

Smart Roads and Autonomous Driving vs. Data Protection: the Problem of the Lawfulness of the Processing*

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ABSTRACT The paper highlights how smart mobility - and in particular its most advanced expression to date, which is autonomous driving - is a fundamental component of the smart city. However, technological development in this direction raises the issue of balancing interests with the need to protect personal data, of which driverless cars collect a huge amount. In this perspective, the main issue is now recognized in the lack of an adequate legal basis; the solution this essay proposes is that of the provision, by the legislator, of a task of public interest through the implementation of an ad hoc legislation, of which it offers a possible model.

1. Smart mobility as a fundamental component of the smart city

Digital Revolution, as is known, has a significant impact (also) on the urban dimension. So much that, for some time now, we have been speculating on Smart City¹, as a

precipitate of the redesign of the entire city space due to the use of new information and communication technologies. In this new context, Smart Mobility² represents one of the

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¹ On the close relationship between new technologies and the development of smart cities, see, for example, D. Washburn and U. Sindhu, *Helping CIOs Understand "Smart City" Initiatives*, https://s3-us-west-2.amazonaws.com/itworldcanada/archive/Themes/Hubs/Brainstorm/forrester_help_cios_smart_city.pdf, Forrester Research, 2010, especially 2, who state that «the use of Smart Computing technologies [makes] the critical infrastructure components and services of a city – which include city administration, education, healthcare, public safety, real estate, transportation, and utilities – more intelligent, interconnected, and efficient». However, there are also points of view that, in a broader perspective, highlight the various, economic and social factors that are relevant to the dynamic development of cities, without prejudice to the important role assigned to ICTs. So, for instance, C. Benevolo, R. P. Dameri and B. D'Auria, *Smart Mobility in Smart City, in Empowering Organizations. Enabling Platforms and Artefacts*, T. Torre, A. M. Braccini and R. Spinelli (eds.), Cham, Springer International Publishing, 2016, claim that «Smart City is considered like a winning urban strategy using technology to increase the quality of life in urban space, both improving the environmental quality and delivering better services to the citizens». For an in-depth analysis of these issues and a review of the different notions of smart city, see, among others, S. Bolognini, *Epistemologia e politica del diritto nella prospettiva delle "smart cities"*, Milano, Giuffrè, 2016, especially 3; M. Caporale, *El régimen de las smart cities en Italia*, in *Las nuevas perspectivas de la ordenación urbanística y del paisaje: smart cities y rehabilitación. Una perspectiva hispano-italiana*, F. Garcia Rubio (ed.), Barcelona, Fundacion democracia y gobierno local, 2017, 205; F. Fracchia and P. Pantalone, *Smart city condividere per innovare (e con il rischio di escludere?)*, in *Federalismi.it*, n. 22, 2015, especially 2 and E. Ferrero, *Le smart cities nell'ordinamento giuridico*, in *Foro amministrativo*, n. 4, 2015, 1267, which specifically

highlight the difficulties behind a unitary definition of the phenomenon.

² The qualification in "smart" terms of mobility does not respond to a univocal concept. In fact, in a first perspective, it could be defined as the strengthening and optimization process of infrastructures and means of transport through the distribution and use of new technologies: see e.g., L. Sun, Y. Li and J. Gao, *Architecture and Application Research of Cooperative Intelligent Transport System*, in *Procedia Engineering*, vol. 137, 2016, 747, in www.sciencedirect.com, which trace the set of transport systems «in which advanced information, communication, sensor and control technologies, including the internet, are applied to increase safety, sustainability, efficiency, and comfort»; or L. Staricco, *Smart Mobility: opportunità e condizioni*, in *TeMa Journal of Land Use Mobility and Environment*, vol. 6, n. 3, 2013, 341, especially 342, which defines it as an effective and efficient system «characterized by a consistent and systematic use of technological innovations, both in terms of ICT (that is used to provide information to those who move, to fluidize traffic, to manage public transport fleets, to improve freight transport logistics, etc.), both in terms of means of travel (like, for example, electric cars, buses on demand, bike and car sharing etc.)». However, in a secondary sense, the phenomenon of intelligent mobility has been investigated with a broader perspective, putting more emphasis on the different purposes of the transformations in place (see e.g., D. Banister, *The sustainable mobility paradigm*, in *Transport Policy*, vol. 15, 2008, 73 and following). On the contrary, since we are doubtful that to identify the advantages and disadvantages that derive from these transformations can become a discriminating element to define a concept, here we will adhere to the first of the aforementioned possible prospects. Therefore, in the wake of the definition of intelligent transport systems set out in art. 4, par. 1, no. 1, of Directive 2010/40/EU on the general framework for the deployment of intelligent transport systems in the road transport sector, which defines ITS as the set of "systems in which information and communication technologies are applied in the road transport sector, infrastruc-

fundamental pillars on which the shape of the new cities is founded³. Indeed, it is perhaps safe to say that mobility will assume a prominent role in redesigning the cities of the (near) future, it being understood that, in this field, a variety of strategies could be adopted and, thus, a variety of shapes could be assumed by the significant change that would result.

At a minimum level, the transformation process could involve the use of sensors for parking lots, or streetlamps programmed to light up only in the occasion of a road user passing by, perhaps associated with a platform able to process data, in order, above all, to save energy; or we could think of a greater diffusion and use of shared public passenger transport services (so, with a view on sharing mobility) with the use of policies that can help us move in this direction. Basically, up to this point, are only measures that would have a marginal impact on the reorganization of the urban fabric.

