

TAIVO LIIVAK

Tort Liability for Damage Caused  
by Self-driving Vehicles  
under Estonian Law





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## LIST OF ORIGINAL PUBLICATIONS

- Article I Taivo Liivak and Janno Lahe, 'Delictual Liability for Damage Caused by Fully Autonomous Vehicles: the Estonian Perspective' (2018) 12/1 Masaryk University Journal of Law and Technology, pp 49–73.
- Article II Taivo Liivak, 'Liability of a Manufacturer of Fully Autonomous and Connected Vehicles under the Product Liability Directive' (2018) 4/2 International Comparative Jurisprudence, pp 178–189.
- Article III Taivo Liivak, 'What Safety Are We Entitled to Expect of Self-driving Vehicles?' (2019) 28 Juridica International, pp 95–102.
- Article IV Taivo Liivak and Janno Lahe, 'Strict Liability for Damage Caused by Self-driving Vehicles: the Estonian Perspective' (2019) 12/2 Baltic Journal of Law & Politics, pp 1–18.

# ANALYTICAL COMPENDIUM TO A CUMULATIVE DISSERTATION

## 1. INTRODUCTION

In terms of traffic fatalities per million inhabitants, Estonia has had a rather poor track record over the years.<sup>1</sup> Even though considerable progress has been made, a lot of room for improvement still remains.<sup>2</sup> The vast majority of traffic accidents can be attributed to human error<sup>3</sup> and, as demonstrated by statistics, Estonia is no exception in that regard.

To reduce human errors through providing road users with a safer traffic environment, Estonia has adopted a Road Safety Programme which seeks to implement, among other things, intelligent transport systems.<sup>4</sup> With the same aim in mind, Estonia also keeps an eye on ways of increasing road vehicle safety through driving automation.<sup>5</sup> While intelligent transport systems are expected to improve urban traffic management and control and as well as alleviate parking problems<sup>6</sup>, fully automated vehicles are expected to allow for increasing traffic safety owing to the elimination of human errors.<sup>7</sup> Furthermore, self-driving

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<sup>1</sup> Recent statistics on traffic fatalities and injuries is available in Estonian at <[www.mnt.ee/et/ametist/statistika/inimkannatanutega-liiklusonnetuste-statistika](http://www.mnt.ee/et/ametist/statistika/inimkannatanutega-liiklusonnetuste-statistika)> accessed 8 October 2020.

<sup>2</sup> See, for example, the Estonian Road Safety Programme 2016–2025 approved by Order No 54, 16 February 2017, of the Cabinet of Ministers of the Republic, p 6 ff <[www.mnt.ee/sites/default/files/elfinder/article\\_files/liikusohutusprogramm\\_2016-2025\\_en.docx](http://www.mnt.ee/sites/default/files/elfinder/article_files/liikusohutusprogramm_2016-2025_en.docx)> accessed 8 October 2020.

<sup>3</sup> Commission, ‘Road safety: Commission welcomes agreement on new EU rules to help save lives’ (*Presscorner*, 26 March 2019) <[https://ec.europa.eu/commission/presscorner/detail/en/IP\\_19\\_1793](https://ec.europa.eu/commission/presscorner/detail/en/IP_19_1793)> accessed 8 October 2020; see also point 2 in Commission, ‘Report to the European Parliament and the Council. Saving Lives: Boosting Car Safety in the EU. Reporting on the monitoring and assessment of advanced vehicle safety features, their cost effectiveness and feasibility for the review of the regulations on general vehicle safety and on the protection of pedestrians and other vulnerable road users’ COM (2016) 787 final.

<sup>4</sup> Estonian Road Safety Programme 2016–2025 approved by Order No 54, 16 February 2017, of the Cabinet of Ministers of the Republic, p 25 <[www.mnt.ee/sites/default/files/elfinder/article\\_files/liikusohutusprogramm\\_2016-2025\\_en.docx](http://www.mnt.ee/sites/default/files/elfinder/article_files/liikusohutusprogramm_2016-2025_en.docx)> accessed 8 October 2020.

<sup>5</sup> *ibid*, p 26.

<sup>6</sup> On urban mobility issues see, for instance, Marco Pavone ‘Autonomous Mobility-on-Demand Systems for Future Urban Mobility’ in Markus Maurer and others (eds), *Autonomes Fahren* (Springer Vieweg, Berlin, Heidelberg 2015), p 401 DOI: <[https://doi.org/10.1007/978-3-662-45854-9\\_19](https://doi.org/10.1007/978-3-662-45854-9_19)>.

<sup>7</sup> See, for instance, U.S. Department of Transportation, ‘Preparing for the future of transportation: Automated vehicles 3.0’ (October 2018) <[www.transportation.gov/sites/dot.gov/files/docs/policy-initiatives/automated-vehicles/320711/preparing-future-transportation-automated-vehicle-30.pdf](http://www.transportation.gov/sites/dot.gov/files/docs/policy-initiatives/automated-vehicles/320711/preparing-future-transportation-automated-vehicle-30.pdf)> accessed 8 October 2020; Nayeem Syed, ‘Regulating autonomous vehicles’ (2017) *Computer and Telecommunications Law Review*, 23/1, p 11; Oliver Jeffcott and Rose Inglis, ‘Driverless cars: ethical and legal dilemmas’ (2017) 1 *Journal of Personal Injury Law*, p 21.



vehicles are also expected to increase traffic efficiency and access to transportation.<sup>8</sup> This has sparked intense development of self-driving vehicles across the world, including in Estonia.<sup>9</sup> Researchers of automated driving systems are optimistic that full automation can and will be reached in the near future.<sup>10</sup> For instance, Estonian taxi service provider Bolt is planning on integrating self-driving cars into its platform by 2026.<sup>11</sup>

Self-driving road vehicles are essentially motor vehicles equipped with a combination of hardware and software, which enables them to cope with the complexity of traffic on their own, without any input from a driver.<sup>12</sup> A truly self-driving vehicle is aware of and able to properly respond to the highly complex and dynamic environment in which it is performing its driving task.<sup>13</sup> Such awareness and responsiveness is attained through computing.<sup>14</sup> In other words, it is achieved through the ability to coordinate data obtained with the help of the

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<sup>8</sup> Christoph Grote, 'Connected vehicles will enhance traffic safety and efficiency' (*The European Files*, 18 February 2019) <[www.europeanfiles.eu/digital/connected-vehicles-will-enhance-traffic-safety-efficiency](http://www.europeanfiles.eu/digital/connected-vehicles-will-enhance-traffic-safety-efficiency)> accessed 8 October 2020.

<sup>9</sup> For an indicative list of piloting and preparing cities across the world, see the Bloomberg Aspen Initiative on Cities and Autonomous Vehicles, 'Global Atlas of AVs in Cities' <<https://avsincities.bloomberg.org/global-atlas>> accessed 8 October 2020. On Estonian projects, see Raivo Sell and Krister Kalda, 'Self-driving shuttle ISEAUTO' (26<sup>th</sup> ITS World Congress, Singapore, 21–25 October 2019) <[www.researchgate.net/publication/337720410\\_Self-driving\\_shuttle\\_ISEAUTO](http://www.researchgate.net/publication/337720410_Self-driving_shuttle_ISEAUTO)> accessed 8 October 2020; Epp Joala, 'Isejuhtiv buss alustas Kadriorus regulaarset opereerimist' [*Self-driving shuttle begins regular operation in Kadriorg*] (*TalTech*, 29 August 2019) <<https://ttu.ee/isejuhtiv-buss-alustas-kadriorus-regulaarset-opereerimist>> accessed 8 October 2020; University of Tartu, 'University of Tartu and Bolt presented autonomous driving lab's test car' (29 January 2020) <[www.ut.ee/en/news/university-tartu-and-bolt-presented-autonomous-driving-labs-test-car](http://www.ut.ee/en/news/university-tartu-and-bolt-presented-autonomous-driving-labs-test-car)> accessed 8 October 2020; Janno Riispapp, 'Cleveron arendab uut isejuhtivat kullerrobotit' [*Cleveron is developing a new self-driving robot courier*] (*Postimees*, 29 March 2019) <<https://tehnika.postimees.ee/6557088/cleveron-arendab-uut-isejuhtivat-kullerrobotit>> accessed 8 October 2020.

<sup>10</sup> Ekim Yurtsever and others, 'A Survey of Autonomous Driving: Common Practices and Emerging Technologies' (2020) 8 IEEE Access, p 58462 DOI: <<https://doi.org/10.1109/ACCESS.2020.2983149>> (hereinafter *Yurtsever and others*).

<sup>11</sup> University of Tartu, 'Tartu Ülikool ja Bolt töötavad välja isejuhtivate autode tehnoloogiat' [University of Tartu and Bolt are Developing Driving Automation Technology] (29 August 2019) <<https://www.ut.ee/et/uudised/tartu-ulikool-bolt-tootavad-valja-isejuhtivate-autode-tehnoloogiat>> accessed 8 October 2020.

<sup>12</sup> For further information on the technology behind self-driving vehicles, see Yurtsever and others (n 10); for further information on complexity, see Melanie Mitchell, *Complexity: A Guided Tour* (OUP 2009).

<sup>13</sup> For further information on the characteristics of self-driving vehicles, see SAE International, 'Standard J3016. (R) Taxonomy and Definitions for Terms Related to On-Road Motor Vehicle Automated Driving Systems' (issued in January 2014, revised in June 2018), pp 1–35.

<sup>14</sup> For a brief overview of computing, see Douglas E Comer and others, 'Computing as a discipline' (1989) Communications of the ACM 32/1, pp 9–23 DOI: <<https://doi.org/10.1145/63238.63239>>.

vehicle's sensors, recognise patterns in data, turn these patterns into viable models and process and learn from large amounts of data, etc.<sup>15</sup> Self-driving vehicles can be considered, in essence, 'computers on wheels' and computers tend to compute far better than humans.<sup>16</sup> However, some situations are so complex that it is very hard to compute them.<sup>17</sup>

While self-driving vehicles appear to have many advantages, they will remain a source of greater danger for road users in the foreseeable future. Given their possible mass and speed of movement, the laws of physics simply do not allow for stopping them in an instant, quite like a conventional vehicle cannot be stopped in the blink of an eye. Moreover, self-driving vehicles are a combination of hardware and software but, arguably, completely flawless software does not exist.<sup>18</sup> No software developer can guarantee that their software is completely bug-free or intrusion-proof. Thus, the software of a self-driving vehicle might have an unintended bug or vulnerability. It has been pointed out that the scale of damage in such a situation could be broader than in the case of a conventional vehicle.<sup>19</sup>

In the light of the threats and weaknesses stemming from or related to self-driving vehicles, appropriate rules are needed to ensure the safety and the safeguarding of the rights and interests of road users. Thereby technology is not the only obstacle to the introduction of self-driving vehicles. Since the existing international and domestic legal rules have been formulated with the driver in mind, they will need to be adjusted accordingly.<sup>20</sup> For instance, under Article 8.1 of the Vienna Convention, every moving vehicle must have a driver. Under

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<sup>15</sup> For further information on data and sensor fusion, see Özer Çiftçioğlu and Sevil Sariyildiz, 'Data Sensor Fusion for Autonomous Robotics' in Serdar Küçük (ed), *Serial and Parallel Robot Manipulators – Kinematics, Dynamics, Control and Optimization* (IntechOpen 2012), p 373 DOI: <<https://doi.org/10.5772/33139>>.

<sup>16</sup> Sam Francis, 'Computers on wheels: An insight into how computers are making cars in their own image' (*Robotics&Automation News*, 12 July 2018) <<https://roboticsandautomationnews.com/2018/06/12/computers-on-wheels-an-insight-into-how-computers-are-making-cars-in-their-own-image/17622/>> accessed 8 October 2020.

<sup>17</sup> On hard problems, see fn 18 in Article III.

<sup>18</sup> Mark Butje, *Product Marketing for Technology Companies* (Elsevier Butterworth-Heinemann: Oxford 2005), p 10.

<sup>19</sup> Rob Corbet and Ciara Anderson, 'Autonomous vehicles – a driver for legal change' (6 February 2018) *Engineers Journal* <[www.engineersireland.ie/Engineers-Journal/Technology/autonomous-vehicles-a-driver-for-legal-change](http://www.engineersireland.ie/Engineers-Journal/Technology/autonomous-vehicles-a-driver-for-legal-change)> accessed 8 October 2020.

<sup>20</sup> At the international level, road traffic is regulated by two core instruments: the 1949 Geneva Convention on Road Traffic (Convention on Road Traffic, Geneva, 19.9.1949, entry into force 26.3.1952 <[https://treaties.un.org/doc/Treaties/1952/03/19520326%2003-36%20PM/Ch\\_XI\\_B\\_1\\_2\\_3.pdf](https://treaties.un.org/doc/Treaties/1952/03/19520326%2003-36%20PM/Ch_XI_B_1_2_3.pdf)> accessed 8 October 2020) and the 1968 Vienna Convention on Road Traffic (Convention on Road Traffic, Vienna, 8.11.1968, entry into force 21.5.1977 <[http://www.uncece.org/fileadmin/DAM/trans/conventn/Conv\\_road\\_traffic\\_EN.pdf](http://www.uncece.org/fileadmin/DAM/trans/conventn/Conv_road_traffic_EN.pdf)> accessed 8 October 2020). While the Geneva Convention takes a minimalist approach, the Vienna Convention sets out more detailed rules for traffic-related matters than the Geneva Convention.

Article 8.5 of the same, every driver must at all times be able to control their vehicle and under Article 13.1, every driver of a vehicle must in all circumstances have their vehicle under control so as to be able to exercise due and proper care and to be at all times in a position to perform all manoeuvres required of them. These provisions of the Vienna Convention will need to be amended before fully self-driving vehicles can be lawfully put into circulation in Estonia.<sup>21</sup>

This compendium is based on the author's four publications:

- 'Delictual Liability for Damage Caused by Fully Autonomous Vehicles: the Estonian Perspective.'<sup>22</sup> The authors of the article are Taivo Liivak and Janno Lahe. Taivo Liivak contributed to formulating the research question and structuring the research results, carried out the analysis and drew up the results;
- 'Liability of a Manufacturer of Fully Autonomous and Connected Vehicles under the Product Liability Directive'<sup>23</sup>;
- 'What Safety Are We Entitled to Expect of Self-driving Vehicles?'<sup>24</sup>;
- 'Strict Liability for Damage Caused by Self-driving Vehicles: the Estonian Perspective.'<sup>25</sup> The authors of the article are Taivo Liivak and Janno Lahe. Taivo Liivak contributed to formulating the research question and structuring the research results, carried out the analysis and drew up the results.

With the exception of 'Liability of a Manufacturer of Fully Autonomous and Connected Vehicles under the Product Liability Directive,' which examines primarily EU law, the articles focus on Estonian law with the aim of covering the entire span of relevant tort law. The article 'Delictual Liability for Damage

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<sup>21</sup> It has been argued that the difficulty in reaching a related agreement may stem from different approaches to attaining full driving automation because some stakeholders are focusing on improving driver-assistance systems and gradually shift driving tasks from drivers to automated driving systems, while others attempt to operate self-driving vehicles in a limited geographical area and progressively expand it to other areas – see World Economic Forum, 'White Paper. Filling Legislative Gaps in Automated Vehicles' (April 2019) pp 8–9 <[http://www3.weforum.org/docs/WEF\\_Filling\\_Legislative\\_Gaps\\_in\\_Automated\\_Vehicles.pdf](http://www3.weforum.org/docs/WEF_Filling_Legislative_Gaps_in_Automated_Vehicles.pdf)> accessed 8 October 2020. The developers of self-driving vehicles and delivery robots in Estonia and the Estonian state seem to have taken the latter approach.

<sup>22</sup> Taivo Liivak and Janno Lahe, 'Delictual Liability for Damage Caused by Fully Autonomous Vehicles: the Estonian Perspective' (2018) 12/1 Masaryk University Journal of Law and Technology, pp 49–73 DOI: <<https://doi.org/10.5817/MUJLT2018-1-3>> (hereinafter *Article I*).

<sup>23</sup> Taivo Liivak, 'Liability of a Manufacturer of Fully Autonomous and Connected Vehicles under the Product Liability Directive' (2018) 4/2 International Comparative Jurisprudence, pp 178–189 DOI: <<https://doi.org/10.13165/j.icj.2018.12.008>> (hereinafter *Article II*).

<sup>24</sup> Taivo Liivak, 'What Safety Are We Entitled to Expect of Self-driving Vehicles?' (2019) 28 Juridica International, pp 95–102 DOI: <<https://doi.org/10.12697/JI.2019.28.11>> (hereinafter *Article III*).

<sup>25</sup> Taivo Liivak and Janno Lahe, 'Strict Liability for Damage Caused by Self-driving Vehicles: the Estonian Perspective' (2019) 12/2 Baltic Journal of Law & Politics, pp 1–18 DOI: <<https://doi.org/10.2478/bjlp-2019-0009>> (hereinafter *Article IV*).

Caused by Fully Autonomous Vehicles: the Estonian Perspective’ (*Article I*) provides an introduction into the basics of fault-based tortious liability, strict liability and product liability for damage caused by self-driving vehicles, thereby also discussing the division of liability in the event of mutual damage involving self-driving vehicles.

The second article titled ‘Liability of a Manufacturer of Fully Autonomous and Connected Vehicles under the Product Liability Directive’ (*Article II*) presents the Directive’s prerequisites for manufacturer liability, examines legal gaps arising from the definition of ‘product’ in the light of the characteristics of self-driving vehicles, looks into the defectiveness considerations of self-driving vehicles under the Directive, analyses the circle of persons who can be treated as manufacturers and the development risk defence which is often associated with the decision-making process of self-driving vehicles.

The third article ‘What Safety Are We Entitled to Expect of Self-driving Vehicles?’ (*Article III*) lays groundwork for assessing the defectiveness of self-driving vehicles by considering their capabilities, the role and, in the light of the defectiveness criteria laid down in the Product Liability Directive and respective case-law of the Court of Justice of the European Union, also the expectations of human beings as well as legislation aimed at ensuring safety and preventing damage.

The fourth article ‘Strict Liability for Damage Caused by Self-driving Vehicles: the Estonian Perspective’ (*Article IV*) attempts to identify possible differences between damage caused by a conventional vehicle as opposed to that caused by a self-driving vehicle to answer the question of whether the introduction of self-driving vehicles calls for, among other things, a revision of the rules on strict liability.

## 2. RESEARCH PROBLEM AND TOPIC

### 2.1. Relationship between tort law and liability insurance and the main functions of tort law

The complex relationship between tort law and liability insurance continues to provide legal scholars and legislators with plenty of food for thought. While such analyses<sup>26</sup> often tend to focus on combining of tort law and liability insurance in order to attain a proper balance within the given legal system, liability insurance is not the subject matter of research of this dissertation. Nevertheless, since every now and then someone makes a suggestion to replace liability for accidents (including traffic accidents) with some insurance solution<sup>27</sup> and since the insurance industry is also preparing for the introduction of self-driving vehicles,<sup>28</sup> it is necessary to shed some light on the relationship between tort law and liability insurance for the purposes of the conclusions drawn and establishment of a broader context.

Some argue that the issue of insurance should be kept separate from and independent of the issue of liability due to problems of containment of moral hazards stemming from being insured.<sup>29</sup> The liability insurance approach would constitute a shift from the traditional paradigm of everyone having to bear their own damage (unless there is a special justification for shifting such damage to someone else) to the premise whereby every injured person must be compensated for their loss regardless of how it occurred.<sup>30</sup>

A similar tug of war is also programmed into the very functions of modern tort law. The Commentary on the LOA explains that the function of tort law is to

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<sup>26</sup> See, for example, Gerhard Wagner, 'Tort Law and Liability Insurance' (2006) 31 The Geneva Papers, pp 277–292 DOI: <<https://doi.org/10.1057/palgrave.gpp.2510074>>; Helmut Koziol, *Basic Questions of Tort Law from a Germanic Perspective* (Wien: Jan Sramek Verlag, 2012).

<sup>27</sup> See, for instance, Kenneth S. Abraham, 'Liability Insurance and Accident Prevention: the Evolution of an Idea' (2005) 64/1 Maryland Law Review, p 573.

<sup>28</sup> See, for instance, Centre for Connected and Autonomous Vehicles, 'Pathway to Driverless Cars: Insurance for Automated Vehicles,' Impact Assessment No DfT00366 <[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/589800/pathway-driverless-cars-impact-assessment.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/589800/pathway-driverless-cars-impact-assessment.pdf)> accessed 8 October 2020.

<sup>29</sup> Gerhard Wagner, 'Tort Law and Liability Insurance' (2006) 31 The Geneva Papers, p 278 DOI: <<https://doi.org/10.1057/palgrave.gpp.2510074>>.

<sup>30</sup> The approach does entail various advantages for the injured person who gets compensated without prior verification of all of the prerequisites for tortious liability, the process is shorter and faster and less expensive. The down side is that, once the reasons for damage become irrelevant, the injured person gets compensated for damage caused by chance or their own lack of care and this might encourage carelessness. See Helmut Koziol, *Basic Questions of Tort Law from a Germanic Perspective* (Wien: Jan Sramek Verlag, 2012), p 5; Tambet Tampuu, *Lepinguvälised võlasuhted* [Non-contractual Debt Relationships] (Juura 2017) (hereinafter *Tampuu*), p 172.

make good the damage tortiously caused to the injured persons and to preclude future cases of unlawful damage (special and general prevention).<sup>31</sup> It has also been noted that the obligation to compensate for damage under civil law serves, above all, a compensatory function.<sup>32</sup>

Regarding the deterrence (preventive) function of tort law,<sup>33</sup> Koziol explains that the threat of a duty to compensate for damage does entail a general incentive to avoid inflicting damage as well as refrain therefrom in the future and points out that Continental European tort law systems are aimed, first and foremost, at compensation, while deterrence is merely a secondary function and is alone insufficient to justify the imposition of pecuniary obligations that do not serve the purpose of compensation.<sup>34</sup>

In finding answers to the questions asked about the functioning of the various forms of liability for damage caused by self-driving vehicles, the author has taken into account, among other things, the considerations of fairness, legal certainty, consumer protection and innovation.

It has been argued that the only issue of risk distribution that ultimately matters is whether tort rules distribute risk in the manner required by the governing distributive norms of fairness or justice.<sup>35</sup> Fairness can be looked at from the point of view of the choice of a tort regime, reciprocity of risk, distribution of harm, risks, costs of harm and burden of proof.<sup>36</sup>

It has been noted that legal certainty calls for a balance between stability and flexibility – more specifically, formal legal certainty calls for predictability, so that persons concerned can assess the legal consequences of their actions, while

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<sup>31</sup> Paul Varul and others, *Võlaõigusseadus III. Kommenteeritud väljaanne* [Law of Obligations Act III. Commented version] (Juura 2009) (hereinafter *Varul and others*), p 622. See also Janno Lahe, ‘Punitive Damages in Estonian Tort Law?’ (2011) 3 *Journal of European Tort Law*, pp 280–293.

