

## Prison Sentence and the Challenges of Contemporary Technological Development\*

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Having in mind the fact that technological development affects all spheres of life, including enforcement of prison sentence, the author analyses the ways in which it shapes modern penitentiary systems, not only in the context of security and surveillance, but also for the purpose of education and resocialisation of convicted persons and the improvement of prisons' moral and social climate and living conditions. The author highlights the indisputable contribution of contemporary information-communication technologies to the maintenance of contact between convicted persons and their families (which is essential for the mitigation of prison deprivations), alongside with a certain level of scepticism of the community caused by the fear of their potential misuse. Moreover, the author discusses in which way and with what purpose are new technologies applied in numerous penitentiary institutions, as well as the risks emerging from the efforts to gradually replace prison staff by these technologies in diverse segments of prison life. Special attention is dedicated to the challenges of the use of artificial intelligence for the performance of several tasks related to prison sentence enforcement including risk assessment, designing resocialisation programs, supervision and prevention of prohibited, dangerous and harmful behaviour, education and professional training of convicted persons and their preparation for social reintegration. Lastly, the author draws attention to some ethical and legal dilemmas related to the use of artificial intelligence in prisons, suggesting the need to be particularly cautious in order to preserve human rights in that context, particularly the right to privacy.

**KEYWORDS:** prison sentence / resocialisation / smart prisons / human rights / artificial intelligence

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## Introduction – The Impact of Technological Progress on the Enforcement of Prison Sentence

Nowadays, digital devices, equipment and networks are applied in numerous fields of law and judiciary, particularly in penal law (Jovašević, 2022). Digital transformation reflects on the functioning of judiciary systems and new technologies, also referred to as “technologies that have just been presented to the society” (Chazournes, 2009, as cited in Đukanović, 2016, p. 281) are being increasingly used in the phase of investigation, as well as when it comes to imposing and executing criminal sanctions (Marcondes Ramos, 2022 as cited in Ishiy & Marcondes Ramos, 2023). Digitalisation and new technologies are introduced to judiciary (Avramović & Jovanov, 2023, pp. 161–177) and police, therefore, it seems logical that they are gradually entering the criminal sanctions enforcement system (Ilić & Banović, 2022).

The development of new technologies based on artificial intelligence<sup>2</sup>, big data concept<sup>3</sup> and machine learning<sup>4</sup> changes everyday life, introduces new forms of social interaction, offers greater possibilities for connection and reshapes the ways in which various services are provided (Marcondes Ramos, 2022, as cited in Ishiy & Marcondes Ramos, 2023). Automatization, robots, artificial intelligence, face recognition and data analysis software are more and more frequently incorporated in the infrastructures of penitentiaries worldwide, transforming them into “smart prisons” (McKay, 2022, p. 101).

Depending on their purpose and users, within smart prisons, the following technologies can be distinguished: 1) technologies aimed at the increase of safety level and 2) technologies aimed at the improvement of resocialization and rehabilitation of convicted persons (McKay, 2022, p. 101). Some authors classify new technologies as technologies designed for: 1) supervision/monitoring, 2) communication and 3) e-learning (Kaun & Stiernstedt, 2022, as cited in Ishiy & Marcondes Ramos, 2023).

Strategy for the development of criminal sanctions enforcement system in the Republic of Serbia (hereinafter: SDCSESRS) for the period between 2022 and

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<sup>2</sup> A feature shared by all artificial intelligence definitions consists of the growing capability of machines to perform tasks that are regularly conducted by humans at their workplaces and in the community (Dwivedi et al., 2021, as cited in Budić, 2022, p. 50).

<sup>3</sup>In the broader sense, *big data concept* is defined as “informational resource of large quantity, high speed and great variety of data that requires new and innovative methods of processing and optimization, improvement of the insight in data content and decision making” (Laney, 2001, as cited in Pavlović & Dejanović, 2014, p. 754).

<sup>4</sup> Machine learning is a field of artificial intelligence that consists of performing complex tasks by machines on the grounds of the experience that they obtained through learning (Stojić et al., 2019, p. 2).

2027<sup>5</sup>, explains that during the application of former document dedicated to the same field<sup>6</sup> it was necessary to develop the existing and introduce new systems and technologies to provide for integrated and comprehensive data collecting, making them available to relevant state bodies and connected with the system of courts, prosecutor's offices, police etc. Hence, the aforementioned process does not include only the digitalization in the narrow sense, defined as "the process of conversion of objects, images, sound, documents or signals to digital form" (Ivanović, 2018, p. 70), but also the storage of data in digital form within an integrated information system (IIS). SDCSESRS insists on the improvement of information technologies within the criminal sanctions enforcement system through the application of a series of listed measures.

