviews, SMRs raised 'findings'. This referred to a matter identified by EY as having an associated 'risk' (i.e., the possibility that an event may occur that adversely affects the achievement of an objective). Following the completion of each independent review and the Closing Meeting between ASX and EY, any outstanding findings with corresponding risks and recommendations were shared with ASX Owners. These risks were then reported using ASX project collaboration tools.

Risks were formally logged and triaged at fortnightly RAID Review meetings to assign risk impact categories, inherent risk ratings, ASX Owners and risk due dates. Risk ratings were determined using the ASX Project Risk Rating Scalar. In some cases, ASX had already self-identified risks raised by EY through their risk management processes.

The closure of risks raised by EY was assessed based on the appropriateness of the mitigating actions to address the risks and their proper execution. EY performed this assessment for all risks raised by EY.

CHESRR Project Governance Forums

EY attended and provided updates (as required) on the progress and outcomes of the independent review in the following ASX governance forums for the CHESRR Project:

- Weekly Project Working Group (PWG)
- Fortnightly Risk, Assumption, Issue and Dependency (RAID) Review Meeting
- Monthly Strategic Guidance Group (SGG) Meeting
- Monthly and Quarterly ASX Governance Meetings
- Following the establishment of the Advisory Group in mid-2023, EY presented the progress and outcomes of the independent review at the 08/11/2023 meeting

Iterative Assessment for the Closure of CHESRR Program External Review Recommendations (November 2022)

Iterative assessments were conducted for the implementation of CR actions to address the CHESRR Program External Review Recommendations.

As part of our assessment, EY considered:

- 'Executed' - Whether the CR action has been fully addressed by the actions taken by ASX
- 'Appropriate' - Whether CR actions taken are reasonable and appropriate
- 'Sustainable' - Whether the CR actions are implemented in a sustainable manner

- The closure of the CR actions was supported by demonstrable evidence and has been subject to appropriate internal due diligence and governance processes.

2.4 Conclusions

Our review concluded with the following outcomes across the 5 objectives:

1. Deliverability of the 'Define & Plan' phase

Our review found that the 'Define & Plan' phase of the CHESRR Project had the appropriate governance, resource planning, risk management, dependency management and contingency planning in place.

A total of 7 risks were raised and ASX mitigated and closed all of these risks in a timely manner.

2. Robustness of the Solution Options, Product/Solution Vendor and SI assessment and selection process and related deliverables

Our review found that the process to assess and select the preferred solution option, product/solution vendor and SI vendor was robust and followed ASX's documented process for the CHESRR Project, which aligned to the ASX Frameworks. The deliverables and processes were appropriate for the nature, scale and complexity of the CHESRR Project, considering EY's methodology frameworks.

EY completed 8 reviews and a total of 12 risks were raised. ASX mitigated and closed all of these risks in a timely manner.

3. Review of other key project deliverables and processes

Our review found that other key CHESSR Project deliverables and processes were aligned to ASX Frameworks and templates, and tailored appropriately where required. EY observed that the ASX team addressed EY SMR feedback between review stages, which enhanced the quality of the project's deliverables. For any remaining feedback not addressed by ASX at the final review stage, risks were raised and ASX performed appropriate mitigating actions to progress the closure of risks within a reasonable timeframe.

In relation to industry engagement activities and processes for the CHESSR Project Technical Committees, EY found that ASX's Stakeholder Engagement team conducted these in line with the Industry Engagement Strategy defined at the commencement of the project. Industry stakeholders (i.e., Technical Committee participants) were provided with opportunities to provide feedback, and ASX responded to questions and feedback in a timely manner. During the early stages of the phase, TC participants provided feedback on the timeliness of ASX distributing reading materials ahead of the TC to foster effective participation. ASX acknowledged that reading materials needed to be distributed earlier on, and this feedback was addressed for subsequent TC sessions where possible. To meet further regulatory expectations placed on ASX, the Advisory Group (AG) was established by ASX in August 2023.

EY completed 16 reviews across the areas of Solution Design, Quality Engineering & Testing, Industry Engagement, Organisational Change Management, Business Requirements and the Business Case. A total of 24 risks were raised and ASX mitigated and closed 22 of these risks in a timely

manner. The 2 remaining risks with 'Low' residual ratings relate to the areas of:

1. Socialisation of the Industry Engagement Strategy with external stakeholder groups
 - EY reviewed the planned mitigating actions that were developed to address this risk and confirmed the approach was appropriate, however the timeline to fully implement the action and demonstrate closure at the '24 November 2023 CHESSR Technical Committee' extended beyond EY's review period.
 2. Approach to defining user personas within the Business Requirements Document (BRD)
 - ASX intends to complete the mitigating action once updated enterprise guidance on user experience analysis and personas is implemented by EPMO in 2024. The action is expected to be completed as part of detailed design activities within the 'Refine & Implement' phase of the CHESSR Project. EY's view is that this timeframe is appropriate for the completion of the mitigating action.
- 4. Deliverability of the proposed solution and delivery model in preparation for the next 'Refine & Implement' phase**

Our review found that the complexity of the proposed product-based solution is understood by ASX, as demonstrated through the CHESSR Project's solutions options evaluation process, and the assessment outcomes have been documented as part of the Solution Options and Solution Design related deliverables. Project management and delivery/governance models are

dependent on the onboarding of the product/solution vendor and SI before they can be finalised.

A total of 5 risks were raised, 1 of which had already been self-identified by the project. ASX mitigated and closed all of these risks in a timely manner.

5. Implementation of CHESSE Replacement (CR) actions relating to the CHESSE Program External Review Recommendations (November 2022)

EY reviewed a total of 40 CR actions due in the 'Define & Plan' phase of the CHESSE Project for 'Executed, Appropriate, Sustainable'.

Our review found that ASX had fully addressed 39 CR actions and partially addressed 1 CR action. The 'partially addressed' assessment was an expected result based on the current phase of the CHESSE Project.

2.5 Limitations

EY's review of deliverables and processes were focused on understanding the purpose of the ASX documents under review, assessing the alignment of the deliverable to ASX frameworks and documented processes, and EY's experience of other major implementation projects similar in nature, scale and complexity to the CHESSE Project, to identify any findings and observations. The following limitations are inherent in this report:

- We reviewed ASX's alignment to the 'ASX Delivery Framework' and other relevant ASX frameworks based at the current point in time. It is understood that some of these frameworks are undergoing an uplift and review, and will be subject to changes going forward.

- Our review was limited to information provided by ASX, as deemed relevant in line with the agreed scope and EY requests, with the expectation that ASX had those artefacts documented to satisfy its own governance arrangements and executive accountability needs.
- Our review included only items that were listed in the scope. Specific areas which were out of scope are listed below:
 - Risk ratings as part of the risk profiles developed for product based Solution options.
 - Change Impact ratings between different stakeholder groups for the OCM BTOPPC (Business Vision and Strategy, Technology & Services, Organisation & Roles, Processes and Procedures, People & Culture, and Customer Experience) Assessment.
 - Cost estimates as part of the product/solution vendor and SI evaluation process.
 - Costs presented in the Business Case and related deliverables.
 - Bilateral meetings between ASX and TC members or other industry stakeholders.
 - Observation of Advisory Group (AG) meetings and related processes. EY was invited to the 08/11/2023 AG meeting to present.
 - Traceability of requirements from the industry into the Business Requirement Document (BRD) as part of the BRD deliverable review.
 - Conflict management process for vendor and SI assessment and selection.

- Our work does not express any form of assurance and was not performed in accordance with generally accepted auditing, review, or other assurance standards in Australia. This report does not constitute legal opinion or advice. EY have not conducted a review to detect fraud or illegal acts.
- Our work does not assume responsibility for any third-party products, programs or services, their performance or compliance with their specifications or otherwise.
- EY are not to be responsible for any defect or problem arising out of or related to data processing in any current or future Systems. EY's work did not intend to identify, address, or correct any errors or defects in ASX's current or future computer systems, other devices, or components thereof (Systems), whether or not due to imprecise or ambiguous entry, storage, interpretation, or processing or reporting of data.
- For the purpose of the engagement, we define 'oversee' as to observe and inspect whether ASX has acted accordingly. ASX is accountable and responsible for the implementation activities and EY will not act as management or direct the implementation activities.
- For the purpose of this review and avoidance of doubt, EY defined 'robust' as well-defined and able to achieve the desired objectives/outcomes.

2.6 Use and disclosure of EY's Reports

EY is providing specific advice only for this engagement and for no other purpose and we disclaim any responsibility for the use of our advice for a different purpose or in a different context. If you plan to use this advice on another transaction or in another context, please let us know and provide us with all material information so that we can provide advice tailored to the appropriate circumstances.

EY's Reports may be relied upon by ASX and ASX's regulators, ASIC and the RBA, for the purpose outlined in the Statement of Work #3 executed on 20/03/2023 (commenced on 20/02/2023) and Amendment #1 executed on 25/09/2023 only. We understand that ASIC, the RBA and ASX may issue a media release and/or a public report referring to or publishing the content of EY's Reports and may make public or issue EY's Reports or a summary of the content of EY's Reports. We consent to ASIC, the RBA and ASX publishing EY's Reports.

For the avoidance of doubt, no other party other than ASX and ASX's regulators, ASIC and the RBA, may rely on the Reports. We disclaim all responsibility to any such other party for any loss or liability that the other party may suffer or incur arising from or relating to or in any way connected with the contents of EY's Reports, the provision of EY's Reports to the other party or the reliance upon EY's report by the other party.

