



Building continuity with online exams

How Mercer | Mettl conducted
60,000 quality exams with absolute
security for The National Institute of
Securities Markets (NiSM)



welcome to brighter

About the institute

NiSM

The National Institute of Securities Markets (NiSM) is a public trust established in 2006 by the Securities and Exchange Board of India (SEBI). This unique institute envisions playing a catalytic role in promoting securities markets research and education through its six schools that work in synergy toward creating a professionalized securities market.

Over the years, NiSM has scaled its activities across India and the ASEAN region, especially around certifications. [More than two hundred thousand market participants](#) get certifications on mutual funds, derivatives in equities, currencies and commodities, investment advice, research analysts, etc.



Challenges and requirements

Challenges and requirements in conducting NiSM's certification exams

NiSM has taken significant strides in redefining financial education within the global securities markets. One of its essential purposes is creating an adequate pipeline of new-age, well-rounded and competent professionals in the securities market through a bouquet of uniquely positioned academic programs. Hence, maintaining the education and examination cycle is critical for the institute. Since it is an educational initiative by SEBI, every individual must take a SEBI-mandated voluntary written examination at any of NiSM's 250+ accredited test centers spread across the country.

The academic calendar was on course, but the pandemic altered the plan. NiSM had shut its campus and test centers since the onset of the COVID-19 pandemic and the subsequent lockdowns. Resultantly, it was uncertain about its pen-and-paper exams for various courses. So were countless market participants who could not obtain or renew their credentials despite several months' preparation.

Initially, NiSM was skeptical about shifting its assessments online. However, the management eventually decided to go ahead with the online system, considering the candidates' health and safety and the need for continuity for the professionals and the securities markets.

But that was not enough.

NiSM had to first validate, analyze and measure a lengthy value-proposition checklist of functional and non-functional requirements.

Before we detail the intricacies of this mega partnership, the following were some of its requirements, out of its sixty-four listed parameters:

1. A robust examination platform

NiSM's exams were a global benchmark of excellence that set the standard in the securities market. Hence, NiSM sought a dynamic end-to-end online examination platform to conduct such high-stakes exams. The platform needed to offer a comprehensive approach, covering all areas: exam creation, scheduling, delivery and evaluation, besides post-exam review and results declaration by certifying eligible candidates.

2. Finest proctoring supervision with anti-cheating tools

SEBI endorsed and accredited NiSM exams. Thus, every stage of the exam required an enhanced security feature, which mandated an easy-to-use and superior quality proctoring feature. Besides, it also needed experienced and professional proctors to verify and monitor the test-takers throughout the exam, akin to an on-site examination, to ensure academic integrity. Furthermore, the institute sought anti-cheating tools to deter candidates from indulging in any untoward activity and help it adhere to strict internal policies and protocols.

