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ANALYSIS AS AN EXECUTIVE FUNCTION OF THE INTELLIGENCE-LED POLICING IN THE REPUBLIC OF SERBIA

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Abstract: *The goal of this research is to identify, scientifically describe, classify and partially explain weaknesses in the application of analysis as an executive function of the Intelligence-led policing model in the Republic of Serbia using scientific research methods. The conducted theoretical research identified problems of a functional nature using the executive function of analysis, which can be classified as follows: 1) traditional (reactive) way of applying analysis about modern proactive models using modern analytical tools, 2) differences in the theoretical definition of data analysis and information, 3) the quality of entered statistical indicators in electronic databases. The executive functions of the Intelligence-led policing model are performed through the criminal-intelligence process, which is an evidentiary tool for analyzing the actions of all forms of criminality, misdemeanours and other security-interesting incidents and enables decision-making based on the collection, processing and analysis of data, as well as the undertaking of preventive measures. A key role in law enforcement intelligence operations is the application of the analysis function, which leads to the improvement of quality based on the previous functions (collection and processing), which contributes to the greater use value of data in further work of criminal police.*

The research was carried out as a theoretical-empirical one, where the methods of theoretical and empirical research (attitudes and opinions of police officers in the police of the Republic of Serbia) were used, that is: general scientific, logical and empirical methods. In this research, the standpoint that the analysis function can be improved is confirmed both theoretically and empirically, which requires the following (functional) changes: 1) it is necessary that the analysis be carried out using modern analytical methods, such as AnaCap, OIAT, risk and threat analysis, with focus on proactivity, which affects the efficient and effective creation of analytical products; 2) the quality of statistical data entered into electronic databases and the amount of prepared operational reports and information predominantly influence the application of the analysis function and the quality production of analytical products.

The scientific justification of the research derives from its expected results, which can: 1) contribute to the deepening and expansion of scientifically verified knowledge in the field of criminal-police, security and organizational scientific disciplines, 2) indicate the directions, areas and topics of future scientific research and 3) enrich the methodological practice of scientific research on the organization and proactive functioning of the police in modern conditions.

Keywords: *data analysis, analytical products, executive functions, intelligence-led policing model, criminal-intelligence process.*

1. INTRODUCTION

In a general theoretical sense, it is necessary to make a distinction between data and information, where the function of analysis plays a key role. Data is an informative notification that carries new facts that do not have to be correct, but indicate that there is a need to act on them. Despite the many definitions that have been published so far, it is simplest to say that: “data + analysis = *information*” (Racić, 2023:32).

Analysis is a function in the criminal-intelligence process that is continuously repeated and can be applied to all types of police work. The scope of the analysis and its overall credibility depends on the level and accuracy of the data provided in combination with the skills of the analyst (Ratcliffe, 2008: 191-195). The theoretical, analytical procedure is basically a scientific approach to problem solving. It is based on the application of established research methods that include the application of quantitative and qualitative analysis (Carter, 2011: 68). To the greatest extent, the analysis contributes to proactivity through the identification of emerging forms of criminality, including making key conclusions about the intentions of organized criminal groups and individuals (Racić, 2023: 230-239).

In the past quarter of a century, there have been developed specific techniques and methods that are used by police organizations in order to reach conclusions and give recommendations for the further implementation of the intelligence led policing model, which in theory is denoted by the term “criminal analysis”¹ (Peterson, 2013:3). A key role

1 Criminal analysis is a function of the criminal-intelligence process by which collected and processed data and information are consolidated, structured, evaluated and interpreted, on the basis of which relevant

in the implementation of criminal analysis has focus on the following: 1) identification of operational work priorities; 2) management and monitoring of activities during the implementation of a criminal investigation; 3) change management in relation to the type of crime (Racić, 2022: 200-203). In modern models of police work, the term criminal-intelligence analysis of crime is being increasingly used, and it has been created as an integration of analysis and intelligence analysis, giving an answer to the question: “why does something happen?” (Ratcliffe, 2008:190-200). From the theoretical aspect, criminal-intelligence analysis identifies the perpetrators of criminal activities, which in most cases are connected to organized criminal groups and is aimed at serious and organized forms of crime (Gottlieb, et.al., 1994: 11-12). In criminal-intelligence work in the developed countries of Europe and countries in the region, three levels of criminal-intelligence analysis are most represented, namely: tactical, operational and strategic² (Racić, 2023: 200-203).

