

GNLU Centre for Law & Economics

Policy Recommendations



GNLU/CLE/PR-23

July 11, 2025

**Comments to the Securities and Exchange Board of India on the Consultation
Paper on Guidelines for Responsible Usage of AI/ML in Indian Securities Markets.**

Comments on behalf of the Research Group on SEBI, GNLU Centre for Law &
Economics

Centre Faculty

Prof. (Dr.) Ranita Nagar
Professor of Economics
Head of Centre for Law &
Economics

Dr. Hiteshkumar Thakkar
Assistant Professor of Economics
Co-Convenor, Centre for Law &
Economics

Student Members

Pankhuri Khorawal
Aaditya Mukhija
Aditya Raj
Anushree Saxena
Ishani Priyadarshini
Kritika Jeswani
Niti Patel
Vatsal Agarwal

INDEX

I. INTRODUCTION.....	2
II. GENERAL COMMENTS.....	3
III. SPECIFIC COMMENTS.....	4
IV. CONCLUSION	24

I. INTRODUCTION

SEBI has issued this consultation paper to examine the growth and deployment of Artificial Intelligence (AI) and Machine Learning (ML) in the securities market, as numerous examples of AI and ML that previously were considered peripheral are now pivotal to many market functions. Notably, with any application of AI and ML in the market are multiple concerns of use; specifically, the dimensions of transparency, explainability, accountability, and investor protection. In this regard, SEBI aims to compile a framework with evaluation and regulatory principles necessary to promote innovation that promotes good and fairness of AI and ML, and being responsible for the inherent risks.

To share relevant guidelines for market and regulatory players, SEBI set up a Working Group in October 2023, interacting with various market participants and regulators, and also derived global standards to develop best practices. The paper's author engaged the NITI Aayog principles on responsible AI, where they leverage safety, privacy, fairness, accountability, and human-centeredness. Further, IOSCO's 2021 document on Artificial Intelligence in securities markets highlighted governance, oversight, testing, and transparency, all of which helped inform SEBI's regulatory perspective on AI.

As outlined in Section 2.2 of the consultation paper, it does appear that there is a growing use of AI/ML by intermediaries (such as stockbrokers, mutual funds or FinTech's). Although most intermediaries have embraced sophisticated AI/ML solutions, the SEBI Working Group noted that certain players mislabeled simple automation or rule-based systems as AI/ML in order to comply with the trend.

II. GENERAL COMMENTS

This section would provide an overview of the comments of the Centre as stated below.

The responses to SEBI's consultation paper provide strong support for its pursuit to regulate the use of AI/ML in the securities market with a principle-based framework. There is agreement among the stakeholders on the need for guardrails that would allow innovation to flourish while preserving actually meaningful levels of transparency, fairness, and accountability. A theme relating to the need to differentiate AI/ML systems based on their risk and impact was discerned by the respondents. In this regard, respondents suggested that SEBI follow a materiality-based governance approach that would subject only those AI/ML applications to tighter governance with meaningful impacts on investor outcomes or market integrity. Concurrently, there seems not to be support for a one-size-fits-all regime or for regulating low-complexity AI/ML tools just like high-complexity applications. Therefore, respondents opined that putting regulatory burdens on all AI/ML tools, without regard to complexity and purpose, would stifle low-risk innovations to the loss of competitive markets, or would overwhelm smaller companies.

Another issue is regulatory clarity; commenters indicate that some of the central terms such as "material use-case", "fairness", "bias", and "explainability" must be given clear definitions in order to prevent misunderstandings. The concept of explainability should be framed to enable proportionate obligations according to the risk and complexity of the AI/ML systems. Most respondents mentioned the need not to be too-documentary, particularly at the registration/reports level. Whereas disclosure in sound is broadly accepted, it would be helpful for SEBI to contemplate tiered requirements, or issue sample templates, standard formats, or other details that will ease compliance without hampering scrutiny.