Digitalization enhances the efficiency of bodies involved with the imposing and enforcement of criminal sanctions. However, the situation becomes more complex if we take one step further in the sense of automatization of certain tasks to the extent that delegates everyday duties of prison services to artificial intelligence. In our country, such step has not yet been made, but globally speaking, artificial intelligence is progressively finding its place behind the prison walls, which imposes numerous ethical, legal and practical issues (Andersson, 2022).

## **The Use of Artificial Intelligence for the Tasks of Prison Services**

### **The Definition and Scope of Application of Artificial Intelligence**

Artificial intelligence refers to the "systems that demonstrate rational, intelligent behaviour on the grounds of the analysis of their environment and make decisions – with a certain degree of autonomy- in order to complete actual goals"<sup>7</sup> (European Commission High-Level Expert Group on Artificial Intelligence, 2019; see also: Budić, 2022; Puolakka & Van de Steene, 2021). It consists of the "simulation of human intelligence processes with an appropriate algorithm, code or technique with the assistance of machines or computer systems" (Prlja et al., 2022, p. 30). An increasing number of tasks are being conducted by artificial intelligence, autonomously, without human control and supervision (Złotowski et al., 2017, as cited in Budić, 2022). The impact of artificial intelligence is visible in all segments of the society, including: labour market, transport, health

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<sup>5</sup> Strategy for the development of criminal sanctions enforcement system in the Republic of Serbia for the period between 2022 and 2027, *Official Gazette of the Republic of Serbia*, No.142/2022.

<sup>6</sup> Strategy for the development of criminal sanctions enforcement system in the Republic of Serbia until 2020, *Official Gazette of the Republic of Serbia*, No.114/2013.

<sup>7</sup> Strategy of artificial intelligence development in the Republic of Serbia for the period 2020–2025, *Official Gazette of the Republic of Serbia*, No. 96/2019 (hereinafter: SDAIRS).

protection, education, security, crime suppression, reaction to natural disasters, traffic regulation etc. (Budić, 2022).

Artificial intelligence is also applied in some criminal sanctions enforcement systems, most frequently for the purpose of: surveillance and security (Puolakka & Van De Steene, 2021), administrative tasks in prisons, risk and needs assessment as well as for education and professional training of convicted persons. That is the idea on which the concept of smart prisons dwells, including the implementation of new technologies to make the functioning of prison services more efficient and provide for safe automatized and affordable models of organisation and administration (McKay, 2022, as cited in Ishiy & Marcondes Ramos, 2023).

### **The Use of Artificial Intelligence for the Purpose of Safety in Prisons**

In modern prison systems, artificial intelligence is commonly applied for the purpose of surveillance and safety (Puolakka & Van De Steene, 2021). Smart prisons with automatic or robotic surveillance systems reduce the need for physical interaction between prisoners and prison staff to a minimum, creating a safer working environment (McKay, 2022). The most advanced applications of that type are used in South Korea, China, Hong Kong (Puolakka & Van De Steene, 2021), Singapore (McKay, 2022), Japan (McKay, 2022), The Netherlands and USA (McKay, 2022). These technologies are considered more efficient than human surveillance, allowing prison staff more free time that can be filled with comprehensive rehabilitative work with convicted persons (Leighton, 2014, as cited in McKay, 2022).

Over a decade ago, prisons in South Korea started testing “robot-guards”, equipped with 3D cameras, sensors and algorithms for registering illicit behaviours and capable of patrolling on their own while remotely monitored by prison staff (CBS, 2012; Kim, 2012, as cited in McKay, 2022). In Singapore, a model of “prisons without guards” is being developed, consisting of the application of smart technologies in order to boost the efficiency of work and reduce the number of prison staff employed within the security service (McKay, 2022; Paulo, 2019). Singapore prisons implement the technologies such as: advanced video analytics for aggression detection, cameras for face recognition, as well as smart bracelets with microchips for non-cash payment, tracking the participation of convicted persons in rehabilitation programmes and collection of other data, but also tablets for education and so-called “iKiosk” for self-service and submission of various applications and requests (McKay, 2022).

One high-tech prison in the Netherlands introduced bracelets for identification of radio frequencies, as a part of an integrated management system that supervises the movement and locations of convicted persons, their compliance with daily

schedule and rules, together with the software for automatic recognition of emotion that monitors conversations and conflict situations (Halberstadt & La Vigne, 2011, as cited in McKay, 2022; Northfield, 2018, as cited in McKay, 2022). Moreover, the application of similar bracelets in Japanese prisons enables convicted persons to move freely through prison facilities without guards, but still remain under supervision, which encourages their autonomy and self-discipline (Halberstadt & La Vigne, 2011, as cited in McKay, 2022).