But, if we think of a much higher level of "smartization" of mobility, up to its most intense form represented by the total automation of vehicular traffic, we will face a change that is able to significantly affect the urban redesign. And indeed, it would be necessary to build or transform roads to equip them with intelligent infrastructures capable of allowing the circulation of (completely) autonomous vehicles, but also, and most importantly, to conceive the city as a function of automated circulation, with what it entails not only on a technical level but also in terms of changing the very approach to travel.

In short, there is no doubt that the new autonomous driving technologies would significantly contribute to a complete redesign of the urban context, outlining the boundaries of a "smart" city as a place where the circulation of driverless cars allows for the improvement of transport efficiency and road

safety in addition to the reduction of environmental pollution⁴.

Not only that, but if it is true that for a long time cars have been (and still are) instruments of freedom, thanks to which drivers and passengers can choose, according to their preferences and needs, times of use, destinations, routes and anything else in full autonomy, it should be stressed that the spread of self-driving vehicles would also lead to a further expansion of this freedom to the benefit of users⁵: not only, indeed, they could make a positive use of the time previously taken to drive, but, above all, also vulnerable people, who cannot drive "traditional" cars, could move around thanks to autonomous vehicles instead⁶. Also this, whoever will design the city of the future will have to take into account in some way.

Except that, as physiologically happens whenever we are faced with technological innovations, the new opportunities to implement and develop constitutional rights and interests that these new technologies offer also bring with them new risks as a counterpart, and these risks have to be balanced, for the same or for other freedoms of equal importance. The development of the autonomous driving technology does not escape this ambiguous carousel of values: in the following, among the various issues

⁴ Even if, on this last point, the view is not unanimous. See, for example, for critical positions on the effective reduction of polluting emissions in the presence of self-driving cars, M. Taiebat, A. L. Brown, H. R. Safford, S. Qu and M. Xu, *A Review on Energy, Environmental, and Sustainability Implications of Connected and Automated Vehicles*, in *Environmental Science & Technology*, vol. 52, n. 20, 2018, 11449; L. Belkhir and A. Elmehri, *Assessing ICT Global Emissions Footprint: Trends to 2040 & Recommendations*, in *Journal of Cleaner Production*, vol. 177, 2018, 448; and G. Tamburrini, *Etica delle macchine*, Roma, Carocci, 2020, especially 46.

⁵ Although, to tell the truth, there are those who highlight how the spread of autonomous vehicles (and, more generally, the use of new technologies) could also affect individual autonomy in a limiting way. On this point, see, for all, D. J. Glancy, *Privacy in Autonomous Vehicles*, in *Santa Clara Law Review*, vol. 52, n. 4, 2012, 1171, especially 1192.

⁶ For further information see, if desired, S. Scagliarini, *Smart roads e driverless cars nella legge di bilancio: opportunità e rischi di un'attività economica "indirizzata e coordinata a fini sociali"*, in *Quaderni Costituzionali*, n. 2, 2018, 497; and S. Vantin, *Automobili a guida autonoma: un'inedita opportunità per le persone con disabilità fisiche*, in *Smart roads e driverless cars: tra diritto, tecnologie, etica*, S. Scagliarini (ed.), Torino, Giappichelli, 2019, 55.

tures, vehicles and users included, and in traffic management and mobility as well as for interfaces with other modes of transport", hereinafter we will refer to "smart mobility" as to indicate the most advanced form of transport system identifiable to date, based on the current state of technological progress, i.e. autonomous driving.

³ See, with regard to the identification of intelligent mobility as one of the six poles of the smart city European Parliament, Directorate General for Internal Policies, *Mapping Smart Cities in the EU*, 2014, at [https://www.europarl.europa.eu/RegData/etudes/etudes/join/2014/507480/IPOL-ITRE_ET\(2014\)507480_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/etudes/join/2014/507480/IPOL-ITRE_ET(2014)507480_EN.pdf).

arising⁷, we will focus our attention on the impact that autonomous driving could produce on the right to the protection of personal data. A subjective legal situation which, as many have already pointed out⁸, could be strongly affected by all this.

2. Smart mobility and personal data protection: a survey of the issues on field

Cooperative Intelligent Transport Systems (C-ITS), of which autonomous driving represents, as we have seen, the most advanced form conceivable to date, are systems that exploit technologies capable of allowing vehicles to communicate both with each other (vehicle-to-vehicle, V2V), with the infrastructure (vehicle-to-infrastructure, V2I), and with “moving obstacles” (V2X)⁹.

Particularly, autonomous vehicles are complex systems on wheels, consisting of a set of electronic control units (ECU), with the ability to perceive the surrounding environment and to utilize driving technologies that reduce driver interaction, with the prospect of achieving, at the very highest level of automation, the possibility to navigate the streets in the total absence of human intervention¹⁰.

The various integrated components then cooperate in the system, transferring information. During the perception phase, as far as we are most directly concerned here, the devices (such as, for example, sensors, cameras, radar, lidar, etc.) collect significant amounts of data¹¹ that are then transmitted to an autonomous driving platform, which, through algorithms, makes the decisions that allow the self-driving car to circulate without the need of a human driver to carry out any operation¹².

