



2023 FIA Industry-Wide Disaster Recovery Test
Summary Report

November 15, 2023

Background

The origins and planning for the first disaster recovery exercise began soon after the events of September 11th, 2001, with the very first disaster recovery test taking place on October 9th, 2004. The exercise has since expanded and remains an incredible example of collaborative efforts across the futures industry.

The first FIA Disaster Recovery Test webpage (2004):

<https://web.archive.org/web/20041012081931/http://www.futuresindustry.org/disaster-2450.asp>

The original scope of the disaster recovery test, which remains today, is a focus on testing business continuance, process recovery, connectivity, and functionality between exchanges, clearinghouses, and member firms, by:

- Verifying firms' ability to test business continuity from alternate work recovery sites
- Testing DR-to-DR (firm back-up sites to exchange and clearinghouse back-up sites)
- Verifying connectivity and process recovery
- Testing round-trip communications capabilities

The test continues to be an effective method for practicing resilience and learning from issues that arise as we simulate reaction to a system outage. We believe that participants develop a muscle memory for business continuity processes and procedures, preparing the industry for future real-world incidents. The industry continues to improve and learn from Test successes and failures.

The disaster recovery exercise is a coordinated industry effort with participation that is open to FIA members and non-members alike, including:

- Exchanges
- Clearinghouses
- Futures Commission Merchants (FCM)
- Clearing & non-clearing firms
- Key service providers
- Independent software vendors

As technology and the industry evolve, the annual test remains a valuable apparatus for the industry to assess its response to potential disaster scenarios.

Summary

FIA's industry-wide disaster recovery test took place on October 14th, 2023. While Test Day experiences vary across participants, the exercise was considered a success, in that the primary objective to test connectivity and operation of systems under a simulated disruption scenario, was fulfilled.

- In 2023, between 50% 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. The majority of markets had success rates in the 90-percentile range.
- Representatives from 20 major U.S. and international futures exchanges and clearinghouses, participated in the 2023 disaster recovery test.
- Representatives from FCMs, vendors/third-parties, prop trading firms, regulators, and other supporting entities, also participated as follows:
 - 63 FCMs
 - 7 vendors & third parties
 - 5 prop trading firms
 - 1 regulator
- Most exchanges and clearinghouses demonstrated that their systems, processes, and procedures simultaneously worked well, communicating from back-up systems and sites. Participants also tested the “people side” of their continuity capabilities, as well as the resilience and recovery of systems infrastructure.
- Test orchestration, facilitation and order entry was conducted from alternate work sites, as well as disaster recovery data centers.
- Test participation at reported alternate work sites were geographically dispersed within the United States, Canadian Provinces, and globally in numerous other countries, including:
 - United States and Canadian Cities/Provinces:
Arizona / California / Colorado / Connecticut / Delaware/ Florida / Georgia / Illinois / Indiana / Maryland / Minnesota / Missouri / New Jersey / New York / North Carolina / Pennsylvania / Tennessee / Texas / Virginia
Montreal (Quebec) / Toronto (Ontario) / Vancouver (British Columbia)
 - Additional Countries:
France / Germany / Hungary / India / Ireland / Israel / Italy / Poland / Singapore / Spain / Tunisia / United Arab Emirates / United Kingdom

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Firms have indicated that the test helps them to:

- 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 disaster recovery test reflects the coordination and working relationships between a multitude of exchanges, clearinghouses, firms, and service providers -- maintaining an established forum for participants to discuss respective responses to systemic market disruptions.

Additional business continuance activities by participants, in respect to the exercise, includes:

- Relocating staff and test management to alternate work sites
- Managing the test from alternate sites or home locations
- Failing-over missing 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 (or the same) teams also staffed the SIFMA Disaster Recovery Test, which occurred on the same day as the FIA test in 2023.

2023 Test Overview and Milestones

The 2023 schedule was announced on June 26th, and an invite to a July 19th kick-off call was distributed on July 13th. The call, consisting of personnel from an array of FCMs, exchanges, clearinghouses, and service providers, met to discuss objectives for the 2023 exercise. Past participants were encouraged to add new colleagues to the distribution list.

Conference calls took place monthly from July to November, concluding with a post-mortem in November.

A webinar-style briefing was held on August 14th, for the exchanges and clearinghouses to present details on their tests, which included details on trade dates and options for pre-testing.

Test registration opened on August 1st. Participants were encouraged to register early to ensure that they received all pertinent communications. The process for registration mirrored that of

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2022, uniting the old FIA DR Test registration process with that of other FIA events – a hybrid registration model was used, requiring a two-step process to register. We hope to fully integrate this process in 2024, to reduce the number of steps.

The FIA set a deadline of October 6th for online test registration to be completed. Those seeking to register thereafter were required to register manually.

On October 14th, the FIA Disaster Recovery Test took place, and an all-day conference bridge was provided to facilitate communication. A kick-off call occurred at 8:30am Eastern Standard Time, and the test officially started at 9:00am Eastern Standard Time for several entities, however, this varied based on time zone. The test was already underway in earlier time zones and would start later in other time zones.

A post-test survey was distributed to participants on October 19th. The survey was designed to capture thoughts and feedback regarding issues experienced, and to improve upon various aspects of testing. Survey results and feedback are included on Page 10 of this report.

A post-mortem call was held on November 8th to present survey feedback, and to discuss how best to improve and support the test going forward.

Test Participant Details

The following futures markets participated in the 2023 Test:

- Bitnomial Exchange
- Canadian Derivatives Clearing Corporation
- Cboe Futures Exchange
- Cboe SEF
- CME Group
- Coinbase
- Dubai Mercantile Exchange
- Eurex
- Euronext
- ICE Clear Credit
- ICE Clear EU
- ICE Clear US
- ICE Clear Singapore
- ICE Derivatives Exchange
- ICE eConfirm Trade Vault
- Minneapolis Grain Exchange
- Montreal Exchange
- Nodal Exchange
- Options Clearing Corporation
- Small Exchange

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Test participants also included 63 FCMs, 7 vendors/third parties, 5 prop trading firms and a regulator.

Between 50% 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; 60% to 93% of exchanges' volume.

The National Futures Association also 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 the following major third-party service providers:

- CQG
- FIS Global
- ION Group
- Refinitiv
- Trading Technologies

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
- Direct participant feedback via email

Responses from these mechanisms, are categorized in the following sections:

- Problems Encountered
- Lessons Learned and Suggested Next Steps

Although the sections mentioned above can tend to focus on unfavorable outcomes or aspects from the DR Test, there were several positive comments and reflections pointed out, as well. Survey results and feedback are included on Page 10 of this report.

Problems Encountered (based on feedback mechanisms mentioned)

Generally, several problems and issues tend to arise during testing and preparation for test day. We attempt to capture and categorize (below) these issues to improve upon future coordination and testing. The entirety of feedback and survey results begin on Page 10 of this report.

- Communication – clarity of instructions/objectives/expectations, timing of distributed information, test day communications to help desk, test status, etc.
- Instructions (test scripts) – inconsistent/non-standard across exchanges and clearing organizations, etc.
- Process failures – missed steps, permissions/access, incomplete testing, etc.
- Resource-management – knowledge, staffing, time, etc.
- Status page – status not properly reflected, timeliness of updates, missing entities, etc.
- Technical issues – configuration, connectivity, not using proper connection details, etc.
- Time limits / Timetables / Delays – managing different timelines, domino effect of delays.
- Vendor-related – coordination, communication, etc.

Lessons Learned and Suggested Next Steps (based on feedback mechanisms mentioned)

Feedback on lessons learned and suggested modifications are the starting place for improvements to future DR tests. The entirety of feedback and survey results begin on Page 10 of this report.

- The technical details and DR endpoints were known for the most of exchanges and venues and the connections were established with no additional actions. For some venues, it appeared that no failover to DR lines was performed. Technical support response by e-mail were not prompt for some providers.
- [A clearinghouse] had test day issues. A test that should have been 9:30am-1pm ET was elongated to be delayed through 11am and did not get the notice of fallback until after 4:30pm. They never were able to confirm receipt of our trades. They were the only ones two years in a row to have these lengthy delay issues. They need to address this.
- [An exchange and clearing organization] were not available for most of the day, and therefore we were not able to complete testing. Delay to start [with another exchange], but once they were available, testing completed as expected
- Generally successful, but we were unable to test with [specific exchange] due to issues with trades not flowing to their clearing systems. This was frustrating as there wasn't clear communication to the group and we ended up having to stick around until after 5PM EST until they finally gave up
- The timelines for some of the exchanges significantly conflict[ed] with each other. There are exchanges failing back to production as early as 9:00 AM CT and other exchanges not failing over to BCP until after 10:00 CT. The more exchanges included in the test the more complex the coordination from the FCM side and this is causing confusion and lost opportunities. A true disaster would be more chaotic but my understanding here is that the goal here was to test the viability of the BCP sites

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- It would be helpful if [one exchange] extended their testing hours to align with [another exchange] as they end an hour earlier. Also, the testing window for [one exchange] is very short (only 2 hours) so we often have issues completing the testing in time
- The disparity/lack of synchronization between exchanges extends the test day in unnecessary fashion
- There was a little confusion when contacting one of the participants with certain questions, and if we didn't have some co-workers who had participated previously, we would have had very little idea what to expect or what was expected of us
- The ISVs are typically operating on a skeleton crew and in past year's there has been opportunity to miss testing windows where they are a dependency
- Many exchanges offer general weekend testing, so customers could test bringing up their environments on a prior Saturday to validate that basic connectivity works. In addition, some exchanges do simple telnet testing. However, it would be useful to have a test weekend that is optional for customers to be able to connect to exchanges and validate their environments (connectivity, data flow, authentication, etc.). At the moment, it feels that there is no good way to dry run what we need to do on the DR test date
- I know it is a lot of coordination, but I do think we need to consider having dummy trades and such like we do on Test Day. The Pre-Test connectivity only means functional users of the connectivities are not testing out IP addresses, ensuring trades are passing through the systems, etc. Essentially only ping testing is being done and more is warranted in some cases, such as [with one clearinghouse]
- The Test Status page was very useful. Keeping a real-time update of the status of the participating exchanges helped smooth the entire process
- This page was a very nice enhancement to the overall process- not having to confirm windows, etc.
- The exchange being up [on the status page] is not a clear indicator of [whether] order entry is available and it does not take into account the status of the ISVs most brokers use to access the exchanges
- Perhaps make the URL [to the real-time status page] available earlier and we can work with our security teams(s) to get the URL whitelisted in advance of test day
- Trying to have a [real-time status] site approved/whitelisted at our firm is extremely difficult and requires approvals from top executives. It would be much better if you could find a solution that would display the data in standard HTML or other format that wouldn't require any security setting changes
- Some test scripts and notifications about the pre-test/test day contained lack of information. For example, the test script of [one exchange] were more or less clear, but the prior notifications in PPT/PDF gave a non-professional impression and no clear message. It would be nice to have an FIA template which all entities have to fill out to pass on clear message only
- Some [commonalities] or basic normalization would be useful. For example, I don't believe [one exchange's] script called out the products to test, so we hunted and pecked for liquidity to trade against. Would be good to normalize what exchanges make available

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- Each exchange had different formats and/or requirements (some more detailed than others) for testing. The difference in exchanges is expected, but we should be able to standardize the format being offered to the participants
- When a participating organization testing against me sends an update to their registration, as a participating utility, it has always been a pain trying to figure out in the confirmation email what exactly was updated. Perhaps highlighting all refreshed fields?
- As a vendor, I wish there was a way for customers to register under us, and then allow us to download the list. This is how the SIFMA registration works

2024 FIA Disaster Recovery Test

The 2024 FIA Disaster Recovery Test will take place on Saturday, October 5th, 2024, and the SIFMA Test will take place on the same day as the FIA test.

