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PERSPECTIVES OF THE APPLICATION OF ARTIFICIAL INTELLIGENCE IN LOCAL SELF-GOVERNMENT IN THE REPUBLIC OF SERBIA

Abstract

The paper analyses the use of artificial intelligence in the exercise of competences of local self-government in the Republic of Serbia. After the introductory considerations, which also include a short review of the legal framework of the AI in the Republic of Serbia, there is an analysis of different possibilities of using AI in the performance of communal activities in general. After that, there is a brief presentation of the concept of local self-government in Serbia and its shortcomings, and then the discussion about possibilities of applying AI in municipalities and cities in the Republic of Serbia, primarily bearing in mind their size and scope of competences. In the concluding considerations, the results of the research are summarized, with particular emphasis on three key points for the wider application of artificial intelligence in local self-government in the Republic of Serbia in the future.

Keywords: artificial intelligence, local self-government, municipality, city, Republic of Serbia

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INTRODUCTORY CONSIDERATIONS

Artificial intelligence (AI) is rapidly becoming a part of the everyday life of most people on the planet, and its development indicates that in the future almost all segments of human activity and human life will be affected with its use. The degree to which it can affect people's daily lives, the redesign of business processes, and the way of functioning and organization of public administration and other state bodies, in an extremely short time, is huge, already noticeable, and very unpredictable (Milovanović 2023, 5–6). Public administration, despite its inherent conservatism, is an area in which AI can be used to optimize administrative processes, improve decision-making quality, and enhance public services delivery (Borissov and Hristozov 2024, 409).

Local self-government is one of the areas in which AI could be widely used in the near future, and it can already be said that some of its competences are already being carried out with the help of tools offered by AI. Of particular importance is the fact that with the help of AI, the immediacy of relations between citizens and local authorities could be increased, which should be one of the basic goals of democratic local self-government. It is, therefore, not surprising that cities around the world are striving to establish themselves as leaders in urban innovation through the development and implementation of AI systems (Yigitcanlar, Agdaş, and Degirmenci 2023, 1135).

Local self-government in the Republic of Serbia has a dual nature, as it is defined by the Constitution as both a human right and a political institution. The legislator opted for the traditional concept of local self-government, in which the local assembly is the highest body. Units of local self-government in Serbia are relatively large, among the largest in Europe in terms of population, which brings with it certain advantages and disadvantages, among which the biggest problem is the distance of citizens from local organs. AI can help bring local authorities closer to ordinary citizens.

The Republic of Serbia is gradually creating the legal framework for the application of AI. In March 2023, the Government of the Republic of Serbia adopted the Ethical guidelines for the development, application and use of trustworthy and responsible artificial intelligence with the aim of ensuring compliance with high security, ethnic and technical standards in the development of artificial intelligence systems. In 2025, the Strategy for the development of artificial intelligence from 2025 to 2030 was also

adopted, and it defines the legal framework, institutional structure, and deadlines for the adoption of relevant laws and regulations on AI. The AI has already been incorporated into certain laws (e.g., the Criminal Code, the Law on Personal Data Protection, and the Law on Public Information and Media). The adoption of a general Law on Artificial Intelligence is also being prepared, and its full implementation is planned by the end of 2027. All this indicates that the central political authorities of the Republic of Serbia pay great attention to AI and that its use will be regulated in the future by a number of laws and regulations, including the general Law on artificial intelligence. This will undoubtedly create a lot of opportunities for AI to be used appropriately at the local self-government level as well.

Today, there is a widespread opinion that artificial intelligence will enhance the efficiency, accuracy, and transparency of administrative services for the public and business (Herasym 2025, 1). Despite the fact that the scale of the AI activities in the future can hardly be estimated, it already offers significant opportunities for improving the efficiency of the performance of competences of local self-government. Some of these possibilities will be presented in the next section, followed by a brief analysis of the model of local self-government in the Republic of Serbia and recommendations on how its weaknesses could be eliminated or at least mitigated by the use of AI, as well as recommendations on specific possibilities to use AI in the exercise of competences of local self-government in Serbia.

