2018 FIA Industry-Wide Disaster Recovery Test

Summary Report

December 31, 2018

A. Background

- The FIA Market Technology division completed its 15th annual continuity of business and disaster resilience test on Oct. 13, 2018

- The scope of the disaster recovery test initiative was designed to test business continuance, process recovery and disaster resilience connectivity, and functionality between exchanges, clearinghouses, and member firms by:

  - Verifying firms' ability to test business continuance from alternate work recovery sites

  - Testing firm back-up to exchanges and clearinghouses back-up sites

  - Verifying connectivity and process recovery

  - Testing round-trip communications capabilities

- A working group was convened to plan, discuss and agree on activities, goals and objectives.

- A full committee of participants of the Business Continuity Management group included representatives from major FCMs, exchanges, clearing houses, and service providers

- A series of conference calls were scheduled throughout the year to coordinate and address questions from participants

- Participation is open to a variety of entities, as well as, to members and non-members alike, including:

  - Exchanges
  - Clearinghouses
  - Swap execution facilities
  - Futures commission merchants
  - Clearing firms
  - Key service providers
  - Independent software vendors

B. Executive Summary

- FIA's annual industry-wide disaster recovery test, with a primary focus on the U.S. financial services sector, was considered a success. The primary objective of practicing resilience and learning from issues that arise during the test prepared participants for when the real-world incident occurs.

- The success is largely a reflection of the coordination and working relationships that occur between exchanges, clearinghouses, firms and service providers as part of the event.

- Representatives from 21 major U.S. and international futures exchanges, clearinghouses, and swap execution facilities participated in the 2018 disaster recovery test.

- Representatives from 78 FCMs, clearing firms, key service providers and other supporting entities also participated.

- Between 83% and 100% of firms tested successfully, depending upon the exchange. That means firms were able to successfully fulfill, from end-to-end, the instructions outlined within test scripts.

- The exchanges and clearinghouses demonstrated that their systems, processes and procedures simultaneously worked well, communicating from back-up systems and sites.

- As in prior years, firms and exchanges tested the "people side" of their business continuance capabilities, as well as the disaster resilience and recovery of their systems infrastructure.

- Overall test orchestration, facilitation and order entry was conducted from alternate work sites, as well as DR data centers.

- Firms have indicated that the Test helps them:

    ➢ Exercise their business continuance/disaster resilience plans

    ➢ Identify internal and external single points of failure

    ➢ Test other in-house applications and systems at the same time

    ➢ Improve the documentation of their business continuity procedures

    ➢ Better understand the need for cross-training

    ➢ Test connectivity to exchange/clearinghouse and/or SEFs DR sites

C. 2018 Test Overview:

- On March 21, 2018, the planning committee agreed on activities, goals, and objectives for the 2018 DR Test. All participants were invited to an April 25 kickoff call for an overview of the test and a schedule leading up to the event in October, including regular conference calls to prepare for the disaster recovery test.

- A webinar briefing was conducted on Aug. 8, whereby the Exchanges and Clearinghouses presented details about their tests, including options for pre-testing and trade dates

- On Oct. 13, the FIA Disaster Recover Test was conducted, and an all-day conference bridge was provided to facilitate communication. Although, the test officially started at 9:00a.m. EST for most entities, the test was already underway in earlier time zones.

- Alternate work sites were geographically dispersed within U.S. as well as internationally, including:

    ➢ **United States:** Connecticut, Florida, Georgia, Illinois, Minnesota, Missouri, New Jersey, New York , North Carolina, Pennsylvania, Tennessee, Texas, Utah and Virginia.
    ➢ **International Locations:** Montreal, Toronto and Vancouver, Canada; Bogota, Colombia; Budapest, Hungary; Dubai, United Arab Emirates; Frankfurt, Germany; London, United Kingdom; Madrid, Spain; New Delhi and Pune, India; Singapore; Tel-Aviv, Israel; and Tunisia.

- Following a post-mortem on Nov. 7, a survey was distributed to participants to capture feedback and improve future testing. Survey results and feedback are included on Page 14 of this report.

D. Continuity of Operations:

- The scope of additional business continuance activities by participants, in conjunction with the exercise, includes:

  ➤ Relocating staff and test management to alternate work sites.

  ➤ Managing the test from alternate sites or home locations.

  ➤ Failing-over mission critical systems and remaining in back-up mode for longer than the test duration.

  ➤ Conducting other BCM activities such as cross training and updating relevant documentation and procedures.

- As in prior years, respondents indicated that multiple departments were involved with the planning and execution of the test, and that separate teams also staffed the SIFMA Disaster Recovery Test, which occurred on the same day in 2018

E. Overall Test Results:

- The following domestic and international futures exchanges, clearinghouses, swap execution facilities, as well as, 78 FCMs, clearing/non-clearing firms, service providers participated in the 2018 Test:

  - BGC Partners Inc.
  - Cámara de Riesgo Central de Contraparte de Colombia
  - Canadian Derivatives Clearing Corporation
  - Cboe Futures Exchange
  - CME Group
  - Dubai Mercantile Exchange
  - Eris Exchange
  - Eurex
  - ICE Clear Credit
  - ICE Clear Europe
  - ICE Clear Singapore
  - ICE Clear US
  - ICE Exchanges
  - ICE Trade Vault/eConfirm
  - LCH Clearnet
  - Minneapolis Grain Exchange
  - Montreal Exchange
  - OneChicago
  - Options Clearing Corporation (Memo + customized script)
  - Traiana
  - trueEX DCM/SEF

- Test participants included clearing firms, non-clearing firms and trading participants.

- Between 7% and 87% of member futures clearing firms participated, across the various exchanges/clearinghouses.

- Participating firms represent a critical mass of derivatives order flow and liquidity at the major exchanges; 10% to 100% of exchanges' volume.

- The National Futures Association successfully received regulatory file uploads from an exchange for which it performs outsourced regulatory compliance.

- Traiana successfully performed credit checking services with FCMs and Swap Execution Facilities via its Limit Hub.

- The test was supported by a number of the major service providers:

  - CQG
  - Fidessa
  - FIS Global
  - ION Trading
  - Stellar Trading Systems
  - Trading Technologies

F. **Participant Feedback**

- Post-mortem feedback was provided through the following three mechanisms:

  ➢ DR Test Results Form completed by the Exchanges.

  ➢ Post-mortem conference call feedback and discussion.

  ➢ Direct participant feedback from the post-mortem survey.

- Responses from these mechanisms, are categorized in the following sections.

  ➢ Problems Encountered

  ➢ Lessons Learned

  ➢ Suggested Next Steps

- Although the above sections tend to focus heavily on the unfavorable aspects from the test, there were also a number of positive comments and reflections that were pointed out in survey feedback. Survey results and feedback are included on Page 14 of this report.

G. **Problems Encountered:**

- Problems commonly encountered and resolved, generally occurred in the following categories:

- Access to back-up sites
- Application software
- Communications
- Log in
- Order entry / Fill reporting
- Staffing / Lack of technical or domain knowledge
- System operations
- System software

The following were a list of specific issues encountered, as reported by participating entities:

➢ Firms needed reminders of IP addresses and login credentials for DR versus Production.

➢ Inability to access applications; Network configurations; Unable to connect to IP address.

➢ DR administrators at firms did not communicate expectations down to front line employees familiar with daily processes.

➢ One particular exchange had issues with order entry applications, thus some firms were unable to enter DR Test trades.

➢ Issues with remote desktop and firm connectivity were easily addressed and handled by phone or via email.

➢ Outdated contact information was provided by some firms, and had to be resolved by using contact information for unrelated departments and word of mouth.

➢ Confusion over what types of trades to submit, resolved by reaching out to firms midway through the testing process.

➢ Confusion about separate IP addresses for the terminal server and the FTP.

➢ Testers at firms were unfamiliar with using the trading front-end. Exchange BCDR staff walked each firm through submitting a trade.

➢ One firm did not log in to start testing until 15 minutes before the end of the testing window, then had issues with their user account. Based on 2017 results, the testing window was to be open later than was stated on the notice, so this did not require any changes. The issues with the user account were fixed by the firm.

➢ Firm was trying to use their legacy physical connections to the exchange DR site, but the exchange platform was migrated in February 2018. The old legacy physical connections are not available to the DR site

➢ A web tool for authorized reporters was not working during the DR Test and required steps to ensure the tool will work in the event of DR failover.

➢ A web tool for clearing firm risk controls was unavailable during the DR Test. Found the issue and do not expect the problem to persist in the event of a failover to the DR environment.

➢ Seems that network provider did not configure the DR site for the exercise.