The information is communicated in the form of messages that, depending on the content or circumstance in the presence of which they are generated and sent, take the name of CAM or DENM¹³.

In this context, what must first be clarified is what are the types of data that the vehicles and the infrastructure produce, collect and communicate, considering that, if some information is subject to V2V or V2I transmission, further data is brought into the system by the vehicle users’ (or, in the future, other road users’) smart devices. And, *inter*

hicle. See Society of Automotive Engineers, *Taxonomy and Definitions for Terms to Driving Automation Systems for On-Road Motor Vehicles*, in https://sae-mobilus.sae.org/content/j3016_201806, 2018, especially 19.

¹¹ Consider that «to make the self-driving come to life, a convergence of big data is required, including the data from on-board sensors, e.g., cameras, radar, Lidar, GPS, and information shared from other connected vehicles, e.g., road condition, traffic information, etc. It is predicted that the self-driving vehicle can generate over 1 Tera Bytes data per hour. With all the data available, efficient learning schemes, and massive computing and storage power, the vehicles will be capable of perceiving the environments, and make actuation decisions to drive safely and efficiently» (see W. Xu, H. Zhou, N. Cheng, F. Lyu, W. Shi, J. Chen and X. Shen, *Internet of vehicles in Big Data Era*, in *IEEE/CAA Journal of Automatica Sinica*, vol. 5, n. 1, 2018, 19, especially 28).

¹² The phases of perception of the surrounding environment and assessment, which most directly relate to the subject we are addressing, are followed by those of planning the correct action to be implemented, as well as control and management of the vehicle.

¹³ In particular, «the so-called Cooperative Awareness Messages (CAM), broadcasted with continuity and containing kinematic data and the dimensions of the vehicle, and the Decentralized Environmental Notification Messages (DENM), sent in addition to the CAM messages only upon the occurrence of specific events (like accidents) for urgent emergency situations, and containing location information about the event»: see Article 29 Data Protection Working Party, *Opinion 03/2017 on Processing personal data in context of Cooperative Intelligent Transport Systems (C-ITS)*, in https://ec.europa.eu/newsroom/article29/item-detail.cfm?item_id=610-171, 2017, especially 3. For further information, see also A. Festag, *Cooperative Intelligent*, 170.

⁷ For a summary of the legal issues posed by self-driving vehicles, please refer to A. Di Rosa, *Autonomous driving: tra evoluzione tecnologica e questioni giuridiche*, in *Diritto e questioni pubbliche*, n. 1, 2019, 127.

⁸ *Ex plurimis*, M. Losano, *Il progetto di legge tedesco sull'auto a guida automatizzata*, in *Diritto dell'informazione e dell'informatica*, n. 1, 2017, 3; M. C. Meneghetti, *La privacy del guidatore al tempo della mobilità intelligente*, in *Diritto Mercato Tecnologia*, 2017, at <https://www.dimt.it/images/pdf/meneghetti.pdf>; V. Sucasas, G. Mantos, F. B. Saghezchi, A. Radwan and J. Rodriguez, *An autonomous privacy – preserving authentication scheme for intelligent transportation systems*, in *Computers & Security*, vol. 60, 2016, 193; M. Karaboga, T. Matzner, H. Obersteller and C. Ochs, *Is There a Right to Offline Alternatives in a Digital World?*, in *Data protection and Privacy: (In)visibilities and Infrastructures*, R. Leenes, R. Van Brakel, S. Gutwirth and P. De Hert (eds.), Cham, Springer International Publishing, 2017, 32; N. Miniscalco, *Smart area, circolazione dei veicoli autonomi e protezione dei dati personali*, in *Smart roads e driverless cars*, 30; and N. Miniscalco, *Il diritto alla protezione dei dati personali al tempo della mobilità intelligente*, in *Forum di Quaderni Costituzionali*, n. 1, 2020, 248.

⁹ For further information see A. Festag, *Cooperative Intelligent Transport Systems Standards in Europe*, in *IEEE Communications Magazine*, vol. 52, 2014, 166; L. Sun, Y. Li, J. Gao, *Architecture*, 747.

¹⁰ In fact, we recall that, according to the classification adopted by the Society of Automotive Engineers, six levels of autonomous driving are identified based on greater or lesser human participation in driving the ve-

alia, to clarify whether the information can be qualified in terms of personal data or not is of central importance, since, if the answer is affirmative, it would be possible to apply the rules set out in the EU Regulation 2016/679 (hereinafter, for brevity, “GDPR”) and, with regard to Italy, to Legislative Decree (d.lgs.) 196/2003 (the so-called “Privacy Code”), as most recently amended by d.lgs. 101/2018.

Well, among the various types of information that are generated by cars there are both technical data of the vehicle itself or data related to its usage (speed, seat occupancy, etc.) or to its location, and data relating to individuals (such as for example passengers). These data could also be biometric, in case advanced functionalities are employed for user authentication or for monitoring his behavior and psycho-physical conditions, this also considering the suitability for vehicle supervision, as long as we are in a level of automation in which this is necessary¹⁴.

Not to mention the data that are then acquired from the outside, such as the images of other road users and the location data of vehicles crossed along the route, which are likewise collected not only by the cars in circulation but also by the infrastructures located in the smart area.

