AUTORITÉ DES MARCHÉS FINANCIERS

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Artificial intelligence and Big Data are now a reality for the AMF

Big Data and artificial intelligence have been standard practice at the AMF for a number of years now enabling the regulator to handle the large volumes of data needed to perform its missions and analyse those data in record time. From market supervision to the detection of scams, artificial intelligence and big data provide capabilities to address multiple use cases.

The AMF needs to be at the forefront of technology in order to carry out its mission to protect investors, monitor the smooth operation of markets and provide information to investors. Over the years, the market regulator has made significant investments to ensure that it has the best expertise and highest-performance technical resources, such as its market supervision platform, ICY.

Enhanced analysis and storage capacity

The ICY platform, based on Big Data technologies, was in-house developed in 2016 and rolled out mid-2017. It enables the AMF to quickly and efficiently process large volumes of structured and unstructured data. The regulations adopted in the aftermath of the financial crisis have enabled regulators to broaden the scope of the data available to them. In 2019, the platform absorbed 24 billion data lines. This year, it could integrate more than 100 billion data lines.

From machine learning to deep learning

The AMF released the first artificial intelligence applications on ICY in 2019. Today, machine learning (or automatic learning) works for several AMF market abuse or market anomalies alerts. Using algorithms that link data independently or predictively (for example clustering algorithms that automatically organise data into homogenous sub-groups), the AMF is able to identify anomalies that would have gone undetected by traditional algorithms. It has also succeeded in reducing the number of false positives (a market configuration that the system would have previously identified as a possible market anomaly, thus triggering an alert, which after analysis turned out not to be an anomaly). The number of alerts generated by the system has thus been halved with the use of machine learning.

The AMF is also working on deep learning applications. Thanks to natural language processing (NLP), the AMF can now make "unstructured" data such as text suitable for processing by traditional algorithms. Artificial intelligence is used to reprocess a text to make it automatically meaningful or to make comparisons. The AMF is also investigating the possibility of detecting suspicious market configurations through image recognition.

Multiple possibilities from market supervision to the prevention of scams

The AMF is using the same tooled approach to data exploration and analysis to develop other fields of application, as detection and prevention of scams. Thanks to artificial intelligence, the AMF can significantly increase its ability to identify fraudulent websites in order to feed its blacklists and issue alerts to the public if and when necessary. To this end, the AMF has rolled out this year an in-house detection tool.

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