<sup>32</sup> Karin Sein, ‘Kas Eesti õiguses tuleks lubada karistuslikke kahjuhüvitisi?’ [*Should punitive damages be allowed in Estonian law?*] (2008) 2 *Juridica*, p 93.

<sup>33</sup> Tampuu (n 30), p 172.

<sup>34</sup> Koziol, pp 78–79. He adds that the deterrent function of tort law is at least greatly reduced (if not eliminated) by the widespread availability of third party liability insurance. He considers this kind of insurance highly desirable but notes that respective policies should be designed (with the help of, for instance, appropriate deductibles) so that they do not undermine the deterrent function of tort law. See also Helmut Koziol, ‘Harmonising Tort Law in the European Union: Advantages and Difficulties’ (2013) 1 *ELTE Law Journal*, pp 80–83 <[https://eltelawjournal.hu/wp-content/uploads/2014/03/ELJ\\_Separatum\\_koziol.pdf](https://eltelawjournal.hu/wp-content/uploads/2014/03/ELJ_Separatum_koziol.pdf)> accessed 8 October 2020.

<sup>35</sup> Mark A. Geistfeld, ‘Risk Distribution and the Law of Torts: Carrying Calabresi Further’ (2014) 77 *Law and Contemporary Problems*, p 166.

<sup>36</sup> Gregory C. Keating, ‘Tort, Rawlsian Fairness and Regime Choice in the Law of Accidents’ (2004) 72/5 *Fordham Law Review*, pp 1857–1921; Tampuu (n 30), p 172; Varul and others (n 31), p 622.

substantive legal certainty can be associated with the acceptability of laws and adjudication by the legal community.<sup>37</sup>

The goal of a high level of consumer protection is established in Article 38 of the Charter of Fundamental Rights of the European Union.<sup>38</sup> Under Article 12 of the Treaty on the Functioning of the European Union (TFEU), consumer protection requirements must be taken into account in defining and implementing other Union policies and activities.<sup>39</sup> Article 169(1) of the TFEU lists the Union's efforts aimed at promoting the interests of consumers and ensuring a high level of consumer protection: contribution to protecting the health, safety and economic interests of consumers as well as to promoting their right to information, education and to organise themselves in order to safeguard their interests.

To supplement tort law in dealing with adverse consequences of road traffic and in safeguarding road users' rights, Member States of the European Union, among them Estonia, have made it compulsory for motor vehicles to have a liability insurance contract.<sup>40</sup> Liability insurance is supposed to ensure that damage caused to the injured person is indemnified by the insurer, while the possessor, operator or driver of the motor vehicle is usually not the one to ultimately compensate for the damage caused. The motor insurance obligation will presumably also apply to self-driving vehicles.<sup>41</sup> However, as noted on p 4 in Article IV, even where the insurer indemnifies the damage, it is still important whether and on what ground the driver, operator or possessor of the damage-

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<sup>37</sup> Elina Paunio, 'Beyond Predictability – Reflections on Legal Certainty and the Discourse Theory of Law in the EU Legal Order' (2009) 10 German Law Journal, pp 1469–1493 DOI: <<https://doi.org/10.1017/S2071832200018332>>.

<sup>38</sup> Charter of Fundamental Rights of the European Union [2012] OJ C 326/391.

<sup>39</sup> Consolidated version of the Treaty on the Functioning of the European Union [2012] OJ C 326/47.

<sup>40</sup> Article 3 of Directive 2009/103/EC of the European Parliament and of the Council of 16 September 2009 relating to insurance against civil liability in respect of the use of motor vehicles, and the enforcement of the obligation to insure against such liability [2009] OJ L263/11.

<sup>41</sup> The same has also been noted on p 26 of the report prepared by Karmen Turk, Maarja Pild and Ergo Blumfeldt, 'Analüüs SAE tase 4 ja 5 sõidukite kasutusele võtmiseks koos seaduseelnõu väljatöötamiskavatsuse kirjeldustega, Vaheraport' [*An analysis for the introduction of vehicles of SAE Levels 4 and 5 along with descriptions of a letter of intent of a bill. Interim report*] (24 August 2017) <[www.mkm.ee/sites/default/files/analuus\\_sae\\_tase\\_4\\_ja\\_5\\_soidukite\\_kasutusele\\_votmiseks\\_riigikantselei\\_2017\\_08\\_23\\_ver\\_6.docx](http://www.mkm.ee/sites/default/files/analuus_sae_tase_4_ja_5_soidukite_kasutusele_votmiseks_riigikantselei_2017_08_23_ver_6.docx)> accessed 8 October 2020. Making references mainly to US law, the authors of the report raise the issues of whether a new type of insurance is needed for self-driving vehicles in the light of the fact that the current insurance system is dependent on the driver, how to provide insurance services in a situation where information from prior accidents involving self-driving vehicles is not usable owing to the fact that the vehicle is controlled by a self-learning algorithm that improves the system after an accident and takes the circumstances into account. The authors of the report find the compulsory insurance regime sufficient for self-driving vehicles in Estonia but note that it could be considered whether manufacturers (dealers, distributors) of self-driving vehicles should have some additional insurance to effectively ensure product-related liability.

inflicting vehicle is liable towards the injured person, because the insurer's obligation to indemnify is based on the tortfeasor's liability.<sup>42</sup> It has been pointed out that, where the tortfeasor is indeed liable for the damage caused, the indemnification obligation rests with the tortfeasor's motor insurance undertaking to the extent that the tortfeasor is liable towards the injured person.<sup>43</sup>

Such liability is mostly tortious (see clauses 1 and 2 of subsection 1 of § 23 of the Motor Insurance Act (MIA)) but in certain circumstances it may be contractual, more specifically, stem from a passenger carrier contract, which is regulated in § 824 *et seq* of the LOA. It has been pointed out that clause 3 of subsection 1 of § 23 of the MIA limits the insurer's indemnification obligation in such a manner that liability under a passenger carriage contract is the only type of contractual liability that can result in the insurer's obligation to perform.<sup>44</sup> It has also been explained that, while the liability of the policyholder may be based on breaches of other types of contracts, these cannot result in the insurer's liability in situations where risks characteristic of engaging in traffic have not materialised.<sup>45</sup> It follows from subsection 3 of § 1044 of the LOA that in the event of the injured person's death or bodily injury or harm to the injured person's health, the injured person can always choose whether to bring a claim based on contract law or tort law.

It has been noted regarding international enforcement as a means of increasing trust in the digital market of the EU that the ultimate solutions should reflect the

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<sup>42</sup> For instance, subsection 1 of § 23 of the Motor Insurance Act specifies the extent to which the insured person must bear liability towards the injured person in order to trigger the motor insurance undertaking's obligation to indemnify the damage: Where an insured event occurs, the injured party may file a claim for damages against the insurer if the insured person is liable towards the injured party: 1) on the basis of § 1057 of the Law of Obligations Act; 2) on the basis of the provisions of the Law of Obligations Act regarding unlawfully and culpably caused damage, or 3) on the basis of a contract for the carriage of passengers. See the Motor Insurance Act [*liikluskindlustuse seadus*] – RT I, 11.04.2014, 1; RT I, 13.03.2019, 2. English translation: <[www.riigiteataja.ee/en/eli/526032019008/consolide](http://www.riigiteataja.ee/en/eli/526032019008/consolide)> accessed 8 October 2020. On the prerequisites and scope of the liability of the motor insurer see Janno Lahe, 'Estland,' pp 233–235 in Werner Bachmeier (ed) *Regulierung von Auslandsunfällen* (Baden-Baden: Nomos Verlagsgesellschaft 2017); Janno Lahe, Olavi-Jüri Luik and Martti Merila, *Liikluskindlustuse seadus. Kommenteeritud väljaanne* [Motor Insurance Act. Commented version] (Juura 2017), pp 98–100.

<sup>43</sup> Janno Lahe, 'Estland,' pp 233–235 in Werner Bachmeier (ed) *Regulierung von Auslandsunfällen* (Baden-Baden: Nomos Verlagsgesellschaft 2017); Lahe, Luik and Merila (n 42), pp 98–100.

<sup>44</sup> Lahe, Luik and Merila (n 42), p 91. The damage that the carrier is required to compensate under § 830 of the LOA: 1) the death or bodily injury or harm to the health of the passenger during carriage or due to a circumstance related to carriage; 2) partial or total loss of or damage to baggage during carriage or due to a circumstance related to carriage and 3) damage arising from the exceeding of the carriage time limit.

<sup>45</sup> *ibid.* For further information on the prerequisites for a claim for damages arising from a breach of contract see, for instance, Supreme Court Civil Chamber (hereinafter *SCCC*) judgment, 8 January 2013, case 3-2-1-173-12, paras 15–19.



pan-national character of the market and be coordinated at EU level.<sup>46</sup> In the context of motor insurance, this understanding is reflected in §§ 48–51 of the MIA. Under subsection 1 of § 51 of the MIA, the insurer is required to appoint a settler of cross-border claims for each contracting state in order to compensate the injured person domiciled in the respective state for damage suffered as a result of an insured event, provided that the damage has been caused in a contracting state and the particular state is not the domicile of the injured person. This means that, for instance, in a situation where the vehicle of an individual from Estonia is involved in a traffic accident in Finland and suffers damage, they can, for the purpose of the ease and familiarity of the process, return to Estonia after the accident and file a claim for damages to the representative of the Finnish insurance company in Estonia.<sup>47</sup>

## 2.2. Research problem

Tort law (also called the law of delict) is part of the law of non-contractual obligations, which governs the making good of unlawfully caused damage. Tort (delict) essentially means a civil wrong (a violation of the law).<sup>48</sup> It has been pointed out that the underlying purpose of tort law is not the sanctioning of the tortfeasor or the deprivation of the tortfeasor of the proceeds obtained from the violation of the law but making the damage good towards the injured person (victim) and preventing further non-contractual damage (special prevention and general prevention).<sup>49</sup> In the Commentary<sup>50</sup> on the Estonian Law of Obligations Act (LOA),<sup>51</sup> attention is drawn to the fact that since the general preventive effect of tort law is associated with, above all, the desire of the potential tortfeasor to avoid tortious liability and the obligation to make the damage good, tort law has no general preventive effect in a situation where the number of potential instances of damage

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<sup>46</sup> Hans Schulte-Nölke and others, ‘The legal framework for e-commerce in the Internal Market,’ Study for the committee on the Internal Market and Consumer Protection (Luxembourg 2020) Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament, p 38 <[https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652707/IPOL\\_STU\(2020\)652707\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652707/IPOL_STU(2020)652707_EN.pdf)> accessed 8 October 2020.

<sup>47</sup> For further information, see Lahe, Luik and Merila (n 42), pp 166–174.

<sup>48</sup> *Black’s Law Dictionary* (10<sup>th</sup> Edition for the iPhone and iPad. Version: 1.4, Thomson Reuters 2014).

<sup>49</sup> Tampuu (n 30), p 115. See also SCCC judgment, 26 June 2013, case 3-2-1-18-13, para 29.

<sup>50</sup> Varul and others (n 31), p 622.

<sup>51</sup> Law of Obligations Act [*võlaõigusseadus*] – RT I 2001, 81, 487; RT I, 08.01.2020, 1. English translation: <[www.riigiteataja.ee/en/eli/515012020004/consolide](http://www.riigiteataja.ee/en/eli/515012020004/consolide)> accessed 8 October 2020. Please note that the English translations of the Acts of Parliament (the *Riigikogu*) given in this compendium are provided by the author and, for the purposes of greater accuracy, may somewhat differ from those published in the Estonian State Gazette (*Riigi Teataja*). The English translations published in the *Riigi Teataja* are merely unofficial versions of the statutes and do not have any legal force.

is not high and the costs of prevention of damage would, in the event of damage, exceed the costs of preventing the respective damage. It also is noted in the Commentary on the LOA that, according to the principle of fairness, tort law should allow for holding the person who caused damage and can be blamed for it liable – in other words, this is the principle of individual fault-based liability which applies, above all, to fault-based tortious liability.<sup>52</sup> Likewise, it is noted that tort law is supposed to hold liable a person who is required to make good the harmful consequences due to the fact that damage was caused as a result of the manifestation of a risk arising from a dangerous thing or activity controlled by the person (justifies tortious liability on the basis of the provisions regulating strict liability).<sup>53</sup>

The tort law provisions of the LOA distinguish between fault-based tortious liability (§§ 1043–1055) which stands apart from heightened liability which is manifested in strict liability (§§ 1056–1060) and product liability (§§ 1061–1067). The first of the three is fault-based, the second is no-fault liability and the third is to a large extent, albeit not fully, no-fault liability as well. It follows from the second sentence of subsection 1 of § 1056 of the LOA that strict liability applies only where either the life, health or ownership of a person is harmed. The same interests are protected under the product liability provisions set out in subsections 1 and 2 of § 1061 of the LOA. The list of protected legal interests is longer in the case of fault-based tortious liability, but these three are covered as well (see clauses 1, 2 and 5 of subsection 1 of § 1045 of the LOA).

This dissertation examines, within the confines of Estonian law, tortious liability for damage caused by self-driving vehicles. While both contract law and insurance law also have an important role to play in terms of liability associated with self-driving vehicles, this dissertation focuses on tort law. More specifically, the focus is on the entire range of tortious liability that is of relevance for Estonia in the context of self-driving vehicles: fault-based tortious liability, strict liability and product liability. Since the latter liability regime is the only one of the three harmonised at EU level, the discussion thereof is respectively broader as well.

The field of self-driving vehicles and intelligent transport systems (ITS) is developing rapidly worldwide.<sup>54</sup> The respective technologies, the industry's standards and safety requirements are still taking shape.<sup>55</sup> Nevertheless, the underlying idea of the self-driving vehicle is to, figuratively speaking, eliminate

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<sup>52</sup> Varul and others (n 31), p 622.

<sup>53</sup> *ibid.*

<sup>54</sup> See the initiatives and research indicated in nn 9 and 10 above. On the development of ITS in Estonia, see 'Intelligent Transportation Systems' (*e-Estonia, Mobility services*) <<https://e-estonia.com/solutions/location-based-services/intelligent-transportation-system/>> and the website of the ITS Estonia network <<https://its-estonia.com/en/its-estonia-en/>> accessed 8 October 2020.

<sup>55</sup> For a discussion on the industry's standards and requirements, see Rick Salay, Rodrigo Queiroz and Krzysztof Czarnecki, 'An analysis of ISO 26262: Using machine learning safely in automotive software' (2017), arXiv: <<https://arxiv.org/pdf/1709.02435.pdf>> accessed 8 October 2020.

the human from the equation.<sup>56</sup> In other words, to cope without a human at the wheel or even eliminate the driving wheel altogether. Such vehicles need special infrastructure (eg ITS) which helps them to be aware of their surroundings so that they could cope with all roadway and weather conditions safely.<sup>57</sup> These vehicles may need various third-party services as well.<sup>58</sup>

In order to actually put a motor vehicle into circulation, certain standards and rules<sup>59</sup> under public law need to be complied with. The regulatory authorities need to be certain that the vehicle is indeed safe. Self-driving vehicles are no exception in this regard and will need to comply with all the applicable public requirements before they can be put into circulation. Therefore, instead of resorting to technical guessing or speculations over how the true driving automation might ultimately be achieved, what the legal implications thereof might be and what will happen or will need to happen in the realm of public law in order to make self-driving vehicles possible, this dissertation focuses on the type of vehicle that does not have a human driver at the wheel and is not otherwise under any other kind of direct human control and, where necessary, makes use of third party services in order to be able to cope with driving on its own. This premise seems sufficient to venture an analysis into tortious liability currently designed solely with human drivers in mind. Although self-driving vehicles have not yet been put into circulation in Estonia, they are being tested on Estonian roads and can be placed in the existing legal space in order to assess what issues it raises from the point of view of tort liability and whether the law in force needs any rethinking or revision in the light of their upcoming introduction.

**The overall purpose of the dissertation is to establish whether and to what an extent the application of tortious liability is affected by the automation of the vehicle and whether and to what an extent this calls for revision of the**

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<sup>56</sup> See, for instance, SAE International. 'Summary of SAE International's levels of driving automation for on-road vehicles' (2014) <[https://web.archive.org/web/20170903105244/https://www.sae.org/misc/pdfs/automated\\_driving.pdf](https://web.archive.org/web/20170903105244/https://www.sae.org/misc/pdfs/automated_driving.pdf)> accessed 8 October 2020.

<sup>57</sup> On the priority areas regarding ITS, see Annex I to Directive 2010/40/EU of the European Parliament and of the Council of 7 July 2010 on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport [2010] OJ L207/1.

<sup>58</sup> On third-party digital services see, for instance, Martin Ebers, 'Haftung für fehlerhafte Daten beim autonomen Fahren' in Louisa Specht-Riemenschneider, Nikola Werry and Susanne Werry (eds), *Datenrecht in der Digitalisierung* (Berlin: Erich Schmidt Verlag 2019), pp 896–936.

<sup>59</sup> Eg Directive 2007/46/EC of the European Parliament and of the Council of 5 September 2007 establishing a framework for the approval of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles (Framework Directive) [2007] OJ L263/1; Directive 2001/95/EC of the European Parliament and of the Council of 3 December 2001 on general product safety [2002] OJ L11/4. In Estonia, the key statute is the Product Conformity Act [*toote nõuetele vastavuse seadus*] – RT I 2010, 31, 157; RT I, 12.12.2018, 3. English translation: <[www.riigiteataja.ee/en/eli/518012019009/consolide](http://www.riigiteataja.ee/en/eli/518012019009/consolide)> accessed 8 October 2020.

**relevant legal rules.** To attain this purpose, the author seeks answers to the following research questions:

- Whether and on what grounds can the injured person bring a claim for damages under fault-based tortious liability in a situation where damage has been caused by a self-driving vehicle?
- Whether and based on what considerations should the Estonian legislature establish in the Traffic Act a separate safeguarding tort law provision aimed at self-driving vehicles following the example of the German Road Traffic Act?
- How are the prerequisites for the application of strict liability and the circle of obligated persons affected by the fact that damage has been caused by a self-driving vehicle?
- In which situations should a bug or error in the software of a self-driving vehicle or in digital services used be deemed a defect of the vehicle?
- Whether and to what an extent is it justified to discharge manufacturers of self-driving vehicles from liability based on the so-called development risk defence?
- How to assess the size of the risk of operation of self-driving vehicles?
- How to divide liability in a situation where mutual damage has been caused with the involvement of a self-driving vehicle, given that the driver's conduct cannot be taken into account in the case of a self-driving vehicle?

## **2.3. Defining the topic**

### **2.3.1. Characteristics of self-driving vehicles**

Self-driving vehicles can be divided into six levels of automation (Levels 0–5), ranging from no automation to full automation.<sup>60</sup> The levels are described in greater detail on pp 96–97 in Article III. Vehicles of Level 5 constitute the subject matter of this dissertation.

To be able to drive on its own, the vehicle needs to be aware of the surrounding environment, including of the weather, the road conditions, non-moving and moving objects, traffic signs, other road users, birds and animals, etc as well as of events and occurrences that are relevant from the point of view of the passengers (traffic signals and other road users' behaviour). For that purpose, it has to take into account not only internally obtained data and information but also external data and information, such as, for example, maps, traffic rules, etc. In order to

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<sup>60</sup> SAE International, SAE International, 'Standard J3016. (R) Taxonomy and Definitions for Terms Related to On-Road Motor Vehicle Automated Driving Systems' (issued in January 2014, revised in June 2018), pp 1–35; SAE International. 'Summary of SAE International's levels of driving automation for on-road vehicles' (2014) <[https://web.archive.org/web/20170903105244/https://www.sae.org/misc/pdfs/automated\\_driving.pdf](https://web.archive.org/web/20170903105244/https://www.sae.org/misc/pdfs/automated_driving.pdf)> accessed 8 October 2020. This classification has been picked up by numerous countries and the car industry, which has effectively made it the global standard for stakeholders.

drive on its own, the vehicle needs to perceive what is happening around it – in particular, what is moving and what is not. To perceive the surroundings, self-driving vehicles need various sensors (eg radar, LIDAR, global positioning system and local positioning system components, an odometer system, vision, and an inertial measurement unit).<sup>61</sup> However, having internal and external data and information is not enough. It has been pointed out that accurate and reliable perception of the surroundings also calls for coordinating the data obtained via these sensors (in other words, data fusion and sensor fusion).<sup>62</sup>

Self-driving motor vehicles have not been explicitly regulated in the Traffic Act (hereinafter *TA*) yet.<sup>63</sup> However, the *TA* contains provisions specifically aimed at self-driving delivery robots. These entered into force on 14 July 2017. Under clause 68<sup>1</sup> of § 2 of the *TA*, a self-driving delivery robot is a partially or fully automated or remotely controlled vehicle which moves on wheels or another chassis that is in contact with the ground, uses sensors, cameras or other equipment for obtaining information on the surrounding environment and, based on the obtained information, is able to move partially or fully without being controlled by a driver.<sup>64</sup> However, it follows from clause 40 of § 2 of the *TA* that

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<sup>61</sup> On various sensors and other hardware used see, for instance, Yurtsever and others (n 10); Khuram Shahzad, ‘Cloud robotics and autonomous vehicles’ in Andrzej Zak (ed), *Autonomous Vehicle* (IntechOpen 2016) DOI: <<https://doi.org/10.5772/64064>>; Yassen Dobrev and others, ‘Steady Delivery: Wireless Local Positioning Systems for Tracking and Autonomous Navigation of Transport Vehicles and Mobile Robots’ (*IEEE Microwave Magazine*, 2017) 18/6, pp 26–37 DOI: <<https://doi.org/10.1109/MMM.2017.2711941>>.

<sup>62</sup> Özer Çiftçioğlu and Sevil Sariyildiz, ‘Data Sensor Fusion for Autonomous Robotics’ in Serdar Küçük (ed), *Serial and Parallel Robot Manipulators – Kinematics, Dynamics, Control and Optimization* (IntechOpen 2012), p 373 DOI: <<https://doi.org/10.5772/33139>>.