➢ Experienced an actual loss of network connection (phones & internet) for approximately two hours during the DR Test.

➢ One exchange did not set up test accounts properly and, as such, successful clearing messages could not be tested. Clearing rejects were tested and were successful.

➢ Some unexpected software application issues arose. One specific issue involved a trade date limitation, because the test is held on a non-business day. Issue was resolved and test trades entered posted with a trade date of Monday, Oct. 15, in downstream applications.

➢ System initially had a trade ID limit set that needed to be expanded to allow test trades to flow through. This required some firms to enter test trades several times before/after the correction

➢ One member asked for a time extension due to time constraints during their internal testing procedure

➢ Late to come up in DR due to a hardware upgrade. Came up within testing window / no counterparties tested with us

➢ Had trouble entering the EDH9 trade; problem with permissions.

➢ Had a number of Test fails that will require follow-up and re-test. Some were due to pre-test preparations, which we can correct for next year.

➢ Lync between staff in two cities was not working, so we couldn't have a group chat within the Exchange.

➢ Network issues on the exchange side delayed our recovery efforts to such an extent that the test window was over prior to the exchanges resolving their network issues.

➢ Informed that the testing window was from 10 a.m. to 7 p.m. EST but the window actually closed at 12 p.m. EST. Due to emergency patching activity happening at that time, the test day window of two hours did not suffice.

➢ Issues at particular exchange resulted in their testing window closing before their problems were resolved.

➢ Multiple FIA member firms which registered to test, did not show up on the test day. Staff had to spend time tracking down contacts from each of those firms to confirm that they were not testing.

➢ There were a limited number of participants actually participating in the market, so executing an order for downstream systems was painful. Some exchanges stated that if we gave them a call that they would assist, but this creates additional activities within a day that already has a very tight window to complete activities

H. Lessons Learned:

Participants stated that there were a number of ways in which they could improve their test and their test experience in 2019 and beyond.

➢ Double check that each firm knows that trades may be required to be submitted through different platforms, or create clearer instructions for firms.

➢ Double check contact lists prior to testing.

➢ Be ready to assist individuals with lack of technical knowledge, and/or individuals new to a firm's department

➢ Make the new test procedure easier to understand. A procedure can be tested anytime as it connects directly to backup sites without having to failover our systems. It is much more user friendly, but members need to understand what is being tested

➢ Reiterate to firms that personnel who are testing should know how to use the trading front-end.

➢ Web tooling was slow due to loads. An upgrade to web hosts was suggested to correct the slowness issue.

➢ Pre-testing is important for test preparation. It was suggested firms should be mandated to connect during the pre-test, prior to the DR test date; This ensures that some preliminary issues are addressed and hopefully remedied prior to test day; If all test connections can be established and tested prior to test day, it helps focus the actual test on transaction processing needs

➢ References to IP information available on the customer web portal resulted in incorrect IP usage by some testing participants. The displayed information issue has since been corrected, adding more clarity to the correct IP addresses for our environment.

➢ A larger test window would have allowed the exchanges to correct their network issues which in turn would have allowed us to complete our testing.

➢ Should enable application to allow trade entry on a non-business day, but post with the next eligible business date. Preparation steps have been implemented to allow this during the next DR test cycle.

➢ Preparation steps have been noted/implemented around the trade ID limit experienced, to prevent it from occurring during future test cycles.

➢ It was great to have a larger window than we were used to having.

➢ Test accounts should be properly set up.

➢ The problems of other members provides invaluable insight into any problems we may experience .

➢ This is a very complex test for many participants. Granted we have a four-hour window to complete all tasks, but many systems and touch points need to be tested to ensure a valid DR fail over scenario is tested. Issues impacts the testing of all items in scope, with the possibility of some items not being tested due to time and resource limitations.

➢ I feel we have enough resources available to assist late arrivals, but understand the perspective of those that did pre-test as having a priority over those that didn't pre-test.

➢ Most test-day issues are connectivity-related. However, some FIA member firms which said they'd test connectivity, did not show up on connectivity test day.

➢ I think it is useful to have a test registration deadline, but I don't feel the deadline was communicated effectively

I. Suggested Next Steps:

Participants noted the changes they would like to see on future tests, by way of suggested next steps. In some cases, the following suggestions are already implemented, but likely need to be communicated better.

➢ Firms should be mandated to connect during the pre-test, prior to the DR Test date; Any test registration deadline should occur before ping testing dates.

➢ Participation by additional 3rd party service providers, specifically DTCC, Markit, and LCH, is required to fully test a disaster scenario.

➢ Provide a way for exchanges to update their own status on the DR Test status page.

➢ Provide support contact phone numbers on the DR Test status page, so that firms may know whom to call for updates, or to report issues.

➢ Additional contacts should be required, in addition to the high-level contacts given through the registration process. For example, correct contact lists flowing down to each firm's operations team and DR testing team.

➢ Some firms sign up late and/or on Test day, using up a large share of Exchange resources to get them started. When issues arise, these firms tend to pull away experienced staff members on the Exchange side.

➢ The FIA should continue to have a test registration deadline. Firms looking to register after the deadline should be limited (given different priority) as to the support resources available to resolve issues. While you may not want to stop a firm from testing, you can limit the level of support that they receive. Otherwise, these resources are taken away from those firms who registered for the exercise months in advance.

➢ While it is not possible to have all test scripts be the same, it should be possible to have them be similar, or be somewhat standardized across participating exchanges/clearing houses; Standardization would make the process more efficient.

➢ As an exchange that hosts equity and options trading, we would prefer to have the test date continue to be on the same date as the SIFMA tests.

➢ Prefer keeping the Test date in the Fall; Moving the Test date to Spring would require multiple changes in the test schedule cycle. Also prefer that FIA test date line up with SIFMA and IIROC industry test dates. Additionally, having full industry-wide testing in the fall allows us to do smaller, focused tests earlier in the year, building up to the industry-wide tests.

➢ While having a persistent chat on Test day may be beneficial to some, it would require identifying a communication protocol or product that is compatible and permitted across organizations industry-wide.

➢ A persistent chat would prove useful and easier than having firms and exchanges remain on the conference bridge. Information can be missed on the conference bridge, versus a "paper trail" on IM / chat.

➢ Regarding persistent chat, my organization supports multiple industry tests on the same day; We do not have sufficient resources to join in on multiple chat lines and/or conference Bridges.

➢ Test registration should be populated with the prior year's information so that only changes need to be entered.

➢ All requirements for pre-testing and Test day should be communicated to the registrant, once a Test registration has been submitted and confirmed.

➢ We should allow participants to set up their own Test registration login, without having to use a default username and password beforehand.

➢ We should push the member firm registration process to the exchanges and clearing houses, and have them inform the FIA who has registered for the Test. Too much noise is created when multiple people from the same firm register for the FIA DR Test, and end up checking all boxes, without understanding.

➢ Once a firm has registered for the Test, provide weekly or bi-monthly reminders of which exchanges the firm is registered.

➢ There were a number of firms that added contact information that was not relevant, and in some cases the person was no longer employed at the company. Do not allow contacts who do not respond to a confirmation email. Should also require that contacts add their support phone number for the day of the Test, versus phone numbers that ring elsewhere.

➢ Prefer a list of all member firms that have registered to test with my exchange, rather than having to read through multiple registration email notifications.

➢ Should have an option on the registration form, regarding which parts of the test that firms will participate, as not all firms participate in every part of the test at certain exchanges.

➢ It would be helpful in running a full DR test, if software providers allowed testing into back office environments, instead of viewing the test as purely a test of exchange connectivity, from a front and middle office perspective.

➢ Prefer trade dates to be the same; It is challenging when various exchanges have different trade dates, as tests need to be stopped and then restarted accordingly

➢ Would like to be able to process all types of trades in testing, even EFP transactions

J.   2019 FIA Disaster Recovery Test

• The 2019 FIA DR Test will be on **Saturday, October 26th**.

• This is also the expected SIFMA Test date, however, this has not been officially communicated yet

K.   Acknowledgements:

We would like to thank all participants from the FCMs, exchanges, clearing houses, key service providers, and other supporting entities, for their participation throughout the year, and for the great feedback on our conference calls, the test results form, and on the post-mortem survey.