The police of the Republic of Serbia have increasingly been using modern analytical techniques that are being developed while conducting operational analysis in criminal and intelligence work, namely: 1) operational integrated techniques (hereinafter: OIAT), IBM i2 Analyst notebook software (Analysis connection and event flow diagram) and risk and threat analysis.

Operational integrated analysis is a method that contributes to raising the quality of criminal-intelligence work and is very often used in combination with the application of the Analyst notebook software method through the application of various techniques, such as: diagram of connections, flow, events, activities, cause-and-effect diagram and diagram time and sequence (visualization techniques). The application of the method contributes to more efficient drawing of conclusions and recommendations for further operational (intelligence) work and indicates gaps and the need for information which are missing. In order to effectively apply the method, it is necessary for criminal analysts

conclusions are drawn and recommendations necessary for decision-making for operational-police activities are made. More info: MUP (2016). „Policijsko-obaveštajni model“ – priručnik, Beograd, p. 56.

- 2 Tactical crime analysis is focused on the processing of a specific criminal offense or criminal entity, which is based on quantitative and qualitative data. More info: Đurđević, Radović (217). „Criminal police operations“, Criminal Police University, Belgrade, p.230.

The operational analysis is the basis for making decisions about undertaking operational measures and actions that are directed at individual targets of operational work, individuals and organized criminal groups. It was created as a result of police work, conducted criminal investigations, special evidentiary actions and collected data and information by operational liaisons. (Peterson, 1994).

Strategic analysis indicates the current situation, risks and threats from criminality, misdemeanors and other security-endangering phenomena in order to create a long-term projection of the movement of the identified security problem and establish cause-and-effect relationships (etiology and phenomenology) (MUP, 2016: 56). Depending on the level, we can divide the strategic analysis into: 1) descriptive, which represents the lowest level of strategic analysis in which data and information, with the use of scientifically recognized methods, are systematically organized, analyzed and presented in order to reach conclusions about the general trends of criminality with the possibility of their management in the future; 2) explanatory analysis represents a higher level, the basis of which is descriptive analysis, where the goal is to identify the causes of criminality; and 3) predictive analysis, the goal of which is to draw conclusions about the assessment of crime growth in the future (UNODC, 2011:37).

to have the skills and be acquainted with information technology tools for processing a large amount of information, such as: MS Excel, MS Access, iBase, GIS/Map Point 2006.

IBM i2 Analyst notebook software (link analysis and event flow diagram) is an analytical software intended for police officers who, in their organizational units, perform criminal-operational, strategic and intelligence analysis with the aim of efficient and effective production of criminal-intelligence information. The aforementioned analytical software enables a graphical representation of the analysis of the connections of the perpetrators of the criminal offense (for example, the analysis of the connections of members of organized criminal groups) (Đurđević, Radović, 2020: 240-250).

A flow diagram can be used to determine the movement of an object of a criminal offense (drugs, money, goods, etc.) between entities and to show the flow of events that have already occurred. As with connection diagrams, persons are marked with a circle, and organizations with a cube, which are connected with an arrow indicating the direction. Arrows can be marked with a solid line (confirmed), dashed (unconfirmed) and dotted (with some reserve). A hypothetical flowchart can also be used in cases where there is little known information or when much of the information is unconfirmed. In that case, solid (confirmed) arrows are inserted into the flow diagram and the diagram will be called "hypothetical flow diagram" (UNODC, (2011: 30-40).

The risk and threat analysis in the police of the Republic of Serbia is an analytical one that shows available data on identified security events and problems, cause-and-effect relationships, temporal and spatial characteristics, and points to missing data related to the identified problem in order to provide conclusions and recommendations for further work. Therefore, the risk and threat analysis provides an answer to the questions: "What is it that needs to be protected"?, "What are the threats involved"?, "What is it that is vulnerable"?, "What are the consequences"?, and "What can be done to reduce the risk"?

2. METHODOLOGY

The set scientific goals and the subject of the research conditioned the use of appropriate philosophical, general scientific, logical and empirical methods. In the research were used the following philosophical methods: dialectical, positivist and structuralist methods. Amongst the general ones, the following were mainly used: statistical, comparative, historical-comparative and modeling methods. Empirical methods were used in the research: the content analysis method and the survey method using the survey technique. Using the method of content analysis (qualitative and quantitative), the available results of previous research on the application and effects of the application of the executive function of analysis in the Republic of Serbia were analyzed. In the application of content analysis methods, the following were used: appropriate scientific and professional works available in scientific monographs, magazines and collections of works; documentation of appropriate scientific-research projects and projects of organizational changes in the police, as appropriate sources of doctrinal and formal-legal nature.