<sup>63</sup> Traffic Act [*liiklusseadus*] – RT I 2010, 44, 261; RT I, 30.06.2020, 8. English translation: <<https://www.riigiteataja.ee/en/eli/511082020004/consolide>> accessed 8 October 2020. However, the Estonian state is planning on introducing algorithmic-liability rules that would cover, among other things, self-driving vehicles. For further information see Cabinet Communication Unit, ‘Self-driving vehicles waiting for a new law’ (15 October 2019) <[www.valitsus.ee/en/news/self-driving-vehicles-waiting-new-law](http://www.valitsus.ee/en/news/self-driving-vehicles-waiting-new-law)> accessed 8 October 2020.

<sup>64</sup> Clause 68<sup>2</sup> of the same section gives the legal definition of the user of a self-driving delivery robot: ‘a natural or legal person who is the direct possessor of a self-driving delivery robot and uses the self-driving delivery robot in traffic. A person who is provided with a service using a self-driving delivery robot under a contract or on another ground and who does not have substantive control over the maintenance, operation the self-driving delivery robot or over allowing the self-driving delivery robot to engage in traffic is not considered a self-driving delivery robot user.’ In clause 68<sup>3</sup> of § 2, the *TA* also defines the controlling of a self-driving delivery robot: ‘the adjustment of the moving speed or direction of a self-driving delivery robot by a natural person directly or by way of remote control using electronic, manual or other control equipment. The controlling of a self-driving delivery robot also means the setting of the path of movement for a self-driving delivery robot and the giving for the related movement and stopping instructions for the time during which the self-driving delivery robot participates in traffic partially or fully without the controller’s control, but only to the extent that the self-driving delivery robot follows such instructions.’

self-driving delivery robots are not considered motor vehicles, which precludes them from among the subject-matter of this dissertation.

While both the TA and the LOA use the term *mootorsõiduk*, the meaning of the term in these two different Acts of Parliament is different. Under clause 40 of § 2 of the TA, *mootorsõiduk*<sup>65</sup> means a vehicle powered by an engine, except for engine-powered vehicles designated for use solely by a person with reduced mobility, electric cycles, self-balancing vehicles, mini mopeds, self-driving delivery robots, off-road vehicles, trams and vehicles with a manufacturer speed of no more than six kilometres per hour. Section 1057 of the LOA provides for the liability of the possessor of a *mootorsõiduk*<sup>66</sup>, listing the grounds which preclude the possessor's liability. Thereby clause 3 of § 1057 of the LOA explicitly also mentions the operation of an aircraft. Thus, *mootorsõiduk* seems to have a broader meaning in the LOA as compared to the use of the same Estonian term in the TA. This interpretation seems to be supported by the authors of the commentary on the Estonian MIA.<sup>67</sup> Furthermore, it has been pointed out that the exclusion of the tram from among motor vehicles in the TA definition also raises questions in the light of § 1057 of the LOA.<sup>68</sup> This supports the assumption that the term 'motor vehicle' indeed is broader in the LOA than in the TA.

In view of the above, it can be argued that a self-driving vehicle should be considered a motor vehicle for the purposes of § 1057 of the LOA. The qualification of a self-driving vehicle as a motor vehicle for the purpose of the LOA is of relevance, above all, in the context of strict liability.<sup>69</sup>

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<sup>65</sup> In the English translation of the TA, it is called 'power-driven vehicle' in line with the terminology used in the Vienna Convention on Road Traffic of 8 November 1968.

<sup>66</sup> In the English translation of the LOA, it is called 'motor vehicle'. For the purposes of this compendium, the term 'motor vehicle' is used in English for both the TA and LOA terms.

<sup>67</sup> Lahe, Luik and Merila (n 42), p 88.

<sup>68</sup> Tampuu (n 30), p 285.

<sup>69</sup> As for terms used to describe motor vehicles that are able to cope with the driving task without the help of a driver, there is an ample selection of options (eg self-driving, automated, autonomous, driverless, etc) and no perceivable consensus on their use. For instance, the terms 'automation' and 'autonomy' represent different concepts that often get mixed up (for further information see Article III, p 96). Owing to its neutrality and descriptiveness as well as its substantive similarity to its Estonian equivalent (*isejuhtiv sõiduk*), the author of this dissertation has come to prefer the term 'self-driving vehicle' in legal English as opposed to, for instance, the term 'driverless vehicle.' Estonian journalists often tend to refer to self-driving vehicles using the term *isesõitev sõiduk* which literally translates as 'self-riding vehicle.' Given that the driver (*juht*), not the rider (*sõitja*), has been replaced by the vehicle's sensors and hardware and that 'driving' carries a more active connotation than 'riding,' preference should be given to *isejuhtiv sõiduk* in Estonian.

### 2.3.2. Fault-based tortious liability for damage caused by self-driving vehicles

#### 2.3.2.1. Prerequisites for fault-based tortious liability

Fault-based tortious liability (also called fault-based liability, general tortious/delictual liability or fault-based tortious/delictual liability) is regulated in §§ 1043–1055 of the LOA. Under § 1043 of the LOA, a person who unlawfully causes damage to another (the injured person/victim) must compensate for the damage where the person who caused damage (the tortfeasor/injuring person) is at fault of the damage or bears statutory liability for causing the damage. The Supreme Court has explained that fault-based tortious liability consists of three components that are assessed in three stages:<sup>70</sup> the objective elements of the act (this element is divided into the following three sub-elements: the tortfeasor's act, damage to the rights of the injured person and a causal link between them); unlawfulness; and the tortfeasor's fault. It follows from the case-law of the Supreme Court that these stages are examined cumulatively.<sup>71</sup> Where, for instance, there is no causal link between the tortfeasor's act and the harm caused to the injured person's legally safeguarded interests (ie damage), the unlawfulness of the act is not examined. Likewise, where the act proves lawful, the issue of fault is not dealt with.

As explained in Article I,<sup>72</sup> engaging in traffic using a self-driving vehicle may be deemed to be the tortfeasor's act. The legally safeguarded interests (rights) include, above all, life, health and ownership, which are set out in clauses 1, 2 and 5 of subsection 1 of § 1045 of the LOA, respectively.

It follows from subsection 4 of § 127 of the LOA that a person must compensate for damage only where the circumstances that serve as the basis for the person's liability and the damage caused are related in such a manner that the damage is a consequence of the circumstances (causal link). The Commentary on the LOA points out that causality can be divided into liability-creating causality and liability-fulfilling causality.<sup>73</sup> The Commentary on the LOA also explains that the former is necessary for establishing unlawfulness, while the latter is necessary for determining the extent of the obligation to compensate for damage.<sup>74</sup>

A causal link between the act and the damage is established in the same way regardless of whether the vehicle is self-driving or conventional. It is done in two stages. It follows from the case-law of the Supreme Court that, first, the natural cause for damage is assessed using the *conditio sine qua non* test whereby the preceding event is deemed as the cause of the following event where the following event had not occurred without the preceding event.<sup>75</sup> The Supreme

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<sup>70</sup> See, for instance, SCCC judgment, 25 April 2007, case 3-2-1-30-07, para 10.

<sup>71</sup> See, for instance, SCCC judgment, 28 May 2008, case 3-2-1-43-08, para 12.

<sup>72</sup> Article I, p 54.

<sup>73</sup> Varul and others (n 31), p 631.

<sup>74</sup> *ibid.*

<sup>75</sup> SCCC judgment, 26 September 2006, case 3-2-1-53-06, para 11.

Court has explained that the alleged act or omission is set aside for that purpose and it is examined whether the negative consequence had resulted even without the tortfeasor's act or omission: if the negative consequence would have been brought about also without the alleged act or omission, the act or omission is not the cause of the damage.<sup>76</sup> The Supreme Court has also noted that, under subsection 4 of § 127 of the LOA, the causal link does not necessarily need to be the direct consequence of a breach of a duty.<sup>77</sup> The Supreme Court has pointed out that there is a causal link where the damage would not have been suffered but for the act that the person is accused of.<sup>78</sup>

Second, an assessment of the legal cause for damage is carried out by examining whether the purpose of the breached rule was to obligate the tortfeasor and protect the injured person against the specific kind of damage. The need for such assessment stems, on the one hand, from subsection 2 of § 127 of the LOA according to which damage is not subject to compensation to the extent that the prevention of damage was not the purpose of the duty or provision a breach of which gave rise to the obligation to compensate for damage.<sup>79</sup> On the other hand, it arises from the principle set out in subsection 3 of § 1045 of the LOA according to which damage caused by the breach of a statutory duty is not unlawful where the purpose of the provision violated by the tortfeasor was other than to protect the injured person from such damage. For instance, if a self-driving car, disregarding a prohibiting sign, parks itself in a no-parking zone next to a tree and a branch of the tree breaks and falls onto the self-driving car, the owner/possessor/user/operator/manufacture of the car cannot be criticised for the wrong parking from the point of view of enabling the damage because the primary purpose of the parking prohibition is related to the management of traffic, not the safeguarding of persons or property in the no-parking zone.

Once the tortfeasor's act, the damage and a causal link between these have been identified, the unlawfulness of causing damage is examined. Clauses 1–4 of subsection 2 of § 1045 of the LOA set out the circumstances that preclude the unlawfulness of damage. These include situations where the right to cause damage arises from law, the injured person has consented to being caused damage without acting in conflict with the law or good morals, the tortfeasor acts in self-defence or out of necessity or the tortfeasor engages in self-help for the purpose of exercising their right or protecting themselves.

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<sup>76</sup> SCCC judgment, 18 June 2008, case 3-2-1-45-08, para 17.

<sup>77</sup> SCCC judgment, 7 December 2005, case 3-2-1-149-05, para 13.

<sup>78</sup> *ibid.*

<sup>79</sup> The Supreme Court has explained (see SCCC judgment, 26 September 2006, case 3-2-1-53-06, para 13) that subsection 2 of § 127 of the LOA must be applied to cases of non-contractual damage and, while subsection 3 of the same section does not apply to tortious liability, the foreseeability of a harmful consequence at the time of committing an unlawful act may still be of relevance in the context of fault-based tortious liability because subsections 1 and 2 of § 1050 of the LOA give the tortfeasor the opportunity to prove that they could not have reasonably foreseen the link between their act and the damage.



Where damage is caused by the driver of a conventional motor vehicle, the unlawfulness can alternatively arise from a violation of a safeguarding provision<sup>80</sup> or be based on the general catalogue of unlawful damage<sup>81</sup>.

As pointed out in Article I,<sup>82</sup> where such legally safeguarded absolute interests<sup>83</sup> as human life, health or ownership are infringed upon, unlawfulness stems from the harmful effect. Thereby a breach of an obligation by the tortfeasor is irrelevant – unlawfulness arises from the wrongfulness of the outcome specified in clauses 1, 2 and 5 of subsection 1 of § 1045 of the LOA. However, there may be still be exceptions to the establishment of unlawfulness based on the harmful effect even where the legally safeguarded absolute interests have been infringed upon. Where such an interest has been infringed upon by failure to act (omission) or where the harmful effect is a more remote outcome of the conduct of the tortfeasor, a duty which the latter has breached should be identified.<sup>84</sup> It may be a statutory duty or the general duty to maintain safety. An example of a breach of the general duty to maintain safety might be a situation where a self-driving car alerts the possessor that the software of the vehicle needs to be updated before commencing use of the vehicle and indicates that the update contains critical bug fixes, warning the possessor not to engage the vehicle in traffic before downloading and installing critical updates. However, the possessor is in a hurry and does not want to do it right away because it would take too much time. The possessor engages in traffic using the non-updated self-driving vehicle and the vehicle causes damage.

It follows from the case-law of the Supreme Court that the general duty to maintain safety means a duty to act in a manner that does not harm other persons.<sup>85</sup> The Supreme Court has explained that it means one's duty to make every

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<sup>80</sup> Clause 7 of subsection 1 of § 1045 of the LOA in combination with a safeguarding rule set out in the Traffic Act.

<sup>81</sup> Clause 1 of subsection 1 (death), clause 2 of subsection 1 (bodily injury or health damage) and clause 5 of subsection 1 (infringement of ownership) of § 1045 of the LOA.

<sup>82</sup> Article I, p 55.

<sup>83</sup> Varul and others (n 31), p 641 ff; Janno Lahe and Tambet Tampuu, 'Essential Cases on Misconduct' in Bénédicte Winiger, Ernst Karner and Ken Oliphant (eds) *Digest of European Tort Law* (Berlin: de Gruyter, 2018), p 67.

<sup>84</sup> See, for instance, Varul and others (n 31), pp 627 and 642.

<sup>85</sup> SCCC judgment, 17 December 2012, case 3-2-1-161-12, para 10. The Supreme Court explains that the general duty to maintain safety can be derived from subsection 2 of § 138 of the General Part of the Civil Code Act (GPCCA) [*tsiviilseadustiku üldosa seadus*] – RT I 2002, 35, 216; RT I, 23.05.2020, 2. English translation: <<https://www.riigiteataja.ee/en/eli/528052020001/consolide>>. Under subsection 2 of § 138 of the GPCCA, rights should not be exercised in an unlawful manner or with the aim of causing damage to another person. See also SCCC judgment, 29 November 2017, case 2-14-56641/69, para 18.2; SCCC judgment, 20 June 2013, case 3-2-1-73-13, para 10. For a detailed analysis of the duty to maintain safety, see Iko Nõmm, 'Käibekohustuse rikkumisel põhinev deliktiivsuslik vastutus' [Delictual liability based on the violation of the duty to maintain safety] (PhD thesis, University of Tartu 2012) <[https://dspace.ut.ee/bitstream/handle/10062/29910/n6mm\\_iko.pdf?sequence=1&isAllowed=y](https://dspace.ut.ee/bitstream/handle/10062/29910/n6mm_iko.pdf?sequence=1&isAllowed=y)> accessed 8 October 2020.

reasonable effort to ensure that other persons are not harmed as a result of one's actions.<sup>86</sup> The Supreme Court has further explained that, in essence, the general duty to maintain safety means that a person who has given rise to a danger or controls a danger situation has a duty to take any and all reasonable and appropriate measures to ensure that other persons and their legally safeguarded interests are not harmed.<sup>87</sup> The Supreme Court has given the following non-exhaustive list of criteria for establishing whether the tortfeasor had the duty to maintain safety: 1) the manifested threat was in the tortfeasor's sphere of influence; 2) the tortfeasor's actions made the other person trust the tortfeasor and left the other person the impression that the activity was safe or, alternatively, that the other person was fully in control of the threat; 3) the tortfeasor engaged in a dangerous activity for the purposes of economic gain.<sup>88</sup>

Regarding the substance and scope of the duty to maintain safety, the Supreme Court has pointed out that it can be derived from the measures which the tortfeasor should have reasonably taken to prevent the materialisation of a manifested threat. Thereby the Supreme Court considers the severity of potential damage, the likelihood of damage and the level of costs and effort necessary for averting or eliminating the threat to be always of relevance when it comes to efforts of preventing the manifestation of threats. In the court's view, the higher the severity and likelihood of the potential damage and the lower the cost and the smaller effort, the higher the likelihood that a duty to maintain safety exists.<sup>89</sup>

As noted on p 55 in Article I, although the unlawfulness of causing damage can usually be derived from harming the injured person's legally safeguarded interest (or, alternatively, from a violation of the provisions of the TA provisions) in the case of damage caused by a conventional motor vehicle, it becomes questionable in the event of damage caused by a self-driving vehicle. One could argue that, for instance, in a situation where a person travelling inside a self-driving vehicle that causes a traffic accident, the person has not harmed the injured person's legal interest by their active conduct. In such an event, the damage caused by the person travelling inside the vehicle cannot be deemed to be unlawful owing to the mere harming of the injured person's legally safeguarded interest. In order to hold such person liable, a duty which the person has breached should be established. Presumably, it cannot be a statutory duty (eg under the Traffic Act). Thus, the tortfeasor's liability could be based, above all, on a breach of the general duty to maintain safety.

It follows from the case-law of the Supreme Court that the general duty to maintain safety and the element of fault are entwined.<sup>90</sup> Therefore, when examining whether the general duty to maintain safety has been breached, one must substantively assess whether the tortfeasor has been externally (ie objectively)

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<sup>86</sup> SCCC judgment, 20 June 2013, case 3-2-1-73-13, para 10.

<sup>87</sup> SCCC judgment, 10 June 2015, case 3-2-1-48-15, para 24.

<sup>88</sup> *ibid.*

<sup>89</sup> *ibid.*

<sup>90</sup> SCCC judgment, 20 June 2013, case 3-2-1-73-13, para 10.

negligent.<sup>91</sup> For instance, it has been argued in the context of German law that putting blind trust in the automated vehicle technology over a long period may constitute a breach of the duty to maintain safety.<sup>92</sup>

Under Estonian law, one could partly agree with such opinion. The owner or possessor of a self-driving vehicle could be hypothetically criticised for a breach of the general duty to maintain safety where the vehicle is not properly serviced (eg software updates have not been made in a timely manner) or where detected errors are not attended to. Maintaining safety should not usually require more of the owner or possessor. Likewise, where the owner or possessor of a self-driving vehicle disregards related warnings and engages in traffic in a situation where the safety of a self-driving vehicle depends on an external service which happens to be unavailable, the owner or possessor could be hypothetically criticised for a breach of the general duty to maintain safety. In a situation where an external service provider transmits to a self-driving vehicle misleading data, the service provider could be hypothetically criticised for a breach of the general duty to maintain safety as well. In the light of such hypothetical situations one cannot but agree with the authors of the Report from the Expert Group on Liability and New Technologies (New Technologies Formation)<sup>93</sup> in that the application of fault-based rules is complicated due to the absence of well-established models of proper functioning of these technologies. The NTF Report points to various duties of care of operators<sup>94</sup> of emerging digital technologies: the duty to pick the right system for a task, the duty to possess skills required for operating the systems, the duty to monitor and maintain the systems (including carry out safety checks and repairs).<sup>95</sup>

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<sup>91</sup> *ibid.*

<sup>92</sup> Volker M Jänich, Paul T Schrader and Vivian Reck, 'Rechtsprobleme des autonomen Fahrens' (2015) 28/7 *Neue Zeitschrift für Verkehrsrecht*, p 316.

<sup>93</sup> Expert Group on Liability and New Technologies – New Technologies Formation, *Liability for Artificial Intelligence and Other Emerging Digital Technologies* (2019), p 23 (hereinafter *NTF Report*) <<https://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupMeetingDoc&docid=36608>> accessed 8 October 2020.

<sup>94</sup> Thereby the NTF has divided the concept of 'operator' into two: the frontend operator and the backend operator. The former is the one who primarily decides on and benefits from the use of the technology and the latter is the one who continuously defines the features of the technology as well as provides essential and ongoing backend support. See *ibid.*, p 39.

<sup>95</sup> *ibid.*, p 44. Similar observations have also been made by other legal scholars. See Martin Ebers, 'Außervertragliche Haftung für Künstliche Intelligenz – Grundfragen' (2019) 16 *Rechtsbrücke / Hukuk Köprüsü*, pp 58–59; Susanne Horner and Markus Kaulartz, 'Haftung 4.0. Verschiebung des Sorgfaltsmaßstabs bei Herstellung und Nutzung autonomer Systeme' (2016) 32/1 *Computer und Recht*, pp 7 and 9 DOI: <<https://doi.org/10.9785/cr-2016-0104>>; Ruth Janal, 'Extracontractual liability for Wrongs Committed by Autonomous Systems' in Martin Ebers and Susana Navas (eds), *Algorithms and Law* (Cambridge University Press 2020), Chapter 6, pp 174–206 DOI: <<https://doi.org/10.1017/9781108347846>>; Volker M Jänich, Paul T Schrader and Vivian Reck, 'Rechtsprobleme des autonomen Fahrens' (2015) 28/7 *Neue Zeitschrift für Verkehrsrecht*, pp 313 and 316.

The tortfeasor's fault is the third main precondition for fault-based tortious liability.<sup>96</sup> It follows from subsection 2 of § 104 of the LOA that the types of fault are negligence, gross negligence and intent. Negligence means failure to exercise necessary care (subsection 3 of § 104 of the LOA). Gross negligence means failure to exercise necessary care to a material extent (subsection 4 of § 104 of the LOA). Intent means the will to bring about an unlawful consequence upon creation, performance or termination of an obligation (subsection 5 of § 104 of the LOA). Thereby the tortfeasor's fault (including negligence) must also be assessed based on the tortfeasor's characteristics. Under subsection 2 of § 1050 of the LOA, the situation, age, education, knowledge, abilities and other personal characteristics of a person must be taken into consideration upon assessment of the fault of the person. Under subsection 1 of § 1050 of the LOA, the tortfeasor's negligence is presumed, ie the tortfeasor who wishes to avoid liability must prove the absence of their fault.

In the event of damage caused by a self-driving vehicle, the absence of fault or the absence of a breach of the duty to maintain safety may be the reason why fault-based tortious liability is not applicable to the owner or possessor of the vehicle or a person who simply travelled in the self-driving vehicle at the time of the traffic accident. For instance, should a self-driving vehicle happen to cause damage to a third party due to an error or bug in its software, one cannot usually argue that the owner or possessor failed to exercise due care or to perform the general duty to maintain safety. However, where the vehicle was not properly maintained or serviced, the liability situation may prove different. In any event it is not reasonable or practical to bring a claim against the owner or possessor of the vehicle based on fault-based tortious liability rules.

#### 2.3.2.2. Burden of proof

Usually, it is the claimant (often the injured person/victim) who has to prove the existence of the objective elements (ie the defendant's act and a causal link between the defendant's act and the claimant's damage) as well as unlawfulness of the act.<sup>97</sup> In a situation where the claimant has proven the existence of these two components, the defendant's (the tortfeasor's) fault is presumed and the defendant is discharged from liability only where the defendant proves the absence of their fault or the existence of unlawfulness-precluding circumstances (subsection 1 of § 1050 of the LOA).

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<sup>96</sup> For a comparative discussion of the tortfeasor's fault see Janno Lahe, 'The Concept of Fault of the Tortfeasor in Estonian Tort Law: A Comparative Perspective' (2013) 38/2 Review of Central and East European Law, pp 141–170 DOI: <<https://doi.org/10.1163/092598812X13274154887420>>.

<sup>97</sup> SCCC judgment, 26 September 2006, case 3-2-1-53-06, para 12; SCCC judgment, 31 May 2007, case 3-2-1-54-07, paras 12 and 14; SCCC judgment, 12 January 2009, case 3-2-1-127-08, para 15; SCCC judgment, 20 April 2011, case 3-2-1-19-11, para 12.