Please submit additional feedback/questions to Steve Proctor at sproctor@fia.org.
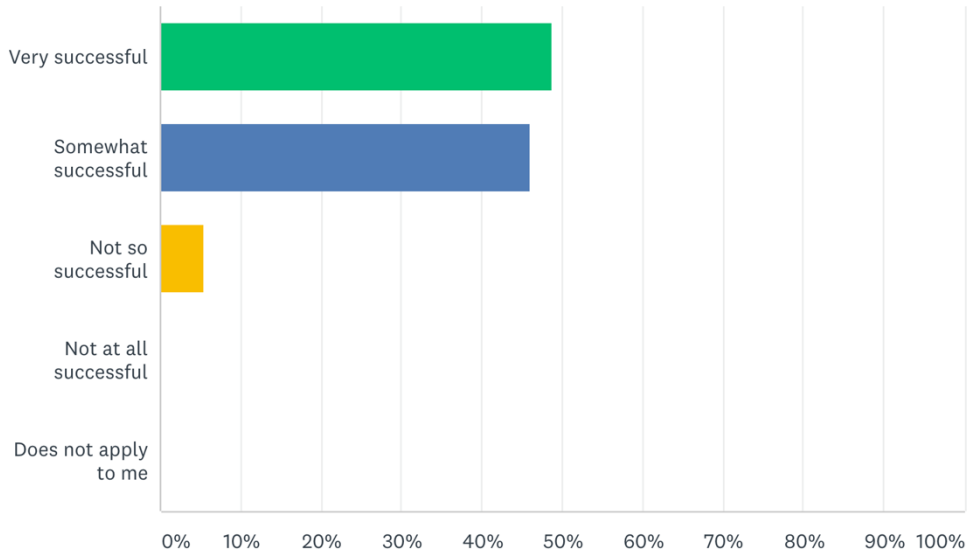
Survey Results and Feedback

L. Survey Results and Feedback:

A post-mortem survey was distributed to participants on November 19th, 2018. The following are the survey questions and corresponding responses. Thank you to all who participated and provided feedback!

Question 1

To what extent would you consider your Test Day a success/non-success?

ANSWER CHOICES	RESPONSES	
Very successful	48.65%	18
Somewhat successful	45.95%	17
Not so successful	5.41%	2
Not at all successful	0.00%	0
Does not apply to me	0.00%	0
TOTAL		37

Comments:

➢ We were late to come up in DR due to a hardware upgrade. came up within testing window / no counterparties tested with us

➢ Received all we expected, testing was a breeze

➢ We had trouble entering the EDH9 trade; problem with permissions

➢ This test is a success because participation is flexible, and also collaborative, each firm is in charge of its quality and depth of participation. it also gives vendors a chance to provide to clients that they are keeping pace with these tests

➢ We had a number of test fails that will require follow-=up and re-test. Some of these were due to pre test preparations, which we can correct for next year

➢ All systems up and running but low customer participation

➢ Network issues on the exchange side delayed our recovery efforts to such an extent that the test window was over prior to the exchanges resolving their network issues

➢ DR access for Trading Privilege Holders was relatively without incident. Test uncovered web tool issues on our side that were corrected.

➢ While we executed on all venues we did not capture trades on all venues, due to the timing of <exchange's> second session

➢ We are able to accomplish all of our tests

➢ We were able to complete the exchange scripts for the exchanges we participated in

➢ It was successful, but mostly due to the efforts at our own firm. Firms that did participate were unprepared and did not follow the instructions we gave them pretest

➢ Everything went as planned

➢ Was able to test some things successfully, but the <exchange> was having issues, so testing everything with them was incomplete

➢ Able to provide marketplace for FIA members who were testing

➢ Participation by the additional 3rd party service providers listed below is required to fully test a disaster scenario: -DTCC -Markit (for STP) -LCH (ability to test clearing) Also test accounts set up properly by the <exchange> would give us a cleared status on trades. Connecting is considered a success but we'd like to see a cleared status

➢ The test was not a full blown firm wide test, all aspects that were tested worked fine

➢ I think if we were able to process all types of trades, even an EFP transaction that would be good. the BLOCK trades are nice, but an EFP would be good to process as well

➢ Opportunity to test with providers DR

➢ Always seem to be a delay or issue with <*specific exchange*>, other exchanges we test are fine

Question 2

To what extent were you satisfied/dissatisfied with Test Day windows (Testing availability)?
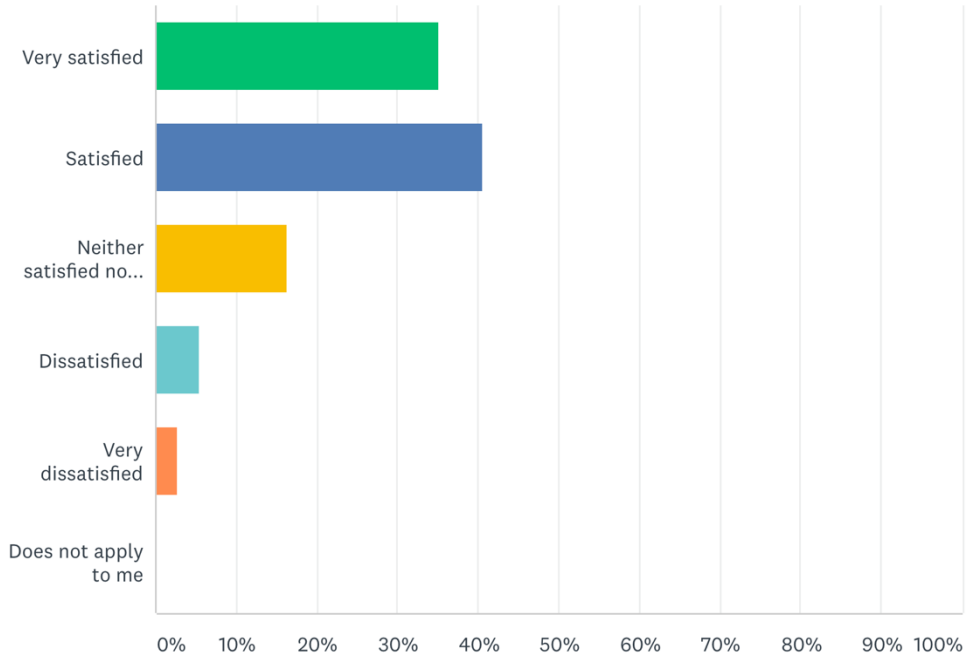
ANSWER CHOICES	RESPONSES	
Very satisfied	35.14%	13
Satisfied	40.54%	15
Neither satisfied nor dissatisfied	16.22%	6
Dissatisfied	5.41%	2
Very dissatisfied	2.70%	1
Does not apply to me	0.00%	0
TOTAL		37

Comments:

➢ Everyone made effort to work towards the requested pre-tests

➢ The <exchange> informed us that the testing window was from 10am to 7pm EST but the window actually closed at 12pm EST. Due to emergency patching activity happening at that time, the test day window of 2 hours did not suffice

➢ No issues to report

➢ I thought the windows allowed for very sufficient time to make system connections and complete test data flows

➢ This is a very complex test for many participants. Granted we have a four hour window to complete almost tasks but many systems and touch points need to be tested to ensure a valid DR fail over scenario is tested. Any issue impacts the testing of all items in scope with the possibility of some items not being tested due to time and resource limitations.

➢ A larger test window would have allowed the exchanges to correct their network issues which in turn would have allowed us to complete our testing.

➢ Test time seemed to help us as an Exchange, however I understand that there are some participants that wish to extend the window.

➢ We completed all of our testing with plenty of time to spare.

➢ I think the test day windows extend later than they have to.

➢ It was great to have a larger window than we were used to having.

➢ Issues at exchange resulted in their testing window closing before their problems were resolved.