The research method was used for the purpose of obtaining the views and opinions of respondents, for which survey questionnaires were created. The survey was conducted on a sample of 142 employees, of which 130 are male, which is 70% of the total number of employees, and 70 are female, which is 30% of the total number of employees in the Serbian police ($\chi^2 = 104.24$; $df = 1$; $p < 0.001$) in the period from May to November 2019 and 33 employees in the period from June to August 2022. Employees were selected using the method of disproportionate stratified sampling based on certain criteria that include: professional and experience characteristics; professional and competent knowledge of employees in organizational units based on the application of criminal-intelligence functions (data analysis), creation of criminal-intelligence products (Strategic assessment and operational assessment, profile of a security problem and profile of a security-interesting person/group), training and education of employees at work places within the organizational units responsible for criminal-intelligence work.

3. RESEARCH RESULTS

The results of the conducted theoretical and empirical research are divided into two parts. The first part presents the results of a theoretical research pertaining to: “Problems of the executive function of analysis in the police of the Republic of Serbia”. The second one refers to “Attitudes of employees in the police of the Republic of Serbia on the implementation of the executive function of the analysis”.

3.1. Problems of the executive function of analysis in the police of the Republic of Serbia

In the previous period, analysis was based on descriptive formality, partly because analysts did not have quality information to improve their products. One of the key reasons that affected the quality of analytical products created by analysts is the resistance of police officers of the criminal police that was reflected in submitting a small number of operational reports. Therefore, the quality of criminal-intelligence information is affected by the well-conducted analysis, including the availability of data collected by all police officers. Police knowledge is primarily subjective, while crime analysis is conducted out of context to develop representations of crime problems. Analysts must develop theoretical knowledge, have insight into data and resources and provide a critical overview of information and criminal problems that are represented in the area of their organizational unit (Racić, 2023: 150-180).

In the application of the intelligence led policing model, the analysis represents a key basis for the development of criminal-intelligence and other analytical products, where the knowledge and skills of the analyst come to light. Analytics jobs in the police of the Republic of Serbia were institutionalized in 1967, when the Analytics Department was created in the then State Secretariat of Internal Affairs. In the following years, the

Department grew into the Directorate for Analytics (hereinafter: UZA), which was part of the Sector of Public Security, i.e. later the General Police Directorate, until September 2009, when it was transferred to the Sector for Analytics, Telecommunications and Information Technologies (hereinafter: SATIT). In December 2015, with changes in the internal organization of the sectors within the Ministry of Interior (hereinafter: MUP), directorates as organizational units within the sectors were abolished and departments were formed as the basic organizational units of the sectors. Thus, the Directorate for Analytics was abolished and two departments were established: the Department for Analytics and the Department for Statistical Analytics and Development (Racić, 2018:143). In May 2023, with the adoption of the Rulebook on internal organization and systematization of job positions in the Ministry of Interior, the Directorate for Analytics was established within the General Police Directorate, as an organizational unit responsible for performing analytical tasks and applying the Intelligence-led policing model at all three organizational levels (central, regional and local). The Directorate for Analytics is a centralized organizational unit created by unifying the analytical units of SATIT and analytical job positions in the organizational units of the General Police Directorate, and it is composed of the following: the Department for Strategic Analytics, the Department for Statistical Analytics and Criminal-Operational Records and the Department for the Development of Strategic Products and Planning Documents. At the regional level, the Department for Analytics was formed in the Police Directorate for the City of Belgrade and departments for analytics in 26 regional police directorates (Racić, Radović, 2023).

The results of the theoretical research, in which the problems of applying the function of data analysis in the police of the Republic of Serbia are stated as a key condition for the establishment and application of the intelligence led policing model, refer to the following:

- 1) the analysis is mainly based on the description of the analyzed phenomena and incidents as a consequence of the absence of the application of modern analytical methods (OIAT, IBM I2 Analyst Notebook, risk and threat analysis, etc.);
- 2) the absence of the application of strategic analysis by analytical organizational units of the General Police Directorate, which would identify current crime trends and cause-and-effect links. Analysts in the organizational units of the General Police Directorate have access to closed sources of data created as a result of operational work and cases, collected data and information, statistical data from the records of the Ministry of Interior (MUP) which are mostly decentralized in several databases, which makes it difficult to create criminal intelligence information .
- 3) the created analytical products mostly do not contain identified priorities, information that needs to be collected additionally and recommendations for further action. The quality of statistical data entered into electronic databases and the amount of prepared operational reports and information predominantly affect the application of the analysis function and the quality production of criminal-intelligence information.