3. Summary of Findings

3.1 Deliverability Review of the 'Define & Plan' Phase

EY conducted an initial review of the CHESSR Project's 'Define & Plan' phase in March 2023. The review was to evaluate the deliverability of the schedule for the 'Define & Plan' phase and determine whether the breadth of activities was adequate for the nature and expected outcomes of the phase.

As part of the 'Define & Plan' Phase Deliverability Review, EY interviewed the CHESSR Project Leadership, Stream Leads and EPMO, and focused on the following areas:

- *Project Planning/Scheduling* - determining mandatory deliverables, resourcing and contingency planning
- *Project Management* - resource management, dependency management and risk management
- *Governance* - setup of governance forums, reporting requirements schedule change request management

EY's framework, which is based on EY's local and global market experience, was used to assess the overall project management and established governance for the 'Define & Plan' phase.

Our review found that ASX had the appropriate governance, resource planning, risk management, dependency management and contingency planning for the 'Define and Plan' phase. A total of 7 risks were raised as part of the 'Define & Plan' Phase Deliverability Review, 1 of which was already self-identified by the CHESSR Project, summarised by the following themes:

- Outstanding decisions regarding mandatory deliverables being in scope for the project phase and the level of detail required for the mandatory deliverables
- Finalisation of review and sign off processes for mandatory deliverables
- Commencing external stakeholder activities without a signed off industry engagement strategy

Conclusion

ASX mitigated and closed all of these risks in an appropriate and timely manner.

Refer to the following table for a summary of the review outcome.

#	Review Name	Review Status	Total Risks Raised (Inherent Rating)	Closed Risks	Open Risks (Residual Rating)
Deliverability Review of the 'Define & Plan' Phase					
1	'Define & Plan' Phase Deliverability	Completed	<p>7 risks identified:</p> <ul style="list-style-type: none"> • 1 High • 3 Medium • 3* Low <p><i>*Includes 1 risk already self-identified and rated as 'Medium' by the Project</i></p>	7	0

3.2 Robustness of the Assessment and Selection Process and Related Deliverables

Throughout the 'Define & Plan' phase, EY conducted an iterative review of the CHESSR Project's assessment and selection activities, to determine whether a robust process was developed and followed by ASX. EY conducted a quality review of key related deliverables and leveraged its methodology frameworks, which is based on EY's local and global market experience in completing a vendor assessment.

The following areas were reviewed by EY:

- *Evaluation of solution options* - EY reviewed ASX deliverables produced to support the evaluation of solution options, and the related product/solution vendor assessment process. This included the initial Vendor Request for Information (RFI) deliverable, the Solution Decision Framework (SDF) deliverable, observing the application of the SDF in the product/solution vendor assessment, and the resulting Solution Options Analysis (Strawperson) deliverable. Together, these deliverables documented the end-to-end process of the evaluation of solution options, and led to the determination of the preference for a Product based Solution.
- *Assessment and selection of product/solution vendor* - EY reviewed ASX's Vendor Request for Proposal (RFP) deliverable, and the associated RFP evaluation process completed by ASX personnel to assess the product/solution vendors, which was applied to determine the preferred product/solution vendor.
- *Assessment and selection of SI* - EY reviewed ASX's SI RFP deliverable, and the associated RFP evaluation process completed by ASX personnel to assess the SI vendors.

Note: Throughout the review, EY did not review any commercially sensitive information (e.g., vendor pricing). This information was redacted from any documents that EY reviewed, and EY did not attend parts of the workshops where this was discussed. A conflict management process for vendor and SI assessment and selection had been put in place by ASX, however this did not form part of EY's scope of review.

Overall, our review found that ASX's process to assess and select the preferred solution option, product/solution vendor and SI vendor was robust and followed ASX's documented process for the CHESSR Project. The deliverables and processes aligned to the ASX Frameworks, and were appropriate for the nature, scale and complexity of the CHESSR Project, in accordance with EY's methodology frameworks. The EY review process was extensive and thorough, which enabled ASX to enhance their deliverables through a First Draft and Final Draft review process.

The following sections provide detailed commentary on EY's findings and conclusions for each area of review.

3.2.1 Evaluation of Solution Options

At the beginning of the 'Define & Plan' phase, the CHESSR Project defined 9 potential solution options to evaluate, across the following 4 solution archetypes:

1. Product based Solution
2. Fix CHESS Replacement
3. Custom Build
4. Iterate over current CHESS

The CHESSR Project developed a process for evaluating each of the 9 solution options for down-selection which was presented at various stage gates (i.e., key ASX governance meetings), in order to identify a preferred solution archetype.

As part of the review, EY performed the following activities:

1. Reviewed CHESSR Project deliverable(s) relating to the evaluation of solution options:
 - Vendor RFI
 - Solution Decision Framework (SDF)
 - Solution Options Analysis and Design Authority Concept Proposal - note, this deliverable documented the end-to-end process and outputs of the evaluation of solution options
2. Attended and/or observed a subset of internal ASX workshops, as part of ASX's process for evaluating solution options:
 - 1 Vendor RFI evaluation process walkthrough (internal), covering the outcomes of ASX's desktop analysis
 - 2 Vendor RFI evaluation workshops (internal), as part of ASX's assessment and selection of the preferred product/solution, for progression to the RFP process

Vendor RFI

ASX completed the Vendor RFI process with two objectives: to determine the down-selected vendors for a potential future RFP process, and as input to assessing the Product based Solution archetype.

Our review found that the Vendor RFI deliverable was created in line with ASX's framework and contained the appropriate level of detail for an artefact of its nature. A total of 4 risks were raised, including 2 risks already self-identified by the CHESSR Project, summarised by the following themes:

- Tight timeframes for vendors to provide RFI responses and for ASX preparing high level business requirements as a key input to issuing the Vendor RFP. These risks were self-identified by the project
- Questions in the RFI were not categorised to assist with efficiency of vendor response and evaluation process
- Questions related to augmentation and 'ways of working' were not included at the RFI stage of the process

Given the RFI deliverable had already been finalised at the time of EY's review, ASX mitigated these risks as part of the subsequent Vendor RFP deliverable and process.

As part of the review scope, EY reviewed the outcomes of the desktop analysis performed by ASX to develop their list of potential product/solution vendors to participate in the RFI. This documentation demonstrated that desktop analysis had been conducted by ASX to determine the technology used by 23 top global exchanges to determine a shortlist of technology providers for Clearing, Settlement and Central Securities Depository (CSD) functions, based on market capitalisation and additional input from software providers with products in international markets.

Our review found that the desktop analysis performed by ASX was in line with ASX's framework and was appropriate based on EY's experience regarding market scans and EY's methodology frameworks. No risks were identified.

Solution Options Evaluation Process

EY's review of ASX's solution options evaluation process was specific to ASX's assessment and selection of the preferred product/solution vendors following the Vendor RFI process.

As part of EY's review, EY observed the following subset of Vendor RFI related workshops:

- 1 internal evaluation workshop for a potential vendor
- 1 internal consolidated evaluation workshop for all RFI responses from potential vendors

Our review found that ASX followed the steps outlined in their process when evaluating the Vendor RFI responses, and no risks were identified.

Solution Decision Framework (SDF)

The SDF deliverable described the evaluation criteria used for evaluating all solution options including the product/solution vendor evaluation process. EY's review found that the SDF deliverable was comprehensive, and the evaluation criteria described was appropriate, covering the key areas of Solution Principles, Core Issues, Key Architecture Requirements and Business Objectives, which are typically expected for an artefact of its nature to provide a holistic framework for the risk-based analysis of solution options. 1 risk was identified at the time relating to the methodology described in the SDF to differentiate between risks at the same rating. This risk was subsequently monitored as part of the product/solution vendor evaluation process, where it was mitigated and closed in an appropriate and timely manner.

Solution Options Analysis (Strawperson) and Design Authority Concept Proposal

Following the Vendor RFI process, ASX utilised the SDF criteria to determine the risks associated with each of the 4 solution archetypes, which was documented in the Solution Options Analysis (Strawperson) and Design Authority Concept Proposal deliverables. These deliverables were required to be presented at governance forums in order for the CHESSR Project to focus its further assessment on the Product based Solution archetype as the preferred solution archetype over the next stage.

Our review found that these deliverables were created in line with the ASX Frameworks, and contained the appropriate level of detail for the purpose of documenting:

- The solution archetypes to support the identification of the preferred solution archetype
- The SDF risk assessment to support the identification of the preferred product/solution vendor

1 risk was raised regarding the scoring and prioritisation model within the Solution Options Analysis evaluation approach and subsequently monitored as part of the product/solution vendor assessment and selection process, where it was mitigated and closed in an appropriate and timely manner. Refer to Section 3.2.2 for the findings and conclusions of EY's review of the product/solution vendor deliverables and process.

Conclusion

Overall, our review found that the process to assess solution options and identify the preferred solution archetype was robust and followed ASX's documented process for the CHESSR Project. The deliverables and processes aligned to the ASX Frameworks, and were appropriate for the nature, scale and complexity of the Project, considering EY's methodology frameworks. An extensive and thorough EY review process was followed, which enabled ASX to enhance the deliverables through a First Draft and Final Draft review process. A total of 6 risks were raised in relation to refining the evaluation process, governance and documentation, and the ASX mitigated and closed these risks in an appropriate and timely manner.

Refer to the following table for a summary of the review outcome.