➢ It's always challenging when the various Exchanges have different trade dates as the tests need to be stopped and then restarted accordingly

➢ Aligned with SIFMA

Question 3

To what extent were you satisfied/dissatisfied with Test Day staffing levels and preparedness, of corresponding participant organizations?
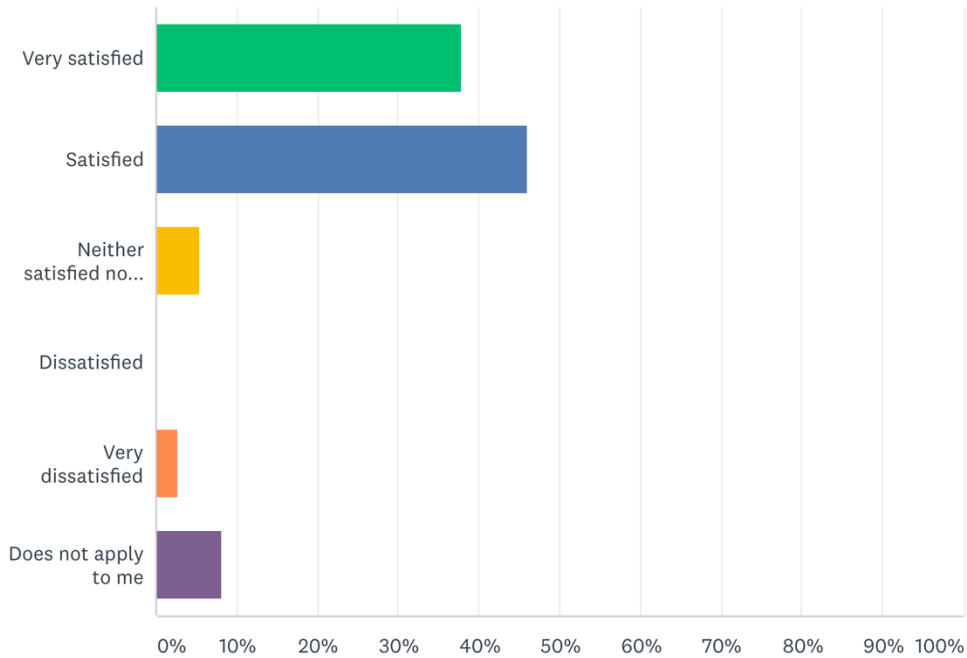
ANSWER CHOICES	RESPONSES	
Very satisfied	37.84%	14
Satisfied	45.95%	17
Neither satisfied nor dissatisfied	5.41%	2
Dissatisfied	0.00%	0
Very dissatisfied	2.70%	1
Does not apply to me	8.11%	3
TOTAL		37

Comments:

➢ Response when required was nearly immediate. Met expectation

➢ Any questions and issues were responded to quickly and completely

➢ Since some companies sign up on the test day, they use a larger share of the resources to get them started and they also need the more senior staff person to address their issues. The FIA should adhere to a test sign up date and once that date is exceeded, then those companies would be limited as to who can support them and/or maybe the time that would be given to them to resolve their issues. You can't stop a firm from testing but you

can limit the level of support that they receive since they take the support from those firms who registered for the exercise months in advance

➤ We were staffed with 4 <Exchange> Trade Desk associates, our Network Team and our Dev Ops Teams. I don't think any participants had issues with reaching out for assistance

➤ We needed assistance from the <Exchange>, FIS Clearvision, and FIS GMI during the test. All three organizations had qualified staff on hand who responded quickly to us

➤ The exchanges we worked with had adequate, responsive personnel available

➤ Multiple FIA member firms which registered to test with my company, did not show up on test day. My staff then had to spend time tracking down contacts from each of those member firms to confirm that they were not testing. This happens every year

➤ Everyone I worked with on the test date whether FIA or exchanges were very knowledgeable and helpful

Question 4

To what extent were you satisfied/dissatisfied with the format of, and information contained in Test Scripts?
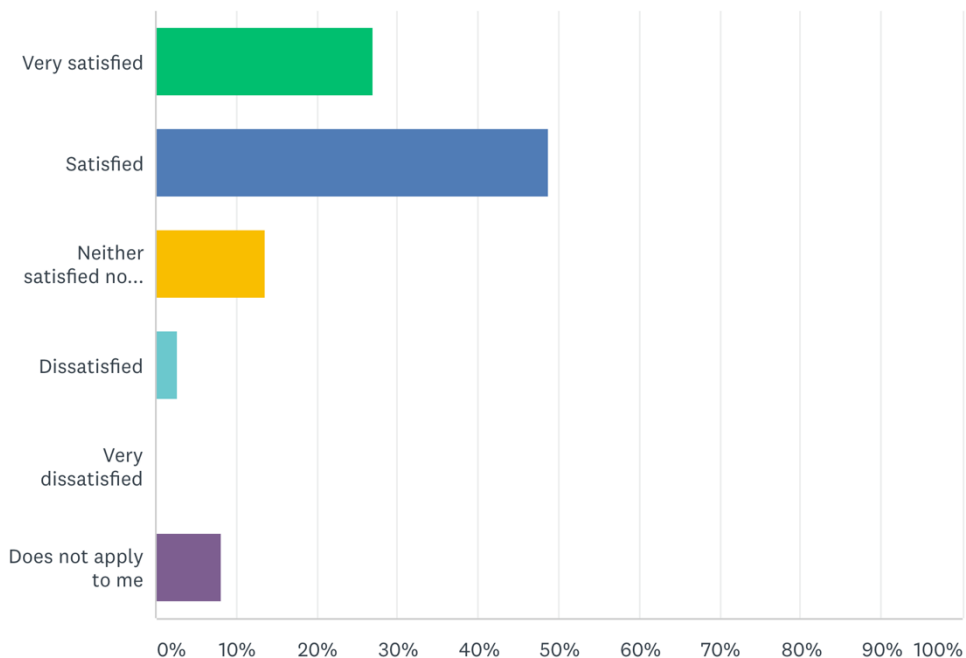
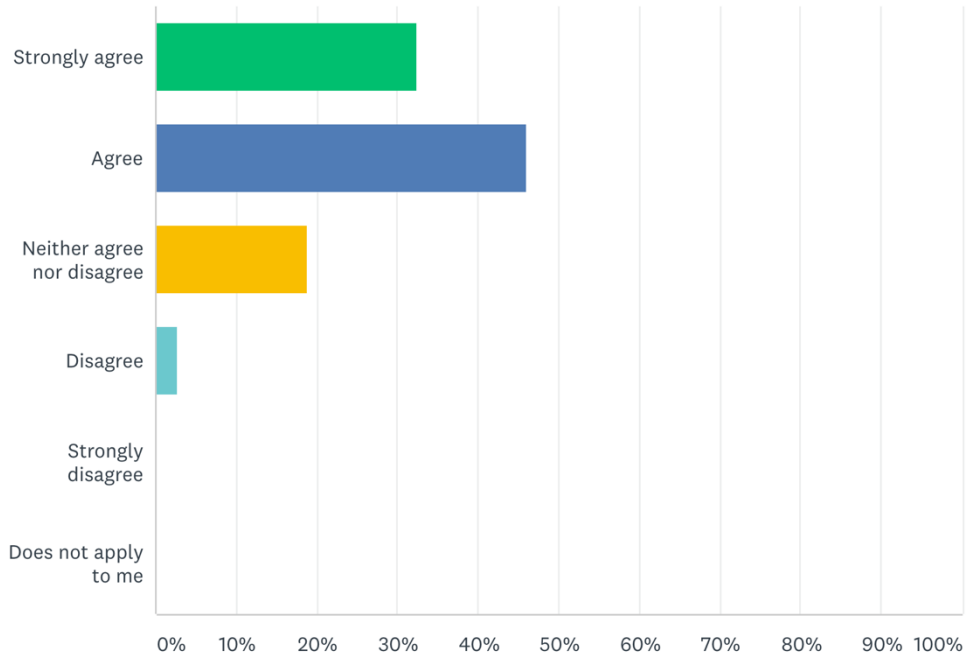| ANSWER CHOICES	RESPONSES	
Very satisfied	27.03%	10
Satisfied	48.65%	18
Neither satisfied nor dissatisfied	13.51%	5
Dissatisfied	2.70%	1
Very dissatisfied	0.00%	0
Does not apply to me	8.11%	3
TOTAL		**37**

Comments:

➢ We had trouble entering the EDH9 trade; problem with permissions

➢ These are valuable in certain situations

➢ All scripts being found in one location on FIA website is a very helpful tool

➢ There is a limited number of participants actually participating in the market so executing an order for downstream systems is painful. Some exchanges state that if we give them a call they can assist but this adds to the activities of a day that is already has a very tight window to get what needs to be accomplished completed

➢ It's not possible to have all of the test scripts being the same but it should be possible to get them to look a lot more similar then they currently are

➢ We allowed participants to make markets in all products, providing test liquidity when needed

➢ Concise and accurate

➢ We created our test script, so we were ok with what was in it. We would also be ok with FIA providing a test script template, if that would be helpful for participants

➢ Standardization would make the process more efficient

Question 5

To what extent do you agree/disagree that pre-test participation should be a strict requirement for Test day participation?

ANSWER CHOICES	RESPONSES	
Strongly agree	32.43%	12
Agree	45.95%	17
Neither agree nor disagree	18.92%	7
Disagree	2.70%	1
Strongly disagree	0.00%	0
Does not apply to me	0.00%	0
TOTAL		37

Comments:

➤ We did not pre-test and we had no trouble

➤ I think the FIA process allows for each participant to decide on their own. This seems to work for my institution

➤ If all test connections can be established and tested prior to test day, it helps focus the actual test on transaction processing needs instead

➢ This ensures that some preliminary issues are addressed and hopefully remedied prior to test day

➢ All clearing houses should definitely participate in the pretest ping test which helps confirm network connectivity or at least to identify any network issues

➢ I feel we have enough resources available to assist late arrivals, but understand the perspective of those that did pre-test as having a priority over those that didn't pre-test.