POSSIBILITIES OF APPLYING ARTIFICIAL INTELLIGENCE IN THE EXERCISE OF LOCAL COMPETENCES

Artificial intelligence is very compatible with the exercise of local self-government competences. The use of AI in local self-government has many advantages, and its greatest virtue is that it enables the simultaneous realization of two principles that are often mutually exclusive – economy and efficiency. In other words, in most cases, it contributes to increasing the efficiency of certain tasks while reducing the costs necessary for their performance. There are several areas in which AI can improve the efficiency of local self-government and, at the same time, provide significant savings. In short, the AI is being used in the public sector for automated decision making, for chatbots

to provide information and advice, and for public safety and security (Henman 2020, 209). In certain situations, AI imitates human thinking in solving complex problems (Stančetić 2019, 225). Since this is an area that is developing at a rapid pace, it is almost impossible to predict the limits to which the development of AI will reach in five or ten years, but it is already possible to recognize several opportunities for its use in the exercise of local self-government competences.

First of all, in the field *of processing of various submissions* that citizens send to local self-government, it is possible to establish a system of electronic submission of documentation, in which the AI will recognize the text, digitize it, and, after that, provide answers. This is primarily possible in simple procedures, such as the procedures for issuing certain certificates, registration of residence, etc. These are procedures in which complex decision-making is not required, and they are relatively numerous in practice. In this way, AI can make a significant contribution to the local administration.

Secondly, artificial intelligence can play a significant role in *internal control procedures and the detection of irregularities in the work of local administrative services*. Appropriate tools guided by the AI can easily detect irregularities in revenue and expenditure planning, errors in utility billing, and so forth.

Thirdly, *in the field of planning and development*, artificial intelligence can contribute to the planning of budget revenues and expenditures, analyse costs and discover opportunities for savings in the future, offer appropriate urban and spatial optimization solutions, assess the impacts of planned infrastructure projects, as well as predict the need for schools and hospitals. In this area, of course, AI does not act alone, but as a corrective factor and source of advice and ideas to experts in the relevant fields. Determining what tasks AI can perform needs caution, because entrusting overly complex tasks can lead to bad consequences, which is called the phenomenon of imperfect delegation in the context of the use of artificial intelligence in public administrations (Loi and Spielkamp 2021, 759).

Fourthly, the AI can significantly contribute to *the improvement of local democracy*, enabling a more direct relationship between citizens and local authorities, which is one of the most important goals of local self-government. The AI has the ability to quickly and efficiently analyse and systematize the data provided by citizens in surveys and applications, and even on social networks. Additionally, it is possible to establish

appropriate platforms that enable the participation of citizens in the creation of ideas and decision-making, since AI is capable of processing and systematizing a large number of proposals and different opinions. Chatbots and virtual assistants are increasingly being used to improve citizen participation by offering ongoing assistance and tailored support (Yigitcanlar *et al*. 2024, 1580). In a similar way, AI can automatically create reports on the work of local authorities, which would significantly contribute to increasing the quality and efficiency of their work.

Fifthly, *in the field of infrastructure management*, AI can manage public lighting and turn it on and off as needed, which can provide great energy savings. In addition, there are various possibilities for its use in the field of traffic, starting from the regulation of traffic lights and traffic signals depending on the needs in certain periods of the day, to monitoring the quality of traffic infrastructure and timely pointing out its potential damage.

Sixthly, in the field of environmental protection, AI can be used as a tool for monitoring the quality of air, water, and soil, and in particular, it can be used for the purpose of preventive prediction of pollution, thus enabling action on its prevention. AI can also play an important role in the field of waste management, especially through the optimization of routes for its collection.

Seventhly, artificial intelligence can play a significant role in the *field of security and surveillance* in local self-government. On the one hand, its function can be simple, in the control of standard video supervision that serves to detect suspicious behaviour or possible incidents, and, on the other, it can also be complex, in predicting risks based on historical data or even managing crisis situations caused by disasters such as earthquakes, fire, or flood.

These areas of use of AI in local self-government certainly are not a complete list of possibilities for its application, especially since new AI tools are appearing day by day, more perfect and sophisticated than those that were known until recently. However, it is quite clear that the use of AI in the seven mentioned areas provides great opportunities for improving and facilitating the exercise of the competences of local authorities.