#	Deliverable / Process	Review Status	Total Risks Raised (Inherent Rating)	Closed Risks	Open Risks (Residual Rating)
Solution Options					
1	Vendor RFI Deliverable	Completed	4 risks identified: <ul style="list-style-type: none"> • 3* Medium • 1 Low <i>*Includes 2 risks already self-identified by the Project</i>	4	0

#	Deliverable / Process	Review Status	Total Risks Raised (Inherent Rating)	Closed Risks	Open Risks (Residual Rating)
2	Solution Decision Framework (SDF) Deliverable	Completed	1 risk identified: <ul style="list-style-type: none"> 1 Medium 	1	0
3	Solution Options Analysis (Strawperson) & Design Authority Concept Proposal Deliverable	Completed	1 risk identified: <ul style="list-style-type: none"> 1 Medium 	1	0
4	Solution Options Evaluation Process	Completed	No risks identified	N/A	N/A

3.2.2 Assessment and Selection of Product/Solution Vendor

As part of considering the Product based Solution archetype, ASX conducted an assessment process to identify the preferred vendor, between the 2 product/solution vendors that had progressed through the RFI process, and this assessment and preferred product/solution vendor identification process was reviewed by EY.

As part of our review, EY performed the following activities:

1. Assessment of CHESSR Project deliverable(s) relating to the assessment and selection of a preferred product/solution vendor, namely:
 - Vendor RFP
2. Attended and/or observed a subset of workshops and forums, both internal to ASX and/or held between ASX and the product/solution vendor, as part of ASX's documented process for evaluating the 2 potential vendors:
 - 1 Vendor RFP evaluation process walkthrough (internal)
 - 2 Vendor Presentations sessions (with product/solution vendors)
 - 7 Vendor Design Study sessions (with product/solution vendors)
 - 9 SDF Challenge Sessions (internal)
 - 3 Vendor Risk Assessment sessions (internal)

Vendor RFP Deliverable

Following the completion of the RFI process, ASX issued the Vendor RFP to the 2 down-selected product/solution vendors.

Our review found that the Vendor RFP deliverable was developed in line with the ASX Frameworks and contained the appropriate level of detail expected for an artefact of its nature. Although the volume of requirements included by the CHESSR Project for the RFP was more than typically expected, this was attributed to the CHESSR Project leveraging the existing detailed requirements.

A total of 3 risks were raised, summarised by the following themes:

- Opportunities to request that vendors include certain responsibilities in their RACI
- Opportunities to request that vendors specify how they will integrate with the ASX delivery approach and governance
- Finalising the methodology for the vendor scoring in a timely manner

ASX mitigated and closed all of these in an appropriate and timely manner, and 2 of the risks were closed as part of the product/solution vendor evaluation process outlined below.

Product/Solution Vendor Evaluation Process

As part of monitoring ASX's mitigating actions for addressing 2 risks raised as part of the RFP deliverable review, EY observed 2 vendor presentation sessions from the initial RFP process and a total of 7 sessions throughout the 10-week design study process. Our review found that ASX implemented the mitigating actions to address the risks appropriately, and both risks were subsequently closed.

Further, within the product/solution vendor evaluation process, the ASX team held 'Challenge' sessions to iteratively refine the risk profiles and provide all team members an opportunity to provide input into the risk profiles. EY observed the following sessions to monitor ASX's mitigating actions for 2 risks that were raised as part of the SDF and Solution Options Analysis (Strawperson) deliverable reviews:

- 2 'Design workshop SDF Challenge' sessions that iteratively updated the risk profiles for the down-selected vendors following the design study
- 7 'Solution Option SDF Challenge' sessions that finalised the risk profiles for the down-selected vendors
- 3 'Vendor Risk Assessment' sessions where the risks raised during the broader contract review and vendor level assessment processes were discussed

Our review found that ASX implemented the documented mitigating actions to address the risks and both risks were closed in an appropriate and timely manner. No additional risks were raised as part of the product/solution vendor process review.

Conclusion

Overall, EY 's review found that the process to assess and select the product/solution vendor was robust and followed ASX's documented process for the CHESSR Project. The deliverables and processes aligned to the ASX Frameworks, and were appropriate for the nature, scale and complexity of the Project, with reference to EY's methodology frameworks. The review process was extensive and thorough, which enabled ASX to enhance their

deliverables through a First Draft and Final Draft review process. This included raising 3 risks in relation to the vendor RFP deliverable, which were subsequently mitigated and closed in an appropriate and timely manner by ASX.

Refer to the following table for a summary of the review outcome.

#	Deliverable / Process	Review Status	Total Risks Raised (Inherent Rating)	Closed Risks	Open Risks (Residual Rating)
Product/Solution Vendor					
1	Vendor RFP Deliverable	Completed	3 risks identified: <ul style="list-style-type: none"> • 1 Medium • 2 Low 	3	0
2	Product/Solution Vendor Evaluation Process	Completed	No risks identified	N/A	N/A

3.2.3 Assessment and Selection of SI

In parallel to assessing the product/solution Vendor RFP, ASX conducted a RFP process to assess and identify a preferred SI partner, and this process was reviewed by EY.

As part of EY's review, EY performed the following activities:

1. Assessment of CHESSR Project deliverable(s) relating to the assessment and selection of a preferred SI vendor, namely:
 - SI RFP
2. Attended and/or observed internal ASX workshops as part of ASX's process for evaluating SIs:
 - 1 SI RFP evaluation process walkthrough (internal)
 - 3 evaluation meetings were observed on the initial down-selection decision

SI RFP

EY conducted a review of the SI RFP deliverable before it was issued to potential SI partners.

Our review found that the SI RFP deliverable was developed in line with the ASX Frameworks and contained the appropriate level of detail expected for an artefact of its nature. A total of 3 risks were raised, summarised by the following themes:

- Finalising the evaluation process and criteria before issuing the SI RFP

- Documenting the end-to-end SI evaluation process
- Developing a decisioning framework for assessing how roles will be assigned (inhouse vs. vendor)

ASX has mitigated and closed all 3 of these risks in an appropriate and timely manner.

SI Evaluation Process

As part of ASX’s process for assessing the potential SIs, ASX utilised a defined criteria to determine scores for each SI, and the down-selection was completed in two rounds. EY attended and observed 3 internal workshops for the first round of down-selection to determine a vendor shortlist following the RFP. For the second round, ASX provided an update to EY which covered a presentation of the non-commercial content presented during the final down-selection discussion and a summary of the key points of discussion.

Our review found that the SI evaluation process was conducted in line with the process documented by the CHESRR Project team and was appropriate based on EY’s local and global experience of vendor selection for major implementation projects similar in nature, scale and complexity as the CHESRR Project. As a result, no risks were identified.

Conclusion

Overall, EY’s review found that the process to assess and identify the preferred SI vendor was robust and followed ASX’s documented process for the CHESRR Project. The deliverables and processes aligned to the ASX Frameworks, and were appropriate for the nature, scale and complexity of the Project, with reference to EY’s methodology frameworks. The review process was extensive and thorough, which enabled ASX to enhance its deliverables through a First Draft and Final Draft review process. This included raising 3 risks in relation to the SI RFP deliverable which were subsequently mitigated and closed in an appropriate and timely manner by ASX.

Refer to the following table for a summary of the review outcome.

#	Deliverable / Process	Review Status	Total Risks Raised (Inherent Rating)	Closed Risks	Open Risks (Residual Rating)
SI					
1	SI RFP Deliverable	Completed	3 risks identified: <ul style="list-style-type: none"> • 1 Medium • 2 Low 	3	0
2	SI Evaluation Process	Completed	No risks identified	N/A	N/A

3.3 Assessment of Other Key CHESSR Project Deliverables and Processes throughout the 'Define & Plan' phase

Throughout the 'Define & Plan' phase of the CHESSR Project, EY conducted a quality review of 16 other key deliverables and processes, to determine whether ASX had developed the deliverables and conducted the processes in line with the relevant ASX frameworks.

EY used its methodology frameworks to support the reviews, to determine whether the deliverables and processes were appropriate compared to projects that are similar in nature, scale and complexity to the CHESSR Project based on EY's local and global market experience.

EY reviewed the deliverables and processes across the following categories:

- Solution Design
- Quality Engineering & Testing (QE&T)
- Organisational Change Management (OCM)
- Business Requirements Document (BRD)
- Business Case

Refer to Section 3.3.1 for the findings and conclusions of EY's review of these deliverables and processes.

As part of these reviews, EY also assessed the effectiveness of the strategy, plans and processes ASX has in place for engaging with industry stakeholders who were members of the newly established 'CHESS Replacement Technical Committee (TC). EY reviewed the Industry Engagement Strategy deliverable, as well as Industry Engagement Activities and Processes by attending and observing the monthly TCs and other ASX and industry stakeholder workshops. Refer to Section 3.3.2 for the findings and conclusions of EY's review of this deliverable, activities, and processes.

Conclusion

Overall, our review found that the deliverables and processes aligned to the ASX Delivery Framework, and were appropriate for the nature, scale and complexity of the CHESSR Project, with reference to EY's frameworks. Where necessary, the deliverables and processes were tailored appropriately with approval from the relevant ASX Framework Owners. The review process was extensive and thorough, which enabled ASX to enhance their deliverables through a First Draft and Final Draft review process. EY observed that the ASX team addressed EY SMR feedback between review stages and performed appropriate mitigating actions to progress the closure of risks within a reasonable timeframe.

The following sections provide detailed commentary on EY's findings and conclusions for each category of deliverables and processes. A summary of the review outcomes can be found in Section 3.3.3.

3.3.1 Other Key Project Deliverables and Processes

3.3.1.1 Solution Design

EY conducted a review of the following Solution Design deliverables:

- CHESSE Solution Principles
- Reference Architecture & Technical Capabilities
- Solution Architecture (Proposal)

CHESSE Solution Principles

EY's review found that the CHESSE Solution Principles deliverable aligned to the ASX Delivery Framework and was appropriate for the nature, scale and complexity of the CHESSE Project at this stage of the project. As a result, no risks were identified.

