UK Link Programme Assurance Report:

A review of readiness to exit IDR2

Xoserve
March 2017 v1.0

Executive Summary

Baringa

Context

▶ The 6th March 2017 marked the commencement of Implementation Dress Rehearsal (IDR) 2 – The second of three test phases that aim to prove the readiness of transition and cutover activities ahead of a final Go/No-Go decision for Project Nexus

▶ Throughout the life of the Programme, Xoserve have maintained the principle of holding two successful IDRs prior to Go Live as a key measure of confidence for Go Live readiness, and this has subsequently been built into the Go/No-Go criteria for the programme

▶ Baringa delivered an assessment of Xoserve's status upon entry to IDR2 in February 2017, making a number of recommendations that needed to be completed ahead of and during IDR2

▶ Xoserve are now nearing completion of both IDR2 and preparation for IDR3 given the limited window in between IDR2 and IDR3 which starts on the 10th April.

Scope of Document

Baringa have been requested by Ofgem to provide an assurance point of view on Xoserve's readiness to exit IDR2 and by extension enter IDR3, that answers the following questions:

1) Have Xoserve achieved their exit criteria for IDR2 and are able to commence work on IDR3?
2) Did Xoserve have adequate controls and processes in place to ensure that IDR2 is an accurate reflection of the actual cutover and deployment?

In addition, Baringa have reviewed the status of recommendations made on entry to IDR2.

Our Approach

Baringa's approach to validating the IDR2 exit readiness has been broken into the following elements:

▶ Review of IDR2 Low Level Cutover Plan (LLCP) performance, lessons learned logs, and updates made to processes and documentation ahead of IDR3

▶ Interviews with key Programme resources including relevant cutover and data leads, defect managers, workstream management for the entry criteria

▶ Independent assessment of the Transition & Cutover workstream exit criteria for IDR2.

Conclusions

▶ Baringa consider IDR2 to have been a success, and support progress into IDR3

▶ Performance against the LLCP has been good with all key milestones achieved to plan. PNID, AAQ/MDS and Catch Up milestones were all achieved on, or ahead of plan

▶ Lower level task variance against the baseline plan was experienced however tasks were still completed ahead of their 'need' date and relevant actions have been captured within lessons learned, to be applied for IDR3. Some variation in the plans should still be expected in IDR3 and Cutover due to varying transaction volumes

▶ Data defects continue to be identified, representing an element of risk to the onwards IDR3 & cutover plans. A fix strategy and plan are in the process of being rolled out, with an appropriate focus on Delta load defects. It is likely that not all defects will be resolved within the fix windows available and as such a clear prioritisation based on defect impact is required. The agreed fall out approach will ensure that this is performed in a transparent manner

▶ The Xoserve team must ensure that their teams are set up for success for IDR 3, and Baringa are aware of an increasing risk of resource burnout as we go through IDRs 2,3 and cutover. Xoserve are investigating a number of resource options, which Baringa would support as suitable mitigations

▶ Baringa recognise that a number of recommendations made at IDR2 Entry have now been completed, with further mitigating actions required ahead of IDR3 and Go-Live.

Question 1 - Have Xoserve achieved their exit criteria for IDR2 and are able to commence work on IDR3?

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- ▶ Summary findings documented below are based on a review of both the IDR2 progress reports, lessons learned documentation and associated End Stage Assessment criteria
- ▶ The forecast RAG articulates Xoserve's readiness to enter IDR3 on the 10th April 2017, assuming that relevant recommendations are implemented.

