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LECTORI SALUTEM!

Dear Readers,

I am pleased to greet you on behalf of the Editorial Board, and I hope that you will be impressed by the first issue this year. The journal has now entered its 6th year. The years behind us have shown that criminal geography has its right to exist and its merits. More and more people are discovering this field of science and conducting spatial researches, concerning criminal geography, and needless to say, more and more researchers incline to publish in this field and also in our journal.

The editorial board of the Criminal Geographical Journal closely cooperates with the International Criminal Geographical Association, and they hold a number of events that enhance the recognition and the essence of crime geography in both the Hungarian and the international scientific fields. In addition to publishing the journal, we also organize two conferences and a geographical competition as well, each year.

The International Criminal Geography conference has been organized for the fifth time by the Hungarian Society of Law Enforcement and the International Criminal Geographical Association. A total of twenty-nine people applied to deliver presentations, which is considered a record. The conference in English will be held at the end of autumn.

This issue clearly reflects that spatial thinking is substantial in all areas of life and crimes. Presumably, there is no area that does not have some kind of a geographical projection. This is also evident from the studies in this year's first issue.

If you have any comments or suggestions regarding the journal, please write them to the editorial board!

I wish all of the readers a pleasant reading.

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USING CCTV FOR LAW ENFORCEMENT OPERATIONS AND PUBLIC SAFETY

Abstract

Modern CCTV systems can prevent crime in public places and make a significant contribution to the detection of criminals by law enforcement agencies. The purpose of the study is to examine the extent to which CCTV systems influence or deter the realisation of a person's intention to commit a crime. Particular attention is paid to the issue of assessing the general level of law and order and public safety as well as personal sense of security of citizens with the expansion of preventive video surveillance. Using the example of the hardware and software complex "Safe City" developed and implemented in St. Petersburg, the study examines its advantages and disadvantages. The results of the study will contribute to the development of public safety mobile applications in large cities.

Keywords: CCTV, safe city, city cameras, video surveillance, video surveillance system, public order, public safety, crime prevention.

1. Introduction

CCTV systems play an increasingly important role in the prevention and detection of crime in our country, along with the traditional preventive capabilities of internal affairs authorities and the contribution of public groups in maintaining public order (Kobets – Kobozev 2023). The speed with which they develop, especially in metropolises such as Moscow and St. Petersburg, is demonstrated by the fact that in 4-5 years we might be able to witness a complete replacement of obsolete operational and technical means and the introduction of a new generation of certain types of cameras. This is how fast technology is developing (Melnikov et al 2023; Sharma et al 2024).

The development of microelectronics in combination with the latest information technology makes it possible to introduce new forms of situational technical prevention using reliable

means of control, which have practically no restrictions in terms of range, duration and storage capacity, and are protected from unauthorized access (Kunz 2019). One of such forms is video surveillance in public places (Kobets 2015). This method is primarily administered by the state and is used in public places to ensure public order and public safety and to carry out law enforcement activities (Kobets 2014). It is also used by municipal institutions (kindergartens, schools, medical institutions) and private companies (shops, banks, airports).

One may wonder whether technological development has been accompanied by criminological research into the use of preventive video surveillance. It should be noted with regret that the number of publications devoted to research into the effectiveness of the use of video surveillance in Russia is insignificant, and is mainly devoted to special cases of their preventive use at protected facilities of the penal system (Tsarkova 2022) or sports infrastructure facilities where mass sporting events of various levels (Kobets 2021) are held. However, the number of international sources is also very small when compared with the number of studies dedicated to the latest technological developments (Kobets – Tarasevich 2022; Tihanyi – Matyas – Vari 2023).

In relation to CCTV, the role of crime geography must be mentioned. Nowadays, the installation of cameras is done scientifically. Crime geography research is a big help in this. Crime mapping can be used to map the hot spots where the cameras should be placed. Predictive policing can be used to determine the places where cameras should be placed, and where crimes are expected to occur in the future. I think that the role of the geography of crime will become bigger and bigger in this area as well.

2. The role of CCTV for law enforcement operations and public safety

It would not be an exaggeration to say that the widespread use of CCTV systems is essential for the effective work of all law enforcement agencies. Many studies show that cameras significantly increase the population's subjective sense of safety, which is also an important factor in their continued use (Kunz 2019).

The purposes of using preventive video surveillance by law enforcement agencies are: increasing the general level of law and order and public safety in certain territories; ensuring information security; deterring potential perpetrators; identifying and searching for persons who have committed an administrative or criminal offense.

Let's examine the development of a state preventive video surveillance system using the example of St. Petersburg.

The unified centre of the hardware and software complex "Safe City" was launched in St.

Petersburg in May 2017. Its opening was timed to coincide with the FIFA Confederations Cup games, which took place from 17 June to 2 July 2017.

From a technical point of view, "Safe City" operates on the platform "Management Decision Forecasting and Support", which reflects up-to-date information about incidents online, and currently includes 11 automated systems, including the city's video surveillance system.

As of the end of December 2023, the city CCTV system comprises almost 90 thousand video surveillance cameras operating in all districts of the city. A video surveillance camera is a multifunctional monitoring device with wide functionality that allows you to analyse the current situation near the camera. The cameras are installed in popular tourist locations (near the Peter and Paul Fortress, St. Isaac's Cathedral, squares and attractions) and residential urban areas (yards, building entrances). You can find out the location of the cameras of the city video surveillance system by using the Safe St. Petersburg mobile application, which has been downloaded more than 134 thousand times. The functionality of this application allows you not only to see the icons on the city map indicating where the cameras are installed, their number at a specific point and the direction of view, but also their feed. Moreover, registered users can submit a request for video footage within seven days in the event of an incident. As part of one request via the app, you can request archived video footage of up to 30 minutes. In total, three such requests can be filed within 24 hours. From the point of view of victimological prevention, the following functions are of particular interest: "*Video Witness*", which allows the user to take a video of the incident, as well as "*Emergency Assistance*", which allows the user to send a message specifying the address of the incident and the reason for contacting the city's emergency services.

Currently, the authorities are actively working on integrating agency-level and private video surveillance systems into the city video surveillance system, which will allow authorities to monitor public spaces even more closely. 11 thousand video surveillance cameras have already been integrated, including cameras of the metro, airport, railway stations, passenger sea port, traffic lights, ring road, Gazprom Arena stadium, governmental and municipal service multifunctional centres and other social infrastructure facilities. This should be recognized as a positive trend, since use of the combination of state and non-state cameras and proper organization of information exchange allows for more complex operations and a wider exchange of information (Kunz 2019).

It is worth noting that the Informatisation and Communications Committee of the Government of St. Petersburg regularly posts on its website detailed information about the results of using the city video surveillance system, which should be assessed positively. International

criminologists also recommend publishing and regularly reviewing video surveillance policies, as well as informing police officers about them (Kirui – Muiya – Ochieng 2023).

3. Prospects for using CCTV

As for the shortcomings of the city video surveillance system, we can only observe an extensive increase in the number of city cameras and private cameras integrated into the citywide system. At the same time, no results of the "intellectualisation" of video surveillance have been traced, including any data analysis regarding: objects and suspicious persons; travel; abnormal events; incidents; "false" alarms. Meanwhile, researchers pay attention to such pressing problems as: implementation of deep learning methods; exploring multimodal data fusion; use of edge computing to process information coming from city CCTV cameras in real time (Pokle et al 2023; Sai – Prasad 2023).

4. Conclusion

The introduction of a city video surveillance system in St. Petersburg was part of the efforts of the city government to increase the attractiveness of the tourist centre and sports infrastructure facilities, as well as to ensure the safety of a large number of visitors on the main streets, squares and transport hubs. The goals of preventive video surveillance stated above are appealing and generally find support among government agencies and citizens. However, when considering the usefulness of CCTV from a criminological point of view, a conflicting feeling arises. It seems that the excessive number of cameras in certain locations indicates that they are rather unsafe if such excessive technical efforts are made to keep them under control. Meanwhile, the predominance of technical means of surveillance is accompanied by almost complete absence of more traditional crime prevention measures that better meet the needs of citizens in crowded places in the city centre – police patrols, people's guard, 24-hour posts and police stations within walking distance of the main city attractions. We believe that the effectiveness of law enforcement and crime prevention in public places will increase with the combination of video surveillance and the use of traditional police forces.

References

Kirui, G. – Muiya, B. – Ochieng, D. (2023): The moderating effect of CCTV policies on the relationship between CCTV use and police operational outcomes the moderating effect of CCTV policies on the relationship between CCTV use and police operational outcomes. *Strategic Journal of Business & Change Management*. 10. DOI:

10.61426/sjbcm.v10i1.2582

Kobets, P. N. – Kobozev, A. A. (2023)**:** Fundamentals of legal regulation of interaction between employees of the Ministry of Internal Affairs of Russia and citizens in the field of law enforcement and security training: experience and problems. *Bulletin of the All-Russian Institute for Advanced Training of Employees of the Ministry of Internal Affairs of the Russian Federation*. 2(66). pp. 42-51. DOI: 10.29039/2312-7937-2023-2-42-51 (in Russian)

Kobets, P.N. – Tarasevich, O. V. (2022): Legal foundations and features of the functioning of the Japanese police system. *Scientific research in the modern world. Theory and practice*. Collection of selected articles of the All-Russian (national) scientific and practical conference, St. Petersburg, June 10, 2022. St. Petersburg: Private scientific and educational institution of additional professional education National Humanitarian Research Institute "NATSRAVITIE". pp. 191-195. DOI: 10.37539/NITP329.2022.91.56.015 (in Russian)

Kobets, P.N. (2021): § 1. Ways to improve legislative mechanisms for ensuring the security of international sporting events. *Criminal-legal and criminological problems of combating crime in sports*. Collective monograph based on the results of the International Scientific-Practical Conference "Criminal-legal and criminological problems of combating crime in sports". St. Petersburg: Center for Scientific and Information Technologies "Asterion". pp. 277-281. (in Russian)

Kobets, P. N. (2015): The fight against crime in the regions of Russia using the example of Moscow. *Searches and finds of Russian legal science*. Collection of scientific works dedicated to the 70th anniversary of the Victory of the Soviet people in the Great Patriotic War of 1941-1945. St. Petersburg: Copi-R Group LLC. pp. 40-49. (in Russian)

Kobets, P. N. (2014): Basic prerequisites for the use of special technical means in the activities of law enforcement agencies of the Russian Federation // Scientific proceedings of the international scientific-practical conference of scientists of the RGAU-MSHA named after K.A. Timiryazev, Moscow, June 24–25, 2014. Volume 3. Moscow: Russian State Agrarian University – Moscow Agricultural Academy named after K.A. Timiryazeva. pp. 89-91. (in Russian)

Kunz K. L. (2019): Criminological Thinking. An Introduction. St. Petersburg, ALEF-press. (in Russian)

Melnikov, N. M. – Nikishkin, A. V. – Knyazeva, S. I. – Podolsky, D. A. (2023): Application of GSM controllers in the video surveillance system of internal affairs bodies.