However, as noted above, in the case of self-driving cars damage presumably cannot typically be caused by a direct behavioural act since a human being is not directly controlling the vehicle. Therefore, the claimant needs to demonstrate the existence of the defendant's statutory duty as well as a breach thereof. It could be a safeguarding rule established in the TA but there are currently no such rules in the TA regarding self-driving vehicles. Examples of safeguarding rules can be brought from other countries or in relation to other automated technologies. For instance, the German legislature expects the driver to stay alert and take over the control of a self-driving vehicle in a danger situation.<sup>98</sup>

Presumably, the Estonian legislature will eventually introduce TA provisions (including safeguarding provisions) aimed specifically at self-driving vehicles.<sup>99</sup> In the light of such possible developments the relevant case-law of the Supreme Court instructs that, in order to trigger the defendant's tortious liability under clause 7 of subsection 1 of § 1045 of the LOA,<sup>100</sup> the claimant bears the burden of proving that the unlawfulness stems from a breach of a statutory duty (safeguarding rule) by the defendant.<sup>101</sup> Furthermore, the Supreme Court has pointed out that the claimant should, in addition to proving the breach of a safeguarding rule under the law of tort by the defendant, also prove that the prevention of damage to the claimant was at least one of the purposes of the statutory duty under subsection 3 of § 1045 of the LOA.<sup>102</sup>

In view of the absence of both a direct behavioural act on the part of the tortfeasor and a statutory duty aimed at preventing damage, the claimant can claim damages based on the general duty to maintain safety. The Supreme Court has noted that the general duty to maintain safety and a breach of thereof need to be

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<sup>98</sup> It follows from subsection (4) of § 1a of the StVG that the driver is the one to switch on the highly or fully automated driving function and apply it for controlling the vehicle. Such an approach to automated driving means that even a vehicle with a fully automated driving function is required to have a steering wheel and a licensed driver behind it at all times. This also means that even a vehicle equipped with fully automated driving functionality must not drive 'empty' – even when there are no passengers, there must be at least one occupant (the driver) while it is driving. In addition, it follows from subsection (4) of § 1a of the StVG that the driver must be prepared to take over control of the vehicle at all times. See the Road Traffic Act [*Straßenverkehrsgesetz (StVG)*] 5.3.2003 | 310, 919; 10.7.2020 | 1653 <[www.gesetze-im-internet.de/stvg/StVG.pdf](http://www.gesetze-im-internet.de/stvg/StVG.pdf)> accessed 8 October 2020. The Estonian legislature, for instance, expects a person controlling a self-driving delivery robot to be careful, cautious and alert, avoid endangering other road users and causing damage, follow requirements established to self-driving delivery robots and their traffic, and be familiar with the legislation pertaining to the use of self-driving delivery robots (subsection 3 of § 151<sup>2</sup> of the TA).

<sup>99</sup> For further information see Cabinet Communication Unit, 'Self-driving vehicles waiting for a new law' (15 October 2019) <[www.valitsus.ee/en/news/self-driving-vehicles-waiting-new-law](http://www.valitsus.ee/en/news/self-driving-vehicles-waiting-new-law)> accessed 8 October 2020.

<sup>100</sup> SCCC judgment, 10 November 2010, case 3-2-1-88-10, para 10; SCCC judgment, 25 April 2007, case 3-2-1-30-07, para 10.

<sup>101</sup> *ibid.*

<sup>102</sup> SCCC judgment, 17 December 2009, case 3-2-1-150-09, para 12; SCCC judgment, 17 December 2012, case 3-2-1-161-12, para 11.

established for the purpose of holding the tortfeasor liable based on the general composition of tort (ie fault-based liability rules) in a situation where the cause of damage lies in an insufficient action and the injured person does not accuse the tortfeasor of a violation of a statutory duty under clause 7 of subsection 1 of § 1045 of the LOA.<sup>103</sup> Thus, as explained above, when verifying if a person has breached the general duty to maintain safety, the person's objective negligence has to be assessed.<sup>104</sup> The Supreme Court has explained that since the general duty to maintain safety means, according to the generally recognised view, a duty of care for the purposes of the legal theory, since negligence is one of the forms of fault under subsection 2 of § 104 of the LOA and since under subsection 1 of § 1050 of the LOA a person who unlawfully caused damage is presumed to be at fault, the defendant has the burden to prove that it did not breach the general duty to maintain safety.<sup>105</sup>

The latter view taken by the Supreme Court appears to coincide with the NTF Report's suggestion that where damage is of a kind that safety rules were supposed to avoid, failure to comply with the safety rules should result in a reversal of the burden of proof regarding fault.<sup>106</sup> However, the NTF Report goes further and recommends reversing the burden of proof not only regarding fault, but also regarding causation.<sup>107</sup> The suggestions of the NTF regarding the burden of proving causation and fault call for a closer look in the context of the fault-based tortious liability regime in place in Estonia. Although the NTF admit that, as a general rule, the injured person should be required to prove what caused them harm, they support the idea of alleviating the burden of proof in the light of the challenges of emerging digital technologies where a balancing of certain factors warrants doing so.<sup>108</sup>

The NTF Report points out that due to the complexity and opacity of emerging digital technologies injured persons may be at a disadvantage in establishing a causal link.<sup>109</sup> While recognising various judicial ways of alleviating the more weakly-positioned claimant's burden of proving causation, the NTF Report suggests an additional method of helping the claimant prove the cause of harm: placing the burden of proof on the party who is in control of key evidence (eg

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<sup>103</sup> SCCC judgment, 17 December 2012, case 3-2-1-161-12, para 10; SCCC judgment, 20 June 2013, case 3-2-1-73-13, para 10.

<sup>104</sup> SCCC judgment, 20 June 2013, case 3-2-1-73-13, para 10.

<sup>105</sup> *ibid*; see also fn 22 in Article I.

<sup>106</sup> NTF Report (n 93), pp 48–49.

<sup>107</sup> *ibid*, pp 49–55.

<sup>108</sup> *ibid*, pp 49–50. These factors include the likelihood that the technology at least contributed to the harm; the likelihood that the harm was caused either by the technology or by some other cause within the same sphere; the risk of a known defect within the technology, even though its actual causal impact is not self-evident; the degree of ex-post traceability and intelligibility of processes within the technology that may have contributed to the cause (informational asymmetry); the degree of ex-post accessibility and comprehensibility of data collected and generated by the technology; the kind and degree of harm potentially and actually caused.

<sup>109</sup> *ibid*, p 50.

design blueprints, log files, recordings, internal expertise) but fails to produce it in court.<sup>110</sup> The experts of the NTF find that, where the following factors exist, it may be advisable to lower the bar for proving causation: the technology may be deemed to have potentially harmful features which could be taken into account even though it is not proven that the respective risks have materialised; where there are multiple causes and it is unclear what exactly caused the harm but the likelihood of the combination of all possible causes attributable to one party exceeds a certain threshold (eg 50% or more), this may support placing the burden of rebutting such impression onto such party; the information asymmetry, ie the manufacturer/developer possesses far more information than the injured party and is best positioned to gather evidence by recording or logging the operation of the technology; the type and extent of harm.<sup>111</sup>

In addition to the burden of proving causation, the NTF Report also advises reversing the burden of proving fault in a situation where ‘it is proven that an emerging digital technology caused harm, and liability therefor is conditional upon a person’s intent or negligence,’ provided that ‘disproportionate difficulties and costs of establishing the relevant standard of care and of proving their violation justify it.’ Again, the reasons for the reversal are largely the same as in the case of causation (ie opacity, autonomy, limited predictability, asymmetry of information).<sup>112</sup> In that regard, it should be pointed out that, under Estonian law, the burden of proof does not need to be reversed because it already is reversed – the defendant bears the burden of proving the absence of fault and the performance of the duty to maintain safety.

Regarding causation, examples of alleviation of the burden of proof can be brought from the LOA and related case-law. In the context of, for instance, the (contractual) liability of health service providers (see the first sentence of subsection 4 of § 770 of the LOA), the legislature has partially reversed the burden of proof: ‘Where there is an error in diagnosis or treatment and the patient develops a health disorder which could probably have been avoided by ordinary treatment, the damage is presumed to have resulted from the error.’ Against this background attention should be drawn to the case-law of the Estonian Supreme Court regarding the burden of proof. The first sentence of subsection 1 of § 230 of the Code of Civil Procedure (CCP)<sup>113</sup> obligates parties to prove the circumstances that serve as the basis for their claims and counter-arguments, unless otherwise provided by a statute. The Supreme Court has explained that, nevertheless, where one needs to prove a circumstance the occurrence of which was under the control of the opposing party and the party relying on the circumstance cannot objectively furnish proof and where the opposing party refuses to aid the

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<sup>110</sup> *ibid*, p 51.

<sup>111</sup> *ibid*, pp 51–52.

<sup>112</sup> *ibid*, pp 52–55.

<sup>113</sup> Code of Civil Procedure [*tsiviilkohtumenetluse seadustik*] – RT I 2005, 26, 197; RT I, 20.06.2020, 1. English translation: <<https://www.riigiteataja.ee/en/eli/522062020001/consolide>> accessed 8 October 2020.

proving of the circumstance, the burden of proof may be reversed on the basis of the principle of good faith.<sup>114</sup> This means that where the party relying on the circumstance has managed to demonstrate the likelihood of the circumstance, the opposing party should prove that the circumstance does not exist.<sup>115</sup>

Thus, it can be argued that Estonian civil procedure rules are already at least to some extent prepared for the attainment of a balanced solution in the event of a civil dispute concerning damage caused by self-driving vehicles along the lines recommended by the NTF<sup>116</sup>. Nevertheless, the legislature should consider whether, analogously to subsection 4 of § 770 of the LOA, to introduce a special rule that would eliminate the need to resort to the reversal of the burden of proof based on the principle of good faith.

### **2.3.3. Strict liability for damage caused by self-driving vehicles**

#### **2.3.3.1. Prerequisites for strict liability**

It follows from case-law that the difference between strict liability and fault-based tortious liability lies, above all, in the fact that in the case of strict liability the person controlling the dangerous thing or activity is liable for damage caused to third parties by the thing or activity (source of greater danger) and thereby the prerequisite for the emergence of such liability is a causal link between the controlling of the source of greater danger and the damage caused to the third party as a result of a heightened risk emanating from the source of greater danger.<sup>117</sup> Strict liability broadens the possibilities of compensation for damage<sup>118</sup> because, unlike fault-based tortious liability, strict liability does not call for the tortfeasor's act that causes damage to the injured person and, even if the tortfeasor's act can be identified, it does not need to be unlawful and the tortfeasor does not need to be at fault.<sup>119</sup> As Koziol notes, strict liability essentially means liability for dangerousness.<sup>120</sup>

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<sup>114</sup> SCCC judgment, 6 June 2018, case 2-15-4981/106, para 17. See also SCCC judgment, 26 January 2017, case 3-2-1-82-16, para 24; SCCC judgment, 8 January 2013, case 3-2-1-173-12, para 17; SCCC judgment, 25 January 2017, case 3-2-1-68-16, para 31.

<sup>115</sup> SCCC judgment, 6 June 2018, case 2-15-4981/106, para 17.

<sup>116</sup> NTF Report (n 93), p 51.

<sup>117</sup> SCCC judgment, 2 March 2011, case 3-2-1-161-10, para 11.

<sup>118</sup> It has been noted in the light of emerging technologies such as self-driving cars that, while the advantages of strict liability are obvious for the injured person, it may have a cooling effect on technological research but the absence of legal rules or legal uncertainty is even worse. For further information see the NTF Report (n 93), pp 26–27.

<sup>119</sup> SCCC judgment, 10 February 1997, case 3-2-1-17-97; SCCC judgment, 24 September 2007, case 3-2-1-75-07, para 12.

<sup>120</sup> Helmut Koziol, *Basic Questions of Tort Law from a Germanic Perspective* (Wien: Jan Sramek Verlag, 2012), p 234.



The LOA's strict liability rules are structured in such a manner that § 1056 sets out general rules, while §§ 1057–1060 set out special rules. The latter include the strict liability of the possessor of a motor vehicle. Under § 1057 of the LOA, the direct possessor of a motor vehicle is liable for any damage caused upon the operation of the motor vehicle. However, such special liability for the dangerousness of a motor vehicle is subject to exceptions set out in clauses 1–5 of § 1057 of the LOA. It follows from these clauses that the direct possessor of the motor vehicle is not liable where: 1) damage is caused to a thing being transported by the motor vehicle and it is not being worn or carried by a person in the vehicle; 2) damage is caused to a thing deposited with the possessor of the motor vehicle; 3) damage is caused by force majeure or by an intentional act on the part of the injured person, unless the damage is caused upon the operation of aircraft; 4) the injured person participates in the operation of the motor vehicle; 5) the injured person is carried without charge and outside the economic activities of the carrier.

Section 1057 of the LOA does not provide a list of legally safeguarded interests, but it follows from subsection 1 of § 1056 of the LOA (general composition of strict liability) that these include life, health and items of property.

To be able to hold the possessor of a self-driving vehicle liable for damage caused by operating the vehicle within the meaning of § 1057 of the LOA, it needs to be established whether a self-driving vehicle can be considered a motor vehicle. As demonstrated above, a self-driving vehicle can indeed be considered a motor vehicle for the purposes of § 1057 of the LOA.

It is explained in the Commentary on the LOA that the operation of a motor vehicle means any purposeful use of the vehicle in the course of which a danger characteristic of the motor vehicle as a source of greater danger may be manifested.<sup>121</sup> The Supreme Court has clarified that damage is considered to have been caused upon operating a motor vehicle where, above all, it stems from the purposeful use of the vehicle as a motor vehicle in traffic. The slow movement of a vehicle or, in exceptional circumstances, even the static status of a vehicle on the road may be considered the operating of the vehicle.<sup>122</sup>

Under § 1057 of the LOA, only the direct possessor of a motor vehicle can be held liable for damage.<sup>123</sup> As explained on p 8 in Article IV, it may happen that self-driving vehicles may be put into operation for the provision of taxi services. In a situation where a self-driving taxi happens to cause a traffic accident while providing taxi services, the question of who the direct possessor of the taxi at the moment of the accident was, can be raised. By way of analogy with the conventional taxi service it can be argued that, since the customer cannot be deemed the direct possessor of a conventional taxi while they receive the service, the same does not happen in the case of a self-driving taxi either. Thus, the customer is not

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<sup>121</sup> Varul and others (n 31), p 696.

<sup>122</sup> SCCC judgment, 19 March 2013, case 3-2-1-7-13, para 20.

<sup>123</sup> For a more detailed discussion of the meaning of the term 'direct possessor,' see item 2.3.5 below.

liable for damage under § 1057 of the LOA. Thereby it does not matter whether the taxi company owns or leases the vehicle because in either case the company is considered an indirect possessor to whom § 1057 of the LOA does not apply.

In an employment relationship, it may happen that an employee merely ‘serves’ the employer’s possession using a self-driving vehicle in their household or business to perform employment tasks. As pointed out on p 8 in Article IV, § 1057 of the LOA is not applicable to the employee who is a possessory servant.<sup>124</sup> However, as pointed out by the Supreme Court, the possessory servant could still be liable under rules governing fault-based tortious liability.<sup>125</sup> The fruitfulness of seeking damages based on such grounds of liability is questionable in the case of self-driving vehicles because fault-based tortious liability would normally be precluded due to the absence of fault or a breach of the duty to maintain safety on the part of the possessory servant. Nevertheless, it can be considered a fair solution, given that damage caused by a self-driving vehicle cannot be imputed to a possessory servant.

The above analysis concerns mainly the special rules of strict liability applicable to motor vehicles. Where damage has been caused by a self-driving (motor) vehicle it is probably possible, in addition to the special rules of strict liability set out in § 1057 of the LOA, to apply general strict liability rules provided for in § 1056 of the LOA.<sup>126</sup> Under subsection 1 of the said section, where damage resulting from a danger characteristic of a thing that constitutes the source of greater danger or from an extremely dangerous activity is caused, the person who controls the source of danger is liable for causing the damage, regardless of their fault. Thereby the person who controls the source of greater danger is liable for causing the death, personal injury or impairment of the health of the injured person or damage to an item of property of the injured person, unless otherwise provided by law. Under subsection 2 of § 1056 of the LOA, a thing or activity is deemed to be the source of greater danger where, due to its nature or to the substances or means used in connection therewith, extensive or frequent damage may arise therefrom even where the thing is handled or the activity is performed with the level of care expected of a specialist. Where statutory liability not dependent on the fault of the person controlling a source of danger is established for a source of danger similar to the thing or activity, it is presumed that the thing or activity is the source of greater danger. Subsection 3 of the same section states that the provisions of this division do not preclude or restrict the right to bring claims on any other legal basis, including claims for compensation of unlawfully and wrongfully caused damage.

Section 1056 of the LOA lays down general rules for all cases of the strict liability of the person controlling a source of greater danger. The Supreme Court has explained that, in addition to the fact that strict liability arises from a heightened risk characteristic of a thing or activity one should, upon determining

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<sup>124</sup> Varul and others (n 31), p 696.

<sup>125</sup> SCCC judgment, 19 March 2013, case 3-2-1-7-13, para 21.

<sup>126</sup> SCCC judgment, 18 April 2007, case 3-2-1-27-07, para 10.

the circle of the entitled persons under strict liability, keep in mind the safeguarding purpose of strict liability, which arises from the first sentence of subsection 1 of § 1056 of the LOA, and the principle of good faith.<sup>127</sup> The Supreme Court has held that, in accordance with the principle of good faith, strict liability protects, above all, those persons whom the person controlling the source of greater danger is supposed to keep safe but, given the fact that the source of greater danger essentially poses a greater threat, the person controlling such source may be unable to keep them completely safe even if the person exercises utmost care.<sup>128</sup>

It follows from subsection 1 of § 1056 of the LOA that the general prerequisites for strict liability include the harming of a legally safeguarded interest (ie life, health and items of property) and the manifestation of a risk characteristic of the source of greater danger. The latter means that a person is harmed as a result of a typical risk emanating from the source of greater danger. The liability for such damage rests with the person who controls the source of greater danger. Thereby the actions of the person controlling it are irrelevant. Even in a situation where multiple persons controlling multiple sources of greater danger cause damage to one another, their fault is not of relevance from the point of view of establishing of strict liability.<sup>129</sup> However, their fault may be of relevance upon reduction of the indemnity awarded to them for the damage suffered.<sup>130</sup>

Under subsection 2 of § 1056 of the LOA, the source of greater danger essentially means an object or activity that poses a heightened threat either in the form of the severity or likelihood of harm. It is noted in the Commentary on the LOA that a heightened threat is expressed in the objective impossibility to completely prevent the threat.<sup>131</sup> Tampuu explains that an object may be especially dangerous when it is used in a particular way or when it is simply positioned a particular location.<sup>132</sup>

It follows from case-law that, in order to be considered a source of greater danger, the motor vehicle needs to be in operation and in order for the damage caused by the motor vehicle to be considered to arise from its operation, the damage needs to be caused by the purposeful use of the vehicle in the capacity of a motor vehicle in road traffic.<sup>133</sup> This means that a risk characteristic of a self-

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<sup>127</sup> *ibid*, para 12.

<sup>128</sup> *ibid*. It also follows from the views expressed by the Supreme Court in the same case that, where a person participates in controlling the source of greater danger, exercises temporary control over it or benefits from controlling it, the principle of good faith prohibits such person from being entitled to claim damage from the person controlling the source of greater danger on the basis of the strict liability rules.

<sup>129</sup> SCCC judgment, 2 March 2011, case 3-2-1-161-10, para 11.

<sup>130</sup> For further information see SCCC judgment, 24 September 2007, case 3-2-1-75-07, para 12; SCCC judgment, 2 March 2011, case 3-2-1-161-10, para 12; SCCC judgment, 18 April 2007, case 3-2-1-7-13, paras 27–33.

<sup>131</sup> Varul and others (n 31), p 691.

<sup>132</sup> Tampuu (n 30), p 285. The same is confirmed by the Supreme Court in its judgment of 19 March 2013 in case 3-2-1-7-13, para 20.

<sup>133</sup> SCCC judgment, 19 March 2013, case 3-2-1-7-13, para 20.

driving vehicle emanates from it, above all, while it is moving because, for instance, due to its heavy mass, speed or possibly a technical defect it cannot be made to stop in an instant. The Supreme Court has pointed out that, where an object or activity may pose multiple threats but not all of these threats make it a source of greater danger, the application of strict liability is justified only where the injured person suffers damage because of the very risk factor due to which the object or activity is considered a source of greater danger.<sup>134</sup>

As pointed out on p 6 in Article IV, the courts have a wide margin of discretion as to what objects or activities to consider to be sources of greater danger on the basis of the provision. Nevertheless, self-driving vehicles can be considered a source of greater danger. It is a separate issue of whether the absence of a driver in a self-driving vehicle increases or decreases its dangerousness. On the one hand, if there is no driver who would be standing by at all times to take over control of the vehicle at any moment in order to, for example, fill in the gaps or errors in the vehicle's software, the absence of a driver could be considered a factor increasing dangerousness. On the other hand, traffic accidents largely occur due to human error<sup>135</sup> and, therefore, the absence of a driver could be seen as a dangerousness-reducing factor. It cannot be precluded that the safety of self-driving vehicles will at some point reach a level where accidents are almost completely precluded. In such an event there would perhaps no longer be any reason for treating self-driving vehicles as sources of greater danger.

#### 2.3.3.2. Burden of proof

The advantage of the strict liability regime to the claimant (the injured person/victim) lies in the fact that the claimant is discharged from the duty to prove the existence of the objective elements (ie the defendant's act and a causal link between the defendant's act and the claimant's damage) as well as unlawfulness of the act. The claimant merely needs to prove the existence and extent of damage as well as a causal relationship between the damage and the materialisation of the risk characteristic of the source of greater danger. To be discharged from strict liability, the defendant (the tortfeasor) needs to demonstrate the existence of an exonerating circumstance listed in clauses 1–5 of § 1057 of the LOA.

It follows from subsection 3 of § 1056 of the LOA that the injured person can choose whether to bring their claim based on rules regulating fault-based tortious liability or strict liability. The injured person might prefer bringing a claim based on fault-based tortious liability in a situation where damage cannot be considered the consequence of a threat characteristic of a source of greater danger or where

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<sup>134</sup> SCCC judgment, 18 April 2007, case 3-2-1-27-07, para 11; SCCC judgment, 22 October 2008, case 3-2-1-85-08, para 11.

