

DERIVATIVES SERVICE BUREAU

TECHNOLOGY ADVISORY COMMITTEE

9 October 2019

MEMBER FINAL V02

Agenda

- **Governance**
 - TAC Member Changes
 - 2020 Meeting Schedule
- **2019 Review**
 - Topics Closed
 - Bulletin Board Topics Supported
- **Topics Under Consideration**
 - Overview
 - Industry Consultation Update
 - Initiatives
 - CISO
 - DR Testing Plan Update
- **Topics Under Consideration cont.**
 - Dynamic Enumerations Update
 - TAC SSC Update
 - BAU Activities
 - Software Version Upgrade Policy
 - Penetration Testing Update
 - ISIN Usage Analysis Update
- **AOB**
- **Appendices**

Governance I of II

Member Changes

There have been three member changes and one additional member since the last TAC meeting. All of the changes below have been reviewed and approved by the DSB board. A full list of members is maintained on the DSB's website¹, but has been included in the Appendix for your reference.

We would like to welcome the new members to the TAC and where relevant the TAC SSC:

Institution	Category	First Name	Last Name	Position /Title	SSC?	Action
CFTC	Observer	Robert	Stowsky	IT Specialist	No	Addition
JP Morgan	SI	Nadav	Krispin	VP, Software Engineering	Yes	Replace
State Street FX Connect	TV	Rajkamal	Roka	Head of FX Regulatory Product	No	Replace
SIX Group Services AG	Other Industry	Michele	Vuerich	Head of Input Systems / Director	Yes	Replace

¹<https://www.anna-dsb.com/technology-advisory-committee-members/>

Governance II of II

2020 TAC Meeting Schedule

The Chair has proposed that we formalize the TAC meeting schedule to include the two additional industry consultation meetings as part of the standard set of meetings. The two TAC industry consultation meetings have taken place for the last two years and will continue given the importance of the industry consultation process to the DSB.

The tentative proposal is as follows:

- End Q1 2019 – 1st TAC meeting target w/c 27th January
- End Q2 2019 – Industry Consultation First Meeting*
- Mid Q3 2019 – Industry Consultation Second Meeting*
- Early Q2 2019 – Last TAC meeting target early/mid October

We propose to use the TAC's Bulletin Board to finalise the meeting schedule with the TAC members.

**The Industry Consultation meetings cannot be scheduled until the industry consultation timeline is publicised. In 2019 the timeline was publicised in March.*

2019 Review – Topics Closed

- **Monthly Technology Support Statistics**

The Monthly Technology Support Statistics were first published on the DSB Website on 11th July 2019. The statistics are updated monthly and can be accessed on the DSB’s website at <https://www.anna-dsb.com/support-metrics/>.

- **UAT Environment Provision**

The second “as-prod” UAT environment was provided on 15th July 2019. There are currently 20 accounts configured across 5 organisations who have generated around 25k test messages.

- **FIX Re-Certification & 2019 Updates**

The FIX re-certification exercise was completed and the 2019 updates implemented on 17th August 2019. 41 organisations successfully completed the re-certification exercise by the deadline.

- **Industry Consultation Exercise**

We would like to express our thanks to the TAC members for their support with the Industry Consultation exercise, especially with attending and contributing to the two additional TAC meetings in June and August which concluded with the publication of the final consultation paper on 19th August 2019.

- **OTC ISIN EOD File Download Path Changes**

These changes were implemented in production on the 29th September 2019.

- **Data Provision at Weekends**

The TAC recommendation was put forward and approved as part of the Industry Consultation exercise. The changes in downtime hours has been scheduled for the weekend of the 25th/26th January 2020.

2019 Review – Bulletin Board Topics Published*

Date	Topic	Outcome
22-Mar-19	DSB TAC Meeting 20190313 Action - ISIN Analysis Slides Review	Proceed as planned
22-Mar-19	DSB TAC Meeting 20190313 Action - Penetration Testing Slide Review	Proceed as planned
30-Apr-19	RTS-23 Field 4I Tenor Calculator – Open Source Software	Proceed after TAC input
05-Jun-19	RTS-23 Field 4I API Design Refinement due to Cross-Asset Product Template Corner Case	Proceed as planned
18-Jun-19	Product Committee Request regarding €STR UAT Testing	Implemented as planned
21-Jun-19	DSB Disaster Recovery Testing	Proceed after TAC input
24-Jul-19	Connection of Non-Production User Environments to the DSB's Production Service	In progress with input from the TAC
14-Aug-19	Change in DSB Downtime Hours	Proceed after TAC input
20-Aug-19	RTS-23 Field 24 Expiry Date – Best Practices	Proceed as planned
16-Sep-19	Dynamic Enumerations – Alternative Product Template Formats	Assessing TAC feedback