There is broad support for in-house arrangements to control AI/ML systems. There is agreement that companies should be able to make those arrangements in whatever form is best for the company under the circumstances it is facing. For example, strict requirements as to committees or officers can be unsuitable for certain intermediaries that are small and lack human and financial resources. Proportionality should inform companies in making oversight arrangements. Likewise, sponsoring independent verification and regular review is a sound practice, but frequency and intensity must be context-dependent not to lead to undue bureaucracy. Stakeholder engagements also entailed warnings against setting fairness standards that are too prescriptive. Additionally, every AI model includes some

bias inherent to it, and they cautioned against excessive emphasis on eradicating all variance to yield to focus on finding and combating harmful or unjustified bias.

Operational resilience, cybersecurity, and data governance are given much attention as well. Stakeholders recognize the value of these topics and concur that SEBI must prioritize them but request SEBI to keep measures compatible with already established standards by the RBI, MeitY, etc., to avoid adding standards that will overlap or conflict with current provisions. Inter-regulatory collaboration is given strong feedback to simplify compliance. In the last feedback, respondents also urge SEBI to remain aligned with international best practices, but acknowledging the very different diversities of the domestic market. An approach of consultation before rolling out an iterative rollout has been considered necessary in order to give the industry a chance to feed into the standards so that they are effective, meaningful and do not crush innovation. Overall, there was a call for a framework that is scalable, risk-based and would drive India's path as a responsible adopter of AI in capital markets.

III. SPECIFIC COMMENTS

SR. NO.	ISSUE	SUMMARY OF PROPOSAL	COMMENTS/ SUGGESTIONS	RATIONALE
1.	Model Governance (a) - (e) – Para 5.1 a) Internal Teams b) Governance c) Fallback Plans d) Vendor accountability	In order to ensure the responsible, ethical use of AI/ML in the Indian Securities market, internal risk and governance teams should be mandated to reduce information asymmetry and utilise recommendations	Internal Teams There should be a mandate of an in-house AI Risk and Governance counsel or committees for all registered entities utilizing AI/ML and such teams should include individuals who have expertise in AI, ethics, market compliance as well as	An in-house support system would significantly reduce the information asymmetry and promote a more transparent and accountable entity which trades in the market. This would also align with goals of fiduciary responsibility and strict liability. There may be some initial training costs included under the larger domain of transaction costs, however

		from NITI Aayog to include XAI in order to reduce transaction costs. Mandatory fallback mechanisms will help protect essential data and maintain integrity in the securities market by minimising systemic risks inherent in AI/ML. Contractual clarity through Service Level Agreements and compliance of the overlap of data with the Digital Personal Data Protection Act, 2023 will help reduce risks of poor model performance as per the Coase Theorem.	risk modeling. Governance Entities and participants should be mandated to maintain a model lifecycle management framework which would include XAI, as suggested by the NITI Aayog Report, search history and regular audits. Fallback plans A kill switch and manual override policy should be made for entities largely involved in high frequency use of AI/ML. These mandates can be codified under Business Continuity Measures under	these could be set off by long term resilience and reduction in breaches of regulations.¹ Due to India's low and fragmented financial literacy rate at 24%², the internal teams would serve as the first layer of protection against misuse of AI/ML in the securities markets. Strong governance mechanisms will reduce negative externalities from model failure. Internal model governance will reduce agency costs under the larger domain of transaction costs, particularly misalignment between intermediary actions and investor confidence. These fallback mechanisms would safeguard operational
--	--	--	--	---

¹ [The EU's AI act: A framework for collaborative governance - ScienceDirect](https://www.sciencedirect.com/science/article/pii/S0950080423001000)

