



2020 FIA Industry-Wide Disaster Recovery Test

Summary Report

December 23, 2020

A. Background

- On 24 October, 2020, the futures industry completed its 17th annual continuity of business and disaster resilience test, also referred to as the FIA Disaster Recovery Test.
- The annual exercise, an initiative of the FIA Market Technology division, was established in response to the disruptive events of 11 September, 2001, and the first test took place in 2004. The exercise has expanded over the years and remains an extraordinary example of collaborative efforts across the industry.
 - The first FIA Disaster Recovery Test (2004)
<https://web.archive.org/web/20041012081931/http://www.futuresindustry.org/disaster-2450.asp>
- From the outset, the scope of the disaster recovery test has focused on testing business continuance, process recovery, disaster resilience connectivity, and functionality between exchanges, clearinghouses, and member firms by:
 - Verifying firms' ability to test business continuity from alternate work recovery sites (the people side)
 - Testing firm back-up sites to exchange and clearinghouse back-up sites (DR-to-DR)
 - Verifying connectivity and process recovery
 - Testing round-trip communications capabilities
- The exercise remains a coordinated industry effort, and from day one, participation has been open to members and non-members alike, including:
 - Exchanges
 - Clearinghouses
 - Futures Commission Merchants (FCMs)
 - Clearing firms
 - Non-clearing firms
 - Key service providers
 - Independent software vendors
- As technology and the industry evolve, the annual disaster recovery test remains a valuable apparatus for the industry to assess its response to potential disaster scenarios.

B. Executive Summary

- The year 2020 was like no other, but FIA's annual industry-wide disaster recovery test took place as scheduled, on 24 October. The exercise was a great success, considering the worldwide impact of events relating to Coronavirus (COVID-19) and ensuing workplace considerations of test participants. Thus, our primary objective to test the connectivity and operation of systems under a simulated disruption scenario, was fulfilled on a multifaceted level in 2020.
- The DR Test remains an effective method of practicing resilience and learning from issues that arise as we simulate reaction to system outage. Participants develop a "muscle memory" for business continuity processes and procedures, preparing them for future real-world incidents, continually improving and learning from the test successes and failures.
- In 2020, between 92% and 100% of firms tested successfully, across the various exchanges, meaning that firms were able to successfully fulfill, from end-to-end, the instructions outlined within test scripts provided by exchanges and clearinghouses.
- Representatives from 20 major U.S. and international futures exchanges and clearinghouses, participated in the 2020 disaster recovery test.
- Representatives from FCMs, vendors/third-parties, prop trading firms, regulators, and other supporting entities, also participated as follows:
 - 44 FCMs
 - 10 vendors & third-parties
 - 6 prop trading firms
 - 1 regulator
- The exchanges and clearinghouses demonstrated that their systems, processes, and procedures simultaneously worked well, communicating from back-up systems and sites. Firms and exchanges also 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.
- Testing from alternate work sites is customary and expected during the course of an FIA DR test, however, in 2020 there was a multifold increase in the number of firms with staff working remotely during the test.
- Alternate work sites (reported) were geographically dispersed within the United States, Canadian Provinces, as well as, globally in numerous countries. This year, due to COVID-19, there were higher numbers of people testing from work-from-home locations across the globe.
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 - *United States and Canadian Cities/Provinces:*

Colorado / Connecticut (various) / Florida (various) / Georgia / Illinois (various) / Indiana / Iowa / Kansas / Minnesota (various) / Missouri / New Jersey (various) / New York (various) / North Carolina / Tennessee / Texas / Virginia.
Montreal (Quebec) / Toronto (Ontario) / Vancouver (British Columbia)

➤ *Cities in Additional Countries:*

France / Germany (various) / Hungary / India (various) / Israel / Italy / Poland / Singapore
Spain / United Arab Emirates / UK (various)

- Over the years, 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
 - Tighten up and 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
- The success of the DR Test is, undoubtedly, a reflection of the coordination and working relationships between various exchanges, clearinghouses, firms, and service providers, establishing a forum for participants to discuss respective responses to a systemic market disruption.
- 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 2020.

C. 2020 Test Overview and Milestones:

- On 19 May, a planning committee, consisting of personnel from an array of exchanges, clearinghouses, and FCMs met to discuss objectives for the 2020 exercise. Questions weighed on the minds of committee members, as a viral pandemic had forced workplaces to shut down in-person activities, possibly affecting the ability of organizations to participate. Committee members were unsure as to whether a proper disaster recovery test could be conducted. A COVID-19 survey was created to gauge concerns from participants.
- A COVID-19 survey was distributed on 2 June together with an invite to a 10 June kick-off call. Participants overwhelmingly expressed an ability and willingness to test under the unexpected conditions, and instead saw it as a further opportunity to test their disaster recovery and business continuity playbooks. A test overview was presented, and a tentative schedule of events was announced.
- Past participants, including representatives from major FCMs, exchanges, clearinghouses, and service providers, were encouraged to add new colleagues to the distribution list.
- Conference calls were scheduled on a monthly basis, and then a bi-weekly and weekly basis, from June to November, ending with a post-mortem in November.
- Anticipated release dates for test scripts were listed on the FIA website, as provided by each individual exchange and clearinghouse.
- A webinar-style briefing was held on 12 August as a way for the exchanges and clearinghouses to present details about their tests, including options for pre-testing and trade dates for the test.
- Test registration opened on 14 June. Participants were encouraged to register early, to ensure that they received all pertinent communications. Questions were also added to the registration form to capture expected test changes and modifications due to COVID-19.
- After an internal review, the test registration form was modified mid-stream to reduce confusion over certain questions, and for consistency of industry language and descriptions. It was the first major revision in years.
- The FIA set a deadline of 16 October for online test registration. Those seeking to register thereafter were required to register manually.
- On 24 October, the FIA Disaster Recover Test was conducted, and an all-day conference bridge was provided to facilitate communication. Although, the test officially started at 9:00 a.m. Eastern Standard Time for most entities, the test was already underway in earlier time zones.
- A post-test survey was distributed to participants on 27 October and was designed to capture thoughts and feedback regarding issues, and to improve various aspects of testing. Survey results and feedback are included on Page 14 of this report.

- A post-mortem call was held on 18 November to present the survey feedback, and to determine how best to improve and support the test going forward.

D. Test Participant Details:

- The following futures markets participated in the 2020 Test:
 - Canadian Derivatives Clearing Corporation
 - Cboe Futures Exchange
 - Cboe SEF
 - CME Group
 - Dubai Mercantile Exchange
 - Eurex
 - Euronext
 - ICE Clear Credit
 - ICE Clear Europe
 - ICE Clear Singapore
 - ICE Clear US
 - ICE Derivatives Exchanges
 - ICE TradeVault
 - LCH Clearnet
 - Minneapolis Grain Exchange
 - Montreal Exchange
 - Nodal Exchange / Nodal Clear
 - Options Clearing Corporation
 - Small Exchange
 - Tassat
 - Test participants also included 44 FCMs, 10 vendors/third-parties, 6 prop trading firms, and a regulator.
 - Between 14% and 100% of member futures clearing firms participated, across the various exchanges/clearinghouses.
 - Participating firms represent a significant critical mass of derivatives order flow and liquidity at the major exchanges; 40% 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 via its Limit Hub.
 - The test was also supported by a number of the major third-party service providers:
 - CQG
 - FIS Global
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- ION Group / Fidessa
- Refinitiv
- Trading Technologies

E. 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 sections mentioned above can tend to focus on unfavorable aspects from testing, there are a number of positive comments and reflections pointed out in survey feedback. Survey results and feedback are included on Page 14 of this report.

F. Problems Encountered:

- Problems commonly encountered and resolved, occur 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 are a list of specific issues that were encountered, as reported by participating entities. The breadth and type of issues experienced vary each year, and are documented in the results from previous years, listed on the FIA DR Test website.

- One of the exchanges did not point to our DR server. as a result we had to clear up those trades and resubmit additional trades to complete the test.
- Need software provider/exchange to communicate more effectively, so if a problem arises it can be resolved before testing window is closed.
- Our test participants said they had trouble with trade entry. We had trouble with some of the script.
- External issues resolved during window. Internal issue of test trades that were not cleared on Sunday and 50 got into prod application; discovered on Monday and was resolved.
- For my area in clearance, it was very successful. There were some issues in other areas. Mostly third party issues with connectivity.
- Had issues reaching an exchange. Some organizations did not communicate properly with us, had to chase a few of them during and after the test.
- There were a limited number of problems reported, although, many of the same issues occur year-after-year and are likely not reported. The following are issues experienced in previous tests, which may or may not have been addressed in 2020. Also note that the following occurred without the presence and effect of COVID-19.
 - Two firms had issues connecting to the backup server, as they had the incorrect IP address. Once they updated to the correct IP address, their connectivity and retrieving of files was successful
 - One firm did not allocate enough technical resources for test day. They did not reach the exchange before the testing window was over.
 - One firm wrote a script to connect that failed. They did not allocate staff to manually connect to the exchange in case of problems.
 - Staff not aware of updated system password in DR.
 - Vendor availability, to address a specific firm's connectivity issue.
 - Lack of knowledge with regard to test concept (trading only, clearing out of scope, DR specific URLs, DR specific multicast addresses, etc.)
 - Test went well, but we always seem to have front-end connectivity issues with one specific exchange.
 - Were able to put through test trades, but vendor had system issues and by the time the issue was resolved, the testing window was over.