Informatization and communication. 1. 39-43. DOI: 10.34219/2078-8320-2023-14-1-39-43 (in Russian)

Pokle, S. – Thote, A. – Dahake, J. – Pawde, K. – Kanojia, M. (2023): Remotely Accessed Smart CCTV System Using Machine Learning. DOI: 10.1007/978-981-99-3982-4_31

Sai, A. – Prasad, K. (2023): Machine Learning Software for the Detection of Violence from CCTV Live Footage. *Journal of Image Processing and Artificial Intelligence*. 9. 12-18. DOI: 10.46610/JOIPAI.2023.v09i03.002

Sharma, D. – Singh, B. – Suryani, E. (2024): Review of Local Binary Pattern Histograms for Intelligent CCTV Detection. 277-286. DOI: 10.1007/978-981-99-6906-7_24

Tihanyi, M. – Mátyás, S. – Vári, V. (2023): Tools of Law Enforcement of Street Homelessness in Hungary. *Criminal policy and law enforcement practice*: Collection of articles based on the materials of the X International Scientific and Practical Conference, St. Petersburg, October 27, 2023. – St. Petersburg: Center for Scientific and Production Technologies "Asterion", 2023. pp. 203-212.

Tsarkova, E. G. (2022): Application of artificial neural networks for information processing in video surveillance systems at protected facilities of the penal system. *Security. Control. Artificial intelligence*. 2, 2(2). 19-26. (in Russian)

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GEOGRAPHIC PROFILING OF OFFENDERS

Abstract

Today's world is characterized by a vast amount of information and a number of technical and IT innovations, all of which reinforce the observation that law enforcement and criminal analysis are constantly evolving, never-ending branches of police work.

One dynamic area of criminal analysis is profiling, which involves identifying the personality traits, behavioral tendencies, demographic or biological descriptors, and geographical locations of the offender.

One determinant of the development of crime geography is the construction of a geographic profile of the offender, which indicates the most likely location of the suspect of a crime. The analysis method is based, among other things, on the principle that by incorporating qualitative and quantitative methods, the spatial behavior of the offender can be better understood, and the investigation can be focused on a smaller area.

In this paper, I will demonstrate the role of geographic profiling in the work of law enforcement agencies and how it is manifested in our country.

Keywords: law enforcement, criminal analysis, criminal profiling, geographic profiling, offenders

1. Tracker profiling

Offender profiling is an inference derived from the physical and/or behavioral characteristics of the offender. Physical evidence found at the scene can be used to draw conclusions about the sex, hair color, or even the origin of the offender. The approach to the crime scene, the selection of the victim, can be indicative of the offender's behavior and attitudes (Turvey 2005).

The first publication on perpetrator profiling was published around 1486 and was called: „The Malleus Maleficarum" (Turvey 2005). It was already considered a professional manual that helped witch hunters to identify, prosecute, and punish witches during the Spanish Inquisition.

The book included several profiles that helped to highlight women who had caused some kind of harm or misfortune to communities, men, or children. The manual listed the qualities that witches possessed, and these could be used to subsequently prosecute and burn women who fit the profile (Turvey 2005).

Criminologist Cesare Lombroso[1] believed that crime was caused by the biological predisposition of certain individuals to commit crimes. He theorized that a person's appearance, such as the size of the head or nose, could indicate whether or not he or she was a criminal (Frank, Marilyn – McShane 1993).

In more scientific profiling, the primary method used was to employ an expert, such as a psychologist or forensic pathologist, who could provide information to investigators based on their experience. A later method took into account the opinions of several professional categories, such as police officers, criminologists, psychiatrists, doctors, anthropologists, etc., in developing the profile.

Based on this principle, the Federal Bureau of Investigation (FBI) developed a method for profiling offenders. They conducted analyses by interviewing family members and friends of convicted offenders, and used this information to develop negotiation techniques for hostage situations and for training police officers (Frank – Marilyn – McShane 1993).

Offender profiling involves studying the crime scene and then attempting to draw conclusions about the most likely demographic, social, and behavioral characteristics of the offender in order to provide investigators with a clue about the offender's characteristics (Snook – Canter – Bennell 2002).

Offender profile analysis is based on two assumptions. The first assumption is that behavior reflects the personality traits of the offender, whereby reconstruction and analysis of the crime scene help to understand the personality and demographic characteristics of the offender. The second assumption is the behavioral consistency principle, according to which individual offenses can be fitted into a series (Granhag – Christianson, 2008).

Concepts often used in profiling are modus operandi, ritual behavior, and typical behavior. The modus operandi refers to the way the crime is committed and the actions and consequences necessary to commit it. Ritual behavior represents behavior that is not necessary for the crime itself but which the offender performs because he needs some additional satisfaction. The offender's "signature" is a unique combination of behaviors. Only if the offender has committed

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[1] Ezechia Marco Lombroso (November 6, 1835 – October 19, 1909) was an Italian eugenicist, criminologist, phrenologist, physician, and founder of the Italian school of criminology.

two or more offenses, the 'handprint', the pattern, must be unique, i.e. no one else has committed a similar one (Granhag – Christianson 2008).

Within offender profiling, there are two orientations, inductive and deductive (Granhag – Christianson 2008). In inductive profiling, hypotheses are developed based on empirical and statistically established data. The basic starting point is to analyze data from cases that have already been solved in order to make predictions about the unknown perpetrator. It is based on the analysis of statistical data and observation. It has the advantage of being relatively simple and can be used by untrained analysts in specific cases (Turvey 2005).

The deductive approach focuses solely on the individual case and seeks to establish a pattern of behavior in the offender. Orientation is based on theories that look at the circumstances of a particular crime. This process uses physical evidence such as scene selection and victimology to reveal the characteristics of the offender (Turvey 2005).

Developing an offender profile means attempting to identify and characterize the psychological and sociological characteristics of the offender. This knowledge will inform further decisions on the direction of surveillance and investigation work for the criminal investigation. This offender profiling also includes some geographical analysis of the offender. However, geographical profiling has evolved into a separate methodology. Both methods are based on the study of human behavior and help to narrow the scope of observation.

2. Geographical profiling

Within the field of criminal analysis, with the steady spread of analytical-evaluative work, general and specific profiling became institutionalised, i.e. it was also included in the analysis policy as an analytical method.[2] Both offender profiling and geographic profiling are tools to narrow down the search field to identify the offender. Geographic profiling analyses where the offender is located in relation to the crime committed, while offender profiling looks at the type of person who committed the crime.

Offender geographic profiling is a criminal investigation methodology that analyzes the locations of a connected series of crimes to determine the most likely location of the offender (Rossmo 2012). It is used in cases of serial murder, robbery, sex offenses, arson, and arson by bombing, although it can also be applied to single crimes that have multiple locations or some significant geographic feature (Rossmo 2000).

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[2] 23/2018. (VI.21.) ORFK Instruction Criminal Analysis Regulations

In terms of analysis, the first is to identify the links between multiple crimes or multiple locations that clearly indicate that they belong to a series.

Geographical profiling is primarily based on the "geographical footprint" left by offenders. These traces are collected and mapped on a mental map, and then the spatial patterns are analyzed (the geographical profile created is more than a map, as investigators build strategies into it, which they use to start the investigation). The construction of these maps is one of the interfaces between crime geography and geographic profiling (Mátyás 2023).

Geographic profiling in its current form was developed by Canadian police officers. Rossmo[3] believed that not all crime that occurs is completely random. There was a geographical logic behind the locations of crime (Rossmo 2012).

Geographic profiling is based on the inductive orientation. The statistical orientation has the advantage of being able to handle large amounts of data. When creating a profile, the analyst tries to construct the likely characteristics of the offender, while geographic profiling tries to find where the offender's likely base might be. The aim is to obtain data on the offender's home, workplace, and family. Within geographic profiling, the starting point is a connection between where the offender lives, i.e. where he lives and where he commits the crime (Rossmo 2012).

The starting point has evolved from several theoretical frameworks. The first framework, which describes how the victim becomes available to the offender, is called routine motivation theory (Cohen – Felson 1979). According to this theory, if the offender's motivation and the appropriate target coincide, the crime is likely to be committed. According to this theory, crime is closely linked to the routine of everyday life (work, school, transport, leisure activities, shopping, etc.) (Sarnecki 2009).

Pattern theory is based on the idea that all people move in similar patterns every day. We move within a range of activities that includes places such as work, leisure activities, and home. Within these areas is the flow of encounters between the perpetrator and the victim. The theory also supports the idea that motive is not necessarily the main driver behind the crime but must also be the opportunity to commit (Sarnecki 2009).

Rational choice theory is concerned with how offenders make decisions to commit crime, i.e. how they balance effort, reward, and the risk of being caught (Newburn 2007). The theory assumes that offenders commit crime after being tempted and then make rational choices.

One of the fundamental aspects in exploring the distribution of offenders' crimes around their base location is the so-called Circle Hypothesis. This theory, developed by Canter and Larkin,

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[3] Kim Rossmo (born 1955) is a Canadian criminologist specializing in geographic profiling

is based on an examination of known offenders' crime locations. It compares the spatial correlation between offenders' choice of crime location and their base location, leading to a proposed dichotomy of spatial crime patterns, where offenders are categorized as either 'marauder' or 'commuter'. It is found that the base location of marauders is within their crime area, and therefore their crime location is bounded by their point of capture (Canter – Larkin 1993).

Methods within the inductive strand are based on geographic offender profiling, which assumes a strong link between geography and crime.

Geographic profiling assumes that criminals hunt their victims and targets in different ways. These ways are determined by various factors, such as the offender's own activities, the locations of the relevant victims/objects, the nature of the environment, and the time of the crime. The offender may be a hunter type who commits his act where he lives. The poacher selects a specific victim by leaving his place of residence. The troller, an opportunistic criminal, commits crimes by taking advantage of opportunities. The trapper lures the victim to himself in various seemingly innocuous situations (Ramsland 2014).