3. Highly scalable infrastructure

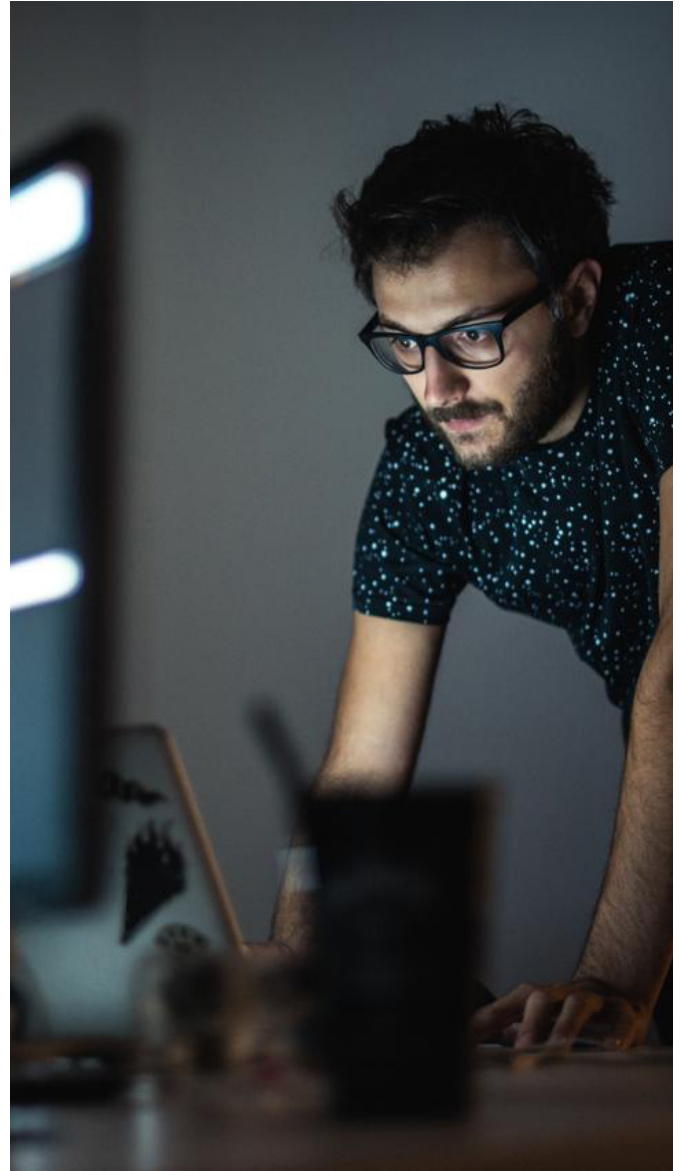
NiSM had always conducted pen-and-paper-based exams. Therefore, it had established processes to cater to multiple test-takers appearing for the exam in the traditional format. Hence, it necessitated an online system that ensured the same accessibility and the ability to scale up during the examination process without impacting the candidate experience.

4. High integrity

Data security, academic integrity and exam confidentiality were NiSM's significant prerequisites for administering any exam online. Furthermore, most of its certifications were job-oriented and directly impacted the candidate's employability and reputation. So, validating the candidates' abilities and skills – that they deserved the degree – was equally critical. Hence, it warranted a secure and reliable environment, robust audit trail and viable evidence to handle instances of malpractice.

5. Easy accessibility on a simple system

NiSM understood that not all test-takers were well-informed about modern technology and could not use it to their advantage if it was complicated. Similarly, a patchy internet connection across locations could make taking online exams challenging. Thus, it mandated a system with a comprehensive yet straightforward interface, which could provide a seamless experience to candidates appearing from any location with minimal internet bandwidth requirement.



Discovering Mercer | Mettl

NiSM was a SEBI initiative. Therefore, it had an established public procurement policy and followed all norms and guidelines before making any high-value procurement. Hence, it took a similar route when onboarding an online examination platform and proctoring provider.

NiSM set up a technical evaluation committee to investigate and vet every proposal. The task was clear and concise – the committee thoroughly evaluated each prospect's deliverables against NiSM's laid down requirements to ensure meeting every criterion without compromising on the conditions. Many service providers participated, but soon only eight participants remained in the fray.

The eight vendors offered multiple demonstrations and presentations to appraise the management about their platforms' prowess and how they would fulfill NiSM's unique needs. Mercer | Mettl, too, demonstrated a remarkable ability to deliver on every ask.

Every service provider ticked off all parameters on NiSM's list. However, it eventually boiled down to the solution's "user acceptance testing."

Mercer | Mettl offered an unprecedented user experience to everyone who tested the platform.



Initially, NiSM was skeptical about moving examinations online, but Mercer | Mettl's comprehensive infrastructure and superior quality proctoring solution brought test-center-like confidence. It hardly took us a week to roll out our first examination, and we completed over 50,000 tests in no time.

Nikhil Shinde

Assistant General Manager
NiSM



The solutions

Mercer | Mettl EXAMIN

An online proctoring and examination system.

Mercer | Mettl's Examin was the ideal value proposition that succeeded in meeting NiSM's online examination needs. This proficient and end-to-end online exam management system was robust enough to match the institute's scale, simultaneously offering credible, secure and swift exams with no errors or drawbacks. It also encompassed test creation to real-time reporting, complete with a dedicated admin dashboard for detailed analytics and logs with every recording.