² <https://www.ijfmr.com/papers/2024/1/12918.pdf>

			SEBI's Cyber Security and Cyber Resilience Framework. Vendor accountability Mandatory service level Agreements (SLA's) can include explainability of AI models, audit rights and data privacy clauses as per the Digital Personal Data Protection Act, 2023.	resilience and reduce systemic risk transmission and reduce the expected cost of AI failure. This would largely help since India has a T + 1 settlement system which requires real time trade integrity and any delay or error without fallback or emergency plans can cause issues and failures in the trades.
2.	Model Governance (f)-(m) - Para 5.1 f) <u>Periodic Review</u> g) Data Governance h) Independent Auditing i) User Autonomy j) Responsible Use of AI/ML	Clauses (f) to (m) under Para 5.1 of the SEBI consultation paper lay out comprehensive governance mandates for AI/ML usage, including ongoing monitoring, data governance norms, independent audits,	SEBI should mandate that market participants report AI/ML model performance and accuracy results at least quarterly in a standardised format to enhance comparability ³ . Data governance rules under Clause (g) should be	These suggestions are rooted in legal, technological, and economic reasoning. Quarterly monitoring and standardisation lower regulatory transaction costs and enhance SEBI's capacity to assess systemic risk. Harmonising with the DPDP Act avoids legal fragmentation and ensures consistent data protection

³ <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD681.pdf>

	k) Event Traceability l) Feedback Control Mechanism m) Compliance with Regulatory Frameworks	ethical design, secure logging, manual override controls, and legal compliance. These clauses aim to ensure transparency, accountability, and operational resilience of AI/ML systems.	harmonised with the Digital Personal Data Protection Act, 2023⁴, including the appointment of a Data Protection Officer and enforcement of access control, encryption, and unmasking logs. For Clause (h), independent audits should be conducted annually by third parties with no involvement in the model's development, preferably accredited by SEBI or professional bodies³. Under Clause (i), SEBI could introduce an Ethical Impact Assessment Toolkit, drawing from international. For Clause (j), SEBI	standards. Independent audits provide an external check on internal AI governance, mitigating agency costs and enhancing investor confidence. Ethical tools and codified AI conduct enable market participants to operationalise abstract ethical obligations, reducing subjectivity in compliance. Secure logging protects the chain of evidence and prevents post-hoc manipulation, which is vital in forensic reviews. Mandatory manual overrides uphold the human-in-the-loop safeguard, essential to prevent runaway AI behaviour. Finally, regulatory crosswalks under Clause (m) are needed to clarify how AI/ML compliance interacts with SEBI, DPDP, and IT frameworks,
--	--	---	---	---

⁴ <https://www.meity.gov.in/data-protection-framework>

			could publish a Code of Ethical AI Conduct based on best practices like Singapore's FEAT principles⁵. Clause (k) should require a minimum log retention period of five years, with hashing to ensure immutability and forensic admissibility. Clause (l) should make anomaly-triggered manual override mechanisms mandatory for critical systems. Finally, Clause (m) should explicitly cross-reference applicable provisions of Indian laws such as the DPDP Act, 2023, and SEBI's existing compliance framework to	ensuring participants internalise risks in line with efficient resource allocation.
--	--	--	--	--

⁵<https://www.mas.gov.sg/news/media-releases/2018/mas-issues-principles-to-promote-fairness-ethics-accountability-and-transparency-in-the-use-of-ai-and-data-analytics-in-finance>

			reinforce regulatory alignment.	
3.	5.2 Investor Protection-Disclosure	a. When market participants use AI/ML for business operations that might directly affect their clients, they should disclose the same to ensure transparency. b. The non-exhaustive list of things to be disclosed includes product related features, charges to be levied and the quality of data that is used to make AI/ML driven decisions.	a. The market participants should disclose the material and the extent to which they are exchanging information with AI/ML. The non-exhaustive items include selection of trading algorithms/algorithms trading (including high frequency trading), asset management/portfolio management and advisory and support services. The investors, in addition to the abovementioned, should be given a	a. Disclosing the information that is being shared with the AI/ML and the extent of it makes the entire process transparent and fosters accountability. The investors, having put their trust and resources on the market participants, are mostly ignorant if their information is being shared and if AI/ML is being used. This makes it transparent to what extent the advice and recommendations of AI/ML is being followed and whether they want to go forward with it. Artificial intelligence cannot fully replace