Geographic profiling is now one of the most controversial and cutting-edge methods used in criminal investigation. It incorporates aspects of criminology, psychology, and geography, as well as mathematics, statistics, and physics.

The use of geographic profiling in law enforcement work and the software utilized are evaluated individually by international criminal analysis organizations and the investigative bodies of each state. The extent to which they employ geographic profiling to track serial offenders may also vary. In Austria, 'geographical event analysis' has been utilized since 2021, primarily to detect serial cases where at least five crimes can be considered as a series (URL1).

It is difficult to draw parallels in the success of geographical profiling in different countries because, in addition to the different professional skills and technical equipment of the investigating bodies, the socio-economic structure, culture, and therefore the behavior patterns of the perpetrators may be different.

Although geographical profiling is a popular form of analysis in many countries for narrowing down the suspect pool, we must also be aware of its limitations. Geographical profiling is limited by the over-regulation of data sharing between different police forces. It is also limited geographically by police efforts to identify the perpetrator, as new information may result in a slightly different geographical profile.

3. Geographical profiling in our country

With the steady spread of analytical-evaluative work within criminal analysis, general and specific profiling has become institutionalised, i.e. it has also been included in the analysis code as an analytical method.

Specific profiling is a hypothetical picture of the unknown perpetrator of a specific crime, and in Hungary it is most often used in cases of homicide and sexual offences. Geographical profiling is closely related to the latter, as it tries to provide an answer to the geographical localisation of the perpetrators of crimes committed (Németh 2020).

Geographical profiling as a form of analysis to support investigations was first used to identify the perpetrators of a series of robberies in 2005, committed against elderly people living in farm and rural areas using the so-called 'light-clock strike' method. The circle-hypothesis method was used to delineate the perpetrators' movement area, and the analysis also revealed that the apparently separate circles of perpetrators were linked by a single person, who was identified and the other robbers were identified and apprehended (Istvanovszki 2012).

I will present a case about 10 years later on its practical application, where, in addition to the use of geographic information elements in the offender profile, the theory of geographic profiling was introduced. According to press reports, from January 2014 to the end of 2015, about thirty weekend houses were set on fire by unknown perpetrators in the suburbs of Budaörs. Naturally, the case was analyzed to determine whether it fits into the series, and the following hypothesis was put forward when the cases were linked: "The perpetrator of the arson series is a resident of Budaörs or a resident of the town not far from the town.... The perpetrator suffers from mental problems, probably pyromaniac." (Németh 2024).

Meanwhile, the BRFK has been investigating an unknown perpetrator who has threatened to bomb shopping centers in Budaörs eleven times since February 2016. Before his arrest, the man made another threatening phone call from a phone booth in the mountains to the BRFK's Activity Management Centre, and then ran out of the booth. He was arrested, brought to the police station, and taken into custody. During his interrogation, he confessed that he had set fire to holiday homes in Budaörs on several occasions since 2014 (URL2).

The real characteristics of the perpetrator are as follows: 22 years old, resident of Budapest, travelled to Budaörs by public transport, and the locations of the crimes were accessible only on foot. His girlfriend lived in Budaörs, they broke up, he attacked her in revenge, and he attacked the town where she lived. The offender had mental problems and was a pyromaniac (URL3, Farkas et al. 2021, Farkas 2021).

Based on the brief theory described above, the doctrine of crime pattern theory applies, and the perpetrator could be described as a poacher type, and a commuter (Németh 2024).

In the description of the above case, I have only highlighted elements relevant to geographical profiling, but it is clear that this form of analysis is not intended to assist police work on its own, but in combination with other forms of analysis.

In our country, however, geographical profiling has not become as popular as specific profiling, for which a separate analysis programme has been developed. The software described above to assist in the application of geographical profiling has not been and is not being used by police law enforcement agencies. In hypothesising the perpetrator, characteristics of his geographical base location alone are taken into account. The categories of crime to which the geographical profile could be applied are fortunately few in number in our country today, and their serial commission is negligible. Exception to this is the occurrence of burglary, where it would be possible to create a geographical profiling based on the number of cases and the methods used.

4. Summary

Geographical profiling cannot be used to directly detect the perpetrator, but as an analytical method, like other methods, it plays a complementary role in criminal proceedings, in intelligence gathering, to support investigations and to help determine the direction of detection. In the case of a small number of series of offences, it is easier to provide data than in the case of a large number of offences, as there is a risk of inaccuracy. Success depends primarily on the accuracy and relevance of the underlying data.

Not all serial crimes are suitable for geographic profiling, so it is necessary to assess in advance whether the case can be processed using this method. In addition to the type of crime, the quantity and distribution of targets or potential victims in a given area are also important factors. For fraud cases such as internet fraud, pimp fraud and violent crimes against prostitutes, these are not possible due to the lack of geographical reference. The same applies to cases where the offender commits crimes only in well-defined locations, e.g. festivals.

In order to further exploit the use of geographical profiling, research is mainly focused on what additional categories of crime can be geographically profiled. However, the techniques used can also help law enforcement agencies in other areas, such as improving the investigation of missing persons, the location of unknown bodies, and the investigation of abducted persons' places of detention.

Interactive offender profiling decision support systems attempt to go beyond the geographic profiling processes described above and instead, seek to integrate police databases and research

in real time so that behavioral characteristics of crimes can be scientifically profiled simultaneously. This can contribute to more detailed and complete geo-behavioural offender profiling. Such an application would allow analysts to more demonstrably link the analysed cases to the offenders in an ongoing case in comparative case analysis, and thus more conclusions about offenders can be drawn with greater certainty based on geo-behavioural information (Wilmott et al. 2022).

The use of computer programs based on the analysis of statistical data, big data, the interconnection of databases, real-time analysis, are areas where research is ongoing to see how artificial intelligence can support work in these areas. There is therefore a rational basis for the two research areas to meet and for AI to be used in geographic profiling.

References

Canter, D. – Larkin, P. (1993): The environmental range of serial rapists, Journal of Environmental Psychology, vol. 13, no. 1, pp. 63-69. https://doi.org/10.1016/S0272-4944(05)80215-4

Cohen, L. E., Felson, M. (1979): Social change and crime rate trends: a routine activity approach. American Sociological Review. 44: 488-608.

Farkas, J. et al. (2021). Main Characteristics of Juvenile Psychopathy in Law Enforcement Aspects. Security Horizons, 2(5): 237-244.

Farkas, J. (2021). Historical background on the diagnosis of mental disorders until the establishment of modern psychiatry, and its links to law enforcement. American Journal of Research Education and Development, 4(1): 24-30.

Frank P. Williams, III, Marilyn D. és McShane (1993): Criminology Theory, Elservier

Granhag, P.A. – Christianson, S. (2008): Handbok i rättspsykologi. (1. uppl.)

Hickey, E. W. (2013): Serial murderers and their victims (6th ed). Belmont CA: Wadsworth, Cengage Learning.

Istvanovszki L. (2012): Bűnelemzés a modern bűnüldözésben. Budapest, Patronicium Kft,

Mátyás Sz. (2023): Bűnözésföldrajz, International Criminal Geographical Association Budapest, ISBN: 978-615-01-9649-7

Németh Á. (2020): A bűnügyi elemző-értékelő munka, Közbiztonság, szerkesztette: Ruzsonyi P. Ludovika Egyetemi Kiadó, Budapest

Németh Á. (2024): Creating the geographical profile of the offender, presentation at the 5th International Conference on Geography of Crime - 22 March 2024.

Newburn, P. (2007): "Tough on crime": criminal justice policy in England and Wales Crime

and Justice, Crime and justice 2007. vol. 36 https://doi.org/10.1086/592810

Ramsland, 　　　**K**　　　　(2014):　　　　Geogrpahic　　　　Profiling https://www.crimelibrary.org/criminal_mind/profiling/geographic/4.html

Rossmo D.K. (2012): Recent developments in geographical profiling. A Journal of Police and Practice, 2012. 2012. június, 144–150. o. https://doi.org/10.1093/police/pas008

Rossmo, D. K. (2000): Geographic profiling. Boca Raton, Fla: CRC Press.

Sarnecki, J. (2009): Introduktion till kriminologi. (2., [uppdaterade och utök.] uppl.) Lund: Studentlitteratur.

Snook, B., Canter, D., & Bennell, C. (2002): Predicting the home location of serial offenders: A preliminary comparison of the accuracy of human judges with a geographic profiling system. Behavioral Sciences & the Law, 20(1-2), 109-118, Stockholm: Liber. ISBN 9789147052875

Turvey, B. (2005): Criminal profiling: an introduction to behavioral evidence analysis. (2. ed.) Elsevir, Academic Press, Amsterdam ISBN 0127050418

Willmott, D., Hunt, D. and Mojtahedi, D. (2022): Criminal Geography and Geographical Profiling within Police Investigations - A Brief Introduction Internet Journal of Criminology　　　　2021　　　　ISSN　　　　2045　　　　6743 https://www.researchgate.net/publication/357556937_Criminal_Geography_and_Geographical_Profiling_within_Police_Investigations_-_A_Brief_Introduction

23/2018. (VI.21.) ORFK Utasítás Bűnügyi Elemzési Szabályzat

Internet links:

URL1: https://www.bmi.gv.at/magazin/2022_01_02/Raeumliche_Kriminalanalyse.aspx

URL2: https://www.police.hu/hirek-es-informaciok/legfrissebb-hireink/bunugyek/orizetben-a-gyujtogato-es-a-bombaval-fenyegeto

URL3: https://hirtv.hu/ahirtvkekhirei_adattar/elmegyogyitoba-kerul-a-budaorsi-fenyegeto-1343609

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THE RELATIONSHIP BETWEEN NETWORK RESEARCH
AND THE GEOGRAPHY OF CRIME

Abstract

Network research is used in many fields, but it is also important in the field of law enforcement, as the main catalyst of investigations, which can be used to speed up the flow of information. By combining the knowledge of crime geography with the toolbox of network research, it allows perpetrators and events, as well as criminally relevant geographic locations to be connected and connections to be explored.

However, data, data analysis methods, programs, and the application of artificial intelligence are essential for network research. During the investigation, data can be generated in a number of ways, such as by smart devices, which, if connected to a network, are also capable of communicating with each other, thereby continuously providing data related to their operation, use and situation, which can be significant from a criminal and crime geographical point of view.

Devices connected to the Internet can communicate and share data without human intervention. The purpose of the study is to describe the smart devices that, when connected to a network, can serve to protect the security of smart cities and at the same time to detect crimes and identify the perpetrators.