In general, the precise determination of which of these are personal data is not always linear nor free of problematic aspects, also considering the significant extension that the notion of “personal data” reaches in the GDPR legal system. The latter, in fact, as is well known, defines personal data as “any information concerning an identified or identifiable natural person”. Therefore, *any* information that allows not only to *directly* identify a natural person, but also that can be *indirectly* linked to his or her is to consider personal data¹⁵. Thus, in hindsight, (some) technical data relating to the vehicle or those relating to its use, such as the number of kilometers traveled or the number of journeys made, the speed of the car or the state of wear of the parts of the machine, could also be qualified as personal data, in case they indirectly (or if linked to other information)

allow the identification of a natural person or one of his/her characteristics¹⁶.

Anyway, there is no doubt that some of the data processed in the C-ITS - as can be seen also from the exemplary and non-exhaustive list above - directly concern identified or only just identifiable natural persons, such as, obviously, data relating to the passengers of the vehicle or to pedestrians crossing the car. Nor can the possible processing of particular categories of data (referred to in Article 9 of the GDPR) be excluded, for example in the hypothesis of cameras recording people with disabilities (for example, with reduced mobility) and this information combined with other information could give rise to a specific data processing¹⁷.

In light of this reconstruction and in compliance with what the Group stated pursuant to Article 29 in the already cited opinion no. 3/2017¹⁸, it can therefore be concluded that the European (and national supplementary) regulations on the protection of personal data must be applied in C-ITS.

This implies that the data controller (i.e., the subject who determines the purposes and means of the data processing), or even the joint controllers, given that it is easy to imagine this kind of relationship (for example, between holders of the authorizations for testing - or, in the future, vehicle owners - and infrastructure managers), are burdened with various obligations, including at least:

to verify the presence of one of the conditions that need to exist for the processing to be considered lawful (i.e., the legal basis of the processing), pursuant to the provisions of

¹⁶ This is the position expressed, for example, by the data protection Authority: see Commission Nationale Informatique & Libertés, *Véhicules connectés et données personnelles*, in https://www.cnil.fr/sites/default/files/atoms/files/pack_vehicules_connectes_web.pdf, 2017, especially 4.

¹⁷ As indicated in the *Guidelines 3/2019 on processing of personal data through video devices* adopted on 29 January 2020 by the European Data Protection Board, available at the web address https://edpb.europa.eu/sites/edpb/files/files/file1/edpb_guidelines_201903_video_devices_en_0.pdf, 17, it is true that «video footage showing a data subject [...] using a wheel chair are not per se considered to be special categories of personal data». However, the same Guidelines also warn that this data, combined with others, can well give rise to a processing of particular categories of data. And that makes it necessary not only to comply with the principle of minimization, but also to adopt the consequent precautions.

¹⁸ See also Article 29 Data Protection Working Party, *Opinion 03/2017*, 4.

¹⁴ See W. Xu, H. Zhou, N. Cheng, F. Lyu, W. Shi, J. Chen and X. Shen, *Internet of vehicles*, 20.

¹⁵ For all, see F. Di Resta, *La nuova “privacy europea”. I principali adempimenti del regolamento UE 2016/679 e profili risarcitori*, Torino, Giappichelli, 2018, especially 8.

Article 6 of the GDPR;

to identify the goals that are to be pursued with the processing of data. This constitutes a relevant parameter also for assessing the adequacy, need and relevance of the data collected, not only during the processing but since the very moments of its design, and by default¹⁹;

to predispose a disclosure for the data subjects, pursuant to Art. 13 and possibly Art. 14 of the GDPR;

to adopt measures aimed at ensuring the data subjects can fully exercise the rights referred to in Articles 15-22 of the GDPR;

to prepare, right from the design phase, according to the canon of privacy by design, adequate technical and organizational security measures, with special regard to data transmission protocols;

to carry out a data protection impact assessment (Art. 35 of the GDPR), at the end of which, if a high risk remains, the data controller will have to consult the Supervisory Authority (Art. 36 of the GDPR).

Now, as we can already see from these brief indications, a clear definition of the legal basis of the processing of personal data can only represent the starting point for any discussion on this subject, as its identification assumes decisive value with respect to the very possibility of carrying out the processing. And indeed, only once a legitimizing title has been identified (moreover, of each individual processing), it will be possible (and, at that point, mandatory) to accordingly proceed in addressing the additional issues highlighted above. Here, we will therefore devote our attention to the issue of the lawfulness of the processing.

3. What legal basis for data processing?

The lawfulness of data processing can be understood, as it is being pointed out in the doctrinal debate for some time, through two distinct meanings, which today seem to find correspondence in the enunciation of this principle distinctly presented in Articles 5 and

¹⁹ Not a trivial operation, however, if we consider that in smart contexts the identification of each single purpose - especially before processing - could be a particularly complex operation, on the one hand, due to the very nature of the systems implemented, on the other because the massive use of data - an element the entire architecture is based on - determines the *ex ante* uncontrollability of all processing operations and, with it, *a fortiori*, the indeterminacy of the purposes. On the subject, N. Miniscalco, *Smart area*, 34.