COMPATIBILITY OF THE CONCEPT OF LOCAL SELF-GOVERNMENT IN SERBIA WITH THE APPLICATION OF ARTIFICIAL INTELLIGENCE

After breaking with the achievements of socialist constitutionalism in the last decade of the last century, the Republic of Serbia, on the basis of the Constitution of 1990, left the so-called communal system and returned to the classic model of local self-government, which had a significant tradition in the Serbian monarchy in the 19th century. By abandoning the communal system, however, Serbia did not make a complete break with the concept of local government as it existed in socialist Yugoslavia, since it retained the model of the so-called large municipalities. It was introduced in Yugoslavia gradually, and finally introduced in the second half of the 1960s. Today, units of local self-government in Serbia can be considered large, both according to the criterion of the size of the territory and according to the criterion of the size of the population.

Proper measurement of the size of the unit of local self-government is one of the most important prerequisites for its successful functioning. When considering the size of a unit of local self-government, both territorial and population criteria should be taken into account (Fridrih 2005, 200–201). Over the past decades, there has been a trend of enlargement of units of local self-government in Europe, as it has been estimated that the ideal size usually meant an increase in units of local self-government, which most often resulted in the merger of municipalities, which to some extent annulled the tradition (Baldersheim 2002, 209).

In general, the concept of large municipalities has certain advantages and disadvantages compared to the concept of small municipalities, and the advantages of one concept are at the same time the disadvantages of the other and *vice versa*. The concept of large municipalities implies strong units of local self-government, which include a significant territory and a large number of inhabitants, which implies good personnel potentials for the performance of local self-government competences, but also the collection of significant material resources from taxes and fees, which contributes to the financial autonomy of local self-government. From these virtues, another one logically follows – in the case of the existence of large municipalities, it is usually not necessary to establish the second level of local self-

government (the so-called intermediate level), which reduces the number of levels at which authority is exercised, and reduces the number of authorities, making it much more receptive and clearer to the ordinary citizen.

The main disadvantage of the concept of large municipalities is that it leads to the distancing of citizens from local self-government. A large territory and a large population do not lead to the formation of coherent local communities, which is one of the basic goals of local self-government. Large communities make it impossible to develop a sense of local belonging, especially in a situation where large municipalities were formed by redrawing and merging the territories of historical communities, which had annulled tradition and weakened the sense of solidarity among citizens. In addition, large municipalities usually have a large administrative sector, which leads to their bureaucratization, and due to the size of their population, it is impossible to apply direct democracy (Jovičić 1974, 101–108).

Opting to keep the concept of large municipalities established in the former Yugoslavia, the Serbian legislator consciously accepted all the advantages and disadvantages of that concept, although some of them have been mitigated, such as groundlessness in tradition, since units of local self-government have been functioning in their current form for more than half a century, and during that time they have established a certain tradition. In terms of population, Serbian units of local self-government are among the largest in Europe. There are currently 174 units of local self-government in the Republic of Serbia – 145 municipalities, 28 cities, and the City of Belgrade (Zakon o teritorijalnoj organizaciji Republike Srbije 2007, Articles 16–24). According to the last census in 2022, there were 6,647,003 inhabitants in Serbia, which means that an average of over 38 thousand inhabitants live in Serbian units of local self-government. That number was previously significantly higher: according to the 2011 census, there were 7,186,862 inhabitants in the Republic of Serbia, so the average number of inhabitants in units of local self-government was more than 41,000 (Bojanić 2013, 86).

One of the biggest problems that has arisen as a consequence of the aforementioned concept of the structure and territorial basis of local self-government is the so-called problem of the distance of citizens from the local organs, because a large number of citizens live far from the local self-government bodies and their services. A representative example is the city of Kraljevo, which occupies an area of more than 1,500 square

kilometres and has more than 110,000 inhabitants. Residents of that city (and many other cities and municipalities) have to travel up to 50 kilometres to meet their basic needs – take out personal documents, a birth certificate, or certify a document (Stanković 2023, 123–124). The AI can play an important role in solving this problem. The tools it offers could allow citizens to obtain identity documents without going to the central office of local authorities. In addition, AI can simplify administrative procedures in many cases, which would avoid citizens having to submit a large number of different documents (statements, certificates, etc.) to local authorities in order to exercise their rights (often, citizens effectively have the role of "courier" between these organs).