Sub-Question	RAG 29/03	Current Findings	Recommendation	F'cast RAG 10/04
a) Have all IDR2 activities been completed?		• YES - The Critical Path has been maintained throughout IDR2 with all major milestones (notably PNID) achieved as per plan • Whilst there was some variance against baseline, the LLCP delivered against its 'need' dates, and some lower level task variance is to be expected given the fluctuating data and transaction volumes to be handled.	• Review the LLCP, with associated lessons learned, to lock down the IDR3 plan wherever possible so that it replicates Cutover • Control any subsequent essential changes through appropriate governance • Clearly document areas of contingency at task level within the LLCP once identified	
b) Did IDR2 meet its success criteria?		• YES, with understood areas of risk - IDR2 has 15 exit criteria (see appendix 2 for the status reported at 27/03 and as applicable a CSA delta view). • Current RAG status – 1 Blue, 13 Green, 2 Amber • Data defect rates are the key residual risk factor notably for the Delta (39 V. High / High Priority Defects at 28/3) as production need date for other sources is cutover • *See Appendix 3 for a summarised defect positon by data source* • Inflights testing results were positive with low levels of fallout. Defects logged and undergoing analysis	• Undertake additional inflights testing ahead of IDR 3 to target defect closure – scoping in progress • *See below for recommendations regarding data defects*	
c) If activities did not complete, is there a documented action plan eliciting the resolution or mitigation actions?		• Dedicated test cycle commissioned to address Unique Sites data defects • For data sources where the production need date is cutover (all sources apart from Delta) IDR3 is to be utilised as a further test phase, as always intended. • Delta defect fix strategy and plan confirmed albeit with very tight timelines ahead of IDR3 • Some Easy Billing Framework (EBF) defects remain open however data copies have been taken for continued offline defect fix (and Production need date is post go-live)	• Materiality assessment needs finalising for Delta Reads defects with the fix plan updated if required • Prioritise root cause ETL fixes in IDR3 to minimise data fix overheads • Confirmation of intended variations of fix strategy between IDR3 and cutover, given the potential need for a greater number of manual/data fixes	

Within row a), Current Findings also contains:

Task completion – actuals vs. baseline (LLCP extract 27/03)				
Activity Status	Total	Ahead of B/L	On B/L	Behind B/L
Complete	2312 (79%)	926 (31%)	505 (17%)	881 (30%)
In progress	631 (21%)	37 (1%)	404 (14%)	190 (6%)

- • *Appendix 1. provides an overview of actuals vs. baseline against the IDR2 POAP*
- • Key variances (>24hrs) from baseline plan occurred for BW Extraction Performance, In flights Extract, Transform and Load & Unique Sites extract & transformation, however these also delivered ahead of the required need date/time.

Question 1 - Have Xoserve achieved their exit criteria for IDR2 and are able to commence work on IDR3? (Continued…)

▶ Summary findings documented below are based on a review of both the IDR2 progress reports, lessons learned documentation and associated End Stage Assessment criteria

▶ The forecast RAG articulates Xoserve's readiness to enter IDR3 on the 10th April 2017, assuming that relevant recommendations are implemented.

Sub-Question	RAG 29/03	Current Findings	Recommendation	F'cast RAG 10/04
d) Do uncompleted activities generate a risk for the transition and cutover into the production environment?		• 20 Delta defects require production data fix activity to correct issues from IDR2 Delta 1 – An opportunity exists to fix these in IDR3, with any defects that are not closed needing review and acceptance to become data fallout post Go-Live • Pragmatic steps have been taken within IDR3 plans to maximise the period available for defect fix, by merging Delta prep (Delta 0 cycle), with Delta 1 cycle	• A robust and controlled fix plan, as is currently being managed, is required to reduce the risk to Cutover • Confirm Delta cycle 1 load timings are adequate to absorb Delta Cycle 0 volumes	

e) Is the list of activities identified by Xoserve sufficient to identify and prevent any incidents from occurring during the transition and cutover period?		• Lessons learnt have been comprehensively captured throughout IDR2 (113 logged to date @ 28/3)
		• Key themes identified:
		  • **Process adherence/gaps**: operational and resourcing considerations
		  • **Plan consideration**: potential sources of update to the LLCP
		  • **Requirement consideration**: potential source of addition to the LLCP
		• Lessons learnt review session to be conducted at TPG on 4th April
			• Analysis of the lessons learnt log is in progress to determine required actions – this should be prioritised based on materiality of impacts to IDR3
			• Confirm actions to be taken from those options already in discussion to address resourcing learnings from IDR2, including:
			  • Rota amendments for both onshore and offshore to ensure secondary cover exists at all stages
			  • Consideration of further co-location of teams
			  • Wider options for reducing risk of resource burnout – Downtime between IDR2, 3 & cutover	

f) How did Xoserve plan to mitigate any outstanding incidents to ensure IDR3 was able to begin as scheduled?		• Updates have been made to an IDR3 version of the LLCP during IDR2 to support plan readiness for IDR3 • *See question C & D for details of data defect related activities*	• A review of resource allocation within the data stream is recommended to, where possible, expedite defect RCAs and retest activities	

Question 2 - Did Xoserve have adequate controls and processes in place to ensure that IDR2 is an accurate reflection of the actual cutover and deployment?