6 of the GDPR, namely: 1) as a prerequisite that assigns legitimacy to the data controller, in the presence of at least one of the alternative conditions provided for in the regulatory text, or 2) as absence of any damage to interests deemed worthy of particular protection by the legal system²⁰. Here, our analysis will be carried out in relation to the first of the two meanings we have just mentioned²¹, because it constitutes a prodromal judgment on the admissibility of the processing itself, without prejudice to the subsequent downstream check on the lawfulness that we find in the second mentioned meaning. Therefore, adopting this perspective, we will check the occurrence of at least one of the conditions referred to in Article 6 of the GDPR, namely:

- a) the consent of the data subject;
- b) the execution of a contract (or pre-contractual measures) of which the data subject constitutes a party;
- c) the fulfillment of a legal obligation;
- d) the need to safeguard the vital interests of the data subject or of another person;
- e) the execution of a task of public interest or related to the exercise of public authority;
- f) the exercise of a legitimate interest of the data controller.

Let's then proceed to individually analyze these legal bases to test their possible application with respect to the circulation of autonomous vehicles in a smart city area²².

(A) First of all, let's assume that the processing may be based on consent²³. In such case, on the positive side, we would have the possibility of ensuring the full self-

²⁰ For further information on the polysemy of the principle of lawfulness with reference to the processing of personal data, see F. Bravo, *Il consenso e le altre condizioni di liceità del trattamento di dati personali*, in *Il nuovo Regolamento europeo sulla privacy e sulla protezione dei dati personali*, G. Finocchiaro (ed.), Bologna, Zanichelli, 2017, 101, especially 112, also as regards the references to the most ancient doctrine.

²¹ In terms, see again F. Bravo, *Il consenso*, 121.

²² It goes without saying that, in light of the limited objective we have set ourselves, it would be undue to dwell in detail on the general profiles of each provision contained in art. 6 GDPR. For such an analysis, by way of example, see F. Di Resta, *La nuova "privacy europea"*, 61.

²³ See M. C. Meneghetti, *La privacy*, 8. It reflects on the adequacy of consent as a functional tool for the protection of data subjects, with specific reference to autonomous vehicles, see M. C. Gaeta, *La protezione dei dati personali nell'Internet of things: l'esempio dei veicoli autonomi*, in *Diritto dell'informazione e dell'informatica*, n. 1, 2018, 147.

determination of the data subject, on the condition that a preventive, informed and free adhesion to the data processing is provided²⁴. However, in a critical key, many doubts can be advanced on the concrete viability of this path.

Firstly, in fact, it seems quite difficult to even imagine the possibility of making it optional for people to provide their data in the context of the smart city area, where all the daily activities of a typical urban environment take place (trivially, from simple purchases all the way to the use of schools and public services, from work to the necessity to move around in order to satisfy needs of any kind, etc.), so that the risk of somebody providing his or her consent *ob torto collo*, with the aim of not being excluded from that city context, raises serious doubts about the real freedom of the very expression of consent.

Moreover, even assuming that a mandatory consent can be hypothesized, under the penalty of prohibition from accessing the smart area (which, however, in perspective, could coincide with the entire city space), a further and rather complex problem arises, that of acquiring consent, as the data controllers could easily never come into direct contact with the data subjects²⁵. Nor can the on-site display of information signs be a suitable method for this purpose. In fact, it can constitute a useful additional channel in terms of transparency, but it cannot be considered sufficient, since consent (as the European Data Protection Committee has also clarified²⁶) must result from an explicit and unequivocal manifestation of will and it cannot be deduced from conclusive facts, such as the mere act of entering the smart area, albeit adequately signaled. Furthermore, even if the legal basis of the data processing was

consent, a right to revoke the consent should be ensured to the data subject, and - regardless of it being or not technically possible - at least, it would be very hard to achieve the conditions for this to happen “with the same ease” with which the consent was provided, as required by Article 7 or the GDPR.

Lastly, consent should be expressed in relation to each individual purpose of the processing, ensuring maximum freedom of self-determination to the data subject. Except, given that the use of data collected in a smart area would easily respond to a plurality of goals, the transposition on a technical level of this necessary freedom of choice could definitely be hard.

(B) The issues raised by consent suggest evaluating whether it may be preferable to base the data processing on the contract.

Now, the *de qua* legal basis can be considered adequate when the data subject actually takes part in pre-contractual negotiations or stipulates a contract; except that, in the context of smart mobility, only with regard to some cases of processing it is actually possible to identify the existence of an underlying negotiation deed. So it is, for instance, if we consider the relationship between the manufacturer and the owner or user of the vehicle, in which the contract (sale or rental) may well constitute a suitable condition for the lawfulness or the processing²⁷.

However, this legal basis is not always fulfilling, especially in the most significant cases, which represent the real core of the smart area²⁸.

In fact, just think of the public road user²⁹ who doesn't have (nor does he intend to have) any contractual relationship with the subjects who operate there, but simply finds himself passing through it: in a scenario like this, the

²⁴ On the subject, see S. Thobani, *La libertà del consenso al trattamento dei dati personali e lo sfruttamento economico dei diritti della personalità*, in *Europa e diritto privato*, n. 2, 2016, 513.

²⁵ See Article 29 of Data Protection Working Party, *Opinion 3/2017*, 5.

²⁶ See European Data Protection Board, *Guidelines 05/2020 on consent under Regulation 2016/679*, in https://edpb.europa.eu/sites/edpb/files/files/file1/edpb_guidelines_202005_consent_en.pdf, 2020, especially 19. In Italian jurisprudence, *ex multis*, see the judgement of the Court of Cassation, section I civil, 2 July 2018, n. 17278, on which, among others, in a broader perspective, F. Bravo, *Lo scambio di dati personali nei contratti di fornitura di servizi digitali e il consenso dell'interessato tra autorizzazione e contratto*, in *Contratto e impresa*, 1, 2019, 34.