- For more details regarding the SIFMA Industry-Wide Disaster Recovery Test: <https://www.sifma.org/resources/general/industry-wide-business-continuity-test/>

Acknowledgements

The FIA 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 their continued feedback during conference calls, the test results form, and on the postmortem survey. Thank you to all who have contributed their time and resources to improve the FIA test going forward.

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

Survey Results and Feedback

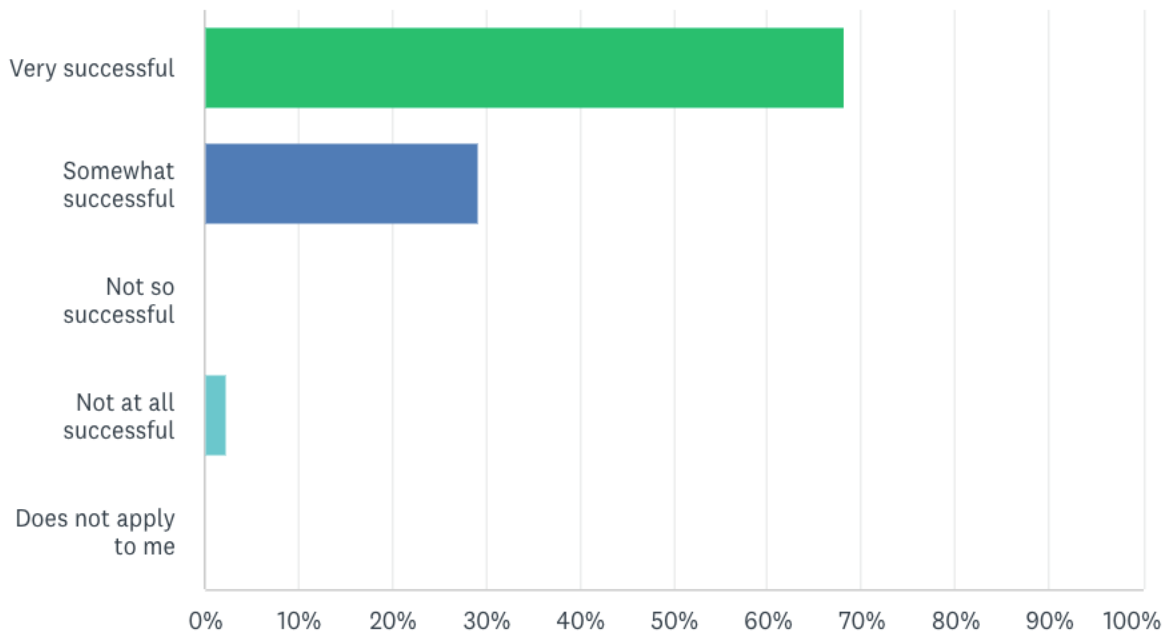


Survey Results and Feedback:

A post-test survey was distributed to participants on October 19th, 2023. There were 41 survey submissions. The following are the 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	68.29% 28
Somewhat successful	29.27% 12
Not so successful	0.00% 0
Not at all successful	2.44% 1
Does not apply to me	0.00% 0
TOTAL	41

Question 2

(Optional) Please explain your answer to Question 1, regarding Test Day Success. For example, was it a success due to it being a straightforward test with no issues, or was it a success due to finding or experiencing issues that can be addressed going forward, etc.?

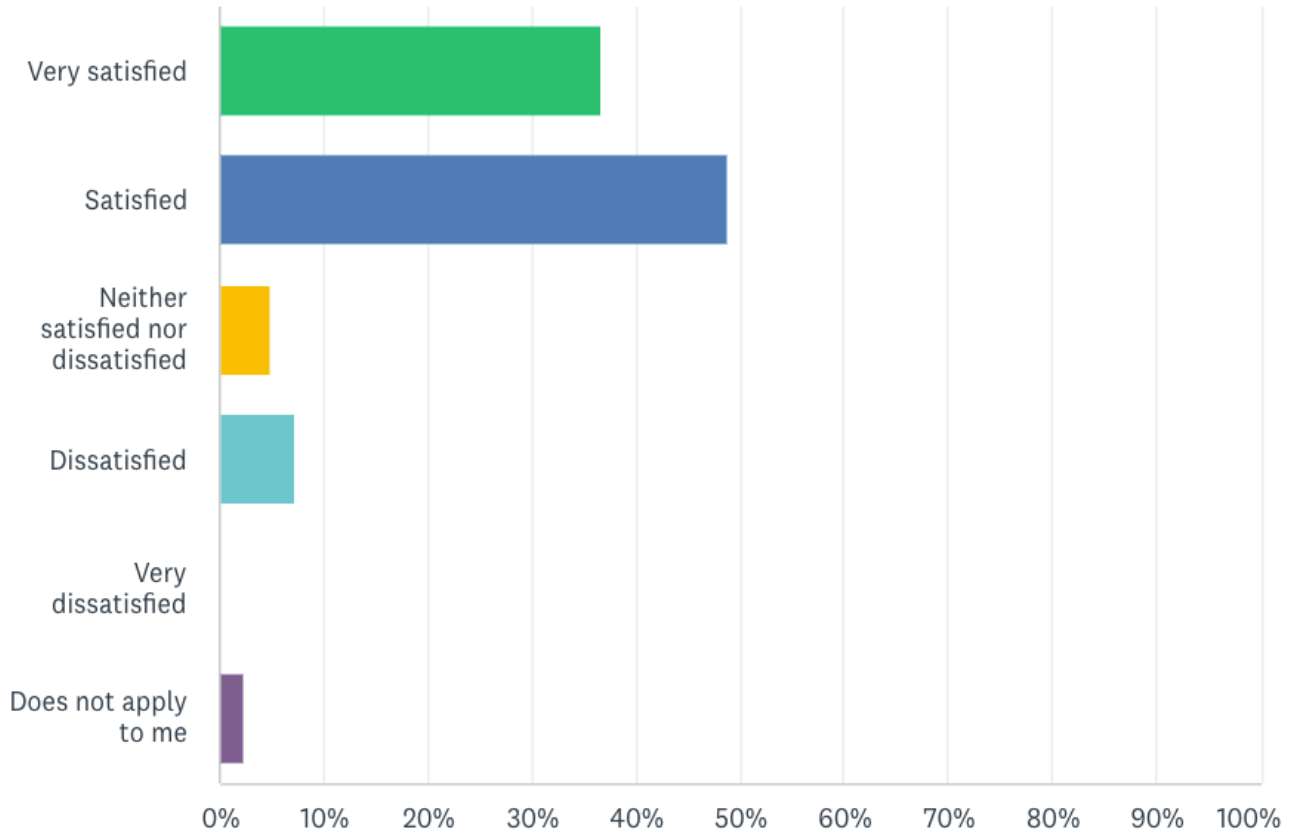
- Straightforward test with no issues
- Slight delay, mainly internal
- It was successful due to we and the clients having no issues
- Straightforward test with little to no issues
- We were able to test both our primary solution as well as our internal DR solution connecting to the various exchanges in their DR posture. We had no issues in connectivity and configuration and were able to start at 9:00AM EST and finish by 11:00AM EST across the various scenarios
- Straightforward with no serious issues
- All entity testing was completed successfully except for a few exceptions
- Have achieved all that was expected, per the timeline set, and did not have hiccup as things ran per the preparation and plan
- The technical details and DR endpoints were known for the most of exchanges and venues and the connections were established with no additional actions. For some venues, it appeared that no failover to DR lines was performed. Technical support response by e-mail were not prompt for some providers.
- [A clearinghouse] had test day issues. A test that should have been 9:30am-1pm ET was elongated to be delayed through 11am and did not get the notice of failback until after 4:30pm. They never were able to confirm receipt of our trades. They were the only ones two years in a row to have these lengthy delay issues. They need to address this.
- Was never able to confirm trades, there seemed to be an issue between [exchange and clearing] on the trade load. Please refer to emails from [participant]
- [An exchange and clearing organization] were not available for most of the day, and therefore we were not able to complete testing. Delay to start [with another exchange], but once they were available, testing completed as expected
- From the exchange side our firms had a very positive experience

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- I think a lot of test info & even this survey [is] more targeted for market participants – but I’m a data vendor. I just need to confirm data received during the testing window. For that, we were successful though it would be better if the parameters were more clearly stated in the documentation for each exchange (like “data is from primary site until this time, then simulate the disaster & start sending from DR/backup at this time, then simulate recovery & migrate back to primary site at this time” then we’d know what times to look at specifically). Since we only need to confirm data received, we are not online on the test day – we simply run scripts to connect & capture data during the test window – then check results the following week. I think that’s generally sufficient for our purposes
- It was a success due to not having any issues with the testing
- It was successful to an extent. We were able to connect on both exchanges that were required of us but was unable to submit a trade on one due to internal issues
- Very straightforward test with no issues
- We had a positive experience – our tests were passed, and when there was a connection issue – we were able to get quick responses from the exchange participants’ tech staff, and resolve the problem quickly
- Generally successful, but we were unable to test with [specific exchange] due to issues with trades not flowing to their clearing systems. This was frustrating as there wasn’t clear communication to the group and we ended up having to stick around until after 5PM EST until they finally gave up
- Being able to complete all requisite tests made the day a success
- Success with issues at times, but were addressed and resolved

Question 3

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



ANSWER CHOICES	RESPONSES	
▼ Very satisfied	36.59%	15
▼ Satisfied	48.78%	20
▼ Neither satisfied nor dissatisfied	4.88%	2
▼ Dissatisfied	7.32%	3
▼ Very dissatisfied	0.00%	0
▼ Does not apply to me	2.44%	1
TOTAL		41

