Post-Trade Modernization (PTM) Program: BSO and Testing Requirements

##### Introduction

As we know, CDSX is systemically important (as its successor will be) because it is fundamental to individuals, businesses, and governments to securely and effectively invest, driving the orderly functioning of Canadian capital markets and, more broadly, the financial system underpinning our economy. In early 2019, the Canadian Capital Markets Association (CCMA) provided comments on the PTM clearing and settlement business requirements for continuous net settlement (CNS) and related functionality. As progress this past year has been complicated by COVID and some issues are more complex and varied across participants than may be apparent, we thought it again would be helpful, as we enter 2021, to articulate where we think matters relating to the PTM program now stand as testing preparations continue. The PTM is a 100% brand new system that will function differently than the current CDSX. In addition, while the CCMA members appreciate CDS’s efforts to minimize the impacts of the PTM on them by maintaining most of the current interface formats (files, messages, etc.), the system itself is based on new concepts, and is itself brand new and therefore must be tested as such.

CDS acts as a hub for participants and non-participants, each of which relies on the correct and consistent functioning of CDS’s systems to sustain their respective interdependencies that, in turn, maintain market integrity. The entire process thus needs to validate not only predictable behaviour of new software, but also predictable interactions among the interdependent parties and their respective supporting systems and processes.

## Testing methodology

With the move to large and complex systems such as PTM from CDSX, CCMA members (CDS participants) share both CDS's responsibility to clients and shareholders, as well as the added pressure of market and regulatory scrutiny, to fully test both the PTM itself, as well as the PTM’s interaction with the CCMA members’ and their vendor’/suppliers’ systems. CCMA members need ample proof providing confidence that testing has been sufficient, and that the interaction of their and their vendors’ systems, tested against the PTM, is reliable. That is, effectively functions as before (if not, CCMA members will need sufficient time for necessary modifications). At this stage, CCMA members do not have this level of comfort.

CCMA members appreciate the various CDS meetings that have been arranged to try to address industry questions. With the testing documentation posted on November 30 and a call on December 3, many CCMA members were engaged in the then highest priorities: preparations for year-end processing and working on projects scheduled for implementation prior to the annual mid-December development/system freeze date. The intervening three days proved insufficient for review and internal discussion among the members’ respective business and technology stakeholders, with many of the most knowledgeable individuals unable to attend. CDS's answers to some industry questions at this and a subsequent meeting were helpful, although did not fully address all the issues identified. It is important to identify and test for scenarios that could go wrong in the dynamic environment that has evolved over the lifetime of CDSX, to prevent significant production incidents and to determine early on, what *can* be corrected, and what instead will require work outside PTM’s formal domain.

For these reasons, it would be helpful for CDS to provide information that is more detailed. The following is a sample of questions we have:

* What are the business cases being addressed by each test?
* What has CDS tested?
* With which parties?
* With what success rates/results (at a more granular basis than available to date)?
* What tests are being, and will be, done by CDS, and what testing has CDS determined either is not necessary or is to be relegated independently to participants?
* What functions are *not* being tested via the scripted testing?
* What do the identified scripted test scenarios entail, that is, a brief description of each to ensure no misunderstandings due to terminology?

Until this information is received and assessed, CCMA members will continue to have concerns about CDS’s intention to facilitate a comparatively small amount of scripted testing and rely more on CDS participant unscripted testing. Below are some observations and considerations expressed by a range of large, mid-size and small participants that convey CCMA members’ apprehensions until more is known.

1. **Change magnitude:** We appreciate that CDS aims to demonstrate to participants (date as yet unknown) that the business itself and information being provided to participants is not changing, and that, by extension, less scripted testing is required. However, CDS staff have also communicated that:

* The business side of the process may be simplified.
* Messages will have a few supplementary fields added.
* Some mandatory message fields will be newly enforced.
* The new platform will introduce new tools, reports and graphical user interface (GUI) screens.
* Some participants will be required to change or replace “macros” or “robots” that are currently in use.