<sup>135</sup> See, for example, Christoph Grote, 'Connected vehicles will enhance traffic safety and efficiency' (*The European Files*, 18 February 2019) <[www.europeanfiles.eu/digital/connected-vehicles-will-enhance-traffic-safety-efficiency](http://www.europeanfiles.eu/digital/connected-vehicles-will-enhance-traffic-safety-efficiency)> accessed 8 October 2020.

the injured person does not have the right to file strict liability claims because they participated in operating the vehicle or were carried without charge and outside the carrier's economic activities (ie under clause 4 or 5 of § 1057 of the LOA).<sup>136</sup>

### **2.3.4. Liability for a defective product**

#### **2.3.4.1. Prerequisites for product liability**

As noted on p 62 in Article I, the issue of product liability (also called manufacturer's liability, producer's liability and liability for a defective product) is likely to be more burning regarding self-driving vehicles than conventional motor vehicles. In a situation where a self-driving vehicle has caused damage, one can almost always raise the question of a defect of the vehicle. For instance, if the injured person demands that the direct possessor of the self-driving vehicle compensate for damage under § 1057 of the LOA, the issue of product liability can usually be raised. This entitles the direct possessor who has compensated the injured person for damage to file a recourse claim against the manufacturer (provided, of course, that the manufacturer is indeed liable) based on subsection 2 of § 137 of the LOA, which regulates mutual recourse claims of persons that are jointly and severally liable for causing damage.

Liability for a defective product is regulated in §§ 1060–1067 of the LOA.<sup>137</sup> The following can be pointed out as prerequisites for the liability of a manufacturer under the LOA: damage has been caused in the form of harming a legally safeguarded interest (life, health and, subject to certain reservations set out in subsection 2, also an item of property), there is a defective product that has been put into circulation and there is a causal link between the defective product and the damage caused.

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<sup>136</sup> In this respect it should be pointed out that the views expressed in the NTF Report also concern strict liability, especially that of the (frontend and backend) operator and the burden of proving causation. These aspects have been discussed in greater detail in the framework of the burden of proof of fault-based tortious liability (see item 2.3.2 above).

<sup>137</sup> These provisions are based on Council Directive 85/374/EEC of 25 July 1985 on the approximation of the laws, regulations and administrative provisions of the Member States concerning liability for defective products [1985] OJ L210/29 (hereinafter *PLD*) and represent one of the few fields of the Estonian law of obligations harmonised at the EU level. The PLD is a full harmonisation directive, which means that Member States can only deviate from it to the extent explicitly permitted by the PLD. Thus, the reasons behind the respective provisions of the LOA can be derived from, among other things, the recitals of the Directive. Based on Recitals 2 and 7 of the PLD it can be argued that the respective provisions of the LOA seek to establish a fair apportionment of risk between the injured person and the manufacturer. Although the product liability provisions of the LOA do not directly require fault or unlawful conduct on the part of the manufacturer and, thus, resemble strict liability, they also give the manufacturer a chance to avoid liability in the event of furnishing proof of certain exonerating circumstances. This makes the current product liability regime rather a mixture of strict and fault-based liability.

As regards legally protected interests, it should be pointed out that there are certain reservations concerning items of property. It follows from subsection 2 of § 1061 of the LOA that protection is given only to items of property that are intended for private use or consumption or used by the injured person mainly for their own private use or consumption and have suffered damage in excess of 500 euros. Thereby the item of property (defective product) itself is not protected.<sup>138</sup> Furthermore, the injured party does not necessarily need to be the owner of the damaged item of property but may be its possessor or holder of other similar rights therein (see, for instance, clause 5 of subsection 1 of § 1045 of the LOA).

Under subsection 1 of § LOA § 1063, any movable, including electricity and computer software,<sup>139</sup> is deemed to be a product, even where the movable forms a part of another movable or has become part of an immovable.<sup>140</sup> The authors of the Commentary on the LOA find that, for the purposes of product liability rules, programs processing data in a computer as well as any electronically recorded information explaining to the computer user the use of computer programs should be considered a product.<sup>141</sup> Some lawyers argue that tailor-made and embedded software should be treated differently from non-embedded software which is mass-produced

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<sup>138</sup> As noted on p 79 in Article II, on the one hand, this ensures the precedence of contractual guarantees because defective products are usually put into circulation via a chain of contracts, which divides the risks between the parties in a balanced way. On the other hand, it means that based on product liability rules one cannot pursue a claim aimed at changing the way the product itself functions.

<sup>139</sup> In that regard, the legislative choice made by Estonia stands out among EU Member States. There appears to be no consensus among European experts over whether software is indeed a product for the purposes of the PLD. It is also pointed out that it has become increasingly difficult to distinguish between products and services. For further information, see the NTF Report (n 93), p 28. For a list of legal scholars supporting the idea of considering software a product see fn 19 on p 7 in Bernhard A Koch, 'Product liability for autonomous vehicles' (2019) 4 Insurance Review / Wiadomości Ubezpieczeniowe, pp 3–12 DOI: <<https://doi.org/10.33995/wu2019.4.1>>. The European Commission has noted that, while the PLD's definition of 'product' is broad, its scope could be further clarified to better reflect the complexity of emerging technologies, ensuring the availability of compensation for damage caused by products defective due to software. For further information see Commission, Report from the Commission to the European Parliament, the Council and the European Economic and Social Committee, 'Report on the safety and liability implication of Artificial Intelligence, the Internet of Things and robotics' (Brussels, 19 February 2020) COM(2020) 64 final (hereinafter *Safety and Liability Report*), pp 13–14.

<sup>140</sup> Subsection 1 of § 1063 of the LOA: '*Product*' means all movables, even though incorporated into another movable or into an immovable; '*product*' includes electricity and computer software.

<sup>141</sup> Varul and others (n 31), p 706. A similar approach seems to be taken by, for instance, the authors of the Munich commentary on the German Civil Code. See Gerhard Wagner in *Münchener Kommentar zum BGB, Band 6, 7. Auflage* [Munich Commentary on the Civil Code. Vol. 6. 7<sup>th</sup> edition] (Munich: Verlag C.H.Beck 2017). The exact reference in German law: *MüKoBGB/Wagner, 7. Aufl. 2017, ProdHaftG § 2 Rn 17*. Hereinafter the German reference is used for the Munich commentary.

and mass-distributed.<sup>142</sup> However, as regards the manner and scale of distribution, it should be pointed out that the PLD is not limited to mass-produced goods.<sup>143</sup>

As explained on pp 180–181 in Article II and on pp 97–98 in Article III, the self-driving vehicle is a highly complex product that combines hardware (among other things, various sensors that conventional vehicles do not have), software (notably such that fuses sensors and data obtained via these sensors) and services (smart traffic signs and road markings, various positioning systems, weather information, etc).

Clauses 1–3 of subsection 2 of § 1063 of the LOA define the defectiveness of a product. To decide whether a self-driving vehicle is defective, account should be taken of all circumstances, including the presentation of the vehicle, the use to which it could reasonably be expected to be put and the time of putting the vehicle into circulation. In view of the Court of Justice of the European Union (CJEU) case-law it can be argued that the defectiveness of a self-driving vehicle depends on what a person (the public at large) is entitled to (reasonably) expect of the self-driving vehicle in terms of its safety.<sup>144</sup> Thus, given that the users of a self-driving vehicle are in a particularly vulnerable situation, the safety requirements for the vehicle, which the users are entitled to expect, are particularly high. By way of analogy it can be derived from the CJEU’s judgment in joined cases C-503/13 and C-504/13 *Boston Scientific Medizintechnik* that the potential lack of safety which would give rise to the manufacturer’s liability stems from the abnormal potential for damage which the self-driving vehicle might cause to the person concerned.<sup>145</sup> Based on CJEU case-law it can also be argued that the safety

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<sup>142</sup> Expert Group on Liability and New Technologies – Product Liability Formation, Minutes of the Meeting (Brussels, 8 June 2018, revised draft) grow.ddg1.b.1(2018)6498114, p 3 <<https://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupMeetingDoc&docid=22625>> accessed 8 October 2020.

<sup>143</sup> Case C-203/99 *Henning Vedfeld v Århus Amtskommune* [2001] ECLI:EU:C:2001:258, para 22; MüKOBGB/Wagner, 7. Aufl. 2017, ProdHaftG § 2 Rn 4. For respective criticism of the PLD see Helmut Koziol, ‘Harmonising Tort Law in the European Union: Advantages and Difficulties’ (2013) 1 ELTE Law Journal, pp 76 and 78 <[https://eltelawjournal.hu/wp-content/uploads/2014/03/ELJ\\_Separatum\\_koziol.pdf](https://eltelawjournal.hu/wp-content/uploads/2014/03/ELJ_Separatum_koziol.pdf)> accessed 8 October 2020.

<sup>144</sup> An overview of the guidance given by the CJEU over the years regarding product defectiveness can be found in Article II. Recital 6 of the PLD points out that the defectiveness of a product must be assessed having regard to the reasonable expectations of the public at large. As pointed out on p 82 in Article II, it can be derived from the CJEU’s explanations that safety must be assessed taking into account, among other things, the intended purpose, the objective characteristics and properties of the vehicle in question and the specific requirements of the group of users for whom the vehicle is intended. See also Joined Cases C-503/13 and C-504/13 *Boston Scientific Medizintechnik GmbH v AOK Sachsen-Anhalt – Die Gesundheitskasse and Betriebskrankenkasse RWE* [2015] ECLI:EU:C:2015:148, paras 37–41.

<sup>145</sup> Joined Cases C-503/13 and C-504/13 *Boston Scientific Medizintechnik* [2014] Opinion of AG Bot, ECLI:EU:C:2014:2306, para 30. In paras 39–40 of its judgment, the CJEU supported the AG’s position. See Joined Cases C-503/13 and C-504/13 *Boston Scientific Medizintechnik GmbH v AOK Sachsen-Anhalt – Die Gesundheitskasse and Betriebskrankenkasse RWE* [2015] ECLI:EU:C:2015:148.

requirement is not met where there is a manufacture-related risk of failure of a component in the self-driving vehicle.<sup>146</sup>

It has been noted in the Commentary on the LOA that product defects can be divided into, for instance, manufacturing defects, design defects and marketing defects.<sup>147</sup> As explained by the author on p 183 in Article II, while manufacturing defects are attributable to negligence and thus avoidable, design-related defects are those of an inadequate concept. In the case of a design defect the product is as planned by the designer but the design proves unsafe. In this regard, also the experts called upon by the European Commission have drawn attention to the fact that where a product implementing machine learning is legally permissible and the manufacturer made use of state-of-the-art knowledge at the time the product put into circulation, any subsequent choices made by the self-learning product independently may not necessarily be attributable to a flaw in its original design, which leads to the question whether the choice to allow it to be put into circulation is in itself a breach of the duties of care applicable to such choices.<sup>148</sup>

It should also be pointed out, in the light of subsection 3 of § 1063 of the LOA, that a self-driving vehicle should not be considered defective for the sole reason that a better self-driving vehicle is subsequently put into circulation. However, where the improvement of the vehicle is expressed in higher safety in the form of, for instance, software vulnerability patches, the manufacturer should make these available also to the self-driving vehicles that have already been put into circulation if the manufacturer is to avoid liability for defectiveness.<sup>149</sup>

The LOA mentions putting a product into circulation in clause 3 of subsection 2 of § 1063 and clause 1 of subsection 1 of § 1064 of the LOA, but does not define the term. As demonstrated on p 180 in Article II, the CJEU has discussed the meaning of this term in its case-law. Associating the CJEU's views with self-driving vehicles, one could argue that it means that the manufacturer has caused the self-driving vehicle to leave the process of manufacture.<sup>150</sup> It follows that, where a self-driving vehicle exits the process of manufacture against the will of the manufacturer, it cannot be considered putting the vehicle into

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<sup>146</sup> Case C-661/15 *X BV v Staatssecretaris van Financiën* [2017] ECLI:EU:C:2017:753, para 30.

<sup>147</sup> Varul and others (n 31), p 707.

<sup>148</sup> NTF Report (n 93), p 24.

<sup>149</sup> This view appears to be shared by the NTF in its recommendation 14 (see the NTF Report (n 93), pp 42–43) on the condition that the manufacturer of self-driving vehicles remains in control of the updates and upgrades of the technology. Examples of the application of the same principle can also be found in the context of contract law in Recital 47 and Article 8(2) of Directive (EU) 2019/770 of the European Parliament and of the Council of 20 May 2019 on certain aspects concerning contracts for the supply of digital content and digital services [2019] OJ L136/1 and in Recital 30 and Article 7(3) of Directive (EU) 2019/771 of the European Parliament and of the Council of 20 May 2019 on certain aspects concerning contracts for the sale of goods, amending Regulation (EU) 2017/2394 and Directive 2009/22/EC, and repealing Directive 1999/44/EC [2019] OJ L136/28.

<sup>150</sup> Case C-203/99 *Henning Vedfeld v Århus Amtskommune* [2001] ECLI:EU:C:2001:258, para 16.



circulation. Furthermore, it can be derived from the CJEU's case-law by way of analogy that a self-driving vehicle should be considered as having been put into circulation when it leaves the manufacturing process operated by the manufacturer and enters a marketing process in the form in which it is offered to the public in order to be used or consumed.<sup>151</sup>

Once it has been established that a person has suffered damage for the purposes of subsection 1 or 2 of § 1061 of the LOA, the damage has been caused by a self-driving vehicle as a product for the purposes of subsection 1 of § 1063 of the LOA, the self-driving vehicle can be considered defective for the purposes of subsection 2 of § 1063 of the LOA, the defective self-driving vehicle has been put into circulation for the purposes of the vehicle the product and its defectiveness have been established, a causal link between the defective product and the damage needs to be established in order to hold the manufacturer liable for the damage. The principles and rules of establishment of causality introduced in item 2.3.2 above also apply thereto.

#### 2.3.4.2. Burden of proof

Section 1065 of the LOA explicitly places the burden of proof on the injured person who is required to prove the damage, the defect and a causal link between the defect and damage. In this regard, it should also be pointed out that Estonian law does not provide for any specific standard of proof in civil proceedings.<sup>152</sup> Should the injured person succeed in proving the defectiveness of the self-driving vehicle in that it is not as safe as the public at large is entitled to expect, the injured person is faced with the task of proving the existence of a causal link between the defect of the vehicle and the damage. The difficulty stems from not only the chain of events and the complexity of the physical environment where the damage was suffered but, above all, from the structural and technical complexity of the self-driving vehicle as well as entire driving automation-enabling infrastructure. Furthermore, this entire sphere is under the control of the manufacturer and various

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<sup>151</sup> Case C-127/04 *Declan O'Byrne v Sanofi Pasteur MSD Ltd and Sanofi Pasteur SA* [2006] ECLI:EU:C:2006:93, para 27.

<sup>152</sup> Under the CCP, evidence in a civil matter means any information which is in the procedural form prescribed by law and on the basis of which the court, in accordance with the rules provided by law, ascertains the presence or absence of the circumstances on which the claims and objections of the parties are based, as well as other facts relevant to the just adjudication of the matter. Evidence should be relevant (subsection 1 of § 238 of the CCP), admissible (subsection 3 of § 238 of the CCP) in the procedural form (subsection 1 of § 229 of the CCP) prescribed by law, of a type or form prescribed by law or an agreement and submitted in a timely manner (§ 237 of the CCP). The court evaluates all evidence in accordance with law from all perspectives, exhaustively and objectively and decides, based on its inner conviction, whether to deem an assertion made by a party proven. No evidence has any predetermined weight for the court (subsection 2 of § 232 of the CCP). See, for instance, SCCC judgment, 13 April 2016, case 3-2-1-181-15, para 51. The Court pointed out that there was no difference between the probative value of direct and indirect evidence.

external service providers. Assuming that machine learning<sup>153</sup> is used in the vehicle as well as in traffic control and smart mobility infrastructure, the level of complexity may be too high or expensive to handle.<sup>154</sup> Software components of self-driving vehicles and smart infrastructure are also likely to get updates over time and these could be provided not only by the manufacturer but also third parties. This may further complicate establishing which part of the code is causally linked to the damage and who is liable for it. In order to attain driving automation, the systems need to obtain and process vast quantities of data in real time.<sup>155</sup> The data obtained may also be flawed or get corrupted during processing due to, for instance, design flaws in algorithms. Therefore, establishing the causal relationship may prove technically impossible or impractical due to financial or temporal reasons.

Even if the injured person manages to prove the damage, the self-driving vehicle's defectiveness and a causal link between these, the manufacturer may still be exonerated. Transposing Article 7 of the PLD, § 1064 of the LOA sets out an exhaustive list of the grounds for discharging the manufacturer from liability for a defective product. Under subsection 1 of § 1064 of the LOA, the manufacturer is not liable for damage arising from a product where the manufacturer proves that: 1) the manufacturer has not placed the product on the market; 2) circumstances exist on the basis of which it can be presumed that the product did not have the damage-causing defect at the time the product was placed on the market by the manufacturer; 3) the manufacturer did not make the product for sale or for marketing in any other manner and did not manufacture or market it in the course of the manufacturer's economic or professional activities; 4) the defect was caused by compliance of the product with mandatory requirements in force at the time of placing the product on the market; 5) given the level of scientific and technical knowledge at the time of placing the product on the market, the defect could not be detected. Additionally, the producer of a raw material or a part of a product is not liable for damage where the producer proves that the defect of the raw material or part was caused by the construction of the finished product or the instructions given by the manufacturer of the finished product (subsection 2 of § 1064 of the LOA).

As regards holding the manufacturer liable for damage caused by the defects of a self-driving vehicle or parts thereof, the key provision is, as noted also on p 64 in in Article I, clause 5 of subsection 1 of § 1064 of the LOA.<sup>156</sup> Too

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<sup>153</sup> For more information, see Article III, pp 97–98.

<sup>154</sup> See, for instance, NTF Report (n 93), p 28; Safety and Liability Report (n 139), pp 13–14.

<sup>155</sup> According to Intel CEO Brian Krzanich, one self-driving vehicle will generate and consume approx. 40 terabytes of data per eight hours of driving. Patrick Nelson, 'Just one autonomous car will use 4,000 GB of data/day' (*Network World*, 7 December 2016) <[www.networkworld.com/article/3147892/one-autonomous-car-will-use-4000-gb-of-dataday.html](http://www.networkworld.com/article/3147892/one-autonomous-car-will-use-4000-gb-of-dataday.html)> accessed 8 October 2020.

<sup>156</sup> For a more detailed discussion of the development risk defence, see pp 185–187 in Article II. See also pp 42–44 of the NTF Report (n 93), which recommends not applying the development risk defence set out in Article 7(e) of the PLD (clause 5 of subsection 1 of § 1064 of the LOA, respectively).

extensive application of this defence cannot be deemed reasonable regarding defects of self-driving vehicles, because otherwise product liability rules would largely lose their meaning when it comes to emerging technologies, including self-driving vehicles.

Finally, it should be pointed out that, in a situation where product liability is precluded, the manufacturer can be held liable under fault-based tortious liability rules (subsection 5 of § 1061 of the LOA). Where the manufacturer is exonerated, for instance, owing to the development risk defence, the manufacturer could easily demonstrate that they were not at fault regarding the damage and be discharged from liability, nonetheless.

To prevent such situations, the NTF Report, as also noted in item 2.3.2 above, recommends a reversal of the burden of proving not only causation and fault but also defectiveness.<sup>157</sup> Regarding a causal link, the NTF Report supports the currently applicable general rule whereby the injured person is required to prove what caused them harm.<sup>158</sup> However, the NTF suggests that the burden of proof of a causal link may be ‘alleviated’ where a balancing of certain factors justify it.<sup>159</sup> These include, among other things, the likelihood that the technology caused, contributed to or was causally within the sphere of the harm, the unequal positions of the developer/manufacturer and the injured person not only regarding the technology itself but also potential evidence generated by it, and the type and extent of harm.<sup>160</sup> Reversal of the burden of proving causation seems to be in the NTF’s view justified in a situation where safety rules have not been complied with and the damage is of a kind that safety rules were meant to avoid.<sup>161</sup>

Furthermore, the NTF also finds that manufacturers of emerging digital technologies should be required to equip their products with ‘means of recording information about the operation of the technology (logging by design)’ for the purpose of establishing the source of the malfunction that resulted in damage.<sup>162</sup> In the NTF’s view, failure to log or make available such information should ‘trigger a rebuttable presumption that the condition of liability to be proven by the missing information is fulfilled.’<sup>163</sup>

The application of the NTF’s recommendation to the burden of proving the defectiveness<sup>164</sup> of a self-driving vehicle results in the following cumulative prerequisites: it is proven that the self-driving vehicle caused harm; establishing the relevant level of safety *or* proving that it has not been met is disproportionately difficult *or* expensive. The NTF notes that the prerequisites should not prejudice the reversal of the burden of proof in a situation where the manufacturer

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<sup>157</sup> NTF Report (n 93), pp 42–44.

<sup>158</sup> *ibid*, p 49.

<sup>159</sup> *ibid*, pp 49–52.

<sup>160</sup> *ibid*.

<sup>161</sup> *ibid*, p 48.

<sup>162</sup> *ibid*, pp 47–48.

<sup>163</sup> *ibid*, p 47.

<sup>164</sup> *ibid*, pp 42–44.

fails to provide the injured person with or grant them access to logs or where causation, fault or defect needs to be proven due to failure to comply with the safety rules in the event of damage that such rules were meant to prevent.<sup>165</sup>

Since § 1065 of the LOA explicitly places on the injured person the burden of proof of the damage, the defectiveness of the self-driving vehicle as well as a causal link between the vehicle's defectiveness and the damage, it is probably not possible to follow the NTF's recommendations without amending § 1065 of the LOA which, in turn, is dependent on the amendment of the PLD.

### 2.3.4.3. Distinguishing between a product and a service

#### 2.3.4.3.1. General considerations

The self-driving vehicle is a product that is entwined with various services, most notably, communications and data provision services (eg traffic control, location, cloud computing, etc).<sup>166</sup> A defect in such a service required for operating the self-driving vehicle could lead to the causing of harm by the vehicle.

The product liability rules of the LOA make no explicit mention of services. Even though Part 8 of the LOA sets out various types of service contracts, neither the LOA nor the GPCCA give any general definition of the term 'service.' However, it is noted in the introduction to the Commentary on the LOA that 'an authorisation (mandate) contract (*käsundusleping*) is aimed at an activity, at the provision of a service as a process.'<sup>167</sup> The other service contract type which is aimed at a result rather than a process is the contract for work (*töövõtuleping*).<sup>168</sup> In public law, on the other hand, various definitions can be found.<sup>169</sup> In essence, a service means an activity or process. However, the absence of a legal definition

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<sup>165</sup> *ibid*, pp 42–44, 47–49.

<sup>166</sup> See, for instance, Martin Ebers, 'Haftung für fehlerhafte Daten beim autonomen Fahren' in Louisa Specht-Riemenschneider, Nikola Werry and Susanne Werry (eds), *Datenrecht in der Digitalisierung* (Berlin: Erich Schmidt Verlag 2019), pp 901–902.

<sup>167</sup> Varul and others (n 31), p 1.

<sup>168</sup> *ibid*, p 3.