Keywords: Smart city, smart police, IoT, network research, geography of crime

Introduction

There is a close relationship between the police and geography, which is especially evident when committing a series of crimes and analyzing them. It is the task of crime geography to reveal the connection between geographic location and crimes and to examine the correlations (Bánáti 2023, 19).

They can commit crimes in different areas of the country, they do not always cover the jurisdiction of a captain's office, but also cross county borders. Moreover, nowadays borders are no longer an obstacle, while in most cases in the European Union, we can cross from one country to another without border checks. Crimes committed in the digital space can be committed in any part of the world, for example on social media platforms, as well as on the dark or deep web (Ürmösné 2024), fake news and deepfakes on the platforms of news portals (Ürmösné-Nyitrai 2021), and also through our linguistic fingerprints (Ürmösné 2019), which can provide a lot of data either in oral manifestation, handwritten or printed form (Ürmösné 2023).

Smart devices help police work in parallel with the development of the digital society. However, smart devices also play an important role in the creation and maintenance of a smart city (Mátyás 2017). By using the applications provided by the smart city, we can leave behind a lot of digital data, while criminals can leave behind a digital trail, which can effectively help the work of law enforcement agencies in the framework of the raster and e-investigation.

The digital ecosystem plays a significant role in the field of law enforcement, geography of crime and public safety, as the availability of electronic devices and services and the advanced IT background promote the efficiency and effectiveness of activities related to crime prevention, as well as reduce the reaction time of law enforcement agencies and speed up the administration of justice operation. (Nemzeti Infokommunikációs Stratégia 2014-2020)

The study analyzes a number of smart devices that, when connected to a network, can promote the security of smart cities and the detection of criminals.

The list is not exhaustive, but it highlights the role, smart solutions play in law enforcement and city security in the case of a smart city.

1. Smart cities

We can come across many concepts in the definition of a smart city. According to Sallai, a smart city represents a multitude of Internet-based applications that are built on the collection and processing of data. (Sallai, 2019) According to Szendi, *"a smart city is a complex concept. It is a city that uses innovative strategy and solutions to improve the quality of life of its residents while making effective use of its creativity and knowledge base."* (Szendi et al. 2020, 252.)

While in the Hungarian legislation the 56/2017. (III. 20.) Government Decree formulated the concept of a smart city, according to which "smart city is a settlement that prepares and

implements its integrated settlement development strategy based on the smart city methodology...", while the smart city methodology means the following: "... settlements or a settlement development methodology of a group of settlements that develops its natural and built environment, digital infrastructure, and the quality and economic efficiency of settlement services using modern and innovative information technologies, in a sustainable manner, with increased involvement of the population..." However, the "smart city" and the concept of "smart city methodology" was replaced by the following provision in September 2021: "smart city: is a settlement that participates in the joint planning of municipalities, which prepares and implements its integrated settlement development strategy based on the smart city methodology". (314/2012. (XI. 8.) Korm. rendelet)

The Internet of Things (IoT) and the rapid spread of sensors play a key role in the operation of the smart city. By processing the generated data, the police may have the opportunity to prevent, detect and prove crimes. Thus, the smart devices and sensors operated in the smart city will serve the security of the cities (Kovács 2014).

2. Smart devices and solutions

Currently, city security in Hungary is helped by, for example, intelligent zebras, the Veda system, smart benches, or even drones. Most smart devices are equipped with a camera, which also increases public safety. Different analysis programs can help in analyzing the recordings. Furthermore, by using the police portal, the authority can get information faster, thus increasing the security of the city.

2.1. VEDA and smart cameras

Developments that improve traffic safety include the VÉDA Road Intelligent Camera Network project. The project harmonizes with the existing Hungarian and European Union programs, since the ex-post evaluation of the traffic safety action programs pointed out that the control of compliance with traffic rules is key to reduce the number of road deaths and injuries (Véda, 2015). The traffic control point created with the camera network contributes to the safety of the city (Figure 1).

Figure 1. Veda camera network

The camera recordings recorded in the VÉDA system can also help in the detection of crimes, since the license plates of the cars can be checked on the recordings and it can be analyzed whether they passed the checkpoint at the place and time in question. If the driver can be seen in the car, it may be possible to use the facial image analysis register and the facial image analysis system. Furthermore, it is always important whether there are surveillance cameras at the scene of the crime or in its wider surroundings. Information on the detection (location) of the surveillance cameras can be found on the municipality's website or the police's website (Figure 2).
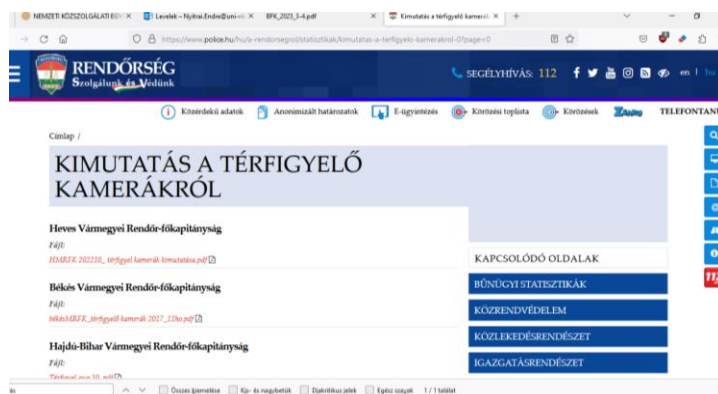

Figure 2. shows surveillance cameras

(source: https://www.police.hu/hu/a-rendorsegrol/statisztikak/kimutatas-a-terfigyelo-kamerakrol-0?page=0)

In the case of cameras operated by the police, we can even find out who the police professional contact person is, the location and location of the camera points, and the data of the monitored area (image 3).

Figure 3. Data about the cameras

(source: https://www.police.hu/hu/a-rendorsegrol/statisztikak/kimutatas-a-terfigyelo-kamerakrol-0?page=0)

Facial recognition plays a significant role in the administration of citizens and in the police in the field of criminal work. For the identification of unknown criminals based on modern technology in the shortest possible time, for the administrative protection of document security, and for the prevention of crime, the social interest justified the addition of personal identification methods and the regulation of biometric facial image identification at the legal level (2015. évi CLXXXVIII. törvény indokolása). CLXXXVIII of 2015 on the face image analysis register and the face image analysis system law regulates the facial image analysis system, which is capable of creating and comparing facial image profiles, an IT application that facilitates personal identification.

The Face Recognition Analysis Department of the National Expert and Research Center was designated as the body performing the facial image analysis activity (image 4).
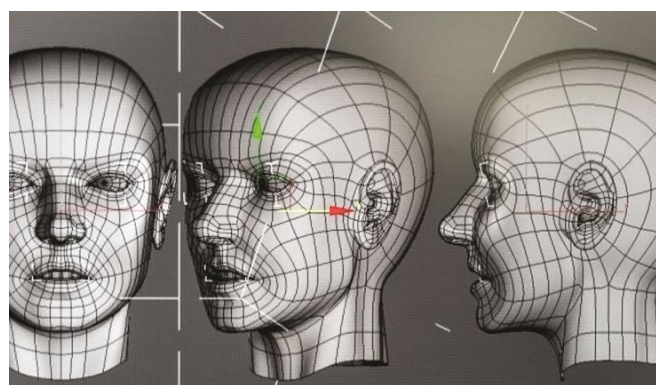
Figure 4. Face image analysis

(source: https://www.police.hu/hu/hirek-es-informaciok/legfrissebb-hireink/zsaru-magazin/arcrol-olvasnak#)

During the facial image analysis procedure, "the images awaiting identification are assigned by the manager to two facial image analysts who carry out their parallel evaluation activities in independent offices. Only those involved in the analysis can see the image and the associated description. The employees upload the image into the software and create a profile from it." (Ferentzi, 2017).

2.2. Entry barriers

Numerous license plate recognition cameras help to filter out cars, for example, when entering Budapest's protected tourist areas. The smart camera identifies the number plate and the barrier is then raised (Figure 5).

Figure 5. License plate identification upon entry

In several places, bollards (bollards) are installed on the protected road section (Figure 6).

Figure 6. Smart pillar preventing entry

If the car has an entry permit, the column preventing entry will sink into the ground after reading the license plate number and the car can continue on the road section in question without hindrance. This column prevents unauthorized persons from entering the protected road section, thus preventing, for example, terrorist acts committed by cars (Németh 2012, Vajda 2016, 2022).

2.3. Intelligent zebras

The attention-grabbing design of pedestrian crossings is primary in terms of traffic and city safety. It is often observed that the pedestrian crossing is difficult to notice even in daytime conditions, because on the one hand the road markings forming the zebra are worn off, the signs are covered, and on the other hand the average night lighting makes the crossing stand out less (Smart zebra).

The pedestrian crossing, known as a smart or intelligent zebra, is a pedestrian protection system aimed at the safety of pedestrians and the prevention of fatal accidents. The intelligent zebra detects the pedestrian's intention to cross, so it is able to warn cars from both directions with the help of flashing light signals built into the roadway, due to which drivers notice even from a distance that they will soon have to give way (Okos zebra).

Image 7 shows when the sensor does not indicate, while image 8 clearly illustrates with the help of the light indicator that you have to give your priority.

Figure 7. Smart zebra   Figure 8. Smart zebra with light signal

In summary, the light indicator already detects a pedestrian a few meters from the zebra crossing, thereby also signaling to drivers that they must stop. The flashing light is visible as long as the pedestrian does not leave the zebra, however, the clearly visible flashing light does not blind motorists, so it does not disturb traffic.

The crossing's sensors can count the passage of all pedestrians, cyclists and cars, and even document the speed of vehicles (Új kamerarendszer). The goal is for the presence of this warning device to be embedded in the consciousness of road users, which increases the safety of the city.

2.3. Smart columns and smart benches

Smart poles, which can contain a large number of sensors that can provide information about light conditions, air pollution, and the dynamics of surrounding traffic, can be important players in the detection of public spaces.

The smart pad provides Wi-Fi in its narrower surroundings request for help to use or create an interactive connection in audiovisual form (Figure 9).

Figure 9. Smart bench

In Budapest, several smart benches have been installed in public areas and playgrounds. In addition, intelligent Budapest has been built with a number of smart pillars in the past period. (Okos Oszlop)

The intelligent public lighting poles are suitable for emitting street light, thus illuminating public areas, for charging electric cars, and also for emitting WIFI, thus enabling free internet access. The security camera mounted on the pole is also a surveillance device, while the emergency button can be used to contact the police and serves the safety of residents and passers-by (Figure 10) (Budapest oszlopa).