- The schedules for the markets create confusion, because they are not in sync. With all of the activity and resources put into getting this right, to also need to track and address what markets are in DR status and which are falling back early adds to the confusion and stress
- Staffing was good except that it was almost impossible to reach anyone from one exchange, after the test, to validate. I waited on their line for one hour and then was disconnected

G. Lessons Learned:

- Participants stated that there were a number of ways in which they could improve their test experience going into 2021 (and beyond).
 - We did find issues with the efficiency and effectiveness of testing performed by our vendors. We were able to identify the areas that need improvement and are working with them to develop a plan to address these issues.
 - The test day windows were appropriate when we didn't have issues. Some exchanges were willing to push extensions when we had issues. We found the CME to be excellent in terms of troubleshooting and extending the deadlines. We had a dedicated representative that worked with us to ensure a successful test.
 - In terms of exchanges, we felt the staffing levels were appropriate and they were prepared. In terms of vendors, it was never an issue of communication or staffing it was more an issue with performance.
 - Pre-testing ensures connectivity. If the connection is missing, we have sufficient time in hand to get it fixed before the test day.
 - *In regard to the DR Test Status page* - I used to use it as my reference, but it, like anything that is manually adjusted, may not be accurate and up to date. It is better to listen to the call and take my own status of each exchange.
 - The site may want to provide an indicator as to whether the exchange requires something other than the FIA registration. This year there were two exchanges that required this.
 - Ask that the same people who do the pretest engage in day of. In my experience, it works better that way. I do not like to take time to train the resource in a planned exercise.
 - The CME assigned a person to us this year. I think that was new. The assigned person stayed in contact with our testing personnel. Very helpful.

- In regard to the effect of COVID-19 - Harder to coordinate the exercise when everyone is working remotely.
- In regard to the effect of COVID-19 - We work offsite for these tests anyway, so COVID-19 had no impact.
- In regard to the effect of COVID-19 - I had one-to-one calls to prepare people; but in person is really better so you can use the whiteboard or sit with the newbies together.
- In regard to the effect of COVID-19 - We limited the scope of the testing given this time around we conducted whilst working from home.
- In regard to the effect of COVID-19 - It required many changes, but was not a showstopper, just needed to adapt. We had plenty of time in advance to prepare accordingly.
- In regard to the effect of COVID-19 - The testing is mostly done remotely, however, we sometimes have certain participants in the office, which wasn't possible this year.
- In regard to the effect of COVID-19 - We were able to perform this test remotely, however, if we were able to be together it might have made troubleshooting easier.
- In regard to FIA and SIFMA testing on the same date - For the industry, it is good to have these tests on the same day, just from a resource allocation aspect of not having to support two separate tests.
- We had multiple calls with exchanges, vendors, and internally in addition to the FIA conference bridge. Managing multiple conference calls and individual calls did make it more challenging to efficiently get through the day.
- This exercise is extremely important from a disaster recovery point. The ability to test with the exchanges each year is critical to our business. The scenario is challenging. Typically, we would be failing over to our backup or a particular exchange's DR, not every exchanges DR at the exact same time.

H. Suggested Next Steps:

- Participants noted changes they would like to see on future tests. In some cases, the following suggestions are already implemented, but likely need to be communicated better.
 - Please next time put also the FIX sessions into the DR test.
 - It would be easier to complete the test if all Exchanges had a common trade date.
 - I think that all Exchanges should have a minimum time frame and no earlier than 11 AM or even 11:30 roll back. If we have issues causing us to use up time on one or two Exchange issues, we may miss a window. It forces us to do the earlier Exchanges first. We have to prioritize our run book, putting Exchanges with regulations around the DR test first. If they have issues, then we may miss a deadline on another Exchange that closes earlier.
 - In the case where there are multiple firms working to resolve a similar issue, exchanges should consider extending window.
 - The test day windows were not sufficient, in case of trouble, the troubleshooting needs more time.
 - Some test scripts were very straightforward and clear, others more vague, and we had to reach out for more info.
 - Because each Exchange uses many different formats to their script, for years we have organized all key information on a spreadsheet, with each Exchange having their own sheet. For instance, the top five lines tell you which Exchange, trade date, and window of time, If there is trade entry, which products, which applications, if there is clearing, which functions in clearing.... The scripts are much easier to work with on an EXCEL workbook. Towards the bottom, the Exchange and clearing nuances are provided, like IP addresses and other specifics to that organization. Maybe the scripts should conform to a template with free form at the bottom. If that is too big of an ask, we still update our spreadsheet every year, so no problem. We have a trading sheet and a clearing sheet for each Exchange. We also capture evidence of screen shots so that at the end, it's a comprehensive record of all of our tests.
 - The test scripts are easily available which I love! SIFMA requires chasing and asking, since they do not post them. The Ask is to send them to the firm's registered manager, not the relationship managers email list.
 - Many exchanges did not require a test script but felt they should have.
 - It would be nice for each exchange to have the same test script; however, I understand that may not be possible considering the complexity and diversity of each exchange. With the exception of one exchange, I found the test scripts to be detailed and laid out

in a logical manner. I think for the transfer of data, SFTP connect testing, it should be strict. For clearing apps/GUI's optional. Less likely for any firewall changes, in my opinion, and those connections usually fail over to after we hit the prod IP.

- In regard to the DR Test Status page - Suggest status for all 3 phases – in DR/ switching / PROD
- In regard to the DR Test Status page - It would be useful to have a contact phone number and a contact email address on the status page next to the Exchange's name, so that all needed contact details for the Test Day are placed in one spot.
- In regard to the DR Test Status page - It's very helpful having a site to check status, although there were some issues with updates not being made quickly enough as there were problems for Montreal, CME and other participants.
- I feel that the planning should start earlier in the Feb timeframe to allow scheduling to be in sync cross sector for pre-tests.
- One Exchange did not provide their script on the FIA website. I spoke to them after and suggested that they put the main structure on the FIA site and send the particulars such as IP addresses in an email to clearing members. That way we can have the initial info right away when building our run books.
- I hope that trading entities instructions could be included on the FIA page, such as CQG, TT, Bloomberg, Fidessa, etc.
- I am not certain why you need all of the test contacts or how they are used. I am the coordinator, and I wasn't contacted during the test except for one exchange sending me a questionnaire for results. Maybe you only need the main contact? Either way is fine with us.
- Provide a list of participating firms and back office contacts to facilitate firms testing with other firms.
- Can the links in the presentation be added to the script page?
- We found the website to be very self-explanatory and user friendly. I would propose that the FIA host all the data regarding testing on their site instead of linking to the individual exchanges. The reason being, there was one exchange that made a material modification to their script that we happened to catch, but if we had not re-reviewed the script it likely would have been missed.
- This is not an important point, just an observation. We attend your initial kick off and attend a few meetings where we hear some test detail along the way. By the time we get to your last meeting or two, there is no test refresher information verbalized. Basically, it's a role call and that they are all ready. That is exactly where everyone should

be at that time, but I somehow expected more color. Not sure if firms need to go since there is really no pertinent info given. It is more for the FIA coordinator to know that all organizations are ready. Again, just an observation.

I. 2021 FIA Disaster Recovery Test

- The 2021 FIA Disaster Recovery Test will take place on **Saturday, October 23rd**.
- SIFMA and IIROC have also stated that they will test on Saturday, October 23rd, 2021.
 - IIROC Business Continuity:
<https://www.iiroc.ca/INDUSTRY/MEMBER-RESOURCES/Pages/Business-Continuity.aspx>
 - SIFMA Industry-Wide Disaster Recovery Test:
<https://www.sifma.org/resources/general/industry-wide-business-continuity-test/>

J. 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. We would also like to thank those who were on the planning committee who contributed their time and resources to improve our test going forward.

Please submit additional feedback/questions to Steve Proctor at sproctor@fia.org.

Survey Results and Feedback

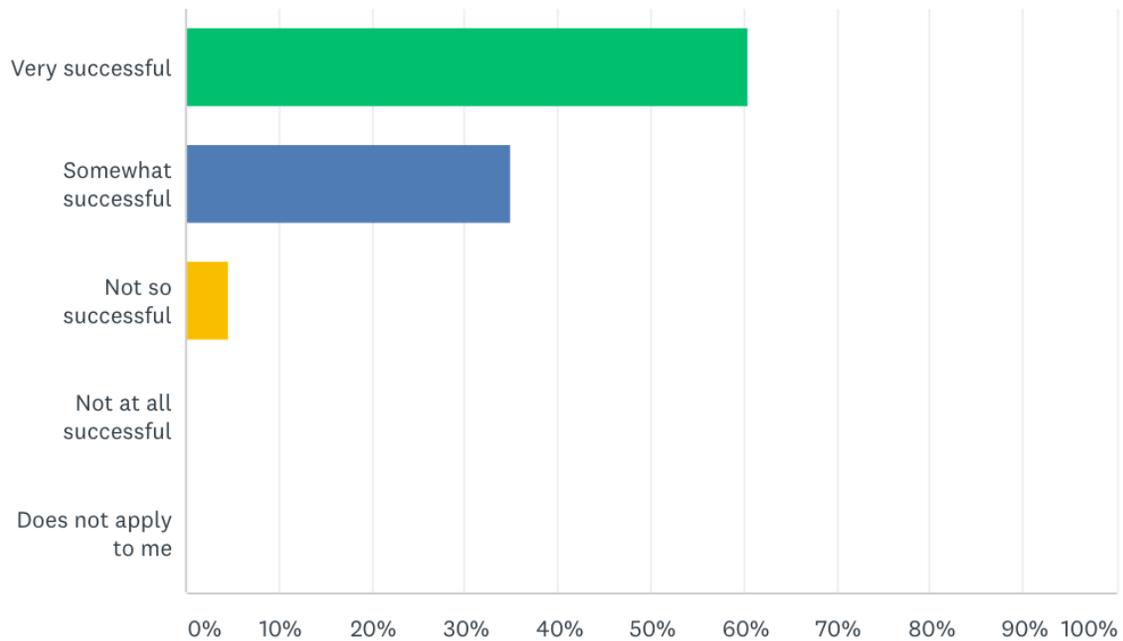


K. Survey Results and Feedback:

A post-test survey was distributed to participants on October 27th, 2020. There were 43 survey submissions. The following are the questions and corresponding responses. Thank you to all who participated and provided feedback!