➢ Problems of the past were eliminated with pre-testing

➢ I think it should be up to each individual exchange/clearinghouse. If there is a firm that is a major participant on an exchange and they want to participate, but don't let us know until the day/week of the test then I think we would allow them to participate

➢ If there are recent projects or changes that may fall outside the scope of the test, there is no reason the retest

➢ Should definitely test connectivity prior to test date

➢ Most test-day issues are connectivity-related. However, some FIA member firms which said they'd test connectivity, did not show up on connectivity test day

➢ Confirm connectivity

Question 6

To what extent do you agree/disagree that FIA should consider moving their annual disaster recovery test to the Spring?
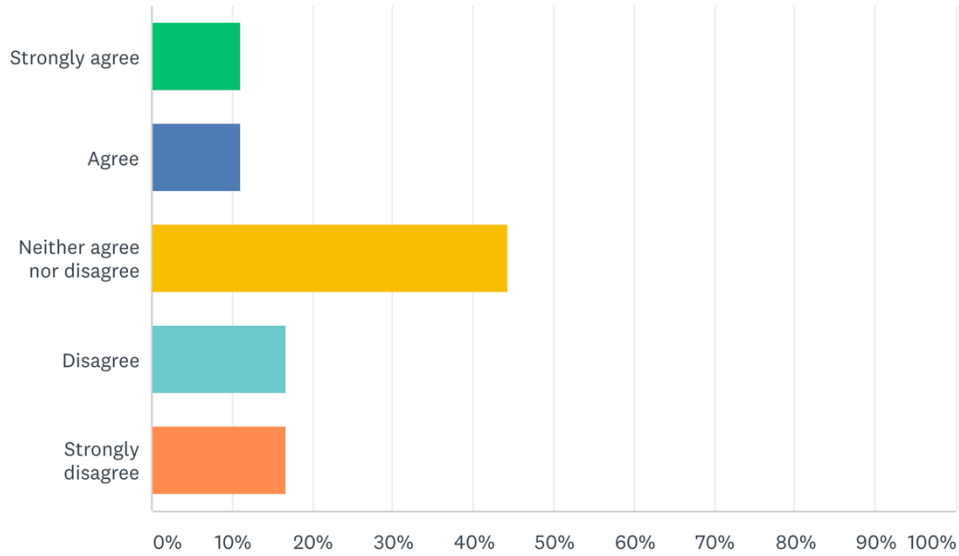
ANSWER CHOICES	RESPONSES	
Strongly agree	11.11%	4
Agree	11.11%	4
Neither agree nor disagree	44.44%	16
Disagree	16.67%	6
Strongly disagree	16.67%	6
TOTAL		36

Comments:

➢ Doesn't impact us either way

➢ October seems fine

➢ I don't feel it necessary to move the date to spring, but obviously will participate then if it is moved

➢ As an Exchange that hosts equity and options trading, we would prefer to have the test date on the same date as the SIFMA tests

➢ We are very busy during the Spring. Our efforts slow down in October

➤ October is typically busy as it's approaching end of year and our firm also has internal change freeze at around that time

➤ Would require multiple changes in test schedule cycle. ideally, would also prefer that FIA test date line up with SIFMA and IIROC industry test dates. Also: having the full industry-wide testing in the fall allows us to do smaller, focused tests earlier in the year, building up to the industry-wide tests

➤ I think that the current testing day works fine. In the Spring you can run into issues of important people not being around on vacation and stuff like that. October everyone is involved

➤ Doubling up on work and resources - not efficient or effective

Question 7

To what extent do you feel that the 2018 version of the Test Status page was useful/not useful?
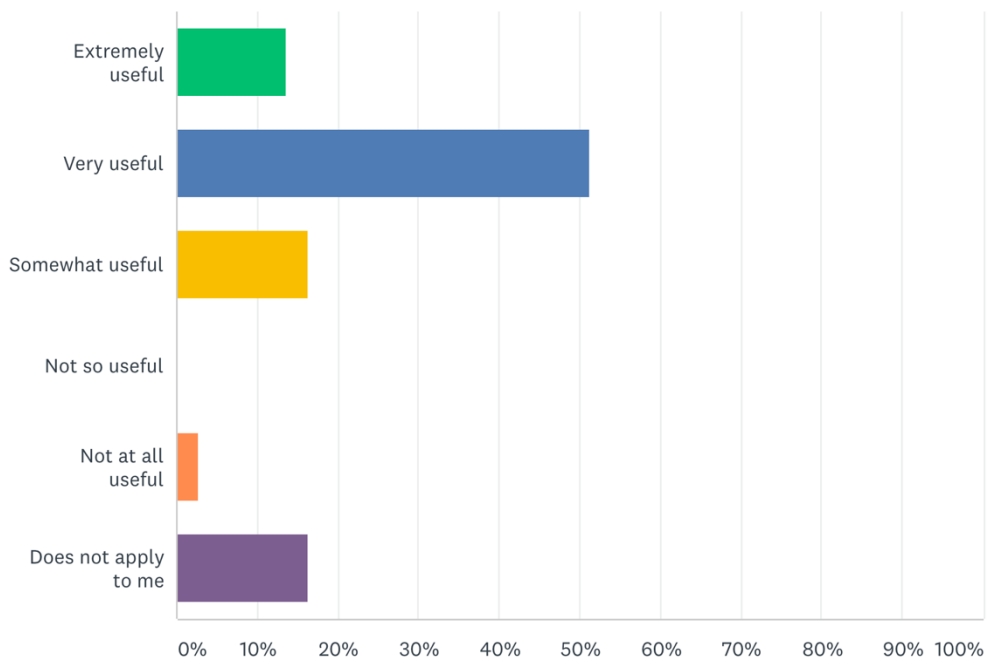
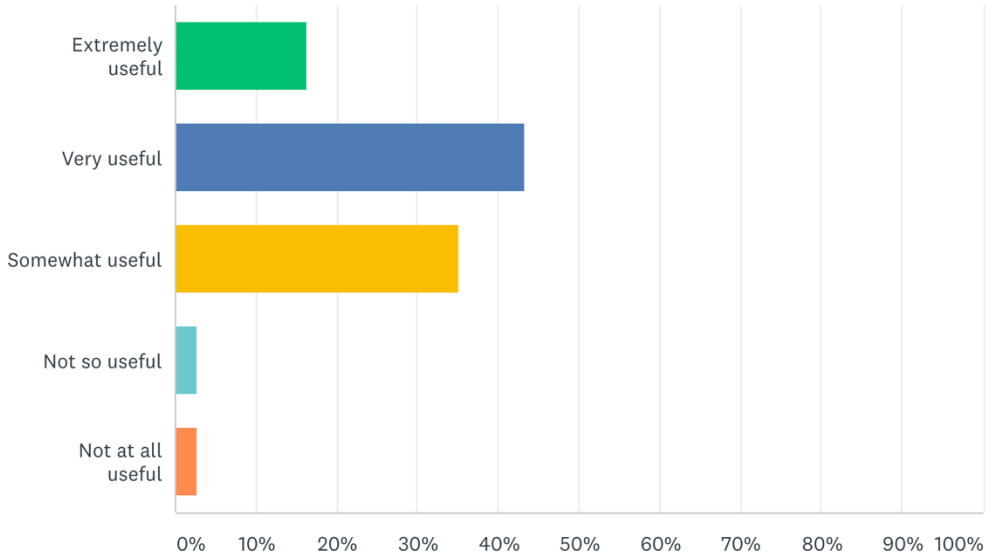| ANSWER CHOICES	RESPONSES	
Extremely useful	13.51%	5
Very useful	51.35%	19
Somewhat useful	16.22%	6
Not so useful	0.00%	0
Not at all useful	2.70%	1
Does not apply to me	16.22%	6
TOTAL		**37**

Comments:

➢ Wasn't aware of the Test Status page

➢ Again, all information contained in a single location helps make the test date more efficient

➢ Did not use the test status page. Relied on the open bridge

➢ The page allowed users to know the status of all Exchange participants

➢ The conference call gave me all the information I needed. I may have used the web site if more problems occurred during the test

➢ It was a great resource to have and Steve was very helpful if updates were required

Question 8

To what extent do you feel that a persistent chat room, as another avenue for communication/updates on Test Day, is useful/not useful?

