

ARTIFICIAL INTELLIGENCE AS AN ASSET FOR THE IMPROVEMENT OF DECISION-MAKING CYCLE IN MILITARY OPERATIONS

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The command-and-control system during the decision-making process in modern military operations, in addition to traditional methods, is increasingly based on the processing, analysis and interpretation of large amounts of information, which is partly a consequence of the use of modern technologies and changing operational environment. Among other things, the speed and dynamism of modern conflicts require quick decisions based on complex information. Managing such a large volume of information and making timely decisions can be a major challenge for commanders unless they have appropriate tools and adequate support. The use of artificial intelligence can be one of the potential solutions to the said challenge, because it can significantly optimise and speed up the decision-making process in modern military operations.

The subject of this paper refers to defining the determinants, challenges and possibilities for the application of artificial intelligence in decision-making process in military operations. During the research, the method of content analysis and comparative method were applied, to eventually draw conclusions using the techniques of analysis and synthesis, and create a model of a possible place and role of artificial intelligence in the command system in military operations. The research results are presented within the framework of a functional model of one of possible ways to use artificial intelligence in the decision-making process. The model shows the possibility of artificial intelligence, together with humans, to be a significant factor in the decision-making process that will ensure supremacy in the process of making decisions. It can

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be concluded that the automation of the processes and the increase of autonomy in command using artificial intelligence will improve the decision-making process and certainly contribute to making future military operations more efficient and effective, as well as safer.

Keywords: Artificial intelligence, autonomy, decision-making cycle, modern military operations, command and management.

Introduction

Command and management in military operations represent a complex process that includes planning, organising, issuing orders, coordination and control of military force activities aimed at achieving strategic, operational and tactical goals set by management (Doktrina komandovanja u Vojski Srbije – privremena, 2016, pp. 15). Characteristics of military operations, such as non-conventionality, asymmetry, and technological progress place great challenges before the modern system of command and management. One of the problems of command and management in modern operations is the processing, analysis and interpretation of great quantities of information that make an integral part of modern operational environment (Wrzosek, 2022, pp. 48). To resolve the problem of processing great quantity of information in military operations, the use of new technology has been introduced - the technology of artificial intelligence. The subject of research in this paper refers to analysing and defining determinants, challenges and possibilities for the application of artificial intelligence in decision-making process in military operations, which required a combination of methods applied. First, available documents were analysed, meaning, publicly available case studies and scientific papers on the application of artificial intelligence in the decision-making cycle in military operations, on the basis of which current tendencies and challenges have been identified. Then, a quantitative analysis has been performed regarding the possibilities for the application of artificial intelligence in the decision-making cycle. In the following phase, within a workshop, qualitative research has been carried out through a discussion with several relevant experts in the field of command. Finally, modelling method has been used to present a functional model.

Modern military force operations are characterised by the use of, chiefly, high-technology equipment, information management, rapid reaction ability, as well as traditional approach based on the conventional use of military forces. They can be characterised as informational, hybrid, cyber operations and network-centric operations (Wrzosek, 2022). The Serbian Armed Forces define their operations as a set of combat and/or non-combat activities, movement and other actions taken in accordance with a uniform idea, independently or in cooperation with other defence forces to achieve an overall goal of diverse significance (Doktrina Vojske Srbije, 2010, pp. 28). Both previously given examples of the definition of operations in modern framework imply that there is no uniform definition of modern military operations. It can be concluded that, notwithstanding the extraordinary technological progress of global society, majority of states still rely on traditional military forces, while only few most developed states can execute said modern operations.

Defining command and management in modern framework is a complex problematic issue; it is mostly analysed through the existing traditional framework, and, regardless of all the changes in the environment, the principles and elements of command remain the same, while, as a rule, only command structure changes according to requirements. Internationally more familiar term that is the most often used in the armed forces of NATO (NATO – North Atlantic Treaty Organization) member states, and in wider public is C2 - Command and Control. It represents a complementary terminological determinant for command and management, which is accepted in the Serbian Armed Forces. Command represents exercise of powers and management by certain commander over assigned forces while executing a mission. Command function is performed by deploying personnel, equipment, communications, facilities and procedures that the commander uses for planning, directing, coordinating, and controlling forces and operations for the purpose of mission execution.