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- ▶ Summary findings documented below are based on a review of both the IDR2 progress reports, lessons learned documentation and associated End Stage Assessment criteria

- ▶ The forecast RAG articulates Xoserve's readiness to enter IDR3 on the 10th April 2017, assuming that relevant recommendations are implemented.

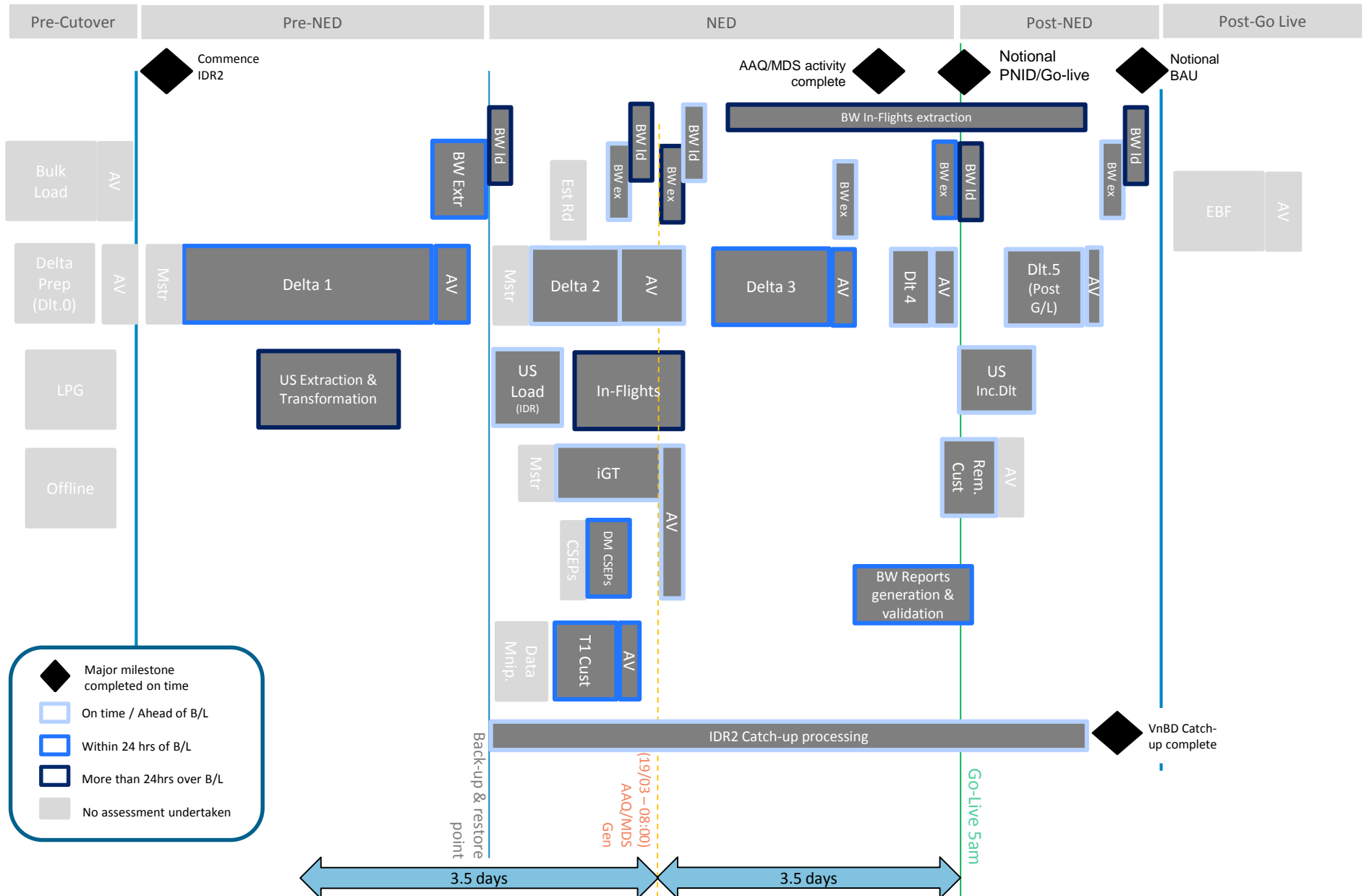| Sub-Question	RAG 29/03	Current Findings	Recommendation	F'cast RAG 10/4
a) Did the scope of IDR2 reflect the activities and processes that will occur during the cutover?		• Inflights scenarios / volumes encountered during cutover will be dependent upon legacy activity during the pre-cutover period and IDR2 cannot exactly mimic this • US inflights scenarios were a known scope exclusion (and v. low volume scenario) • Data issues identified in IDR2 were managed as they will be in cutover utilising a Fall Out Management Approach to prioritise fix activities and protect the cutover critical path	• Data availability allowing, utilise IDR3 as a test opportunity for US inflights	
b) Did the catch up batch activities reflect the expected volumes that will be produced due to a nine day NED period?		• Yes - Catch up activities completed as per plan • 6 critical files were used for catch up simulation which account for approx. 95% of volume of transactions experienced in legacy during the like for like period in 2016 • This scope agreed via internal governance and with TPG input • Analysis is in progress to assess impacts on catch up caused by early cutover by a small subset of market participants	• Industry participants must continue to flag any plans to deviate from 'standard' behaviours (in line with the 9/3 transition period modification) • Analysis to validate the catch up volumes from early cutover participants must be finalised	
c) Did all incidents get noted and reported to the appropriate governance forum?		• IDR defects have followed the standard programme defect process i.e. capture and tracking via HPQC • Emergency Release Deployment Board utilised to govern fix deployments within required timelines • Defect and overall status updates reported externally via established channels and forums • Data Fall Out Report due to be presented at PNSG on the 6th April.	• N/A	
d) Were incidents investigated and a root cause identified?		• Incident investigation and root cause analysis is following established defect process • 15 IDR2 non data defects remain open (of which 8 are v high / high priority) as at 29/03. A clear resolution plan is needed ahead of IDR3.	• 'Do not fix' candidates should be identified to safeguard functional and data solution stability	