Question 4

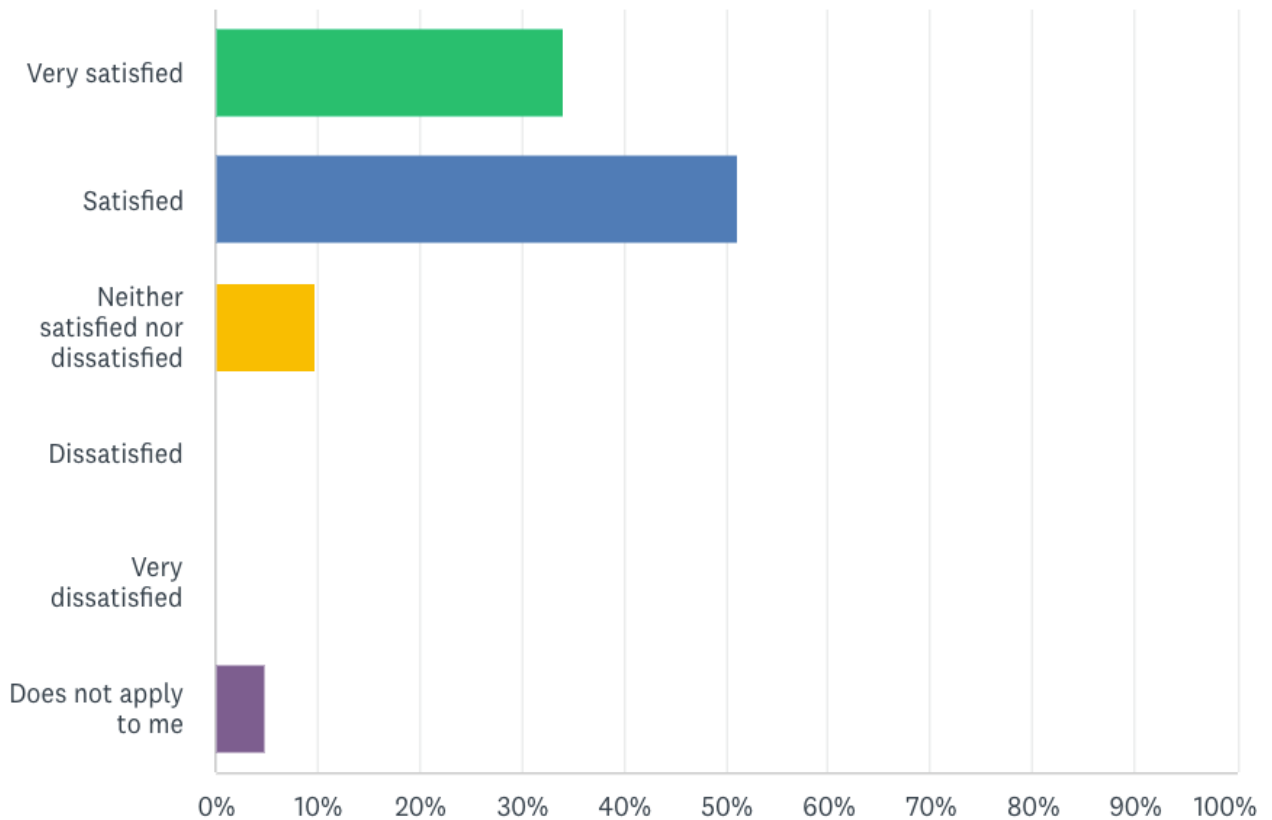
(Optional) Please explain your answer to Question 3, regarding Current Test Day Windows. For example, were test day windows as expected and/or did you find extensions of test day windows sufficient, etc.?

- Would like phase 1 of the exchange test window to be a little longer
- If you are referring to the ping tests these did not apply to our team
- Most test windows were accurate with a few exceptions
- Mostly satisfied with the exception for [one clearinghouse]. This is too long a day for all involved. In our internal policies and standards, this would have been a fail after 4 hours. We waited and it still exceeded 4 hours and we still ended up failing it since the issues were not resolved
- All exchanges seemed to be fully engaged. [One exchange] had an issue with our EU address (security software) but it was quickly resolved
- Time frames acceptable, however we need the exchanges to be available for the whole test window
- Because of the prep work done in advance of the test itself, the 4 hour window we offer has proven to be adequate time for firms to complete their testing
- Data vendor – participation via scripts run to connect & capture data during the test. None of our people are actually online to participate at that time – we simply check our results during normal business hours the following week
- The window for the testing was appropriate, maybe it should start sooner if possible
- We could've used some more time to troubleshoot and there were no extensions offered [by one specific exchange]
- Sufficient time window available in order to test and address issues in case there are any
- Our tests were executed promptly and we had no issues that would have required an extension. I believe the time window is adequate
- The timelines for some of the exchanges significantly conflict[ed] with each other. There are exchanges failing back to production as early as 9:00 AM CT and other exchanges not failing over to BCP until after 10:00 CT. The more exchanges included in the test the more complex the coordination from the FCM side and this is causing confusion and lost opportunities. A true disaster would be more chaotic but my understanding here is that the goal here was to test the viability of the BCP sites

- It would be helpful if [one exchange] extended their testing hours to align with [another exchange] as they end an hour earlier. Also, the testing window for [one exchange] is very short (only 2 hours) so we often have issues completing the testing in time
- The disparity/lack of synchronization between exchanges extends the test day in unnecessary fashion

Question 5

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



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ANSWER CHOICES	RESPONSES	
▼ Very satisfied	34.15%	14
▼ Satisfied	51.22%	21
▼ Neither satisfied nor dissatisfied	9.76%	4
▼ Dissatisfied	0.00%	0
▼ Very dissatisfied	0.00%	0
▼ Does not apply to me	4.88%	2
TOTAL		41

Question 6

(Optional) Please explain your answer to Question 5, regarding Test Day Staffing.

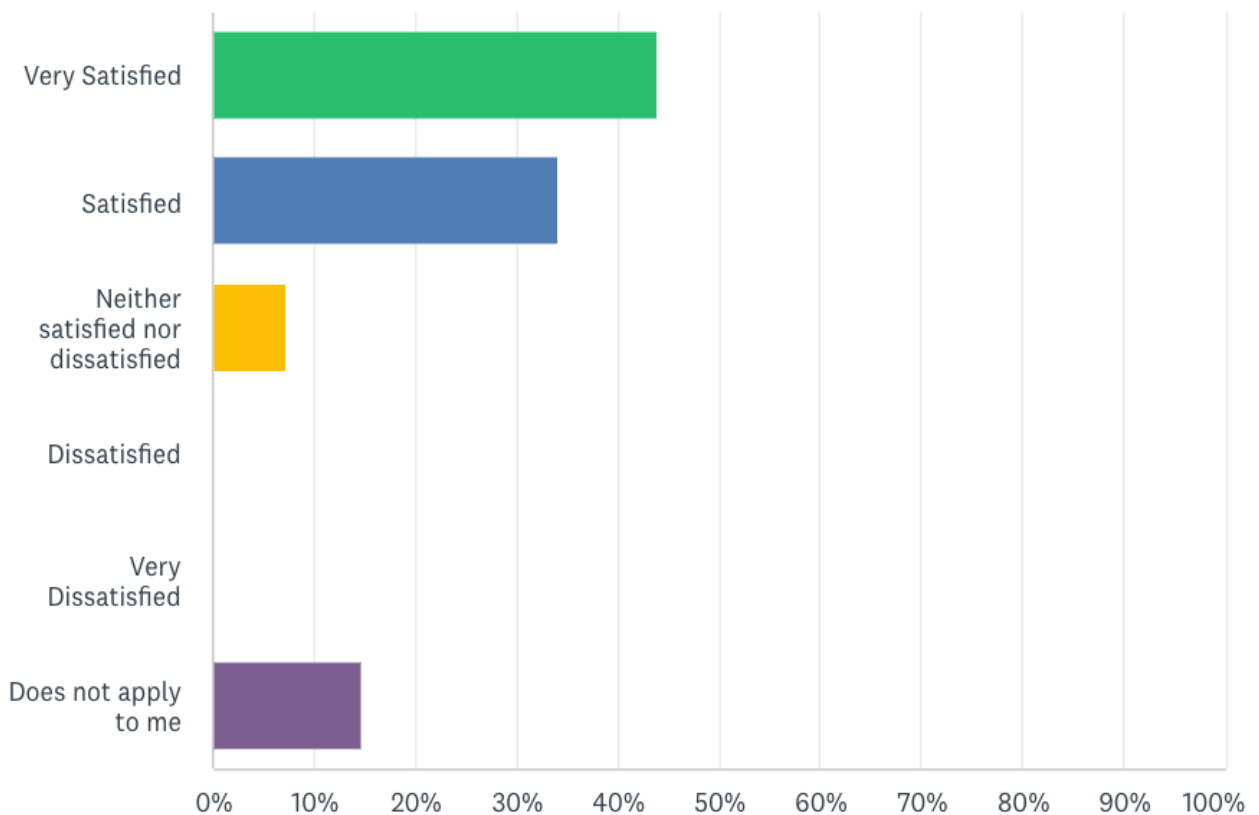
- Wait time was a little long in some instances
- There was a little confusion when contacting one of the participants with certain questions, and if we didn't have some co-workers who had participated previously, we would have had very little idea what to expect or what was expected of us
- Participants were present and timely on test day with executing their test script activities
- All exchanges had all hands on deck and very accessible and responsive with the acceptance of [one exchange], who never responded to our inquiries for the failed trade load
- Support staff were available and responsive
- Most firms established test day contacts, always a couple who offer some challenges, but that is expected with such a large set of testing firms
- Data vendor – participation via scripts run to connect & capture data during the test. None of our people are actually online to participate at that time – we simply check our results during normal business hours the following week
- Since we only clear [one exchange], I believe they were ready and available to answer any questions and quick in confirming receiving our reports
- We did have an issue with an MQ connection – response was immediate and we resolved the issue quickly. It was evident the teams were prepared
- No issues apart from [one clearinghouse]

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- The ISVs are typically operating on a skeleton crew and in past year's there has been opportunity to miss testing windows where they are a dependency
- Not all exchanges were replying on time and which caused a delay in tests

Question 7

There is general consensus that pre-test participation is an important part of Test Day preparedness. How satisfied were you with your pre-test experience?



ANSWER CHOICES	RESPONSES	
Very Satisfied	43.90%	18
Satisfied	34.15%	14
Neither satisfied nor dissatisfied	7.32%	3
Dissatisfied	0.00%	0
Very Dissatisfied	0.00%	0
Does not apply to me	14.63%	6
TOTAL		41