In the Republic of Serbia, there is a single-level and monotypic local self-government (Stanković and Milisavljević 2018, 31). Bearing in mind that they occupy a considerable territory and include a large number of inhabitants, units of local self-government in the Republic of Serbia also have significant competences. According to the Law on local self-government, unit local of self-government performs the following competences: 1) adopts its statute, budget and final account, spatial and urbanistic plans and development programs of the municipality, as well as strategic plans and programs of local economic development; 2) regulates and ensures the performance and development of communal activities, local transport, use of construction land and business premises; 3) takes care of the construction, reconstruction, maintenance and use of local roads and streets and other public facilities of municipal importance; 4) takes care of the needs of citizens in the field of education (pre-school education and primary and secondary education), scientific research and innovation, culture, health and social welfare, child welfare, sports and physical education; 5) ensures the achievement of the special needs of persons with disabilities and the protection of the rights of vulnerable groups; 6) takes care of the development and improvement of tourism, crafts, catering and trade; 7) adopts and implements programs to encourage local economic development, undertakes activities to maintain existing and attract new investments, and improves general business conditions; 8) takes care of the protection of the environment, protection from natural and other disasters, protection of cultural goods of importance for the municipality; 9) takes care of the protection, improvement and use of agricultural land and implements rural development policy; 10) takes care of the realization, protection and

promotion of human and minority rights, gender equality, as well as public information in the municipality; 11) forms and regulates the organization and work of bodies, organizations and services for the needs of the municipality, organizes the legal aid service and regulates the organization and work of peace councils; 12) determines the symbols of the municipality and their use; 13) manages municipal property and determines the rates of source revenues, as well as the amount of local taxes; 14) prescribes violations of municipal regulations; 15) performs other tasks of local importance determined by law (e.g., in the areas of defense, protection and rescue, fire protection, youth policy, zoo hygiene, etc.), as well as tasks of direct interest to citizens, in accordance with the Constitution, law and statute (Zakon o lokalnoj samoupravi 2007, Art. 20, Para. 1). The use of the AI is conceivable and possible in the performance of almost all of the competences of local self-government. In the following text, we will expose some of the possibilities of using AI in all groups of competences. Of course, involving AI in the performance of certain competences is not an easy task, as many public organizations are struggling to adopt this technology (Neumann, Guirguis, and Steiner 2022, 114).

In the field of spatial and urban planning and development programs of the municipality, as well as strategic plans and programs of local economic development, the mechanisms and tools offered by the AI can greatly contribute to improving the results of local self-government, especially when considering that the majority of units of local self-government in Serbia still do not have an internal act that regulates in detail the procedure for planning, auditing, monitoring, evaluating and reporting on the implementation of the development plan, i.e. the umbrella planning document (Stalna konferencija gradova i opština [SKGO] 2024, 13). When it comes to spatial and urban planning, AI can speed up and improve all phases of the development and monitoring of planning documents, through the analysis of satellite images and drone images, it can recognize and signal undesirable changes in land use and monitor illegal construction and occupation of public areas, it can also offer simulations of urban development (by creating possible scenarios of how an area will develop depending on the infrastructure investments), and can also contribute to the optimization of infrastructure, by suggesting the best locations for schools, health facilities, parks and public transport based on population density and population movements. When it comes to local self-government development programs, AI can help both in

the development and implementation of programs, through the analysis of data on the needs of the population, data processing (from surveys, public debates, social networks and citizens' applications), recognizing priorities in terms of communal infrastructure, security and green spaces, smart budgeting and automatic reporting on the progress of program implementation (graphs, interactive maps, etc.). It is similar in terms of the development of strategic plans and programs of local economic development, where it is possible for AI to create and monitor economic strategies, to analyse market trends, to help attracting investments by creating customized presentations for potential investors highlighting the appropriate advantages (location, supply, logistics), to provide support to entrepreneurship through smart systems for advising small and medium-sized enterprises. It can also simulate economic scenarios by examining how different measures (e.g., tax breaks) would affect the employment and income of the municipality.