Advanced technologies such as drones, automatic body and package scanning and smell detection are implemented in some prisons for the purpose of discovering and preventing contraband of drugs and other prohibited substances, either together with or instead of traditional methods such as physical search, x-rays, metal detector and dogs (McKay, 2022).

### **Modern Technologies and Mitigation of Prison Deprivations**

Deprivation of freedom represents the greatest loss for all convicted persons and, within it, separation from family and other close persons is considered the most painful (Ilijić, 2014), making convicted persons feel rejected and isolated (Ilijić, 2014). Prison deprivations undermine the process of resocialization (Jovanić et al., 2019), which is the reason why it is important to minimise their undesirable effects. Correspondence, telephone calls and visits are commonly used as ways to mitigate the deprivation of liberty in the segment of loss of contacts with the world outside prison.

The right of convicted persons to communicate with the outer world is guaranteed on international (European Prison Rules<sup>8</sup> – Section 24, Standard Minimum Rules for the Treatment of Prisoners<sup>9</sup> – rule 58) and national level (Articles 87, 88, 90 and 91 of the Law on the Enforcement of Criminal Sanctions<sup>10</sup>). Apart from being one of the fundamental rights of convicted persons, prison visits contribute to rehabilitation through the connection with the outer world (Monahan et al., 2011, as cited in Antojado & Ryan 2024). Frequent and not too strictly supervised visits of family members may enhance the mitigation of negative consequences of the deprivation of liberty and encourage convicted persons to behave properly (Jašović, 2000, as cited in Ilijić, 2014).

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<sup>8</sup> Recommendation Rec(2006)2 of the Committee of Ministers to Member States on the European Prison Rules Adopted by the Committee of Ministers on 11 January 2006 at the 952<sup>nd</sup> meeting of the Ministers' Deputies, <https://rm.coe.int/european-prison-rules-978-92-871-5982-3/16806ab9ae>

<sup>9</sup> The United Nations Standard Minimum Rules for the Treatment of Prisoners (the Nelson Mandela Rules) E/CN.15/2015/L.6/Rev.1

[https://www.unodc.org/documents/justice-and-prison-reform/Nelson\\_Mandela\\_Rules-E-book.pdf](https://www.unodc.org/documents/justice-and-prison-reform/Nelson_Mandela_Rules-E-book.pdf)

<sup>10</sup> Law on the Enforcement of Criminal Sanctions, *Official Gazette of the Republic of Serbia*, No. 55/2014 and 35/2019.

COVID-19 pandemic, which forced prisons around the world to replace physical visits with video calls, demonstrated that information-communication technologies may diminish the deprivation of contact with family members and expand support network (Antojado, Ryan, 2024; Ilić & Banović, 2022). If we leave beside the extraordinary circumstances caused by the pandemic, permitting convicted persons to use digital technologies represents a rather delicate and disputable question that is predominantly influenced by the attitudes of popular media and neoliberal policies and practices (Jewkes & Reisdorf, 2016). There is fear in the public that convicted persons might misuse new technologies, while, at the same time convicted persons often claim that surveillance during video calls represents the violation of their right to privacy (Jewkes & Reisdorf, 2016). Besides, there is also reasonable concern that physical visits might be completely replaced with video calls (Jewkes & Reisdorf, 2016).

Some countries allow convicted persons to use information-communication technologies under regular circumstances – for example, in several states of the USA convicted persons may use “correctional tablets” for e-mailing, on-line payment, video calls etc. and can also be used for listening to music, playing video games, watching educative and media content, accessing legal documents and submitting requests to prison services (Ilić & Banović, 2022; Iverson, 2022).

### **The Role of Modern Technologies in the Resocialization of Convicted Persons**

European Prison Rules proclaim that living conditions in prison should approximate as closely as possible the positive aspects of life in the community (European Prison Rules, Article 5). Furthermore, the Rules also insist on managing detention so as to facilitate the reintegration into free society of persons deprived of liberty (European Prison Rules, Article 6). The purpose of the application of digital technologies in prisons and education of convicted persons in the field of digital literacy actually includes their preparation for life in the community, where technological progress represents a part of everyday life. Accordingly, some prisons use modern technologies as additional methods within their treatment programmes (Ilić & Banović, 2022).

One example of good practice when it comes to the use of modern technologies for the cause of resocialization refers to “Pokket” – a specialised mobile-friendly platform that is applied in one prison in the USA with the purpose to prepare convicted persons for release as well as to allow former convicts to exchange with prison staff, probation officers and other agencies relevant information that could help them with social reintegration (Link & Reece, 2021).