Figure 10. Smart column

The light fixture located at the top of the smart pole automatically adjusts its brightness depending on whether it detects movement in its environment. By analyzing crime and law enforcement data, you can get an accurate picture of which points in the area to be protected are the most infected from a criminal point of view, and you can select the neighborhoods where a large number of crowds or groups can be expected to appear. It is advisable to install a smart column in these places. In poorly lit, sparsely built-up, low-traffic neighborhoods, there is a high chance of preventing a crime from being committed with a local alarm that draws attention (perhaps the simultaneous use of sound and light) in the event of an immediate request for help.

In summary, numerous sensors can be placed in the columns and several functions can be installed. Among other things, a wi-fi service, a security camera and the emergency call button can be installed, as well as environmental sensors and programmable LED information screens, as well as electric car charging equipment that can be operated with a smart phone application and also indicates the charging status. These options also help the operation of the smart city.

2.4. Drones

The concept of an unmanned aerial vehicle (in English: Unmanned Aerial Vehicle, UAV; hereinafter: drone) is defined in § 71, point 35 of Act XCVII of 1995 on air transport, according to which "a civil aircraft that is designed and are kept in operation so that the person on board does not drive them."

The drone has become more and more widespread, which can also be explained by the fact that it can be supplemented with several devices (for example, thermal and infrared cameras, Wi-Fi, sensors, facial image recognition, motion detectors), thus promoting the safety of the city (Figure 11)

Figure 11. Drone

From the point of view of traffic safety, it can cost-effectively monitor busy road sections in real time, as well as transmit immediate information in the event of accidents, which can help in how the authorities group the available forces, tools and methods, since the drone can be the first to arrive at accidents and inform about the magnitude of the emergency (Vigh 2018).

The drone can also document the speed of vehicles moving in the city, so drivers can be checked at any time. These functions and possibilities are also intended to promote the safety of the city. It can also help the work of the authority in the prevention, prevention and detection of crimes committed in public areas, as it can record ongoing actions or committed crimes and track the escape routes of the perpetrators (Nyitrai 2020). Various analysis software can also help in the analysis of camera recordings.

2.5. Smart phones, watches and applications

There are many free city safety apps available on smart phones. With the help of telephone applications, it is also possible to report waste illegally dumped within the city limits, thereby making the elimination of environmental pollution even more effective.

Parking applications not only make parking easier, but can also increase city safety, as they can also help detect crimes if the authorities detect and identify the user of the application.

2.6. The relationship between smart devices and the geography of crime

The data that can be extracted from smart devices can help in the investigation of the spatiality and spatial distribution of crime (crimes, perpetrators, victims) and can also provide answers to future spatial changes in crime. Based on Cisco research, within 5-10 years, the primary users

of mobile networks will not be smartphones, but other portable devices such as fitness bracelets, smart watches, cars or various sensors (Dömös 2018).

Smart phones (or other devices) can provide a lot of data, which is also important from the geography of crime. Act C of 2013 on the Electronic Communications Act (hereinafter: Act) 159/A. Based on paragraph (1) of §

- in the case of mobile radio telephone service, internet access service, internet telephone service, internet mail service, or a combination of these, the subscriber's personal data recorded in the individual subscriber contract;

- mobile radio telephone service, Internet access service, Internet telephone, Internet mail service, or in the case of a combination of these, the telephone number of the subscriber, user terminal or subscriber access point or other necessary for the unique identification of the subscriber or user - recorded in the subscriber contract, or the electronic permanent technical identifiers assigned to the subscriber or user by the communications service provider in other ways;

- mobile radio telephone service, internet access service, internet telephone, internet mail service, or in the case of a combination of these, the phone numbers, unique technical and technical identifiers, user identifiers of the subscribers and users participating in the communication, the type of electronic communication service used, the date of the communication, start and end date;

- in the case of call forwarding, it can be used when using a mobile radio telephone service or a combination of these, the intermediate subscriber or user phone numbers involved in the call setup;

- in the case of a mobile radio telephone service, the device identifier (IMEI) and mobile subscriber identifier (IMSI) of the parties participating in the communication used when using the service;

- in the case of a mobile radio telephone service, the network and cell identifier of the service provider at the start of the communication, as well as data enabling, the determination of the actual geographical location of the cell belonging to the given cell identifier at the time of the provision of the given service

- in the case of internet access, internet e-mail, internet telephone service, or a combination of these, the type of electronic communication service and the date, start and end time of the use of the service by the subscriber or user, the IP address used for use, user ID, phone number;

- in the case of a prepaid anonymous calling card mobile radio telephone service, the date and time of the first use of the service, as well as the cell ID from which the activation took place (Eht. 159/A. (1).

The above data can also be requested in the case of a smart watch, and even bank account data. Furthermore, the Eht. 159/A. From the data available on the basis of paragraph (1) of § §, a network of connections can also be created, from which new conclusions can be drawn (Figure 12).
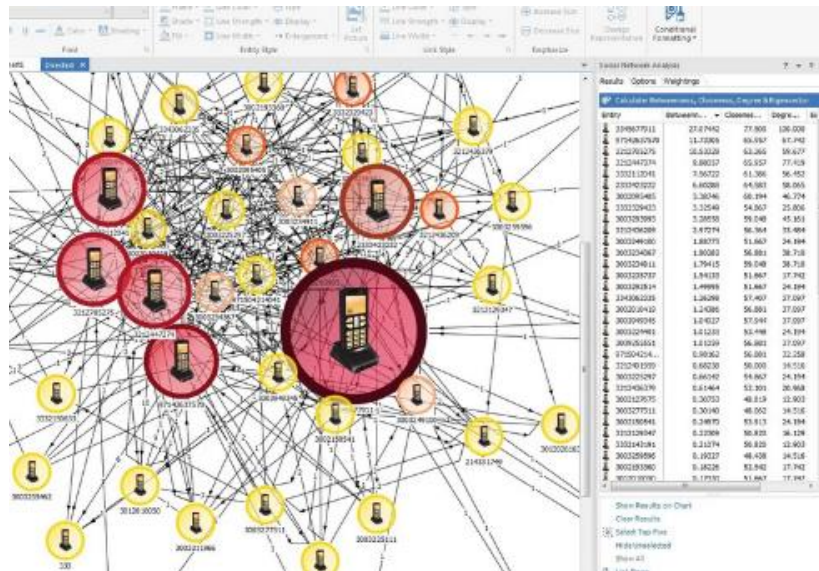
Figure 12. Network of connections

(source: https://rendeszet.uni-nke.hu/document/rendeszet-uni-nke-hu/BFK_2023_3-4.pdf#page=76)

Information communication devices, sensors and applications can help manage the life, traffic and public safety of a city more efficiently. Digital devices and programs are connected to the physical world, which promotes the creation of the smart and the safety of the city.

In summary, it can be said that the data extracted from smart devices can be displayed in the form of a network of connections. Using the IBM i2 Analyst's Notebook analysis program, which is also used by Hungarian analysts, the network of relationships between person and person-other objects can be represented (Bánáti 2023, 23.).

3. Summary

The creation of a smart city makes life easier for city dwellers and creates an ecosystem for city security. Digitization and modern technical tools both play an important role in the formation of the ecosystem. The basis of a smart city must also be the smart police, which applies modern and innovative information technologies in the performance of its tasks, and is able to use the

opportunities offered by digitization, artificial intelligence and digital network research. When we recognize the connections between information, we are no longer dealing with sets, but with networks (Bács 2023).

The opportunities provided by the smart city and the modern technical tools used in this way are already spreading in the rural villages, thereby increasing the security of the villages. The most important role of the tools discussed in the study is in creating security, but it also plays a significant role in prevention and law enforcement.

The creation of the digital ecosystem can facilitate crime geography analyses, thereby investigating the spatiality and distribution of crime, as well as the future spatial change of crime.

Network and crime geography analyzes can contribute to linking perpetrators and events, as well as crime-relevant locations, as well as to the effectiveness of detection.

References

Bács Z. Gy. (2023): Az elemzés és értékelés új módszerének a szerepe a megelőzésben, felderítésben és a nyomozásban, A biztonság védelme a rendészetben, konferencia, XXV. kötet, Pécs, 105.

Bánáti T. (2023): A bűnözésföldrajz és a betöréses lopás kapcsolata elemző szemmel, Bűnözésföldrajzi Közlemények 5(3-4): 19-35.

Dömös Zs. (2018): Már mi is használhatjuk a SIM-kártyák új generációját, https://24.hu/mobil/2018/06/13/mar-mi-is-hasznalhatjuk-a-sim-kartyak-uj-generaciojat/

Ferentzi T. (2017): Arcról olvasnak. https://www.police.hu/hu/hirek-es-informaciok/legfrissebb-hireink/zsaru-magazin/arcrol-olvasnak (letöltés: 2022.11.24.)

Kovács T. (2014): A városfejlődés „új" iránya közép-európai nézőpontból. Magyar Tudomány, 175(8): 966-974.

Mátyás Sz. (2017): A térinformatika a hazai rendvédelmi szervek gyakorlatában. In: Balázs, B (szerk.) Az elmélet és a gyakorlat találkozása a térinformatikában VIII. = Theory meets practice in GIS. Debreceni Egyetemi Kiadó, Debrecen, pp. 217-222.

Németh J. (2012): Mérdföldkövek a terrorizmus elleni tevékenységben. In: Hautzinger, Zoltán; Verhóczki, János (szerk.): Sodorvonalon: Tanulmányok Virányi Gergely 60. születésnapja tiszteletére. Magyar Rendészettudományi Társaság, Budapest, pp. 207-214.

Nyitrai E. (2020) A drónok alkalmazásának lehetőségei a rendőrségi feladatok ellátása során, Rendőrségi Tanulmányok 3(1): 94-119.

Sallai Gy. (2019): Az okosváros-koncepció és az internettechnológia. Dialóg Campus Kiadó. Budapest

Szendi D. – Nagy Z. – Sebestyénné Szép T. (2020): Mérhető-e az okos városok teljesítménye? – Esettanulmány a 2004 után csatlakozott EU-tagállamok fővárosairól. Területi Statisztika 60(2): 249-271.

Ürmösné Simon G. (2024): Cybercrime. Technical English for Officers 2. Novissima Kiadó.

Ürmösné Simon G. – Nyitrai E. (2021): The phenomena of epidemic crime, deepfakes, fake news, and the role of forensic linguistics. Információs Társadalom 12(4): 86-101.

