

# Suptech applications for anti-money laundering<sup>1</sup>

## Executive summary

**Use by financial authorities of advanced data collection and analytics tools enabled by new technologies is collectively called suptech.** In the area of data analytics, development of such tools has been facilitated by advances in artificial intelligence and its practical application in machine learning, natural language processing and other advanced analytics capabilities. These tools have provided opportunities to enhance financial authorities' capacity.

**Detecting potential anti-money laundering (AML) and combating the financing of terrorism (CFT) violations is one field where data analytics tools seem more advanced.** This paper therefore dives deeper into these tools. In particular, it aims to explore the various data analytics tools used by authorities tasked with AML/CFT responsibilities, as well as their practical experiences in using such tools. Nine AML/CFT authorities are covered in this paper. Such authorities have either supervision or financial intelligence functions, or both.

**AML/CFT supervision and financial intelligence functions have different mandates.** Authorities with AML supervision functions are expected to ensure compliance by financial institutions with requirements to combat money laundering (ML) and terrorist financing (TF). Authorities with financial intelligence functions, ie financial intelligence units (FIUs), meanwhile, are expected to serve as national centres for the receipt and analysis of suspicious transaction reports and other information relevant to money laundering, and to disseminate the results of that analysis. FIUs sometimes also have AML supervision functions.

**Both AML/CFT supervisors and FIUs need advanced data analytics tools to analyse the large volumes of information at their disposal.** AML/CFT authorities typically receive substantial amounts of transactional and non-transactional data. On top of these traditional sources of data, some AML/CFT authorities are now actively collaborating with other government agencies and private entities to expand the scope of data available to them. Some authorities are also exploring the use of non-traditional sources of information (eg newspaper articles, social media) and integrating them with traditional information to come up with richer analyses.

**The difference in mandates does not seem to affect the types of advanced data analytics tools the AML/CFT authorities are pursuing.** AML/CFT authorities covered in the paper are in general pursuing similar advanced data analytics tools, such as network analysis, natural language processing, text mining and machine learning. These tools increase their ability to detect networks of related transactions, to identify unusual behaviours and in general to transform significant amounts of structured and unstructured data into useful information that contributes to their respective processes.

**Authorities have used different strategies to develop these tools.** AML/CFT authorities that are within the central bank, or prudential or conduct authority, generally benefit from the institutional

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strategy to utilise innovative technology to help in supervision work and can develop these solutions in-house. For some AML/CFT authorities, taking advantage of ready solutions in the market may be more efficient. Others are actively collaborating with the academic community and promoting research in this field. Many of the authorities use a combination of these approaches. The optimal solution for a specific authority will depend on several factors such as the profile of the authority, the characteristics of the financial system that the authority oversees, and the legal framework in which the authority operates.

**Efficiency gains seem to be the number one benefit of advanced data analytics tools, which could help capacity-constrained AML/CFT authorities.** AML/CFT authorities have highlighted the gains in terms of time savings they achieved in using these advanced data analytics tools. This could translate to reallocation of resources or capacity from more manual work to more judgment-based work. Assessing effectiveness particularly of tools used by FIUs, however, is not that straightforward.

**The benefits that these tools bring are particularly important for jurisdictions that have been heavily impacted by the unintended consequences of AML/CFT international standards, particularly de-risking.** Jurisdictions most frequently exited by global correspondent banks seem to be those with weak AML/CFT supervisory and regulatory frameworks. That being so, the development of advanced data analytics tools as well as development of necessary skills could help strengthen these jurisdictions' frameworks and potentially reverse this trend.

**However, the use of these innovative technologies gives rise to a number of challenges.** First, computational capacity may be an issue, since these tools deal with large volumes of data. Second, data privacy and confidentiality requirements provide safeguards that AML/CFT authorities must consider in using certain data and external resources in developing data analytics tools. Third, assessing the effectiveness of these tools might be challenging, in particular for FIUs given the necessary time to prove the occurrence of a money laundering activity. Finally, tools based on supervised machine learning could lose their effectiveness over time, especially if not regularly updated with new training data, given the capacity of criminal organisations to change their behaviour in order to avoid detection.

**There is scope for information-sharing among AML/CFT authorities on the data analytics tools they are developing or using in order to promote peer learning.** Although the data analytics tools used by AML/CFT authorities are tweaked to reflect their mandates, the underlying methodologies of these tools are quite similar. There are therefore opportunities for peer learning through regular exchange of information and sharing of experiences on the development and use of these tools.

**AML/CFT authorities that are just starting to develop their data infrastructure have a "late mover" advantage and may find it easier to integrate advanced data analytics tools.** These authorities have the advantage of developing their data infrastructure from scratch without the burden of legacy systems. They can design it in a way that makes the data collection, validation and management processes seamless, while more easily enabling the integration of newly developed analytical tools.

**ML/TF risks have international reach, so development of data analytics tools that are international in scope should be considered.** The tools discussed in this paper are all national in scope. Money laundering, however, is an international issue, and criminal organisations tend to exploit loopholes anywhere in the world. Therefore, a strong argument could be made for international cooperation and collaboration in terms of developing data analytics tools with an international coverage.