In the field of communal utilities, local transport, use of construction land, and office space, the AI can play a very important role. When it comes to communal utilities, AI can monitor the condition of infrastructure (algorithms can analyse sensor data on water pressure, pollution levels, vibrations in pipes and predict failures before they occur), through video surveillance it can recognize problems in the field (e.g. broken benches, interrupted lighting, illegal landfills) and to automatically submit reports to the system, and can also manage lighting (there are systems that, based on the movement of people and vehicles, reduce or increase lighting to save energy). In the field of local transport, AI can plan routes and timetables (by analysing the number of passengers, traffic jams and events in the city), predict delays (by monitoring vehicles in real time and alerting passengers to delays via an app or screens at stations), determine the required number of vehicles at all times, and coordinate all modes of public transport. In the field of construction land use, AI can analyse satellite images, create simulations of the impact of new facilities on traffic, infrastructure, and air quality, automatically rank investor bids based on set criteria, and create a virtual model of the municipality in which scenarios are tested before making decisions. AI could also considerably contribute to speeding up construction permit procedures with its tools, and official data show that in 2024, three out of four types of construction permits on average required more days than the legal deadlines, i.e., cities and municipalities exceeded the legal deadlines for issuing three types of

permits (Nacionalna alijansa za lokalni ekonomski razvoj [NALED] 2025). In terms of the use of office space, AI can automatically record vacant office spaces, predict which types of office space will be most in demand, optimize rental prices (algorithms can suggest prices based on location, status, market trends and interests), and can create a digital system for drafting lease agreements, allowing citizens and companies to do everything electronically, without going to the local institutions.

In the sphere of competence related to *local roads and streets and other public buildings of municipal importance*, the AI can contribute to the maintenance of roads by monitoring the damage (cameras and sensors on public transport vehicles can record the pavement, and the AI can recognize damages and automatically report to the competent services), can optimize traffic lights and traffic signs in real time in order to reduce traffic jams and can analyse the flow of vehicles to plan changes to street routes. In the case of public buildings of municipal importance, it can contribute to increasing energy efficiency (managing heating, air conditioning and lighting based on the number of people in the building and weather conditions), it can monitor the condition of individual buildings (sensors can detect moisture, cracks and failures in installations, and drones can record roofs and facades to assess damage), it can optimize the use of space and plan required investments. In addition, AI applications could be used to report damage to roads or public buildings (a citizen takes a photo of the problem, and the system recognizes the type of damage and forwards the report) and send automatic responses and notifications to citizens about the status of remediation.

The possibilities of using the AI are great in the *field of education, scientific research and innovation, culture, health and social care, child protection, sports and physical culture*. In the field of education and science, AI can analyse the progress of each student and propose customized tasks and materials for him, support children in learning at home through interactive platforms, perform administrative tasks (keeping records, creating schedules, monitoring absences), monitor scientific publications and discover new opportunities for local projects, connect researchers with each other, automatically review documents and patents, and so on. In the field of culture, it can contribute to the digitization of cultural heritage (to catalog archival material, photographs, audio and video recordings), it can make recommendations for the audience, create virtual tours that allow people to see museums and

monuments online, and analyse the attendance of cultural events and programs. In the areas of health, social and child care, AI can help in diagnostics (by analysing medical and laboratory findings), make appointments (optimize doctors' schedules and reduce waiting times), predict health and social risks based on available data, perform automatic allocation of social assistance, create smart systems for kindergartens, analyse the developmental needs of children and contribute to increasing the safety of children through video surveillance. Finally, in the field of sports and physical culture, AI can create apps that track physical activity and provide personalized advice, plan infrastructure usage based on demographic and health data, and analyse competitions through videos.

In the field of meeting the special needs of persons with disabilities and protecting the rights of vulnerable groups, AI can create smart platforms for reporting and monitoring their needs (e.g., mobile applications), can translate in real time (e.g. text and speech into sign language, text into speech, etc.), can facilitate the movement of persons using wheelchairs, blind and visually impaired, and can also be adapted to public transport. For other vulnerable groups (poor, elderly people, refugees, victims of violence, national minorities), AI can analyse data on social income, health, housing and education, automatically process requests for assistance, analyse the effectiveness of support programs, create systems for anonymous reporting of violence and discrimination, contribute to better targeting resources and increase the involvement of persons with disabilities and vulnerable groups in the planning of measures related to them. AI could contribute to increasing the employment of members of vulnerable groups. Analyses have shown that the share of members of vulnerable and endangered groups in total unemployment is very high and that certain measures should be taken to employ them (Centar za socijalnu politiku [CSP] 2016, 106–107).

