PRIVACY AND PERSONAL DATA PROTECTION IN SELF-DRIVING CAR: SUGGESTION FOR LEGAL REGULATION IN SERBIA

Livija CVETICANIN

Faculty of Technical Sciences, University of Novi Sad, Serbia
E-mail: cveticanin@uns.ac.rs

Ognjan LUZANIN

Faculty of Technical Sciences, University of Novi Sad, Serbia
E-mail: luzanin@uns.ac.rs

Ivona NINKOV

European Court of Human Rights, Strasbourg, France
E-mail: ivona.ninkov@echr.coe.int

Abstract

This paper deals with legal regulation in the field of the self-driving car (SDC), an autonomous vehicle without a human driver. A survey carried out in Serbia on the acceptability of this vehicle in everyday life indicated the distrust of the population in driving with SDCs due to concerns of violation the privacy, distrust in the protection of personal data and insufficient security and cyber security. For proper functioning and especially for artificial intelligence (AI) decision-making the SDC needs a large set of data, including personal information. In this paper the legal framework for collecting, storing, processing and erasing of personal data for SDCs is developed. Most of regulation are new, due to the technical novelty of the SDC, which uncouples the driver and the vehicle are in the driving process. In the paper, documents and acts which protect privacy according to the EUs General Data Protection Regulation (GDPR) are suggested. Principles for data security and, especially, for cybersecurity of data are legally regulated and proposed to be incorporated into the future law of transportation. The suggested legal regulation would increase the trust of population in the SDC.

***Keywords**: self-driving car, questionnaire survey, legally regulation, privacy protection, personal data, Serbia*

Introduction

High-quality and fast transportation of people and delivery of goods represent one of the pressing and key problems of modern cities and their inhabitants. To solve this problem, projects of so called self-driving cars (SDCs) are offered (Chy et al., 2022). The definition of the SDC is given by the International Society of Automotive Engineers (SAE) in the standard SAE J3016 (SAE, 2014) which is two times improved and modified. SDC is an autonomous vehicle capable of sensing the environment and moving safely without a driver." (SAE, 2018). It is the fifth level fully autonomous vehicle with an automated driving system that performs all dynamic driving tasks under all road and environmental conditions throughout the time and in the same manner as a human driver can. The SDC is believed to have many benefits in comparison to conventional car: efficiency of time (Zhong et al, 2020), the drive is safer (Ryan et al, 2020; Moody et al, 2020), decreased environmental pollution, but the main benefit of SDCs would be the reduction of traffic accidents (Woodward & Kliestik, 2021) which are usually the result of the human factor. SDCs makes decisions due to routing and navigation based on intelligent traffic data, sensor technologies, traffic management and analysis, and vehicle radar techniques in sustainable intelligent traffic and mobility systems. Using an SDC means reaching the destination safely, quickly, and on time using a large set of geospatial data and intelligent traffic applications for vehicle routing and navigation, in object detection and tracking, configuring an intelligent transportation network and infrastructure for SDCs in terms of planning and operations (Woodward & Kliestik, 2021). SDC manufacturers believe that the technical conditions for SDCs are almost solved and the car can be used on public roads in a short time. However, the inclusion of SDCs on the roads will depend largely on whether people accept the autonomous vehicles and in what ways they want to use them for their daily journeys. To give the answer, it is appropriate to hear the voice of the people (Hulse et al, 2018; Raue et al., 2019). Usually, a questionnaire survey is conducted (see Shimada et al, 2017; Pargendler, 2019; Marletto et al, 2019). One of the most comprehensive surveys of the public's opinion of SDCS was conducted between March 2015 and October 2016 (Kohl et al., 2018). 1,963,905 tweets were analyzed using supervised machine learning for text classification. Two measures of quantitative analysis were introduced: risk ratio and benefit ratio. The obtained results agree with those obtained in the USA (Jones, 2020; Dixona et al., 2020), United Kingdom (Raue et al, 2019; Adams, 2020) and China (Qu et al., 2021).