Question 1 & 2

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



ANSWER CHOICES	RESPONSES
Very successful	60.47% 26
Somewhat successful	34.88% 15
Not so successful	4.65% 2
Not at all successful	0.00% 0
Does not apply to me	0.00% 0
TOTAL	43

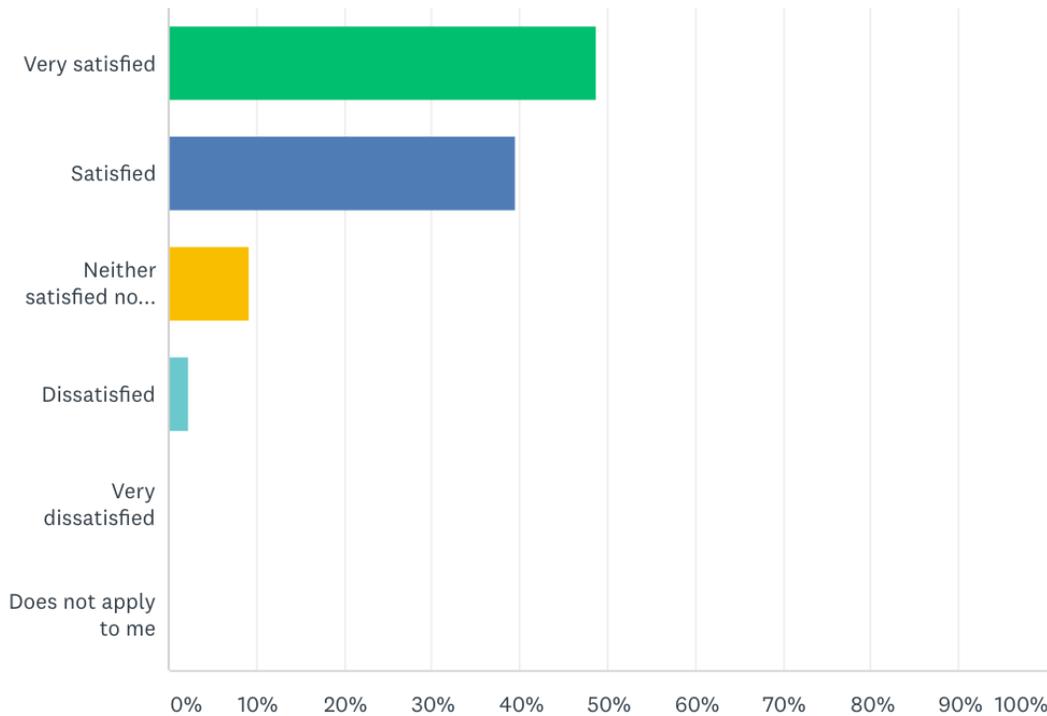
Comment highlights (Questions 1 & 2):

- It was straightforward test with no issues.
- Experienced a clearing connectivity issue, although test trading was successful.
- Did not face any issue and the drive was well coordinated.
- One of the Exchanges did not point to our DR server as a result we had to clear up those trades and resubmit additional trades to complete the test
- All participants took their job seriously and to the best of their ability produced the expected results. It seems as though our trading providers and our bookkeeping provider did a better job than years past.
- Need software provider/exchange to communicate more effectively, so if a problem arises it can be resolved before testing window is closed.
- Our test participants said they had trouble with trade entry. We had trouble with some of the script.
- No system issues and had more customer participation than we have had in prior years.
- External issues resolved during window. Internal issue of test trades that were not cleared on Sunday and 50 got into prod application; discovered on Monday and resolved.
- Our components of the test script worked well
- We have tested all provided applications successfully all working properly with our DR site
- Please next time put also the FIX sessions into the DR test.
- Was success due to it being a straightforward test with no major issues, and due to experiencing minor issues that can be addressed.
- For my area in clearance, it was very successful. There were some issues in other areas. Mostly 3rd party issues with connectivity.
- Completed all objectives, recorded all evidence, submitted all exchange requested completion notifications.

- We did find issues with the efficiency and effectiveness of testing performed by our vendors. We were able to identify the areas that need improvement and are working with them to develop a plan to address these issues.
- Had issues connecting.
- Other than the street wide vendor issue, test was successful.

Question 3 & 4

To what extent were you satisfied/dissatisfied with Test Day windows (Testing availability)?



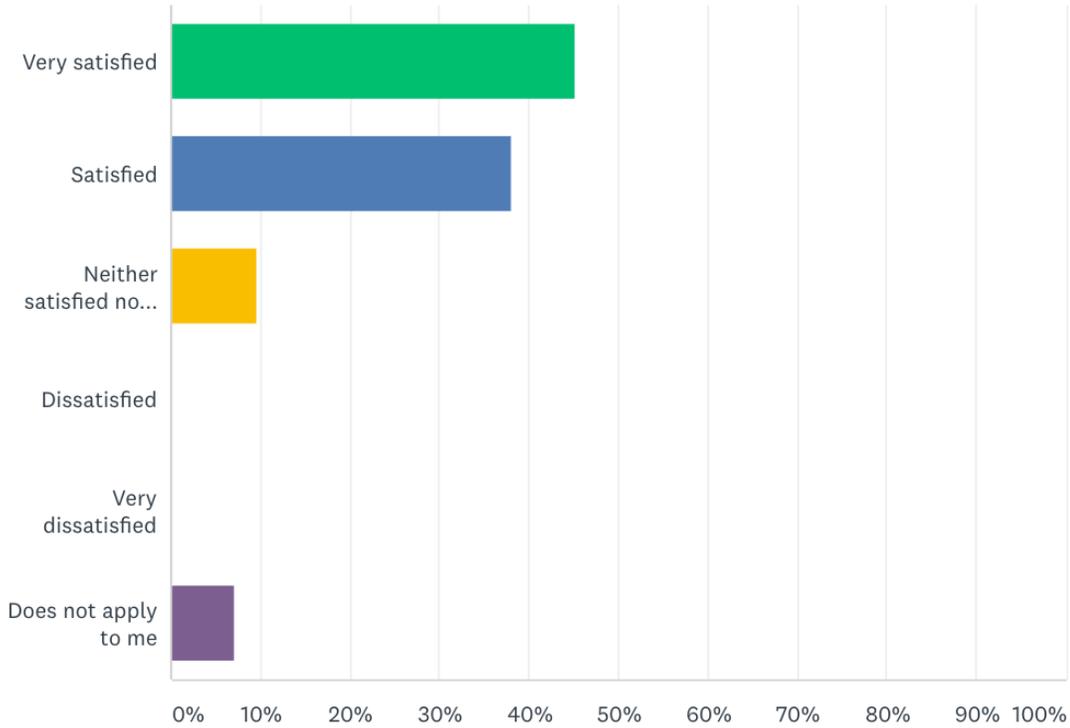
ANSWER CHOICES	RESPONSES	
Very satisfied	48.84%	21
Satisfied	39.53%	17
Neither satisfied nor dissatisfied	9.30%	4
Dissatisfied	2.33%	1
Very dissatisfied	0.00%	0
Does not apply to me	0.00%	0
TOTAL		43

Comment highlights (Questions 3 & 4):

- Test window was extended and it was sufficient.
- The test windows apart from a minor hiccup were generally on time. Could be improved.
- It would be easier to complete the test if all Exchanges had a common trade date.
- I think that all Exchanges should have a minimum time frame and no earlier than 11 AM or even 11:30 roll back. If we have issues causing us to use up time on one or two Exchange issues, we may miss a window. It forces us to do the earlier Exchanges first. We have to prioritize our run book, putting Exchanges with regulations around the DR test first. If they have issues, then we may miss a deadline on another Exchange that closes earlier.
- In the case where there are multiple firms working to resolve a similar issue, exchanges should consider extending window.
- We offer 24/7 connectivity testing to DR. We see nearly zero pre-testing from firms, so we question the need for these pre-test opportunities.
- As I conducted all industry testing, was glad that completion came earlier than planned.
- No issues with the window timeframes.
- Window for testing was preferred by testers given it was in the afternoon for the London office.
- The test day windows were not sufficient, in case of trouble, the troubleshooting needs more time.
- Would have liked for them to have extended their window as we were having issues.
- The time was sufficient, is a long day, but it's only once a year.
- Allows for completion of all objectives without over-extending the day.
- The test day windows were appropriate when we didn't have issues. Some exchanges were willing to push extensions when we had issues. We found the CME to be excellent in terms of troubleshooting and extending the deadlines. We had a dedicated representative that worked with us to ensure a successful test.
- Current test day window is sufficient.

Question 5 & 6

To what extent were you satisfied/dissatisfied with Test Day staffing levels and preparedness, of corresponding participant organizations?



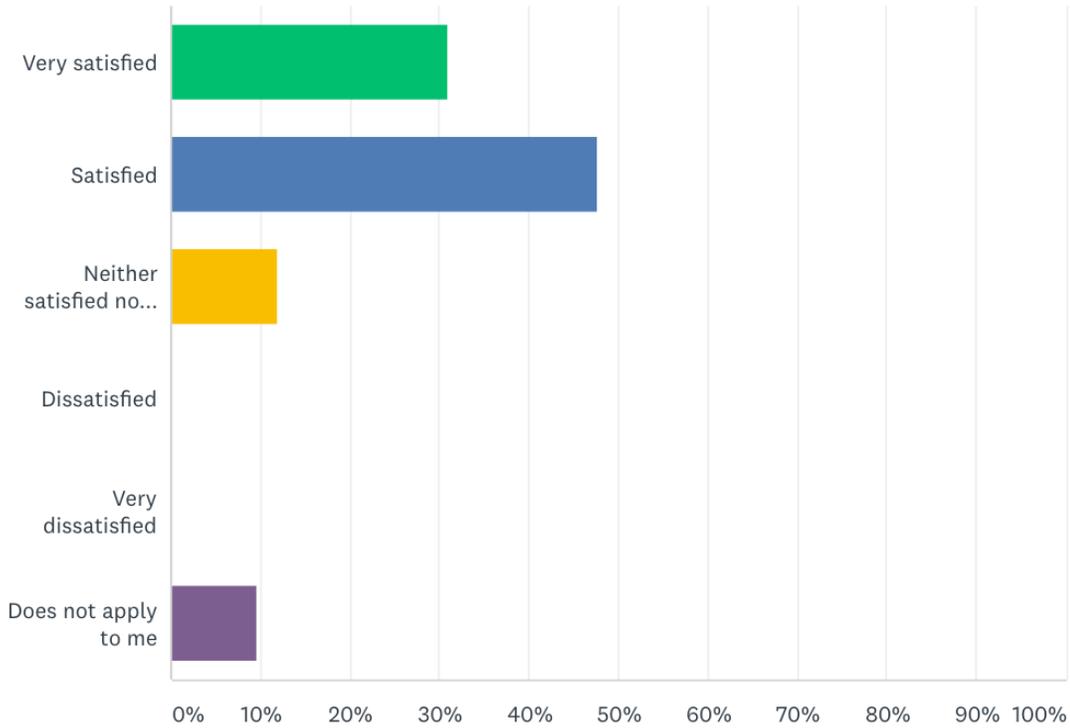
ANSWER CHOICES	RESPONSES
Very satisfied	45.24% 19
Satisfied	38.10% 16
Neither satisfied nor dissatisfied	9.52% 4
Dissatisfied	0.00% 0
Very dissatisfied	0.00% 0
Does not apply to me	7.14% 3
TOTAL	42

