The idea of this research proposal stems from a need for understanding, interpreting and evaluating the impact of technology on law in the area of criminal matters. The 21st century is dominated by technological progress and rapid developments in this area. Internet allows for gathering a paramount number of extremely large data sets from variety of subjects, what has led to the new concepts and scientific areas concerning big data analysis. As a subject to automatic processing by computer algorithms and advanced data-processing techniques, big data has become a catalyst for generating certain correlations, trends and patterns. As a result, big data-based algorithms are already used to calculate predictions (such as incidents, diseases, consumer behavior or even criminal acts) and draft preconceptions based on experience which follows from the data (ex. suggested online content). This has also changed the decision-making process which is now being facilitated or sometimes even completely taken over by using algorithms. Moreover, algorithms increasingly use artificial intelligence (AI) systems which have a capability of deciding themselves on best action(s) to take to achieve the given goal. Artificial intelligence has a potential to extremely boost and make more efficient the sectors offering large data sets, e.g. pharmaceutical sector, advertisement business or social apps. It is being dynamically developed by the tech-giants, among others, Google, Facebook or IBM.

Law enforcement is also a data-based activity gathering large data sets. Authorities collect huge quantities of data, including data gathered *via* new, digital techniques (facial recognition, biometrics, digital fingerprints, online surveillance). This fact, associated with the concepts of big data, algorithms and AI, can considerably impact on and modernize the law enforcement sector. However, the potential use of big data by law enforcement agents also rise serious legal and ethical doubts. The most striking is the question on the future of algorithmic, big data-based decision-making. Will it be possible in the future that a person will be detained or targeted with a surveillance measure because the algorithm using AI, on the basis of its experiences and big data, said so? To what extent should it be possible for law enforcement decisions to be supported by the AI or big data-based algorithm? How to ensure that the algorithm does not make wrong decisions which lead to discrimination or bias?

For a long time the topic of machines and robots involved in investigating crime remained reserved for the science-fiction sector. However, speed technological development and increased use of AI in private sector is also impacting on law enforcement. The most known example of thereto is COMPAS, the AI device utilized in the United States for making decisions about a defendant's statistical likelihood of rehabilitation or re-offense. It seems that the nearest future will bring much more examples, since, many states are already developing AI tools to enhance law enforcement, for example: agent-based simulation for decision support on operations; face and soft biometrics to detect suspicious behavior; crime anticipation systems; predictive policing systems to support decision-makers to allocate resources; statement-taking machines to support criminal investigations; surveillance drones; AI bot to identify legally privileged information. The need for developing these tools also follows from the fact that technology is changing the *modus operandi* of criminal or terrorist groups or even creating new classes of crime altogether which will not be possible to combat using traditional tools.

The project will address these issues focusing on the use of big data-based algorithms and AI in decision-making process in law enforcement environment. Therefore, the research is limited to the very specific context of decision-making. The goal of the project is to construct a conceptual policy and regulatory framework proposal for the conditions and standards for the use of such tools (taking into account the EU requirements regarding data protection and fundamental rights), and test the feasibility of designing a legal framework on AI in the EU.