ANSWER CHOICES	RESPONSES	
Extremely useful	16.22%	6
Very useful	43.24%	16
Somewhat useful	35.14%	13
Not so useful	2.70%	1
Not at all useful	2.70%	1
TOTAL		37

Comments:

➢ Wasn't aware of persistent chat availability

➢ Could be very useful if having a problem

➢ Always a good idea to have a chat

➢ Having conference lines open helped a lot in getting any issues resolved and getting in contact with various SME's when needed. A chat room could offer these benefits, without the need to maintain open phone conference lines

➢ This would involve identifying a communication protocol or product that is compatible and allowed industry wide

➢ Persistent chat would allow for instant communication regarding the status of all participants and exchanges

➢ This would prove useful and easier than Firms and Exchanges hanging on the phone. Via the phone we can miss out on information. A "paper trail" via IM / chat would be useful

➢ The problems of other members provides invaluable insight into any problems we may experience

➢ I'm not really sure how beneficial it would be outside of providing status updates

➢ My organization supports multiple industry tests on the same day; I do not have sufficient resources to join in on multiple chat lines and/or conference bridges

Question 9

To what extent were you satisfied/dissatisfied with Test Script availability, prior to Test Day?
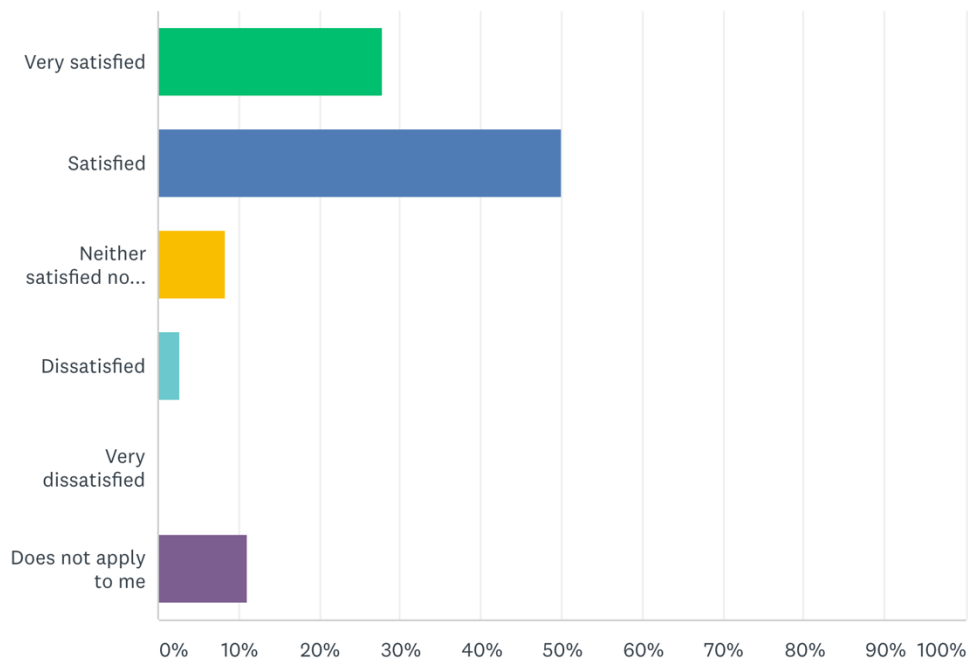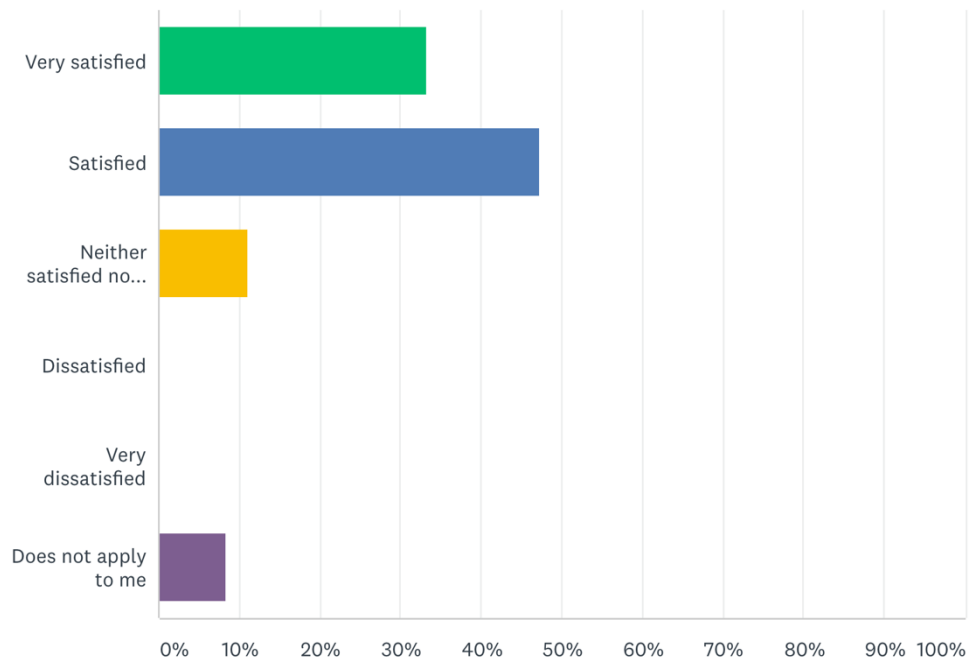
ANSWER CHOICES	RESPONSES	
Very satisfied	27.78%	10
Satisfied	50.00%	18
Neither satisfied nor dissatisfied	8.33%	3
Dissatisfied	2.78%	1
Very dissatisfied	0.00%	0
Does not apply to me	11.11%	4
TOTAL		36

Comments:

➢ Some exchanges missed their due dates. These should be available at least 2 months ahead of the test day

Question 10

To what extent were you satisfied/dissatisfied with post-registration information and follow-up? (Did you receive timely and appropriate information, after registering for the FIA Test?)

ANSWER CHOICES	RESPONSES	
Very satisfied	33.33%	12
Satisfied	47.22%	17
Neither satisfied nor dissatisfied	11.11%	4
Dissatisfied	0.00%	0
Very dissatisfied	0.00%	0
Does not apply to me	8.33%	3
TOTAL		**36**

Comments:

➢ Periodic conference calls were very valuable.

Question 11

What would you improve about the online registration system?

Comments:

➢ Nothing

➢ Could be populated with the prior year's information so that only changes would need to be entered

➢ I didn't have any issues regarding registration

➢ Once the registration is submitted and confirmed, all requirements for pre-test and test day should then be communicated to the registrant

➢ Allow people to set up their own login without having to have a default username and password beforehand

➢ Push the member firm registration to the actual entities (i.e. exchanges, clearing houses, etc.) and have them inform the FIA who has registered with them. There is too much noise with multiple people from the same firm registering with the FIA and checking all of the boxes and not really knowing what they are doing

➢ The registration page would start with your responses from your last registration. Since most answers don't change, it would be nice not having to type in the same information year after year

➢ If possible, and if available, a concise list of participants at my Exchange would be more helpful than the individual registrations of each participants.

➢ Once a firm has registered provide weekly or bi-monthly reminders of the exchanges that they registered for. Also, do not let someone provide their contact information if

they do not respond to a confirmation email and require that they add the support phone number for the day of the test. There were many firms that added contact information that was not relevant and in case the person was no longer employed at the company

➢ Online registration was fine

➢ Seemed fine to me, this was my first experience, so I might have more insight next year

➢ If it could generate, on demand, one list of all FIA member firms that had registered to test with my company, rather than me having to read through multiple email notifications

➢ Everything was fine in my opinion. I think that there should be a list of what exchanges ARE NOT participating as well though. That would be helpful

➢ Some follow-up - Maybe bi-weekly updates on what's happening as new registrations

➢ Have option of being more specific about what part of tests firm will participate in as not all firms participate in all parts of test for certain exchanges