Comment highlights (Question 5 & 6):

- The conference bridge call was very helpful to communicate.
- The staffing was adequate.
- All calls were answered promptly, no matter who we called. Issues were addressed immediately.
- Resources on the bridge were great!
- Prior communications, meeting and workshops.
- Had issues reaching an exchange.
- You have a week prepared team. Issues were dealt with professionally.
- Issues were resolved in a timely manner.
- Some organizations did not communicate properly with us, had to chase a few of them during and after the test.
- In terms of exchanges, we felt the staffing levels were appropriate and they were prepared. In terms of vendors, it was never an issue of communication or staffing it was more an issue with performance.
- Our queries were answered quickly which demonstrates that adequate staff were present to support the tests.

Question 7 & 8

To what extent were you satisfied/dissatisfied with the format of, and information contained in Test Scripts?



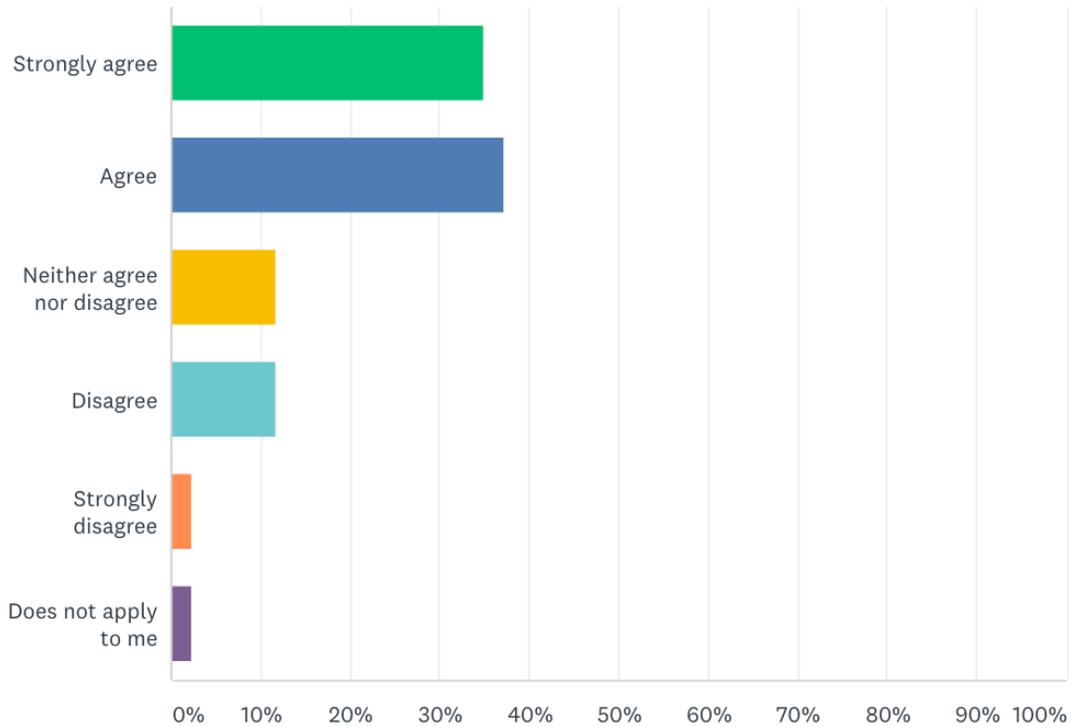
ANSWER CHOICES	RESPONSES
Very satisfied	30.95% 13
Satisfied	47.62% 20
Neither satisfied nor dissatisfied	11.90% 5
Dissatisfied	0.00% 0
Very dissatisfied	0.00% 0
Does not apply to me	9.52% 4
TOTAL	42

Comment highlights (Question 7 & 8):

- Few exchanges didn't provide exact script.
- Some test scripts were very straightforward and clear, others more vague, and we had to reach out for more info.
- Because each Exchange uses many different formats to their script, for years we have organized all key information on a spreadsheet, with each Exchange having their own sheet. For instance, the top five lines tell you which Exchange, trade date, and window of time, if there is trade entry, which products, which applications, if there is clearing, which functions in clearing.... The scripts are much easier to work with on an EXCEL workbook. Towards the bottom, the Exchange and clearing nuances are provided, like IP addresses and other specifics to that organization. Maybe the scripts should conform to a template with free form at the bottom. If that is too big of an ask, we still update our spreadsheet every year, so no problem. We have a trading sheet and a clearing sheet for each Exchange. We also capture evidence of screen shots so that at the end, it's a comprehensive record of all of our tests.
- The test scripts are easily available which I love! SIFMA requires chasing and asking, since they do not post them. The Ask is to send them to the firm's registered manager, not the relationship managers email list.
- Many exchanges did not require a test script, but felt they should have.
- No issues, they were logical.
- Normal script. Had everything we needed.
- Timing of test items, items to be tested, and support information was available in one document.
- It would be nice for each exchange to have the same test script, however, I understand that may not be possible considering the complexity and diversity of each exchange. With the exception of one exchange, I found the test scripts to be detailed and laid out in a logical manner.

Question 9 & 10

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



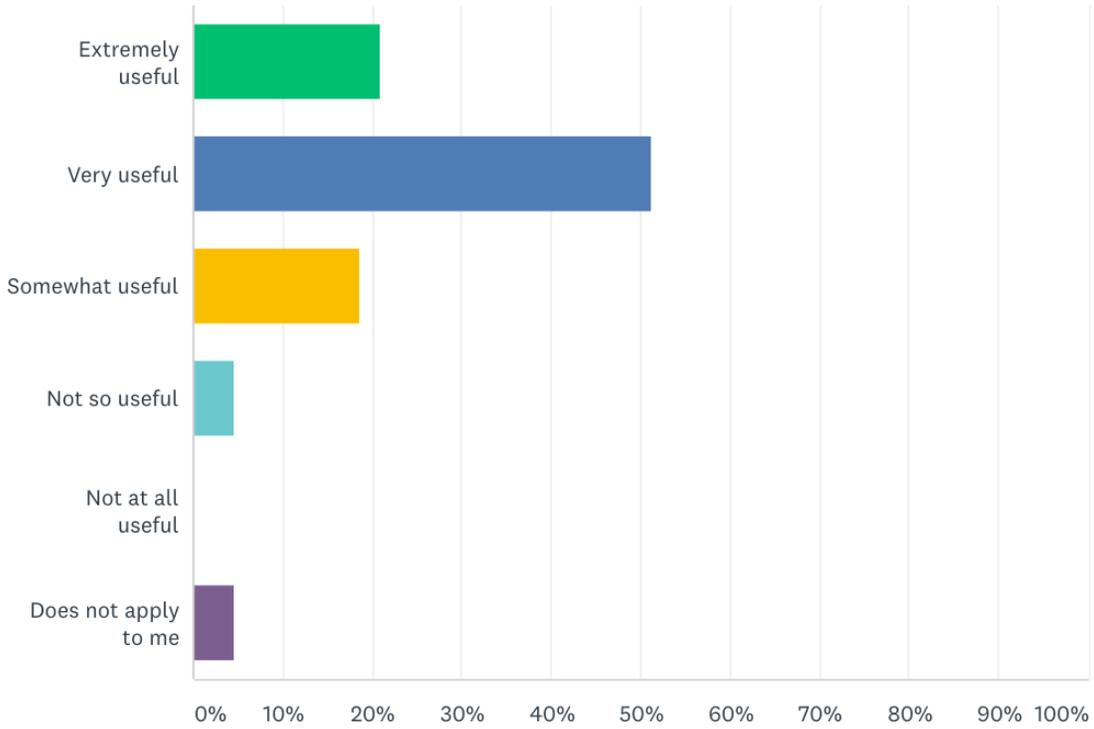
ANSWER CHOICES	RESPONSES
Strongly agree	34.88% 15
Agree	37.21% 16
Neither agree nor disagree	11.63% 5
Disagree	11.63% 5
Strongly disagree	2.33% 1
Does not apply to me	2.33% 1
TOTAL	43

Comment highlights (Question 9 & 10):

- Pre-testing ensures connectivity. If the connection is missing we have sufficient time in hand to get it fixed before the test day.
- The pre-test gave a clear idea of what needed to be done and who needed to be chased, in case things go south.
- I think for the transfer of data, SFTP connect testing, it should be strict. For clearing apps/GUI's optional. Less likely for any firewall changes, in my opinion, and those connections usually fail over to after we hit the prod IP.
- Because it will help in preparing for test day and also few actions.
- If any pre-test bugs can be identified and resolved before the test, it allows staff to be more available to deal with test day issues.
- We offer pre-testing 24/7 and do not see very much customer participation in pre-tests. We don't see the value of having these dedicated pre-test dates and certainly don't see them needing to be mandatory.
- It makes everything much smoother. If you want to engage, the pre-work matters for success; like marathon training.
- Ensures that no issues are encountered upon test day.
- It's essential to check as much as possible in advance of the test.
- This keeps the testing window within its parameters, always well worth the effort.
- Helps with getting all on board and to help with questions prior to test day.
- The pre-test provides firms the opportunity to resolve connectivity issues without tying up resources on test day.
- If DR environments are the same as in previous years, then the pre-test isn't really necessary. This is basically just a duplication of effort.