Here are some benefits that the institute accrued:



Assistance in setting up the exam

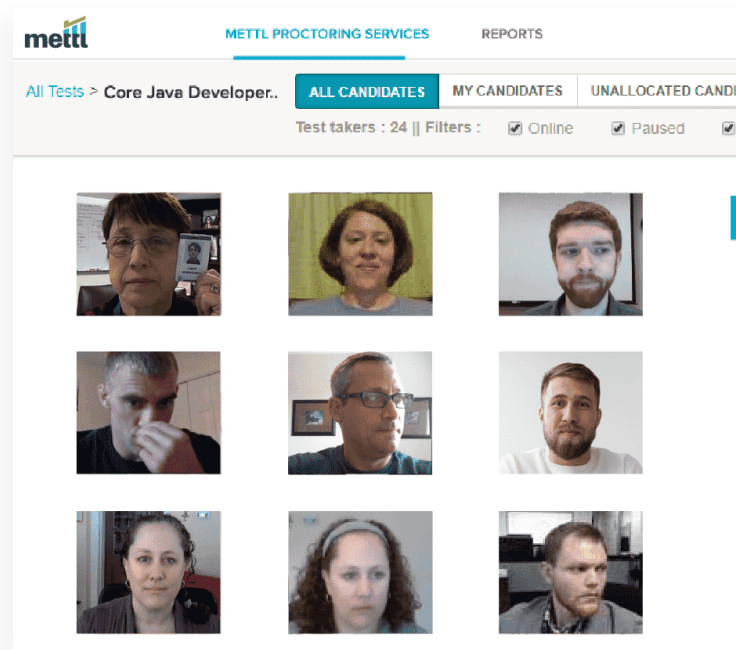
- Mercer | Mettl's team substituted NiSM's administrators and coordinators, helping them upload the question papers created by faculty in the required formats of MCQs and objective questions.
- It flexibly accommodated a range of other parameters sought by academia.
- Continued technical support and assistance on the days of the assessment enabled the faculty to schedule glitch-free exams at any given time.
- The faculty also witnessed a considerable reduction in the time needed to set up exams, with increased productivity and lowered staffing tasks.





Accessibility and scale

- NiSM's test-takers were spread across the country. Thus, Mercer | Mettl's cutting-edge application ensured that every test-taker could take the exams seamlessly, even with a rudimentary internet speed of 512 kbps.
- All the user instructions and exam guidelines were well documented and made available to candidates at every step of the exam to ensure a seamless experience.
- The platform was user-friendly, easy to navigate and even catered to those with limited technical literacy. It replicated and created a test-center-like exam experience for the candidates.
- The institute could swiftly scale its exams from near-zero to thousands every month, using Mercer | Mettl's software with a proven track record of conducting a hundred thousand proctored assessments in a day.



Safety and security

Mercer | Mettl's focus on stringent cybersecurity protocols addressed NiSM's concern regarding data breaches, unauthorized access, impersonation and privacy at every stage of the examination process.

Mercer | Mettl implemented the following procedures to ensure utmost fairness and security during each exam session:

Data encryption in transit and at rest

HTTPS (256-bit SSL encryption) ensured secure data transmission and that webcam proctored tests ran without downloading the software.

Similarly, Mercer | Mettl created an uncompromisable maximum security storage environment for applicants' data, questions and exam results.

Data security

Mercer | Mettl's host, Amazon Web Services (AWS), one of the leading cloud storage service providers on the market, proved to be a highly secure cloud-based platform for the storage of assessment papers and computation.

Access rights management

Mercer | Mettl's team ensured the safety and encryption of the available data by defining clear access rights, log reports and audit trails of various system resources.

Strict guidelines with multi-factor authentication for handling exam-related material prevented unauthorized access.

Mercer | Mettl validation included GDPR compliance and ISO 27001:2013 certification.

3-point authentication

Mercer | Mettl had deployed over a hundred authorized personnel to conduct a 3-point candidate authentication to confirm only the right individuals took the exam. Live authentication began only after the candidate clicked on the exam link.

Here is how the process unfolded:

- First, the system asked the candidate to click their photos via a webcam.
- The candidate also had to show their ID proof to the authorizer via a webcam.
- They had to send across customizable registration details that authorizers verified on the spot against previously collated data.