Reference Architecture & Technical Capabilities

Our review found that the Reference Architecture & Technical Capabilities deliverables contained an appropriate level of architectural detail for the 'Define & Plan' phase of the CHESSE Project and provided a framework for future solution design. 1 risk was self-identified by the Project, relating to the management of dependencies with other enterprise projects, and ASX mitigated and closed the risk in an appropriate and timely manner.

Solution Architecture (Proposal)

Our review found that the Solution Architecture (Proposal) deliverable was detailed for this stage of the project and aligned to the ASX Delivery Framework with expanded sections supporting the additional detail. At this stage of the project, the deliverable was appropriate for the nature, scale and complexity of the CHESSE Project, and as a result, no risks were identified.

Conclusion

Overall, EY concluded that the Solution Design deliverables and processes were aligned to ASX frameworks and templates, tailored appropriately where required, and were appropriate for the nature, scale and complexity of the CHESSE Project at this stage of the project. No risks were identified by EY.

3.3.1.2 Quality Engineering & Testing (QE&T)

EY conducted a review of the QE&T Strategy deliverable, which included the following mandatory components from the ASX QE&T Framework:

- Options for Parallel Activities: Sections within the QE&T Strategy deliverable were reviewed which described the parallel testing activities planned by the Project.

- Risk Based Testing (RBT) Assessment: Sections within the QE&T Strategy deliverable were reviewed which described the outcome of the RBT assessment completed by the project. EY also reviewed the RBT assessment process and how the CHESSR Project applied the framework as an input to the QE&T Strategy deliverable.

Conclusion

Overall, EY concluded that the QE&T Strategy deliverable was comprehensive and detailed for the current stage of the Project, the content applied the ASX's RBT approach, including components in line with EY's local and global experience of other major implementation projects similar in nature, scale and complexity of the CHESSR Project. No risks were identified by EY.

3.3.1.3 Organisational Change Management (OCM)

EY conducted a review of the following OCM deliverables:

- OCM Change Canvas
- OCM BTOPPC (Business Vision and Strategy, Technology & Services, Organisation & Roles, Processes and Procedures, People & Culture, and Customer Experience) Assessment
- OCM High Level (HL) Plan
- OCM HL Strategy

OCM Change Canvas

Our review found that the OCM Change Canvas deliverable was comprehensive and contained more information than typically expected for an artefact of its nature, mainly due to the size, availability of information and complexity of the CHESSR Project which required the additional detail. This deliverable was also created with guidance from an ASX OCM enterprise level representative (i.e. CaDE team). A total of 3 risks were raised, summarised by the following themes:

- Clearly documenting how interdependencies will be managed to ensure consistent messaging between internal and external engagement plans
- Improving how OCM risks are documented for more efficient monitoring and management, and how OCM benefits are documented and linked

ASX mitigated and closed these risks in an appropriate and timely manner.

OCM BTOPPC

Our review found that the OCM BTOPPC deliverable had been developed in line with ASX's OCM Framework and guidance from an ASX OCM enterprise level representative (i.e. CaDE team) to determine the change impacts across the key stakeholder groups at ASX. The BTOPPC template had been tailored to suit the needs of the CHESSR Project. No risks were identified as part of this review.

OCM HL Plan

Our review found that the OCM HL Plan deliverable contained an appropriate level of detail for a high-level artefact of its nature and provided a clear overview of the different OCM focus areas, key OCM milestones, activities and deliverables for the period between H2 2023 to H2 2024. While the standard ASX template from the OCM Framework had not been appropriate for the CHESSR Project (based on the project's size and complexity), ASX developed the deliverable with guidance from an ASX OCM enterprise level representative (i.e. CaDE team). As a result, no risks were identified by EY.

OCM HL Strategy

Our review found that the OCM HL Strategy deliverable was comprehensive and contained an appropriate level of detail expected for an artefact of its nature and for the current stage of the project. A total of 3 risks were raised, summarised by the following themes:

- Inclusion of further detail relating to the historical context and background of the previous CHESSR Project
- Clarification regarding the approach for stakeholder segmentation and engagement
- Clarification on how 'Lessons Learnt' would be addressed

ASX mitigated and closed these risks in an appropriate and timely manner.

Conclusion

Overall, EY concluded that the OCM deliverables contained more detail than typically expected for artefacts of its nature due to them being tailored (where required) to be appropriate for the size and complexity of the CHESSR Project. While the OCM deliverables were not produced fully in line with the ASX OCM Framework (due to the size and complexity of the project), these were completed with the guidance from an ASX OCM enterprise level representative (i.e. CaDE team) to ensure that they incorporated the key information required from an OCM perspective. A total of 6 risks were raised relating to OCM deliverables, which were subsequently mitigated and closed in an appropriate and timely manner by ASX.

3.3.1.4 Business Requirements Document (BRD)

EY conducted a review of the BRD deliverable, which included High Level Business Requirements, High Level Non-Functional Requirements (NFRs), High Level Processes (As Is) and User Experience Analysis.

Our review found that the BRD deliverable was aligned to the ASX Delivery Framework, and the volume of requirements gathered by the project was extensive, understanding that the project was able to leverage existing detailed requirements. A total of 3 risks were raised as part of the BRD deliverable review, summarised by the following themes:

- Clarification on how the BRD sub-components interconnect and how these will be leveraged for future phases of delivery
- Finalisation of the approach for prioritising requirements in the BRD
- Finalisation of the approach for defining user personas within the BRD

Conclusion

Overall, EY concluded that the Business Requirements were appropriate and included greater detail than what is typical for this phase of a project. ASX mitigated and closed 2 of these risks in an appropriate and timely manner. The risk relating to the finalisation of the approach for defining user personas within the BRD remains open at the end of EY's review period. ASX intends to complete the mitigating action once updated enterprise guidance on user experience analysis and personas is implemented by EPMO in 2024. The action is expected to be completed as part of detailed design activities within the 'Refine & Implement' phase of the CHESSR Project.

3.3.1.5 Business Case

EY conducted a review of the following deliverables and processes related to the Business Case:

- Estimation approach
- Financial process deliverable 1 & Financial process deliverable 2 (Combined Review)
- Project Risk and Complexity Assessment Process
- Business Case

Estimation approach

Our review found that the estimation approach defined a clear process for creating estimates for the CHESSR Project Business Case. While there was no enterprise level ASX Framework in place for the CHESSR Project to align to, the project developed their estimation approach in consultation with the EPMO, who confirmed that the defined approach from the project was directionally aligned to the enterprise level framework that would be implemented in the near future. 1 risk was raised in relation to providing further guidance in the estimation approach to aid in the consistency of sizing work, and ASX subsequently mitigated this risk in an appropriate and timely manner.

Financial process deliverable 1 & Financial process deliverable 2 (Combined Review)

Our review found that the Financial process deliverable 1 was aligned to the ASX Delivery Framework with input provided from the broader Finance team where appropriate. The Financial process deliverable 2 was not able to be provided as evidence as it included detailed pricing and commercially sensitive information, however EY sighted that the deliverable had been completed. No risks were identified on these deliverables.

Project Risk and Complexity Assessment Process

EY reviewed the Project Risk and Complexity Assessment (PRA) process by attending and observing the following key ASX workshops:

- CHESR Replacement (CHESRR) - Risk Assessment and Scope Walkthrough (PRA Kick Off Session)
- CHESR Replacement Project - Project Risk Assessment Consensus Meeting (PRA Consensus Meeting)

Our review found that the PRA process was conducted in line with the ASX Risk Management Framework, with the Delphi Technique outlined in ASX's guidelines appropriately applied as part of the risk scoring process. 1 risk was identified at the time relating to ensuring that the risk scoring process applied to determine the PRA outcomes was acknowledged in the sign off process for the PRA deliverable. ASX has mitigated and closed this risk in an appropriate and timely manner.

Business Case

Our review found the Business Case was aligned to the ASX Delivery Framework, was suitable for presentation to the key ASX governance forums, and was appropriate for the nature, scale and complexity of the CHESRR Project. A total of 2 risks were raised as part of the Business Case deliverable review, summarised by the following themes:

- The review process of the Business Case requiring modification due to the sensitive nature of the content
- The inclusion of commentary in the Business Case related to the low risk regarding ramp-up of internal resources

ASX has mitigated and closed both risks in an appropriate and timely manner.

Conclusion

Overall, EY concluded that the Business Case deliverables and processes were developed in line with ASX Frameworks and templates and were appropriate for the nature, scale and complexity of the CHESRR Project at this stage of the project, based on EY's experience. Where there was no enterprise level framework available for the project to follow at the time of developing the deliverable, the CHESRR Project produced the deliverable in consultation with the EPMO to ensure alignment to the framework that would be implemented in the near future. A total of 4 risks were identified as part of EY's review of the Business Case deliverables and processes, and ASX has mitigated and closed all of these risks in an appropriate and timely manner.

3.3.2 Industry Engagement Strategy, Activities and Processes

Throughout the 'Define & Plan' phase, EY conducted an ongoing review of ASX's industry engagement activities and processes performed by the CHESSR Project's Stakeholder Engagement team as part of the newly established industry forum, the 'CHESS Replacement Technical Committee (TC)', which consisted of impacted stakeholders (i.e., industry stakeholders) representing their organisations.

EY was engaged to attend the TCs from March 2023 onwards as 'Observers' to:

- Review the implementation of the strategy, plans and processes ASX has in place for engaging with industry stakeholders
- Observe and assess ongoing information sharing, transparency, consultation, feedback, and support from industry stakeholders
- Review and assess the process of ASX addressing feedback from industry stakeholders

Note: EY's review scope did not involve attending or conducting bilateral meetings with TC members or other industry stakeholders nor did it include observing the Advisory Group meetings and related processes.