Question 12

To what extent was having a test registration deadline useful/not useful?
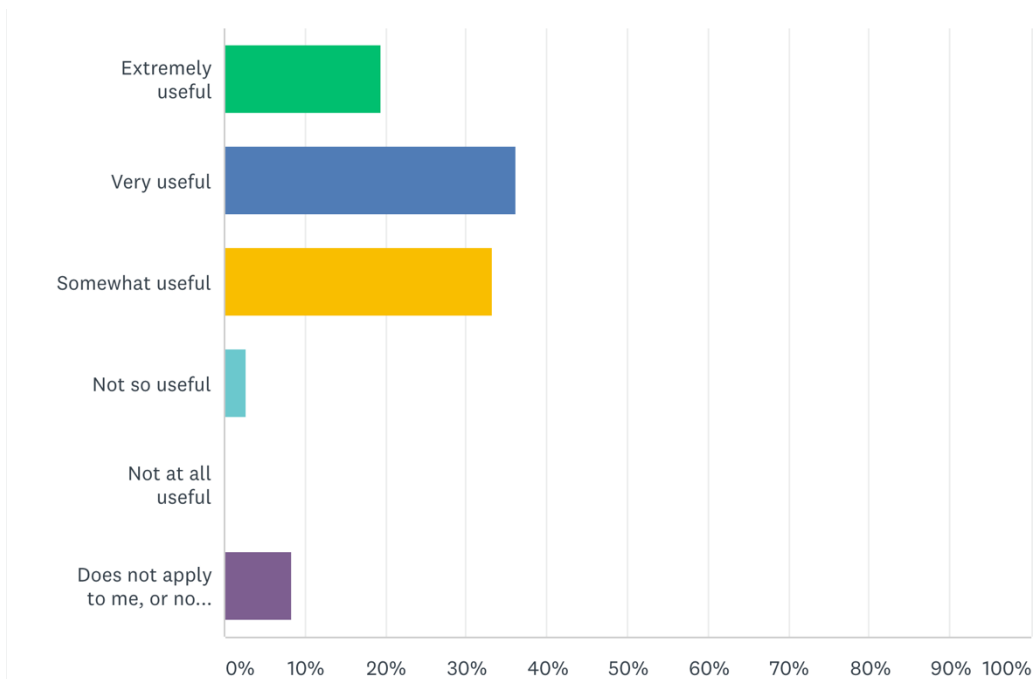
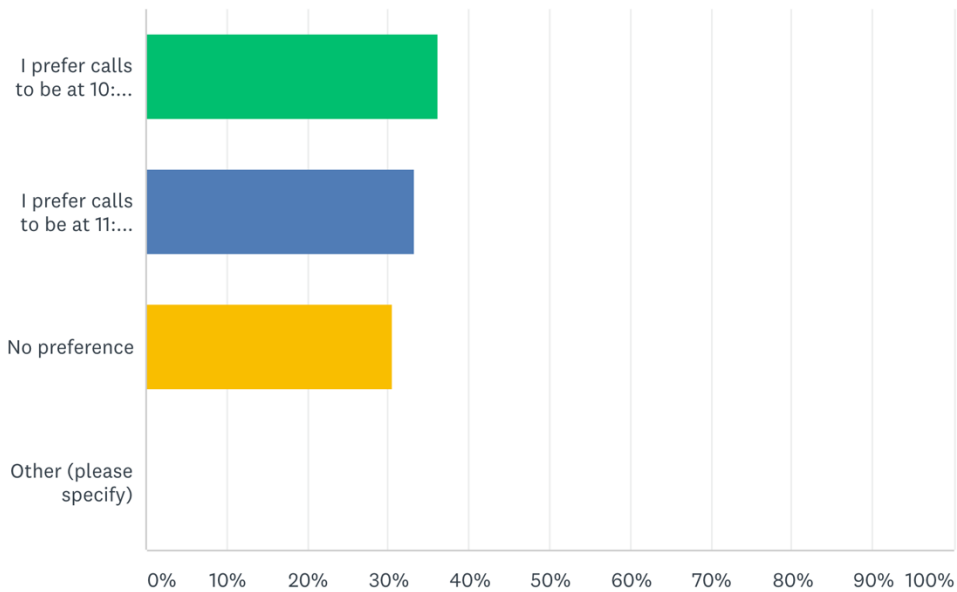| ANSWER CHOICES	RESPONSES	
Extremely useful	19.44%	7
Very useful	36.11%	13
Somewhat useful	33.33%	12
Not so useful	2.78%	1
Not at all useful	0.00%	0
Does not apply to me, or no opinion	8.33%	3
TOTAL		36

Comments:

➢ I did not use the registration

➢ Deadline should be before ping testing dates, though

➢ This ensures we are locked in

➢ I think it is useful to have such a deadline, but I don't feel the deadline was communicated effectively

➢ If we move to mandatory pre-connectivity, then I would suggest that registration close 2 prior to the last mandatory pre-connectivity date

➢ Normally we register within the first couple of weeks after the registration window opens up so knowing that there is a deadline is nice but since we register for the test months prior to the deadline, it's nice to know but we don't manage to it

➢ Test registration deadlines are only useful if we decide to not let participants test on those test dates

➢ Forces members to commit resources

➢ Hard to make a final list of who will test with my organization if registration stays open right up until test day

➢ Force most people to register

Question 13

We intend to shift our conference calls to mornings in 2019, to accommodate participants in earlier time zones. What time works best for you?
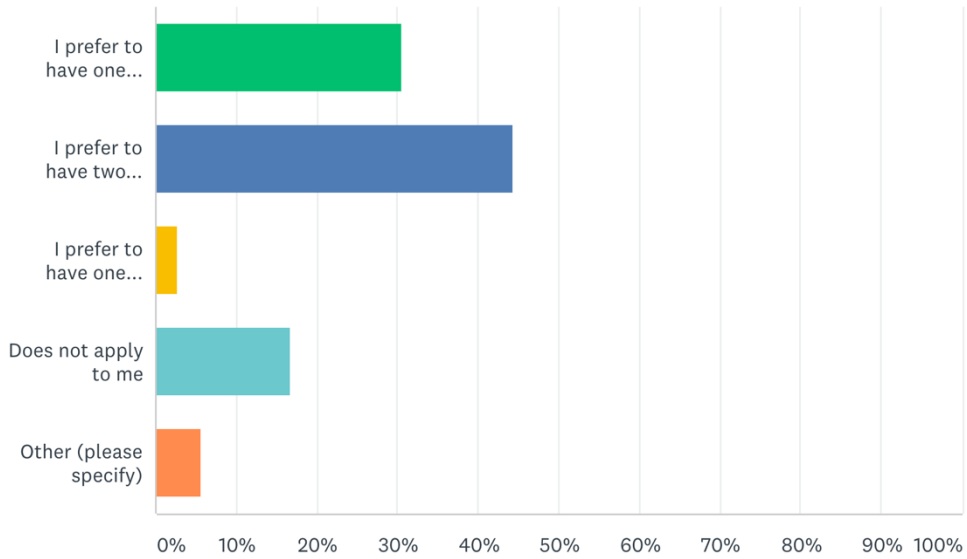

ANSWER CHOICES		RESPONSES	
I prefer calls to be at 10:00 am Eastern time / 9:00 am Central time / 3:00 pm London time		36.11%	13
I prefer calls to be at 11:00 am Eastern time / 10:00 am Central time / 4:00 pm London time		33.33%	12
No preference		30.56%	11
Other (please specify)	Responses	0.00%	0
TOTAL			**36**

Comments:

➢   n/a

Question 14

A webinar/presentation was given by Exchanges and Clearinghouses. What is your preference for webinar frequency?
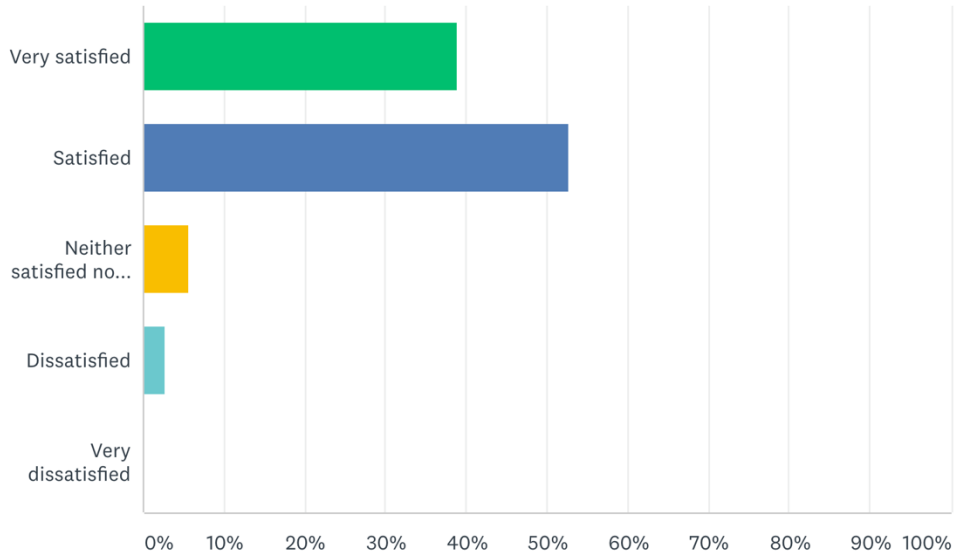