Status of IDR2 Entry Recommendations

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Action	RAG	Explanation
Final cross check of LLCP and lessons learned log required by Xoserve before Entry		Action completed ahead of IDR2 – Similar action planned ahead of IDR3
IDR1 lessons learned found to be outstanding / not catered for, but still relevant, need to be included in the LLCP or other prep activities ahead of IDR 2		Completed ahead of IDR2
Agree formal sign off of LLCP across all teams & accountable parties		Completed ahead of IDR2
Incident management action timings/SLAs need to be amended for IDR 2		Completed ahead of IDR2
It is recommended that IDR2 scope includes a test of IM processes as early as possible in the IDR lifecycle.		No current plan to execute/ simulate an incident in IDR to test process within IDR2, however intention exists to test within IDR3
Explore option to copy NED window data to a separate client (prior to wipe-down) to allow extended triage		MCOD environment Copy agreed and in progress
Ensure that comms plan has been reviewed agreed with Industry at TPG		Shared with TPG w/c 27/02
Agree industry governance process for wider cutover decisions		Processes defined for Incident Mgmt process and Industry governance (IRG etc) – Integration points need to be confirmed.
Define formal mechanisms for flow of lessons learnt into IDR3, and 'live' adjustment of IDR planning		LLCP updated throughout IDR2. Final sweep of lessons learned to ensure all IDR2 LLs have been captured ahead of IDR3.
Clarify the roles and responsibilities between ServiceNXT and the Programme over the IDR period.		Agreement reached on the R&R between Service NXT and Programme. (ServiceNXT shadowing)
Establish tie-ins to industry GONG criteria and ensure that GONG G2 evidence is being collated as part of IDR 2 Entry		IDR2 Exit and IDR3 Entry Criteria agreed. IDR2 Exit and IDR3 Entry documentation will be finalised on 05/04 ahead of PNSG on 06/04
Identify process and forums through which to share IDR 2 & 3 lessons learnt to inform market cutover plans		Lessons learned updates will be fed through to the TPG ahead of IDR3
Drive down key exit criteria to more granular and quantifiable form, agreeing criticality of each through appropriate governance		Agreement of tolerance thresholds is under review and planned to be finalised ahead of IDR3
Agree with industry success criteria to exit IDR phases 2 & 3		IDR 2 Exit criteria communicated via TPG and assessment needed to determine any revisions required for IDR3
Review remaining in-flights test cases to confirm if they can be further rationalized, finalizing scope with industry		Agreement reached with industry on scope prior to IDR2 start. US descoped for in flights IDR2
Explore boundaries of acceptable levels of in-flight and readiness ahead of IDR 2 (incl. US in-flights)		In-flight acceptable readiness levels confirmed via Industry In-flight Group
Approach to deploying in-flights code and fixes to be documented and accepted at Programme level		GT and IGT Deployment completed by 15/03
Explore boundaries of acceptable levels of data readiness ahead of IDR 2 – what is the criticality of defects at risk of being open at the start of the phase		Fall out approach agreed with TPG
Finalisation of US descoping from IDR2 required with Industry		Complete. US In Flights de-scoped for IDR2
Prioritise fix of all outstanding data defects based on criticality and likely impact to IDRs and Cutover		Described within the agreed Fall out approach

