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July 17, 2015

Re: FIF Recommendations regarding revisions to Amended CAT NMS Plan Implementation Schedule

Dear CAT NMS Plan Participants,

On June 24, 2015, several members of the *FIF CAT Working Group* (“the CAT WG”) presented to staff of the Securities and Exchange Commission the CAT WG’s views¹ related to the implementation schedule proposed under the [Amended CAT NMS Plan](#) published March 2, 2015. At that time, Commission staff asked if FIF had obtained feedback from Plan Participants on these concepts; FIF replied that some of the points had been discussed, and others would be presented in the near future. Staff recommended that we discuss these concepts further with Plan Participants and indicated that since the implementation schedule is currently in draft form, there is ample opportunity to consider these concepts in a revised schedule, before the CAT NMS Plan is published for comment.

Having now presented to Plan Participants and the DAG, FIF respectfully requests that our concerns and recommendations be carefully considered by Plan Participants, and that feedback be provided to the FIF CAT WG. The Commission staff has also asked for that feedback to be shared. Ideally, we look for some or all of these recommendations to be incorporated into the revised CAT NMS Plan when published for comment.

Overview of FIF’s Perspective

As discussed, FIF members have concerns with respect to the proposed schedule, as we believe the timeframe for implementation of the CAT NMS Plan is both unrealistic and risky. We do understand that the Amended CAT NMS implementation schedule proposed by the SROs has been constrained by the milestones established by SEC Rule 613; therefore, there are certain aspects of the plan that cannot be modified without a rule change. However, FIF recommends that alternatives be explored to revise the implementation schedule in a way that respects the milestones but takes an approach that may *reduce risk to the industry and maximize use of resources*. To achieve those goals, FIF suggests changes to the proposed CAT NMS Plan

¹ A copy of the FIF CAT WG presentation was provided to the DAG co-chairs on June 24, and presented to the DAG community on July 15, 2015.

Implementation Schedule that will:

- Allow more time for specification (“spec”) development including a two-cycle iterative review process to improve quality and comprehensiveness of input, resulting in increased efficiency in application development.
- Expand the period for testing with the CAT facility to support an earlier cycle of component testing, thus providing the opportunity for CAT Data Submitters to rollout their code to Industry Members on a timely basis in preparation for functional, end-to-end testing, cross-industry and production testing.
- Accelerate the timeframe for retirement of duplicative regulatory reporting systems, resulting in greater consistency of surveillance data and reduced costs.
- Invest in CAT tools and methodologies that facilitate the CAT Reporter development and testing to minimize time and costs and improve overall quality of CAT Reporting.

Developing an Alternative Implementation Schedule

Working within the existing milestones, FIF has devised one example of an alternative schedule² that adjusts the timeframes for activities impacting Industry Members and their Data Submitters (e.g. third party service providers). Aimed at reducing risk and maximizing use of resources, FIF’s example reflects the following changes to the proposed implementation schedule:

- Expedite analysis by the SROs of high priority duplicative reporting systems, and require sharing of functional specifications with prospective bidders to facilitate early retirement
 - Move the analysis, documentation and publication of *data and functional requirements* for high-priority regulatory reporting systems to become the first deliverable, which may be accomplished prior to selection of the Plan Processor. This will ensure that associated data requirements and functionality will be fully incorporated in the initial release of the technology specs and software. The proposed target dates of T+36 and T+42 for completion of duplicative and partially duplicative systems **analysis** prolongs duplicate reporting far beyond what should be necessary to ensure collection and maintenance of accurate data required by SROs for surveillance.
 - During the period from CAT development through retirement, we would expect no additional changes to existing reporting systems, as requirements for enhanced functionality necessary for surveillance would be served by CAT.
- Overlap development of specs for Plan Participants and Industry Members, as they have many common elements.
 - The danger in approving and implementing Participants’ specs before Industry Members’ specs are written and reviewed is that adjustments that should be made to Participants’ specs discovered in the process of developing the Industry Members’ specs may result in Participants’ code changes; conversely, Industry Members should not be "stuck" with deficient interfaces because they have already been implemented by/for Participants.
 - FIF proposes an expanded timeframe for Industry Member spec

² One example of an alternative implementation schedule is provided in the Appendix. Other approaches may be equally as effective in achieving the underlying goals of reducing risk and maximizing use of resources.

development/review that increases from 3 months in the amended plan (T+9 – T+12) to 6 months (T+2 – T+8) in the FIF alternative³, yet is completed 4 months earlier. The expanded timeframe for Industry Members' specs begins with development at the same time as Participants' specs in the amended plan, and ends with publication of final specs for Industry Members in T+8. The expanded timeframe reduces risk by allowing for an iterative review cycle and ensuring that the data requirements that are common to both Participants and Industry Members are aligned.