Question 11 & 12

To what extent do you feel that the 2020 version of the DR Test Status page (the red/yellow/green indicator page) was useful/not useful?



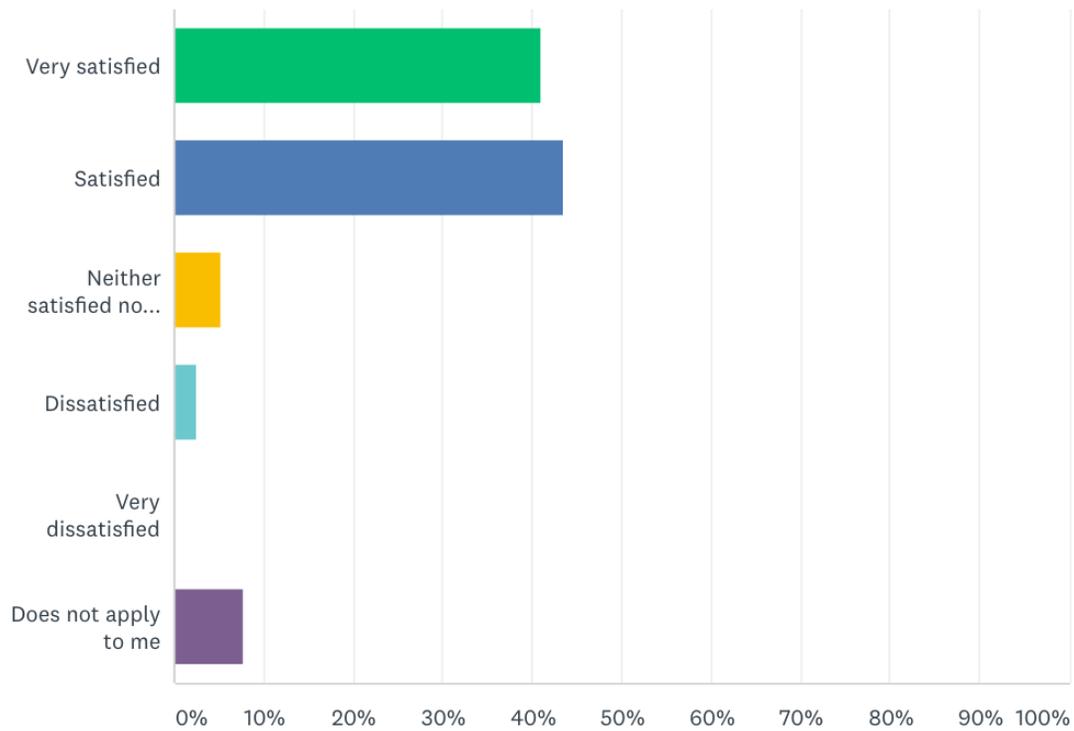
ANSWER CHOICES	RESPONSES
Extremely useful	20.93% 9
Very useful	51.16% 22
Somewhat useful	18.60% 8
Not so useful	4.65% 2
Not at all useful	0.00% 0
Does not apply to me	4.65% 2
TOTAL	43

Comment highlights (Questions 11 & 12):

- I used to use it as my reference, but it, like anything that is manually adjusted, may not be accurate and up to date. It is better to listen to the call and take my own status of each Exchange.
- Suggest status for all 3 phases - in DR/switching/PROD
- High level visual guide showing when exchanges were up/down
- It would be useful to have a contact phone number and a contact email address on the status page next to the Exchange's name, so that all needed contact details for the Test Day are placed in one spot.
- No issues, it was useful.
- It's very helpful having a site to check status, although there were some issues with updates not being made quickly enough as there were problems for Montreal, CME and other participants.
- This was my first year participating in the DR test, I found it helpful to see what exchanges had delays, and which ones were open especially when we had to step away from the FIA DR conference call.
- It gave nearly real time status updates which were key for the member banks to know while performing the test.

Question 13 & 14

To what extent were you satisfied/dissatisfied with Test Script availability, prior to Test Day?



ANSWER CHOICES	RESPONSES
Very satisfied	41.03% 16
Satisfied	43.59% 17
Neither satisfied nor dissatisfied	5.13% 2
Dissatisfied	2.56% 1
Very dissatisfied	0.00% 0
Does not apply to me	7.69% 3
TOTAL	39

Comment highlights (Question 13 & 14):

- I feel that the planning should start earlier in the Feb timeframe to allow scheduling to be in sync cross sector for pre-tests.
- One Exchange did not provide their script on the FIA website. I spoke to them after and suggested that they put the main structure on the FIA site and send the particulars such as IP addresses in an email to clearing members. That way we can have the initial info right away when building our run books.
- Knowing in advance of the testing requirement helped plan test day logistics.
- The information was available in plenty of time, no issues.
- All test scripts were available weeks prior to test day.

Question 15

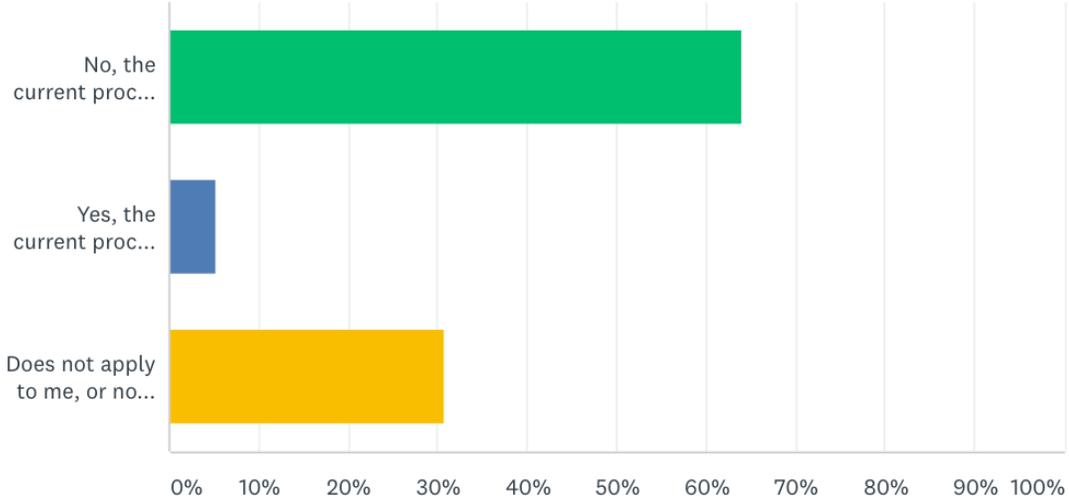
What would you improve about the test registration process and/or system? What information is not currently being captured that should be, to make Test prep and Test day better?

Responses:

- I hope that trading entities instructions could be included on the FIA page, such as CQG, TT, Bloomberg, Fidessa, etc.
- The site may want to provide an indicator as to whether the exchange requires something other than the FIA registration. This year there were two exchanges that required this.
- I felt the registration process is great as it is.
- Easy registration process and reminders to all coordinators as much as possible.
- Nothing. I am not certain why you need all of the test contacts or how they are used. I am the coordinator, and I wasn't contacted during the test except for one exchange sending me a questionnaire for results. Maybe you only need the main contact? Either way is fine with us.
- Provide a list of participating firms and back office contacts to facilitate firms testing with other firms.
- Ask that the same people who do the Pretest engage in Day of. In my experience, it works better that way. I do not like to take time to train the resource in a Planned Exercise.
- Note to ask for the specific staff working on test day, hands-on key board staff.
- I think it's fine. If there is an issue, it's that companies have to coordinate across divisions, not the FIA's issue.
- FIA should encourage participants to use a standard format for test scripts and responses. Some scripts are very clear and easy to read, while others are vague in terms of expectations.
- Need entities to provide sooner.

Question 16 & 17

Should FIA change the way that registration and coordination is handled with third-party service providers?



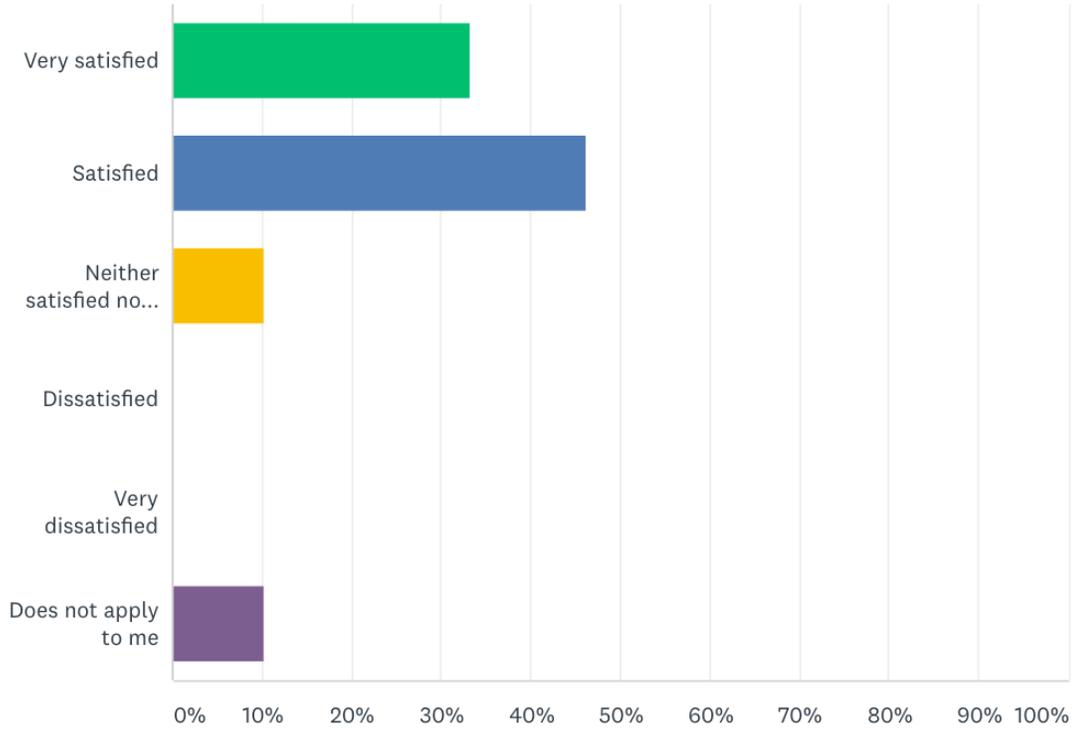
ANSWER CHOICES	RESPONSES
<ul style="list-style-type: none"> No, the current process of handling registration and coordination with third-party service providers should not be changed. 	64.10% 25
<ul style="list-style-type: none"> Yes, the current process for handling registration and coordination with third-party service providers should be changed. 	5.13% 2
<ul style="list-style-type: none"> Does not apply to me, or no opinion 	30.77% 12
TOTAL	39