Artificial intelligence, as a revolutionary technology of 21st century is increasingly becoming a part of the overall environment, and consequently of modern military operations. With its capabilities and technological capacities, it is primarily associated with high autonomy, both in the segment of armament, and in the segment of decision-making process. Like many international institutions, the Republic of Serbia has defined artificial intelligence in the “Strategy for Development of Artificial Intelligence in the Republic of Serbia for the period 2020-2025”. The Strategy uses the widely accepted definition by the European Commission: “Artificial intelligence refers to systems that display reasonable, intelligent behaviour by analysing their environment and taking actions — with some degree of autonomy — to achieve specific goals. Systems based on artificial intelligence can be purely software-based, acting in the virtual world (e.g. voice assistants, image analysis software, search engines, speech and face recognition systems) or they can be embedded in hardware devices (e.g. advanced robots, autonomous cars, drones or similar)”: (Strategija razvoja veštačke inteligencije u Republici Srbiji za period od 2020–2025. godine: 96/2019-5, 2019: 2).

Understanding modern environment requires a high level of abstraction for commanders to be able to understand the intentions of enemy activity (McDowell et al., 2024, pp. 2). On the other hand, technological capabilities can take over a part of integrity in the decision-making process. Digital agenda, or displacement of a great number of activities into cyber space, and the use of artificial intelligence has provided the system of command with significant capabilities, as well as challenges (Marengo, 2024). The use of artificial intelligence, though widely accepted in different spheres of society, is considered in the system of defence in a specific way (Hadlington et al., 2024, pp. 2-3). Delegating a part of autonomy to artificial intelligence in tasks such as the target selection or approval of the use of lethal combat systems against man, faces a large number of negative facts in both ethical and legal spheres (Morgan et al., 2020). All previous quotes are a part of a wide scientific debate that is being held on a large scale in different academic circles, which only pinpoints the importance and topicality of this subject in military sciences.

Environment and Challenges of Modern System of Command and Management

The concept of modern armed conflicts has considerably changed under the influence of geopolitics, globalisation, multipolarity, and the expansion and wide availability of technologies such as artificial intelligence. The primary change that took place in the concept of modern armed conflicts is chiefly based on the possibility to use anthropologic characteristics, distinctive features of peoples and societies in determining sources of conflicts and their translation into essential causes and a weapon for what is known today as "modern warfare" (Abd Ali, Salih, 2020, pp. 5040). The secondary change that modifies the physiognomy of armed conflicts is the application of modern technological advances. In the era of technological changes, a technology like artificial intelligence has emerged for the first time, and it tends not to be merely a weapon or means, but an autonomous actor in modern military operations. To examine a part of challenges that modern command faces, it is necessary to analyse how the character of modern warfare, command-information system, multidimensionality of environment, and artificial intelligence influence the employment of military forces in modern military operations.

Modern military operations can be defined as complex and multidimensional. To better understand the challenges that command faces in modern operations, as well as the importance of the use of artificial intelligence in support of command, it is necessary to define the concept of modern military operation. Through the analysis of a vast number of relevant sources, modern military operations can be defined as complex and multidimensional activities that include different aspects of military and non-military power aimed at achieving strategic and operational goals (Jordan et al., 2016; Murray, Mansoor 2012). They do not include only combat operations but a wide spectrum of non-combat activities as well, such as humanitarian assistance, infrastructure reconstruction, and stabilisation of area where combat actions have been carried out. It is precisely that fact that implies and integrated approach of military and civilian structures at local and international level as well. The second important characteristic is the multidimensionality of the area of operation execution. In addition to traditional land, sea and airspace operations, modern operations include domains of space and cyber space which is particularly important in artificial intelligence domain. The third significant characteristic are the new forms of the conduct of actions which today encompass hybrid war, cyberattacks, information operations, and economic measures as well (Krishnan, 2022; Beriša et al., 2022, pp 30-31). The said activities can be vanguard, but they can keep pace with the course of combat action execution throughout the entire operation. The focus on the population and modern technologies like artificial intelligence elevate modern military operations to a new level which requires command to display exceptional adaptability and flexibility.