****Since March TAC, excluding completed topics & TAC SSC items***

Topics under Consideration - Overview

- Industry Consultation Update
- Initiatives
 - CISO
 - DR Testing Plans Update
- Dynamic Enumerations Update
- TAC SSC Update
- BAU Activities
 - Software Version Upgrade Policy
 - Penetration Testing Update
 - ISIN Usage Analysis Update

Topics under Consideration – Industry Consultation Update

The DSB completed the 2019 industry consultation exercise with the final 2020 report was published on the 19th August 2019. A number of items require future TAC engagement. These are summarised here for reference:

Topic	Question	Outcome	TAC Action
Functionality	Q1 - CFI Generation Service	Undertake analysis only	Review the analysis
Functionality	Q5 – GUI Functionality	Undertake analysis only	Finalise the set of filters Agree implementation approach
Functionality	Q6 – Additional Enhancements	Implement	Agree prioritisation
Data Submission Enhancements	Q11 – LEI for CDS Single Name	Undertake analysis only	Review the analysis
Cybersecurity	Q22 – Secure SDLC Analysis	Undertake analysis	Review the analysis
Cybersecurity	Q23 – ISO2700x Analysis	Undertake analysis	Review the analysis
Cybersecurity	Q25 – Addition of CISO	Progress	Review role & resourcing level

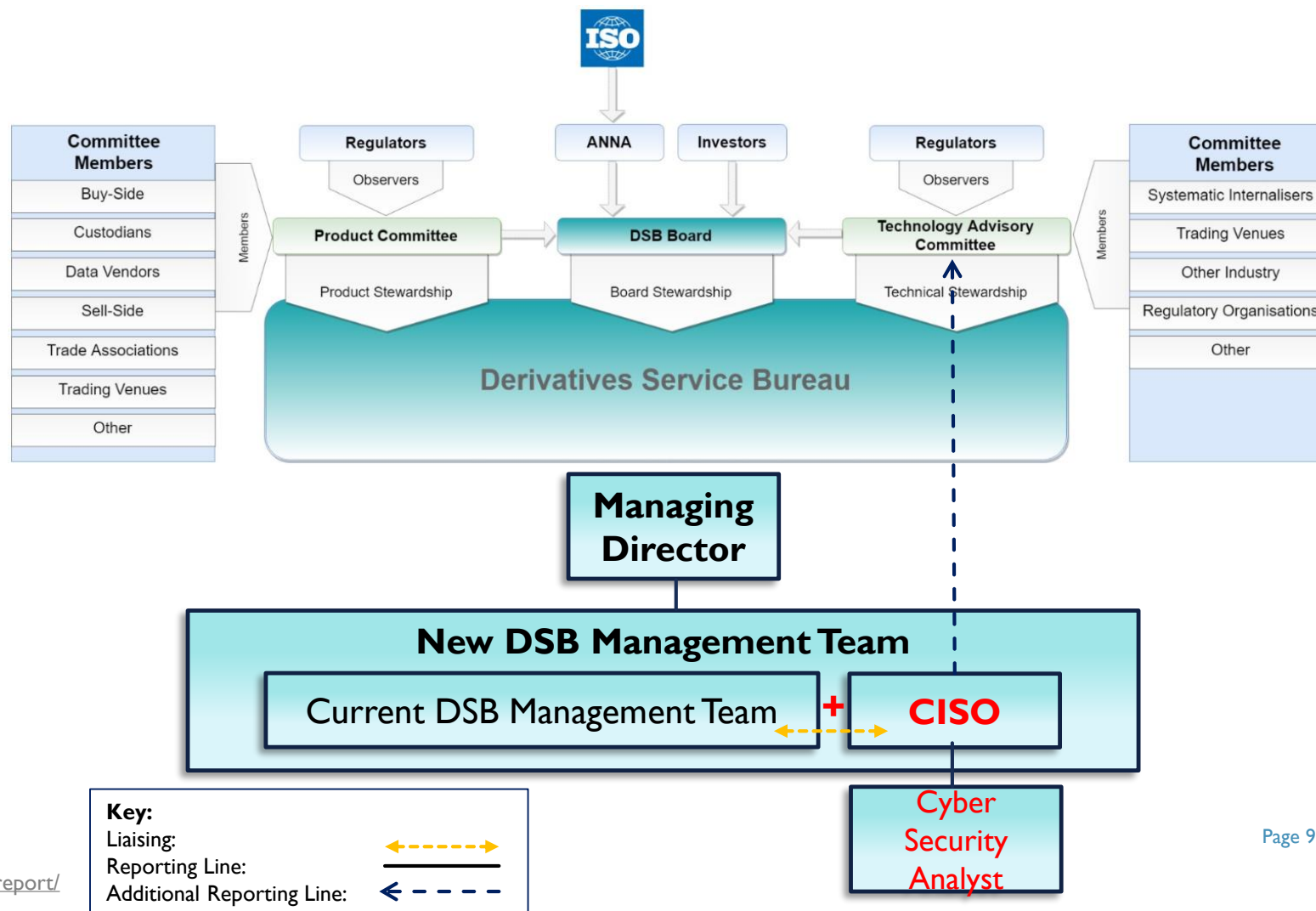
Topics under Consideration – CISO I of IV

Background:

The DSB has been mandated to hire a part time (two days a week) Chief Information Security Officer (CISO) and full time Security Analyst.