EY reviewed the following deliverables and processes related to Industry Engagement:

- Industry Engagement Strategy
- Industry Engagement Activities and Processes
 - Cycle 1 - Period between March 2023 to early June 2023
 - Cycle 2 - Period between late June 2023 to October 2023

The following sections provide detailed commentary on EY's findings and conclusions for the Industry Engagement related deliverables and processes. A summary of the review outcomes can be found in Section 3.3.3.

Industry Engagement Strategy

Our review found that the Industry Engagement Strategy deliverable for the 'Define & Plan' phase contained the relevant key sections and appropriate level of detail expected for an artefact of its nature for the current phase of the CHESSR Project, noting that there was no enterprise ASX Framework for the project to align to.

A total of 4 risks were raised as part of the Industry Engagement Strategy deliverable review, summarised by the following themes:

- How the new strategy evolved from the strategy used for the previous iteration of the CHESSR Project
- Metrics for measuring achievement of key principles and objectives

- Target audience of industry engagement channels, as well as the timeline for socialisation and validation of the engagement strategy with external stakeholder groups prior to conducting industry engagement activities

ASX has mitigated and closed 3 risks in an appropriate and timely manner. The risk relating to the socialisation of the Industry Engagement Strategy with external stakeholder groups remains open at the end of the EY review period. EY reviewed the planned mitigating actions that were developed to address this risk and confirmed the approach was appropriate, however the timeline to fully implement the action and demonstrate closure at the '24 November 2023 CHESSR Technical Committee' extended beyond EY's review period.

Industry Engagement Activities and Processes Reviews

The 'Industry Engagement Activities and Processes' reviews covered the periods between March 2023 to early June 2023 (cycle 1 review) and late June 2023 to October 2023 (cycle 2 review), and involved the following ASX industry engagement activities and processes:

- 8 Monthly Technical Committees from March to October 2023
 - Including the TC's 'Scope Objective Recommendations' Process to obtain endorsement from the October 2023 Business Committee (BC)
- 1 Webinar (CHESS Replacement Project Industry Webinar, May 2023)
- 2 TC Pulse Surveys (March 2023 and July 2023)
- 3 Scope Refinement Sessions (May 2023, June 2023, and July 2023)
- ASX's monitoring of the industry engagement shared mailbox

Our review found that the CHESSR Project's Stakeholder Engagement team had:

- Conducted the monthly TCs consistently and in accordance with the standing agenda
- Provided all TC participants with opportunities to discuss and ask questions, as well as encouraged discussion
- Provided a dedicated mailbox for all TC participants to provide feedback and ask questions outside of the monthly meetings
- Captured TC member feedback and actions at each meeting and responded to the feedback at the next meeting (including from the mailbox) or through the relevant engagement channel

A total of 6 risks were raised as part of the Industry Engagement activities and processes reviews, summarised by the following themes:

- Consistency with which the industry engagement feedback is tracked and actioned
- Documenting processes for assessing survey results

- Developing and documenting detailed plans for facilitating TC discussions relating to prioritising Scope Objective Recommendations

ASX has mitigated and closed all these risks in an appropriate and timely manner.

Conclusion

Overall, EY concluded that the Industry Engagement activities and processes performed by ASX's Stakeholder Engagement team throughout the current phase for the CHESSR Project Technical Committees were appropriate and conducted in line with the Industry Engagement Strategy defined at the commencement of the project. Multiple channels of engagement were offered by ASX for industry stakeholders to provide feedback, and the ASX Stakeholder Engagement team had processes in place to ensure that any feedback received would be addressed. A total of 10 risks were identified relating to industry engagement deliverables, activities, and processes and only 1 risk relating to the socialisation of the Industry Engagement Strategy with external stakeholder groups remains open at the end of EY's review period. EY reviewed the planned mitigating actions that were developed to address this risk and confirmed the approach was appropriate, however the timeline to fully implement the action and demonstrate closure at the '24 November 2023 CHESSR Technical Committee' extended beyond EY's review period.

3.3.3 Summary of Review Outcomes

The following table is a summary of the review outcomes for other key deliverables and processes outlined in this section:

#	Deliverable/Process	Review Status	Total Risks Raised (Inherent Rating)	Closed Risks	Open Risks (Residual Rating)
Solution Design					
1	CHESS Solution Principles	Completed	No risks identified	N/A	N/A
2	Reference Architecture & Technical Capabilities Deliverable Process (Combined Review)	Completed	1 risk identified: <ul style="list-style-type: none"> • 1* Medium <i>*Already self-identified and rated as 'High' by the Project</i>	1	0
3	Solution Architecture (Proposal)	Completed	No risks identified	N/A	N/A
Quality Engineering & Testing (QE&T)					
4	QE&T Strategy Includes: <ul style="list-style-type: none"> • Options for Parallel Activities • Risk Based Testing 	Completed	No risks identified	N/A	N/A
Industry Engagement					

#	Deliverable/Process	Review Status	Total Risks Raised (Inherent Rating)	Closed Risks	Open Risks (Residual Rating)
5	Industry Engagement Strategy	Completed	4 risks identified: <ul style="list-style-type: none"> • 3 Medium • 1 Low 	3	1 (Low)
6	Industry Engagement Activities and Processes (Cycle 1) Includes: <ul style="list-style-type: none"> • Monthly Technical Committees (TCs) from March - June 2023 • May 2023 Webinar • TC Pulse Survey #1 • Scope Refinement Session #1 	Completed	5 risks identified: <ul style="list-style-type: none"> • 4 Medium • 1 Low 	5	0
7	Industry Engagement Activities and Processes (Cycle 2) Includes: <ul style="list-style-type: none"> • Monthly Technical Committees (TCs) from July - October 2023 • TC Pulse Survey #2 • Scope Refinement Sessions #2 and #3 	Completed	1 risk identified: <ul style="list-style-type: none"> • 1 Medium 	1	0
Organisational Change Management (OCM)					
8	OCM BTOPPC Assessment	Completed	No risks identified	N/A	N/A
9	OCM Change Canvas	Completed	3 risks identified: <ul style="list-style-type: none"> • 1 Medium • 2 Low 	3	0
10	OCM High Level Plan	Completed	No risks identified	N/A	N/A

#	Deliverable/Process	Review Status	Total Risks Raised (Inherent Rating)	Closed Risks	Open Risks (Residual Rating)
11	OCM High Level Strategy	Completed	3 risks identified: <ul style="list-style-type: none"> • 2 Medium • 1 Low 	3	0
Business Requirements					
12	Business Requirements Document (BRD) Includes: <ul style="list-style-type: none"> • High-Level Business Requirements and Non-Functional Requirements (NFRs) • High-Level Processes (As is) • User Experience Analysis 	Completed	3 risks identified: <ul style="list-style-type: none"> • 1 Medium • 2 Low 	2	1 (Low)
Business Case					
13	Estimation approach	Completed	1 risk identified: <ul style="list-style-type: none"> • 1 Low 	1	0
14	Financial process deliverable 1 & Financial process deliverable 2 (Combined Review)	Completed	No risks identified	N/A	N/A
15	Project Risk & Complexity Assessment	Completed	1 risk identified: <ul style="list-style-type: none"> • 1 Low 	1	0
16	Business Case	Completed	2 risks identified: <ul style="list-style-type: none"> • 2 Low 	2	0

3.4 Deliverability Review of the Proposed Solution and Delivery Model

As part of EY's review of the proposed solution and delivery model, the following components of deliverability were considered:

- The Project Management and Governance processes described in the Business Case and high level plans for the 'ramp up' activities to be completed by the CHESSR Project prior to the commencement of the next 'Refine & Implement' phase
- Whether the complexity profile of the project described through the solution design, solution options analysis and the risk profile of the product/solution vendor is understood and clearly documented
- The capability and maturity of people, processes and technology described in the Business Case, through high level components of the operating model (resourcing, governance model). We note that the delivery model was not available for EY's assessment as it will be developed in collaboration with the vendors once onboarded

A total of 5 risks were raised, 1 of which was already self-identified by the project, summarised by the following themes:

- Plan for 'ramp up' activities
- Finalisation of the approach for recruitment and on-boarding of resources, prior to the commencement of the next phase
- Finalisation of decision on delivery tooling
- Treatment for inherent medium and low risks within the plan for the next phase
- Further analysis on small number of High Level Requirement modifications from the ASX internal review process

ASX has mitigated and closed all of these risks in an appropriate and timely manner.

Conclusion

Overall, EY concluded that the complexity of the proposed product-based solution is understood by ASX, as demonstrated through the CHESSR Project's solutions options evaluation process, and the assessment outcomes have been documented as part of the Solution Options and Solution Design related deliverables. A total of 5 risks were raised, 1 of which was already self-identified by the project, and ASX mitigated and closed all of these risks in an appropriate and timely manner.










EY notes ASX intends to finalise the design of the delivery model with the product/solution vendor and SI once they are onboarded. As such, a subsequent independent review of the deliverability of the proposed solution and delivery model in the future may be required once these activities have been completed.

Refer to the following table for a summary of the review outcome.