A least 40 different changes in fields, functionality, and process have been identified, and some are not trivial. The Central Hub component change from CDS ‘pushing’ files to participants to participants ‘pulling’ files from CDS may appear immaterial to CDS, but is a substantive change: one entity (CDS) pushing many files is being replaced by many (CCMA members) pulling many files.

Adoption of cloud processing for mission-critical processes varies among participants and at least one firm is absolutely not allowed to use CDS’s system if user access requirements demand users to log in directly from the internet rather than via a secure VPN.

Most importantly, the system itself is completely new and, from CCMA members’ perspectives, as yet not fully tested through their own downstream systems, or their service providers’ and their counterparties’ systems. Our members strongly believe that the process must be fully regression-tested end-to-end rather than just bilaterally – CDS-to-member-system-to-CDS – because within each member, there can be multiple interdependent systems involved in processing, some of which are third-party built or front-ends and some builds that have been developed in-house. Each member needs to test all of these systems and their functionality; as one example of the work that CDS does not see, some members compress trade files where possible, to remove trades where both sides are within their particular institution, to mitigate costs. The member’s systems transmit the post-compression execution files to a third party able to do the reconciliation that CDS’s reconciliation function cannot do accurately where compression is used because CDS receives the member’ compressed files, which effectively is only a netting of transactions. Correcting journal entries to deal with the compression must also be generated and tested.

1. **Scripted testing plans for exchange trades:** Based on CDS testing documentation, we understand that, during scripted testing, CDS will simulate a trade file from two exchanges and have 15-20 trades go through the full life-cycle from trade entry to buy-in execution, with CDS ensuring every message and/or related file is delivered. We assume that CDS will provide test results, including regression test results, to the industry. While an exchange trade may be simple from CDS’s standpoint, within CCMA members greater complexity and more steps are involved given the multiple systems in place – both within each member, and between each member and any third parties that process the members’ transactions – and these all must be tested. The proposed scripted testing for exchange trades is not enough to capture the end-to-end process sufficiently.
2. **Scripted versus unscripted testing:** We recognize that, over time, testing methodologies have moved some distance from the traditional, rigid, mostly script-based approach to more flexible, unscripted (context-driven) testing that can be faster, and in some circumstances better. However, the financial services industry is unusual in that it is not sufficient for a member to be comfortable both with its own unscripted test results with CDS, and that CDS has appropriately tested with its service providers/partners. Rather, members, perhaps more than entities in any other field, must have a level of comfort with counterparties’ readiness, and be persuaded that regulators, service organization auditors, and possibly even rating agencies will find that the particular participant had acted reasonably in the extent of testing it undertook or relied on. Our members are uncertain as to how they would answer the question of why they accepted the lighter-touch testing approach proposed now for the PTM, when CDS-coordinated scripted testing was considered appropriate and necessary for both the arguably simpler and so less risky T+2 transition and more recent changes to the Account Transfer – Online Notification (ATON) application. Until there is a common understanding on this point, participants believe that more scripted testing is required.
3. **Scripted testing for holiday processing:** CDS staff have correctly noted that the holiday table has not changed. However, scripted testing is needed because the system(s) is/are new, precisely because holiday processing is routinely a challenge within the existing environment, especially where a participant operates in more than one national jurisdiction, with markets closed on different days.

***Current thinking on testing***

What differentiates the financial services industry – other than the huge dollar flows it processes and its role in facilitating investment capital movement for the businesses, governments and individuals that keep the overall Canadian economy going – is trust. Trust once lost is hard to regain and can have huge reputational impacts for Canada’s markets and firms.