<sup>169</sup> For instance, clause 4 of subsection 1 of § 2 of the Consumer Protection Act defines 'service' as a benefit other than goods, which is rendered, provided or distributed in any other manner or other performance [*tarbijakaitseadus*] – RT I, 31.12.2015, 1; RT I, 08.01.2020, 1. English translation: <[www.riigiteataja.ee/en/eli/512022020001/consolide](http://www.riigiteataja.ee/en/eli/512022020001/consolide)> accessed 8 October 2020. For the purposes of clause 3 of subsection 2 of § 2 of the Value Added Tax Act, 'service' means the provision, in the course of business activities, of benefits or the transfer of rights, including securities, which are not goods, and obligations to refrain from economic activity, to waive the exercise of a right or to tolerate a situation for a charge. Thereby software and information transmitted by electronic means, and data media carrying software or information that are especially compiled or adjusted according to the purchaser's specifications are also considered to be services [*käibemaksuseadus*] – RT I 2003, 82, 554; RT I, 21.04.2020, 1. English translation: <<https://www.riigiteataja.ee/en/eli/527042020008/consolide>> accessed 8 October 2020. Note that both of these definitions define services negatively, essentially as non-products.

of the term ‘service’ in the LOA does not necessarily constitute a problem in the context of product liability rules because the key question in terms of the manufacturer’s liability is whether a service (a non-product) can be considered to be part of the self-driving vehicle.

The PLD, which serves as the basis for the product liability provisions of the LOA, focuses on the tangible. The reason for making the distinction between the tangible and the intangible may to some extent also lie in the fact that, at the time of drafting the PLD, the Commission was also planning on drafting a separate directive for defective services.<sup>170</sup>

The CJEU has repeatedly confirmed that services do not fall within the scope of the PLD.<sup>171</sup> As noted on p 181 in Article II, the PLD was adopted for the purpose of, among other things, making it easier for the injured person to bring claims against the manufacturer in spite of complex distribution chains and organisation structures.<sup>172</sup> Difficulties experienced by injured persons in identifying the person against whom to bring a product liability claim have given rise to CJEU case-law. The CJEU has explained that the liability of a service provider in providing services using defective equipment not produced by the service provider does not fall within the scope of the PLD.<sup>173</sup> The CJEU has also noted that there are appreciable differences between the activities of service providers who, having acquired goods, used them in the provision of services to third parties and as a result thereof that activity could not be considered equivalent to the activities of manufacturers, importers and suppliers.<sup>174</sup>

The Commission has noted that separating products from services remains an open question.<sup>175</sup> Products and services have changed considerably since the

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<sup>170</sup> Economic and Social Committee, ‘Opinion on the proposal for a Council Directive relating to the approximation of the laws, regulations and administrative provisions of the Member States concerning liability for defective products’ [1979] (OJ C 114, pp 15–19) C:1979:114:TOC, p 17, item 2.2.1 <<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:C:1979:114:FULL&from=ET>> accessed 8 October 2020.

<sup>171</sup> Case C-495/10 *Centre hospitalier universitaire de Besançon v Thomas Dutrueux and Caisse primaire d’assurance maladie du Jura* [2011] ECLI:EU:C:2011:869, para 39; Case C-203/99 *Henning Veedfald v Århus Amtskommune* [2000] Opinion of AG Ruiz-Jarabo Colomer, ECLI:EU:C:2000:697, para 16.

<sup>172</sup> Recitals 4 and 5 of the PLD; Case C-402/03 *Skov Æg v Bilka Lavprisvarehus A/S and Bilka Lavprisvarehus A/S v Jette Mikkelsen and Michael Due Nielsen* [2006] ECLI:EU:C:2006:6, paras 28–29.

<sup>173</sup> Case C-495/10 *Centre hospitalier universitaire de Besançon v Thomas Dutrueux and Caisse primaire d’assurance maladie du Jura* [2011] ECLI:EU:C:2011:869, para 39.

<sup>174</sup> Case C-203/99 *Henning Veedfald v Århus Amtskommune* [2001] ECLI:EU:C:2001:258, para 33.

<sup>175</sup> See, for instance, point 5.4 in Commission, ‘Report from the Commission to the European Parliament, the Council and the European Economic and Social Committee on the Application of the Council Directive on the approximation of the laws, regulations, and administrative provisions of the Member States concerning liability for defective products (85/374/EEC)’ (Brussels, 7 May 2018) COM(2018) 246 final, where a reference is made to stakeholders’ concerns over open questions about what separates a product from a service.

adoption of the PLD. Highly technical modern products are so entwined with services that they may be rendered completely unusable when a service is unavailable. It has been argued that, while the distinction between products and services has not faced insurmountable difficulties, it is impractical to separate products and services, especially in the case of artificial intelligence systems as these blur the lines between products and services.<sup>176</sup> Indeed, sophisticated products such as self-driving cars that are heavily reliant on machine learning are not necessarily ever truly finished products. Instead, the manufacturers of self-driving vehicles will need to retain a certain degree of control over the vehicle's further development after the vehicle has been put into circulation. This calls into question the justification for treating manufacturers and service providers differently in terms of tortious liability.

As noted on p 181 of Article II, some of these services 'fuelling' the self-driving vehicle could be of fundamental importance to the safe and proper functioning of the vehicle. The vehicle needs to be able to know what is happening around it. To that end, it needs to communicate with other road users, smart traffic signs and road markings. It needs to know the weather conditions, the street network, know its own position and that of other vehicles with very high accuracy, etc. Where the self-driving vehicle is designed in such a way that damage is not precluded when such a fundamental service proves defective, the vehicle itself could be deemed defective. Subsection 1 of § 1063 of the LOA explicitly includes software among products. Software is essentially never fully finished. Usually, it is improved and updated over time because information technology advances at a fast pace and a solution that once proved reasonable might not be reasonable in the light of some new knowledge acquired later. Therefore, it is essentially reliant on some additional activity or process (service), which is of paramount importance for the purposes of the safety of the vehicle. Via software the intangible service component has entered the field of liability for otherwise tangible products.

Finally, in the context of distinguishing products and services note should also be taken of Directives 2019/771 and 2019/770.<sup>177</sup> Recitals 15 and 17 of Directive 2019/771 introduce the considerations based on which one can determine whether the sale of goods<sup>178</sup> involves a digital service or not. Recital 15 explains that whether the supply of the incorporated or interconnected digital service forms part of the sales contract with the seller should depend on the content of the

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<sup>176</sup> NTF Report (n 93), p 28.

<sup>177</sup> Directive (EU) 2019/770 of the European Parliament and of the Council of 20 May 2019 on certain aspects concerning contracts for the supply of digital content and digital services [2019] OJ L136/1; Directive (EU) 2019/771 of the European Parliament and of the Council of 20 May 2019 on certain aspects concerning contracts for the sale of goods, amending Regulation (EU) 2017/2394 and Directive 2009/22/EC, and repealing Directive 1999/44/EC [2019] OJ L136/28.

<sup>178</sup> The legal definitions of goods are given in Articles 2(5)(a) and (b) of Directive 2019/770 and Articles 2(5)(a) and (b) of Directive 2019/771 and the legal definition of digital services in Articles 2(2)(a) and (b) of Directive 2019/770 and Articles 2(7)(a) and (b) of Directive 2019/771, respectively. Both terms are defined via the functions.

contract. This should include incorporated or interconnected digital services the supply of which is explicitly required by the contract as well as sales contracts which can be understood as covering the supply of a specific digital service because they are normal goods of the same type and the consumer could reasonably expect the service, given the nature of the goods and taking into account any public statement made by or on behalf of the seller or other persons in previous links of the chain of transactions, including the producer. This should apply regardless of whether the digital service is pre-installed in the good itself or has to be downloaded subsequently on another device and is only interconnected to the good as well as to situations where the digital service is supplied by a third party under the sales contract. In the event of doubt as to whether the supply of the digital service forms part of the sales contract, the rules of the Directive should apply. Recital 17 of Directive 2019/771 states that where a contract includes elements of both sales of goods and provision of services, it should be left for national law to determine whether the whole contract can be classified as a sales contract within the meaning of the Directive. It follows from Recitals 12 and 13 of Directive 2019/770 that Member States are free to provide non-contractual remedies for the consumer in the event of lack of conformity of a digital service against person in previous links of the chain of transactions or other persons that fulfil the obligations of such persons as well as to regulate liability claims of consumers against third parties other than the trader that supplies or agrees to supply the digital service, such as a developer which is not at the same time the trader under Directive 2019/770.

The definitions of ‘goods’ and ‘digital service’ in Directives 2019/771 and 2019/770 help to further clarify the boundaries between products and services. It follows from Article 2(5) of Directive 2019/771 that ‘goods’ means tangible movable items, including those that incorporate or are interconnected with a digital service in such a way that the absence of the service would prevent the goods from performing their functions (ie goods with digital elements).<sup>179</sup> Recital 27 of the Directive further clarifies that functionality should be understood to refer to ways in which the goods can perform their functions having regard to the purpose of the goods and that successful functioning could include the ability of the goods to exchange information with other software and hardware and to use the information exchanged. Thus, fully self-driving vehicles could, in principle, be considered goods for the purposes of Article 2(5) of Directive 2019/771.

Under Article 2(7) of Directive 2019/771 and Article 2(2) of Directive 2019/770, ‘digital service’ means a service that allows the consumer to create, process, store or access data in digital form or a service that allows the sharing of or any other interaction with data in digital form uploaded or created by the consumer or other users of that service. This makes it yet another reference to the notion of an activity, which underpins any service definition.

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<sup>179</sup> Thereby water, gas and electricity are also considered goods within the meaning of the Directive, provided that they are put up for sale in a limited volume or a set quantity.

#### 2.3.4.3.2. Liability for software updates

Subsection 1 of § 1063 of the LOA explicitly states that (computer) software is a product. By doing so, the Estonian legislature has eliminated the issue of whether software should be considered a product or a service. Of course, this raises the question of whether subsection 1 of § 1063 of the LOA is truly fully aligned with Article 2 of the PLD. While the PLD does not explicitly place software among products, software's classification as a product could, by way analogy, still be derived not only from the fact that electricity is also explicitly considered a product but also from the Union's product safety legislation.<sup>180</sup> There appears to be support for classifying software under products in the academia<sup>181</sup> as well as the Commission.<sup>182</sup>

Unlike products that only consist of hardware, software can be updated relatively easily. In the case of self-driving cars, it may take the form, for example, a set of changes programmed and planned by the developer over a longer period or possibly even machine learning. This raises a question about the status of software updates in the context of product liability – does the updating of software qualify putting (the product) into circulation?

Relying on a guide on the implementation of EU product rules,<sup>183</sup> it has been noted in the context of the product safety legislation of the EU that software updates could be compared to maintenance operations for safety reasons, provided that they *do not significantly modify* a product already placed on the market and they do not introduce new risks that were not foreseen in the initial risk assessment.<sup>184</sup> The same report also suggests that if the software update *modifies substantially* the product in which it is downloaded, the entire product might indeed be considered as a new product and compliance with the relevant safety product legislation should be reassessed at the time of making the modification.<sup>185</sup> As noted in the Commission's White Paper on AI, while these guidelines might help the executive and the judiciary find the appropriate solution in a given situation,

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<sup>180</sup> See, for example, section 1.2.1 in Annex I to Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast) [2006] OJ L157/24.

<sup>181</sup> For a list of legal scholars supporting the idea of considering software a product see fn 19 on p 7 in Bernhard A Koch, 'Product liability for autonomous vehicles' (2019) 4 Insurance Review / Wiadomości Ubezpieczeniowe, pp 3–12 DOI: <<https://doi.org/10.33995/wu2019.4.1>>.

<sup>182</sup> Esther Engelhard and Roeland de Bruin, 'EU Common Approach on the liability rules and insurance related to Connected and Autonomous Vehicles' in Annex I to Tatjana Evas, 'A common EU approach to liability rules and insurance for connected and autonomous vehicles. European Added Value Assessment' (EPRS, European Added Value Unit, 2018) PE 615.635, p 122 <[http://www.europarl.europa.eu/RegData/etudes/STUD/2018/615635/EPRS\\_STU\(2018\)615635\\_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/STUD/2018/615635/EPRS_STU(2018)615635_EN.pdf)> accessed 8 October 2020.

<sup>183</sup> Commission Notice, The 'Blue Guide' on the implementation of EU products rules 2016 (2016/C 272/01), p 17.

<sup>184</sup> Safety and Liability Report (n 139), p 10.

<sup>185</sup> *ibid.*



they do not change the fact that the product liability rules in force are not attuned to a reality where intelligent products in essence improve themselves over the course of their life span, thus giving rise to new risks that were not present at the time when the product was first put into circulation.<sup>186</sup>

Imagine a situation where service provider B updates the software of a self-driving vehicle made by manufacturer A so that it would adequately respond to various sorts of trash lying on the road. Following an update, the self-driving vehicle used by user C mistakes pedestrian D crossing a pedestrian crossing in the middle of the night for a plastic bag and does not stop or slow down for it. The vehicle severely injures pedestrian D. In such a situation, pedestrian D could (at least in the context of Estonian law) argue that, since software is a product for the purposes of subsection 1 of § 1063 of the LOA, the flawed update is a defective component thereof and, thus, service provider B is liable for the damage under the product liability rules. Alternatively, pedestrian D could also have a claim against service provider B on the basis of fault-based tortious liability rules and against user C on the basis of strict liability rules.

A question on whether and for how long manufacturers of self-driving vehicles are required to provide updates can also be raised. Estonian product liability law does not currently provide for any explicit general requirement to update products. As already explained in item 2.3.2.2 above, the relevant case-law of the Supreme Court instructs that, in order to trigger the defendant's tortious liability under clause 7 of subsection 1 of § 1045 of the LOA,<sup>187</sup> the claimant bears the burden of proving that the unlawfulness stems from a breach of a statutory duty (safeguarding rule) by the defendant.<sup>188</sup> Furthermore, the Supreme Court has pointed out that the claimant should, in addition to proving the breach of a safeguarding rule under the law of tort by the defendant, also prove that the prevention of damage to the claimant was at least one of the purposes of the statutory duty under subsection 3 of § 1045 of the LOA.<sup>189</sup> Currently, a statutory duty to update can be derived from subsection 3 of § 11 of the Product Conformity Act<sup>190</sup> which imposes on manufacturers the duty to take measures commensurate with the characteristics of the products they supply, enabling them to be aware of risks these products might pose and choose to take appropriate action to avoid these risks. Alternatively, if there was no such statutory duty, a possible duty to update

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<sup>186</sup> Commission, 'White Paper on Artificial Intelligence: A European approach to excellence and trust' (Brussels, 19 February 2020) COM(2020) 65 final (hereinafter *White Paper on AI*), p 14.

<sup>187</sup> SCCC judgment, 10 November 2010, case 3-2-1-88-10, para 10; SCCC judgment, 25 April 2007, case 3-2-1-30-07, para 10.

<sup>188</sup> *ibid.*

<sup>189</sup> SCCC judgment, 17 December 2009, case 3-2-1-150-09, para 12; SCCC judgment, 17 December 2012, case 3-2-1-161-12, para 11.

<sup>190</sup> Product Conformity Act [*toote nõuetele vastavuse seadus*] – RT I 2010, 31, 157; RT I, 30.06.2020, 8. English translation: < <https://www.riigiteataja.ee/en/eli/530062020007/consolide> > accessed 8 October 2020.

the software of a self-driving vehicle could nevertheless be derived from the general duty to maintain safety.<sup>191</sup>

Finally, it should also be pointed out that, for instance, in the context of contract law, the European legislator has noted in Recital 28 of Directive 2019/771 that updates can improve and enhance the digital service element of the goods, extend their functionalities, adapt them to technical developments, protect them against new security threats or serve other purposes.<sup>192</sup> It follows from the Recital that the conformity of goods with digital services which are incorporated in or interconnected with the goods should therefore also be assessed in relation to whether the digital service element of such goods is updated in accordance with the sales contract. Thereby failure to supply updates that had been agreed in the sales contract should be considered as a lack of conformity of the goods and the same applies to defective or incomplete updates, given that that would mean that such updates are not performed in the manner stipulated in the sales contract.

### **2.3.5. Persons liable for damage caused by a self-driving vehicle under tort law**

#### **2.3.5.1. Direct possessor**

As noted in item 2.3.3 above and on pp 7–8 in Article IV, only the direct possessor of a motor vehicle can be held liable under § 1057 of the LOA. It follows from subsection 1 of § 33 of the Law of Property Act (LPA)<sup>193</sup> that a possessor is a person under whose actual control a thing is. Subsection 2 of the same section stipulates that a person who possesses a thing on the basis of a commercial lease, tenancy, deposit, pledge or other similar relationship which entitles the person to temporarily possess the thing of another person is the direct possessor, while the other person is the indirect possessor. It follows from the case-law of the Supreme Court that § 1057 of the LOA imposes liability on, above all, the person who has actual control (be it on a legal basis or not) over a motor vehicle. In other words, the person who controls the vehicle (ie decides where and when the vehicle moves) bears the costs and economic risks arising from the vehicle, and enjoys the benefits of using the vehicle.<sup>194</sup> For instance, in a situation where a pedestrian crosses the road in a non-designated place in the middle of the night, walks in front of a fully self-driving car and suffers serious injuries as a result of the collision, the pedestrian does not need to, in order to receive damages from the

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<sup>191</sup> See item 2.3.2.1 above.

<sup>192</sup> Directive (EU) 2019/771 of the European Parliament and of the Council of 20 May 2019 on certain aspects concerning contracts for the sale of goods, amending Regulation (EU) 2017/2394 and Directive 2009/22/EC, and repealing Directive 1999/44/EC [2019] OJ L136/28.

<sup>193</sup> Law of Property Act [*asjaõigusseadus*] – RT I 1993, 39, 590; RT I, 22.02.2019, 1. English translation: <[www.riigiteataja.ee/en/eli/529082019011/consolide](http://www.riigiteataja.ee/en/eli/529082019011/consolide)> accessed 8 October 2020.

<sup>194</sup> SCCC judgment, 19 March 2013, case 3-2-1-7-13, para 21.

direct possessor (owner) of the car and its insurer, prove that the direct possessor committed some act or that it was unlawful. The pedestrian merely needs to prove that they suffered damage as a result of a heightened risk emanating from the source of greater danger. The direct possessor is discharged from liability only where they prove that a liability-precluding circumstance set out in § 1057 of the LOA existed at the time of the incident. Under clause 5 of § 1057 of the LOA, the direct possessor's strict liability may be precluded, for instance, in a situation where they allowed a friend to ride along in the car outside their economic activities and suffered a traffic accident where the friend suffered an injury. In such a situation the direct possessor may still be liable under general fault-based tortious liability rules.

In a situation where someone physically breaks into a self-driving car, overrides its systems and assumes control of the car, that person can also be considered the direct possessor of the car, albeit not a legal one. However, should the break-in and assumption of control take place remotely, it becomes debatable whether the person still fits under the notion 'direct possessor' or should be considered to be in control of the car for the purposes of § 1056 of the LOA instead.

Should the purchase and sale of future self-driving vehicles remain similar to that of the current conventional vehicles, the person who acquires a self-driving will generally be its direct possessor as well. However, it may happen that companies will merely provide a transport service using self-driving vehicles and individuals will not be able to acquire them. Such a service may resemble the conventional taxi service. If a self-driving vehicle causes a traffic accident during the provision of such a transport service, one can raise the question of who the direct possessor of the vehicle at the moment of the accident was. It can be argued that, since a customer of the conventional taxi service does not transform into the direct possessor of the vehicle at the time of receiving the service, the same does not happen in the case of a self-driving vehicle. This means that the person receiving the transport service is not liable for the damage under § 1057 of the LOA. Above all, the company providing the transport service is liable. Thereby it is irrelevant whether the respective company is the owner of the vehicle that caused damage or possesses the vehicle on the basis of, for instance, a lease contract. In the latter case, the owner of the vehicle is the indirect possessor of the vehicle to whom § 1057 of the LOA does not apply either. In addition, the driver of a conventional motor vehicle cannot always be considered the direct possessor of the vehicle. It follows from subsection 3 of § 33 of the LPA that the possessor is not a person who exercises actual control over a thing in accordance with the orders of another person in their household or business. Such possessory servant is, for example, an employee who uses a vehicle to perform the tasks given by the employer. In principle, it may happen in the case of a self-driving vehicle that the employee uses it for performing certain employment tasks. In such an event, § 1057 of the LOA is not applicable to the employee either.<sup>195</sup> At the same time the possessory servant may still be held liable in accordance with

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<sup>195</sup> See also Varul and others (n 31), p 696.

the provisions governing general tortious liability. However, this may not prove doable in practice in the case of self-driving vehicles, because the employee's liability would usually be precluded owing to the absence of their fault.

#### 2.3.5.2. Person controlling a source of greater danger

As noted on p 9 in Article IV, the LOA also sets out general strict liability. It is a flexible solution that enables the courts to keep up with the times, qualifying technologies whose safety is not yet sufficiently proven as sources of greater danger. On the basis of the general composition of strict liability, the person controlling a source of greater danger can be held liable.

The definition of a person controlling a source of greater danger set out in subsection 1 of § 1056 of the LOA does not overlap with the definition of the direct possessor of a motor vehicle under § 1057 of the LOA. Thus, it cannot be precluded that a person in a self-driving vehicle (eg an employee) who cannot be qualified as the direct possessor of the motor vehicle under § 1057 of the LOA can still be considered a person controlling the source of greater danger within the meaning of subsection 1 of § 1056 of the LOA. Even though this position has not been explicitly confirmed by case-law, a respective discussion is fuelled by a decision of the Supreme Court where the court held that a person who was riding a horse but was simultaneously not the keeper of the animal for the purposes of § 1060 of the LOA, could be considered a person controlling a source of greater danger within the meaning of subsection 1 of § 1056 of the LOA.<sup>196</sup> By the same token, it should not necessarily be precluded that a vehicle owner who is not the vehicle's direct possessor can be the person controlling the source of greater danger. A respective question could be raised, for instance, in the event of the insolvency of the direct possessor. In light of the aforementioned discussion of the definition of a person controlling a source of greater danger one should nevertheless not draw the conclusion that a person receiving transport service could be considered a possessor of a self-driving vehicle for the purposes of § 1056 of the LOA. The receipt of a temporary service does not give a person any right or opportunity to control the self-driving vehicle.

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<sup>196</sup> SCCC judgment, 18 April 2007, case 3-2-1-27-07, paras 13–14. The application of the general composition of strict liability (LOA § 1056) may be precluded by the fact that the injured person was somehow linked to the source of greater danger. In the same decision, the Supreme Court noted that persons who participate in controlling a source of greater danger, temporarily take the source under their control or benefit from controlling the source are not, in the light of the principle of good faith, entitled to demand that the person controlling the source of greater danger compensate for the damage caused to them based on provisions governing strict liability.