Modern system of command in military operations faces numerous challenges that stem from an ever more complex and dynamic security environment. During the research, the greatest challenges placed before command of 21 century operations are, firstly, cyber threats, information security, autonomy in decision-making process,

speed of decision-making, and interoperability. Traditional approach to command, which can be characterised by a clear hierarchical order, centralised decision-making, morality, training and discipline, is no longer entirely relevant in modern operations. New challenges, risks and threats imply that in certain moments traditional system of command lacks needed agility in the decision-making process since there are many unknowns related to the enemy (Alberts, Hayes, 2006, pp. 2). This very agility can be ensured by modern concept of command-information system based on artificial intelligence. It is an information system that supports command in armed forces at all levels, where data and information is gathered, transferred, distributed, processed, presented and protected. One of the most important challenges to command system designed in such a way are threats from cyber space, which represents a dimension of environment, that is becoming ever more significant in the era of new technologies and modern warfare. The emergence of artificial intelligence in military operations additionally increases the complexity and vulnerability of command-information systems. Activities taken to prevent cyberattacks and the use of artificial intelligence to detect and defend against them, are becoming a vital aspect of modern military doctrine.

Accelerated development of systems based on artificial intelligence has brought about a change of paradigm in different sectors, including the system of defence. Modern weapons systems, abounding in increased autonomy, can independently monitor and select targets and engage them autonomously without further intervention of man. Thus, the application of artificial intelligence can potentially bring about a revolution in warfare because of the capabilities such as its ability to make decisions autonomously on the use of military force without the knowledge and approval of man during operations, enhanced precision when using lethal weapon systems and speed of reaction against an explicit threat (Payne, 2018). The said advantages can certainly lead to strategic superiority and less human losses. However, such weapon raises considerable international security and ethical concerns and stresses the need for an all-encompassing global regulation within international institutions. Capabilities of artificial intelligence will certainly exert a significant influence on military power, strategic competition and world politics.

Complete determination of command in modern operations, regardless of technologies and solutions used, even if those are supreme systems of artificial intelligence and automation, still depends on human factor. By their manifestation modern systems of command can be described as complex adaptive systems. That claim implies that the existing methods and manner of analysing operational environment will have to adapt to new trends. It can be deduced that, firstly, the most important challenge is to understand the best way of managing this process over time, having in mind the scope and nature of the transformation of command function (Black et al., 2024, pp. 65).

Multidimensional operations certainly make decision-making area more complex. With hitherto method of command, it was sufficient to ensure the supremacy at sea and airspace to successfully conduct operations on land (Black et al., 2022). With modern command, it will be necessary, apart from the said, to ensure supremacy in space, cyber space, to develop the capability for asymmetric actions, and to imple-

ment all of it in joint force operations. Command carried out in a multidimensional space will require from decision-makers to transfer a part of their integrity and command responsibility to systems that will better understand that complex space and be capable of applying, processing and distributing information quicker and more efficiently throughout the command chain. Successful systems of command will be those that will manage to find an optimum ration between capacities and capabilities of man and artificial intelligence in a way that command supremacy of man in the chain of command is not threatened at any moment.

Integration of Artificial Intelligence into Decision-Making Progressa

Military as a leader in development and implementation of new technologies has already accepted the use of artificial intelligence. A wide spectrum of application, and theoretical consideration as to where else it could be used, eventually leads to an ever-recurring question: "How much autonomy can be allowed to artificial intelligence when applied for military purposes"? This question has a broader scope than just military, but it is very interesting in the system of defence since only there can it obtain autonomy to use lethal combat systems that would be directed against man. With the expansion of the use of artificial intelligence for military purposes that ethical and legal dilemma is becoming more topical. However, artificial intelligence has considerably wider scope of use. Apart from the operation of certain combat systems, it provides significant opportunity for the optimisation of support to decision-making process, or the process of operational planning (Meerveld et al, 2023, pp. 14). The latter possibility leads to the question relating to a responsible use of artificial intelligence in the military, more precisely, the delegation of a part of responsibility and authority for decision-making.