		c. Making the language comprehensible in the disclosures for the clients allows them to understand the service and products and make informed decisions. There should be an investor grievance mechanism for AI/ML systems in line with the existing regulatory framework of SEBI.	choice whether they desire the involvement of AI/ML and to what extent. b. Product features, purpose, risks involved, limitations and accuracy results of the model, charges to be levied (if applicable) and information about the quality of data that is used to make AI/ML driven decisions including its accuracy, completeness and relevance, should be disclosed to the investors. If they consent to the use of AI/ML, they should be	the human brain. And due to this fact, the preference of the investors may differ. Hence, consent from their end to use AI/ML is necessary too. Moreover, giving the extent of AI/ML involvement makes the market participants accountable and discourages them from making extensive use of AI/ML. b. Disclosing the information ensures that the investors are fully aware of the risks and returns of using AI/ML. This helps them make a well-informed decision. Knowing about the fees informs them about the quality of the model chosen.
--	--	---	---	---

			aware of the fees applicable too. Moreover, they should be made aware of the results of the model in the investment sector. The information disclosed should be with the consent of the investor. c. The language should be comprehensible and easy to understand. Additionally, videos explaining the process in a simplified manner should be made available. The information and videos should be made available in as many	Being informed about the quality of data used to get results from the model gives them clarity on the fine workings of the system. It gives them the power regarding the disclosure of their information. c. Making the language comprehensible makes it easy for many people to understand. In our country where a significant amount of people find it hard to understand the investment dynamics due to a number of barriers, making the information accessible and easy to understand would enable greater participation. The investors would make informed decisions
--	--	--	--	---

			languages as possible. The information should be accessible to everyone including the differently abled. d. There should be an investor grievance mechanism in line with the existing regulatory framework of SEBI. There should be a dedicated helpline and group of people to assist people with their grievances. The assistance should be in as many languages as possible and should be	with their own understanding without getting swayed by middlemen. d. This would ensure that the system keeps on improving with time and the changing needs of the public. Redressing grievances in as many languages and making it accessible to everyone would ensure that the investors, who come from various backgrounds, get their grievances redressed. This ensures a smoother process and a better understanding of the public, which plays an important part in them making an informed decision.
--	--	--	--	--

			accessible to the differently abled.	
4.	5.3 Testing Framework	The proposal on ‘testing framework’ consists of 5 sub-proposals. They can be broadly categorised into the following heads: 1. Pre-deployment testing. 2. Continuous monitoring post-deployment. 3. Documentation 1. Pre-deployment testing. Firstly, before the deployment of an AI/ML model, it must be tested in an environment that is segregated from the live environment to ensure that it	5.3 a - Continuous Testing. Proposal 5. 3 a is appropriate and adequate. 5.3 b - Pre-deployment testing. Proposal 5. 3 b is appropriate and adequate. 5.3 c - Shadow Testing. Proposal 5. 3 c is appropriate and adequate. 5.3 d - Documentation. Proposal 5. 3 d is appropriate and adequate. 5.3 e - Test to monitor behaviour upon exposure to	5.3 a - Continuous Testing. Continuous testing is the process of testing a given AI/ML model at every stage of development and deployment. Continuously testing and monitoring an AI/ML model is essential because it is non-deterministic in nature and its outputs depend upon a dynamic dataset. This means that a model can potentially lose accuracy, reliability and stability over time as new datasets fundamentally diverge from the training dataset. Furthermore, AI/ML models heavily rely on the quality of the data, and so real-time monitoring and validation of input data are critical to prevent bias or degradation in the quality of outputs.