The survey shows that despite the statement of scientists that the issues with SDCs are already technically solved, the population is not aware of the AI decision-making system (Hong et al., 2021). The main problem with AI decision making is the ethical aspect (Kallionien et al, 2019; Hong et al, 2021). This opinion has not changed since 2018 (Award et al., 2018), when the largest worldwide survey conducted in the field of machine ethics was done which included 2.3 million people. The survey concluded that the ethics of moral decisions cannot be squeezed into a universal machine ethics. This problem applies to SDCs, as well. The published results suggest that public support for SDCs depends on a number of factors (Acheampong and Cugurullo (2019), including demographic composition (gender, age) (Dixona et al., 2020), social status (Eggers & Eggers, 2022), technical education and technological level of the population (Karnouskos, 2021). The output is different for various cultural and religion groups (Maxmen, 2018) and also fall along ideological lines (Peng, 2020). The response to SDCs is not universal and applicable to every country and region as countries' levels of development, financial status, and economic status differ. Because of this, public opinion on acceptance of SDCs in Serbia, a country which is assumed to represent the Western Balkans, will be studied. The similarity between countries of Western Balkan is due to their economics, financial and technical level, and the population being multi-ethnic and multi-religious. Serbia is highly interested in inclusion of SDCs, as is the country where the number of traffic accidents with resulting fatal outcome is higher than is the European average. The number of traffic fatalities per million inhabitants in 2019, 2020 and 2021 in Serbia is 77, 71 and 76, respectively, compared to 51, 42 and 44 in Europe. In addition, according to the report of the Road Safety Agency of the Republic of Serbia (Agency, 2023), the number of road accidents is up to 28 percent higher than in the countries of the European Union. Analysis has shown that the main cause of most fatal traffic accidents is the human factor. The SDCs seem to be a great alternative to the conventional vehicles and suitable for improving the accident problem.

The aim of the paper is to discuss the data concernig the acceptability of SDCs in Serbia and, based on the conclusions drawn, to elaborate a legal framework on the passenger/user relationship with SDCs, primarily in the area of security, cyber security, and data and privacy protection.

The paper is divided into five sections: the introduction; section 2, the result of survey on SDCs, the data of which were processed statistically; section 3, the state of legal regulations of SDCs in Serbia including those issued within the past six mnths; section 4, the research results on privacy protection in SDCs and legal regulations on personal data collecting, processing storing and erasing; and finally, the conclusion which gives a direction for future investigation.

SDC Survey: Query and Discussion

A questionnaire survey was conducted to ascertain public opinion on SDCs in Serbia. The survey was designed to find out whether the population is willing to support SDCs in transport and what benefits they might expect from SDCs. For the survey, the usual questionnaire from Qu et al. (2019) was modified. This questionnaire survey was conducted using a sample of 450 multiethnic and multicultural individuals from Serbia. The survey was conducted in the period from March to November 2022. The groups of 225 male and 225 female participants were stratified by age groups (up to 18, 19-30, 31-60, and over 61) and educational background (technical and non-technical). The software SAS JMP r14 was used for statistical analysis. The method performed cross-tabulation and correlation analysis of the questionnaire data. Chi-square test was used as an indicator of independence.

Among the general results of the questionnaire, the most important seems to be the population's acceptance of SDCs. There is a significant relationship between gender and familiarity with SDCs ($\chi^2(1, N = 450) = 52.014, p < 0.0001$), between age groups and familiarity with SDCs (χ^2 (1, N = 450) = 63.659, $p < 0.0001$) and also between education of surveyed and familiarity with SDCs (χ^2 (1, N = 450) = 4.706, $p < 0.0301$). The higher proportion of men (79.1%) than women (46.2%) reported being familiar with SDCs in Serbia. The 19-30 age group was most likely to be familiar with SDCs (78.1%), Those over 60 (60.3%) support SDCs as they expect SDCs to be the appropriate means of transportation for their generation. However, a very negative opinion about SDCs is held by 6.3% of the population aged 31-60. In the group with a technical education background, the percentage of those who were familiar with SDCs was greater (66.3%) than those with a the non-technical education (56.0%).