Proctoring suite + anti-cheating

Mercer | Mettl aligned three proctoring approaches and a dynamic set of anti-cheating features to mitigate any violation that could undermine NiSM's prestige and legacy. Everything was preconfigured on the system, offering similar accountability levels as in-person invigilation. The only prerequisite for the exam was enabling permission to share applicants' screens, video and audio, following which Mercer | Mettl's best-in-class proctoring solutions effectively monitored the proceedings.

Here is how:

AI (Artificial Intelligence) proctoring

- Mercer | Mettl's futuristic AI algorithm trained with more than 2.8 million proctored assessments efficiently detected up to eighteen distinct digressions during the exam.
- With over 98% accuracy, the intelligent algorithm helped human proctors flag various suspicious cases, such as the non-visibility of face/ presence, detection of mobile phone, presence of an additional person, distracted movement, etc.

Record-and-review proctoring

- NiSM also utilized the record-and-review proctoring feature for specific exams that did not require continual invigilation. The exam-taking session was recorded and updated on the cloud that could be viewed at any time.
- This automated process saved the management considerable time and effort as the team did not require real-time supervision of candidates. Instead, it reviewed every recorded session diligently at its convenience and scanned it for any red flags or suspicious activities.

Live proctoring with human proctors

- Mercer | Mettl team onboarded about a hundred proctors to monitor the test-takers remotely, from start to finish.
- Initially, the proctor-to-student ratio was 1:20. However, it was later adjusted to 1:10 to ensure a more rigorous check and reduce the administrators' supervision workload. The revised ratio helped solve concerns about identification and eliminated cheating with strict scrutiny.
- Each proctor was given one-to-one and one-to-many proctoring view features.
- The proctors also had the option to pause /stop / resume the exam in real-time. They also had a live chat option that enabled the invigilators to interact with candidates to allay suspicions or queries.
- The entire session was recorded and could be viewed later by authorized personnel only.

Audio proctoring

The candidates were taking their exam remotely, which mandated maintaining the sanctity of the environment.

Hence, Mercer | Mettl enabled its powerful AI-based audio proctoring software 'Speech Sense' - to scan the test-taker's physical environment for additional sounds or noises using the microphone.

- Audio proctoring helped ascertain the difference between sounds that can and must occur in a testing environment.
- It accurately identified details such as faint sound levels, whispers, mumbling and kept a count of unique speakers in the audio feed while tagging each speech segment to a particular speaker.
- By differentiating between human speech and various background sounds or noises, Speech Sense ensured that every test-taker had a level-playing field without being hauled up because of background noises.
- A warning message flagged and reported the same in the test log if a candidate tried to mute the microphone during the exam. The candidate could not continue with the test until he/she un-muted the mic.



Mettl Secure Browser (MSB)

- Mercer | Mettl's limited navigation control feature was another advanced anti-cheating solution that boosted the management's confidence in ensuring a highly secure and controlled online environment.
- MSB locked the applicants' test screens and prevented them from opening new browser tabs/incognito tabs/windows.
- It blocked functions such as copying/pasting and restricted shortcut keys and three-finger swipes.
- During the exam, it also prevented access to secondary devices, such as cables, hard drives, or external devices such as the USB or internet dongle. If applicants synchronized any such device before the test or attempted to synchronize them during the exam, MSB would not let the exam commence and immediately log the applicant out.
- It did not allow exam-takers to move out of the application before finishing the test.