Conclusions

- Baringa consider IDR2 to have been a success, and support progress into IDR3

- Performance against the LLCP has been good with all key milestones achieved to plan. PNID, AAQ/MDS and Catch Up milestones were all achieved on, or ahead of plan

- Lower level task variance against the baseline plan was experienced however tasks were still completed ahead of their 'need' date and relevant actions have been captured within lessons learned, to be applied for IDR3. Some variation in the plans should still be expected in IDR3 and even Cutover due to varying transaction volumes

- Data defects continue to be identified, representing an element of risk to the onwards IDR3 & cutover plans. A fix strategy and plan are in the process of being rolled out, with an appropriate focus on Delta load defects.

- It is likely that not all defects will be resolved within the fix windows available and as such a clear prioritisation based on defect impact is required. The agreed fall out approach will ensure that this is performed in a transparent manner

- Baringa recognise that a number of recommendations made at IDR2 Entry have now been completed, with further mitigating actions required ahead of IDR3 and Go-Live

- The Xoserve team must ensure that their teams are set up for success for IDR 3, and Baringa are aware of an increasing risk of resource burnout as we go through IDRs 2,3 and cutover

- Xoserve are investigating a number of resource options, which Baringa would support as suitable mitigations, including:

  - Bolstering/ring fencing Data Migration and SME validation resources

  - Further colocation between on and offshore

  - Review of validation processes & development of associated fix strategies

- Whilst IDR3 should continue to be considered as a test phase for all activities that do not write to Production databases permanently, IDR3 should however represent stability from a plan perspective. Once lessons learned have been embedded, the baselined IDR3 plan should be reflective of Cutover – with relevant governance approval for any changes.

Appendix

Appendix 1:High Level IDR2 PoaP: Actuals vs. Baseline Plan

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| Pre-Cutover | Pre-NED | NED | Post-NED | Post-Go Live |

Commence IDR2

AAQ/MDS activity complete

Notional PNID/Go-live

Notional BAU

BW In-Flights extraction

Bulk Load | AV

Delta Prep (Dlt.0) | AV

Mstr | Delta 1 | AV

Est Rd

Mstr | Delta 2 | AV

Delta 3 | AV

Dlt 4 | AV

Dlt.5 (Post G/L) | AV

EBF | AV

BW Extr | BW ld | BW ex | BW ld | BW ex | BW ld | BW ex | BW ld | BW ex | BW ld | BW ex | BW ld