The results of the chi-square test showed a significant relationship between the estimate time period required to implement SDCs and gender (χ^2 (1, N = 450) = 11.090, p = .0039), age (1, N = 450) = 28.244, $p < 0.0001$), and education level (χ^2 (1, N = 450) = 17.500, p = .0002). As many as 93.8 % of men and 84.9 % of women, 90.8 % of the technically and 86.8 % of the non-technically educated estimate that SDCs will be part of everyday life within 50 years. The same is evident for 94.9% of respondents aged 19-30, 92 % under 18 and 89.8 %, over 60.

One of the more interesting questions was about the estimated accidents of SDCs. It turns out that there is no significant association between gender (χ^2 (1, N = 450) = 7.263, p = .1226) and age group (χ^2 (1, N = 450) = 7.747, p = .8046) with estimated number of SDC accidents, but showed a significant relationship to educational background (χ^2 (1, N = 450) = 13.425, p = .0094). Thus, the number of female (49.8%) and male (51.5%) respondents who think that the number of accidents with SDCs will be lower than with conventional human-driven cars is almost equal. The result shows that half of the respondents do not believe in the benefits of unmanned vehicles with

regards to accidents. This opinion is independent on the age and education level of the respondents.

A special case concerns accidents that result in death . A significant association is indicated between gender according to estimated SDC fatal accidents (χ^2 (1, N = 450) = 32.816, p < 0.0001). In contrast, there is no relationship between age group (χ^2 (1, N = 450) = 14.688, p = .2589) or educational background (χ^2 (1, N = 450) = 8.327, p = .0803) with expected number of fatal accidents. Only about 50% of women and men estimated that SDC fatalities would decline. The degree of optimism about the decline in accidents depends on age: 60 % of those under 18, 56.4 % of those 31-60, 52.6 % of those 60 and older, and 44.2 % of those 19-30. Even 16.8 % of the population with and 15 % without technical educational background believe that fatal accidents would be higher with SDCs than with conventional cars.

One of the most important questions in the survey was the respondents' opinion related to trust in SDCs with appropriate reasoning. It is obtained that there is a significant relationship between gender and concern (worry) about SDCs implementation (χ^2 (1, N = 450) = 22.985, p < 0.0001), but no relation between age group (χ^2 (1, N = 450) = 4.427, p = .2189) and education (χ^2 (1, N = 450) = 0.365, p = .5455). A greater proportion of men expressed concern about SDCs implementation (70.2%) compared with women (48.0%). Respondents are seriously concerned about the introduction of SDCs: a greater proportion of those aged 31-60 (64.3%) and those aged 19-30 (60%) compared to those aged under 18 (54.0%) and those aged 60 and over (46.2%). Within the nontechnical educational background, no association was found between gender and concern for SDCs (χ^2 (1, N = 450) = 1.980, p = .1594). In contrast, in the technical education group, there was a significant gender difference in concern (worry) about SDCs (χ^2 (1, N = 450) = 23.560, p < 0.0001). Expressed concern about SDCs adoption is higher among those without technical training (61%) compared to those with technical training (58.1%).

Finally, the majority of respondents expressed their distrust in SDCs and their uncertainty due to the fact that SDCs is not yet legally regulated, which leaves many questions open, primarily regarding security, cyber security and privacy protection. The majority believes that without known legal rules, there will be no wider acceptance of SDCs in the region.

The aim of this paper is to examine the current state of legal regulation in Serbia in the field of SDCs and to consider the possibility of additional legal regulation of SDCs, driverless vehicles, from the perspective of users, with the aim of increasing their safety and cyber security, as well as protecting personal data while preserving and not violating privacy.

