DEPARTMENT OF BUSINESS SCIENCES, MANAGEMENT & INNOVATION SYSTEMS

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ABSTRACT THESIS :

Recycling and new technologies: global phenomenon between integrated prevention and new repressive tools

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In the study, we saw that criminal organizations commit crimes for many reasons but the most important of them is to make a profit and get value or money. These crimes are "predicate offenses" for money laundering and cover any crime that generates illegal proceeds. The criminal's ultimate goal is to conceal the illegal origin of these proceeds through a series of money laundering techniques designed to "clean up" the earnings and re-insert them into the real economy.

In particular, in this research work, we have studied the phenomenon of recycling from a triple point of view: the legal one, that of the protagonists of the phenomenon, and finally that of the best techniques and/or technologies to be adopted to combat it. At the moment, an articulated national and/or international control system has been created, supported by a legislative base and based on economic and non-economic operators, without however equipping it with adequate support of research, technology, and specialized professionals. The new frontier of recycling is the internet, understood in all its forms and possible applications.

The online world makes many of the methods previously used to counter the phenomenon useless, given its intrinsic characteristics of anonymity, timelessness, and above all the ability to generate an enormous amount of data, impossible to process through the control of a human operator. Research has in fact demonstrated the need to use new data analysis technologies, such as data science and deep learning, in order to effectively combat the phenomenon. In this perspective, we have seen how supervised learning approaches for detecting money laundering must be constantly fed with historical data labeled to highlight suspicious patterns similar to those identified during the training phase. Even the semi-supervised approach is often rendered useless by the increasingly tech-savvy modern launderer capable of manufacturing new money laundering techniques, literally every day.

The best way to invest resources is therefore that of the unsupervised approach because it detects suspicious transactions without knowing what a money laundering model looks like, looking for similarities, hidden patterns, structures, or groupings in all transactions, accounts, and customers without no training, supervision or historical label dataset. Therefore, unsupervised machine learning is the next evolution of anti-money laundering, as it can detect new money laundering patterns, prevent them well in advance, and identify all accounts and groups involved in money laundering while keeping the ratio of money laundering to a minimum. false positives.