

ARTIFICIAL INTELLIGENCE IN CRIMINAL INVESTIGATION

Burak M. Gonultas, Phd, Departmeny of Social Work
Sivas Cumhuriyet University

Overview

- In the present study, it is aimed to discuss how artificial intelligence (AI) can be used in criminal investigation process and to put forward to importance of AI in effectiveness of criminal investigation with compiling method.
- The main factors are as follows: increasing crime rates, increases in the number of investigations, complications of crimes, difficulties and disruptions in Knowledge Management (KM) due to the increase in the density of information, time constraints and the nature of the investigation process that is almost entirely over the investigator.
- On the other hand, the functions of AI applications for KM, information integration and decision-making processes are important factors. In terms of crime investigation, AI can contribute to KM, information discovery and decision-making processes of investigators and the legal infrastructures of these elements are discussed.

Introduction

- Today, crimes and methods of committing crime are changing and being complex [1].
- Increasing crime rates and reactions in the society increase the importance of new, effective and alternative methods in combating crime.
- One of them is the use of Computer Technologies (CT). From the point of view of crime investigation, CTs are expected to support the information infrastructure and decision-making processes of crime investigation through the collection, analysis of crime information and making the crime-related data available.
- Thus, access to quality information can enable investigators to choose effective strategies and tactics in a timely manner [2].

- The main element of crime investigation is the management of information and knowledge [3].
- Information management, on the other hand, mostly runs through the investigator.
- However, it should be taken into consideration that personal mistakes that may occur in the process, due to the crime investigation being mainly conducted through the investigator, may lead to loss of rights, to ruin the work and to betray the sense of justice.
- In this context, supportive methods are needed to help minimize personal errors. One of the technological methods that can be utilized in managing information is thought to be artificial intelligence applications. Because, the crime investigation, which is one of the areas where information technology is used, is quite compatible with the promising development areas of artificial intelligence and this compatibility has an important potential especially in investigating [4].

- Artificial intelligence can provide accurate and effective information and enable decision makers to make the right decisions [5], [6], [7].
- The use of databases specific to crime has been effective in investigating serious crimes such as murder or organized crime.

Aim of the present study

- In this context, the study aimed to discuss the contribution of the “artificial intelligence” practices that are thought to be effective in the importance, dimensions and activation of information management in crime investigation and the legal dimension of this contribution, and to provide suggestions for future criminal investigation practices.

Methodology

- This study compiled national and international literature on the subject as a methodology.

Results and Discussion

- Artificial intelligence can contribute to crime investigation by providing assumption support to decision-making processes of investigators, information management, information discovery.
- However, it should not be expected that artificial intelligence can replace investigators totally.
- Therefore, the main finding of this study is that artificial intelligence can support the investigator in crime investigation, thus enabling investigators can conduct investigations more effectively. In order for artificial intelligence to contribute to the crime investigation process;

- Depending on the use of machine learning methods, algorithms of investigation processes should be developed in order to investigate crimes.
- Retrospectively, versions from previously investigated samples should be constituted.
 - For this purpose, sufficient samples should be determined. In terms of intuitive reasoning, artificial intelligence, with the processing of large amounts of information, increases the ability to learn based on newly acquired knowledge, thereby reducing the likelihood of errors in the research-investigation process.
 - For this reason, it should be supported with continuous information.

- Within the framework of the information in the existing databases, crime scene information, victim information and experiences obtained from the cases resolved in the past, AI can support the production of hypothetical formulations that can contribute to the decision-making process related to the incident.
- AI can assist investigators to make beneficial and productive decisions or to help them make their decisions by helping to produce possible and likely legal and rational assumptions (abductive reasoning) that investigators use in decision-making processes during the investigation process, and also during the investigation process.

- It can also provide an objective presentation of what and how is done during the investigation process for court processes after investigation.
- AI applications and data can contribute more effectively to the transparency and accountability of the investigation process. Thus, it is possible to contribute to the validity and reliability of crime investigations in the eyes of the parties and the public.
- AI can help to keep the experiences gained in investigations, the ways in which investigations are carried out, and the ways of resolving interesting cases in a certain and standard format, thus contributing to their training for the professional development of newly participating in investigative units.
- In addition, investigator-based knowledge management can help the nature of a more collective structure. By constituting file tracking programs and calendars related to unsolved files, enabling the tracking of files can be facilitated (Table 1).

Conclusion

- In this context, algorithms and their legal infrastructure must be determined for AI.
- Thus, thanks to these algorithms, AI can assist the investigator's decision-making processes during the investigation process.
- In order for AI to work effectively, as much information as possible should be entered into the system, and the formats and legal infrastructures should be established for the entry of this data into AI.

Beneficiary in terms of criminal investigation	Supporting of AI
Data bases	Integration for data mining
Knowledge Management	Effective knowledge management via integration
Decision making process	Assumptions via artificial neural network
Trainings	Probable approaching and investigating techniques
Trials-courts	How probable techniques are used
Unsolved-unidentified cases	Scheduling and planning of working those cases
The parties of cases and public	Validation and reliability of investigation

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Thank you...

**For further questions please
mburakgonultas@gmail.com**