Section 5.5. of the Final Consultation Report² concluded that the DSB would undertake analysis on what is required to obtain certification for the information security ISO standard 270001 (Information Security Management) and analysis on migration of the current proprietary SDLC methodology to a Secure SDLC standard.

The DSB anticipates the CISO will assist with the delivery of both these analysis efforts.



² <https://www.anna-dsb.com/download/dsb-2020-consultation-final-report/>

Topics under Consideration – CISO II of IV

The Role of the Chief Information Security Officer

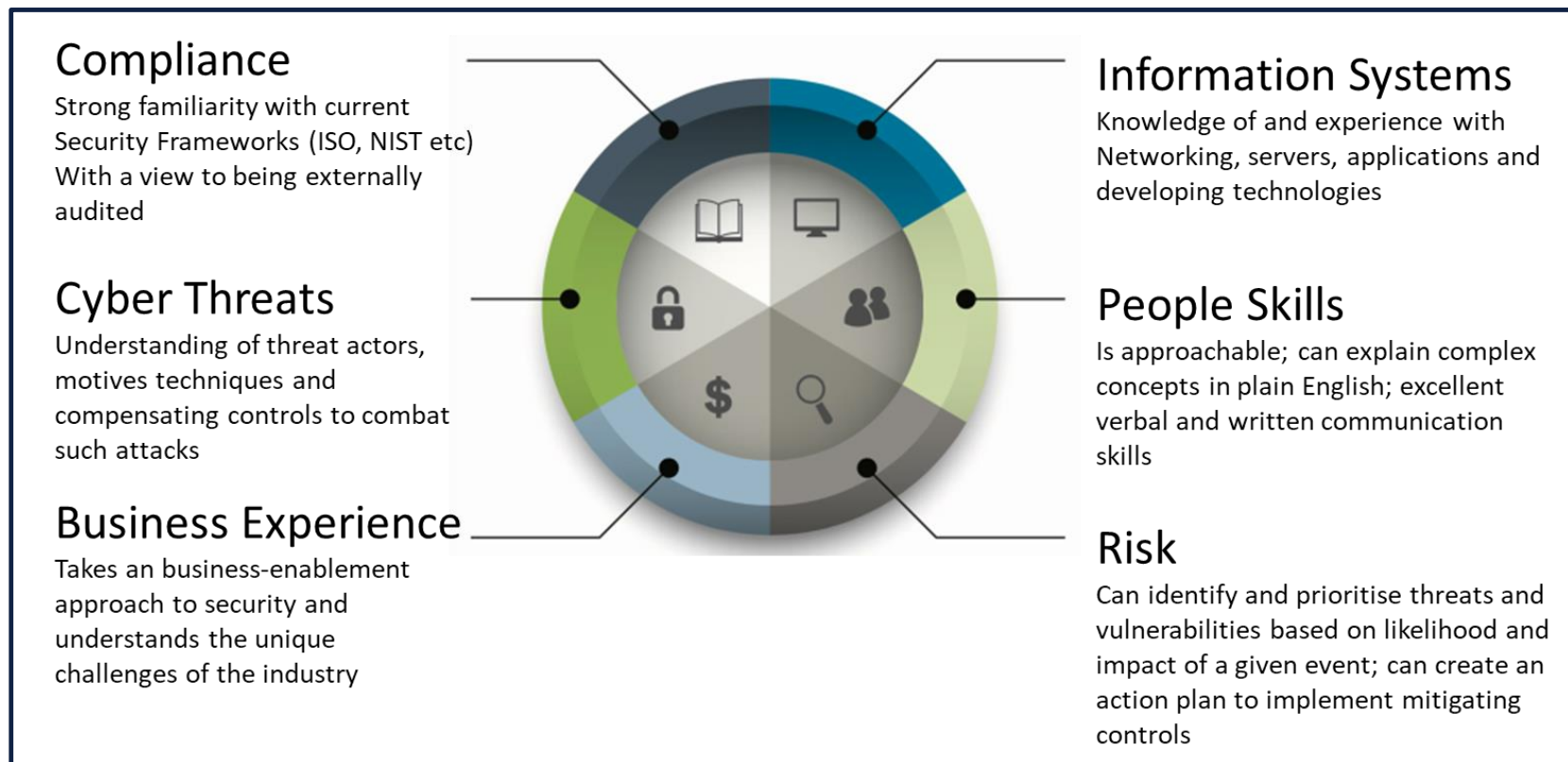
The **Chief Information Security Officer (CISO)** will be a senior-level executive within the DSB responsible for establishing and maintaining the enterprise vision, strategy, and program to ensure information assets and technologies are adequately protected. The CISO will have one direct report (a Cyber Security Analyst) and will also liaise with the DSB's existing technology and operations team to identify, develop, implement, and maintain processes to reduce information and information technology risks. The CISO will also establish appropriate standards and controls, oversee security technologies, and direct the establishment and implementation of policies and procedures. The CISO will also be responsible for information-related compliance (e.g. supervises the analysis on how to achieve [ISO/IEC 27001](#) certification).