- Eliminate the phasing of the specs for Industry Members' Customer Data and Order Data; produce them simultaneously to enable more time for an iterative review cycle⁴.
 - There should be a minimum of two review cycles, to allow sufficient time for comments on the initial and revised releases prior to publication of final technical specs. In addition, there are cross dependencies between these two functions that require joint review, thereby minimizing late spec changes.
- Include a milestone for the Quote API specification. Allow 3 months for the development, review and publication of this specification, with one iterative review cycle (one review cycle should be sufficient due to the narrow focus of this interface).
- Create a secure test environment as early as possible in the implementation cycle, to allow a full 12 months for testing prior to start of Industry Member reporting.⁵
 - Determine test, production and DR connectivity requirements to CAT earlier in the process to provide the lead time necessary to establish connectivity. FIF members suggest details be made available 3 months prior to availability of the CAT test environment; production and DR connectivity requirements may follow.
 - Stage development and test cycles, if at all possible. Identifying functions which can be developed and tested in stages makes the most efficient use of development personnel and test system resources. We are assuming this will be true of not just Industry Members but also the Plan Processor. While asking for the CAT test environment to be available as early as possible (T+12), FIF recognizes that both Industry Members and the Plan Processor may not be ready to test all functionality on day 1. It would be reasonable for the Plan Processor to identify the

³ "T" equals Effective Date.

⁴ FIF's comment letter of November 19, 2014 suggested that a spread of three months between the two specs would be more beneficial than one month as proposed in the original schedule. FIF has reconsidered this position and determined that there are significant advantages in the complete overlap of these deliverables, with the specs for both customer data and order data produced simultaneously. This reduces risk as it ensures the specs remain in alignment and changes to one will not negatively impact software development that has begun for the other using what were previously deemed "final specs". Furthermore, parallel spec development will enable a longer timeframe for a two staged iterative review cycle.

⁵ FIF's comment letter of November 19, 2014 requested 6 months for testing. Upon consideration, while this may be sufficient for Industry Members who are themselves CAT Reporters, this timeframe may not be sufficient for 3rd party service providers who are CAT Reporters for Industry Members. For that reason, FIF has identified certain activities in the Implementation Schedule that could be overlapped, to extend the timeframe for combined development and testing. By making the CAT test environment available soon after final specs are published, Industry Members and CAT Reporters can begin testing during the development phase, making both processes more efficient. The Amended CAT Plan shows specs ready for order data at T+12, allowing 12 months for both development and CAT test. The Amended Plan shows customer info spec ready at T+18, with a 5 month development and test phase (reporting is required to begin on T+23). The FIF Alternative shows a development phase of 6 months (T+9 to T+15) overlapped with CAT Test (T+12 to T+24) for total elapsed time of 15 months.

- set of functions that will be ready for industry testing in the CAT test environment on a staged basis.
 - Support Industry Member testing with the CAT using test data early on; provide assurances that the CAT test environment is fully secure before utilizing production data for test purposes.
 - Allow the final 3 months of testing for use of production data to expedite testing and validate cross-firm customer information and linkages, matching, etc.; certify firm readiness during this “production-like” stage. This final stage of testing should be based on a “full function” CAT environment.
- Allow Small Industry Members to voluntarily begin reporting on schedule with Large Industry Members
 - Because a large number of small industry members utilize third party services for reporting, early reporting by small industry members would eliminate a bifurcated process for CAT Reporters while enhancing the opportunity for matching when counterparties are large and small industry members. We would expect that because this is voluntary reporting on the part of small industry members, any errors in reporting during this voluntary one-year period would not incur penalties.
- Leverage the Plan Processor investment in CAT development/test tools thereby reducing each CAT Reporter and Participant time and costs in building CAT interfaces and simultaneously improving the overall quality of CAT reporting. Some examples are:
 - A translator of CAT to OATS data to facilitate the retirement process of OATS
 - A CAT Reporter tool that validates a CAT report prior to submission to CAT thereby allowing regression testing whenever a CAT Reporter updates a CAT report
 - Tools to enable CAT Reporter testing of linkages prior to testing with linkage partners, and also providing a regression testing tool when CAT Reporters change their linkages.