Comment highlights (Questions 16 & 17):

- Great job!
- It is a streamlined process, centralized into one registration instead of with each Exchange. Faster, better.
- The current process is sufficient.
- It's simple and effective.
- Having a dedicated space in the DR test briefing to service providers would be a good idea.

Question 18 & 19

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?



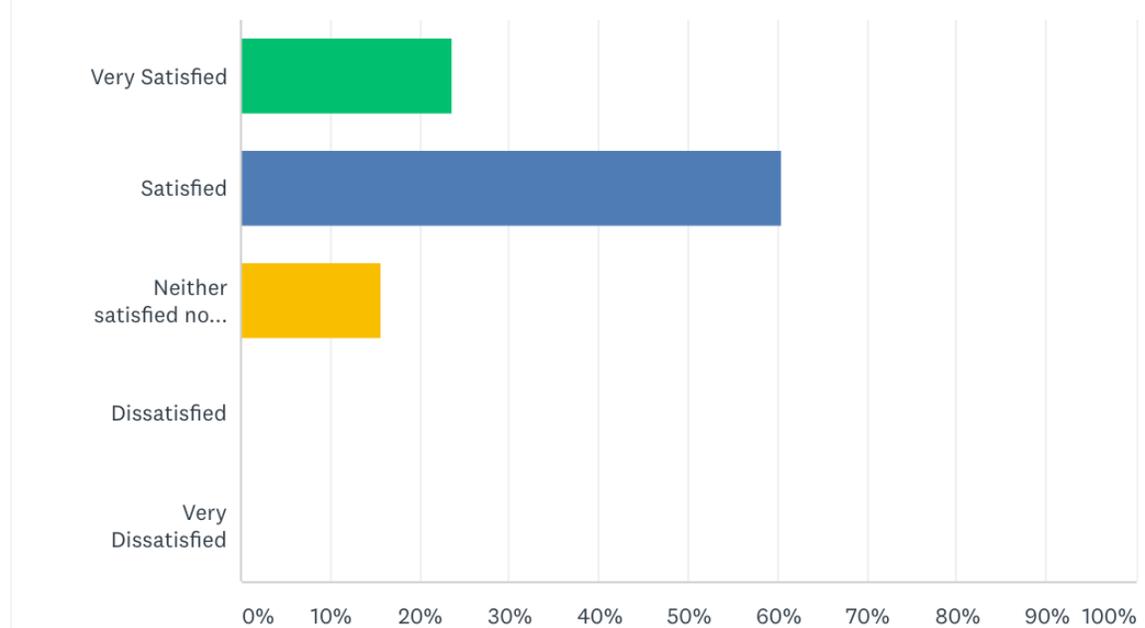
ANSWER CHOICES	RESPONSES	
Very satisfied	33.33%	13
Satisfied	46.15%	18
Neither satisfied nor dissatisfied	10.26%	4
Dissatisfied	0.00%	0
Very dissatisfied	0.00%	0
Does not apply to me	10.26%	4
TOTAL		39

Comment highlights (Question 18 & 19):

- The registration information and any subsequent changes came to my inbox immediately after submission. Timely information was received after registration.
- We received all information almost immediately after registering.

Question 20 & 21

To what extent were you satisfied/dissatisfied with the webinar/presentation that was given by Exchanges and Clearinghouses on August 12th?



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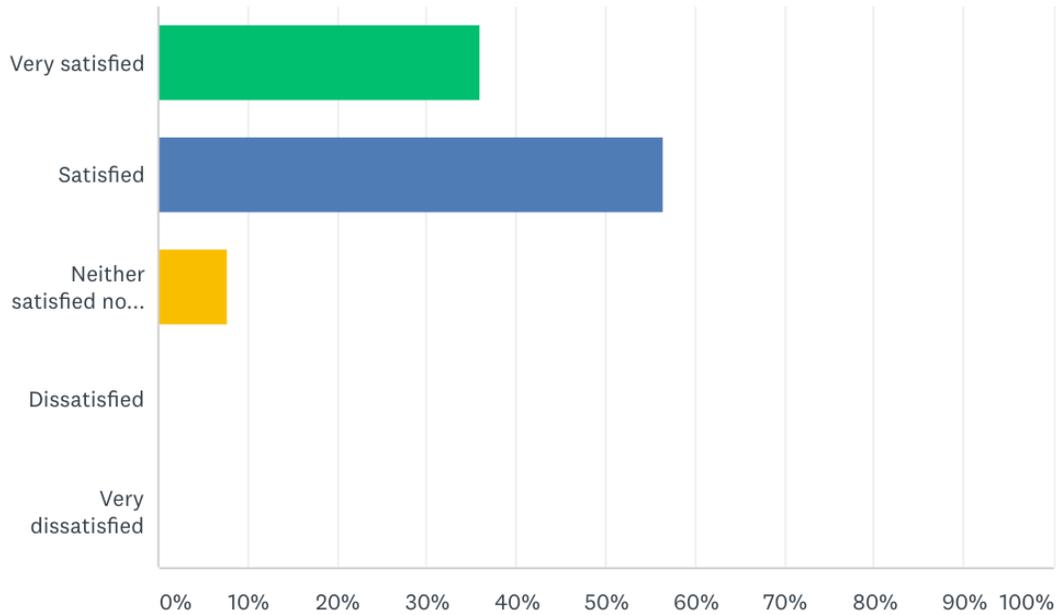
ANSWER CHOICES	RESPONSES
Very Satisfied	23.68% 9
Satisfied	60.53% 23
Neither satisfied nor dissatisfied	15.79% 6
Dissatisfied	0.00% 0
Very Dissatisfied	0.00% 0
TOTAL	38

Comment highlights (Questions 20 & 21):

- All pertinent info was provided.
- The CME assigned a person to us this year. I think that was new. The assigned person stayed in contact with our testing personnel. Very helpful.
- Can the links in the presentation be added to the script page?
- I appreciate the presentation, helpful for our own efforts.
- I don't know how to answer this one considering I wasn't brought in till September.

Question 22 & 23

To what extent were you satisfied/dissatisfied with the content and structure of the main DR Test webpage located at <https://www.fia.org/events/fia-disaster-recovery-test?>
 (*Note* that there was a design overhaul to the entire FIA.org domain in 2020)



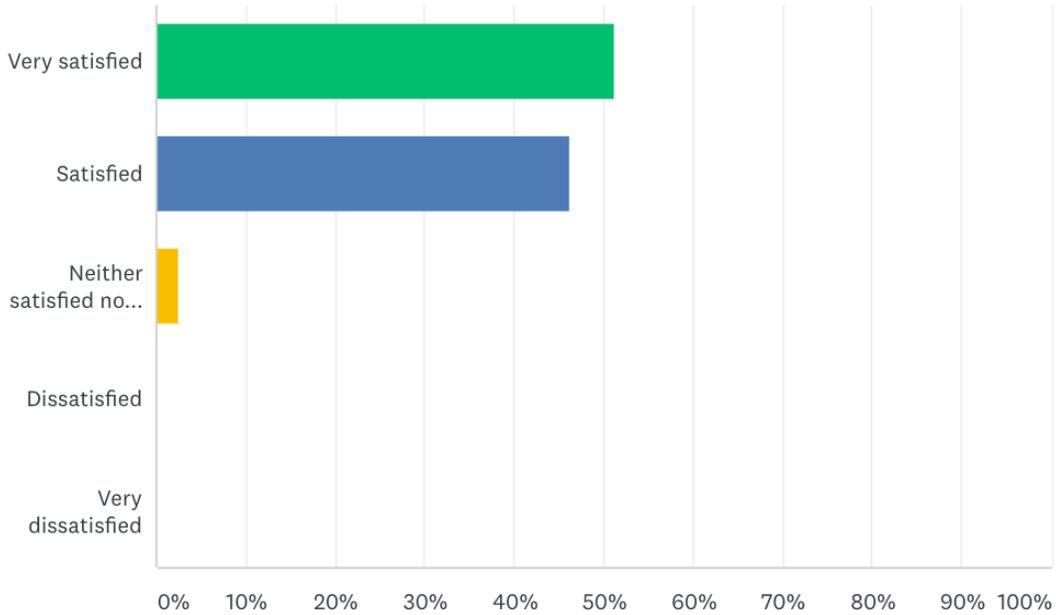
ANSWER CHOICES	RESPONSES
Very satisfied	35.90% 14
Satisfied	56.41% 22
Neither satisfied nor dissatisfied	7.69% 3
Dissatisfied	0.00% 0
Very dissatisfied	0.00% 0
TOTAL	39

Comment Highlights (Question 22 & 23):

- Looked great, easy to use. Efficient.
- We found the website to be very self-explanatory and user friendly. I would propose that the FIA host all the data regarding testing on their site instead of linking to the individual exchanges. The reason being, there was one exchange that made a material modification to their script that we happened to catch, but if we had not re-reviewed the script it likely would have been missed.