The Doctrine of Command in Serbian Armed Forces perceives the decision-making process in two different ways: at strategic and operational-tactical level. The number of envisaged phases in the process of operational planning ranges from five at the strategic, to seven at operational-tactical level (Doktrina komandovanja u Vojsci Srbije – privremena, 2016, pp. 51). The process of operational planning stipulated by the said Doctrine and Guidance for operational planning and work of commands in the Serbian Armed Forces clearly and unequivocally directs command and management through phases towards an optimal decision during the decision-making cycle.

Notwithstanding that the process of operational planning eventually leads the system of command and management to the final decision, there is a great unknown as to how will artificial intelligence be treated in that context. As the primary element of defence system, the military executes its missions and tasks in line with the stipulated doctrine. It achieves desired effects by employing forces, assets and the manner of the performance of tasks, which are the result of the action of several elements, or resource limitations. New challenges that the military faces, especially in the domain of cyber security, require the development of new capabilities. Artificial intelligence with

its wide spectrum of capabilities will surely be a significant instrument in the development of armed forces' capabilities, not only in cyber domain, but in other aspects of the use of armed forces. The key question regarding the development of this capability is the justifiability of placing artificial intelligence together with man in decision-making loop, or if, in the future, it will remove man from that loop entirely?

The issue of the autonomy of artificial intelligence and its impact on decision-making cycle in terms of the employment of military forces in modern military operations was the subject of internal empirical research conducted by the group of authors of this expert paper. The research was carried out in the framework of the subject Command and Management, during the General Staff Course in 2023.

The starting point of the research was directed towards the decision-making process defined in the Doctrine of command in the Serbian Armed Forces in the chapter "Fundamentals of the decision-making process in operations", which clearly defines the place and role of a commander and command in the decision-making cycle through the steps of analysis - orientation - decision-making - acting (Doktrina komandovanja u Vojsi Srbije – privremena, 2016, pp. 51). To practically analyse the possible influence of artificial intelligence on enhancement of decision-making cycle, a workshop was organised led by the authors of this paper during which each of previously stated four steps of decision-making process was analysed. The main part of the research was carried out over a two-week period during practical exercises performed in the framework of the said subject, while the analysis of results, production and description of the functional model was done after the research had been completed. During the research, potential areas where artificial intelligence might be used were identified. The results obtained during the research and their analysis are presented on the Figure 1.

The Figure 1 presents the functional model of the possible use of artificial intelligence in decision-making process of command system in ongoing military operations at operational-tactical level. The functional model is the product of the analysis of many publicly available sources, and doctrinal documents of the Serbian Armed Forces as well. Staff organisation, which is represented as the basic model of command organisation at operational-tactical level, during the decision-making process can consist of several different groups. One of the most important ones is the Group for operational planning. The role of this group in decision-making process at operational level, is to develop operational situational plans, on the basis of strategic situational plans or strategic assessments, but exclusively in military domain, which means to offer an optimal solution to the commander within the planning process as a response to emerging crisis (Uputstvo za operativno planiranje i rad komandi u Vojsi Srbije – privremeno, 2017, pp. 10).

The operational planning process is a dynamic process which should be efficient especially in ongoing operations and provide timeliness of support to decision-making. To simplify the functional model presented on the Figure 1, only activity of the Group for operational planning was analysed, having in mind that during the research the authors concluded that this is the environment with the greatest dynamics throughout the process of operational planning as a response to crisis. It is exactly the environment where aggregation of all available information important for decision-making

cycle is done, and it is the place where a plan of response to crisis is proposed to the commander. Data management from command-information system, or the reception, processing, analysis of data from the environment, could be the environment where analytical capabilities of artificial intelligence could be used the best. Also, increased speed of data inflow and dynamics of operational environment as a general rule require quick assessments that could make part of autonomous activities of artificial intelligence in the future. It is precisely in this context that the functional model was formed for the use of artificial intelligence in decision-making cycle at operational-tactical level.