²⁷ The same could be said for passengers, as they are parts of a transport contract.

²⁸ Similarly, WP29 believes that «the applicability of this legal basis might not be general. The reliance on this legal ground may be possible in specific scenarios, for instance when the data subject actually does have a contract with a private road operator to be able to drive on that road» (see Article 29 of Data Protection Working Party, *Opinion 3/2017*, 5).

²⁹ Of course, the situation would be different if we consider the case of circulation in a private area, where a contractual relationship can actually take place. However, this hypothesis is relegated to a testing phase (for example, on a racetrack), which cannot be extended either to experimentation on the public road or, *a fortiori*, to the free circulation.

non-existence of such a legal basis is evident.

(C) The existence of a legal obligation could certainly constitute a valid title to legitimize the processing of data. Except that, quite simply, at least in Italy, such a rule still doesn't exist and, moreover, the legislator should carry out a careful weighing of all the interests involved before even introducing it, in order to achieve a balance between those interests, and he also should not act too casual in allowing limitations of a fundamental right like the protection of personal data³⁰, if those limitations are not necessary and proportionate.

(D) A brief mention seems more than sufficient with regard to the legal basis constituted by the need to safeguard the data subject's or another person's vital interests. We are dealing with this for the mere completeness of our investigation. In fact, not only, by express provision of the Regulation, that legal basis refers to hypotheses that are exceptional and residual, but above all it is evident that in the scenario we are now interested with there is no situation of danger for any vital interests. In this connection, the fact that the improvement of road safety (and the consequent reduction of post-accident mortality) certainly represents one of the goals of the introduction of autonomous driving is completely insufficient, because this legal basis refers to a present danger for the life of the person concerned and not just to his or her, potential and future, better safeguard.

(E) An additional legal basis could be represented by the execution of a task of

public interest or by the exercise of public authority. However, as already noted with regard to the fulfillment of a legal obligation, it appears difficult, at the state of the current legislation and at least in many European systems including the Italian one, to identify a legal rule that can establish the possibility of using this legal basis in the case we are now examining. So that, although this is in our opinion the main way to go (as we will see better in the next paragraph), it cannot yet be said to be achievable from a *de jure condito* perspective.

(F) Concluding the analysis of the conditions referred to in Article 6 of the GDPR, we could believe that the processing in the C-ITS could be based on the legitimate interest of the data controller.

Here, limiting ourselves to mention the main critical aspects of this hypothesis, it can be seen that the use of legitimate interest, by implying a previous balancing that results in a judgment of prevalence of the interest pursued by the owner with respect to the fundamental rights and freedoms of the data subject, underlies a complex procedure which, moreover, if carried out individually by each subject involved in the processing, could also lead to divergent results³¹. Furthermore, the Regulation expressly precludes the use of this condition to public authorities in the exercise of their institutional duties. This would indeed make the use of this legal basis problematic (at least) for the road infrastructure manager.

Therefore, if we want to pull the strings of the analysis conducted up to now, it is clear that none of the aforementioned conditions, individually understood, allows us to fully pass the legitimacy screen. So that, at present and until there is a specific legislation, the only feasible solution seems to be represented by the recourse (possibly even jointly) to several legal bases³², although this brings with it the risk of a segmentation of the different processing operations and gives life to a cumbersome and complex mechanism, with

³⁰ In this sense, for an Italian jurist, it is logically immediate to refer to the Constitutional Court judgement n. 20 of 2019, which states that «the right to the protection of personal data, as expression of the fundamental right to the intangibility of the private sphere [...], concerns the protection of the life of individuals in its many aspects. It is a right that is referred to in the Italian Constitution (articles 2, 14, 15 of the Constitution) and that was already recognized within the jurisprudence of this Court in relation to multiple areas of discipline [...]. In the current times, it is particularly specified as the right of a person to control the circulation of information referring to him or her, and benefits, for its protection, of the canons developed at European level to assess the legitimacy of the collection, processing and dissemination of personal data. These are the aforementioned principles of proportionality, pertinence and non-excess, by virtue of which exceptions and limitations to the protection of data must operate within the limits of what is strictly necessary, it being essential to identify the measures that affect the fundamental right as little as possible, while still contributing to the achievement of the legitimate goals underlying the collection and processing of data» (translation by the author).

³¹ Again, see Article 29 of Data Protection Working Party, *Opinion 3/2017*, 5.

³² This is, moreover, the conclusion proposed by the Data Protection and Privacy Working Group of the C-ITS, according to which: «Lawfulness of the processing might not be grounded only in one, but on a combination of two or more legal bases» and «that the possible appropriate legal bases, or combination of them [...] might be: public interests; performance of a contract; consent; legitimate interest» (see Article 29 of Data Protection Working Party, *Opinion 3/2017*, 4).

the risk of it representing a huge obstacle for the implementation of autonomous driving, being this a fundamental aspect and expression of the maximum evolution of smart mobility.