		behaves as expected in stressed and unstressed market conditions (5.3 b). Secondly, before deployment, market participants must incorporate shadow testing, wherein both the old and new models are deployed and their outputs are compared and evaluated (5.3 c). 2. Continuous monitoring post-deployment. Market participants need to test and monitor the AI/ML models throughout their deployment (5.3 a). While testing and monitoring, the market participants must ensure that	excessive data Proposal 5.3 e is appropriate and adequate.	5.3 b - Pre-deployment testing. A segregated testing environment allows for stress testing under simulated conditions, with no consequences for users. The proposal on pre-deployment testing in a segregated environment is a welcome one because it minimises risks such as bias, instability, unpredictability in the AI/ML model, especially in stressed or abnormal market conditions. It also helps in preventing security risks, such as data exposure or unauthorised access. 5.3 c - Shadow Testing. Shadow testing, also known as dark launching, is a technique to evaluate a change in an AI/ML model wherein both the old and new models are exposed to live traffic, i.e., they
--	--	--	---	---

		there are no changes in the model's behaviour due to exposure to excessive data (5.3 e). 3. Documentation. Market participants must maintain documentation of the following: model, including an of the logic behind which must be stored ve years. a, which must be least five years. The purpose of this documentation is to ensure that the outcomes produced are explainable, traceable and repeatable (5.3 d).		receives inputs from the real world (for example, from a user); however, only the outputs generated by the old model are sent to the user, and the output generated by the new model is kept in the backend for evaluating its performance, stability and reliability.⁶ Both the old and new models are supposed to run parallelly, and hence, there is no impact on live traffic. Therefore, SEBI's proposal for the incorporation of shadow testing by market participants is appropriate. 5.3 d - Documentation. The proposed documentation of details of AI/ML models deployed by market participants, including a detailed explanation of the model, the logic behind it, along with storing details such as
--	--	---	--	--

⁶ <https://microsoft.github.io/code-with-engineering-playbook/automated-testing/shadow-testing/>

				input data and output data, for a minimum period of five years, is truly a step in the right direction because documentation is crucial for maintaining transparency and accountability.⁷ <u>Documentation provides transparency into the AI system's capabilities, data inputs, decision-making processes, and potential biases or risks. This interpretability is critical for building trust and accountability.</u> Documentation also plays an important role in investor protection and the prevention of fraudulent practices/malpractices because any bias and discrimination in the model can be traced by looking at the model design choices, design of system controls, training data composition and pre-training, data the
--	--	--	--	--

⁷ <https://www.ntia.gov/issues/artificial-intelligence/ai-accountability-policy-report/developing-accountability-inputs-a-deeper-dive/information-flow/ai-system-documentation>

				system uses in its operational state, and testing results and recalibrations. 5.3 e - Test to monitor behaviour upon exposure to excessive data. Both AI and ML models rely on/require huge amounts of data to learn. The larger the dataset, the more predictable and reliable the model becomes. But in most scenarios, it is challenging to obtain a sufficient amount of data which can train the AI/ML model to produce the desired output. It also makes it difficult to predict the AI/ML model's behaviour when exposed to excessive data. Hence, the proposal on mandating market participants to ensure that there are no changes in the model's behaviour due to exposure to excessive data is an
--	--	--	--	--

				excellent step in ensuring that the model is consistently reliable.
5.	5.4 Fairness and Bias	There is a direction given by the SEBI to ensure that AI/ML models remain fair so as to not favour or discriminate one over the another. To achieve this, it has been proposed that market participants ensure that there an adequate level of data quality and be as broad as possible which can be achieved through verifying source quality, relevance, and completeness. Furthermore, it requires implementing controls to remove biases from	The proposal is a welcomed one. As AI/ML use increase in securities market there is sufficient concern of Biasness that may exist or creep into such models. To mitigate this assurance of large training data must exist. Further Training of data scientist to identify already cognitive human bias and remove it from datasets should also exist.	-AI/ML are trained on human being which follow cognitive bias such as survivorship and look ahead bias which lead to AI/ML also repeating the same mistake, any output from these may result in consumer detriment. Therefore, it's necessary for data scientist to identify and remove these from database.⁸