State in legal regulation of SDCs in Serbia

In Serbia, the complete legal frame in driving is based on the car with human drivers with the existing legal regulations referring to cars with human drivers. However, the question arises whether the existing laws correctly and fully cover the case of fully automated SDCs where the drive takes place without a human driver. For the truly self-driving automobile, the legal regulation required is radically different than that with a human driver. In the conventional car the human driver keeps watch and controls the car using the help of automation and is responsible for the motion of the vehicle. However, in SDCs the driver is unmanned and the car instead human driver thinks and controls all the key inputs.

The principles for regulating traffic laws were established with the 1968 Vienna Convention on Road Traffic, which was signed by 83 countries around the world, including Yugoslavia. One of the basic principles of the convention was the concept that the driver always has full control and responsibility for the behavior of the vehicle in traffic (UNECE, 1968). The 2016 reform of the convention opened up the possibility of automated functions in vehicles (UNECE, 2016). In 2021, an amendment to the existing convention was proposed which entered into force in July 2022 (UNECE, 2022). In the meantime, Regulation 155: Cyber Security and Cyber Security Management System (UN Regulation, 2021) and Regulation 156: Software Update and Software Update Management System ((UN Regulation, 2021)) were established. In March 2021, UNECE regulations were adopted, on the basis of which the UN Regulation on SAE Level 3 was established (ECE, 2020).

Serbia is one of the countries in the Western Balkan that allowed SDCs and passed some of the regulations that are modifications or additions to those currently existing (Sl. Glasnik, 2020). Some points have already been adopted that should help the legal regulation of automated vehicles. Driving an SDC on the road is allowed exclusively for the purpose of testing that vehicle and is performed on the basis of a permit issued by the Ministry responsible for internal affairs of Serbia (Art.122a, Sl. Glasnik, 2023). Until the beginning of the application of the by-law which will be more closely related to autonomous driving, provisions on test driving and testing the vehicle will be applied (Art.70 in Sl. Glasnik, 2023). It refers to:

- issuing a license for autonomous driving,

- conditions and procedure for issuing a security check certificate

- conditions and procedure for issuing a testing permit

- conditions under which testing is permitted and
- the rules of supervision over compliance with the permit on the conditions and procedures of autonomous vehicle testing

However, the Minister responsible for internal affairs prescribes more closely the conditions under which the driving of a SDCs is carried out on the road as well as the procedure for issuing a permit for testing a SDCs (Art.122a, Sl. Glasnik, 2023).

The agency for Traffic Safety of the Republic of Serbia is responsible for the issuance of certificates for autonomous driving. A certificate is issued if the following is fulfilled: the vehicle meets the appropriate requirements from the regulations for the post-testing and testing conditions of autonomous vehicles and if the legal entity performing the tests meets the prescribed conditions (Art. 37, S1 Glasnik, 2023). It is necessary for records to be kept on the tests performed on autonomous vehicles. The Agency verifies the fulfillment of conditions by a legal entity request form, which is brought by the Minister responsible for traffic affairs. The Ministry of Internal Affairs keeps records on the issuance of permits for test drives of autonomous vehicles (Art.122, Sl. Glasnik, 2023). Driving an autonomous vehicle on the road can only be done at the time and in the manner provided in permit.

By reviewing the aforementioned acts, it is possible to determine that in accordance with the requirements of potential SDCs users, expressed in the survey, a more detailed definition of the procedures for taking, memorizing, storing and deleting personal data of passengers is necessary to ensure their safety and privacy protection. At the moment these regulations are missing.

Privacy and Personal Data Protection

SDCs need a large number of various data and databases for operation and control. Most of these databases are of public importance and are accessible for public use. However, the functioning of SDCs is impossible without using of the personal data of SDC users. Passenger must indicate how, when and where they want to go i.e. the exact location, destination, time and path of the proposed journey. Very often, in the SDC, the camera inside the car records the interior of the vehicle, i.e. seating arrangement. These data are necessary for the AI to make the right decision, especially when the situation on the road is delicate. The gender and age of passengers also affect the AI decision. For example, in the case of an accident, that is inevitable, AI brings the optimal solution that will lead to the least injury, first of all, to children, and then to other passengers and road users. For the decision, even other personal data, which are or can be assigned to a person, such as age, gender, marital status and even sensitive personal data, such as biometric and health information, may be included as to

be of interest for AI. All of these personal data which reference as direct or indirect identifiers, like ID number, location data, address, credit card account data, an online identifier or one of several special characteristics, which expresses the physical, physiological, genetic, mental, commercial, cultural or social identity of a natural persons and does not reference legal entities such as corporations, foundations and institutions need special protection and is not suitable to go into cyberspace (European Parliament, 2016). Personal data have to motivate better driving practices and improve safety, but with potentially minimal impact on privacy (Dhar, 2016).