The Role of the Cyber Security Analyst

The DSB's Cyber Security analyst will be responsible for ensuring that the company's digital assets are protected from unauthorised access. This includes securing both online and on-premise infrastructures, analysing metrics and data to detect suspicious activity, finding and mitigating risks before breaches occur. If a breach does occur, the security analyst will lead efforts to counter the attack. The analyst will also be responsible for generating reports for the CISO, as well as for the technology and operations managers to evaluate the efficacy of the security policies in place. The analyst will also assist with making the changes to enhance the security of the infrastructure and may also create training programs and modules to educate technology and operations staff on appropriate security protocols. The security analyst is also responsible for keeping the company's security systems up to date and creating documentation and planning for all security-related information, including incident response.

Topics under Consideration – CISO III of IV

CISO Skillsets



CISO 2020 Priorities

Priority I

- Analysis on ISO 27001 readiness
- Analysis on migration to a Secure SDLC methodology
- Create a cyber-security framework covering the full scope of DSB activities, with a heatmap of detailing RAG status for each activity area

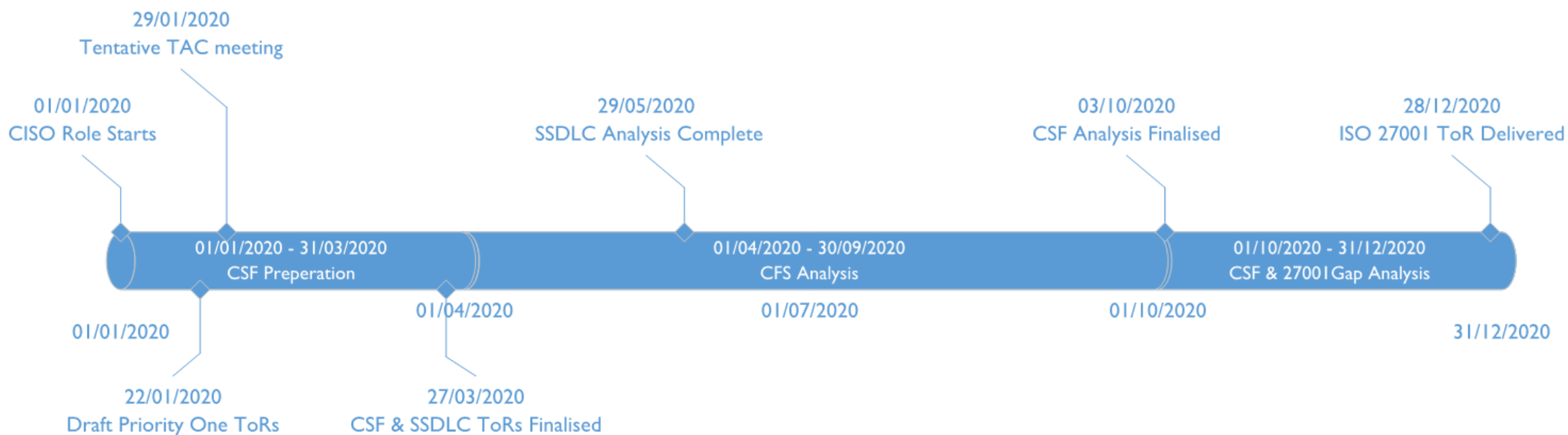
Priority II

- Oversee annual reviews of the service, infrastructure, process and policies, highlighting modification requirements considering unfolding new security threats.

TAC Question: Should the CISO report directly into the TAC, or into a TAC sub-committee or a newly created peer committee to the TAC?