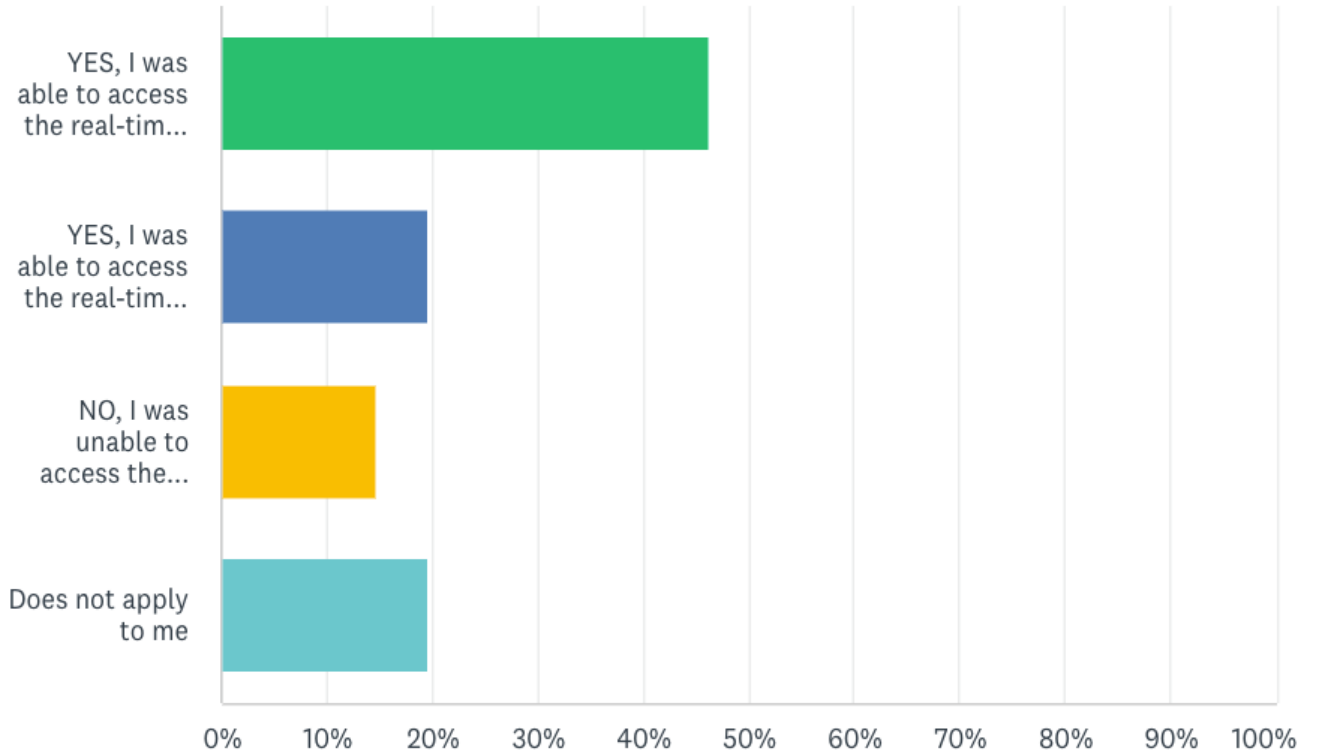
Question 8

(Optional) Please explain your answer to Question 7, regarding your pre-test experience. For example, did pre-test coordination go as planned? Did the selection of pre-test date offerings work for your organization?

- Many exchanges offer general weekend testing, so customers could test bringing up their environments on a prior Saturday to validate that basic connectivity works. In addition, some exchanges do simple telnet testing. However, it would be useful to have a test weekend that is optional for customers to be able to connect to exchanges and validate their environments (connectivity, data flow, authentication, etc.). At the moment, it feels that there is no good way to dry run what we need to do on the DR test date
- The pre-test experience was mainly a series of introductions to the exchange participants in the test
- Pre-test activities helped with preparation with 10/14/2023
- Pre-test was a very good smoke test for the actual exercise as it allowed to fine tune the processes and runbook
- I know it is a lot of coordination, but I do think we need to consider having dummy trades and such like we do on Test Day. The Pre-Test connectivity only means functional users of the connectivities are not testing out IP addresses, ensuring trades are passing through the systems, etc. Essentially only ping testing is being done and more is warranted in some cases, such as [with one clearinghouse]
- Was not able to connect to some exchanges due partly to ill preparedness internally and some of the pre-test day staff
- Opportunity to review any connectivity issues prior to test day. Pre-test for exchanges to ensure the exchanges are available on test day
- All registered firms required to partake in pre-test did so as scheduled
- Data vendor – we were told that pre-tests were for market participants only, so not applicable to us
- Our service provider did the pre-test, so [our firm] wasn't involved in that part of the testing
- The [exchange] test environment could've been open to pre-test
- The pre-test component is definitely useful and if any new connections or tests are introduced, the pre-test period is very appropriate to ensure test day goes well.
- Separate part of our bank operates this portion, but I do agree it is critical

Question 9

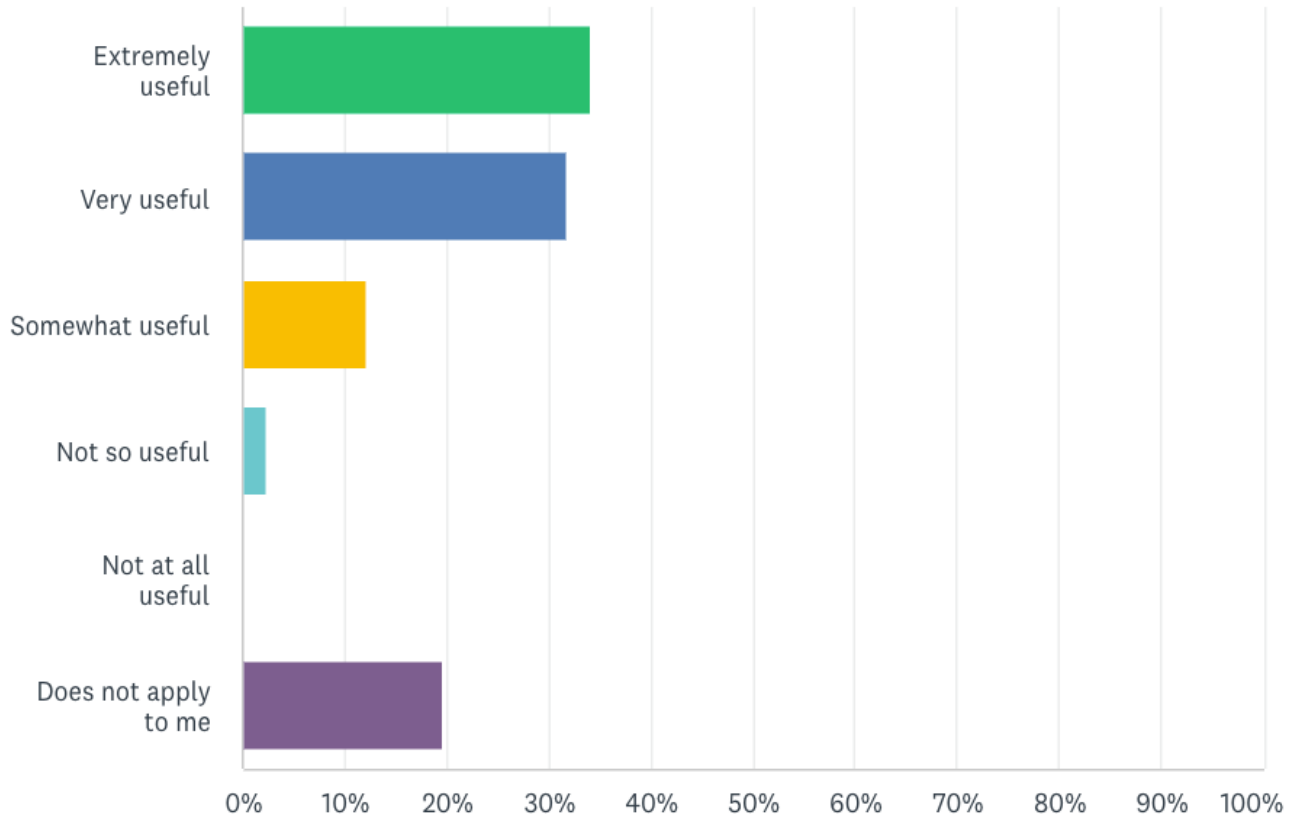
In an effort to improve our Test Day status page (the red/yellow/green indicator page), we introduced a real-time spreadsheet option (in addition to the traditional webpage), whereby exchanges and clearinghouses updated the spreadsheet directly, and participants were able to view spreadsheet updates in real-time. Were you able to access the real-time spreadsheet option?



ANSWER CHOICES	RESPONSES
▼ YES, I was able to access the real-time spreadsheet option, and used this option for status updates	46.34% 19
▼ YES, I was able to access the real-time spreadsheet option, but used the traditional webpage for status updates	19.51% 8
▼ NO, I was unable to access the real-time spreadsheet option	14.63% 6
▼ Does not apply to me	19.51% 8
TOTAL	41

Question 10

To what extent do you feel that the 2023 DR Test Status pages (real-time and traditional) were useful/not useful?



ANSWER CHOICES	RESPONSES
Extremely useful	34.15% 14
Very useful	31.71% 13
Somewhat useful	12.20% 5
Not so useful	2.44% 1
Not at all useful	0.00% 0
Does not apply to me	19.51% 8
TOTAL	41

Question 11

(Optional) Please explain your answer to Question 10, regarding the Test Status page. For example, did the real-time spreadsheet provide better quality status updates? Were status updates timely? In what ways did you find it helpful and/or in which ways was it lacking, etc.? If you were an exchange making status updates, how did it fit into your Test Day processes?

- The Test Status page was very useful. Keeping a real-time update of the status of the participating exchanges helped smooth the entire process
- It allowed to effectively plan the efforts per the various availability and readiness
- This is how we tell our technology and functional testers when to begin, so this is a very helpful and useful page
- This page was a very nice enhancement to the overall process- not having to confirm windows, etc. ...much appreciated!
- This was much improved from last year, we were able to view the status as needed which helped us prepare for our next stage of testing
- Our company security restrictions prevented us from accessing
- Data vendor – participation via scripts run to connect & capture data during the test. None of our people are actually online to participate at that time – we simply check our results during normal business hours the following week
- I was not involved in this component of the test. The updates were provided by our service vendor
- The status page is extremely useful for quick updates on the latest exchange/clearinghouse statuses without having to dial into the conf bridge
- The exchange being up is not a clear indicator of [whether] order entry is available and it does not take into account the status of the ISVs most brokers use to access the exchanges

Question 12

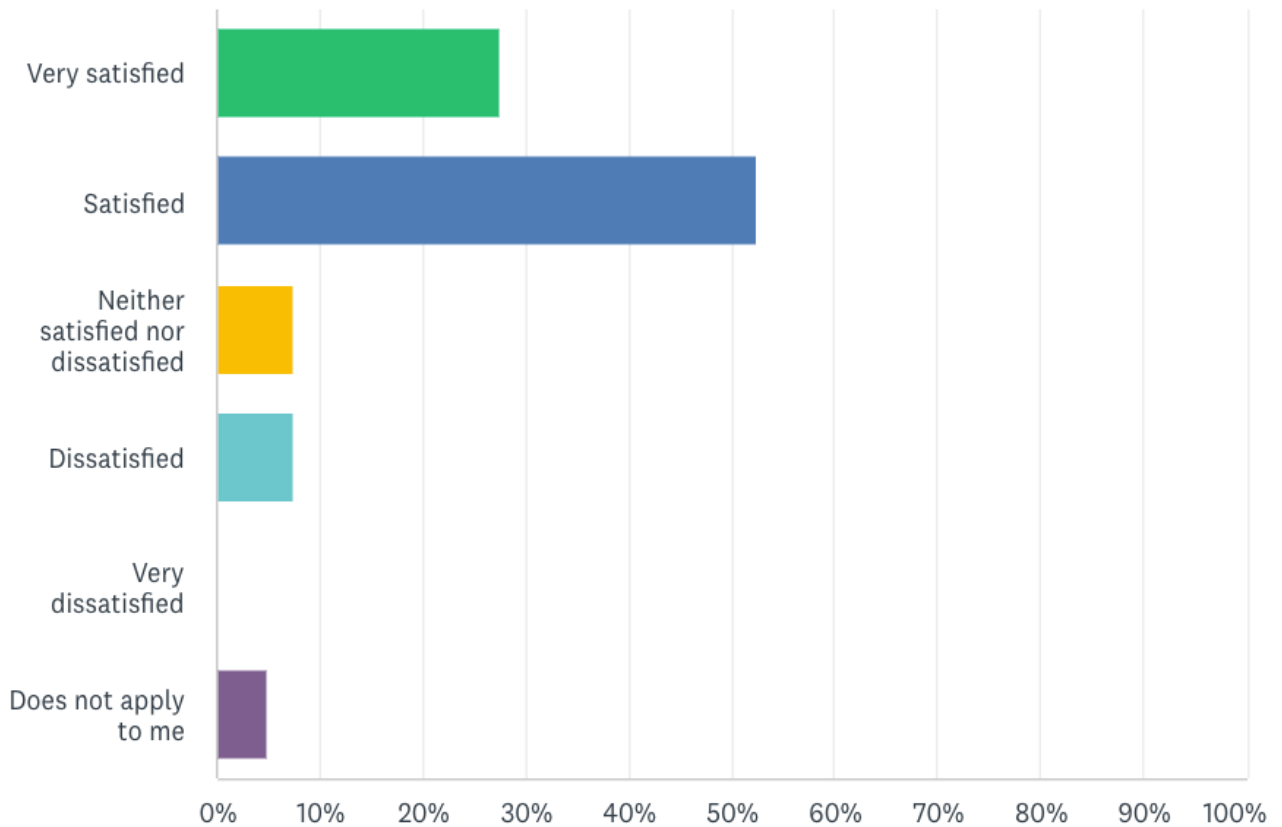
Security controls vary across organizations (i.e. – some block access to the real-time spreadsheet). How might we provide better access to such real-time status updates in the future? For example, if we provided a URL further in advance, is it possible to have it approved/whitelisted by your company? Is there a solution that works better for your company in particular?