Ürmösné Simon G. (2019): Miben segítik a nyelvi ujjnyomok a nyomozást? Magyar Rendészet 19(1): 65-75.

Ürmösné Simon G. (2023): A területiség szerepe a forenzikus nyelvészetben – a bűnözésföldrajz és a nyelvészet kapcsolódási pontjai. Bűnözésföldrajzi Közlemények 4(1-2): 43-60.

Vajda, Endre (2016): A terrorista robbantás jelenségének analízise a katasztrófavédelem perspektívájából. Nemzetbiztonsági Szemle, 4(2): 65-82.

Vajda, Endre (2022): A radikális iszlám várható tendenciái Európában. Nemzetbiztonsági Szemle, 10 (1): 17-29.

Vigh A. (2018): A drónok rendészeti alkalmazási lehetőségei. Belügyi Szemle, 25(10): 90–91.

Nemzeti Infokommunikációs Stratégia 2014–2020. (https://2010-2014.kormany.hu/download/b/fd/21000/Nemzeti%20Infokommunik%C3%A1ci%C3%B3s%20Strat%C3%A9gia%202014-2020.pdf)

Véda Közúti Intelligens Kamerahálózat (2015) (https://www.police.hu/a-rendorsegrol/europai-tamogatasok/operativ-programok/veda-kozuti-intelligens-kamerahalozat#6)

Okos zebra (https://www.letenyemedia.hu/cikkek/magyarorszag/itt-az-elso-magyar-okos-zebra.html)

Smart zebra (https://hofeka.hu/smart-zebra-a-nagyobb-biztonsagert/)

Új kamerarendszer (https://www.vezess.hu/magazin/2022/12/16/zebra-ami-vigyaz-rad-kiprobaltuk-milyen-egy-okos-varos/)

Okos oszlop (https://itbusiness.hu/technology/okos-oszlopokkal-epul-az-intelligens-budapest/

Budapest oszlopa: https://ng.24.hu/tudomany/2015/11/24/budapest-elso-okos-oszlopa/)

Legislation

1995. évi XCVII. törvény a légi közlekedésről

2013. C. törvény az elektronikus hírközlési törvény

2015. évi CLXXXVIII. törvény az arcképelemzési nyilvántartásról és az arcképelemző rendszerről

2015. évi CLXXXVIII. törvény indokolása az arcképelemzési nyilvántartásról és az arcképelemző rendszerről https://uj.jogtar.hu/#doc/db/4/id/A1500188.TVI/

314/2012. (XI. 8.) Korm. rendelet a településfejlesztési koncepcióról, az integrált településfejlesztési stratégiáról és a településrendezési eszközökről, valamint egyes településrendezési sajátos jogintézményekről

56/2017. (III. 20.) Korm. rendelet egyes kormányrendeleteknek az „okos város", „okos város módszertan" fogalom meghatározásával összefüggő módosításáról

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GEOGRAPHICAL PROFILING AND SERIAL KILLERS

Abstract

The investigation of serial killers always attracts the attention of the wider public. This is also shown by the fact that books are later written about many serial killers or films are made about their lives. Their capture is always a great relief for the population, but sooner or later, new criminals always take their place, who keep a community in fear. This study examines serial killers from the point of view of geographic profiling, who has been keeping millions of people in fear for years and decades. The research examines whether it is possible to categorize the perpetrators in the case of serial killers, and if so, whether it is possible to differentiate their hunting grounds.

Keywords: serial killer, serial crime, geographical profiling, criminal geography

1. Introduction

The present study, through numerous case studies, attempts to demonstrate the extent to which childhood traumas played a role in the commission of serial killers. It is well known that serial killers were often abused emotionally, sexually, and physically by close family members (Kováts 2006). In many cases, their upbringing was lacking, as some were dressed in girls' clothes as boys, or neglected, or had sadistic parents (Douglas 1998). For example, one of the Hungarian serial killers was beaten with a belt, pinned to the wall, and had to eat from the dog bowl as a child.

Researches, examining serial killers, found a link between the damage to the frontal lobe of the brain and the changes in the amygdala (Ürmösné 2023). Morality, personality, and strategic decision-making are highly dependent on the frontal lobe. Serial killers often come from families where the parents divorced and the father left the mother, and were raised by a mother who had a dominant personality (Ürmösné 2015). In many cases, their family has a criminal, psychiatric, alcoholic or medical history, and as a child they were often abused mentally,

sexually, and physically by a close family member or acquaintance (Farkas 2017), so the character of the serial killer is clearly shaped by the sexual and emotional abuse suffered in childhood. Many of them try to recall and re-enact their victimization, which is why they behave as aggressors (Farkas-Fogarasi 2020), but there are also cases when the serial killer kills because of his physique.

One of the methods used to identify serial offenders is geographic profiling. This can be applied to any serial offender, including serial killers. In my research, I examine five serial killers and briefly present the childhood trauma they suffered and what led them to become such beastly killers. After that, in a few sentences, I will also examine the locations where the murders were committed. From these data, I draw conclusions, whether it would have been possible to identify their location based on the hunting area by using the geographical profiling method, or not. Every person I examined suffered severe childhood trauma and committed a similar type of crime, nevertheless, I believe that there is a difference between the perpetrators when examining the locations where they were acting. I formulated my research question in the light of the following:

Q1: Can the place of residence be better identified in the case of serial killers who were also motivated by financial gain?

2. Criminal geography and serial murders

During the investigation of serial crimes, the investigation of geographical factors can also play a substantial role (Bói 2015). It is worth examining the geographical environment, for the reason why it may also lead closer to the perpetrator. Horst Herold, a German criminologist and criminal geographer said, that it is necessary to find those indicators that have an attractive effect on the perpetrators (Mátyás 2024), i.e. they do not commit crimes by chance in a given place. There are more crimes somewhere, because for some reason, "favourable" conditions are provided for criminals. The examination of the geographical factor mainly brings spectacular results in the case of serial crimes, but in some cases, the geographical factor can also be detected in the case of one-off crimes, which can be taken into account as an attractive indicator. In the last two decades, geographic profiling was used in investigations. It is a geospatial application, based on criminological theories, which is mainly used in the detection of perpetrators of serial crimes. It is not currently used in our country, but the possibility of its use is being investigated at the National Police Headquarters. The application in Hungary is hindered by the positive fact that serial murders like those in the United States do not occur in

our country. In addition, the number of crimes has significantly decreased in the past decade, including the number of serial crimes (Kó 2019).

During geographical profiling, it is deduced from the geographic locations of the crime where the perpetrator may live or stay (Erdei 2011). The method is based on the criminological fact that criminals usually commit crimes in the vicinity of their living environment or in those locations they know well. For example, if someone commits series of murders, they will definitely not commit them in the immediate vicinity of their living environment (buffer zone), as they can easily be recognized there. He will usually commit a crime a few hundred meters or a few kilometers away, where there is less chance of being caught (since fewer people know him), but he still knows the place well enough that if he needs to escape, he can do so easily (Erdei 2011).

The distance of the hunting area from the buffer zone depends on several factors, i.e. the offender's willingness to move, settlement structure, or country type.

In the case of serial murders, geographical profiling can be used with great success, as the perpetrator's place of residence or stay can be identified with great accuracy. During profiling, they do not only rely on this technique during the investigation, but of course they also try to find out his personality. Geographic profiling is never used by itself, but always in conjunction with other methods (Lohner - Gyimesi 2022). Nowadays, digital (electronic) traces are of great importance in the detection of serial crimes, and in forensic terms, e-investigation knowledge is also important (Nyitrai 2021, 2022).

In addition to geographic profiling, it is also worth mentioning another method, i.e. predictive policing based on mathematical statistics. This method has also been used for almost two decades, and is primarily used to detect serial acts (Mátyás et al. 2024). Many software also use several geographic factors for forecasting, so this is also closely related to crime geography. However, the present study focuses on geographic profiling, and only mentions preventive policing, it is worth mentioning that for the first time in the world such software was created in Hungary, which was developed by the BRFK III. and was used in this district (Mátyás 2017).

2. 1. Andrei Romanovich Chikatilo's case

Andrei Romanovich Chikatilo was a Soviet serial killer nicknamed the Butcher of Rostov, who sexually assaulted, murdered, and mutilated at least fifty-two women and children. Chikatilo's parents were both collective farm labourers who lived in a one-room hut, and interestingly enough, they received no wages for their work, but instead received the right to cultivate a plot of land behind the family hut. The family seldom had sufficient food, and Chikatilo later

claimed not to have eaten bread until the age of 12, adding that he and his family frequently had to eat grass and leaves in an effort to stave off their hunger. Throughout his childhood, Chikatilo was repeatedly told by his mother, that prior to his birth, an elder brother at the age of four, had been kidnapped and cannibalized by starving neighbours, although it has never been established whether this incident actually had occurred (URL 17). Nonetheless, Chikatilo recalled his childhood as being blighted by poverty, ridicule, severe hunger, and war. Between 1941 and 1944, Chikatilo also witnessed some of the effects of the Nazi occupation of Ukraine, which he described as "horrors", adding he witnessed bombings, fires, and shootings from which he and his mother would hide in cellars and ditches. On one occasion, Chikatilo and his mother were forced to watch and be eyewitness their own hut burn to the ground. With his father at war, Chikatilo and his mother shared a single bed, and for the reason why he was a chronic bed wetter, his mother berated and beat him for each offence. In 1943, Chikatilo's mother gave birth to a baby girl, and as many Ukrainian women were raped by German soldiers during the war, and it has been speculated that the baby was conceived as a result of a rape committed by a German soldier. As Chikatilo and his mother lived in a one-room hut, this rape might have been committed in Chikatilo's presence. As a child, he was physically weak and regularly attended school in homespun clothing, moreover his stomach was often swollen from hunger resulting from the post-war famine which plagued much of the Soviet Union. On several occasions, this hunger caused Chikatilo to faint both at home and at school, and he was consistently targeted by bullies who regularly mocked him over his physical stature and timid nature as well (URL 17).

Analyzing Chikatilo's crime scenes, it can be established that he committed murders in many member republics and cities of the Soviet Union. He committed most of his murders in the Rostov region, but also committed crimes in -what is now- Ukraine and Uzbekistan. He committed the first murder in his temporary residence (Sahti), which is consistent with the basic principles of geographic profiling and criminology, that the first crime is usually committed near the residence (see: Ambrus Attila's first bank robbery /Mátyás 2024/). On the other hand, the later places of commission were mostly further away from his residence or workplace, and on several occasions, he selected the victims during his travels (e.g. the cases of June 12, 1982 and July 31, 1985). Nevertheless, the investigation was helped by the knowledge of Chikatilo's places of work and residence, even though he committed the crimes in an area much larger than the average hunting area. Due to the great distance, for a long time they have not even seen the connection between, for example, the murders in Tashkent and those committed in Russian territories.

