भारतीय प्रतिभूति और विनिमय बोर्ड
Securities and Exchange Board of India

CIRCULAR

SEBI/HO/MRD/DOP1/CIR/P/2019/24   January 31, 2019

To

All Recognized Stock Exchanges, Clearing Corporations and Depositories

Dear Sir/ Madam

Reporting for Artificial Intelligence (AI) and Machine Learning (ML) applications and systems offered and used by Market Infrastructure Institutions (MIIs)

Background

1. SEBI is conducting a survey and creating an inventory of the AI / ML landscape in the Indian financial markets to gain an in-depth understanding of the adoption of such technologies in the markets and to ensure preparedness for any AI / ML policies that may arise in the future.

Scope definition

2. Any set of applications / software / programs / executable / systems (computer systems) – cumulatively called application and systems, to carry out compliance operations / activities, where AI / ML is used for compliance or management purposes, is included in the scope of this circular. In order to make the scope of this circular inclusive of various AI and ML technologies in use, the scope also covers Fin-Tech and Reg-Tech initiatives undertaken by MIIs that involves AI and ML.

3. Technologies that are considered to be categorized as AI and ML technologies in the scope of this circular, are explained in Annexure A.

Regulatory requirements

4. All MIIs shall fill in the AI / ML reporting form (Annexure B) in respect of the AI or ML based applications or systems as defined in Annexure A offered or used by them, and submit the same in soft copy only at AI_MII_SE@sebi.gov.in (for

Stock Exchanges) / AI_MII_DEP@sebi.gov.in (for Depositories) / AI_MII_CC@sebi.gov.in (for Clearing Corporations) to SEBI on a quarterly basis within 15 days of the expiry of the quarter, with effect from quarter ending March 31, 2019.

5. This circular is issued in exercise of the powers conferred under Section 11(1) of the Securities and Exchange Board of India Act 1992, read with Section 10 of the Securities Contracts (Regulation) Act, 1956 to protect the interests of investors in securities and to promote the development of, and to regulate the securities market.

6. This circular is available on SEBI website at www.sebi.gov.in at "Legal Framework→Circulars".

Yours faithfully

(Amit Tandon)
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Annexure A – Systems deemed to be based on AI and ML technology

Applications and Systems belonging but not limited to following categories or a combination of these:

1. Natural Language Processing (NLP), sentiment analysis or text mining systems that gather intelligence from unstructured data. – In this case, Voice to text, text to intelligence systems in any natural language will be considered in scope. Eg: robo chat bots, big data intelligence gathering systems.

2. Neural Networks or a modified form of it. – In this case, any systems that uses a number of nodes (physical or software simulated nodes) mimicking natural neural networks of any scale, so as to carry out learning from previous firing of the nodes will be considered in scope. Eg: Recurrent Neural networks and Deep learning Neural Networks

3. Machine learning through supervised, unsupervised learning or a combination of both. – In this case, any application or systems that carry out knowledge representation to form a knowledge base of domain, by learning and creating its outputs with real world input data and deciding future outputs based upon the knowledge base. Eg: System based on Decision tree, random forest, K mean, Markov decision process, Gradient boosting Algorithms.

4. A system that uses statistical heuristics method instead of procedural algorithms or the system / application applies clustering or categorization algorithms to categorize data without a predefined set of categories

5. A system that uses a feedback mechanism to improve its parameters and bases it subsequent execution steps on these parameters.

6. A system that does knowledge representation and maintains a knowledge base.

Annexure B - Form to report on AI and ML technologies – to be submitted quarterly

S/N	Head	Value
1	Entity SEBI registration number	
2	Registered entity category	
3	Entity name	
4	Entity PAN no.	
5	Application / System name	
6	Date used from	
7	Type of area where AI or ML is used (order execution / Surveillance / compliance / others). In case of others, please specify.	
8	What is the name of the Tool / Technology that is categorized as AI and ML system / Application and submissions are declared vide this response	<free text field>
9	How was the AI or ML project implemented	<Internally / through solution provider / Jointly with a solution provider or third party>
10	Are the key controls and control points in your AI or ML application or systems in accordance with circular(s) of SEBI that mandate/s cyber security control requirements	<free text field>
11	Is the AI / ML system included in the system audit	<Yes / No>
12	Describe the application / system and how it uses AI / ML	<free text field>
13	What safeguards are in place to prevent abnormal behavior of the AI or ML application / System	<free text field>