- Yes, an URL link in advance would help. For us to have it approved would take at least a month; hence way before the pre-test event we would like to start the approval process
- Happy with as it was
- Yes, that is always advisable
- Yes, that would be useful
- Yes. Providing the URL further in advance would help
- [Our exchange] could access the spreadsheet and update real time
- Provide an Apple/Android app
- A URL provided ahead of time (perhaps we can also test it during the PreTest?) would be great. That way, my company may be able to better assist with any access issues
- Worked for me
- Perhaps make the URL available earlier and we can work with our security teams(s) to get the URL whitelisted in advance of test day
- I am fine with the spreadsheet. It worked really well.
- Yes, but this was not an issue for us
- This could be an important point, but firstly we would need to discuss with our SOC team, or the time being, I cannot provide a complete answer.
- I appreciate the question – I would assume a website or adding this to the existing webservices would be a good idea
- Yes we can work with any solution
- Trying to have a site approved/whitelisted at our firm is extremely difficult and requires approvals from top executives. It would be much better if you could find a solution that would display the data in standard HTML or other format that wouldn't require any security setting changes

- Site or spreadsheet is fine for the moment
- Email and docs work better. May be we can work on whitelisting if globally approved, but might take time for security approvals

Question 13

To what extent were you satisfied/dissatisfied with the availability, format, information contained, and the delivery of Test Scripts and Test Day instructions (from Exchanges/Clearing organizations), prior to Test Day?



ANSWER CHOICES	RESPONSES
Very satisfied	27.50% 11
Satisfied	52.50% 21
Neither satisfied nor dissatisfied	7.50% 3
Dissatisfied	7.50% 3
Very dissatisfied	0.00% 0
Does not apply to me	5.00% 2
TOTAL	40

Question 14

(Optional) Please explain your answer to Question 13, regarding Test Script availability, format, information contained, and delivery. For example, was anything lacking in the test scripts and/or did you find a particular format helpful, etc.?

- Some test scripts and notifications about the pre-test/test day contained lack of information. For example, the test script of [one exchange] were more or less clear, but the prior notifications in PPT/PDF gave a non-professional impression and no clear message. It would be nice to have an FIA template which all entities have to fill out to pass on clear message only
- Some [commonalities] or basic normalization would be useful. For example, I don't believe [one exchange's] script called out the products to test, so we hunted and pecked for liquidity to trade against. Would be good to normalize what exchanges make available
- I felt that instructions on what was expected of us were very limited. We obtained most of our information from co-workers who had participated in previous years
- I don't feel this is very much in FIA's control. It is good that many of the participants post on the FIA website for the scripts, which is very helpful, but if there is a specific trade that must be used on test day for certain counterparties, this doesn't work
- Standardized test scripts would have been helpful. Use the same time zones – stick with either EDT or CDT but not both
- I felt it was better/clearer than past years. But maybe it's me :-)
- Had issue with [a clearinghouse], as we didn't receive timely updates. Also, the end to end test was not successful as [this clearinghouse] couldn't send the trade messages over MQ. This could have been more successful otherwise
- We're a data vendor, so the same instructions don't really apply to us. I found most info on the FIA site not as specific as I'd like or as I remember in the past. I think one of my venues specified what I wanted to see: data is disseminated from primary until this time, then we simulate a disaster & begin sending from the backup/DR site at this time, then we simulate recovery & go back to disseminating from primary at this time. As a data vendor, I just need to confirm that we received data through all the switches – so when it moves between primary & backup is important to me. But nobody needs to work on a Saturday to participate live – we run a script to connect & capture data. I need to know what times to look at when we review results the following week & I don't believe I saw much documentation make that clear for 2023
- We only have an issue with [one clearinghouse product]. Although our connectivity was OK. It is supposed [to be] that the trader should insert orders. But the market seems to [not be] open and only when asked two times in the FIA call, they told us that orders should be [sent]. We think that this information should be included in test script, so traders and users can be ready [for this]

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- I think some exchanges are better organized than the others. They need to improve the test script and minimum requirement for considering the test as being successful. For example, [one particular exchange] is always well organized in respect to others
- Our testing did not require scripting as it was mostly connectivity testing
- Each exchange had different formats and/or requirements (some more detailed than others) for testing. The difference in exchanges is expected, but we should be able to standardize the format being offered to the participants

Question 15

Noting that the registration process for the DR Test was a two-step process (which we hope to change in 2024), what would you improve about the test registration process and/or system in general? What information is not currently being captured that should be, to make Test prep and Test Day better?

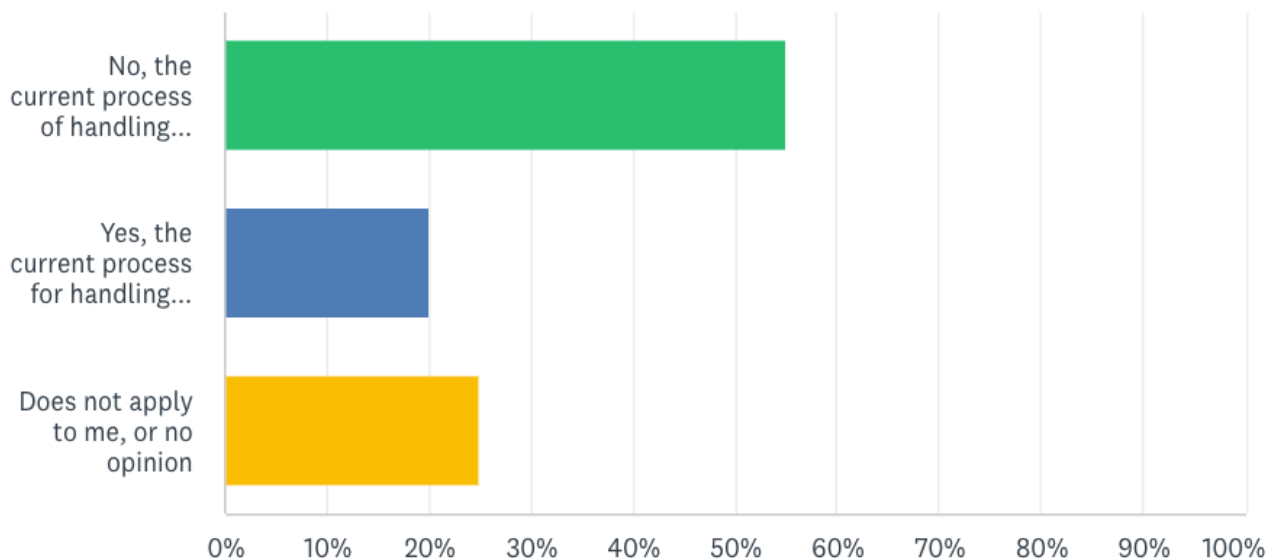
- A big improvement would be to have a URL-based registration process similar [to] what SIFMA is using
- Nothing of note
- I often have issues registering. I receive system error messages every year
- The registration process was mostly not an issue for our team. One thing that could have been made more clear was who would be expected to participate in the ping test. We knew nothing about this until almost ping-test day. We found out from our co-workers that it did not pertain to us
- I thought the registration process was [good] for my organization
- It would be nice if where FIA and SIFMA cross over, we could register just once
- Other than [one clearinghouse] being separated, I have no issues there
- Seemed adequate
- When a participating organization testing against me sends an update to their registration, as a participating utility, it has always been a pain trying to figure out in the confirmation email what exactly was updated. Perhaps highlighting all refreshed fields?
- Make sure there's a clear schedule for what time data switches between primary & backup – then stick to it. If there are any deviations, those are the only email updates I need on the test day

FIA Market Technology Division

- This was my first time to register and I must admit I had some difficulties to complete the registration, so [the] two-step process was not, let me say, [a] very friendly approach. The information that could be included may be test window
- Some confusion regarding SIFMA and FIA registration – do we do both – it seems like larger firms have overlapping teams so some duplicate sign ups occur, unless it's coordinated centrally
- FIA test registration looks fine. We would just [expect] to have [advanced notice] like 3-4 months before for firms to prepare
- As a vendor, I wish there was a way for customers to register under us, and then allow us to download the list. This is how the SIFMA registration works
- It was already fairly easy

Question 16

Should FIA change the way that registration and coordination is handled with third-party service providers? We do not currently highlight service providers, and generally leave coordination up to service providers and their client participants.