The question is what is the correlation between the right of personal data protection and the right of privacy for SDCs user? Both of them protect a similar value, the dignity of human beings. Both also represent prerequisites for the realization of human rights and other basic freedoms (Lee & See, 2004). It is clear that privacy, itself a fundamental right, is a value that the right to data protection seeks to protect (Lubowicka, 2019). Data protection and the right to privacy play a key role in promoting the core value of human rights. Therefore, in SDCs, there is a greater need than ever to strengthen the exercise of the right to the protection of personal data.

Dasko (2018) reported about the General Data Protection Regulation (GDPR) modified for SDCs (ACEA, 2020) and the revolution coming to European data protection laws. Guidelines on the processing of personal data in SDCs are given by the European Data Protection Board (EDP). According to guidelines the European Automobile Manufacturers Association (ACEA) is defined that SDCs can collect and process data only for the purpose to fulfill the driving process and not for different purposes. Reason for data collection has to be initially announced to the passenger. Passengers have to be informed about the use of their data (Lubowicka, 2021).

To protect the privacy of the passengers of SDCs, measures for privacy and data protection have to be established (Cveticanin et al, 2022). In Serbia the Law of Personal Data Protection (Andonović, 2019), which was adopted in November 2018 and came into effect in August 2019 represents a substantial step towards harmonizing Serbian data protection regulations with the GDPR of the European Union. The Law of Personal Data Protection in Serbia, like the GDPR in the European Union, is designed to be broadly applicable to all sectors where personal data is processed. However the law itself do not include the specificity for various emerging technologies like SDCs and it remain to be done. The principles and regulations given in law (see Andonović & Prlja, 2020) have to be incorporated: data collection and processing provisions, consent and transparency norms, rights of data subjects and cross-border data transfers. Already, only the personal data protection in the area of SDC's artificial intelligence (Andonović, 2020_1) and decision-making (Andonović, 2000_2) are initialized.

The legal impact is concerning the problem of privacy and personal data protection of the passenger in SDCs. For individual privacy (if individuals are identifiable) the question is who has access to this data and what can be

done with data. Whether data acquired from SDCs can be used as legal evidence. To achieve the goal, legalization in privacy and data protection is necessary. Protocols for protection of user's privacy have to be established and the owner and operator of SDCs has to be aware of them. The already existing GDPR (2016) need an Annex to give privacy barriers and data protection in SDCs.

Misuse of data in SDCs can lead to compromise passenger safety and security. The question is how to protect data and form the cyber-security. This question is connected with security problems. It is necessary to form the legal regulation in digital infrastructure to prevent the actions and attacks of hackers and to increase the level of cyber security. Namely, to prevent data from hacking cyber security systems have to be introduced. In spite of the fact that some private data are widely evident, the regulation which include security and cyber security elements according to SDCs will protect the abuse of private data.

Personal data and protection in SDCs

There is a great need to strengthen the realization of the right to data protection for SDCs as a fundamental human right owed to all individuals. Big data are collected with SDCs and the question is "what rights users have over the use of these data" (Rodriguez, 2019). What is the duty of the data user concerning protection of privacy of data owners in spite of the fact it is claimed that such data can be announced or generalized. In addition, the conceptualizing of the right to data protection in an era of big data has to be considered (McDermott, 2017).

Due to their importance the private data have to be treated in specific manner and the legislation is necessary. In SDCs the following problems with private data are evident:

- first, how to store safely these data and protect them of the abuse and
- second, whether the human right for privacy, as the fundamental right, is disturbed due to using of personal data.