In the field of *development and improvement of tourism, crafts, hospitality industry, and trade*, AI could have a wide application, which is already common in the world. When it comes to the tourism and hospitality industry, special tourism applications that recommend tourist routes and content based on interest, weather conditions, and provide real-time translation into multiple languages can be of great importance. AI can process data from mobile devices, sensors, and social networks in order to monitor the movement of tourists and optimize the offer, create virtual tours, analyse reviews of catering facilities, and give personalized recommendations in the menu (applications that recommend dishes

to the guest based on previous choices or allergies). In the field of craftsmanship, AI can contribute to preserving tradition and increasing the visibility of local craftsmen through the creation of catalogues, demand analysis, and the design of virtual workshops to improve craft techniques. Finally, in the domain of commerce, AI has the ability to predict which products will be in demand in certain periods, to create smart cash registers, to contribute to better marketing in accordance with the preferences of individual customers, and so on.

When it comes to the competence of local self-government in the *field of local economic development, investments, and improvement of general business conditions*, AI offers a large number of tools. In the sphere of encouraging local economic development, AI can analyse data and trends through processing large amounts of data (demography, employment, economic structure), it can recognize economic potentials by analysing the state of natural resources, infrastructure, and human capital, it can facilitate administrative procedures and simulate different scenarios of development and the impact of new projects on the local economy. In the field of investments, AI can establish investor support systems (virtual assistants that provide investors with appropriate information), supervise operations, analyse potential risks, design appropriate promotional campaigns, propose optimal locations for the development of new investment projects, and prepare investment profiles of local self-government in several languages. In the segment of general business conditions, it is possible to shorten administrative procedures with the help of AI, to improve infrastructure (smart systems for road maintenance, public lighting, energy and water supply, which increase the quality of business conditions), and it is also possible to analyse the impacts of the legal framework on business with the help of AI and propose its improvement. Data shows that cities are more efficient than municipalities in providing business conditions in Serbia, such as issuing appropriate permits (NALED 2025).

The competences of *environmental protection, protection from natural and other disasters, and protection of cultural property of importance for the municipality* are also suitable for the tools and mechanisms provided by the AI. Analyses show that Serbia is vulnerable to climate change, and particularly worrying vulnerability indicators are: agricultural capacity (food), dam capacity (water), access to improved sanitary facilities (health), projected change in grain yield, projected change in biome distribution (ecosystem services), dependence

on imported energy (infrastructure), projected changes in the risk of flooding (human settlements/natural habitats), and it is important to mention engagement in international environmental conventions (Zelena stolica 2023, 3). In the areas of environmental protection and protection from natural disasters, the AI can monitor and process data from sensors on the quality of air, water and soil and warn of pollution, can propose preventive measures in order to prevent pollution, optimally manage waste, give recommendations for the creation of new green areas, educate citizens (e.g., on recycling, energy and water saving), forecast meteorological, hydrological and geological data, send notifications to citizens at the risk of a disaster (SMS, applications, public displays), analyse risks of earthquakes, floods and fires and so on. In this way, AI could significantly contribute to reducing material damage caused by climate change and extreme weather events in Serbia, which in the period 2015–2020 was estimated at at least 1.8 billion euros, while material damage in the period 2000–2015 was estimated at at least five billion euros (Zelena stolica 2023, 3). In the sphere of protection of cultural property of importance to the municipality, AI is able to digitize cultural property, detect damage to it, analyse the impact of climate and pollution on cultural property and propose measures for their protection, contribute to the promotion of cultural heritage (personalized guides, applications and virtual assistants) and manage security systems (e.g. cameras that detect suspicious activities in the vicinity of protected facilities).

In the *field of protection, improvement, and use of agricultural land and implementation of rural development policy*, the AI has great potential. When it comes to agricultural land, the AI can perform surveillance through satellite images and drones, keep a digital land cadastre, analyse soil quality and propose protection measures, give recommendations for sowing (suggest the best crops for individual plots, in accordance with soil, climate and market needs), manage smart irrigation and connect producers with customers and steer land use towards more profitable crops. In the field of rural development, AI can analyse demographic trends, provide support to small farmers (virtual advisors who provide information on subsidies, credits, trends, and technologies), create "digital cooperatives" (virtual platforms for farmers to bring together for joint purchasing, sales, and marketing), design training systems for farmers, and help develop rural tourism.