- 4) the quality of entered statistical data in operational applications is at a low level, which makes it difficult for analysts to work on processing and analysis in the development of analytical products.

3.2. Attitudes of employees in the police of the Republic of Serbia on the implementation of the executive function of the analysis

The results of the theoretical research related to the problems of the analysis function, which are stated in the theoretical positions in the police of the Republic of Serbia, were verified empirically, by examining 142 police officers in organizational units at the General Police Directorate HQ (Criminal Police Directorate, Uniformed Police Directorate, Traffic Police Directorate and Border Police Directorate) - in the following text, the results of the empirical research are presented under the title: "Study 2019"³; and included two chief coordinators in the General Police Directorate HQ, four chief coordinators in the organizational units in the General Police Directorate HQ and 27 coordinators in the regional police directorates- in the following text, the results of the empirical research are presented under the title: "Study 2022"⁴. The above-mentioned employees answered as shown in tables 1-3.

Table 1: *Answers of employees in organizational units at the General Police Directorate HQ and regional police directorates to the question: "Do you think it is necessary to carry out criminal analysis of data and information using modern methods, such as: AnaCap, OIAT, risk and threat analysis, with a focus on proactivity, which affects the efficient and effective preparation of criminal-intelligence information"?*

Respondents in RPD and OU in GPD HQ	Fully agree		Mostly agree		Mostly disagree		Total	
	n	%	n	%	n	%	n	%
Study 2019	52	36,6%	86	60,6%	4	2,8%	142	100%
Study 2022	33	100%					33	100%

By analyzing the answers of employees to the question listed in table 1, of the total number of employees in the observed sample in Study 2019, 97.2% answered positively with "mostly agree" and "fully agree", and 2.8% answered negatively with "I mostly disagree". In the observed sample after the passage of time in Study 2022, 100% responded positively. It can be concluded that in the observed samples there is agreement with the

3 The empirical research was carried out in the period from July to October 2019 for the preparation of a doctoral dissertation. More info: Racić, I. (2021) "Organizational adaptation of the police to the needs of the application of the police intelligence model in the Republic of Serbia", doctoral dissertation, Criminal Police University, Belgrade.

4 The empirical research was carried out in the period from July to August 2022. More info: Racić, I. (2023). Monography: „Intelligence Led Policing in the Republic of Serbia”, The Institute of Criminological and Sociological Research, Belgrade.

view that it is necessary to conduct criminal data analysis using modern methods, such as: *AnaCap*, *OLAT*, risk and threat analysis, with a focus on proactivity, which affects the efficient and effective preparation of criminal - intelligence information.

Table 2: *Answers of employees in organizational units at the General Police Directorate HQ and regional police directorates to the question: “Do you think that strategic analysis and operational analysis contribute to the identification of prevention measures, resolving of committed criminal acts, the allocation of resources, and enable targeted collection of data and information”?*

Respondents in RPD and OU in GPD HQ	Fully agree		Mostly agree		Mostly disagree		Total	
	n	%	n	%	n	%	n	%
Study 2019	25	17,6%	111	78,2%	6	4,2%	142	100%
Study 2022	1	3,03%	32	96,97%			33	100%

By analyzing the answers of employees to the question listed in table 2, of the total number of employees in the observed sample in Study 2019, 95.8% answered positively with “mostly agree” and “fully agree” and 4.2% answered with “I mostly disagree”. In the observed sample after the passage of time in Study 2022, 100% responded positively with “mostly agree” and “fully agree”, with a decrease in the degree of representation of the response “fully agree” and an increase in the degree of representation of the response “mostly agree”. Based on the obtained results, it can be concluded that in the observed sample there is agreement with the view that strategic and operational analysis contributes to the identification of prevention measures, resolving of committed criminal acts, allocation of resources and enables coherent data collection.

Table 3: *Answers of employees in organizational units at the General Police Directorate HQ and regional police administrations to the question: “Do you think that the quality of statistical data entered into electronic databases and the amount of operational reports and information produced predominantly affect the application of the analysis function and the quality production of criminal-intelligence “ ?*

Respondents in RPD and OU in GPD HQ	Fully agree		Mostly agree		Mostly disagree		Total	
	n	%	n	%	n	%	n	%
Study 2019	43	30,3%	87	61,2%	12	8,5%	142	100%
Study 2022	32	96,97%	1	3,03%			33	100%

By analyzing the employees’ answers to the question listed in table 3, of the total number of employees in the observed sample in Study 2019, 91.5% answered positively with “mostly agree” and “fully agree”, and 8.5% answered negatively with “ I mostly disagree”. In the observed sample after the passage of time in Study 2022, 100% responded positively. There is also a noticeable increase in the number of “I fully agree” responses.