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ANSWER CHOICES	RESPONSES
▼ No, the current process of handling registration and coordination with third-party service providers should not be changed.	55.00% 22
▼ Yes, the current process for handling registration and coordination with third-party service providers should be changed.	20.00% 8
▼ Does not apply to me, or no opinion	25.00% 10
TOTAL	40

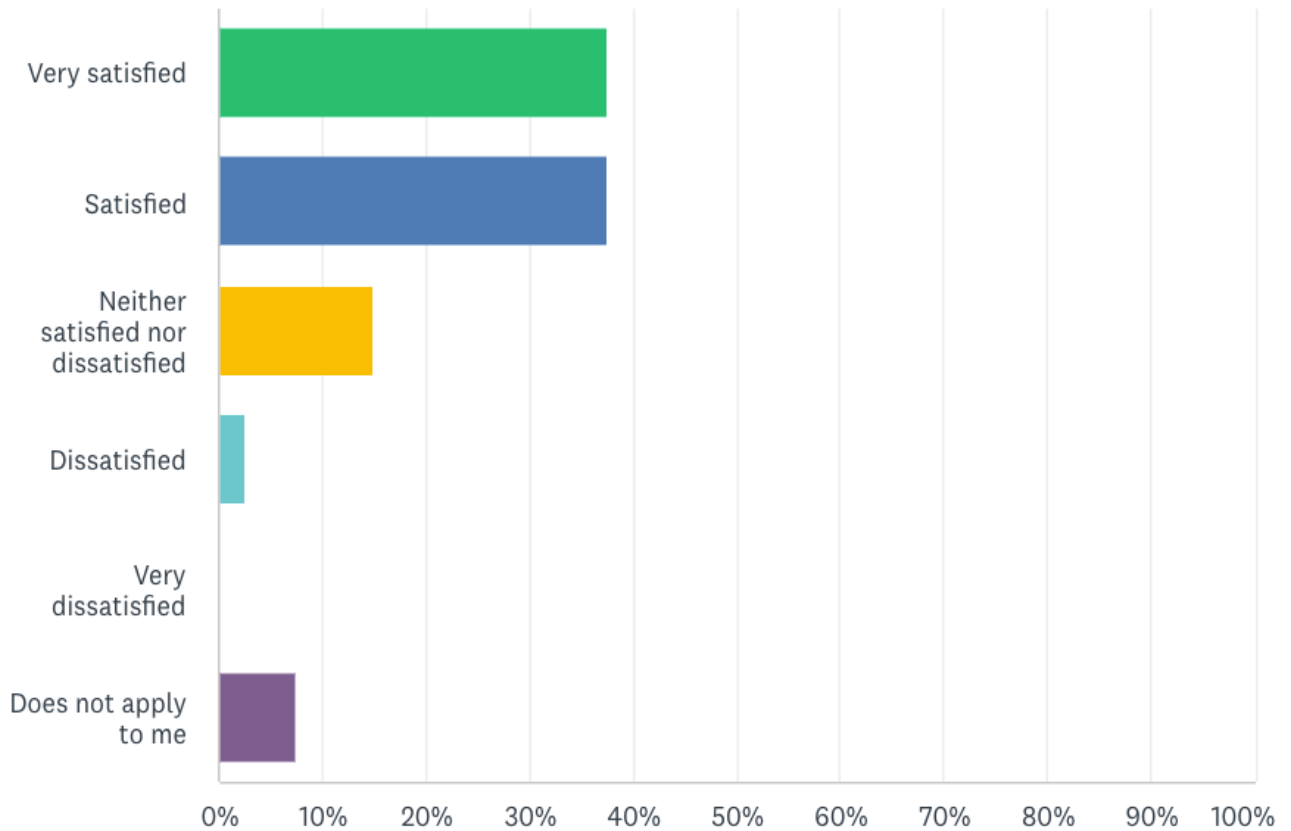
Question 17

(Optional) Please explain your answer to Question 16, regarding the way that registration and coordination is handled with third-party service providers. For example, should there be a portion of the registration page where third parties are selected (thus notified) of a firm's intended participation in the test?

- Registration and coordination with third-party service providers was not an issue
- It would be good to know what third-party service providers should also be included in testing. Our company did find a service provider that we now need to confirm if they participate to determine our internal pass/fail results. We will also look to work with them to see if they would be willing to test with us in the next test
- FIA facilitation was well coordinated
- Speaking from the exchange side, I like the way it works currently
- Yes, I believe 3rd parties need to be more engaged. Oftentimes in past DRs, 3rd parties were always surprised at the last minute by their clients looking to test
- I suppose this is referring to data vendors like myself. I think most of the FIA/SIFMA documentation is tailored to market participants. It would be great to see more that's specific to data vendors – again, specifically what time the source is switching between primary & backup/DR
- The registration with third-party vendors should be shared with the Clearing Firms
- We did have some confusion if they were all signed up or not. Even though they said they were participating
- Greater pressure should be applied to ISVs to participate more completely in testing. Some make decisions to or not to support certain tests due to cost and staffing
- As a vendor, I wish there was a way for customers to register under us, and then allow us to download the list. This is how the SIFMA registration works

Question 18

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



ANSWER CHOICES	RESPONSES
▼ Very satisfied	37.50% 15
▼ Satisfied	37.50% 15
▼ Neither satisfied nor dissatisfied	15.00% 6
▼ Dissatisfied	2.50% 1
▼ Very dissatisfied	0.00% 0
▼ Does not apply to me	7.50% 3
TOTAL	40

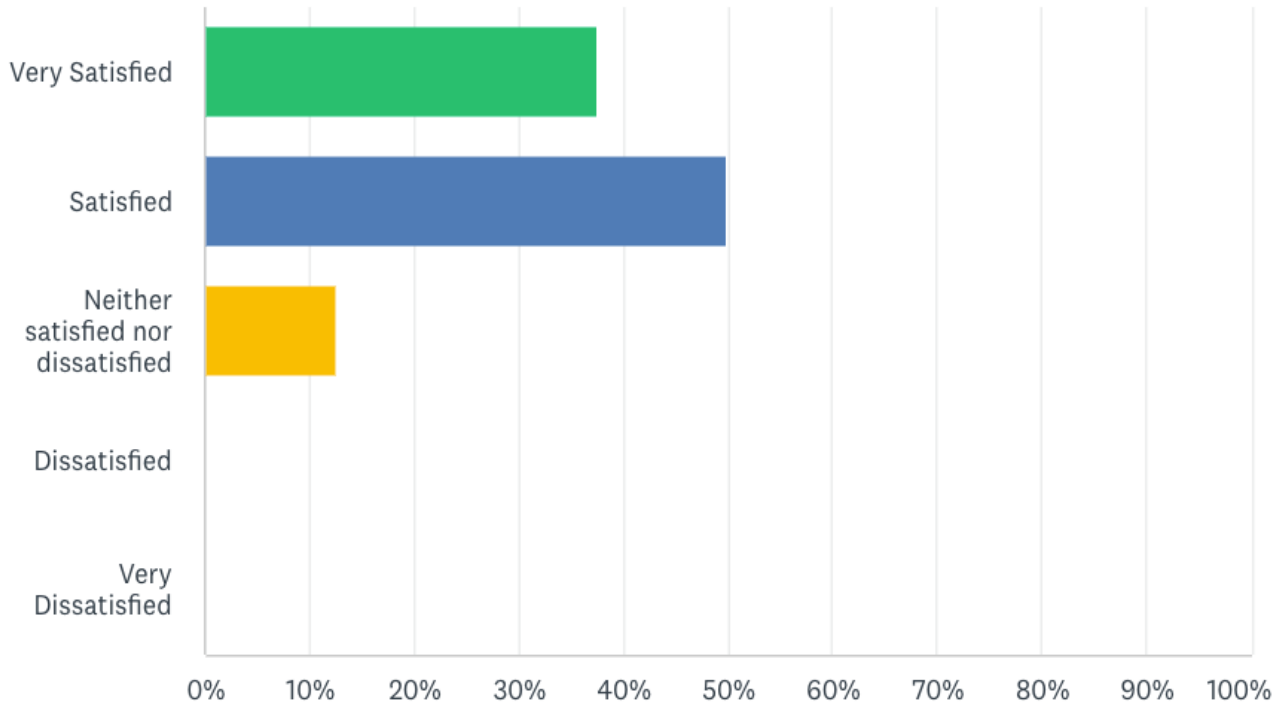
Question 19

(Optional) Please explain your answer to Question 18, regarding post-registration information and follow-up.

- It's not FIA, more like FIA entities – there are some entities to which questions/concerns are asked via email (or via phone which is never picked up)
- Emails are provided to give us as much information as was possible at the time
- I had to reach out to a few exchanges for test information
- Other than this survey, I don't know that there is much to discuss after the test; however, it would be good to find a way to get a confirmation receipt from the participants when they have received the registrant's results. Not all participants are forthcoming to confirm receipt
- Good amount of information shared, within reasonable timeframes
- When a participating organization testing against me sends an update to their registration, as a participating utility, it has always been a pain trying to figure out in the confirmation email what exactly was updated. Perhaps highlighting all refreshed fields?
- I am very satisfied because I got in touch with [FIA] and the communication was absolutely efficient and useful
- Yes – communication for the DR testing program is very good – end to end

Question 20

To what extent were you satisfied/dissatisfied with the content of the webinar/presentation that was given by Exchanges and Clearinghouses on August 14th?



ANSWER CHOICES	RESPONSES
Very Satisfied	37.50% 15
Satisfied	50.00% 20
Neither satisfied nor dissatisfied	12.50% 5
Dissatisfied	0.00% 0
Very Dissatisfied	0.00% 0
TOTAL	40

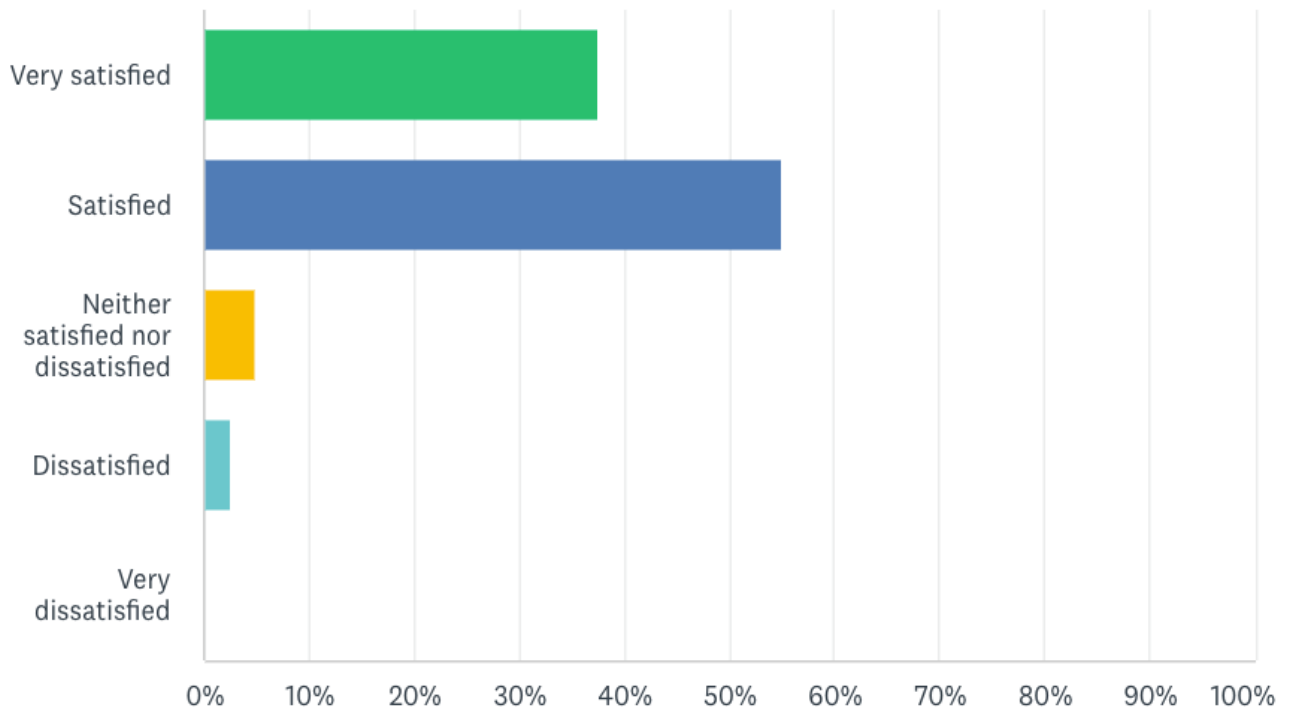
Question 21

(Optional) Please explain your answer to Question 20, regarding satisfaction with the webinar/presentation that was given by Exchanges and Clearinghouses. Should we change the format and/or content? For example, we will continue to include portions of the presentation such as Test background, but may abbreviate for the sake of time.