#	Review Name	Review Status	Total Risks Raised (Inherent Rating)	Closed Risks	Open Risks (Residual Rating)
Deliverability Review of the Proposed Solution and Delivery Model					
1	Deliverability of the Proposed Solution and Delivery Model	Completed	5 Risks identified: <ul style="list-style-type: none"> • 5* Low <i>*Includes 1 risk already self-identified by the Project</i>	5	0




3.5 Assessment of CHESR Replacement Actions to address CHESR Replacement Program External Review Recommendations in 'Define & Plan' Phase

EY has reviewed all 40 CR actions due in the 'Define & Plan' phase of the CHESR Project to address the CHESR Program External Review Recommendations. These CR actions were reviewed for 'Executed, Appropriate, Sustainable':

1. 'Executed' - Has the CR action been fully addressed by the actions taken by ASX
 Yes  / No  / Partially addressed 
2. 'Appropriate' - Were CR action(s) in response to the CHESR Program External Review Recommendation reasonable and appropriate
 Yes  / No  / Partially addressed 
3. 'Sustainable' - Is the CR action(s) sustainable. Has the ASX response to the CHESR Program External Review Recommendation considered measures to enforce/ensure that the ASX actions remain closed in the future
 Yes  / No  / Partially addressed 

At the end of EY's review, ASX fully addressed 39 CR actions and 1 CR action (CR19.2) was partially addressed. For the 'partially addressed' CR action, our assessment concluded that work completed to date was appropriate towards addressing the recommendation, however ASX was yet to demonstrate that a single defect management tool was in operation. The 'partially addressed' assessment was an expected result based on the current phase of the CHESR Project. ASX will continue to address the outstanding CHESR Program External Review Recommendations as part of the current and upcoming phases of the CHESR Project.

The below table is a summarised view of the finalised outcome for each CR action reviewed by EY, as at 27/11/2023 following the final Factual Accuracy Check meeting held between ASX and EY.

#	Recommendation / ASX Action(s)		Executed	Appropriate	Sustainable
R02	R02 - Revise Program (PWG) reporting		CR action due in 'Define & Plan' phase has been addressed.		
	CR2.1	Define Status Reporting requirements in Vendor and SI Contracts for CHESR Replacement			
R03	R03 - Calibration of Program Risk Management Framework		CR action due in 'Define & Plan' phase has been addressed.		

#	Recommendation / ASX Action(s)		Executed	Appropriate	Sustainable
	CR3.1	Define Risk Management requirements in Vendor and SI Contracts for CHES Replacement	✓	✓	✓
R04	R04 - Augment the Program plan to provide greater detail and transparency		CR action due in 'Define & Plan' phase has been addressed.		
	CR4.1	Define Project Planning in Vendor and SI Contracts for CHES Replacement	✓	✓	✓
R05	R05 - Update ASX vendor agreement with DA to reflect the go-forward approach		CR action due in 'Define & Plan' phase has been addressed.		
	CR5.1	Define Business Outcomes in Vendor and SI Contracts for CHES Replacement	✓	✓	✓
R06	R06 - Refine the Program operating model with DA in line with the change in vendor's delivery model		CR action due in 'Define & Plan' phase has been addressed.		
	CR6.1	Define Governance in Vendor and SI Contracts for CHES Replacement	✓	✓	✓
R07	R07 - Clarify definition and purpose of a Change Control and the CR process		CR action due in 'Define & Plan' phase has been addressed.		
	CR7.1	Define Change Control in Vendor and SI Contracts for CHES Replacement	✓	✓	✓
R10	R10 - Alignment of tools and data-driven reporting of key information and metrics		CR action due in 'Define & Plan' phase has been addressed.		
	CR10.1	Define Delivery Tools in Vendor and SI Contracts for CHES Replacement	✓	✓	✓
R11	R11 - Review of Program Leadership and Culture		CR action due in 'Define & Plan' phase has been addressed.		
	CR11.1	Define accountabilities and ways of working in Vendor and SI Contracts for CHES Replacement	✓	✓	✓

#	Recommendation / ASX Action(s)		Executed	Appropriate	Sustainable
R12	R12 - Uplift NFR definition process and template		CR actions due in 'Define & Plan' phase have been addressed.		
	CR12.1	Uplift NFR Definition Process for CHES Replacement	✓	✓	✓
	CR12.2	Requirement definition timeline alignment between FR and NFR for CHES Replacement	✓	✓	✓
R14	R14 - Ensure DA solution design is visible to the ASX		CR actions due in 'Define & Plan' phase have been addressed.		
	CR14.1	Define Solution Design Deliverables for inclusion in Vendor and SI Contracts for CHES Replacement	✓	✓	✓
	CR14.2	Preparation and review of Vendor design artefacts for CHES Replacement	✓	✓	✓
R15	R15 - Establish a design review of CHES Application artefacts		CR action due in 'Define & Plan' phase has been addressed.		
	CR15.1	Technical Design Review process established for CHES Replacement	✓	✓	✓
R17	R17 - Reassess options to streamline test phases, strategy and accelerate retest		CR action due in 'Define & Plan' phase has been addressed.		
	CR17.1	Program Test Strategy (test phases, efficiency, production data) for CHES Replacement	✓	✓	✓
R18	R18 - Uplift governance on test data creation		CR actions due in 'Define & Plan' phase have been addressed.		
	CR18.1	Define accountability for Test Data in Vendor and SI Contracts for CHES Replacement	✓	✓	✓
	CR18.2	Test Strategy (test data) uplifted for CHES Replacement	✓	✓	✓
R19	R19 - Implement a single defect management tool		Of the CR actions due in 'Define & Plan' phase, one has been fully addressed and one has been partially addressed.		

#	Recommendation / ASX Action(s)		Executed	Appropriate	Sustainable
	CR19.1	Define Defect Management in Vendor and SI Contracts for CHES Replacement	✓	✓	✓
	CR19.2	Program Test Strategy (test tool requirements) for CHES Replacement	✓	✓	To be assessed outside of the 'Define and Plan' phase
R20 - Establish robust test execution and defect reporting including defect template and supporting information			CR actions due in 'Define & Plan' phase have been addressed.		
R20	CR20.1	Define Test Quality Assurance in Vendor and SI Contracts for CHES Replacement	✓	✓	✓
	CR20.2	Program Test Strategy (tooling, traceability, defect management) for CHES Replacement	✓	✓	✓
R21 - Refresh Test Strategy			CR actions due in 'Define & Plan' phase have been addressed.		
R21	CR21.1	Define testing accountabilities in Vendor and SI Contracts for CHES Replacement	✓	✓	✓
	CR21.2	Program Test Strategy for CHES Replacement to include accountabilities	✓	✓	✓
R23 - Remove pipeline backpressure			CR action due in 'Define & Plan' phase has been addressed.		
R23	CR23.1	Test Strategy for CHES Replacement includes quality gates and test phases	✓	✓	✓
R24 - DA to provide reusable tools			CR action due in 'Define & Plan' phase has been addressed.		
R24	CR24.1	Supportability Requirements included in Solution Architecture (Proposal) for CHES Replacement	✓	✓	✓
R25	R25 - Onboard suitably experienced Change Management lead and team		CR action due in 'Define & Plan' phase has been addressed.		

#	Recommendation / ASX Action(s)		Executed	Appropriate	Sustainable
	CR25.1	Change Management Lead assigned for CHES Replacement	✓	✓	✓
R28	R28 - Leadership and culture assessment to define the future needs of the organisation and impacted business units		CR action due in 'Define & Plan' phase has been addressed.		
	CR28.1	OCM Strategy for CHES Replacement to include approach for analysing and addressing leadership engagement needs	✓	✓	✓
R29	R29 - Generate talent and skills map		CR action due in 'Define & Plan' phase has been addressed.		
	CR29.1	OCM Strategy for CHES Replacement to include approach to Training Needs Analysis (TNA)	✓	✓	✓
R30	R30 - Establish a training tracker and survey to measure effectiveness of upskilling effort		CR action due in 'Define & Plan' phase has been addressed.		
	CR30.1	OCM Strategy for CHES Replacement to include tracking learning and training effectiveness/impact and engagement	✓	✓	✓
R32	R32 - Refine internal communications		CR action due in 'Define & Plan' phase has been addressed.		
	CR32.1	OCM Strategy for CHES Replacement to include Internal stakeholder engagement/comms	✓	✓	✓
R34	R34 - Build and implement relevant dashboards		CR action due in 'Define & Plan' phase has been addressed.		
	CR34.1	Define QA Policies in Vendor and SI Contracts (performance monitoring NFRs) for CHES Replacement	✓	✓	✓
R35	R35 - Revisit the project governance approach to establish a standard estimation methodology		CR action due in 'Define & Plan' phase has been addressed.		
	CR35.1	Adhere to the Estimation Process in CHES Replacement	✓	✓	✓

#	Recommendation / ASX Action(s)		Executed	Appropriate	Sustainable
R37	R37 - Proactively validate the design against the root causes identified in the Core Issues Report		CR action due in 'Define & Plan' phase has been addressed.		
	CR37.1	Program Test Strategy for CHES Replacement includes shift left testing, production like data/volumes	✓	✓	✓
R39	R39 - Introduce dedicated teams from DA to support ASX's NFT, and E2E testing		CR action due in 'Define & Plan' phase has been addressed.		
	CR39.1	Test Strategy for CHES Replacement includes vendor responsibilities to support NFT and E2E test	✓	✓	✓
R40	R40 - Solution design review to meet future growth and ASX's strategic objectives		CR action due in 'Define & Plan' phase has been addressed.		
	CR40.1	Solution design of CHES Replacement to meet future strategy	✓	✓	✓
R41	R41 - Explore opportunities to simplify solution design		CR action due in 'Define & Plan' phase has been addressed.		
	CR41.1	Explore opportunities to simplify solution design for CHES Replacement through defining clear principles, reference architecture and evaluation processes	✓	✓	✓
R42	R42 - Review DAML use to meet long-term objectives		CR actions due in 'Define & Plan' phase have been addressed.		
	CR42.1	Review DAML Use to meet objectives for solving and simplifying business workflows for CHES Replacement	✓	✓	✓
	CR42.2	Strategy & Vision enhanced for C&S supporting areas to ensure alignment with CHES Replacement objectives	✓	✓	✓
R43	R43 - Optimise on-ledger and off-ledger processing for transactions		CR action due in 'Define & Plan' phase has been addressed.		
	CR43.1	Review on ledger off ledger processing for transactions to identify options to optimise processing for CHES Replacement	✓	✓	✓

#	Recommendation / ASX Action(s)		Executed	Appropriate	Sustainable
R44	R44 - Shift Left testing to compress long sequential feedback loops		CR action due in 'Define & Plan' phase has been addressed.		
	CR44.1	Program Test Strategy for CHES Replacement includes Shift Left Testing and NFR test approach	✓	✓	✓
R45	R45 - Remediate root causes of (known) Core Issues		CR action due in 'Define & Plan' phase has been addressed.		
	CR45.1	Remediate root causes of known core CHES Replacement issues with reference to the solution principles, technology capabilities and reference architecture	✓	✓	✓

Appendix A Summary of Open Risks

The following open risks have been agreed with ASX Management. At the time of finalising the report, ASX has developed action plans that have been assessed as being appropriate by EY to address the open risks.