In the case of Csikatilo, we can state that although at the time of the crime no software was used to draw a geographic profile, it is likely that geographic profiling would not have necessarily led to results, since the locations of the crime were geographically far from each other.

2.2. Jeffrey Dahmer's case

Jeffrey Dahmer was born in Milwaukee, Wisconsin, on May 21, 1960, to Lionel and Joyce Dahmer. He was described as an energetic and happy child until the age of 4 when surgery to correct a double hernia seemed to effect a change in him. Noticeably subdued, Jeffrey became increasingly withdrawn following the birth of his younger brother and the family's frequent moves. By his early teens, he became disengaged, tense and largely friendless (URL6). When Jeffrey Dahmer entered first grade, his mother began to spend an increasing amount of time in bed recovering from weakness. Lionel's – his father's–, university studies kept him away from home much of the time; and when he was home, his wife—a hypochondriac who suffered from depression—demanded constant attention from the family (URL 18). She reportedly worked herself into a state of anxiety over trivial matters just to appease her husband. Once she attempted suicide with Equanil, and consequently, neither parent devoted much time to their son, Jeffrey. Dahmer recalled extreme tension and arguments between his father and mother, during his early years. At elementary school, Dahmer was regarded as quiet and timid; one teacher said she sensed he felt neglected deriving from his mother's illnesses (URL 6).

Dahmer committed seventeen murders, however, he invited the victims to his apartment and committed his horrors there. In his case, in my opinion, geographic profiling would not have worked (the method was not yet used at the time of his murders), since the method assumes that crimes are not committed in the vicinity of the residence (because there is a greater chance of being recognized there), but further away. The extent of the buffer zone (the area near the place of residence) can vary, in the United States it is smaller than, for example, in Europe, partly due to the settlement structure, the types of the houses and the higher degree of motorization.

2.3. Luis Garavito's case

Luis Garavito a.k.a. La Bestia, the Colombian serial killer had umpteenth victims. Garavito, the eldest from seven children, was raised in western Colombia. He attended school for only a few years and endured a difficult childhood, by suffering abuse caused by his father and several neighbours. Although Garavito's mother is unknown, it had been speculated from the community of Génova that Garavito's mother had been a prostitute. During the time of working as a prostitute, Garavito's mother had been brutally abused by Garavito's father, who was a

heavy alcoholic and would abuse Garavito's siblings as well (URL 19). Around this time, Garavito's father would force Garavito to watch his mother conduct in sexual intercourse with her clients, moreover, letting his mother's clients sexually abuse and molest Garavito. Interestingly enough, under the influence of drugs, Garavito's mother would not do anything due to the abuse and torture of Garavito's alcoholic father. Garavito eventually ran away from home and could only survive on the Colombian streets. At the age of eight, Garavito was found by a pedophile, and the man promised Garavito a hot meal and a place to rest; however, reluctantly, Garavito accepted the offer, but instead of the hot meal and a place to sleep, the man led Garavito to an abandoned house where Garavito was sexually assaulted (URL 7).

The case of Luis Garavito would also teach geographic profiling software a lesson. Garavito, who committed nearly two hundred murders, committed murders all over Colombia. Predictive and geographic profiling software, on the other hand, work on the basis that there is rationality in the movement of the perpetrator, that some kind of a pattern can be discovered among the locations where the crimes were committed. Garavito, on the other hand, had a below-average intellect, so his thinking was less rational, and as a consequence, he did not consciously plan the crimes. The spatial movement of the perpetrator made geographic profiling difficult, as he committed homicides not only in Colombia, but also in Venezuela and Ecuador. Based on the method of the crime commission, it could only be assumed that these were also committed by Garavito.

The places where he committed the crime were varied from crowded cities to rural settlements, because he committed crimes almost everywhere, which also made his identification difficult (Rodrígez 2018).

2.4. Anatoly Onopreinko's case

Anatoly Onoprienko was born in the village of Lasky, the Ukrainian SSR, Soviet Union. He was the younger of two sons; and his brother, Valentin, was thirteen years older. When Anatoly was four years old, his mother died, and as a consequence, he was cared for by his grandparents and aunt for a time before being handed over to an orphanage in the village of Pryvitne. According to Onoprienko, he resented the fact that he had been given away by his father, whereas his brother continued to stay under his care. In one interview, he later alleged that it was this that predetermined his fate, and remarked that seventy percent of those brought up in orphanages end up in prison as adults (URL 8).

Onoprienko committed the crimes in various locations. Nevertheless, with the contribution of the current profiling methods, we can say that the locations of his crimes could presumably

have been identified with the help of a software. Unlike the perpetrators mentioned above, he moved in a smaller hunting area, so the detectives had a better chance to "link" the cases based on the modus operandi. In the case of Onoprienko, we can state that despite the obviously burdened childhood and brutality, financial gain clearly played a role in committing the crimes. On the other hand, the previously presented perpetrators were driven almost exclusively by sexual satisfaction and morbid desires.

2.5. Richard Ramirez's case

Richard Ramirez was grown up in El Paso, Texas, the youngest of five children born to Mexican immigrants. According to reports, when he was only 12 years old, his cousin who was a Vietnam War veteran showed him pictures of Vietnamese women he had allegedly raped, tortured, and killed. In some of the photos, Mike even posed with the severed head of a woman he had abused previously. Ramirez, who had begun smoking marijuana at the age of 10, bonded with Mike over joints and war stories, moreover Mike taught his young cousin some of his military skills, such as killing with stealth. The following year Ramirez was an eyewitness to his cousin's fatal shooting of his wife. On May 4, 1973, his cousin Mike fatally shot his wife, Jessie, in the face with a 38 calibre revolver during a domestic argument (URL 21). After the shooting, Ramirez became sullen and withdrawn from both his family and peers as well. Around this time, Ramirez began breaking into homes too, and after dropping out of high school, he moved to Los Angeles. He continued to commit more crimes and was briefly imprisoned for stealing a car. Around this time, Ramirez began to seek escape from his father's violent temper by sleeping in the local cemetery. Later that year, he moved in with his older sister, Ruth, and her husband, Roberto, an obsessive who took Richard along on his nocturnal exploits. (URL 10).

Like Onoprienko, Ramirez was also motivated by financial gain in committing crimes. Examining the places where the crimes were committed, we can clearly discover a connection among the locations of the crimes. He committed the first murder in the vicinity of his residence (April 10, 1984), like the previously mentioned Chikatilo. The explanation for this is that even a mentally disordered criminal is afraid when committing a crime, and especially before the first murder. The "appetite" of serial offenders increases later. The first successful offense gives them a sense of success and invincibility, which encourages them to commit further crimes. Ramirez committed the crimes mainly in the Los Angeles area (in the state of California), as he was familiar with the area. Each of the robberies were committed for profit, and he also took some of the victims' valuables (mostly their jewellery) with him.

He only left Los Angeles in August 1985, as he was faced with the fact that most of the local newspapers published his photograph. Subsequently he went to San Francisco to commit crimes there. In my opinion, this also indicates, that criminals for whom financial gain is also substantial, think more logically, i.e. geographic profiling is more applicable in their cases.

3. Summary

The study described the lives of five foreign serial killers. In the case of each of them, I examined the locations where they committed their crimes, and from this I drew conclusions as to whether there is a difference among the perpetrators, or not. In doing so, I established that those perpetrators who commit crimes for the purpose of financial gain, in their case, they are more rational and can better delimit the area of the crime (hunting area). Based on these, it can be stated as an answer to the research question i.e. it is more difficult to create a geographic profile for those perpetrators who commit crimes (homicide) solely to satisfy their sick tendencies, in my opinion, because they think less rationally, and they are mostly disorganized. It complicates the work of the investigators, as several perpetrators were seen to have committed crimes sometimes thousands of kilometres away. In such cases, it also happens that individual investigative authorities do not even learn about crimes committed far away from them. In contrast to them, criminals who think more rationally (who are also motivated by financial gain) pay more attention to establish escape routes, and mainly commit crimes in places which are familiar to them, due to which, it is easier to identify their place of residence.

Bibliography

Bottyán, É. (2015): Egy sajátos elkövetői kategória, a sorozatgyilkosok kriminológiai jellemzői. Szakdolgozat.

Bói, László (2015): Az utazó bűnözés és a sorozatbűncselekmények összefüggései. In: Gaál, Gyula; Hautzinger, Zoltán (szerk.) Modernkori veszélyek rendészeti aspektusai. Magyar Hadtudományi Társaság Határőr Szakosztály Pécsi Szakcsoport, Pécs, pp. 149-156.

Czenczer, O. (2014): A gyermekbántalmazás és az erőszakos bűnelkövetés összefüggéseinek vizsgálata a hazai büntetés-végrehajtásban. In: Homoki-Nagy Mária – Karsai Krisztina – Fantoly Zsanett: Acta Universitatis Szegediensis: acta juridica et politica, pp. 205-224.

Douglas, J. E. (1998): Mindhunter: Inside the FBI's Elite Serial Crime Unit. Kindle Edition

Farkas, J. (2017): A kötődés szerepe és jelentősége a személyiségfejlődésben. Határrendészeti

Tanulmányok. 14(3.): 97-117.

Farkas, J. (2015): Egy magyar sorozatgyilkos személyiségprofilja. Presentation at Researcher's night (kutatók éjszakája)

Innes, B. (2007): Bűnös elmék. Skandi – Wald Könyvkiadó, Budapest

Kenji, A. (2020): Eight Types of Family Backgrounds that Actually Produced Serial Killers Based on the Information in Lay Literature and on the Internet—Revised. International Journal of Social Science and Humanities Research. 8(2)

Korinek, L. (2010): Kriminológia, Magyar Közlöny Lap- és Könyvkiadó, Budapest

Kováts, D. (2006): Elmebetegségek és személyiségzavarok a bűncselekmények hátterében - Igazságügyi pszichiátria In: Csernyikné Póth Ágnes, Fogarasi Mihály (szerk.) Kriminálpszichológia. Budapest: Rejtjel Kiadó

Leszenszki, A. (2000): Sorozatgyilkosok, motivációk. Évfolyamdolgozat

Mátyás, Sz. (2017): Predictive policing researches in Hungary In: Biljana, Simeunovic-Patic (eds.) Predictive policing researches, Belgrád, Szerbia : Academy of Criminalistic and Police Studies, pp. 150-158.