In addition, it is the question how the public notation of the data affects the personal safety. For sure, the legal advice is necessary. Namely, development has given rise to a plethora of legal problems, particularly in data protection law (European Union, 2018).

Legislators in Serbia are expected to prescribe the principle of personal data protection for SDCs, recommending the most recent ones: either anonymization or pseudonymization. The mentioned safeguards eliminate the datasets to be publicly available without explicit, informed consent, and cannot be used to identify a subject without additional information (which must be stored separately). Anonymization is a process of hiding or concealing data (by deleting or omitting data) which makes difficult to identify the subjects, while pseudonymization is the process of replacing of the direct identification parameters with codes or numbers (van Asbroeck et al, 2014). The problem with both conventional authentication methods is that they are fixed and easy

to be hacked. We suggest to apply the newly developed method which is based on the tendency to have a one-time passcode (Horizon, 2021). Such one is the encryption technique. The technique available the change of the plain text into un-intelligible code. The method requires the secure encryption key and algorithm. This technology gives the cyber-secure system which need not the additional hardware. For example, it is suggested that the new technology use the screen with the grid of repeatable numbers (Horizon, 2021). Users can simply extract random sets of numbers from a randomly numbered on screen grid to create new passcode.

Data storage and erasing

SDCs will generate a huge amount of location, environment, route and systems data. These data, which are necessary for carrying out the drive, can also serve as arguments for the assumption of blame in the event of an accident. In other words, these data must be stored in such a way that they are available in case of need and can be factors for the resolution of disputed cases. Namely, due to its accuracy and precision, these data can give a better insight into the situation and at the same time eliminate the statements of traffic participants and witnesses that may be untrue. In the regulation on SDCs the data storage time has to be prescribed. It is suggested to be half a year as it is the usual time for processing accidents in Serbia. During that time the data has to be safe of cyber attacking and hacking. SDC companies have to fulfill the requirements which regulate the cyber security of data during storage. Closer explanation of the procedure and rules should be prescribed by the legislator. SDC authorities will need to include data analysts or cyber security analysts to ensure that data is protected from hackers. This, in turn, requires the constant updating of software systems as well as their constant updating in order to reduce the possibility of hacking. In addition, limits have to be given to data sharing, facial recognition technologies, and storage of video or photographs. Companies must undergo a cyber security assessment to ensure that Internet data is not at risk of leakage, unauthorized access or theft. The accuracy and usability of the data, including personal one, has to be protected. The regulations have to prohibit SDC companies the unlawful collection, storage and processing of personal data of SDC users.

According to Art. 17(2) of the GDPR (2016) there is the right for personal data erasure and according to Art. 19 for data forgotten (see CJEU, 2014). These rights grant that personal data must be erased where the data are no longer needed for their original processing purpose, or there is no other legal or overriding legitimate grounds for processing, or the data subject has withdrawn his consent. In addition, data must naturally be erased if the processing itself was against the law in the first place. As in general the right to be forgotten and data erase are not unreservedly guaranteed, it has to be prescribed for data in

SDCs. When the storage time is over the data must be erased immediately, unless a request of access has been made before the deadline. As is previously mentioned, the storage period proposed is motivated by the fact that investigations of serious crimes often require a considerable amount of time. In contrast, if there is a request or a statutory obligation to erase, this must be executed quickly without delay. This means that the controller has to erase data without undue delay. The controller is therefore on the one hand automatically subject to statutory erasure obligations, and must, on the other hand, comply with the data subject's right to erasure. The law does not describe how the data must be erased in individual cases and such an explanation is necessary to be added. The decisive element is that as a result it is no longer possible to discern personal data. It is sufficient if the data is permanently over-written using special software.

Despite the above, the legislature can also prescribe the possibility of data retention after the expiration of the time and according to the request of the SDC user. Passengers may ask the right to transfer their personal data from one service provider to another or not to erase them if their voyage is a routine one and is repeated in certain time intervals.