The AI can also find application in *the realization, protection, and promotion of human and minority rights, gender equality, and public information in the municipality.* Analyses have shown that systematic monitoring of citizens' views and acting on the information thus collected is an area in which local self-governments in Serbia show results below average (SKGO 2024, 18). The AI can recognize where are the biggest obstacles in exercising rights (e.g. access to institutions, access to public services for persons with disabilities), supervise discrimination (processing data from complaints, surveys and the media in order to identify forms of discrimination or unequal treatment), identify cases of gender inequality (through the processing of statistics on employment, education, healthcare), provide certain forms of legal support (e.g. how to file a complaint, where to seek protection) and carry out an analysis of public discourse (word processing tools can recognize hate speech in local media or on social networks). In the segment of public informing, AI, among other things, can provide personalized information to citizens (to create customized news for everyone based on their interests), to provide reliable information about the municipality's services through virtual assistants, to filter out inaccurate information, and to limit the spread of fake news.

The AI can also be useful in the areas of *organization and work of municipal bodies, organizations and services, as well as the organization of the legal aid service to citizens, and the organization and work of peace councils*. Generally, strengthening the role of the assembly of local self-government units in communicating with citizens would enable "this body to perform its representative role on a higher level, which is essential for the implementation of the principles of local democracy" (SKGO 2024, 16). In the domain of municipal bodies, organizations and services, the AI could perform part of the administrative tasks (processing requests, classification of documentation, keeping records), analyse the needs for personnel and propose a better distribution of employees in services, compile reports from the sessions of municipal bodies, but also enable electronic communication of citizens with services, which would lead to an increase in the degree of local democracy. This would undoubtedly be very useful, since analyses have shown that it is desirable "to form a working body of the Assembly for the consideration of citizens' petitions and complaints" (SKGO 2024, 14). In the field of organization of the legal aid service to citizens, AI can create virtual legal assistants that would provide citizens with basic information

(about rights, procedures, necessary documents) and help them fill in requests, complaints or contracts, then create systems for case analysis that recognize typical legal problems of citizens and direct them to the competent services or lawyers, as well as to use algorithms to identify emergencies or socially sensitive cases and put them at the forefront. It is similar to the organization and work of peace councils, where AI can suggest possible directions of mediation based on similar previous cases, can keep a digital archive of cases for better work in the future, and can educate members of the peace council by creating instructions, mediation models, and dispute simulations for their training.

In exercising the competences of *municipal property management and determining the source revenue rate and the amount of local taxes*, AI could provide good analytics, digitalization, and transparency in operation. Meanwhile, analyses have shown that, despite the efforts made, units of local self-government achieve "insufficient results" in record-keeping and management of public property, with between one quarter and one third of units of local self-government failing to inventory all property, i.e., register public property in their own favour (SKGO 2024, 13). In municipal property management, AI could process satellite imagery and spatial plans to update the municipal property registry, anticipate the need for repairs, and analyse lease data, space use, and market prices, which makes it possible to determine whether an asset is underused and how to make better use of it. When it comes to revenues and fees, the AI can, based on historical data, macroeconomic trends and demographic trends, project future revenues, test different rates of local taxes and fees and see their impact, identify the risk profiles of taxpayers, propose an optimal level of fees that balances the revenues of the municipality and the burden on citizens, and propose differentiated fees according to some categories of citizens.

Finally, in the field *of violations of municipal regulations,* the AI can effectively analyse the existing practice (both in its own and other municipalities), to monitor and detect violations (e.g. illegal parking, throwing garbage outside the container, violation of the rules on the use of public areas, etc.), to automatically categorize and filter reports that arrive through applications or contact centres, recognizing whether there is a basis for a violation, to use algorithms to isolate persons who frequently violate regulations, to prepare proposals for decisions on violations based on the collected data (photos, videos, sensors), to

propose differentiated penalties depending on the severity and frequency of violations and to analyse the effectiveness of penalties.

The listed possibilities of using the AI in various areas of competence of local self-government in Serbia do not make a complete list of possibilities for its use, because the list is much longer, and will continue to grow over time. It only provides a good illustration of how it would be possible to ensure a more efficient performance of the legal competences of local self-government in Serbia with the help of AI today, while reducing the costs of performing them.