### 2.3.5.3. Manufacturer

It follows from CJEU case-law<sup>197</sup> that the class of persons specified as obligated persons in Article 3 of the PLD (clause 1 of subsection 1 of § 1062 of the LOA, respectively) should be regarded as exhaustive. In the context of self-driving vehicles, the obligated persons are the manufacturers of finished vehicles, their component parts and raw materials. Having laid this foundation, clause 2 of subsection 1 of § 1062 of the LOA moves on to broaden the circle of obligated persons to include those who present themselves as manufacturers by putting their name, trade mark or some other distinguishing feature on the vehicle. Subject to certain specifications and conditions, clause 3 adds importers and suppliers to the mix.<sup>198</sup>

A self-driving vehicle consists of numerous parts made by numerous manufacturers. Likewise, the supply chain of a self-driving vehicle may consist of numerous links. In the context of the circle of obligated persons, the issue of application of the PLD to various links in the distribution chain has been repeatedly dealt with by the CJEU.<sup>199</sup> The reason behind extending product liability to other links in the supply chain lies in an attempt to make it easier for the injured person to bring direct action against the manufacturer, as confirmed by the CJEU caselaw.<sup>200</sup> The CJEU has held that when one of the links in the distribution chain is closely connected to the manufacturer, that entity could be regarded as being involved in the manufacturing process.<sup>201</sup> The CJEU has pointed out that unlimited product liability cannot be extended to a supplier because this is exactly what the PLD tries to avoid.<sup>202</sup> The CJEU has confirmed that a supplier who fails to inform the injured person of the identity of the manufacturer within a reasonable time must be treated as the manufacturer.<sup>203</sup> Both the person who manufactured vehicle on the whole as well as a component part thereof (including

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<sup>197</sup> Case C-402/03 *Skov Æg v Bilka Lavprisvarehus A/S and Bilka Lavprisvarehus A/S v Jette Mikkelsen and Michael Due Nielsen* [2006] ECLI:EU:C:2006:6, para 33; Case C-127/04 *Declan O'Byrne v Sanofi Pasteur MSD Ltd and Sanofi Pasteur SA* [2006] ECLI:EU:C:2006:93, para 35; Case C-358/08 *Aventis Pasteur SA v OB* [2009] ECLI:EU:C:2009:744, para 36.

<sup>198</sup> In the light of the underlying Article 3 of the PLD, it has been argued in, for instance, a commentary on the German ProdHaftG that, in doing so, the Directive seems to go beyond the limits of tortious product liability because in commerce one's liability is usually limited to one's own actions (see MüKoBGB/Wagner, 7. Aufl. 2017, ProdHaftG § 4 Rn 1).

<sup>199</sup> See, for instance, Case C-402/03 *Skov Æg v Bilka Lavprisvarehus A/S and Bilka Lavprisvarehus A/S v Jette Mikkelsen and Michael Due Nielsen* [2006] ECLI:EU:C:2006:6, paras 27–29.

<sup>200</sup> Case C-52/00 *Commission v France* [2002] ECLI:EU:C:2002:252, para 40; Case C-402/03 *Skov Æg v Bilka Lavprisvarehus A/S and Bilka Lavprisvarehus A/S v Jette Mikkelsen and Michael Due Nielsen* [2006] ECLI:EU:C:2006:6, paras 28 and 36.

<sup>201</sup> Case C-127/04 *Declan O'Byrne v Sanofi Pasteur MSD Ltd and Sanofi Pasteur SA* [2006] ECLI:EU:C:2006:93, paras 27–29.

<sup>202</sup> Case C-402/03 *Skov Æg v Bilka Lavprisvarehus A/S and Bilka Lavprisvarehus A/S v Jette Mikkelsen and Michael Due Nielsen* [2006] ECLI:EU:C:2006:6, para 36.

<sup>203</sup> Case C-358/08 *Aventis Pasteur SA v OB* [2009] ECLI:EU:C:2009:744, paras 55–58.

software) can be considered the manufacturer under clause 1 of subsection 1 of § 1062 of the LOA (Article 2 of the PLD, respectively). However, a third party who provides services required for operating and using the vehicle cannot be considered the manufacturer. Where, for example, a network service failure results in a traffic accident, the network service provider cannot be deemed liable under the product liability rules.

#### 2.3.5.4. Service provider

##### *2.3.5.4.1. General considerations*

At this juncture, there is a lot of uncertainty about the services that self-driving vehicles will come to be provided with, as the related products and services are developing at a fast pace and the industry's standards (including safety standards) are yet to take form.<sup>204</sup> Therefore, respective legal analyses and writings remain vague, even though certain generalisations can be made.<sup>205</sup> Nevertheless, it cannot be precluded that self-driving vehicles will one day come to rely on various ITS services for road, traffic and travel data as well as on various other ICT services. If such a service were to prove defective, the self-driving vehicle might end up harming a third party.

Imagine a situation where B provides a non-stop cloud navigation service which enables the driving automation of a vehicle manufactured by A. Due to a flaw in the service, the self-driving vehicle used by C receives the signal with a long lag, causing it to rear-end D's vehicle in front. In such a situation, D could claim damages from B based on the rules of fault-based tortious liability. Furthermore, D could also argue that A should have manufactured the vehicle in such a way that the causing of damage would be precluded in the event of a defective cloud navigation service. That would open the door for the possibility of the transition of the defect of the service into that of the vehicle (product). Furthermore, in the case of this illustrative situation, D's and C's contribution to the accident (if any) could be taken into account as well.

Let us look at a situation where local authority B has equipped the city with local positioning sensors for self-driving vehicles and, at an intersection, a malfunctioning sensor causes a self-driving car manufactured by A and used by C to make a sudden change of lanes to avoid colliding with a non-existent obstacle. As a result, C's self-driving car collides with D's car. Does D have a claim against B? On the condition that the service provided by B does not qualify as the

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<sup>204</sup> While driving automation researchers and developers are optimistic about addressing all of the open problems with the help of interdisciplinary academic collaboration and support from the industries and the public, many services of crucial importance for self-driving vehicles are not available yet (see Yurtsever and others (n 10), p 58462). For example, there is no operational connected ADS in use yet (n 10, p 58447) and deep learning based location planners are not widely used in real-world systems yet (n 10, p 58460).

<sup>205</sup> See, for instance, NTF Report (n 93), key finding [11], pp 6, 23, 39–41.

management of traffic and the sensors cannot be deemed traffic control devices, one could argue that D does have a claim against B based on rules governing fault-based tortious liability.<sup>206</sup> It is also possible that also A and C (jointly with B) are held liable.

The tort law rules of the LOA do not contain any legal definition of the term ‘service’ or provide for a special liability regime for defective services either. Thus, ruling out product liability for reasons noted above, the service provider’s liability for damage caused by a self-driving vehicle depends on whether the service provider can be considered a direct possessor of the self-driving vehicle under § 1057 of the LOA (special strict liability) or a person controlling a source of greater danger under § 1056 of the LOA (general strict liability) or a tortfeasor under § 1043 of the LOA (fault-based tortious liability).<sup>207</sup> In principle, a defective service could also cause damage to the possessor/owner of the vehicle. Thus, the possessor or owner of the vehicle could also have a claim against the service provider under the rules governing general fault-based tortious liability, unless they have a contractual relationship or the possessor/owner is not subject to protection for the purposes of § 81 of the LOA (ie under a contract aimed at protecting third parties).

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<sup>206</sup> However, note that it follows from clause 2 of subsection 3 of § 1 of the State Liability Act (SLA) that the performance of the obligations provided for in § 6 of the TA (management of traffic) are not governed by private law legislation and in the event of related damage one needs to rely on the SLA [*riigivastutuse seadus*] – RT I 2001, 47, 260; RT I, 17.12.2015, 1. English translation: <[www.riigiteataja.ee/en/eli/507062016001/consolide](http://www.riigiteataja.ee/en/eli/507062016001/consolide)> accessed 8 October 2020.

<sup>207</sup> It should be pointed out that the NTF introduces the term ‘backend operator’ to describe a service provider. More specifically, the NTF divides operators into two separate types: the frontend operator (owner/possessor/user) and the backend operator (manufacturer/service provider). When put in the context of self-driving vehicles, the former decides on the use of the vehicle (ie where it comes and goes) and benefits from it. The latter makes driving automation possible, introduces the required updates and keeps the systems running and even benefits therefrom economically. In the NTF’s view, where a central backend operator has a higher degree of control over the operational risks other persons are exposed to as compared to the frontend operator (see p 41 of the NTF Report (n 93)), the backend operator should be held strictly liable. To illustrate its point, the NTF gives a rather vague example of where a self-driving vehicle is private owned by a person who decides how often, when and where to go with it, while the manufacturer/service provider of the vehicle controls the vehicle on a continuous basis by providing, among other things, cloud navigation services, updating map data and the vehicle’s software using ‘supervised fleet machine learning’ and deciding on the maintenance of the vehicle. The NTF recommends that Member States define the circumstances in which either of the two operators is held liable (for further information, see pp 39–42 of the NTF Report). However, as regards the LOA, the backend operator cannot currently be considered a direct possessor for the purposes of § 1057 of the LOA. It cannot be fully precluded that the backend operator qualifies as a person controlling a source of greater danger for the purposes of § 1056 of the LOA. Since the way a self-driving vehicle operates currently still remains, to a certain extent, hypothetical, this dissertation will not attempt to go into detail in that regard. The vagueness of the illustration 7 given on p 41 of the NTF Report is telling for these very reasons as well.

Provided that the prerequisites are met, the service provider can be held liable under the rules governing fault-based tortious liability.<sup>208</sup> In a situation where damage does not stem from any direct act of a service provider of a self-driving vehicle, the service provider needs to have breached a statutory duty or the general duty to maintain safety in order to be held liable for the damage caused.<sup>209</sup> Where a person provides a service needed for the attainment of driving automation, the general duty to maintain safety obligates the person to make every reasonable effort to prevent harming third parties. Thus, one needs to substantively assess whether the service provider has been externally (ie objectively) negligent.<sup>210</sup>

#### 2.3.5.4.2. *Liability for an information society service*

Imagine a situation where a person who has bought a self-driving car from the manufacturer receives a car software update service from a third party. Due to a flaw in the process, the car does not ‘know’ that the traffic arrangement at an intersection has been changed and hits a cyclist. Where such an update service cannot be deemed a transport service or a service in the field of transport, the rules governing information society services may be applicable.

Where liability is precluded under such special regulation, the general fault-based tortious liability rules may need to be set aside. This might be the case, for instance, where the service is considered an information society service for the purposes of clause 1 of § 2 of the Information Society Services Act (ISSA).<sup>211</sup> It has been argued that such rules stand above or next to the domestic general structure of torts.<sup>212</sup>

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<sup>208</sup> For a more detailed discussion see pp 54–57 in Article I and item 2.3.2 above.

<sup>209</sup> See item 2.3.2 above.

<sup>210</sup> SCCC judgment, 20 June 2013, case 3-2-1-73-13, para 10.

<sup>211</sup> Information Society Services Act [*infoühiskonna teenuse seadus*] – RT I 2004, 29, 191; RT I, 12.12.2018, 3. English translation: <<https://www.riigiteataja.ee/en/eli/515012019001/consolide>> accessed 8 October 2020. The Act transposes Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market (‘Directive on electronic commerce’) [2000] OJ L178/1 and Directive (EU) 2015/1535 of the European Parliament and of the Council of 9 September 2015 laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services [2015] OJ L241/1, which replaces Directive 98/48/EC of the European Parliament and of the Council of 20 July 1998 amending Directive 98/34/EC laying down a procedure for the provision of information in the field of technical standards and regulations [1998] OJ L217/18 (see Article 10 of Directive (EU) 2015/1535). Thereby Articles 12–14 of Directive 2000/31/EC (ie those concerning mere conduit/access, caching and hosting) have been transposed to §§ 8–10 of the ISSA almost word-for-word.

<sup>212</sup> For further information see, for instance, Karmen Turk, ‘Teabe talletaja deliktiõiguslik vastutus’ [The delictual liability of the host] (Master’s thesis, University of Tartu 2010), p 80; Sören Wollin, ‘Störerhaftung im Immaterialgüter- und Persönlichkeitsrecht: Zustandshaftung analog § 1004 I BGB’ (Dissertation, Nomos Verlag 2018), p 118.



It follows from clause 1 of § 2 of the ISSA that ‘information society service’ means a service provided in economic or professional activities at the *direct* request of a recipient of the service, without the parties being simultaneously present at the same location, whereby data are processed, stored and transmitted by means of electronic equipment for the digital processing and storage of data. Thereby the information society service must be entirely transmitted, conveyed and received by electronic means of communication. Article 1(b) of Directive (EU) 2015/1535 defines an information society service as any service normally provided for remuneration: without the parties being simultaneously present; sent initially and received at its destination by means of electronic equipment for the processing (including digital compression) and storage of data; entirely transmitted, conveyed and received by wire, by radio, by optical means or by other electromagnetic means; and provided through the transmission of data on *individual* request. According to the indicative list of services given in Annex I to the Directive, the services provided by transmitting data without individual demand for simultaneous reception by an unlimited number of individual receivers include television and radio broadcasting services as well as teletext.

The meaning of ‘individual request’ has been clarified by the CJEU in its judgment in Case C-390/18 *Airbnb Ireland*.<sup>213</sup> The court came to the conclusion that the service was provided at the individual request because it involved both the placing online of an advertisement by a host and an individual request from a guest who was interested in *that* advertisement. In other words, the prerequisite for an individual request can be considered as met where a service provider has acted to make a service available and a recipient has acted to receive the service. In the context of self-driving cars, this might be the case in a situation where a data provider has made, for instance, traffic-related data (eg the location, speed, direction of movement of other road users) available and a user of a self-driving car has switched on a functionality specifically requesting such input. Of course, in the given example the user does not request access to any specific item but rather a dataset in a particular location at a particular moment (in real time). Furthermore, where a particular functionality is embedded in the technology of the vehicle and cannot be controlled by the service recipient in any way, there can hardly be any individuality or directness of the request. Given the context of transportation, the range of issues in this regard is obviously broader and the key issues will be discussed in the following subsection.

The definition of ‘information society service’ contained in § 2 of the ISSA differs from the definition used in the Directive in that the former refers to a *direct* request instead of an *individual* one. Similarly to the English version of the Directive, the German version of the Directive also uses the word *individuell* and the French version the word *individuelle*. In addition to questions concerning

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<sup>213</sup> Case C-390/18 *Airbnb Ireland* [2019] ECLI:EU:C:2019:1112, para 48; see also Case C-390/18 *Airbnb Ireland* [2019] Opinion of AG Maciej Szpunar, ECLI:EU:C:2019:336, para 39 and Joined Cases C-236/08 to C-238/08 *Google France and Google* [2010] ECLI:EU:C:2010:159, paras 23 and 110.

possible substantive differences between direct and indirect requests, the Estonian definition raises the question of whether all of the constituent elements of an information society service exist in a situation where a recipient of the service has made an individual yet indirect request. Individual indirect requests from the recipient of the service might arise in a situation where a self-driving car is made available with pre-defined settings which the user cannot change. In these circumstances it could be argued, first, that the service cannot be considered an information society service because there has been no direct or individual request from the user to the service provider. Second, it could be argued that by using the self-driving vehicle made available with such settings, the user did make at least an indirect request, which qualifies as an individual request for the purposes of a Directive-conforming interpretation of the Estonian provision. Third, it is also possible that the Estonian definition does not fully comply with the Directive due to the use of 'direct' instead of 'individual.' These aspects have not come under judicial scrutiny in Estonian courts yet.

The rules governing information society services should not be overlooked in the context of self-driving vehicles because the liability of a provider of an information society service (an intermediary) is precluded where certain preconditions are met. It follows from § 8 of the ISSA (respectively, Article 12 of Directive 2000/31/EC) that in the case of mere conduit the service provider is not liable for the information transmitted where the service provider does not initiate the transmission, select the receiver of the transmission and select or modify the information contained in the transmission. In the event of caching (§ 9 of the ISSA/Article 13 of Directive 2000/31/EC), the service provider's liability is precluded, among other things, on condition that the provider does not modify the information, complies with conditions on access to the information, complies with rules regarding the updating of the information in a manner widely recognised and used in the industry. In the event of hosting (subsection 1 of § 10 of the ISSA/ Article 14 of Directive 2000/31/EC), the service provider is not liable where the service provider does not have actual knowledge of illegal acts or information or, where the service provider does have such knowledge, acts expeditiously to remove or to disable access to illegal information.

In its judgment of 10 June 2009 in case 3-2-1-43-09, the Estonian Supreme Court took the view that the activities of the service provider were not of a merely technical, automatic and passive nature and the service in question did not amount to an intermediary service for the purposes of Directive 2000/31/EC because the service provider had integrated a commenting environment into its news portal, actively inviting visitors to comment on the news published in the portal.<sup>214</sup> The Supreme Court pointed out that although the service provider was not the author of the comments, it still had control over the commenting environment via establishing and revising the rules and deciding which comments get published and which do not. Thus, the service constituted a content service, rendering the liability-precluding circumstances arising from § 10 of the ISSA inapplicable.

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<sup>214</sup> SCCC judgment, 10 June 2009, case 3-2-1-43-09, para 13.

The judgment of the Estonian Supreme Court was later upheld by the European Court of Human Rights.<sup>215</sup>

Regarding Article 14 of Directive 2000/31/EC, the CJEU has taken the view that, to establish whether the liability of a service provider may be limited under the article, it is necessary to examine whether the role played by that service provider is neutral, ie that its conduct is merely technical, automatic and passive, pointing to a lack of knowledge or control of the data which it stores.<sup>216</sup> Similar derivations can be made from Articles 12 and 13 as well. In its judgment in Case C-324/09 *L'Oréal and others*,<sup>217</sup> the CJEU held that where the service provider has provided assistance which entails optimising the presentation or promotion of sales offers for sale, it cannot be considered any longer a neutral position. In the CJEU's view, such a service (ie data) provider plays an active role which gives it knowledge of, or control over, the data relating to those offers and, thus, the provider cannot rely on the exemption from liability referred to in Article 14(1) of Directive 2000/31/EC. The court added that, where the service provider has not played an active role, the service provider nonetheless cannot, in a case which may result in an order to pay damages, rely on the exemption from liability provided for in that provision if it was aware of facts or circumstances on the basis of which a diligent economic operator should have realised that the subject-matter of the service in question was unlawful and, in the event of it being so aware, failed to act expeditiously in accordance with Article 14(1)(b) of Directive 2000/31/EC.<sup>218</sup> In Case C-291/13 *Papasavvas*, the CJEU held that a company that had knowledge of and exercised control over the information published in an online version of a newspaper could not be considered an intermediary service provider and was not subject to limitations of liability under Articles 12–14 of Directive 2000/31/EC.<sup>219</sup> In its case-law, the CJEU has repeatedly emphasised the importance of the level of control exercised by the service provider.<sup>220</sup>

It can be derived from the above that where a service provider exercises active control over the data provided to self-driving vehicles, it may not be subject to the exemption from liability under the §§ 8–10 of the ISSA/Articles 12–14 of Directive 2000/31/EC. For instance, where a service provider collects traffic data or data on road conditions from vehicles, processes these data and transmits these to other vehicles, the service provider can no longer be considered a mere host but rather a content provider. As demonstrated by the above case-law, operations

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<sup>215</sup> *Delfi AS v Estonia*, ECHR 6456/09, 16 June 2015, paras 120–129.

<sup>216</sup> Joined Cases C-236/08 to C-238/08 *Google France and Google* [2010] ECLI:EU:C:2010:159, para 114. See also Recital 42 of Directive 2000/31/EC.

<sup>217</sup> Case C-324/09 *L'Oréal and others* [2011] ECLI:EU:C:2011:474, para 116.

<sup>218</sup> *ibid*, para 124.

<sup>219</sup> Case C-291/13 *Papasavvas* [2014] ECLI:EU:C:2014:2209, para 45. Thereby the court also pointed out that it did not matter whether the content could be accessed free of charge.

<sup>220</sup> In addition to the cases mentioned above, see also Case C-390/18 *Airbnb Ireland* [2019] ECLI:EU:C:2019:1112, paras 66–67 and Case C-521/17 *SNB-REACT* [2018] ECLI:EU:C:2018:639, paras 47–48.

such as optimisation and selection of data are especially indicative of the service provider's active engagement. Such non-neutral (active) service providers cannot rely on the argument that they should not be held liable because the data come from third parties. In the light of the aforementioned case-law, this argument would be convincing only where the service provider was not in any way in control of the data.

It has been argued that the liability regime established in Directive 2000/31/EC is not fully suited for Internet of Things (IoT)<sup>221</sup> failures and needs new preclusions of the intermediaries' liability, provided that these are used sparingly and only where the intermediary does not give rise to risks via its behaviour.<sup>222</sup> In principle, the author of this dissertation agrees with this highly generalised suggestion but notes that the number of technologies that can be placed under the term 'IoT' is so increasingly high that even if new preclusions are added, certain technologies are bound to be overlooked or be subject to different rules altogether.<sup>223</sup> The following section demonstrates that where an information society service is combined with a transport service, it may be subject to a different liability regime.

Directive 2000/31/EC has also been criticised for not preventing fragmentation due to diverging application of the CJEU-developed passivity criterion (ie the neutrality condition) by national courts.<sup>224</sup> However, this criticism appears to be aimed at hosting safe harbours and stem from the fact that the passivity criterion discourages more preventive measures and leads to the avoidance of the

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<sup>221</sup> International Telecommunication Union, Recommendation ITU-T Y.4000 (formerly Y.2060) 'Overview of the Internet of things' (06/2012), p 1 <<https://www.itu.int/rec/T-REC-Y.2060-201206-I>> accessed 8 October 2020. According to the ITU's definition, IoT means global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving interoperable information and communication technologies. The ITU also notes that, through the exploitation of identification, data capture, processing and communication capabilities, the IoT makes full use of things to offer services to all kinds of applications, whilst ensuring that security and privacy requirements are fulfilled.

<sup>222</sup> Rolf H. Weber, 'Liability in the Internet of Things' (2017) 5 Journal of European Consumer and Market Law, p 211.

<sup>223</sup> This view seems to be at least in part shared also by the experts entrusted with the task of analysing the e-commerce Directive, even though the focus of their recommendations is on other types of services. See Alexandre de Streel and Martin Husovec, 'The e-commerce Directive as the cornerstone of the Internal Market,' Study for the committee on Internal Market and Consumer Protection (Luxembourg 2020) Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament, p 49 <[https://www.europarl.europa.eu/RegData/etudes/STUD/2020/648797/IPOL\\_STU\(2020\)648797\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/648797/IPOL_STU(2020)648797_EN.pdf)> accessed 8 October 2020.