Topics under Consideration – CISO IV of IV

2020 Delivery Timeline:



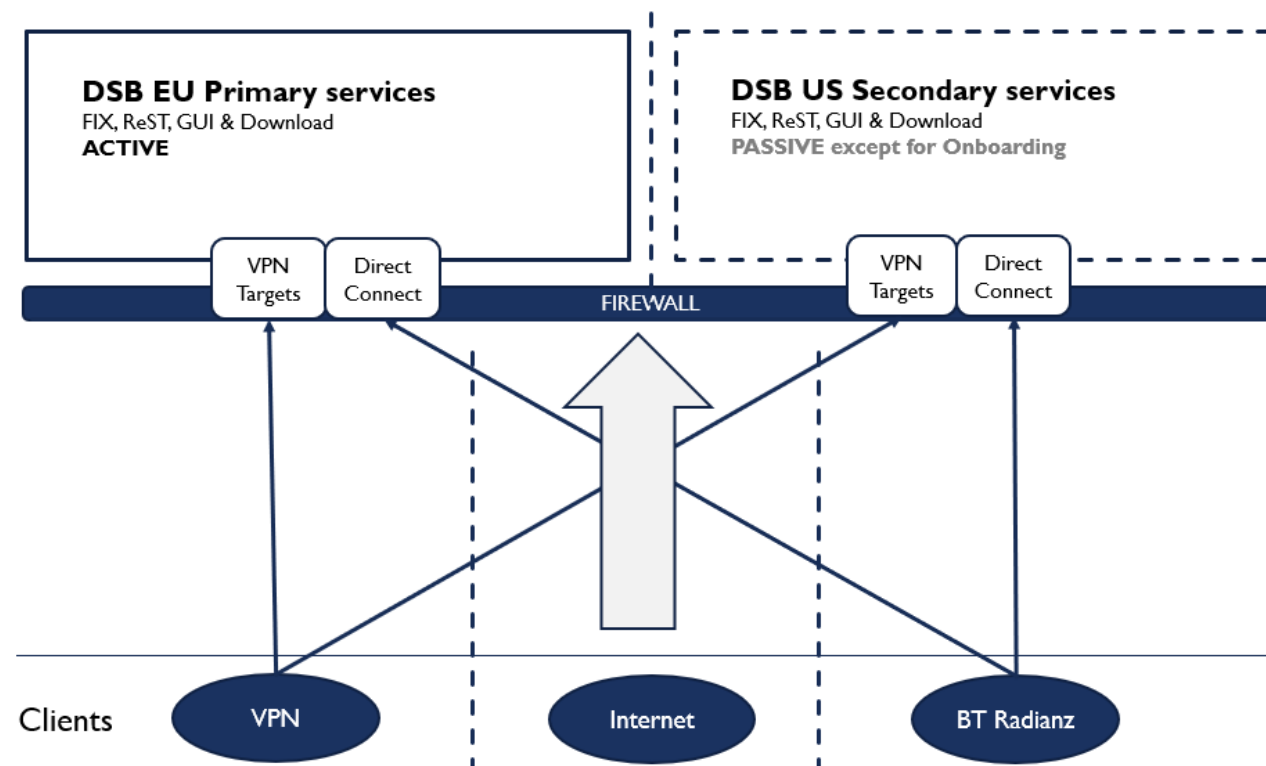
Topics under Consideration – DR Testing Update I of III

Recap:

In the March TAC meeting we reviewed:

- The DSB’s existing high availability configuration within its primary region in Ireland
- Client interaction with the DSB across various network connections & protocols
- The warm standby North American region
- The gap that user testing of a failover to this region has not been tested
- A proposed approach was defined and presented to the TAC
- Further offline discussion took place in June via the TAC’s bulletin board

High Level Connectivity Model



Topics under Consideration – DR Testing Update II of III

Industry Notification:

Industry was provided with a notification on 12th September advising of the proposed phases of the Inter-Regional DR testing. The notification can be viewed [here](#)³. The key points are:

- Announcement of the DSB UAT Inter-Region Disaster Recovery Testing exercise schedule
- UAT Inter-Region DR environment (UAT-DR) availability to all DSB users.
- Phase 1: Network Connectivity is scheduled to Run for 4 weeks beginning 23rd September 2019 to 20th October 2019.
- Phase 2: Application Validation is scheduled to Run for 3 weeks beginning 21st October 2019 to 10th November 2019.
- Phase 3 is not currently scheduled. An announcement regarding the dates for this phase will be made a later date (in conjunction with the TAC).