#	Risk Description	Inherent Rating	Residual Rating	Due
Industry Engagement Strategy - Industry Engagement				
1	The 'Industry Engagement Strategy' paper does not include a timeline on when the key take outs of the Industry Engagement Strategy paper (or redacted version of the actual paper) will be socialised and validated with external stakeholder groups.	Medium	Low	24/11/2023
Business Requirements Document (BRD) - Business Requirements				
2	The user profile attributes (personas) in the BRD do not align with commonly accepted definitions	Low	Low	'Refine & Implement' phase

Appendix B Stakeholder List

The following stakeholder list is grouped by deliverable. The 'Primary Stakeholder(s)' in the following table refers to the stakeholders identified by each ASX Owner for the respective deliverable and/or process whose participation was considered in the review process. The identified stakeholder(s) provided support of the deliverable and deliverability review process (i.e. EY objectives 1, 2, 3 and 4).

In addition to the CHESSR Project team, the Project Assurance Senior Manager supported all reviews. The Project Sponsor/CIO was invited to all closing meetings. The CHESSR Project team also extended the invites to meetings to representatives of the Enterprise, where applicable.

For each independent review of a deliverable and/or process, the following meetings were held as standard for First Draft and Final Draft reviews:

1. Walkthrough Session
2. Q&A Session
3. Alignment Session
4. Closing Meeting

In some instances, fewer meetings were held where alignment or walkthrough meetings were not required as agreed between EY and ASX.

Objective 1: Deliverability Review of the 'Define & Plan' Phase

#	Deliverable/Process	Primary CHESSR Project Stakeholder(s) invited	Total # of Meetings Held
Deliverability Review of the 'Define & Plan' Phase			
1	'Define & Plan' Phase Deliverability	<ul style="list-style-type: none"> • GM, Business Design, CHESS Replacement, Equity Post Trade • General Manager, Technology Delivery • PMO Lead, S&P, Bus Mgmt & Planning (Primary Stakeholder) • Senior Manager, PMO, S&P, Bus Mgmt. & Planning (Primary Stakeholder) • Senior Project Manager, Equity Post Trade • CHESS Replacement Cutover Lead, Equity Post Trade • Senior Project Manager, Solution Engineering 	11

Objective 2: Robustness of the Assessment and Selection Process and Related Deliverables

#	Deliverable/Process	Primary CHESRR Project Stakeholder(s) invited	Total # of Meetings Held
Solution Options			
1	RFI Deliverable	<ul style="list-style-type: none"> General Manager, Technology Delivery Commercial Manager, CHESRR Replacement Senior Project Manager, Solution Engineering 	6
2	Solution Decision Framework (SDF) Deliverable	<ul style="list-style-type: none"> CHESRR Replacement Cutover Lead, Equity Post Trade Enterprise Architect, Architecture General Manager, Technology Delivery Senior Project Manager, Equity Post Trade 	4
3	Solution Options Analysis (Strawperson) & Design Authority Concept Proposal Deliverable Includes: <ul style="list-style-type: none"> Implementation Approach Options 	<ul style="list-style-type: none"> Senior Project Manager, Equity Post Trade Enterprise Architect, Architecture Engagement Lead, S&P, Bus Mgmt & Planning CHESRR Replacement Cutover Lead, Equity Post Trade General Manager, Technology Delivery Technical Writer, S&P, Bus Mgmt & Planning 	13
4	Solution Options Process	N/A	N/A
Product/Solution Vendor			
5	Vendor RFP Deliverable	<ul style="list-style-type: none"> Senior Project Manager, Solution Engineering Senior Project Manager, Equity Post Trade Enterprise Architect, Architecture CHESRR Replacement Cutover Lead, Equity Post Trade General Manager, Technology Delivery Senior Manager, PMO, S&P, Bus Mgmt. & Planning Senior Project Risk Management Specialist, Enterprise Delivery Enablement Manager, Vendor and Partner Relationships, Security & Governance Commercial Manager, CHESRR Replacement 	4
6	Product/Solution Vendor Process	N/A	N/A

#	Deliverable/Process	Primary CHESSR Project Stakeholder(s) invited	Total # of Meetings Held
SI			
7	SI RFP Deliverable	<ul style="list-style-type: none"> • CHESS Replacement Cutover Lead, Equity Post Trade • Enterprise Architect, Architecture • General Manager, Technology Delivery • Senior Project Manager, Equity Post Trade 	9
8	SI Process	<ul style="list-style-type: none"> • Manager, Vendor and Partner Relationships, Security & Governance • Senior Project Manager, Solution Engineering 	1

Objective 3: Assessment of Other Key CHESSR Project Deliverables and Processes throughout the 'Define & Plan' phase

#	Deliverable / Process	Primary CHESSR Project Stakeholder(s) invited	Total # of Meetings Held
Solution Design			
1	CHESS Solution Principles and Process	<ul style="list-style-type: none"> • Senior Project Manager, Equity Post Trade • Enterprise Architect, Architecture • Engagement Lead, S&P, Bus Mgmt & Planning • CHESS Replacement Cutover Lead, Equity Post Trade • General Manager, Technology Delivery • Technical Writer, S&P, Bus Mgmt & Planning 	5
2	Reference Architecture & Technical Capabilities Delivery Deliverable Process (Combined Review)	<ul style="list-style-type: none"> • Senior Project Manager, Equity Post Trade • Enterprise Architect, Architecture • Engagement Lead, S&P, Bus Mgmt & Planning • Technical Writer, S&P, Bus Mgmt & Planning 	7
3	Solution Architecture (Proposal)	<ul style="list-style-type: none"> • Enterprise Architect, Architecture • Senior Project Manager, Equity Post Trade • Engagement Lead, S&P, Bus Mgmt & Planning • Program Architect, Architecture 	5
Quality Engineering & Testing (QE&T)			

#	Deliverable / Process	Primary CHESRR Project Stakeholder(s) invited	Total # of Meetings Held
4	QE&T Strategy Includes: <ul style="list-style-type: none"> Options for Parallel Activities Risk Based Testing 	<ul style="list-style-type: none"> General Manager, Technology Delivery Test Director, Quality Eng. & Testing 	9
Industry Engagement			
5	Industry Engagement Strategy		6
6	Industry Engagement Activities and Processes (Cycle 1) Includes: <ul style="list-style-type: none"> Monthly Technical Committees (TCs) from March - June 2023 May 2023 Webinar TC Pulse Survey #1 Scope Refinement Session #1 	<ul style="list-style-type: none"> GM, Business Design, CHESRR Replacement, Equity Post Trade Senior Manager, Stakeholder Engagement, Equity Post Trade Manager, CHESRR User Relationships, Equity Post Trade Project Manager, Equity Post Trade Manager, Stakeholder Relations Technical Writer, Equity Post Trade 	4
7	Industry Engagement Activities and Processes (Cycle 2) Includes: <ul style="list-style-type: none"> Monthly Technical Committees (TCs) from July - October 2023 TC Pulse Survey #2 Scope Refinement Sessions #2 and #3 	<ul style="list-style-type: none"> GM, Business Design, CHESRR Replacement, Equity Post Trade Senior Manager, Stakeholder Engagement, Equity Post Trade Manager, CHESRR User Relationships, Equity Post Trade Manager, Stakeholder Relations Technical Writer, Equity Post Trade 	3
Organisational Change Management (OCM)			
8	OCM BTOPPC Assessment	<ul style="list-style-type: none"> GM, Business Design, CHESRR Replacement, Equity Post Trade CHESRR Replacement Cutover Lead, Equity Post Trade Senior Manager, Stakeholder Engagement, Equity Post Trade Senior Transformation Manager, Enterprise Delivery Enablement Senior Manager, Line 2 Project Risk Oversight, Enterprise Risk Seven Consulting - GM Change Management Assurance, Advice and Oversight Seven Consulting - ASX Engagement Lead Seven Consulting - ASX OCM 	8
9	OCM Change Canvas		10
10	OCM High Level Plan		7
11	OCM High Level Strategy		7