- There were no issues with the webinar/presentation
- No changes needed
- The presentation was very comprehensive and did not differ from what we executed on the weekend

Question 22

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/2023-fia-disaster-recovery-exercise>?



FIA Market Technology Division

ANSWER CHOICES	RESPONSES
▼ Very satisfied	37.50% 15
▼ Satisfied	55.00% 22
▼ Neither satisfied nor dissatisfied	5.00% 2
▼ Dissatisfied	2.50% 1
▼ Very dissatisfied	0.00% 0
TOTAL	40

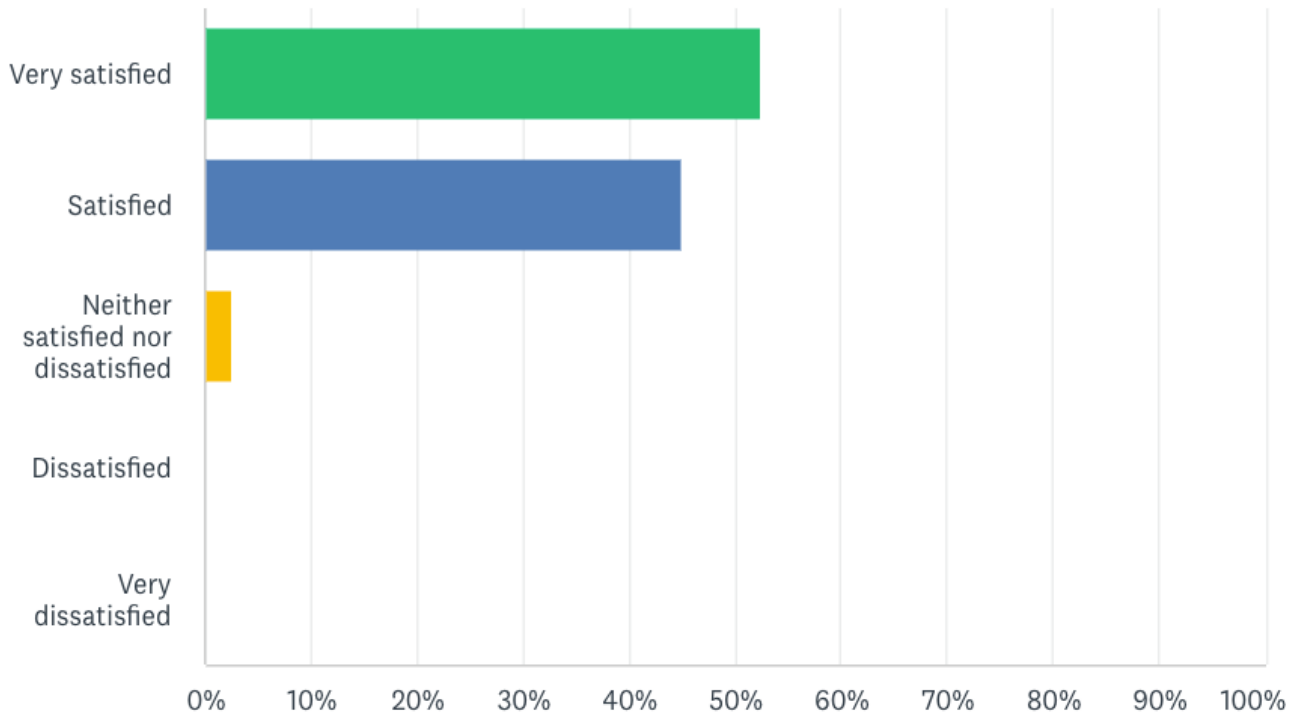
Question 23

(Optional) Please explain your answer to Question 22, regarding content and structure of the main DR Test webpage, and how we may best improve this site. Does more information need to be communicated?

- Unfortunately, some information [was] not entirely clear about mandatory pre-test and the documentations. Again, I believe it's not entirely on FIA more like entities passing lack of information
- The webpage was well organized
- Would be even better if this information is somehow merged with SIFMA content (excel spreadsheet with the participants and contact details)
- Comprehensive and easy to follow
- Site was easy to navigate
- Appreciated getting our exchange docs posted to the exchange, and updating if needed
- Could've been structured better, some of the information wasn't easily accessible and had to be found 'digging' in the texts

Question 24

To what extent were you satisfied/dissatisfied with the amount and quality and timeliness of communications that you received from FIA, regarding DR Test information and test-related activities (i.e. – participant calls), etc.?



ANSWER CHOICES	RESPONSES
▼ Very satisfied	52.50% 21
▼ Satisfied	45.00% 18
▼ Neither satisfied nor dissatisfied	2.50% 1
▼ Dissatisfied	0.00% 0
▼ Very dissatisfied	0.00% 0
TOTAL	40

Question 25

(Optional) Please explain your answer to Question 24, regarding communications of DR Test information/activities by FIA.

- Plenty of emails and plenty of availability by phone
- [FIA] does a great job of disseminating information about the test
- There was enough contact points to ensure we had the right information. Frequency of calls and communications felt about right
- I like the level the FIA offers
- All materials were on time and the quality was very good

Question 26

Geographically, from whereabouts did you participate in the FIA DR Test? City, State, and/or Country are sufficient and preferable answers, as we want to determine the global reach of the FIA DR Test. (**Note:** This is not an exhaustive list, as this only captures survey responses)

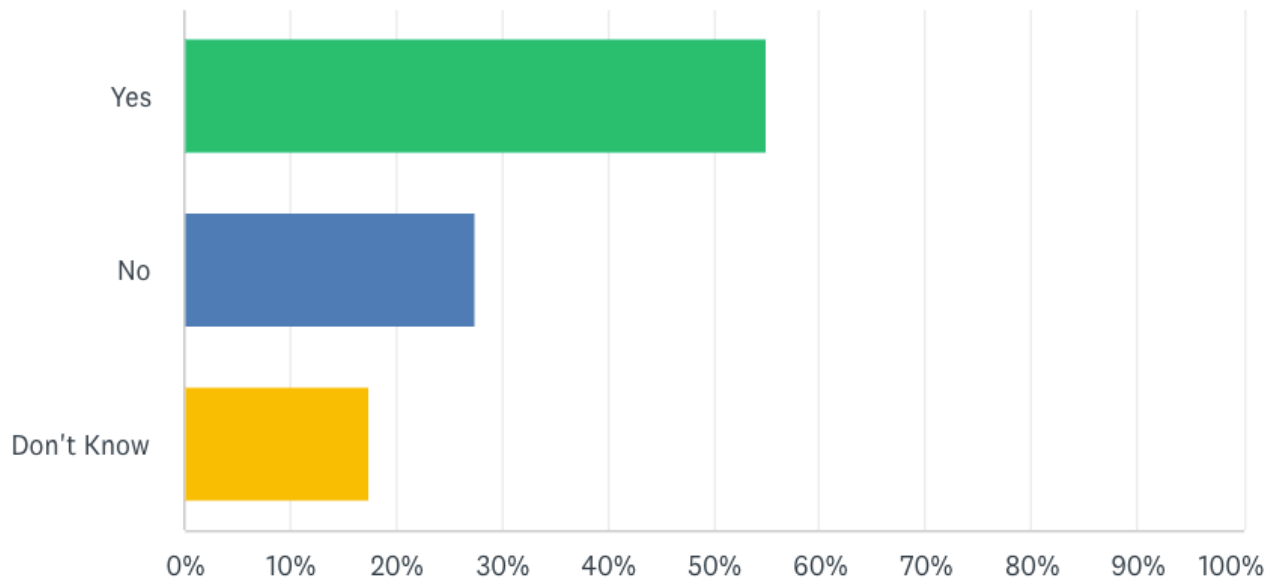
- Our team was mainly located in Europe, but others were from the US
- Bala Cynwyd, PA, USA
- Chicago, IL, USA – multiple responses
- Delaware, USA
- Dubai, UAE
- Germany (general)
- London, UK – multiple responses
- Madrid, Spain
- Milan, Italy
- Montreal, Quebec, Canada – multiple responses
- Munich, Germany
- Nashville, TN, USA

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- New York City, NY, USA – multiple responses
- Paramus, NJ, USA
- Poland (general)
- Putnam Valley, NY, USA
- Secaucus, NJ, USA
- St. Louis, MO, USA
- Tyson's Corner, Virginia, USA
- Voorhees, NJ, USA

Question 27

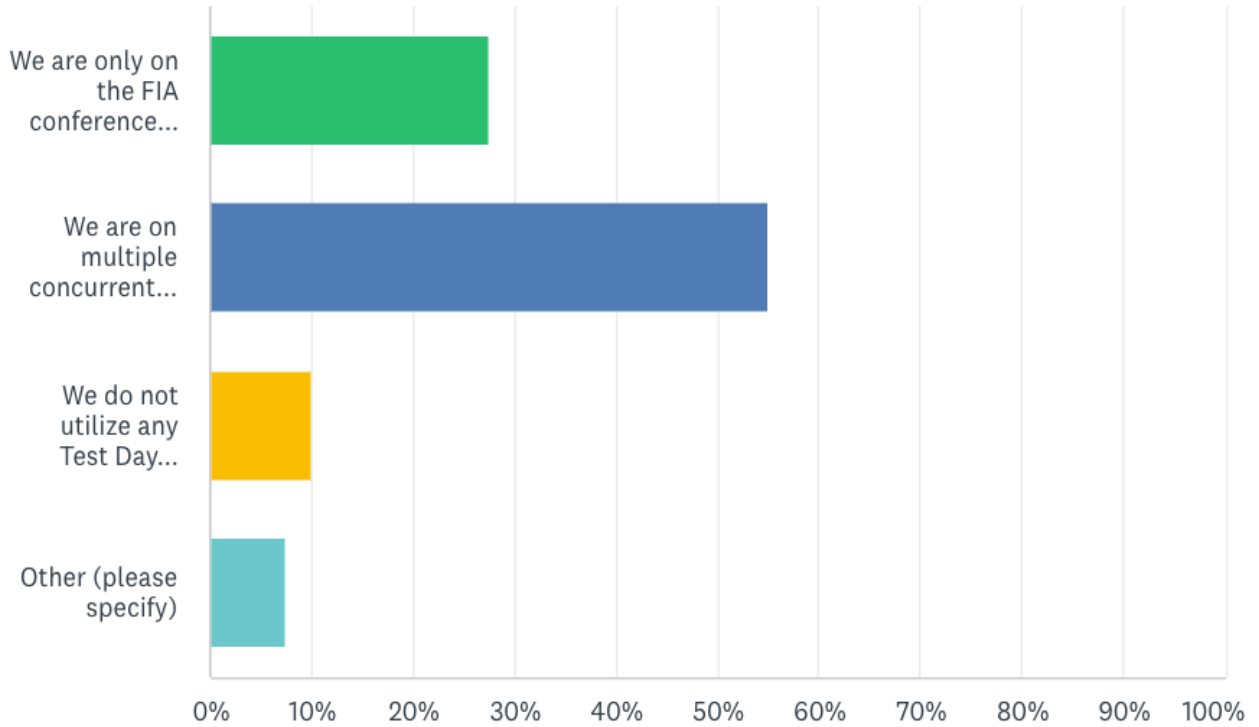
Did your organization also participate in the annual SIFMA test (also on October 14th)?