⁸ <https://www.cfainstitute.org/insights/articles/good-bad-and-ugly-of-bias-in-ai>

		datasets and training staff on potential data biases		
6.	5.5 Data Privacy and Cyber Security	The Market participants should have a clear policy for data security, cyber security, and data privacy when using these models. The collection, usage and processing of investor personal data and its security measures shall be compliant with applicable laws. Information such as technical glitches, data breaches shall be communicated to SEBI and other relevant authorities	It is a strong proposal in line with Niti Aayog guidelines on responsible use of AI and ML. Data privacy and cybersecurity are a major rising concern, not just limited to SEBI but the whole AI /ML systems. The collection of personal demographic data can produce biased data. Further, there are threats of phishing attacks, ransomware which target the clients/consumers. ⁹	In a survey on risk of ai conducted by AMCC, IOSOC across all respondent, data privacy and cyber security ranked 2 nd and 1 st highest identified risk. ¹⁰ Inferring the urgent need for oversight and regulatory framework. -Blockchain technology stores scattered data across networks, thus minimising the risk of failure. They are also transparent, making transactions tamper-proof and public.

⁹<https://home.treasury.gov/system/files/136/Managing-Artificial-Intelligence-Specific-Cybersecurity-Risks-In-The-Financial-Services-Sector.pdf>

¹⁰<https://www.iosco.org/library/pubdocs/pdf/IOSCOPD788.pdf> (Artificial Intelligence in Capital Markets: Use Cases, Risks, and Challenges)

		withing the existent legal and regulatory framework	To mitigate this, blockchain technology can be used on a widespread basis to secure transactions and trading.	
7.	Para 6. Tiered Approach	We Recommend amendments to SEBI's tiered regime to rest on an explicit definition of internal use so that it would exclude systems that have an indirect, albeit substantial, impact on investors (e.g. surveillance outcomes). The tiered approach would require internal AI to be checked for bias	1. Define 'Internal Use' In the first place, a positive list ought to define what are permitted low-risk applications, such as HR automation or IT infrastructure optimization. Then, there should be a negative list that excludes systems such as surveillance engines or client risk-scoring tools that may generate market	The present "internal use" classification can lead to regulatory lacunas. The EU AI Act ¹¹ designates financial AI tools with a strict criterion, without paying heed to their context of deployment. In the absence of these clear boundaries, participants in the market can misclassify high-impact systems like surveillance algorithms as internal to evade their scrutiny and compromise the integrity of the market. FINRA's findings in 2022 ¹²

¹¹ <https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai>.

¹² <https://www.finra.org/rules-guidance/key-topics/fintech/report/artificial-intelligence-in-the-securities-industry>.

		(Principle 5.4) to avoid discriminatory results. Moreover, at least some degree of transparency should be required through model documentation, which can be used during annual reviews to understand the external impacts of internal AI systems.	behavior or investor outcomes. Any AI/ML tool that performs any market-facing function, irrespective of what the task is called internally, should comply with the entire set of guidelines. 2. Integrating principle 5.4 Regular bias audits of AI tools that process sensitive data, such as broker surveillance systems or compliance monitoring algorithms, should be conducted. Moreover, training datasets for these models should be evaluated for diversity and	showed that even AI systems internal to the organization could perpetuate systemic biases, especially against smaller market participants. NITI Aayog's Responsible AI framework¹³ explicitly calls for bias controls over all AI applications since such risks are not restricted to customer-facing applications. This accords with IOSCO's global standards that emphasize universal fairness requirements.¹⁴ The BIS 2023 report notes how these unmonitored internal AI systems contribute significantly to operational failures in financial institutes.¹⁵ The 2024 RBI mandate for quarterly AI reviews acknowledges that whether a model degrades depends
--	--	---	---	--

¹³ <https://www.niti.gov.in/sites/default/files/2021-02/Responsible-AI-22022021.pdf>.

¹⁴ <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD788.pdf>.