LPG

US Extraction & Transformation

US Load (IDR) | In-Flights

US Inc.Dlt

Offline

Mstr | iGT | AV

Rem. Cust | AV

BW Reports generation & validation

CSEPs | DM CSEPs

Data Mnip. | T1 Cust | AV

IDR2 Catch-up processing

VnBD Catch-up complete

Back-up & restore point

(19/03 – 08:00) AAQ/MDS Gen

Go-Live 5am

3.5 days | 3.5 days

Legend

- ◆ Major milestone completed on time
- On time / Ahead of B/L
- Within 24 hrs of B/L
- More than 24hrs over B/L
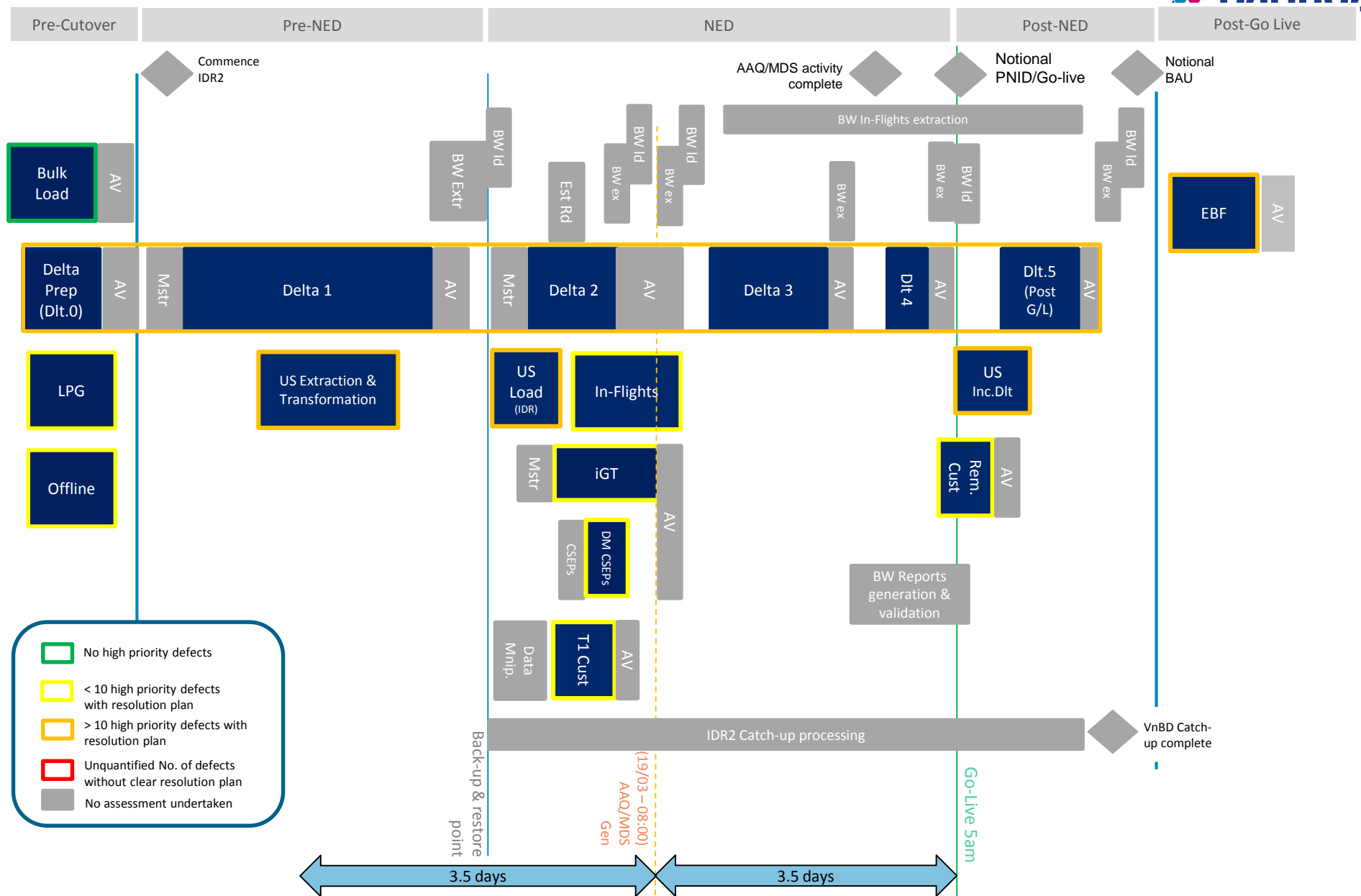- No assessment undertaken