4. *A de jure condendo proposal*

The conclusion we reached so far leads us to consider the possibility of identifying some solution that allows us not to give up the benefits of the development of smart mobility, while, at the same time, ensuring satisfactory guarantees for the protection of personal data. And this, in our view, can be obtained through the adoption of a (rather necessary) specific legislative act, able not so much to identify (as a condition of lawfulness of the processing) a legal obligation, which would appear to us as an instrument of disproportionate limitation of data protection even in the face of the (more than legitimate and appropriate) pursuit of interests of unquestionable importance, but rather, that identifies, in the development of autonomous driving, a task of public interest, aimed at ensuring road safety, improving transport efficiency and environmental sustainability. To carry out this task, the law could authorize the necessary data processing either by road managers, by manufacturers and owners (but possibly, to the extent necessary, also users) of autonomous vehicles.

This way we would also move within the logic of the GDPR, without the need to make changes to this European regulation, changes that could end up appearing too sectorial. In fact, it suffices to note that Article 6 of this legislative act, already cited several times, expressly refers to the Member States' law for the purpose of the identification of the tasks of public interest, thus allowing the national legislation to carry out its integration.

Therefore, if we really want to try and provide some indication on how such legislation could be introduced in Italy, it is necessary (albeit briefly) to first reconstruct the national regulatory framework of reference, with regard to the development of the autonomous driving technology, in order to make some suggestions that can be consistent with it.

Now, on this topic, it should be pointed out that, unlike what happens in other states' legal framework³³, autonomous driving was only

recently taken into consideration by the Italian legislator. The latter, in fact, provided for the allocation of two million euros for the digital transformation of roads (notwithstanding the rules on road traffic) with Art. 1, paragraph 72, of law No. 205 of 2017 (2018 budget law). A rule that - although devoid of a real incentive boost, given the derisory amount of money enshrined therein³⁴ - provided the legal basis to give an administrative regulation to the public road testing of autonomous driving solutions.

Shortly thereafter, on 28 February 2018, by virtue of the aforementioned provision of law, the decree of the Ministry of Infrastructure and Transport, which states "Implementation methods and operational tools for the on-road testing of Smart Road solutions and connected and automatic drive".

For what is of interest here, in this legal document "self-driving vehicles" are defined as those equipped «with technologies capable of adopting and activate driving behaviors without the active intervention of the driver, in certain road areas and in certain external conditions»; the document also states that we are not in the presence of a self-driving vehicle in the case of «a vehicle approved for circulation on Italian public roads according to the rules currently in force and equipped with one or more driving assistance systems, which are activated by the driver for the sole purpose of implementing driving behaviors from he himself decided and that in any case require a continuous active participation by the driver in

127; and Id., *Il legal framework internazionale ed europeo, in Smart roads e driverless cars*, 65. In addition, K. Noussia, *International comparisons, in The law and Autonomous Vehicles*, M. Channon, L. McCormick and K. Noussia (eds.), New York, Informa Law from Routledge, 2019, 64, specifically reconstructs the legislation of Greece, Germany, Austria, Italy, the US and South Africa; in the same volume, on the experiments underway in the UK, L. McCormick, *Testing autonomous vehicles*, 6.

³⁴ In this sense, it is permitted to refer to the considerations made in S. Scagliarini, *La sperimentazione su strada pubblica dei veicoli autonomi: il "decreto smart road"*, in *Smart roads e driverless cars*, 16, where it is specified how, even before such regulatory intervention, «some trace of discipline on this matter in our legal system [...] could still be found in art. 8 of the d.l. 18 October 2012, n. 179, which provided for the spread of "smart" transport systems, referring to a decree of the Minister of Infrastructure and Transport for the identification of directives in this regard, as actually happened with the Ministerial Decree 1 February 2013 and with the subsequent Ministerial Decree 12 February 2014 n. 44, which launched a national action plan on smart transport systems».

³³ For a comparative picture of the regulation on autonomous driving, see A Di Rosa, *Autonomous Driving*,

the driving activity»³⁵. Moreover, the decree does not authorize the experimentation of (completely) autonomous driving solutions of level 5: it only authorizes the autonomous driving activity of vehicles falling within levels 3 and 4 of the aforementioned scale provided by the Society of Automotive Engineers, since the presence of a supervisor in the vehicle is always guaranteed, and he has the duty to regain control whenever human intervention is necessary.

During the continuation of our analysis, we will therefore place ourselves precisely in this regulatory area, with the aim to suggest which method is in our opinion preferable in order to overcome the hurdle represented by the lack of an adequate legal basis, and thus allow for the concrete start of a full experimentation of smart mobility solutions. It is also to take into account that, in our opinion, a similarly inspired legislation, *mutatis mutandis*, could then possibly be adopted when the conditions for switching from an experimental phase to an effective implementation of autonomous driving are fulfilled³⁶.

Well, what must first be defined is by which means to implement the regulatory intervention proposed here. And indeed, according to the provisions of Article 6, par. 2, GDPR, it is necessary that the law of the Member State identifies, in particular, the purposes of the processing, the general conditions relating to its lawfulness, the types of data that form the subject of the processing, the possible data subjects, the subjects it is possible to transmit the data to, the limitation periods and the operations and procedures of the processing itself. To this end, according to the general provision of Article 2 / ter, paragraph 1, of the Italian Privacy Code, the legislator must provide for this purpose with a legal source of primary rank, which, however, could also simply refer to a regulation for the specific determination of these profiles,

³⁵ Art. 1, paragraph 1, letter f) of the Smart Road decree, translated by the author. Instead (see letter g) of the same article) automatic driving technologies are «innovative technologies for automatic driving based on various types of sensors, software for processing sensor data and interpreting situations in traffic, learning software, software for making driving decisions and for putting them into action, components for integration with the traditional vehicle, which are all part of the road-testing matter».