ANSWER CHOICES		RESPONSES	
I prefer to have one webinar in August (2018 format)		30.56%	11
I prefer to have two webinars, one in June and one in September (2017 format)		44.44%	16
I prefer to have one webinar, but at a different time of year		2.78%	1
Does not apply to me		16.67%	6
Other (please specify)	Responses	5.56%	2
TOTAL			36

Comments:

➢ If moving to a mandatory pre-connectivity test these should both be completed prior to the last pre-connectivity test date

Question 15

To what extent were you satisfied/dissatisfied with the amount and quality of communications that you received from FIA, regarding DR Test information and activities?
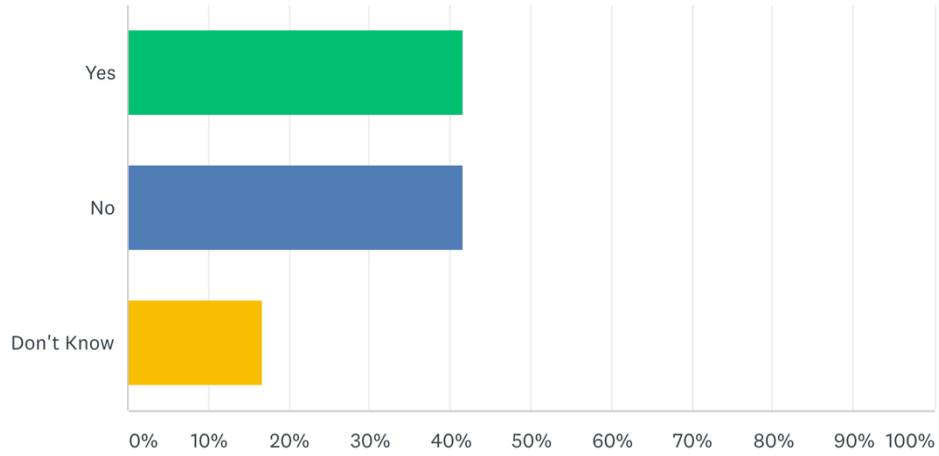

ANSWER CHOICES	RESPONSES	
Very satisfied	38.89%	14
Satisfied	52.78%	19
Neither satisfied nor dissatisfied	5.56%	2
Dissatisfied	2.78%	1
Very dissatisfied	0.00%	0
TOTAL		36

Comments:

➢ The test day window should have been clearly communicated. Didn't receive any communication on persistent chat room or test status page

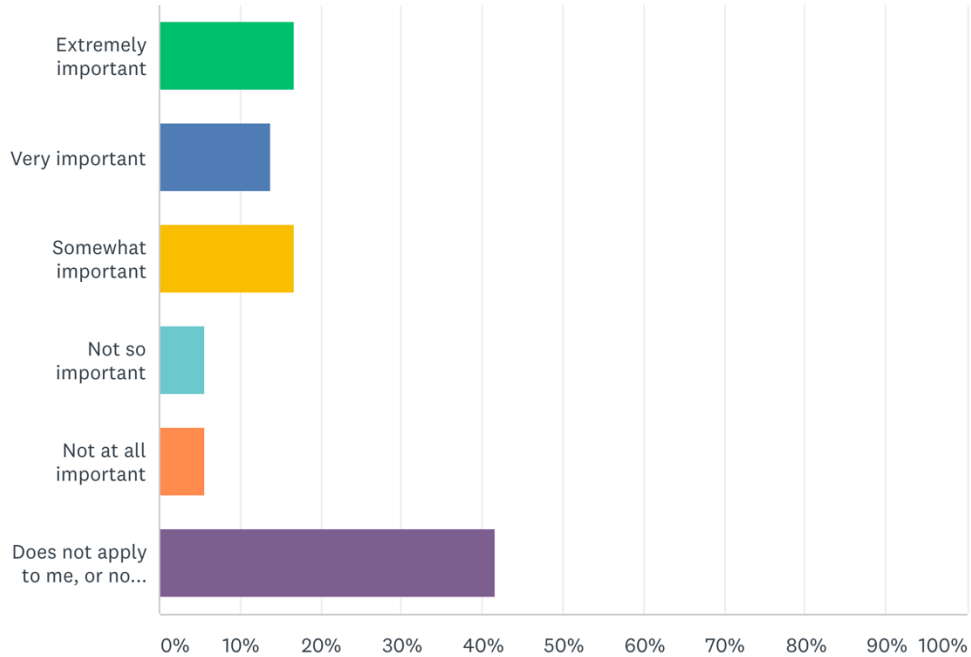➢ Steve does a good job keeping us informed

Question 16

Did your organization also participate in the annual SIFMA test (also on October 13th)?

ANSWER CHOICES	RESPONSES	
Yes	41.67%	15
No	41.67%	15
Don't Know	16.67%	6
TOTAL		**36**

Question 17

To what extent is it important that FIA and SIFMA test on the same date?

ANSWER CHOICES	RESPONSES	
Extremely important	16.67%	6
Very important	13.89%	5
Somewhat important	16.67%	6
Not so important	5.56%	2
Not at all important	5.56%	2
Does not apply to me, or no opinion	41.67%	15
TOTAL		**36**

Comments:

➢ It's not important that they are on the same day, but it is convenient to cover both at the same time

➢ Resource constraints would make it very difficult to support multiple industry tests in the same year

Question 18

Approximately how many staff were involved with your test initiative this year (e.g., pre-test planning, support, help desk, failover, test management, test execution)?
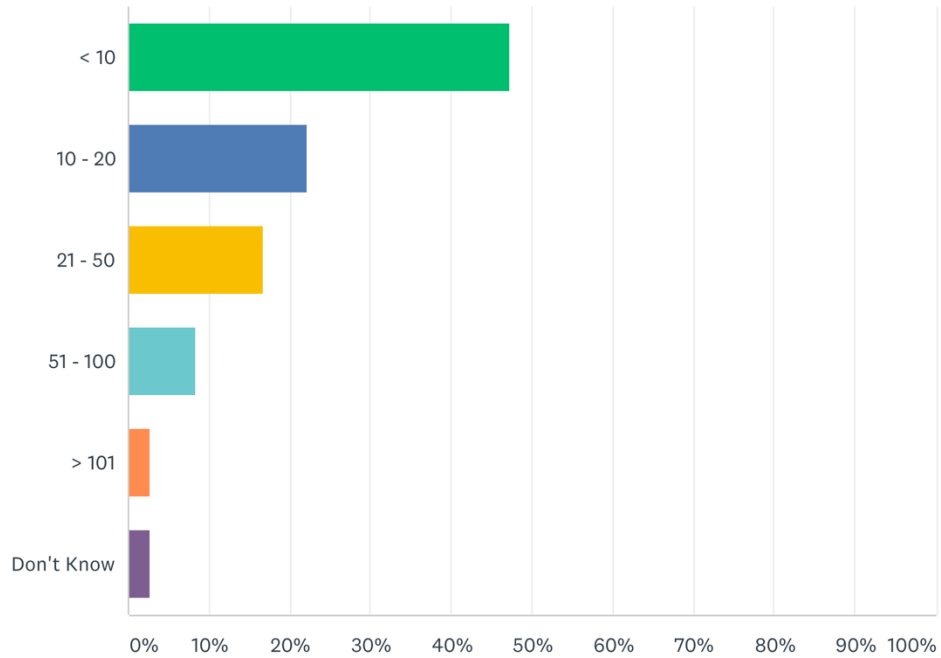
ANSWER CHOICES	RESPONSES	
< 10	47.22%	17
10 - 20	22.22%	8
21 - 50	16.67%	6
51 - 100	8.33%	3
> 101	2.78%	1
Don't Know	2.78%	1
TOTAL		36

Question 19

How would you rate the effectiveness of the annual FIA DR Test (on a scale of 1-5 where 1 = Somewhat Effective and 5 = Very Effective)

	1 - SOMEWHAT EFFECTIVE	2	3	4	5 - VERY EFFECTIVE	TOTAL
Effectiveness of annual FIA Disaster Recovery Test	2.78% 1	2.78% 1	13.89% 5	50.00% 18	30.56% 11	36

Additional comments and suggestions, including topics not listed on this survey.

➢ The exchanges that we deal with all had network issues with stopped us from completing our test scripts for that reason, it was very important for the exchanges to know that they needed to make changes which in turn would allow us to successfully test

➢ It would be more helpful to run a full DR test if software providers allowed testing into back office environments instead of viewing the test as purely a test of exchange connectivity from a front and middle office perspective