Appendix 2: IDR 2 Exit Criteria – CSA Delta Commentary

REF	IDR2 Exit Criteria	Required Completion Date	27/3 Prog. RAG	27/3 CSA RAG	CSA Delta Commentary
9.01	All planned functionality defined and agreed as in scope for IDR2 has been tested with no outstanding P1 or P2 defects and with an agreed plan of action in place for any open P3 or P4 defects.	05/04/2017	A	A	
9.02	All planned Data scenarios defined and agreed as in scope for IDR2 has been tested with no outstanding P1 or P2 defects and with an agreed plan of action in place for any open P3 or P4 defects.	05/04/2017	A	A	
9.03	All planned Infra activities defined and agreed as in scope for IDR2 has been tested with no outstanding P1 or P2 defects and with an agreed plan of action in place for any open P3 or P4 defects.	05/04/2017	G	G	
9.04	All planned BW load and reporting activities defined and agreed as in scope for IDR2 has been tested with no outstanding P1 or P2 defects and with an agreed plan of action in place for any open P3 or P4 defects.	05/04/2017	G	G/A	The performance of a number of BW data loads exceeded the baseline plan by > 24hrs. NB critical path however was maintained, as need dates were met.
9.05	All planned Control M Batch Jobs defined and agreed as in scope for IDR2 has been tested with no outstanding P1 or P2 defects and with an agreed plan of action in place for any open P3 or P4 defects.	05/04/2017	G	G	
9.06	All planned AMT/EFT file processing defined and agreed as in scope for IDR2 has been tested with no outstanding P1 or P2 defects and with an agreed plan of action in place for any open P3 or P4 defects.	05/04/2017	G	G	
9.07	NED window processes in scope of IDR2 successfully simulated.	05/04/2017	G	G	
9.08	Simulation of the delta migrations and data validations following the migrations in scope of IDR2 have been completed within the agreed timelines, including Fallout Management and Reporting.	05/04/2017	G	G	
9.09	In-flight scenarios, in scope of IDR 2, have been successfully simulated.	05/04/2017	G	G/A	Inflights performance vs. plan and defect rates
9.10	Legacy UKL changes have successfully been tested during IDR2.	05/04/2017	G	G	
9.11	The testing of connectivity between the new SAP solution & all shared components (i.e. MarketFlow & EFT) have been successfully completed.	05/04/2017	G	G	
9.12	The testing of connectivity between the new SAP solution & Gemini CC has been successfully completed.	05/04/2017	G	G	
9.13	The testing of connectivity between the new SAP solution & CMS consequential change has been successfully completed.	05/04/2017	G	G	
9.14	Sample Portal access and roles required in readiness for go live have been successfully tested and approved	05/04/2017	B	B	
9.15	Post go-live batch job processing in scope for IDR2 have been executed and the jobs completed in the scheduled timeline.	05/04/2017	G	G	

Appendix 3: High Level IDR2 PoaP: Data Defect Landscape Overview

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| Pre-Cutover | Pre-NED | NED | Post-NED | Post-Go Live |

Commence IDR2

AAQ/MDS activity complete

Notional PNID/Go-live

Notional BAU

BW In-Flights extraction

Bulk Load — AV

BW Extr / BW Id / Est Rd / BW ex / BW Id / BW Id / BW ex / BW Id / BW ex / BW ex / BW Id / BW ex / BW Id

EBF — AV

Delta Prep (Dlt.0) — AV — Mstr — Delta 1 — AV — Mstr — Delta 2 — AV — Delta 3 — AV — Dlt 4 — AV — Dlt.5 (Post G/L) — AV

LPG

US Extraction & Transformation

US Load (IDR)

In-Flights

US Inc.Dlt

Offline

Mstr — iGT

Rem. Cust — AV

AV

CSEPs — DM CSEPs

BW Reports generation & validation

Data Mnip. — T1 Cust — AV

Back-up & restore point

(19/03 – 08:00) AAQ/MDS Gen

IDR2 Catch-up processing

VnBD Catch-up complete

Go-Live 5am

Legend:
- No high priority defects
- < 10 high priority defects with resolution plan
- > 10 high priority defects with resolution plan
- Unquantified No. of defects without clear resolution plan
- No assessment undertaken

3.5 days — 3.5 days

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Brighter together