Phase	Environment	Direction	Notes
1	UAT	To Secondary	Connectivity: client preparation in secondary region.
2	UAT	To Secondary	Application: client preparation in secondary region.
3	UAT	To Secondary	Failover UAT for a set period (proposed to be 8 weeks).
4	UAT	To Primary	Failback UAT to primary region
5 onwards	Production	To Secondary	Approach & Timeframes to be confirmed with TAC

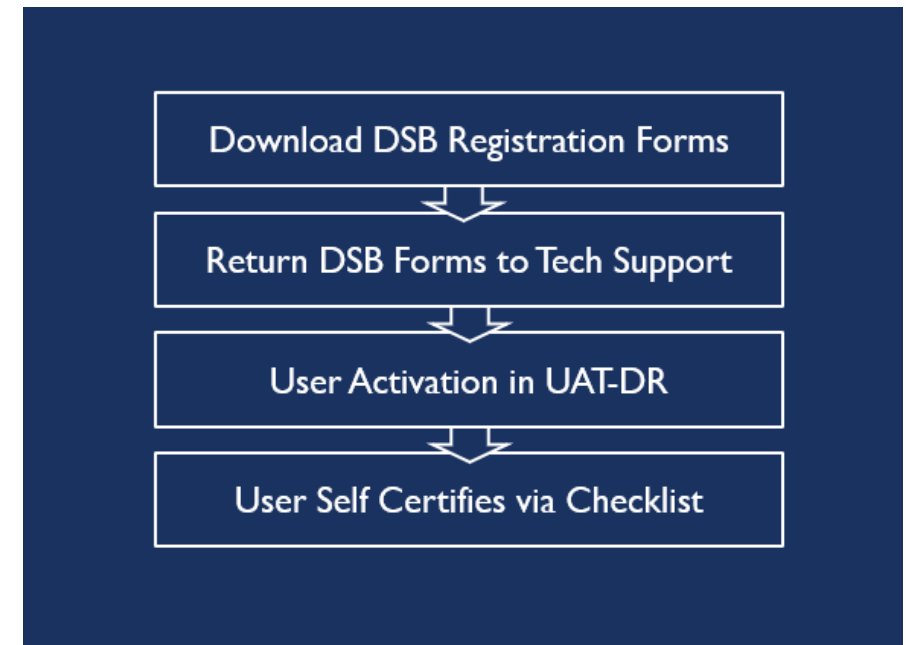
Topics under Consideration – DR Testing Update III of III

TAC Considerations:

We agreed to engage with the TAC through the phases and hold a hard checkpoint between UAT and Production. The next step for the TAC's consideration is the transition points from Phase 1 to 2 and 2 to 3:

- Does the TAC agree that we need a minimum of 15 power user participants (20% of the production power user population) before entering phase 3? *(Phase 3 will result in loss of UAT access for those who have not onboarded to the DR region – dependent on User category)?*
- Does the TAC agree that the DSB should send out a further industry notification regarding DR on the 11th October?
- Do the TAC agree with a proposed Phase 3 start date of 6th April 2020 (immediately after the Q1 release)?
- Is the Bulletin Board sufficient to manage these points or would further specific UAT-DR TAC meeting(s) be required?
- The US DR environments do not contain the ToTV service. This is due to industry feedback to keep costs low and taking into account the fact that the ToTV service is not a regulatory-mandated service. Does the TAC agree with this approach?

User Workflow:



Topics under Consideration – Dynamic Enumerations Update I of IV

Background:

The DSB's 2018 industry consultation exercise concluded that the DSB would proceed with the Dynamic Enumerations project which reduces the time to market for changes to the DSB's enumerated lists which are incorporated in the DSB's product templates.

The DSB's Product Committee has recently asked the TAC to review the approach being taken by the DSB to deliver this solution. A bulletin board entry was created which contained a technical paper along with some questions for consideration by the TAC. The TAC members were asked to provide feedback.

TAC Feedback:

The DSB has received 14 responses in relation to this topic. A summary of the feedback received along with the DSB's recommendation based on this feedback will be presented in the following slides. In addition, there is a third question that we wish to ask the TAC to consider during this meeting.

Topics under Consideration – Dynamic Enumerations Update II of IV

Question 1:

For backward compatibility reasons, the DSB proposes to maintain the existing templates in parallel to the new templates. The PC have asked for the TAC's opinion on how long the DSB should maintain two versions? We should point out that both sets of templates are generated from a single master repository to minimise the risk of misalignment between the versions.

Feedback:

*Responses that specified a time period were: 1 * 2-3 months; 1 * 6 months; 1 * 6 – 12 months; 1 * 2 years; 1 * forever.*

Recommendation:

The DSB's mandate requires giving 90 days notice for a breaking change⁴. The removal of the current version of the product templates is a breaking change.

The DSB's recommendation is to provide industry with 12 months notice from the point the normalised templates are made available in production. Does the TAC agree with this recommendation?

Topics under Consideration – Dynamic Enumerations Update III of IV

Question 2:

The DSB has to make a decision on whether to deploy the changes incrementally or in a big-bang taking into account that the existing templates will remain available in parallel to the new templates. The PC have recommended that the initial deliverable focuses on the most volatile enumerations which are those of currency, reference rate and underlying index. Does the TAC have a view as to whether to deploy the new templates based on just three of the eighty+ enumerated values or to deploy across all enumerations in one go?