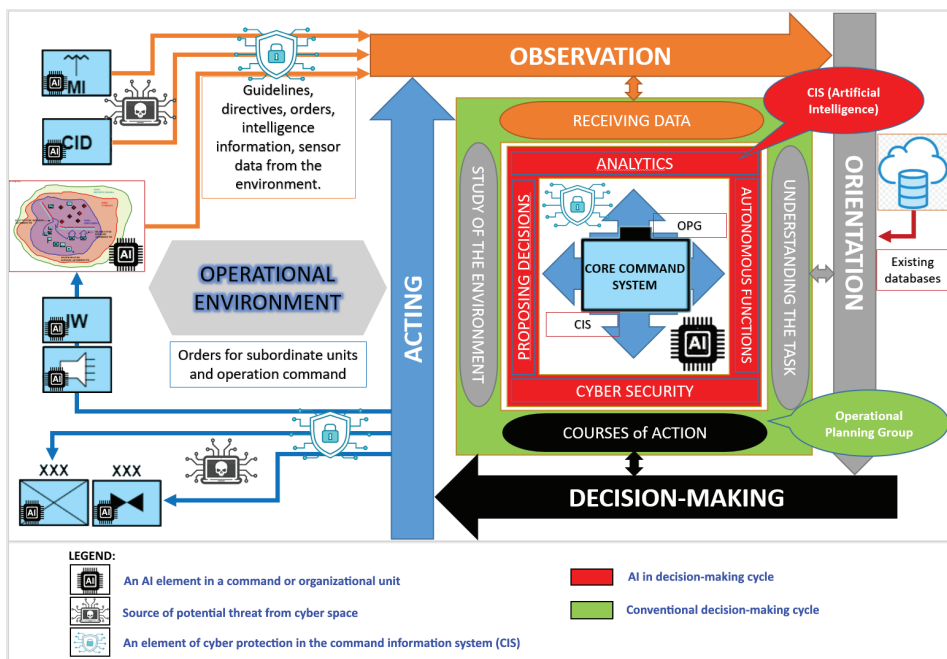


Figure 1 – Functional model of the use of artificial intelligence in decision-making cycle at operational-tactical level in an ongoing operation (Source: Authors' illustration.)

The most significant elements in the decision-making process of the modelled system on Figure 1 are: command-information system with autonomous elements of artificial intelligence and cyber protection systems (hereinafter referred to as: "CIS") and the Group for operational planning (hereinafter referred to as: "GOP"). The purpose of the functional model is to illustrate how artificial intelligence speeds up and optimises the decision-making process together with man throughout the phases of observation - orientation - decision-making - acting in Boyd's OODA loop (*Observe-Orient-Decide-Acting*). To speed up the decision-making process using decision-making loop,

CIS, supported by artificial intelligence and the analytics of artificial intelligence in the framework of the existing databases, provide GOP with data, analysis and potential solutions. Thus, GOP and staff mutually exchange data and monitor the state in the environment concurrently with the stages of the decision-making loop, and in that way, provide more quickly necessary information to the decision-maker on the basis of which they could make an optimal decision on the employment of forces in the operation. Data obtained in the phase of observance correlate in the orientation phase with existing databases and, chiefly, with analytical capabilities of artificial intelligence make that process considerably faster. In that way, artificial intelligence with its analytical capabilities can be of crucial benefit to a decision-maker in the process of presentation of assessments and proposals together with GOP. Besides finding its place within the CIS, artificial intelligence can also be an integral part of tactical level combat platforms that require control and guidance in new tasks. Finally, artificial intelligence can successfully perform activities that relate to cyber security, or detection, communication and counterreaction against cyberattacks.