The Appendix provides an example of an alternative implementation schedule that incorporates the above points in adjusting the timeframes related to Industry Member activities.

Other Risk Mitigating Strategies

Other approaches may be taken to rearrange the implementation schedule in a way that will leave more time for spec development and testing. Strategies that could further reduce risk can be considered by the SROs or the Plan Processor now during the planning cycle, or at a later point in time if the approved implementation schedule encounters difficulties and adjustments may be required in the schedule.

Examples include:

- Merging large and small industry member development cycles may reduce the workload of the Plan Processor with the added potential of allowing earlier delivery of all reporting (e.g. T+30 vs. T+36) or providing a cushion for early slippage. (We have already recommended the optional reporting of small industry members by third party service providers because it facilitates development, testing and production processing.)
- Staging of implementation by asset classes (e.g. equities first, then options) removes a complex asset class from Phase 1 that does not have as much history of regulatory reporting. This allows both the Plan Processor and Industry Members to focus on equities reporting deliveries and holds off work on options for a Phase 2.
- Consider a “Pilot Program” that solicits a small number of CAT Reporter firms to implement CAT reporting for 3 months at T+24 to demonstrate that the CAT infrastructure works, and

then phase in all other Large Industry Members.

- Consider the staging of CAT reporting, starting at T+24, to ease the burden on the Plan Processor and ensure a smooth roll-out. For example:
 - T+24, half of the Large Industry Members start reporting customer info
 - T+25, remainder of the Large Industry Members start reporting customer info
 - T+26, all Large Industry Members start reporting equities order data
 - T+27, all Large Industry Members start reporting options data

While the FIF example in the Appendix or another alternate implementation plan that considers some of the above risk mitigation strategies does alleviate some of the concerns, others remain. For example, the Plan Processor's ability to be fully mobilized and ready immediately upon selection affects the entire schedule and the ability to maintain milestones set forth by the Rule. Selection of the bidder prior to the approval of the CAT NMS Plan would allow more time for the Plan Processor to be ready for the implementation phase. Throughout this process we must be cognizant of the critical dependencies and their downstream impacts.

Impact of "Dependencies"

As with any software project, each of the steps in the CAT implementation schedule follow a natural progression – requirements, resource readiness, specifications, development and internal test, testing with CAT, and final testing simulating the production environment as much as possible to validate both the CAT system and CAT Reporter readiness for reporting. (This is not meant to imply a "waterfall" development approach – agile development and overlapping of implementation steps are also consistent with the notion of dependencies and expected quality.) Each step, if not of good quality, impacts negatively on the succeeding step and generally causes more time to be spent on correcting previous issues. FIF members believe acceptance criteria should be defined that can be *objectively* measured to ensure each step is completed with good quality; otherwise, the development project should not proceed to the next step. FIF is concerned that any implementation schedule that does not allow sufficient time for critical path items, particularly those early in the process which are not completed with good quality, will compress the time allotted for succeeding steps, and further impact the quality of the end deliverable; as we are left with insufficient time to "compensate" for the earlier missteps. More time spent on the early cycles (requirements, design, specifications) generally result in less cost, less redo, and improved quality of deliverables.

FIF members believe that the CAT implementation schedule should be designed with these dependencies in mind, by building in realistic timeframes to mitigate risk and avoid costly "slippage". The following highlights some of the more critical steps that must be accommodated to ensure successful completion of the CAT:

- All functional requirements must be identified and well documented early enough to allow inclusion in the initial draft of the specifications, especially Participant requirements related to the high priority duplicative and partially duplicative reporting systems that will utilize CAT to meet regulatory obligations.
- Inherent in the implementation schedule is the assumption that the Plan Processor is ready to start implementation shortly after being selected. Plan Processor readiness (e.g. availability of skilled staff, funding, infrastructure, IT resources for development and testing) is a critical dependency upon which the full implementation schedule rests.
- Sufficient time should be allocated for two iterative drafts before final spec publication,

allowing for a more collaborative approach to interface definition. All major identified issues should be resolved in the final spec.