* + - **Clarity on CDS testing:**  As mentioned above, CCMA members would like confirmation of what CDS has tested; with which parties; and success rates/results at a more granular basis than available to date. As well, the industry would like confirmation of what is currently being and will be tested, and what functions are *not* being tested via scripted testing. In addition, CCMA members would appreciate a description of each scripted test scenario that CDS has identified to ensure no misunderstandings, gaps or duplication due to terminology.
    - **Detailed Batch Settlement Optimization (BSO) test results for any firm asking for them:** While CDS has confirmed results from a “simulation” of the new BSO component are similar to results in the current system in terms of the number of trades settled, including variations amongst members ranging up to 10.5%, this does not answer the question of whether the same level of ACV and Line of Credit usage is unchanged.
    - **User acceptance testing (UAT) results from testing third-party links with DTCC, Fundserv, and Euroclear:** CCMA members have a significant dependency on third party vendors such as IBM, Paramax and Broadridge, etc. and would encourage CDS to share test cases and test results with participants.
    - **Timing of BSO test result availability:** An answer inCDS’s recently released BSO testing FAQs states that CDS’s testing results will be shared with regulators. In this regard, we hope that the results will first be shared with and reviewed by CCMA members. Another part of the answer to the same FAQ says that the specifics of what scripted testing will cover will be delivered later to participants, and that CDS will discuss internally a timeline for sharing results with the participants. We would appreciate CDS’s earliest possible communication of this timeline.
    - **Additional scripted testing:** Members have identified 80-100 or so scenarios that prudent industry participants, with different business profiles and operations, would expect unless they can be otherwise satisfied that they are not needed. Even if a CCMA member does not do exchange trades or process in the BSO environment, and so cannot test themselves, all participants rely on exchange-trade and CNS processing one way or another, and so have a stake in scripted testing. We respect that CDS considers the testing methodology to be sufficient testing for itself, and that these results form part of what CCMA members need to know. As important is allowing the members to achieve the necessary level of comfort in their interfaces with CDS and other parties, and, at present, this requires the additional certainty of more scripted test scenarios. This is particularly the case now, in light of the aggressive six-month test cycle during what remains of a pandemic, where key staff may be out of commission for periods of time. Staff may temporarily be unavailable in the more-scripted-scenario methodology participants currently are more comfortable with and so prefer, however, they would derive more comfort, even if missing staff, when others are testing the same things rather than potentially significantly different things that will be tested the unscripted route.
    - **CDS role in co-ordinating unscripted testing:** Unscripted testing will still require extensive co-ordination involving CDS and CCMA member firms. Management of test environments providing stable PTM releases and participant test interconnectivity will be an important success factor in that testing. The industry would further appreciate CDS facilitating both testing with third parties such as CDCC, as well as inter-participant and service-provider testing to optimize net demands on the members’ resources**.**

#### BSO

Participants need to know what the test results show because of the impact on their ACV (aggregate collateral value), use of Lines of Credit, the settlement efficiency, and the resulting trade fail rate coming out of BSO. These must be dealt with during the daytime online settlement function. This will help determine whether new or expanded financing arrangements, and/or new staff resources, are required. This, in turn, will affect how much it costs to settle trades, which may mean the need to negotiate new arrangements with clients and credit suppliers. For this, each firm needs to see and analyse its own data.

Setting aside questions of operational efficiency, costs, and day-to-day operational impacts, CCMA members need to understand, on a firm-by-firm basis, and allowing comparison with their particular results using today’s systems, processes and environment, the following:

* + - The efficiency level of the new system using more than five days of activity
    - The amount of ACV required to complete the firm’s transactions on each day
    - The amount of collateral that participants would need to have posted to complete the transactions
    - The amount of credit required to settle these transactions.

Ideally, this information would be derived from parallel runs of multiple days of activity to obtain a realistic indicator of new ACV behavior and thus avoid surprises after go-live. The information should be available prior to scripted testing, so that decisions can be made about that behavior, and procedural and system adjustments can be put in place in advance of that testing.

**Conclusion**

CCMA members welcome CDS’s proposed next steps and appreciate that CDS has said participant readiness is ‘the key focus for CDS.’ Based on the above matters raised by CCMA members, it would be helpful for CDS to re-engage with the industry to discuss how CDS testing can be leveraged so that the additional scripted testing CCMA members need can be optimized. Addressing the ability of CCMA members to present executive management with satisfactory results of sufficient scripted testing for implementation approval, is, we believe, the most certain way of achieving our shared goal of successfully delivering on a PTM transition/go-live date.