Mátyás, Sz. (2024): Bűnözésföldrajzi esettanulmányok. International Criminal Geographical Association, Budapest

Mátyás, Sz. – Radics, Zs. – Harman, E. (2024): Közúti áruszállítással kapcsolatos ellenőrzések és közigazgatási bírságok Észak-Alföld vármegyéiben, 2017-2021. Területi Statisztika, 64(1): 96-120.

Nyitrai, E. (2018): Az interoperabilitási e-nyomozás alapjai. Belügyi Szemle, 25(10): 108-121

Nyitrai, E. (2020a): The Role of Criminalistics Mentality and Fundamental Questions of Criminalistics in the Investigation. International Journal of Business on Social Science, 5(11): 1-4.

Nyitrai, E. (2020b): A bűncselekményből eredő vagyon visszaszerzése, Ügyészek Lapja, (2-3): 39-53.

Rosewood, J. – Lo, R. (2017): The Big Book of Serial Killers: 150 Serial Killer Files of the World's Worst Murderers (An Encyclopedia of Serial Killers)

Ürmösné Simon, G. (2024): A földrajzi profilalkotás a sorozat bűncselekményekben és vajon mennyiben befolyásolja a sorozatgyilkosok tetteit a gyermekkoruk? In: Bűnözésföldrajzi Közlemények. 5(1-2): 27-38.

Ürmösné Simon, G. (2023): Hírhedt sorozatgyilkosok nyomában, és ami mögötte van – a földrajzi profilalkotás szerepe a nyomozás során. Bűnözésföldrajzi Közlemények 4 (5-6): 45-62.

Ürmösné Simon, G. (2020): The portrayal and the attributes of serial killers and some of the most notorious ones. Internal Security 12(2): 261-273.

Ürmösné Simon, G. (2015): The traits and the thrill of serial killers. Internal Security, 7(2): 33-42.

URL 1. https://en.wikipedia.org/wiki/List_of_serial_killers_by_number_of_victims

URL 2. https://www.mirror.co.uk/news/real-life-stories/what-makes-serial-killer-five-6119084

URL3.https://www.cbsd.org/cms/lib/PA01916442/Centricity/Domain/1908/How%20To%20Spot%20A%20Serial%20Killer.pdf

URL 4. https://opinionfront.com/characteristics-of-serial-killer

URL 5. https://www.grunge.com/110562/traits-serial-killers-eerily-common/

URL 6. https://www.biography.com/crime-figure/jeffrey-dahmer

URL 7. https://www.britannica.com/biography/Luis-Garavito

URL 8. https://en.wikipedia.org/wiki/Anatoly_Onoprienko

URL 9. https://www.britannica.com/biography/Ed-Gein

URL 10. https://www.britannica.com/biography/Richard-Ramirez

URL 11. https://hu.wikipedia.org/wiki/Dennis_Nilsen

URL 12. https://time.com/5745028/the-confession-killer-henry-lee-lucas-netflix/

URL 13. https://en.wikipedia.org/wiki/Henry_Lee_Lucas

URL 14. https://www.dmagazine.com/publications/d-magazine/1985/october/the-two-faces-of-henry-lee-lucas/

URL 15. https://capitalpunishmentincontext.org/cases/wuornos

URL 16. https://www.britannica.com/biography/Gary-Ridgway

URL 17. https://en.wikipedia.org/wiki/Andrei_Chikatilo

URL 18. https://en.wikipedia.org/wiki/Jeffrey_Dahmer#Childhood

URL 19. https://en.wikipedia.org/wiki/Luis_Garavito#Early_life

URL 20. https://en.wikipedia.org/wiki/Ed_Gein#Childhood

URL 20. https://hu.wikipedia.org/wiki/Gary_Ridgway

URL 21. https://en.wikipedia.org/wiki/Richard_Ramirez#Early_life_and_education

Abstracts of the 5ᵗʰ criminal geographical conference

Dr. Balláné Dr. Füszter, Erzsébet police colonel, professor emerita

Ludovika University of Public Service

A criminal geography approach to the drugs issue

Three plants (the poppy, the hemp and the coca bush) are considered to be the starting materials for the most commonly used illicit psychoactive drugs (heroin, cannabis and cocaine).

Their production and the geographical location of the main trafficking routes used for their transport depend essentially on the location of cultivation, which is determined primarily by where the plant can be grown in sufficient quantity and quality, with the right active ingredient content, economically and in a relatively permissive social environment.

This is the reason why, in addition to social factors, geobotanical aspects are of crucial importance in the production of drugs of plant origin. The „comfort level" of a plant is essentially determined by climatic and soil characteristics.

The main heroin and cannabis producing countries are mostly in Central Asia, South-East Asia and North Africa, but as both poppy and hemp are characterised by their ability to grow in good quality almost everywhere in the temperate zone, the potential cultivation and production is not strictly limited to a few regions, but is geographically very broad. In contrast, the cultivation of coca shrubs with sufficient active ingredient content is almost exclusively restricted to the eastern slopes of the Andes.

Despite the fact that drug trafficking is a worldwide phenomenon, there are some special places and routes that are of particular forensic importance in the fight against drug crime.

Keywords: criminal geography, drug, crime, heroin

Dr. Nyitrai, Endre PhD associate professor

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The relationship between network research and the geography of crime

Network research is used in many fields, but it is also important in the field of law enforcement, as the main catalyst of investigations, which can be used to speed up the flow of information. The toolbox of network research, combined with the knowledge of crime geography, enables perpetrators and events, as well as criminally relevant geographic locations to be connected and connections to be explored.

However, data, data analysis methods, programs, and the application of artificial intelligence are essential for network research. During the investigation, data can be generated in a number of ways, such as by smart devices, which, if connected to a network, are also capable of communicating with each other, thereby continuously providing data related to their operation, use and situation, which can be significant from a criminal and crime geographical point of view. Devices connected to the Internet can communicate and share data without human intervention. The purpose of the presentation is to describe the smart devices that, when connected to a network, can serve the security of smart cities and, at the same time, the detection of crimes and the identification of perpetrators.

Keywords: Smart city, smart police, IoT, network research, geography of crime

Sidló, Mariann Ph.D. student

Ludovika University of Public Service

The criminal geographic aspects of Dr. Jenő Unger's writings on investigation

Dr. Jenő Unger, as a police officer and the head of the department of criminalistics at the academy of law in Eger, wrote numerous scientific and popularizing articles, including on investigative issues. Through the criminal geographical aspects of his articles on investigation written in the thirties and forties of the last century, we can gain insight into the policing issues of the given period, which can serve as lessons for today. In the case of disappearances, finding the causes can answer the question of where the person who disappeared may have gone. This also has an impact on the necessary measures, such as the drafting of the wanted document or, if necessary, the notification of the competent authorities, such as border guards, and other

relevant organisations. Or, in case of getting lost, preparing the search for the missing person and providing assistance. It is also important to take into account that the missing person may have committed a crime, so it is also very important to compare the characteristics of the person with the crimes of the given and surrounding areas in order to detect a possible connection.

Keywords: Unger Jenő, criminal geography, law enforcement, Eger

Lippai, Zsolt Sándor police lieutenant-colonel, assistant lecturer
Ludovika University of Public Service
Geographical aspects of security and crime during a visit by the Pope

The presenter, as a practicing law enforcement professional, takes the reader behind the scenes of the geographically well-defined security of a domestic papal visit, giving an insight into its incredibly complex implementation. His presentation examines some of the assassination attempts on popes, the personal protection of the Holy Father, the preliminaries of a papal visit, the activities of state and non-state actors in the security of the visit, and some of the specific elements of the visit. The details of Pope Francis' visit to Budapest in 2021, conveying the papal message that "*I wonder if I could come next year or the year after, because there is so much of value for the Hungarians...*"

Keywords: Pope Francis in Hungary, assassinations, security, drone surveillance, securing the visit, state and non-state actors

Rucska, András police major, master teacher
Ludovika University of Public Service
Possibilities of applying new forensic procedures at the city and county level

In our country, there are different levels of criminal technical departments. The type of crime depends on which unit is represented at the scene. The Municipal (District) Police Headquarters' Criminal Investigation Departments/Divisions do not have the resources and criminal investigation equipment that the County Police Headquarters' Criminal Investigation Departments at the second level have.

The "top authority", the Criminal Technical Department under Riot Police, National Bureau of the Investigation, which has an outstanding equipment park and expertise, even compared to the county departments - and therefore even more options. The potential for interoperability at the city and county levels in terms of tools is greatly influenced by the availability of material resources and the provision, acquisition and application of knowledge of tools and various procedures that may be considered new.

My presentation – in addition to presenting the criminal technology tools operated at different levels – highlights the possibilities available in order to help the criminal technicians to the success of the investigation with modern methods that fully meet today's expectations, even at the city level, in such a way that special financial expenditure should not be necessary. I will present one of the emerging methods of visual representation, photogrammetry, and the application of this method during field visits.

Keywords: criminal technique, new criminal technology tools, photogrammetry, crime scene, evidence

News from the world of the Hungarian and international criminal geography

The 5th International Criminal Geography Conference of the Hungarian Association of Police Science and the International Criminal Geographical Association

On March 22, 2024, the Hungarian Association of Police Science and the International Criminal Geographical Association held their 5th International Criminal Geography Conference, to which more people applied than ever before, a total of twenty-nine. The motto of the conference was: "Let's dream together of a more beautiful and safer world - the role of crime geography in crime prevention and law enforcement". The lectures were put together in this spirit, and the organizers are confident that they will really promote more effective crime prevention and law enforcement.

Published by the International Criminal Geographical Association (ICGA) essay writing competition

The organizers are happy to announce that many applications for the Hungarian language essay competition have been received by the International Criminal Geographical Association.

The results of the category are the following:
1st place: **János Sándor Szabó** (LUPS / Hungary)
2nd place: **Bíborka Horváth** (LUPS / Hungary)

Congratulations to all the winners!

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Page layout size: A4

Font type: Times New Roman, font size: 12 pt.

Abstract: 200-300 words

Keywords: 4-6 maximum

References style in text: 10 pt, footnotes

References: at the end of the paper in alphabetical order (TAYLOR, Tom (2018))

Picture format: JPG

Authors' name: main author must be underlined

Citation: APA format

Potential topics might include:

- Crime and GIS
- Crime and analytical work
- Predictive policing
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Tom Taylor Ph.D. assistant professor

University of London (England)

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