The use of modern technologies for educational purposes is of particular importance, since the access of convicted persons to education minimizes the risk

of recidivism and increases the probability of social reintegration (Becker-Pestka, 2022), by showing them that they have the capacity for changes that will make them closer to life in the community (Knežić, 2017). This refers to e-learning as “a model of activities that uses information technologies in order to support educational process defined in the broadest sense” (Hyla, 2005, as cited in Becker-Pestka, 2022). E-learning and a model that combines e-learning and classical lessons are ideal for prison conditions because they can easily be adjusted to the needs and schedule of convicted persons (Becker-Pestka, 2022). E-learning is applied in prisons worldwide, especially in Sweden, Norway, Poland, Finland, Germany (Becker-Pestka, 2022), as well as in the USA, where convicts can use tablets with courses for education, professional training and rehabilitation (Ilić & Banović, 2022).

In the USA, several startup companies in collaboration with regional prison administrations initiated the introduction of virtual reality as a method for the preparation of female prisoners to face mental challenges after release (Teng & Gordon, 2021). Before the release, convicted women “rehearse” their responses to psychological difficulties that they might face when re-entering the community and strengthen their resilience through virtual exposure to stressful situations (Teng & Gordon, 2021). There are no research findings about the impact of the application of virtual reality programmes on recidivism, but it has been confirmed that they can assist with mental health issues treatment (Fetterling, 2016, as cited in Teng & Gordon, 2021), although they carry potential risk of re-traumatization, excessive simplification of post-release problems and disruption of interactions between convicts and prison staff (Teng & Gordon, 2021)

### **Conclusion – Advantages and Risks of Implementation of New Technologies in Prison Environment**

The use of new technologies for the purpose of preservation of security, mitigation of prison deprivations and enhancement of resocialization and social reintegration of convicted persons and the protection of their human rights (such as the right to communication with the outer world) has got numerous advantages, most of which have been mentioned in this paper. However, a question can be raised whether and to what extent are human rights and the positive outcome of resocialization threatened by excessive implementation of new technologies and dehumanization of prisons that might emerge from that process?

Namely, it should not be forgotten that convicted persons belong to a population that is vulnerable on several grounds (Ishiy & Marcondes Ramos, 2023). Social inequality, present in penal systems around the world, is expressed through a large share of marginalized, uneducated and underprivileged citizens in the total number of persons deprived of liberty (Pavićević & Ilijić, 2022). In

addition, convicted persons suffer from mental health issues more often than the rest of the population, they often lack digital literacy and many of them are the members of national or ethnical minorities (Ishiy & Marcondes Ramos, 2023). Added to the deprivation of liberty and prison deprivations that come with it (Ilijić, 2014), these factors make convicted persons particularly vulnerable, primarily when it comes to the possibility for them to protect their human rights (Ishiy & Marcondes Ramos, 2023).

The risk of human rights infringement by the application of new technologies in prisons primarily refers to the right to privacy (Batrićević & Stepanović, 2020), since their excessive use for the purpose of surveillance can cause disbalance between the right to personal dignity, on the one hand, and the interests of security, on the other (Penal Reform International & Association for the Prevention of Torture, 2015, as cited in McKay, 2022). Namely, the exposure to looks and cameras, searches, revealing and keeping personal information in registers and DNA bases certainly cause some limitations of prisoners' right to privacy (Marshall & Thomas, 2017, as cited in Batrićević & Stepanović, 2020). But, the development of new technologies causes concern about potential violations of human rights in new ways (Đukanović, 2016). This particularly refers to artificial intelligence, which is followed by a series of challenges including: protection of personal information, risk of algorithmic bias (Prlja et al., 2022), providing transparency (SDAIRS). Since products and services based on artificial intelligence may threaten not only fundamental human rights but also democracy and rule of law (Prlja et al., 2022), they should be applied with particular caution and awareness of the need to keep the balance between efficiency, safety and affordability, on the one hand, and humanity, on the other. The application of artificial intelligence in general, and especially in specific environments such as prisons, raises some substantial questions about the relationship between humans and machines and the extent to which algorithms and robots should be trusted in the future (Puolakka & Van De Steene, 2021).

Some of key factors that shape moral and social climate in prisons and upon which the quality of prison life and the success of resocialization depend include interpersonal relations that expand moral capacities of all who participate in prison life (Liebling, 2021, as cited in Pavićević et al., 2024). The aforementioned refers to both – interpersonal relations between convicted persons, as well as the relations between convicted persons and prison staff. (Pavićević et al., 2024). Although technological innovations allow prison staff to spend more time working with prisoners on their rehabilitation, excessive relying on new technologies, particularly artificial intelligence, leads to minimisation of interpersonal interaction, which can have negative impacts on convicted persons' mental health and undermine the efforts aimed at resocialization.



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