Development of combat platforms, which integrate the capacities of artificial intelligence, has been evident for a long period of time. The primary objective of the integration of artificial intelligence should be the supremacy over an enemy. The enhancement of performances of Boyd's OODA loop in decision-making process is one of basic elements of ensuring supremacy. The analysis of the place and role of artificial intelligence in processes of observation, orientation, decision-making and acting is of essential importance for its integration into military operations. Without a doctrine, it is not possible to use properly and optimally the armed forces that would use the resources of artificial intelligence in operations. For a doctrine to be applicable in its entirety, it demands required capabilities and specific knowledge about military activities regarding the use of those capabilities (Ostojić et al., 2017, pp. 339).

Speed that dominates in Boyd's OODA loop is not always the primary factor that brings victory. Doctrine, environment, reliability and appropriate assessment should precede a right decision on the use of fighting power. Artificial intelligence integrated in Boyd's loop can be an ideal tool to conduct research into performance of combat systems. Man, and artificial intelligence in a loop certainly make a desirable and fully controlled system. The intuitive steps of OODA loop are easy to understand and they are closely synchronised with the first four primary elements of artificial intelligence which observes, understands, predicts and manipulates, or learns (Johnson, 2023, pp. 51).

Some states that maintain technological primacy, such as USA, PR China, Russian Federation and others, are the leaders in the application of new and revolutionary technologies. Ever greater use of autonomous combat system is an obvious example. From unmanned aerial vehicles, to "smart" ammunition, automated combat vehicles and tactical weapons - all those systems are considerably enhancing combat capabilities and operational capabilities of military units as a whole. Nonetheless, different indicators show that the adoption of these technologies will reach its full potential together with the enhancement of information agenda. The use of autonomous systems greatly relies on human potential for the maintenance of the system and processing of data that those systems generate (Usai et al., 2021).

To fully exploit the advantages of artificial intelligence and autonomous combat systems, a more advanced integration in decision-making process will be required. Also, the previously stated position will have to be accompanied and influenced by the confidence in its capability to act without the intervention of man. The key issue that arises is who will be authorised to make the decision. There is an interesting example of two highly automated systems used by US military for the needs of air operations and operations at sea (Bode, Watts, 2021). Namely, the automation of anti-aircraft system "Patriot" (*MIM-104 Patriot*) is intended to replace man in decision-making process and to act autonomously against an observed threat. The second system is "Aegis" (*Aegis ballistic missile defence system – Aegis BMD*) used in the Navy. Its primary purpose is to use the automation to enable commander's decision by means of the use of appropriate doctrine. Of course, in both mentioned systems there is a possibility for man to control all the options, but, on the other hand, there is a possibility for both systems to react completely autonomously against an observed threat. Another significant factor that influences the manner of decision-making is the doctrine applied. A doctrine that is universal and always responds to the same threats in the same way has many deficiencies that are manifested in different circumstances. The said implies that the complexity of the use of autonomous systems requires an appropriate doctrine which correlates with adequate operational environment.

Conclusion

The integration of delegated autonomy of artificial intelligence and achieving supremacy in operational environment are factors that will play an important role in the execution of military operations in the future. They will directly reflect on the quality of the execution of decision-making cycle in military operations. The fight against modern digital enemy, who conducts activities in asymmetrical and hybrid war, is only possible by ensuring complete functionality and flexibility of decision-making cycle which implies the implementation of the state-of-the-art technological solutions.

The automation of activities at different levels, as well as the autonomy of a part of combat systems, will certainly contribute to future military operations being more efficient and effective. Higher precision, speed and optimisation that will result from the use of artificial intelligence should end modern military operations with less casualties, devastation and be in line with international legal agenda and ethical norms of the modern world. The challenge of the use of high technologies integrated through artificial intelligence in decision-making cycle brings various advantages and some unknowns as well. The positive effects are reflected in the acceleration of the decision-making process, optimisation of activities through reduced exploitation of resources, and, finally, shorter duration of military operations, all of these being the advantages. On the other hand, the unknowns of the vector of development of artificial intelligence in terms of autonomy and takeover of responsibilities which are today inherent in man, will significantly shape future decision-making cycles. Dissipation of power in different actors, non-state actors among others, will lead to a changed division of power - from a national, through regional to global level. That fact can be one

of the challenges of the use of artificial intelligence which is already widely available to different actors, state and non-state alike.