Question 24 & 25

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?



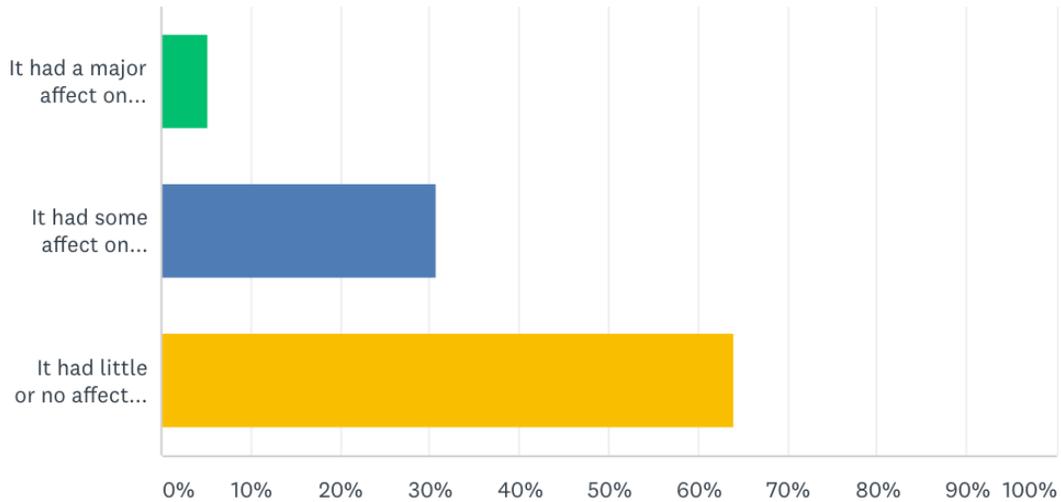
ANSWER CHOICES	RESPONSES
Very satisfied	51.28% 20
Satisfied	46.15% 18
Neither satisfied nor dissatisfied	2.56% 1
Dissatisfied	0.00% 0
Very dissatisfied	0.00% 0
TOTAL	39

Comment highlights (Questions 24 & 25):

- Information was received as needed and in time to act on.
- I have considered having all the participants register to allow a self-serve and get them engaged.
- All information is clear, although the Reg SCI test sometimes creates confusion, but again this may be from a participant having many divisions.
- The amount, quality, and timeliness of the communications were appropriate.

Question 26 & 27

To what extent did COVID-19 and the workplace response to COVID-19 have an effect on preparations and the execution of the DR Test this year?



ANSWER CHOICES	RESPONSES
▼ It had a major affect on preparations and execution of our 2020 DR test	5.13% 2
▼ It had some affect on preparations and execution of our 2020 DR test	30.77% 12
▼ It had little or no affect on preparations and execution of our 2020 DR test	64.10% 25
TOTAL	39

Comment highlights (Questions 26 & 27):

- Harder to coordinate the exercise when everyone is working remotely.
- No issues or changes to what was experienced last year.
- We work offsite for these tests anyway, so COVID-19 had no impact.
- I had one-to-one calls to prepare people; but in person is really better so you can use the whiteboard or sit with the newbies together.
- We limited the scope of the testing given this time around we conducted whilst working from home.
- It required many changes, but was not a showstopper, just needed to adapt. We had plenty of time in advance to prepare accordingly.
- Fortunately, the same people were executing the test, and execution was not a problem from home.
- The testing is mostly done remotely, however, we sometimes have certain participants in the office, which wasn't possible this year.
- We were able to perform this test remotely, however, if we were able to be together it might have made troubleshooting easier.

Question 28

Geographically, from whereabouts did you participate in the FIA DR Test? *Note* that City, State, and/or Country are preferable answers. Hopefully, Planet Earth is a given!

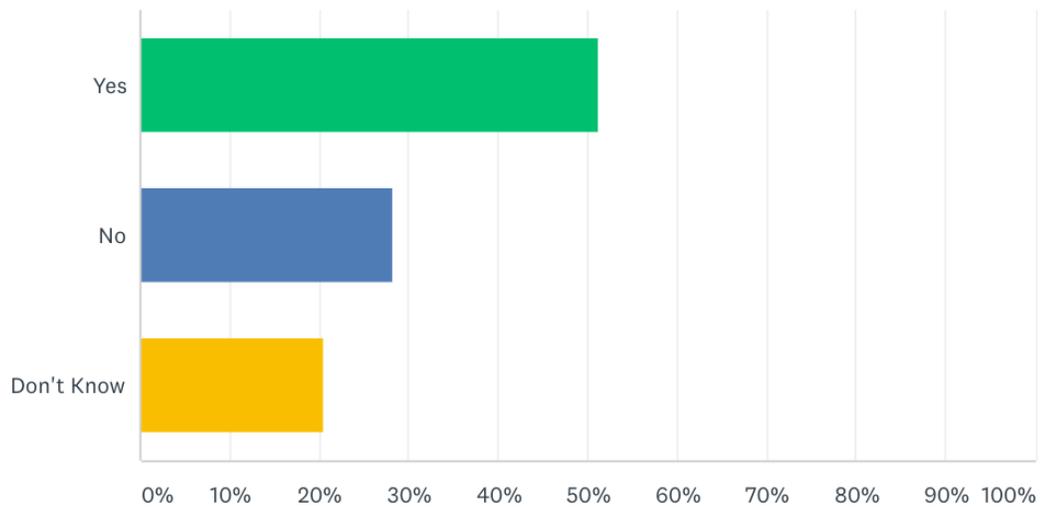
Summary of Responses (Questions 28):

- Atlanta, GA, USA – multiple responses
- Charlotte, NC, USA
- Chicago, IL, USA (and various suburbs) – multiple responses
- Chicago, IL, USA (downtown)
- Dubai, UAE
- Fort Lauderdale, FL, USA
- Jersey City, NJ, USA
- London, UK – multiple responses
- Mason City, IA, USA
- Milan, Italy
- Montreal, Quebec, Canada – multiple responses
- Mumbai, India
- New Jersey, USA (general) – multiple responses
- New York, USA (general) – multiple responses
- New York, NY, USA
- Norwalk, CT, USA
- Poland (general)
- Portage, Indiana, USA
- St. Louis, MO, USA

- Texas, USA (general)
- *Various work-from-home locations (general) - In some cases, a result of COVID-19

Question 30

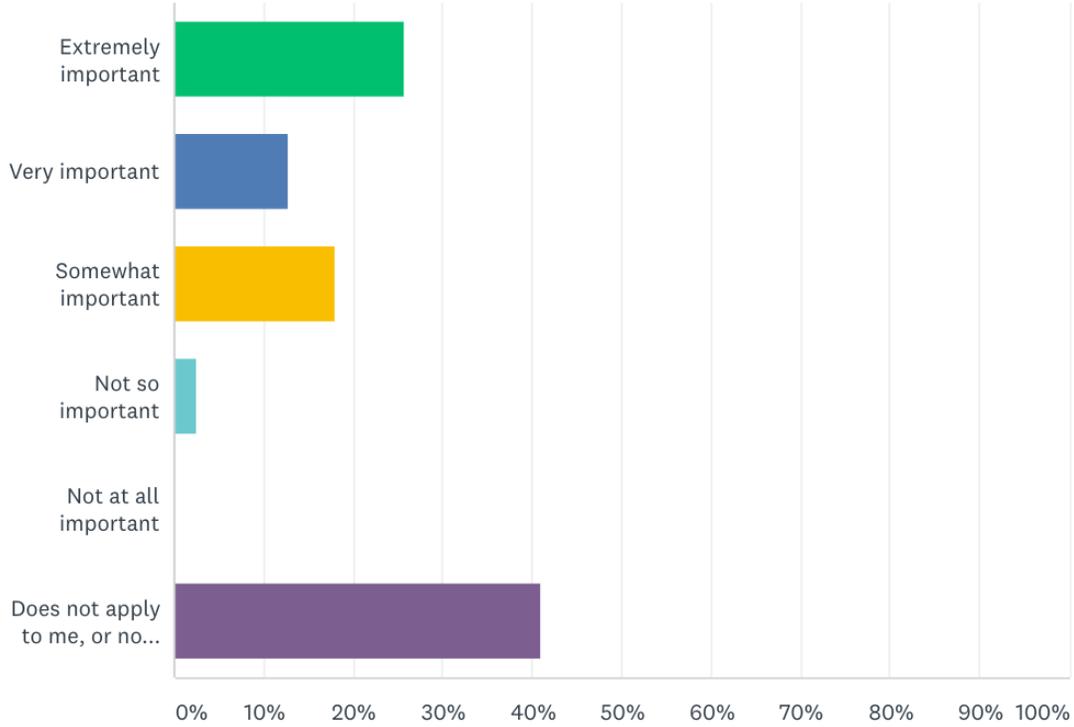
Did your organization also participate in the annual SIFMA test (also on October 24th)?