Cyber security processing of personal data

Special laws and regulations must be made in the area of data cyber security for SDCs. To avoid easy data hacking of an SDC, data flow must be secure, unambiguous and without misunderstandings. Otherwise, it may cause interoperability or system failure. The legislator must explicitly emphasize that software for finding and identifying faulty data must be installed in the SDC, and the system must immediately stop the SDC. Unfortunately hacking remains an ever-growing which is often unmanageable.

Cyber security must be linked to the existing data protection system (Andonovic, 2019), especially personal data, and must reduce to the smallest possible extent privacy violations even if information is stolen or improperly handled. To achieve this, the legislator should prescribe cyber security protocols for special checks of messages and other protection of SDCS.

REMARK: The private data requested from SDC passengers can only be those closely related to the ride. SDC users must be clearly and transparently presented with requests for personal data, as well as legal acts that regulate the status of such data.

Conclusions

Law, legislation and jurisprudence need to catch up with the ever-evolving SDC sector and keep up with the increasing complexity brought about by rapidly developing technologies. Obviously, the acceptance of SDCs for personal use is still a long way off, but it is still necessary to prepare laws that should be clear, and concise and apply to every vehicle that can drive itself.

The request for SDC testing in Serbia initiated activities related to the introduction of SDCs into the legal framework. The legal regulations in Serbia have so far been conceived on the driver-vehicle system. The introduction of SDCS, an unmanned vehicle, requires change and upgrading of the existing system of driving rules. Policymakers are aware of the challenge they are facing, but their views are divided: some believe that regulations should be introduced gradually as SDCs are introduced, while others believe that a complete legal regulation should be done before SDCs are allowed on the public roads of Serbia. As part of this research and based on the data obtained by surveying the population, it was established that the acceptance of SDCs will not be possible until the legal regulation is clear and transparent to the users.

One of the key requirements that is put before the legislators is to ensure that the personal data of the SDC users is protected. The regulation should be in line with GDPR (2018), but also enable the proper handling of the large amount of ongoing data for the functioning of the SDC. In doing so, data protection must be linked to the security and cyber security requirements of the SDC.

Security and cyber security of the SDC has to be included in the legal consideration of privacy and personal data protection. New complex regulation is necessary. Security aspects of the persons have to be arranged in spite of the fact that some private data are widely evident. The cyber security system has to eliminate the possibility of privacy disturbance in spite of some information being stolen or improperly handled.

The protection of privacy SDCs, might require a new type of personal authentication in which will eliminate the possibility of the identification of personal data and their collection and misuse. Legal regulations need to determine the list of personal data that the SDC user needs to provide to the operator. The rights and obligations of the users of this data for the SDC operation must be strictly prescribed, with the coding of personal data being recommended. Regulations must determine the manner and time of storage of this data, in accordance with other laws (for example, Criminal Law, (Coca-Vila, 2018)). The deletion of this data must also be regulated by a special regulatory act. Security and cyber security of stored data should be a mandatory by-law. As has been suggested in this paper, the security and cyber security of the SDC has to be included in legal consideration of privacy and personal data

protection. To protect privacy, it is suggested a new type of person authentication be introduced for SDCs which will eliminate the possibility of identifying personal data as well as their collection and misuse. Although some private data are widely evident, security aspects of the persons in SDCs have to be arranged. The cyber security system has to eliminate the possibility of privacy disturbance despite some information being stolen or improperly handled.

Research has shown that the legalization of SDCs can accelerate technical improvements of SDCs. Thus, the legislature, with the need for security, can prescribe that the images recorded by the camera (for example, the seating arrangement in the vehicle) or the audio-video record (Nees et al, 2016) be encoded into a version suitable for storage.

Finally, it is concluded that the total regulation of SDCs and autonomous driving systems need more time (Kiilmen et al, 2018; Elizade et al, 2021; Bellam, 2021). However, it is suggested that the already issued legislation in Serbia be harmonized with legal regulation for SDCs in other countries of Western Balkan, as is already done for conventional vehicle.

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