Feedback:

5 of the 6 respondents with a preference, favoured the all or “big-bang” approach. 1 member preferred a phased approach.

Recommendation:

The DSB’s recommendation is to provide industry with a new version of product templates during the parallel period where all enumerated references have been normalised. Does the TAC agree with this recommendation?

Topics under Consideration – Dynamic Enumerations Update IV of IV

New Question:

An enumerated value may require additional run-time validation. An example of this is taken from the recent €STR release which stated:

```

Within all components:
• If Reference Rate* = "EUR-EuroSTR-COMPOUND" AND
• Expiry Date < 02 Oct 2019
Reject : "Error: This reference rate is invalid for the given expiry date"

```

These rules are implemented in JavaScript helper functions associated with the product templates. The JavaScript changes are maintained separately from the enumerated values added to the master repository.

In order to achieve the 18-36 hour turnaround requirement for dynamic enumerations, the operations team:

1. Run a regression test of all existing run-time validation rules
2. Generate and execute additional manual test cases around the new rules and ensure that the new manual test cases are incorporated into the automated regression test pack within 6 weeks of the production release
3. Deploy the enumerations directly into Production and UAT simultaneously.

Does the TAC agree with this approach?

Topics under Consideration – TAC SSC Update

Background:

The TAC Strategy Subcommittee (SSC) consists of 14 members of the existing TAC Membership. Subcommittee collateral is available on the DSB Website [here](#)³.

TAC SSC Objectives:

The TAC SSC's objectives and scope of activities shall be to submit reports and recommendations to the TAC in order to take forward the technology-related work of the original ISO working group ("SG2"). The SSC will help to define the ISIN hierarchy and to facilitate the implementation of the UPI, irrespective of the selection of UPI Service Provider(s).

Progress since TAC Meeting:

The TAC SSC has held three further meetings in April, June and most recently in September. The meetings have continued to refine the content of the DSB UPI Strategic Requirements Report.

Current focus is in the production of an interim version of the report which is expected to complete in October.

Next steps are to focus on the Terms of Reference for the UPI project.

³<https://www.anna-dsb.com/technology-advisory-sub-committee/>

Topics under Consideration – Software Version Upgrade Policy

The DSB’s software version policy is to remain within one major version of the latest version in industry. This is to ensure that we remain current particularly in relation to security updates. The key versions are as follows:

Software	DSB Ver'	Release Date	End of Life	Latest Available Version
Apache Solr	6.4.2	Mar 2017	Past	8.2
MongoDB	3.4.7	Aug 2018	Jan 2020	4.2
Apache KafKa	0.10.1.1	Dec 2016	N/A	2.3
NGINX	1.12.1	Jul 2017	N/A	1.17.4
OpenJDK	1.8 181-b13	Jul 2018	Jun 2023	1.8. 222-b10 is the latest for AWS Linux
Elastic Search	6.7.0	Mar 2019	Sep 2023	7.3.2
QuickFIXJ	2.1.0	Aug 2018	N/A	2.1.1
Tomcat	8.5.37	Dec 2018	N/A	8.5.46

Note: All upgrades are anticipated to be transparent (i.e. backwardly compatible) to the DSB user base

Topics under Consideration – Penetration Testing Update

2019 (GDS Test Dec 2018)

- 6 items for the DSB to fix:
 - 7 JIRAs created (see table below)
 - 5 Completed
 - 2 In UAT - deployment with major Q4 release
- 3 items to be addressed by a vendor (UAT only)
- 3 items - no action required

2020 (AEON Test Dec 2019)

- Terms of Reference Reviewed
- 6 Days testing scheduled (Dec 2019)
- *Note: AEON formerly GDS*

Issue key	Summary	Issue Type	Priority	Status
ISG-160	Standardize response message for reset password functionality	Improvement	Medium	Deployed in UAT
ISUD-290	Fipro allows enumeration of valid login IDs	Bug	Medium	Deployed in UAT
ISUD-289	Add modern HTTP security headers to Nginx	Improvement	Low	Done
ISUD-288	Cookie Attributes not set for optimal security	Improvement	Low	Done
ISUD-287	Upgrade Tomcat to the latest version - [8.5.37]	Task	Medium	Done
ISG-153	Escape HTML and JavaScript entries in JSON data objects in GUI	Improvement	High	Done
ISG-152	Update 3rd party libraries being used in the GUI code	Improvement	High	Done

Topics under Consideration – ISIN Usage Analysis Update

Background:

In March the TAC agreed to continue the ISIN Usage Analysis discussion via the Bulletin Board. A topic was created in March and the members were invited to provide any further feedback. The topic proposed an initial implementation of three of the seven items originally identified as follows:

#	Description	Notes	Filename
i	# of ISIN creates per product template	Shows creation trend for the total number of ISIN's created month-by-month since October 2017.	DSBISINCreationTrends-YYYYMM.csv
		Shows the number of ISINs for the last month by product template	DSBISINCreatedByProduct-YYYYMM.csv
iii	# of ISIN searches across all product templates (search by metadata)	Shows the number of ISIN searches across all product templates	ISINSearchesByMetadata-YYYYMM.csv
vii	# of ISINs submitted to FIRDS per product template	Number of ISINs submitted to FIRDS last month broken out by asset class rather than product template	ISINsInFIRDS-YYYYMM.csv

This change has not yet been progressed due to 2019 BAU priorities:

Field 41 delay and subsequent tenor calculator refinements with optionality and open source software; Brexit changes for ToTV delaying FIX Re-certification; Firpo/Corda upgrade to address file download ISIN issue

AOB

- TAC information: <https://www.anna-dsb.com/technology-advisory-committee/>

Appendices

- TAC Members
- 2019 Meeting Schedule

Committee Members

Institution	Category	First Name	Last Name	Position / Title
Citigroup	SI	Souvik	Deb	VP, Regulatory Reform
Credit Suisse	SI	Prem	Ananthakrishnan	IT
HSBC	SI	James	Cowie	GFI Regulatory Reporting Manager
JP Morgan	SI	Nadav	Krispin	VP, Software Engineering
Lloyds Bank	SI	Stephen	Pond	FI E-Trading & Rates Pricing Dev Manager
Morgan Stanley	SI	Shari	Lines	Financial Instrument Ref Data Architect
Rabobank	SI	James	Brown	Delivery Manager, IT Systems
SEB	SI	Henrik	Martensson	Markets CTO Office
Standard Chartered Bank	SI	Andrew	Poulter	Sabre Development Manager
State Street Bank	SI	Kimberly	Cohen	MD - Business Technology Solutions
UBS	SI	Tony	Chau	IB CTO for Regulatory Initiatives
BGC Partners	TV	Jimmy	Chen	Development Manager
Bloomberg LP	TV	Chris	Pulsifer	Software Development Manager
Nex	TV	Ziv	Yankowitz	VP - Research and Development
State Street FX Connect	TV	Rajkamal	Roka	Head of FX Regulatory Product
Thomson Reuters MTF	TV	Zintis	Rullis	Senior Technical Specialist
Tradeweb	TV	Elodie	Cany	Director, Technology Product Development
Asset Control	Other Industry	Martijn	Groot	VP - Product Management
Simplitem	Other Industry	Aanya	Madhani	Head of Product Development
SIX Group Services AG	Other Industry	Michele	Vuerich	Head of Input Systems / Director
SmartStream	Other Industry	Rocky	Martinez	CTO
Thomson Reuters Data	Other Industry	David	Bull	Head of FI Content Management
BVI	Other Industry	Felix	Ertl	VP, Legal
EFAMA	Other Industry	Vincent	Dessard	Senior Policy Advisor
FIX	Other Industry	Lisa	Taikitsadaporn	FIX Global Technical Committee
Investment Association	Other Industry	David	Broadway	Investment Operations Lead
ISDA	Other Industry	Karel	Engelen	Senior Director
Independent Expert	Other Industry	Jim	Northey	ex officio as ISO TC 68 Chair Elect

PUBLIC

Observers

Organisation	Name	Position / Title
CFTC	Robert Stowsky	IT Specialist
ESMA	Olga Petrenko	Senior Officer, Markets
FCA	Paul Everson	Senior Associate – Market Oversight
JSDA	Eiichiro Fukase	General Manager

DSB Sponsor:

Marc Honegger
DSB Board Member

Chair:

David Broadway
Investment Association

Designated DSB Officer:

Sassan Danesh
DSB Management Team

DSB Secretariat:

Andy Hughes
DSB Management Team

Yuval Cohen
DSB Technical Architect

TAC Meeting Schedule

The following shows the TAC meeting dates & times:

Wednesday 13 th March 2019	1pm GMT (1pm UTC, 2pm CET, 8am EST)
Tuesday 18 th June 2019	1pm BST (12pm UTC, 2pm CEST, 8am EDT)
Monday 12 th August 2019	1pm BST (12pm UTC, 2pm CEST, 8am EDT)
Wednesday 9 th October 2019	1pm BST (12pm UTC, 2pm CEST, 8am EDT)
Wednesday 29 th January 2020*	1pm GMT (12pm UTC, 2pm CEST, 8am EDT)

**As discussed on slide 4, the 2020 meeting dates & times will be finalized via the TAC bulletin board.*