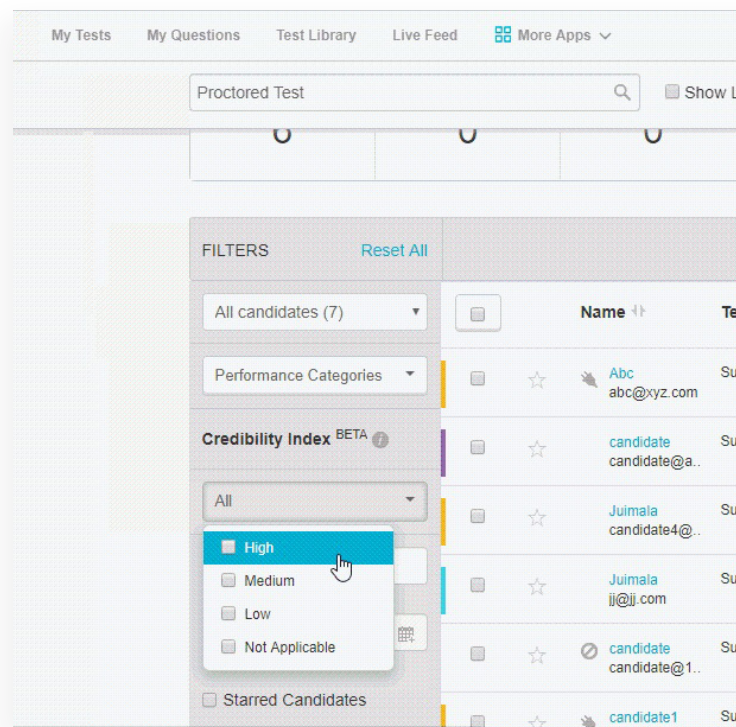


Credibility Index

Mercer | Mettl team also activated its proprietary algorithm- the 'Credibility Index' - to meet NiSM's student integrity score requirement. This exclusive feature provided an auto-generated and validated integrity score for every exam-taker after taking inputs from AI flags, recorded details of the proctoring sessions, and the test finish status.

Hence:

- With valuations such as "high," "medium," and "low," the faculty could quickly identify and filter out candidates who might have resorted to cheating.
- Documentary evidence of an applicant's integrity empowered and assured NiSM that only the most deserving candidates got certified.
- NiSM ensured continuity in the securities market, with minimal hiccups and instant and actionable insights.
- Candidates got a fair opportunity to prove their skills, with cheating mitigation tools. On the other hand, NiSM got reliable and trustworthy information.



Impact

Mercer | Mettl's avant-garde solution safeguarded NiSM's academia's integrity, delivered unprecedented convenience and enabled continuity at a time when campuses and test centers were off-limits. As a result, not only did NiSM get the same quality and rigor as an exam conducted at a physical test center, but it also did not have to defer the exam.

The entire video recording and audit trail available after the examination lent credibility to the overall examination process. Besides, the institute shifted full-time internal courses online, with classes, but it was unsure about offering their semester exams. However, the solution also enabled giving those exams online.

NiSM ensured the safety and well-being of the test-takers by making them take the examination from the comfort of their homes.

- Within a week, NiSM could roll out its first examination using Mercer | Mettl's platform.
- NiSM successfully conducted **fair and unbiased 500 to 600 scheduled exams each day**, using Mercer | Mettl's platform, and numbers rose subsequently.
- One hundred proctors doubled as authorizers were employed to ensure the sanctity of exams.
- To date, **60,000 applicants** have taken the SEBI-mandated exam on Mercer | Mettl's system.
- NiSM mitigated around 5-6 percent of cheating instances and even acted against those candidates. The management used proctoring and anti-cheating tools to eliminate a distinct type of cheating, which involved using the USB camera.
- Unhindered internet access and no change in the exam experience ensured **enhanced candidate experience and flexibility**.
- Mercer | Mettl's platform's scalability also helped reduce the overall waiting time to schedule exams. Candidates could now schedule an exam within the same week instead of earlier, where they had to either book well in advance or wait for a longer time to get seats at physical test centers.
- Most candidates, who were market professionals, were content with the institute's decision to go online. It saved them substantial time, which they would have spent traveling to the examination centers.
- NiSM was assured that the **integrity report** generated by Mercer | Mettl was a valid and accurate reflection of a candidate's ability. Hence, the institute was confident that the certified professionals were ready to perform their requisite role in the securities markets.



The way forward

Mercer | Mettl's team and NiSM's management plan to complete one lakh proctored assessments by the end of the current year. NiSM has even extended its contract, which means even if it resumes its test centers and in-class learning, it will employ the hybrid model of online and offline exams. NiSM will continue to deliver some of its low-stakes exams using Mercer | Mettl's system.



About us

At Mercer | Mettl, our mission is to enable organizations to make better people decisions across two key areas: acquisition and development. Since our inception in 2010, we have partnered with more than 4,000 corporates, 31 sector skills councils/government departments and 15+ educational institutions across more than 90 countries.

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