#	Deliverable / Process	Primary CHESRR Project Stakeholder(s) invited	Total # of Meetings Held
Business Requirements			
12	Business Requirements Document (BRD) Includes: <ul style="list-style-type: none"> High-Level Business Requirements and Non-Functional Requirements (NFRs) High-Level Processes (As is) User Experience Analysis 	<ul style="list-style-type: none"> Senior Manager, Business Analysis, S&P, Product & Clients Senior Product Manager, S&P, Product & Clients Senior Manager, Technical Product, S&P, Product & Clients GM, Business Design, CHESRR Replacement, Equity Post Trade E2E Migration Manager, Equity Post Trade 	12
Business Case			
13	Estimation approach	<ul style="list-style-type: none"> Senior Project Manager, Equity Post Trade General Manager, Technology Delivery PMO Lead, S&P, Bus Mgmt & Planning Consultant, Enterprise Delivery Enablement PPPM Frameworks Business Owner, Enterprise Delivery Enablement 	10
14	Financial process deliverable 1 & Financial process deliverable 2 (Combined Review)	<ul style="list-style-type: none"> GM, Business Management & Planning, S&P, Bus Mgmt. & Planning Senior Project Manager, Equity Post Trade Project Financial Analyst, S&P, Bus Mgmt. & Planning PMO Lead, S&P, Bus Mgmt. & Planning 	4
15	Project Risk & Complexity Assessment	<ul style="list-style-type: none"> General Manager, Technology Delivery GM, Business Design, CHESRR Replacement, Equity Post Trade Senior Manager, PMO, S&P, Bus Mgmt. & Planning Senior Project Risk Management Specialist, Enterprise Delivery Enablement CHESRR Replacement Cutover Lead, Equity Post Trade Senior Manager, Line 2 Project Risk Oversight, Enterprise Risk 	4
16	Business Case	<ul style="list-style-type: none"> CHESRR Replacement Cutover Lead, Equity Post Trade General Manager, Technology Delivery GM, Business Design, CHESRR Replacement, Equity Post Trade PMO Lead, S&P, Bus Mgmt & Planning 	9

Objective 4: Deliverability Review of the Proposed Solution and Delivery Model

#	Deliverable / Process	Primary CHESSR Project Stakeholder(s) invited	Total # of Meetings Held
Deliverability Review of the Proposed Solution and Delivery Model			
1	Deliverability of the Proposed Solution and Delivery Model	<ul style="list-style-type: none"> • GM, Business Design, CHESS Replacement, Equity Post Trade • General Manager, Technology Delivery • CHESS Replacement Cutover Lead, Equity Post Trade • Senior Manager, PMO, S&P, Bus Mgmt. & Planning • Enterprise Architect, Architecture • Senior Product Manager, S&P, Product & Clients • Senior Manager, Technical Product, S&P, Product & Clients • Test Director, Quality Eng. & Testing 	7

Note: The stakeholders engaged to support the assessment of the CHESS Replacement Program External Review Recommendations and CR actions review have been documented in a separate report.

Appendix C Terms and Abbreviations

Term	Definition
Australian Securities and Investments Commission (ASIC)	ASIC is Australia's integrated corporate, markets, financial services, and consumer credit regulator.
Business Requirements Document (BRD)	The BRD is a document produced during the 'Define & Plan' phase which includes the following sub-components: High-Level Functional and Non-Functional Requirements, User Experience Analysis (Personas (As-Is)) and High-Level Processes (As Is).
Business Stakeholder Group (BSG)	The CHES Replacement BSG is a Business Leadership Governance forum chaired by the General Manager Business Design. The BSG is a forum that reviews and agrees recommended business vision, objectives and requirements that will drive the CHES Replacement project. Where appropriate the outcomes of the BSG are presented to the PAR, PWG and SGG for endorsement, information, or exemption.
Clearing House Electronic Sub-register System (CHES)	CHES is used by ASX as a core system to perform clearing, settlement and other post-trade services for the Australian equity market.
Digital Ledger Technology (DLT)	DLT is a decentralised digital system for securely recording and sharing information, often associated with blockchain technology, and used in various applications, including cryptocurrencies and supply chain management.
Down-selection	The process used to shortlist vendors from a larger list into a smaller list, based on a defined evaluation approach.
Joint Steering Group (JSG)	The CHES Replacement JSG is a Governance forum for Executive/Senior Leadership group associated with having a major Vendor/Supplier or External Partner. In addition to the responsibilities of the SGG, the JSG is also responsible for review and governance of Vendor deliverables and resolution of any challenges between Vendors and ASX/CHES Replacement Project.
Portfolio Governance Group (PGG)	The Portfolio Governance Group (PGG) is an ASX Senior Management working group chaired by the Chief Customer & Operating Officer (Chair) or alternate group executive as nominated by the Co-Chief Operating Officer. The PGG provides oversight of the overall project portfolio roadmap; an approval mechanism for the release of funds commitment of resources to commence key strategic initiatives; and acts as the escalation point for the Delivery Portfolios and Domains.

Term	Definition
Program Assurance Forum (PAF)	<p>PAF is an ASX Senior Manager Meeting chaired by the Chief Risk Officer (Assurance Program Sponsor). The purpose of the PAF group is to steer the successful completion of the CHES Replacement Project - Assurance Program reviews covering:</p> <ul style="list-style-type: none"> • Project Health Checks • Assurance Program design and execution • Security • Technology and Operations • Quality Assurance (Testing and Performance) • Data Migration • Go Live and Customer Readiness • Post Implementation Reviews
Project Architecture Review (PAR)	<p>The CHES Replacement PAR is an Architecture Leadership governance forum chaired by the Enterprise Architect. The PAR is a forum that reviews and agrees recommended architecture solutions, technology initiatives, and innovation that will be utilized by the CHES Replacement project.</p>
Project Working Group (PWG)	<p>The CHES Replacement PWG is a Project Leadership governance forum chaired by the Project Director. The purpose of the PWG is to ensure alignment of each project workstream to the current objectives and project plan through monitoring status, removal of roadblocks and makes key decisions. The PWG will evolve as the CHES Replacement project moves from 'Define and Plan' through to the 'Embed, Review and Close' phase.</p>
Request for Information (RFI)	<p>An RFI is a formal process for gathering information from potential suppliers of a good or service.</p>
Request for Proposal (RFP)	<p>An RFP is both the process and documentation used in soliciting bids for potential business or IT solutions required by an enterprise or government agency.</p>
Solution Decision Framework (SDF)	<p>The SDF is a document produced during the 'Define and Plan' phase which provides an overview of the solution decision framework, its key components, and how it was used to evaluate the solution options for the CHES Replacement re-design and determine a preferred solution option.</p>
Solution Integrator (SI)	<p>A SI is a company or entity that specialises in integrating various software and hardware components to create comprehensive and customised solutions for specific business needs or projects, often involving the coordination of multiple technologies and services to achieve seamless functionality.</p> <p>Note: SI is used to refer to System Integrator and Solution Integrator roles.</p>
Strategic Guidance Group (SGG)	<p>The CHES Replacement SGG is a ASX Senior Management governance forum chaired by the Executive Sponsor. The purpose of the SGG is to steer the 'Define and Plan' phase of the CHES Replacement Project, consider future uses of the technology when providing guidance and/or in decision making; and managing project activities.</p>

Term	Definition
Subject Matter Resources (SMRs)	SMRs refer to individuals with knowledge in a specific subject area or field.
Technical Committee (TC)	<p>The CHES Replacement Technical Committee is a sub-committee of the Business Committee.</p> <p>The CHES Replacement TC is an industry forum for:</p> <ol style="list-style-type: none"> 1. ASX to obtain input from impacted stakeholders to inform ASX Management and the Boards of ASX Clear and ASX Settlement in relation to its decision making and help solve issues in the replacement of ASX's Clearing House Electronic Sub-register System (CHES) 2. ASX to communicate and provide visibility to, and seek expert views and input from, impacted stakeholders on the safe and successful delivery of CHES Replacement 3. Impacted stakeholders to obtain input that informs their own decision making
Terms of Reference (ToRs)	A ToR is a document that outlines the scope, objectives, roles, and responsibilities of a project, task, or committee. It serves as a formal guideline to ensure that all stakeholders have a clear understanding of what is expected and how the project or task will be executed.

Appendix D Release Notice

Ernst & Young ("EY") was engaged on the instructions of ASX Limited ("ASX", "Client" or "you") to conduct an Independent Assessment of the CHES Replacement Project's 'Define & Plan' phase ("Project"), in accordance with the Statement of Work #3 executed on 20 March 2023 (commenced 20 February 2023) and Amendment #1 dated 25 September 2023.

The results of EY's work, including the assumptions and qualifications made in preparing the report, are set out in EY's report dated 27 November 2023 ("Report"). ASX and ASX's regulators ASIC and the RBA, should read the Report in its entirety including any limitations, disclaimers and attachments. A reference to the Report includes any part of the Report. No further work has been undertaken by EY since the date of the Report to update it.

1. Unless otherwise agreed in writing with EY, access to the Report is made only on the following basis and in either accessing the Report or obtaining a copy of the Report the recipient agrees to the following terms. Subject to the provisions of this notice, the Report has been prepared for ASX and ASX's regulators ASIC and the RBA, and may not be used by any other party or relied upon by any other party without the prior written consent of EY.
2. EY disclaims all liability in relation to any other party who seeks to rely upon the Report or any of its contents.
3. EY has acted in accordance with the instructions of ASX, in conducting its work and preparing the Report, and, in doing so, has prepared the Report for the benefit of the ASX and ASX's regulators ASIC and the RBA, and has considered only the interests of ASX and ASX's regulators ASIC and the RBA. EY has not been engaged to act, and has not acted, as advisor to any other party. Accordingly, EY makes no representations as to the appropriateness, accuracy or completeness of the Report for any other party's purposes.
4. No reliance may be placed upon the Report or any of its contents by any party other than ASX and ASX's regulators ASIC and the RBA. Any party receiving a copy of the Report must make and rely on their own enquiries in relation to the issues to which the Report relates, the contents of the Report and all matters arising from or relating to or in any way connected with the Report or its contents.
5. No duty of care is owed by EY to any recipient of the Report in respect of any use that the recipient may make of the Report.
6. EY disclaims all liability, and takes no responsibility, for any document issued by any other party in connection with the Project.
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