The use of artificial intelligence, as an element of support to command in decision-making process during the conduct of modern military operations, will bring new possibilities, and challenges as well. The possibilities are chiefly reflected in analytical, simulation, predictive and coordination capabilities of artificial intelligence. On the other hand, the possibility of disclosure of classified military information, too great autonomy in decision-making process, infringement of command integrity of a commander by an artificial entity, and ethical definition of the place and role of artificial intelligence in lethal combat systems represent only a portion of challenges that we will face in the process of integration of artificial intelligence into the execution of command activity.

Modern concept of decision-making in military operations at operational-tactical level will retain its original principles and be supported by capabilities of modern technologies. Application of artificial intelligence gives priority to decision-making cycle in relation to an enemy in modern military operations. Decision-making cycle should direct its subordinates as to how to properly study, implement and use modern technologies, because it is the only way to ensure superiority in relation to enemy. The most important challenge is to achieve synchronisation and correlation in relation to natural and artificial intelligence, which means that man should always make the final decision, and, likewise, to delegate tasks and responsibilities to artificial intelligence which do not jeopardise command integrity of man.

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S u m m a r y

The integration of artificial intelligence in decision-making process, or decision-making cycle in modern military operations represents one of key modernisation aspects. This technology is already being widely applied in different aspects of military industry, including the use in combat systems, and, at the same time, it raises important ethical and legal issues about the level of autonomy which can be allowed to artificial intelligence, especially within systems that can decide on the use of lethal force. The use of artificial intelligence is not limited to combat systems, and it encompasses the support to decision-making processes, especially in operational planning. The Doctrine of Command in Serbian Armed Forces defines the decision-making process at strategic and operational-tactical level, where different planning phases are focused, which is in principle in line with the trends of the majority of other armed forces. Artificial intelligence possesses a potential to speed up and optimise these processes through the processing of great quantities of information, and to propose optimal solutions to decision makers.

There is still a great challenge in the question if artificial intelligence should be in the “decision-making loop” together with man, or entirely replace man’s intervention in the future. Research shows that artificial intelligence can significantly speed up the decision-making cycle in military operations. A model of one such system is presented in this paper. Through segments of Boyd’s OODA loop (observation - orientation - decision - acting) capabilities of artificial intelligence were analysed in each phase. A functional model, which represents the use of artificial intelligence in decision-making cycle is focused on the enhancement of the operational planning process. In this model, artificial intelligence is used to manage data from command-information system, where it processes and analyses information from the environment, which speeds up and enhances the decision-making process in real time. That particularly refers to crisis situations, where the speed of response is crucial for the success of the operation.

Despite all advantages, it is important to underline that speed is not the only factor of success. The use of artificial intelligence has to be supported by appropriate doctrine, operational knowledge and proper situation assessment. Apart from that, human factor remains pivotal in the decision-making process, even if artificial intelligence can partially take over certain tasks. Also, artificial intelligence is more and more applied in autonomous combat systems, from unmanned aerial vehicles to automated vehicles and “smart” ammunition. These systems considerably enhance units’ operational capabilities but its full integration is still under development and research. The issue of confidence in artificial intelligence and its capability to act autonomously is one of the key issues for the future military operations. Examples from the USA show that the automation in defence has been already functioning. Systems like “Patriot” and “Aegis”

have the capability to act autonomously, but, they at the same time can be controlled by man, which represents a compromise between full autonomy and monitoring.

It can be concluded that the integration of artificial intelligence in the decision-making cycle brings numerous advantages, such as increased efficiency, speed and reduced casualties, but it also represents new challenges, especially in terms of legal responsibility and ethical issues. A successful application of artificial intelligence will demand a balanced approach that combines technological capabilities with control exercised by man and appropriate doctrinal frameworks to achieve supremacy in future military operations.

Keywords: Artificial intelligence, autonomy, decision-making cycle, modern military operations, command and management.

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