³⁶ Which, for the time being, is also hindered by the international reference framework for road traffic regulations. On the subject, see the works cited above at note n. 33.

limiting himself to provide the legal basis and dictating - more or less stringent - general principles, that the Executive will have to comply with in specifying the conditions above.

On this point, we think that the most suitable normative location to host the primary ranking provision in question could be identified in Part II of the Privacy Code³⁷. This, after the modification implemented with d.lgs. n. 101/2018, contains “Specific provisions for the processing that are necessary to fulfill a legal obligation or to perform a task of public interest or related to the exercise of public authority as well as provisions for the processing referred to in Chapter IX of the regulation”; therefore, according to what is expressly established by Art. 45/*bis*, which opens this section, in it you will find the implementing provisions of Art. 6, par. 2 GDPR. So, in essence, it would be a matter of adding an article (for example in Title IX dedicated to Other processing of personal data in the public sphere or of public interest) with which to directly establish a suitable legal basis for the processing of our interest, or by referring to a regulation. For this second option, it would be enough to integrate the same ministerial decree on experimentation that we have already mentioned. Moreover, this second solution could appear to be better, as it would allow, once that phase is over, to not have to change the primary source but, rather, simply the secondary one, in order to adapt it to a new context of permanent implementation of smart mobility solutions.

Preliminarily, another clarification must be made. Compared to the current text of the ministerial decree just mentioned, it is likely that a further processing (not foreseen for now) will be necessary within a smart area, or the collection of data, inevitably also personal data, through cameras not incorporated into the road infrastructure but positioned on board the vehicle or integrated into the infrastructure but different and additional to the road operator’s ones. To this end, it would be necessary and sufficient to add an *ad hoc* provision in the same decree, with the aim of allowing said operators, based on specific

³⁷ Provided that, *ratione materiae*, the inclusion of the rule in the Highway Code is not considered preferable, as happened in Germany, where the “Section VI A, data processing in the vehicle” was included in this regulatory act: see M. Losano, *Il progetto*, 6.

requests, to issue an authorization also in relation to the installation of additional infrastructural components, perhaps with the provision that the installation, management and removal costs must remain the responsibility of the applicant.

Coming to the merits, this provision could first of all identify the performance of a task of public interest, by road operators and subjects authorized to experiment (but, in the future, to vehicle manufacturers and owners, perhaps differentiating between them with regard to the activities that for each are relevant in view of the purposes pursued), thus authorizing the processing of personal data (normally not very particular, except where this occurs fortuitously and occasionally) of road users who pass through the smart area. This – it should be specified - to the extent that the data processing is functional and necessary for the experimentation (and, in the future, for the circulation) of self-driving vehicles (and notably for the control of traffic flows, for the necessary exchange of data to make the road circulation itself possible, as well as for the prevention of accidents and for any subsequent reconstructions aimed at ascertaining responsibility). Such processing could be identified, at least, in the acquisition of data, in the anonymization, in the communication between the authorized subjects and towards the public subjects (for which data are useful for the performance of institutional functions) as well as in the conservation for a period that, as of today, could coincide with the duration of the authorization for the road testing and, in the future, it could be determined in the light of the purposes, as it should be (and therefore, hypothetically, in two years, as a limitation period for actions deriving from road accidents and, as far as possible, suitable to satisfy the other, more strictly publicistic purposes aforementioned).

Furthermore, having regard to the need to reconcile the management needs of the trials (and, in the future, of road traffic) with that relating to the protection of data subjects, it could seem appropriate to provide for a simplified policy, except for the obligation to make it available in extended form through the network, for example on the institutional website of both the road operator and the holder of the authorization for the testing (or vehicle manufacturers), by advertising it in the signage for more general information

purposes referred to in the decree.

Lastly, the rule should first of all reaffirm the obligation to draw up the impact assessment referred to in Article 35 of the GDPR, given the high risk that this processing of personal data entails due to the enormous amount of data collected (that is certainly able to integrate the “large scale” requirement), and their potential pervasiveness combined with the use of new technologies, although occasionally, with regard to peculiar kinds of data. Not only that, but, in the light of art. 36, par. 5 of the GDPR and art. 2/*quinquiesdecies* of the Code, the possibility of integrating these rules with general provisions adopted by the data protection Authority should also be envisaged, with the aim of prescribing further measures and precautions.

It is our opinion that, thanks to this kind of legal provisions, through a balance between the needs of privacy protection and the utility, of public interest, to allow for the implementation of new, safer, more inclusive and more sustainable forms of mobility, it would be possible to remove what is now regarded as one of the main obstacles to an effective shift towards smart mobility. Of course, this would only constitute the starting point, and it is clear that data protection must continue to be subjected to constant attention, evaluation and implementation within the development processes we are dealing with. Similarly, in a broad sense, the need for any other equally fundamental subjective situation not to be put at risk should be ensured. But a small step for a legislator could represent a (first) big leap in improving the living conditions of society.