CONCLUDING CONSIDERATIONS

It has long been clear that rapid technological progress is affecting all spheres of human activity, and that the future brings innovations that were unimaginable a decade or two ago. The AI will be an important part of the future of humanity, and its proper use could make it easier to perform a large number of jobs, with many once-valued professions disappearing. In the field of local self-government, AI can help in many ways, some of which have been outlined in the previous sections of this paper.

When it comes to local self-government in the Republic of Serbia and its attitude towards AI, three key points can be noted. Firstly, it is important to emphasize that the Republic of Serbia has already taken steps towards creating an appropriate legal framework for the use of AI, in which the Law on Artificial Intelligence will have a central place, and its full implementation is planned by the end of 2027. Its adoption will also enable units of local self-government to implement the AI more widely in the near future. Secondly, the AI provides many opportunities to overcome the problems caused by the concept of large municipalities in Serbia, especially tools that will bring local authorities closer to ordinary citizens. And thirdly, bearing in mind that local self-government in the Republic of Serbia has a significant number of original and entrusted competences, the AI can contribute to the performance of most of them. The most significant benefit of the application of AI in the performance of competencies of local self-government is that, in practice, its use enables the reconciliation of two principles that are often opposed – the principle of efficiency and the principle of economy, because at the same time it increases efficiency and reduces costs in performing local self-government tasks. The use of AI, however, brings with it potential

problems, such as a reduction in the number of employees, so the real effects of its use will be shown in the future.

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ПЕРСПЕКТИВЕ ПРИМЕНЕ ВЕШТАЧКЕ ИНТЕЛИГЕНЦИЈЕ У ЛОКАЛНОЈ САМОУПРАВИ У РЕПУБЛИЦИ СРБИЈИ

Резиме

Вештачка интелигенција (ВИ) великом брзином постаје део свакодневице већине људи на планети, а њен развој указује да ће у будућности готово сви сегменти људске активности и људског живота бити прожети њеном употребом. Локална самоуправа је једна од области у којима би ВИ у блиској будућности могла да буде у широкој употреби, а већ данас се може рећи да се поједине њене надлежности већ обављају уз помоћ алата које нуди вештачка интелигенција. Нарочито је важна чињеница да би уз помоћ ВИ могла да се повећа непосредност односа између грађана и локалних органа, што би требало да буде један од основних циљева демократске локалне самоуправе. Коришћење вештачке интелигенције у јединицама локалне самоуправе има много предности, а највећа њена врлина је у томе што омогућава истовремено остваривање два принципа који се често међусобно искључују – економичности и ефикасности. Она, другим речима, у највећем броју случајева доприноси повећању делотворности при вршењу одређених послова, истовремено смањујући трошкове који су неопходни за њихово обављање. Постоји више области у којима ВИ може побољшати делотворност локалне самоуправе и уједно обезбедити значајне уштеде, а у раду је наведено седам области које су у овом тренутку најзначајније. У Републици Србији, вештачка интелигенција би могла да допринесе решавању проблема који са собом доноси концепт тзв. великих општина, као и унапређењу обављања готово свих надлежности које према Уставу и законима припадају локалној самоуправи. Централни део рада је посвећен анализи ефеката употребе вештачке интелигенције у вршењу свих петнаест група надлежности (изворних и поверених) које

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предвиђа Закон о локалној самоуправи и решавању проблема који су се појавили у пракси. Након опсежног истраживања и анализе могућности употребе вештачке интелигенције у области локалне самоуправе наметнуо се закључак да она може да помогне на много начина. У Републици Србији су запажене три кључне тачке у односу према вештачкој интелигенцији у локалној самоуправи. Прво, Република Србија је већ предузела кораке у правцу стварања одговарајућег правног оквира за коришћење вештачке интелигенције. Друго, вештачка интелигенција пружа велики број могућности за превазилажење проблема концепта великих општина у Републици Србији, а нарочито алате који ће приближити локалне органе обичном грађанину. И треће, вештачка интелигенција може да допринесе већој ефикасности у обављању већине изворних и поверених надлежности општина и градова у Републици Србији.

Кључне речи: вештачка интелигенција, локална самоуправа, општина, град, Република Србија

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