ANSWER CHOICES	RESPONSES
Yes	55.00% 22
No	27.50% 11
Don't Know	17.50% 7
TOTAL	40

Question 28

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	27.50% 11
▼ We are on multiple concurrent conference bridges, in addition to the FIA conference bridge, on Test Day	55.00% 22
▼ We do not utilize any Test Day conference bridges	10.00% 4
▼ Other (please specify)	Responses 7.50% 3
TOTAL	40

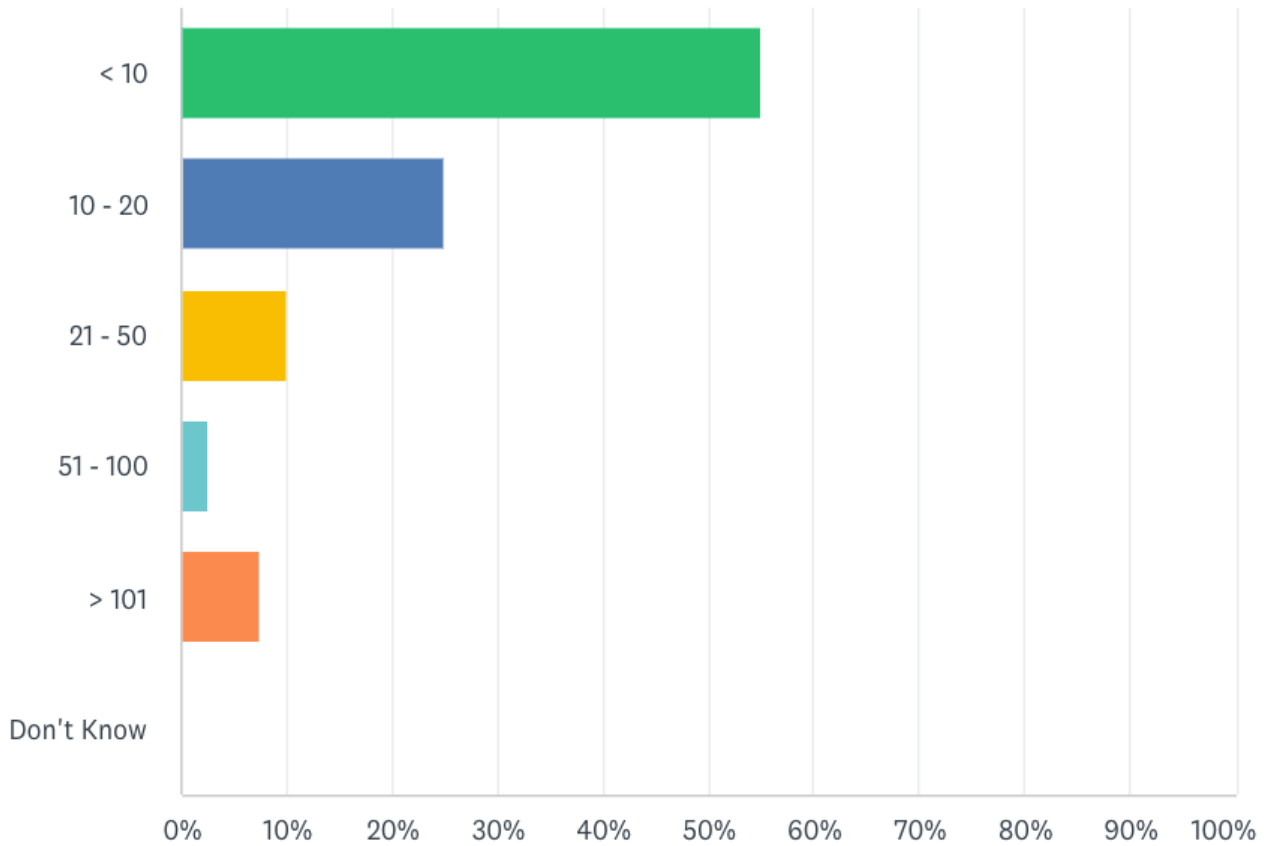
Question 29

(Optional) Please explain your answer to Question 28, regarding concurrent conference bridges. For example, do you participate on both the FIA and SIFMA conference bridges? Do you maneuver internal concurrent conference bridges, in addition to FIA/SIFMA? How do you manage participation on multiple concurrent conference bridges, on Test Day?

- Internal Bridge, FIA, SIFMA/RegSCI, IIROC + some entities have their own bridge (e.g. DTCC)
- Multiple bridges for just the FIA test
- Different teams were responsible for FIA and SIFMA, but technology resources were shared
- Just the FIA
- As an Exchange, we had an external bridge to handle the needs of our participants that had signed [up]; an internal bridge to coordinate internal efforts across the various teams implicated in the exercise
- FIA, SIFMA, FINRA, DTCC (which has 4), and our own internal bridge, if there are issues that arise. Therefore, can be as much as 8 possible bridges
- We all used the FIA test bridge for external updates and TEAMS for internal communication
- Internal Teams channels
- FIA bridge, SIFMA bridge, internal coordination bridge
- In addition to the FIA bridge, we have the SIFMA and internal bridges happening simultaneously
- I am on FIA, SIFMA, CIRO (formerly IIROC) and internal bridges
- Were a data vendor, not a market participant. None of our people are online to participate on the test day – we run scripts to connect & capture data so that we can check results during normal business hours the following week
- We only clear CME, NYMEX Division
- Our staff was on the SIFMA conference – our vendor was on the FIA (Futures) related bridge
- Some staff are on both FIA and SIFMA calls and there's also an internal bridge for the SIFMA/RegSCI testing
- We have to have someone monitor the FIA bridge, the SIFMA bridge, and the CIRO (formally IIROC) bridge. It's challenging to have the staff to do all three

Question 30

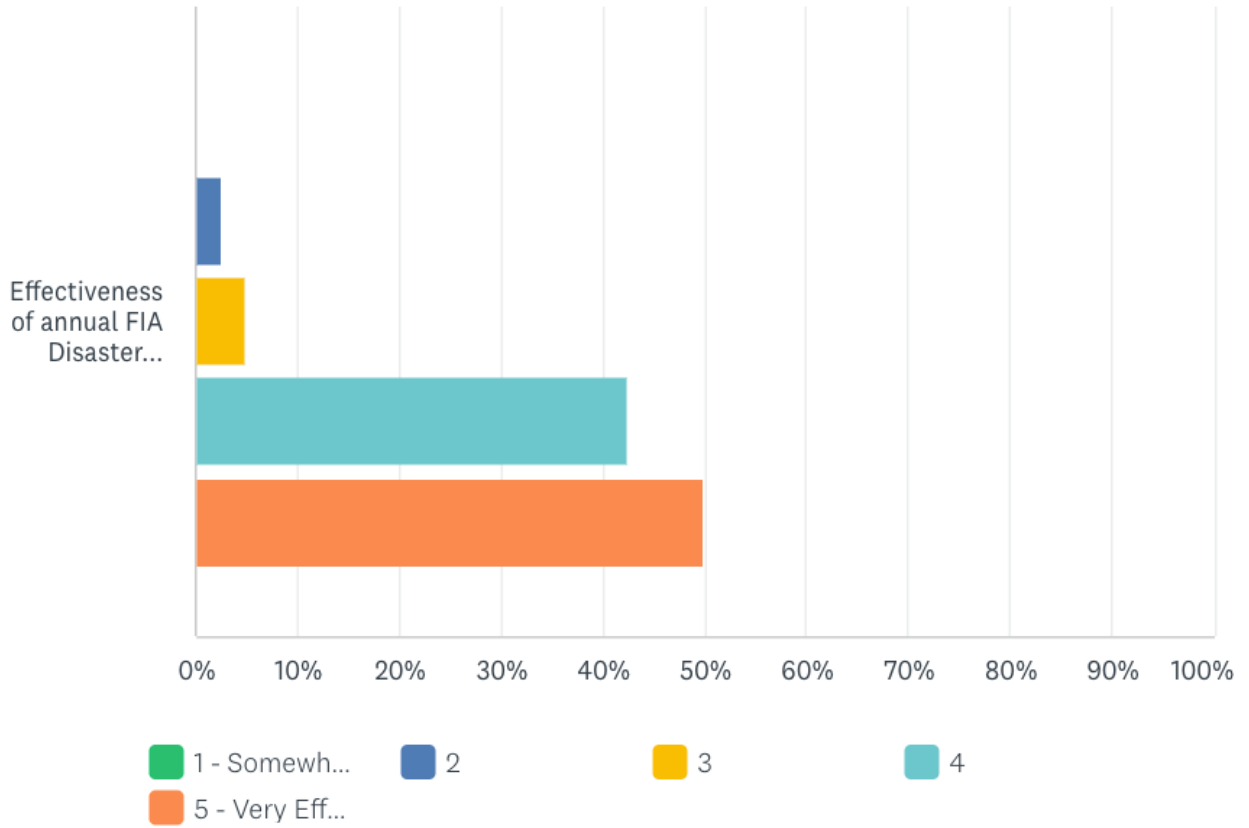
Approximately how many staff were involved with your test initiative this year (e.g., pre-test planning, support, help desk, failover, test management, test execution)?



ANSWER CHOICES	RESPONSES
< 10	55.00% 22
10 - 20	25.00% 10
21 - 50	10.00% 4
51 - 100	2.50% 1
> 101	7.50% 3
Don't Know	0.00% 0
TOTAL	40

Question 31

How would you rate the effectiveness of the annual FIA DR Test in testing/addressing business continuity objectives? (on a scale of 1-5 where 1 = Somewhat Effective and 5 = Very Effective)



	1 - SOMEWHAT EFFECTIVE	2	3	4	5 - VERY EFFECTIVE	TOTAL	WEIGHTED AVERAGE
Effectiveness of annual FIA Disaster Recovery Test	0.00% 0	2.50% 1	5.00% 2	42.50% 17	50.00% 20	40	4.40

Question 32

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

- It tested our ability to work as a team and communicate to achieve an objective
- Possibility combining SIFMA and FIA bridge lines during the 2024 Annual DR Exercise
- From the number of exchanges we elected to test with, we were only partially successful with one; everything else tested successfully
- I would like to see the scripts to be the same across all exchanges. The scripts should pertain to a particular scenario each year
- The FIA DR Test with [one exchange] has been unsuccessful for us for the first time ever. We have experienced connectivity issues, which have not been resolved and as such, resulted in inability to enter/execute orders. In order to resolve the issue, we contacted/attempted to contact the following groups and individuals: 1) Open Conference call. 2) [Exchange] help desk call. 3) [Exchange] Operational Resilience [email]. 4) [Exchange secondary] email. 5) [Exchange] representatives (individual email addresses used). There was an initial response received from the [secondary] representatives to issues presented in our emails, but our further correspondence was not responded / no assistance was received. Also we could not reach anyone via phone call.
- Another successful year – appreciate the support!