- Sufficient time should be allocated for development and internal test. Both the Plan Processor and the CAT Reporters should ensure that the CAT functionality being developed is of sufficient quality to allow its entry into the CAT testing environment. The acceptance criteria for the CAT test environment should define the quality and stability needed of the CAT infrastructure and functionality to allow productive testing by the CAT Reporters.
- Sufficient time should be provided for testing in a CAT testing environment to validate the CAT Reporter functionality. Although the focus of this test step and the next test step is for CAT Reporter testing, problems in the Plan Processor will also be identified during this stage. Acceptance criteria should be defined for the Plan Processor to ensure the CAT infrastructure and functionality is of sufficient quality to allow moving to the final test stage (e.g., 85% of all Severity 1 problems identified during this test period must be fixed before exit).
- Sufficient time should be allocated for “production-like” testing prior to CAT report start. All functionality must be present in the test environment and be in good working order. The focus of this stage is to determine the readiness of both the Plan Processor and the CAT Reporters for “go-live”. Start of CAT reporting should be dependent on successfully meeting the acceptance criteria. (An example of an acceptance criteria would be – “all Severity 1 problems identified during this test period must be fixed before exit; 95% of all Severity 2 problems identified during this test period must be fixed before exit; etc.”).

This is not intended to be an exhaustive list of dependencies, but merely a brief illustration of the relationship between the critical components of the implementation schedule and the ability to maintain plan milestones. While FIF’s suggestion for an alternate implementation schedule (see Appendix) does allow additional time for spec development and testing, for example, it too is subject to “slippage” which could be caused by any number of factors, including but not limited to those described above.

FIF looks forward to obtaining feedback on our proposed alternative implementation schedule. We hope to further discussion on how these concepts can be incorporated into the CAT NMS Plan implementation schedule to accelerate the process in support of complete and accurate reporting, and elimination of duplicative activities. Please do not hesitate to contact me with questions or to arrange for follow up discussions.

Regards,



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Managing Director
Financial Information Forum

cc: David Shillman
David Hsu

Appendix – Sample Alternative Schedule

This schedule adheres to the Rule 613 milestones, and while not optimal, does improve on the CAT NMS Plan schedule by providing more time for industry member specification, development and test phases. Please note: implementation milestone dates should be contingent on successful completion of critical dependency tasks.

Date				Task
CAT NMS Plan		FIF Proposal		Shaded tasks indicate critical importance
Start	End	Start	End	
Analysis of Duplicative Regulatory Reporting Systems/Rules				
	T+36 to T+42	Now	Comment period end	Documentation of all functional requirements and data elements identified that allow retirement of high priority duplicative, partially duplicative and non-duplicative regulatory reporting systems/rules and retirement plans
Approval of CAT NMS Plan and Bidder Selection				
	T		T	Approval of CAT NMS Plan = Effective Date
	T+2		T	Selection of PP
		T+2	On-going	Build and validate a secure CAT environment
Participants – FIF makes no recommendation to alter the Participants' Schedule				
T+2	T+6	T+2	T+6	PP produces Participant Technical Specs for order and MM quote data
	T+4		T+4	Clock Synch for all (or when required for reporting)
T+12		T+12		Participants start reporting
T+14		T+14		Participants implement surveillance system using CAT data
Large Industry Members				
T+9	T+12 (Order)	T+2	T+8	PP produces Industry Member Technical Order & Customer info Specs with 2 iterative draft reviews
	T+18 (Customer)	T+2	T+8	PP produces Industry Member Technical Order & Customer info Specs with 2 iterative draft reviews
	T+18	T+9	T+12	Participants produce Quote Protocol API spec with 1 iterative draft review
	T+18		T+9	Publish connectivity requirements for CAT test env. with production and DR to follow
		T+9	T+15	Plan Processor and Industry members develop/internal test of Customer info, Order Data and Options Quote sent time
T+18	T+24	T+12	T+24	Plan Processor test environment available for CAT Reporter testing
T+21	T+24	T+21	T+24	CAT NMS Plan – Plan Processor plans specific testing dates for Large Industry Members FIF Proposal – “Production-like” test for CAT Reporters and Plan Processor
T+23		T+24		Large Industry member start reporting customer information data to CAT
T+24		T+24		Large Industry member start reporting order data to CAT Optionally – small industry members can start reporting
		T+24	T+30	Participants with High priority duplicative/ partially duplicative regulatory reporting systems assess CAT data for use in regulatory reporting
		T+30		Firms meeting reporting and quality criteria granted exemptions from reporting to high priority duplicative reporting systems until retirement can be approved
Small Industry Members – no change in schedule				