¹⁵ https://www.bis.org/fsi/fsisummaries/exsum_23904.htm.

			representativeness. This way unwanted discriminatory results will not be precipitated. 3. Annual impact Assessment Assessments for all internal AI tools are meant to check for model performance, fairness, and suitability for intended use cases. The firm must also report adverse events to SEBI, which could be anything from bias incidents to system failures. These steps would effectively complement the real-time monitoring tools already in place, such as SEBI's CORE dashboard, and	little on the type of its applications.¹⁶ The CORE dashboard infrastructure that SEBI has will equally be sufficient to integrate these oversight mechanisms and not burden compliance. SEBI's 2024 survey also reveals a widespread reliance on third-party AI providers that lack adequate safeguards. The MAS 2023 framework provides for another remedy where vendor accountability is implemented in a way that will not stifle innovation.¹⁷ The faulty AML algorithms of 2021 that afflicted several brokers stand as testimony to the systemic risks unregulated vendor AI poses in the securities markets.¹⁸
--	--	--	---	--

¹⁶ https://www.rbi.org.in/Scripts/BS_CircularIndexDisplay.aspx?Id=12194.

¹⁷ https://www.mas.gov.sg/-/media/mas-media-library/schemes-and-initiatives/ftig/project_mindforge/emerging-risks-and-opportunities-of-generative-ai-for-banks.pdf

¹⁸ https://www.ecb.europa.eu/press/financial-stability-publications/fsr/special/html/ecb.fsrart202405_02~58c3ce5246.en.html

			would ensure that lite regulation does not become obsolete with time. 4. Vendor Oversight Firms shall conduct due diligence on all third-party AI providers as to their compliance with data sovereignty requirements and contractual obligations. Kill switches shall further be required for all vendor-supplied AI tooling, allowing for rapid deactivation should it malfunction or be compromised. These measures would render the standards applicable both to internal development and the outsourcing of AI.	
--	--	--	--	--

IV. CONCLUSION

The strength of the proposed framework depends on how implementation is done and so does its ability to adjust to an ever-changing technological landscape. The recommendations propose a risk-based and proportionate approach, which is practicable since the scope of AI/ML varies for different market intermediaries. By a classification of systems based on materiality and disclosures, SEBI can devote oversight wherein laboratory intensity is least, protecting low-risk applications from undue regulatory pressure, while high-impact risks need to be safeguarded.

One strong point in the recommendations is the emphasis it places on investor protection. There is indeed an emphasis on clear disclosures in comprehensible language, as well as obtaining investors' consent, so that the whole market is clear about AI/ML's use and so that market participants take responsibility for the consequences. By having grievance redressal mechanisms in place, investors are also empowered to confront these challenges associated with asymmetries in information and access. Furthermore, bias mitigation and fairness testing serve as the linchpins since if left unmitigated, the unjust biases inherent in AI/ML models could result in discrimination and erosion of market integrity. Ethical impact assessments and audits at regular intervals constitute another element of the design that looks to the future in maintaining fairness and accountability.

Testing framework as described in the recommendations can be considered another highlight, emphasizing pre-deployment testing, continuous monitoring, and documentation. These would act as safeguards to keep an AI/ML-model-based application trustworthy under varying market conditions and not drifting away from its intended functions over time. On the more innovative end, suggests using blockchain technology for securing transactions and data privacy practices in an increasingly digital marketplace.

However, the consultation paper could do with clearer definitions and boundaries, especially for the internal use of AI/ML systems. Ambiguity in these classifications could certainly lead to regulatory grey areas whereby high-impact systems are able to avoid scrutiny, as was emphasized by the recommendations. Clearly defined criteria for what qualifies as low-risk and stringent regulation for tools facing the market would fortify the framework. These quarterly reporting and third-party audit proposals are great, but must be balanced with the compliance costs for smaller market players. Perhaps SEBI should consider phased implementation or incentives to make it smoother through this change.

The implementation of these major policy measures effectively can take the country to the forefront of the ethical application of AI/ML in the financial markets. Constant dialogue with the stakeholders, periodic reviews, and being open to shifting changes in technology will remain the core ingredients leading to the regulations' sustainability