On the basis of the obtained results, it can be concluded that in the observed samples there is agreement with the opinion that the quality of statistical data entered into electronic databases and the amount of operational reports and information created predominantly influence the application of the analysis function and the quality production of criminal-intelligence information, with an evident increase in the degree to compliance with the examined attitude over time.

4. DISCUSSION

Based on the results of the conducted theoretical and empirical research using the executive function of data analysis, we can conclude that there is currently a large number of shortcomings in this area. Deficiencies are present in the work methodology and in the areas of human and material resources.

Measures to improve the executive function of data collection refer to:

- 1) description of analyzed phenomena and events as a consequence of the absence of application of modern analytical methods (OIAT, risk and threat analysis, etc.). The measures that need to be taken relate to the application of modern analytical methods when performing the function of analysis. The effects of such organizational adjustment would affect the quality of analytical products, more efficient, effective and economic decision-making.
- 2) absence of the application of strategic analysis by analytical organizational units within the General Police Directorate, which would identify current crime trends and cause-and-effect links. Analysts in the organizational units of the General Police Directorate have access to closed sources of data created as a result of operational work and cases, collected data and information, statistical data from the records of the Ministry of Interior, and which are mostly decentralized in several databases, which makes it difficult to create analytical products. The measure that needs to be taken pertains to improvement of the work methodology in the performance of analysis tasks. The effects of such organizational adjustment would influence the direction of police work according to the identified current trends of public safety and cause-and-effect links through the preparation of strategic documents of the General Police Directorate, whereby strategic analysis would provide a contribution to the implementation of proactive activities.
- 3) created analytical products mostly do not contain identified priorities, information that needs to be collected additionally and recommendations for further action. The quality of statistical data entered into electronic databases and the amount of prepared operational reports and information predominantly influence the application of the analysis function and the quality production of analytical products. The measures that need to be taken relate to relevant and high-quality data entry into police records, which would help analysts to identify the data that needs to be collected. The effects of such organizational adjustment would influence the

direction of police work according to the identified work priorities, which would influence the reduction of criminal acts and misdemeanors.

- 4) there is no standardized way of recording analytical products, which complicates the process of their monitoring and availability. Delivery is time-limited depending on the type of analytical products, the deadlines of which are determined by the Strategic or operational group for leadership and management. The measures that need to be taken refer to the creation of a standardized form in which it is defined, to whom and in what form the analytical product is delivered. The effects of such organizational changes would affect the more efficient and effective work of leadership and management groups.

CONCLUSION

The subject of the theoretical-empirical research, the results of which are presented in this part of the study, pertained to the executive function of the analysis. The results of the theoretical research of the concept of analysis and the type of analysis established the following: 1) that analysis can essentially be defined as a function of the criminal-intelligence process in which data is subjected to verification in order to extract important knowledge for further interpretation and fit into a pattern in the creation of a new criminal-intelligence; 2) that strategic and operational analysis are types of analysis used in criminal intelligence operations; 3) that modern analytical techniques are used in criminal intelligence operations when conducting operational analysis (operational integrated techniques (OIAT), IBM i2 Analyst notebook software (connection analysis and event flow diagram) and risk and threat analysis).

Based on the conducted theoretical-empirical research, it can be concluded that the executive function of analysis in the police of the Republic of Serbia can be improved by its organizational adaptation to the obvious requirements of police work based on the application of the intelligence led policing model, which requires the following (organizational) changes: 1) it is necessary to carry out criminal data analysis using modern analytical methods, such as: AnaCapa, OIAT, risk and threat analysis, with a focus on proactivity, which affects the efficient and effective development of criminal intelligence; 2) it is necessary to apply strategic and operational analysis in order to identify current crime trends and cause-and-effect links, drawing conclusions, problems in drawing conclusions, defining priorities, lack of information that needs to be collected additionally and giving recommendations, which contributes to the identification of prevention measures, resolving of committed criminal acts, allocation of resources, and enables coherent data collection; 3) police officers have to enter statistical data into electronic databases in a high quality way, whereby the amount of prepared operational reports and information predominantly affects the application of the function of analysis and the quality development of criminal-intelligence.

According to the described research results, it can be concluded that the functioning of the police organization in the Republic of Serbia can be improved, which implies

appropriate (functional and organizational) changes in its executive functions, including especially changes in the performance of law enforcement intelligence operations, i.e. in the analysis of data that can contribute to a better quality development and use of criminal-intelligence.

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