ANSWER CHOICES	RESPONSES
Yes	51.28% 20
No	28.21% 11
Don't Know	20.51% 8
TOTAL	39

Question 31 & 32

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



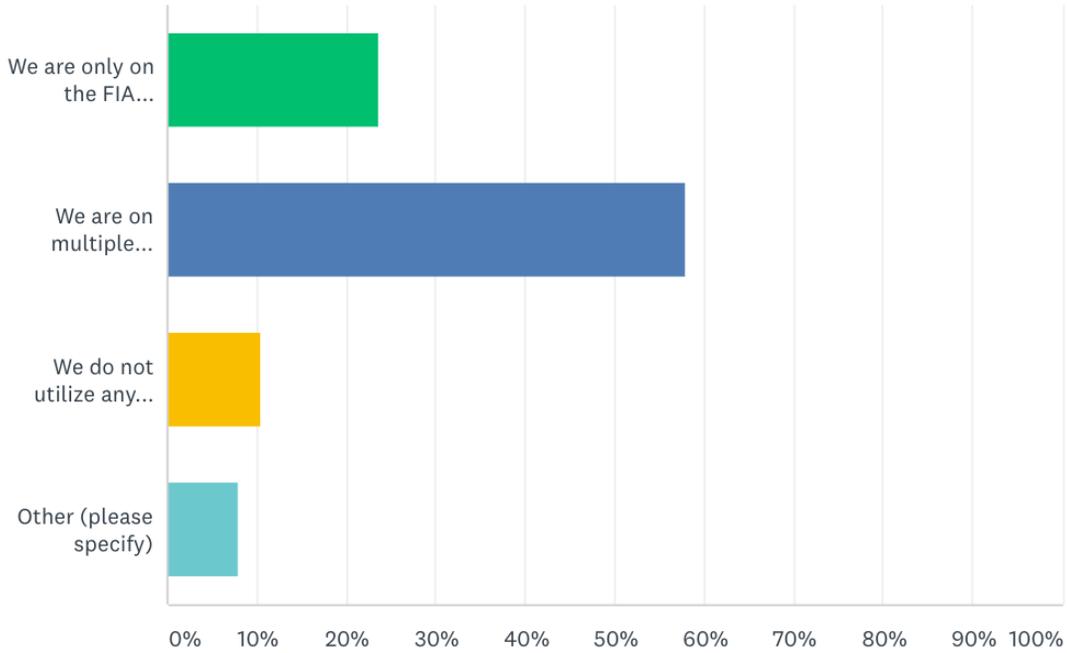
ANSWER CHOICES	RESPONSES
Extremely important	25.64% 10
Very important	12.82% 5
Somewhat important	17.95% 7
Not so important	2.56% 1
Not at all important	0.00% 0
Does not apply to me, or no opinion	41.03% 16
TOTAL	39

Comment Highlights (Question 31 & 32):

- Both can be done on same day and resources can be available.
- We can then only request one day, to ensure that our network is up on Saturday, and to cancel any system maintenance work, instead of requesting two separate test days.
- In some ways it is easier, for IT, but for the Business it can be confusing.
- Two dates are much harder to schedule.
- Leverage teams to support testing both.
- For the industry, it is good to have these tests on the same day, just from a resource allocation aspect of not having to support two separate tests.
- This makes coordination across our organization (and the industry) much easier.

Question 33 & 34

How many additional ongoing conference bridges do you concurrently maneuver on Test Day, in addition to the FIA conference bridge?



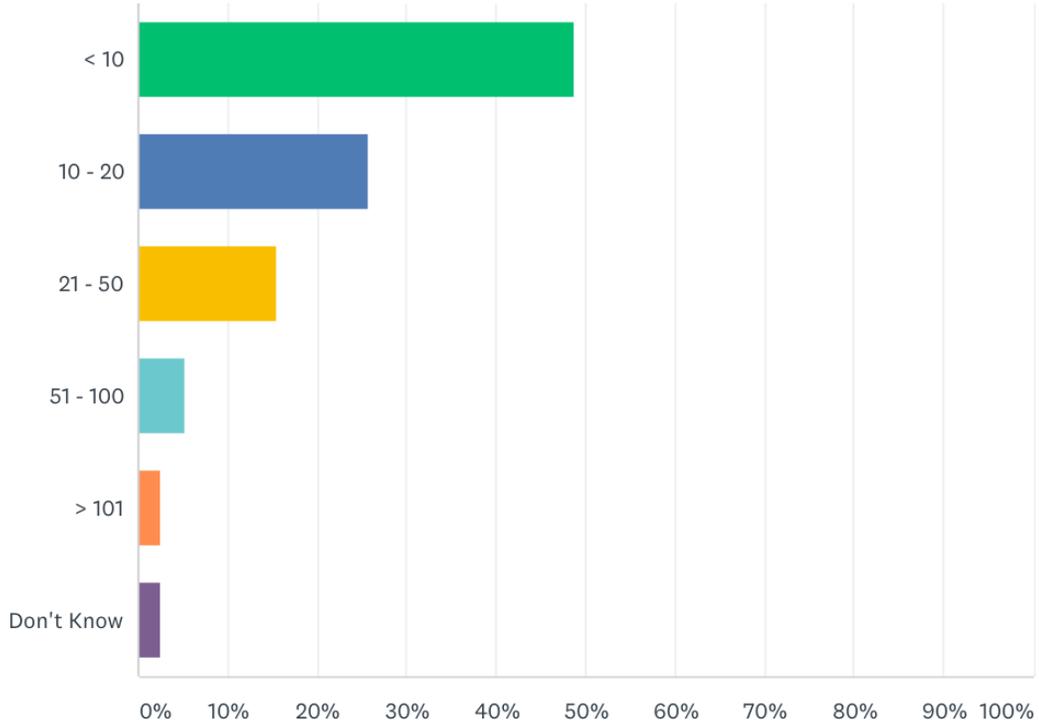
ANSWER CHOICES	RESPONSES
▼ We are only on the FIA conference bridge on Test Day	23.68% 9
▼ We are on multiple concurrent conference bridges, in addition to the FIA conference bridge, on Test Day	57.89% 22
▼ We do not utilize any Test Day conference bridges	10.53% 4
▼ Other (please specify) Responses	7.89% 3
TOTAL	38

Comment Highlights (Question 33 & 34):

- Only the FIA Conference bridge, plus manage all of the individual calls to coordinate with each participant, Exchange and vendor.
- I'm not sure if our people used the conference bridge, as they had direct contact with personnel assigned to us.
- One internal bridge to track progress plus FIA bridge.
- We are on the FIA call, and our own internal Teams call, although mostly we coordinate our internal activities via chat and a shared exercise task list.
- Typically have no less than 3-4 bridges to hop between including SIFMA, FIA, internal, and DTCC.
- Internal use of WebEx and Jabber. Used one cell for FIA and another for SIFMA - then for Reg SCI closed internal WebEx and went on the DTCCs; OCC did not have one.
- We had separate teams, my team didn't need to cross over.
- SIFMA, DTCC, Internal bridge and FIA.
- We had multiple calls with exchanges, vendors, and internally in addition to the FIA conference bridge. Managing multiple conference calls and individual calls did make it more challenging to efficiently get through the day.

Question 35

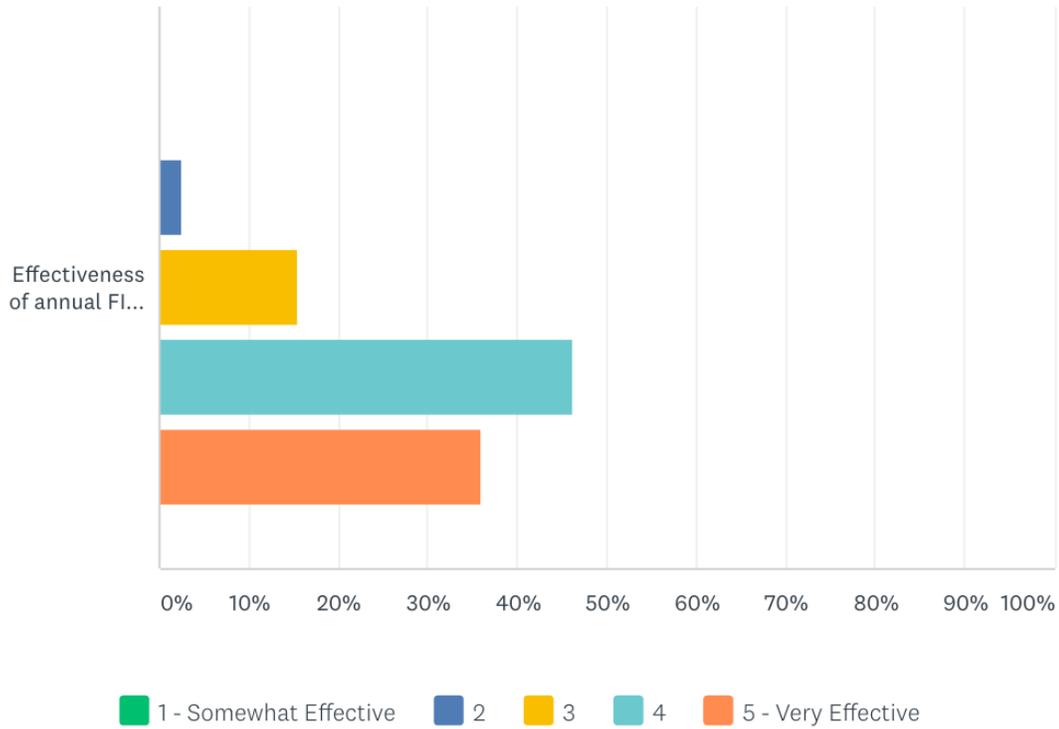
Approximately how many staff were involved with your test initiative this year (e.g., pre-test planning, support, help desk, failover, test management, test execution)?



ANSWER CHOICES	RESPONSES
< 10	48.72% 19
10 - 20	25.64% 10
21 - 50	15.38% 6
51 - 100	5.13% 2
> 101	2.56% 1
Don't Know	2.56% 1
TOTAL	39

Question 36

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	0.00% 0	2.56% 1	15.38% 6	46.15% 18	35.90% 14	39

Question 37

Please feel free to share additional comments and suggestions, including topics not listed on this survey:

Responses (Question 37):

- Gives us a chance to test connectivity and processes
- This is not an important point, just an observation. We attend your initial kick off and attend a few meetings where we hear some test detail along the way. By the time we get to your last meeting or two, there is no test refresher information verbalized. Basically, it's a role call and that they are all ready. That is exactly where everyone should be at that time, but I somehow expected more color. Not sure if firms need to go since there is really no pertinent info given. It is more for the FIA coordinator to know that all organizations are ready. Again, just an observation.
- Thanks, I appreciate the support.
- This exercise is extremely important from a disaster recovery point. The ability to test with the exchanges each year is critical to our business. The scenario is challenging. Typically, we would be failing over to our backup or a particular exchanges DR, not every exchanges DR at the exact same time.