<sup>224</sup> Alexandre de Streel and Martin Husovec, 'The e-commerce Directive as the cornerstone of the Internal Market,' Study for the committee on Internal Market and Consumer Protection (Luxembourg 2020) Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament, p 20 <[https://www.europarl.europa.eu/RegData/etudes/STUD/2020/648797/IPOL\\_STU\(2020\)648797\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/648797/IPOL_STU(2020)648797_EN.pdf)> accessed 8 October 2020.

Directive's framework by national courts.<sup>225</sup> In the long run, Directive 2000/31/EC is supposed to be revised and perhaps even be replaced by the Digital Services Act which is expected to align the legal framework with the present market reality as regards the liability and safety rules for digital platforms, services and products.<sup>226</sup> It has been argued that, to improve the EU liability regime, the EU law itself should clearly stipulate the situations in which platform operators are liable for failure to perform their obligations.<sup>227</sup> Furthermore, it has been suggested that platform operators acting as intermediaries for contracts between platform users and being given a high degree of trust for caring for the security and quality of services made available on the platform could be made liable for the non-performance of such services.<sup>228</sup>

#### 2.3.5.4.3. *Liability for a transport service and a service in the field of transport*

It follows from Article 58(1) of the TFEU that the freedom to provide services in the field of transport is governed by the provisions of the Title relating to transport. Under Article 2(2)(d) of Directive 2006/123/EC,<sup>229</sup> the Directive does not apply to services in the field of transport, which fall within the scope of Title V of the Treaty.<sup>230</sup> Thus, in view of the above discussion on information society services, the key question in the context of liability for services relating to self-driving vehicles is whether a service can be classified as a service in the field of transport or an information society service.

The CJEU has given guidance in answering this question in its judgment in Case C-434/15 *Asociación Profesional Elite Taxi*, which can be summarised as follows.<sup>231</sup> In practice, multiple services governed by different legal instruments may be provided simultaneously (as observed here, for instance, an information society service and a service in the field of transport). The CJEU has taken the

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<sup>225</sup> *ibid*, p 42.

<sup>226</sup> Hans Schulte-Nölke and others, 'The legal framework for e-commerce in the Internal Market,' Study for the committee on the Internal Market and Consumer Protection (Luxembourg 2020) Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament, p 20 <[https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652707/IPOL\\_STU\(2020\)652707\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652707/IPOL_STU(2020)652707_EN.pdf)> accessed 8 October 2020.

<sup>227</sup> *ibid*, p 37.

<sup>228</sup> *ibid*.

<sup>229</sup> Directive 2006/123/EC of the European Parliament and of the Council of 12 December 2006 on services in the internal market [2006] OJ L376/36.

<sup>230</sup> See also Recitals 17 and 21 of the Directive and Case C-338/09 *Yellow Cab Verkehrsbetrieb* [2010] ECLI:EU:C:2010:814, para 29.

<sup>231</sup> Case C-434/15 *Asociación Profesional Elite Taxi* [2017] ECLI:EU:C:2017:981. For a case note see, for instance, Philipp Hacker, 'UberPop, UberBlack, and the Regulation of Digital Platforms after the *Asociación Profesional Elite Taxi* Judgment of the CJEU' (2018) 14/1 European Review of Contract Law, pp 80–96 DOI: <<https://doi.org/10.1515/ercl-2018-1005>>.

view that, in a situation where the intermediation service provider selects drivers, the drivers would be unable to provide and the passengers unable to use the transport services and where the intermediation service provider exercises ‘decisive influence’ over the conditions of provision of the transport services (sets the maximum fare, collects it from the client, exercises certain control over the quality of the vehicles and drivers), the main component of the overall service is the *transport service*, while the intermediation service ‘inherently linked’ thereto is merely a service enabling the transport service, thus qualifying as a ‘service in the field of transport.’<sup>232</sup>

More specifically, the CJEU has explained that the term ‘service in the field of transport’ demonstrates the intention of the EU legislature not to restrict the exclusion set out in Article 2(2)(d) of Directive 2006/123/EC merely to means of transport in themselves.<sup>233</sup> The CJEU has noted that it is therefore necessary to interpret that exclusion as covering not only any physical act of moving persons or goods from one place to another by means of a vehicle, aircraft or waterborne vessel, but also any service inherently linked to such an act.<sup>234</sup>

In addition to transport services and services in the field of transport in general, the European legislature has, for the purpose of preventing fragmented and un-coordinated deployment, chosen to regulate Intelligent Transport Systems (ITS) which ‘aim to provide innovative services relating to different modes of transport and traffic management and enable various users to be better informed and make safer, more coordinated and smarter use of transport networks’ and ‘integrate telecommunications, electronics and information technologies with transport engineering in order to plan, design, operate, maintain and manage transport systems’ in Directive 2010/40/EU on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport.<sup>235</sup> Under Article 11 of Directive 2010/40/EU, Member States must ensure that liability issues concerning the deployment and use of ITS applications and services are addressed in accordance with EU law, including in particular Council Directive 85/374/EEC as well as relevant national legislation. In addition to the explicit reference to the PLD, it follows from this reference to national legislation that the national fault-based tortious liability rules discussed have relevance in this regard as well. Thus, in a situation where a service cannot be deemed an information society service but a transport service or a service in the field of transport and where contract law, strict liability and product liability is inapplicable, one may still need to turn to fault-based liability for answers.

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<sup>232</sup> Case C-434/15 *Asociación Profesional Elite Taxi* [2017] ECLI:EU:C:2017:981, paras 39–40.

<sup>233</sup> Case C-168/14 *Grupo Itevelesa and Others* [2015] ECLI:EU:C:2015:685, paras 45–46; Opinion 2/15 of the Court (Full Court) of 16 May 2017 *Accord de libre-échange avec Singapour* [2017] ECLI:EU:C:2017:376, para 61.

<sup>234</sup> *ibid.*

<sup>235</sup> Directive 2010/40/EU on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport [2010] OJ L207/1. See Recitals 3, 4 and 6.

### 2.3.5.5. Persons subject to fault-based tortious liability

It follows from subsection 3 of § 1056 of the LOA that §§ 1056–1057 do not preclude or prejudice bringing a claim against the direct possessor of a self-driving vehicle (§ 1057 of the LOA) or a person controlling a self-driving vehicle (§ 1056 of the LOA) on another legal ground, including a claim for compensation for unlawfully and wrongfully caused damage. Likewise, subsection 5 of § 1061 of the LOA does not preclude bringing a claim against the manufacturer on another legal ground, including a claim for compensation for unlawfully and wrongfully caused damage. Thus, the persons discussed above, ie the self-driving vehicle's direct possessor, the person controlling the vehicle as a source of greater danger, the manufacturer, the service provider as well as, in principle, any other person who has a certain level of control over the self-driving vehicle or certain duties in connection with the self-driving vehicle can be held liable for damage caused by the vehicle under fault-based tortious liability rules.

As explained in greater detail in item 2.3.2 above, where the harmful effect on the injured person is a more remote outcome of the tortfeasor's conduct, a duty which the latter has breached needs to be identified to hold the tortfeasor liable under fault-based tortious liability.<sup>236</sup> It may be a statutory duty or the general duty to maintain safety, in other words, the duty to make every reasonable effort to ensure that other persons are not harmed as a result of one's actions.<sup>237</sup> Since the general duty to maintain safety and the element of fault are entwined,<sup>238</sup> one needs to substantively assess whether the tortfeasor has been objectively negligent, in order to establish whether the general duty to maintain safety has been breached.<sup>239</sup>

Regarding the user's duty of care in the context of German law, M. Ebers has pointed out in reference to subsection (1) of § 823 of the BGB that the liability of a user of an autonomous system (these include self-driving vehicles as well) may arise from a breach of the duty of care upon selecting, operating or monitoring the system.<sup>240</sup> According to M. Ebers, the user must, first of all, make certain that the system is indeed suitable for the purpose – the manufacturer may have designed its self-driving car solely for specific roads and if the user disregards these specifications, the user may be liable for resulting damage.<sup>241</sup> For example, Ford's CTO has pointed out that self-driving vehicles will be attuned to particular

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<sup>236</sup> See, for instance, Varul and others (n 31), pp 627 and 642.

<sup>237</sup> SCCC judgment, 20 June 2013, case 3-2-1-73-13, para 10.

<sup>238</sup> *ibid.*

<sup>239</sup> *ibid.*

<sup>240</sup> Martin Ebers, 'Außervertragliche Haftung für Künstliche Intelligenz – Grundfragen' (2019) 16 Rechtsbrücke / Hukuk Köprüsü, pp 58–59 (hereinafter *Ebers*). See also Susanne Horner and Markus Kaulartz, 'Haftung 4.0. Verschiebung des Sorgfaltsmaßstabs bei Herstellung und Nutzung autonomer Systeme' (2016) 32/1 Computer und Recht, pp 7 and 9 DOI: <<https://doi.org/10.9785/cr-2016-0104>>.

<sup>241</sup> Ebers (n 240), pp 58–59.

cities,<sup>242</sup> which means that in such a situation a person who uses in Tallinn a self-driving vehicle attuned to operate in Helsinki could be in breach of their duty to maintain safety. M. Ebers also draws attention to the fact that, upon operating the autonomous system, the user is also responsible for properly configuring the system in line with the manufacturer's instructions and for following all other safety precautions prescribed by the manufacturer – if, for example, the user is required to install a security update and fails to do so, the risks stemming from the continued use of the system transfer to the user.<sup>243</sup> It has also been observed in connection with other autonomous systems that the user's liability could arise from wrongfully training the system.<sup>244</sup> Finally, M. Ebers notes that once the user has switched the autonomous system on, the user is also required to monitor it during operation and if the user detects or is otherwise made aware of any safety issues, the user can be expected to immediately stop using the system.<sup>245</sup>

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<sup>242</sup> Eric Johnson, 'Ford CTO Ken Washington explains why self-driving cars are such a hard tech problem' (*Vox*, 17 April 2019) <[www.recode.net/podcasts/2019/4/17/18411242/ken-washington-ford-self-driving-car-artificial-intelligence-kara-swisher-decode-podcast-interview](http://www.recode.net/podcasts/2019/4/17/18411242/ken-washington-ford-self-driving-car-artificial-intelligence-kara-swisher-decode-podcast-interview)> accessed 8 October 2020.

<sup>243</sup> *ibid.*

<sup>244</sup> Ruth Janal, 'Extracontractual liability for Wrongs Committed by Autonomous Systems' in Martin Ebers and Susana Navas (eds), *Algorithms and Law* (Cambridge University Press 2020), Chapter 6, pp 174–206 DOI: <<https://doi.org/10.1017/9781108347846>>.

<sup>245</sup> Ebers (n 240), pp 58–59. See also Volker M Jänich, Paul T Schrader and Vivian Reck, 'Rechtsprobleme des autonomen Fahrens' (2015) 28/7 *Neue Zeitschrift für Verkehrsrecht*, pp 313 and 316.



### 3. CURRENT STATUS OF THE FIELD OF RESEARCH AND THE POSITION OF THE RESEARCH PROBLEM THEREIN

#### 3.1. Current status of legal research concerning tort liability for damage caused by self-driving vehicles

Liability issues related to self-driving vehicles have proven an intriguing topic. However, while countries, manufacturers and legal scholars are rushing to solve driving automation as well as the respective legal rules, the technology itself is still far from being finalised or mature<sup>246</sup> and it exists in numerous points of development across the globe, as a result of which lawyers may be struggling to understand how these systems will eventually come to be operated, owned and used and where the related risks and duties truly lie.

There is no single central work which could be credited with giving the author an exhaustive overview of all of the technical nuances and tortious liability aspects concerning self-driving vehicles. The author has had to complete the technological and legal puzzle based on numerous sources having a narrower focus and being more specific rather than general or more exhaustive. Nevertheless, as regards the technological and social side of self-driving vehicles, some landmark works do stand out among others owing to their thoroughness: *Artificial Intelligence: A modern approach*<sup>247</sup>; ‘A Survey of Autonomous Driving: Common Practices and Emerging Technologies’<sup>248</sup>; *Autonomes Fahren*<sup>249</sup>. The first work gives an exceptionally detailed insight into the theory and practice of artificial intelligence. The second source (the most recent of the three) discusses unsolved issues and the technical side (eg localisation, mapping, perception, planning, human-machine interfaces, datasets and tools available for developing automated driving systems, etc) of driving automation in general, covering also semi-autonomous technology. The third source represents one of many (largely, but not entirely) European attempts to map practical issues raised by self-driving vehicles in terms of not only road traffic safety, mobility, human-machine interaction, ethics and liability but also regarding the social acceptance of self-driving vehicles and the provision of services (eg provision of data for self-driving vehicles).

At the level of a doctoral thesis, legal issues concerning specifically self-driving vehicles have not been discussed in Estonia. There have been some attempts to tackle the related issues in master’s theses. Albeit taking a general focus, Kadri

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<sup>246</sup> Yurtsever and others (n 10), p 58462.

<sup>247</sup> Stuart Russell and Peter Norvig, *Artificial Intelligence: A modern approach* (New Jersey: Prentice Hall 1995).

<sup>248</sup> Yurtsever and others (n 10).

<sup>249</sup> Markus Maurer and others (eds), *Autonomes Fahren* (Springer Vieweg, Berlin, Heidelberg 2015) DOI: <[https://doi.org/10.1007/978-3-662-45854-9\\_19](https://doi.org/10.1007/978-3-662-45854-9_19)>.

Alekõrs has ventured an analysis into the manufacturer's liability for a defective product.<sup>250</sup> Rauno Kinkar has analysed product liability and the fault-based liability of the driver in the event of damage arising from the defects of the technology of semi-autonomous vehicles.<sup>251</sup> As regards the substance and relevance of the duty to maintain safety, there are connotations to Iko Nõmm's dissertation in the context of not only the meaning of the duty to maintain safety but also fault-based tortious liability in situations where a harmful effect on a legally safeguarded interest is a more remote outcome of the tortfeasor's conduct.<sup>252</sup> Over the years, various fault-based tortious liability, strict liability and product liability issues pertaining to, among other things, conventional motor vehicles have been discussed in numerous works by Estonian Supreme Court Justice Tambet Tampuu and Tartu University Law School's Tort Law Professor Janno Lahe.

Finally, it has to be mentioned that there is no self-driving vehicle-related Estonian case-law but that of conventional vehicles remains ample, as a large share of judge-made law is characteristic of tort law. Since self-driving vehicles are currently in the testing phase and there is but a handful of developers in Estonia, they have not been involved in any serious traffic incidents. The first and so far the only traffic accident involving a self-driving vehicle in Estonia occurred on 14 July 2020 in Tallinn when the driver operating a conventional vehicle did not give way to a self-driving shuttle riding on the priority road.<sup>253</sup> The vehicles suffered minor damage and no people were hurt. Both vehicles were insured and the damage was to be covered by the insurance undertaking. It should also be noted that the Estonian Supreme Court has not had a chance to adjudicate a single product liability dispute yet.

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<sup>250</sup> Kadri Alekõrs, 'Tootja vastutus puudusega toote põhjustatud kahju eest' [*Producer's liability for damage caused by defective products*] (MA thesis, University of Tartu 2012) <[http://dspace.ut.ee/bitstream/handle/10062/26229/alekors\\_kadri.pdf](http://dspace.ut.ee/bitstream/handle/10062/26229/alekors_kadri.pdf)> accessed 8 October 2020.

<sup>251</sup> Rauno Kinkar, 'Tootjavastutus ja juhi deliktiõiguslik vastutus autonoomsete sõidukite tehnoloogia puudusest tingitud kahju tekkimise korral' [*Tort liability of producer and driver of vehicle in cases where damage is caused by a defect in autonomous vehicle technology*] (MA thesis, University of Tartu 2015) <[http://dspace.ut.ee/bitstream/handle/10062/46852/kinkar\\_rauno.pdf](http://dspace.ut.ee/bitstream/handle/10062/46852/kinkar_rauno.pdf)> accessed 8 October 2020.

<sup>252</sup> Iko Nõmm, 'Käibekohustuse rikkumisel põhinev deliktiõiguslik vastutus' [*Delictual liability based on the violation of the duty to maintain safety*] (PhD thesis, University of Tartu 2012) <[https://dspace.ut.ee/bitstream/handle/10062/29910/n6mm\\_iko.pdf?sequence=1&isAllowed=y](https://dspace.ut.ee/bitstream/handle/10062/29910/n6mm_iko.pdf?sequence=1&isAllowed=y)> accessed 8 October 2020.

<sup>253</sup> Loora-Elisabet Lomp, 'Law not ready for autonomous vehicle accidents' (*Postimees*, 15 July 2020) <<https://news.postimees.ee/7017994/law-not-ready-for-autonomous-vehicle-accidents>> accessed 8 October 2020.

### 3.2. Policy efforts at EU level in relation to the topic of the dissertation

In the field of liability for defective products, which is harmonised at EU level, various initiatives have been launched and expert groups formed. Their work has been based on, among other things, legal scholarly work. From 1995 to 2018, the European Commission has produced five reports on the application of the PLD.<sup>254</sup> In 2017, the European Parliament adopted a resolution with recommendations to the Commission on civil law rules on robotics, including self-driving vehicles.<sup>255</sup> A year later, the European Parliamentary Research Service (EPRS) published a study on self-driving vehicles to accompany the Parliament's legislative own-initiative report.<sup>256</sup> It is noted in the report that fault liability will remain relevant mostly for semi-autonomous vehicles, while not as much in the case of full automation or near-full automation and that the current duties of care attuned to conventional vehicles will become irrelevant and new ones will need to be developed by case-law, which will result in a considerable period of legal uncertainty which will, in turn, increase transaction costs and lead to inadequate protection of injured persons.<sup>257</sup>

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<sup>254</sup> European Commission, 'Liability for defective products' <[https://ec.europa.eu/growth/single-market/goods/free-movement-sectors/liability-defective-products\\_en](https://ec.europa.eu/growth/single-market/goods/free-movement-sectors/liability-defective-products_en)> accessed 8 October 2020. The first report focused on the implementation of the PLD in Member States (COM(95) 617 final). The second report did point to a number of divisive (ie consumers vs manufacturers) problems concerning, among other things, the burden of proof and the development risk defence, but it was decided that information was still too scarce to identify any major problems (COM(2000) 893 final). The third report added the concept of defect to the list of issues concerning the PLD, but the Commission did not consider it necessary to amend the PLD (COM(2006) 496 final). The fourth report concluded that it was still too early to venture a review of the PLD, though problems with the burden of proof and the development risk defence were among the concerns once again (COM(2011) 547 final). The fifth report aims at providing guidance on how to interpret the PLD and possibly also slightly amending it, where necessary, but not at any major overhaul of the PLD (COM(2018) 246 final).

<sup>255</sup> European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)) [2018] OJ C252/239.

<sup>256</sup> Tatjana Evas, 'A common EU approach to liability rules and insurance for connected and autonomous vehicles. European Added Value Assessment' (EPRS, European Added Value Unit, 2018) PE 615.635 <[http://www.europarl.europa.eu/RegData/etudes/STUD/2018/615635/EPRS\\_STU\(2018\)615635\\_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/STUD/2018/615635/EPRS_STU(2018)615635_EN.pdf)> accessed 8 October 2020.

<sup>257</sup> Esther Engelhard and Roeland de Bruin, 'EU Common Approach on the liability rules and insurance related to Connected and Autonomous Vehicles' in Annex I to Tatjana Evas, 'A common EU approach to liability rules and insurance for connected and autonomous vehicles. European Added Value Assessment' (EPRS, European Added Value Unit, 2018) PE 615.635, p 118 <[http://www.europarl.europa.eu/RegData/etudes/STUD/2018/615635/EPRS\\_STU\(2018\)615635\\_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/STUD/2018/615635/EPRS_STU(2018)615635_EN.pdf)> accessed 8 October 2020. Similar views have also been expressed by legal scholars – see, for instance, Ernst Karner, 'Liability for Robotics: Current Rules, Challenges, and the Need for Innovative Concepts' p 118 in Sebastian Lohsse, Reiner Schulze and Dirk Staudenmayer (eds), 'Liability for Artificial Intelligence and the Internet of Things' (Baden-Baden: Nomos Verlagsgesellschaft 2019).

In 2018, the Commission also published a Staff Working Document on liability for emerging digital technologies covering, among other things, self-driving vehicles.<sup>258</sup> The Commission also issued Communication on Artificial Intelligence for Europe,<sup>259</sup> aiming at becoming ‘a leader in the AI revolution’ and placing ‘the power of AI at the service of human progress.’

Following these initiatives taken by the European Parliament and the European Commission, the latter set up the Expert Group on Liability and New Technologies, operating in two formations: the New Technologies formation and the Product Liability Directive formation. The New Technologies formation was asked to examine, among other things, whether and to what extent the existing liability schemes were adapted to emerging technologies, among these, self-driving cars as well as make recommendations on matters of non-contractual liability, where necessary. The New Technologies formation published its report in November 2019. To the author’s knowledge, the Product Liability Directive formation’s report is yet to be published.

The European Commission has noted in its Safety and Liability Report that both product safety as well as product liability law serve the same policy goal of a functioning single market of highly safe goods.<sup>260</sup> The Commission has recognised the importance and potential of technologies such as artificial intelligence, the IoT and robotics and is committed to making Europe a world-leader in these fields.<sup>261</sup> The Commission has established that the characteristics of these technologies challenge the liability frameworks of the EU and Member States and could reduce their effectiveness by making liability claims based on national tort laws difficult or too expensive to prove, thus depriving injured persons of adequate compensation.<sup>262</sup> The Commission has pointed out that it still needs to be assessed whether these new technologies could cause legal uncertainty as to how existing laws would apply.<sup>263</sup>

The author agrees with the Commission in that liability rules should indeed strike a balance between protecting consumers from harm while enabling businesses to innovate.<sup>264</sup> However, the author does not entirely share the Commission’s self-assessment that the Union’s liability frameworks have functioned well in this regard.<sup>265</sup> The PLD in its current form has the potential to marginalise product liability law and, especially in the light of emerging autonomous and connected technologies, is at risk of being replaced by national strict liability

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<sup>258</sup> SWD(2018) 137 final. The Commission decided to form an expert group that would analyse issues in two formations: Product Liability formation and New Technologies formation.

<sup>259</sup> COM(2018) 237 final.

<sup>260</sup> Safety and Liability Report (n 139), p 12.

<sup>261</sup> *ibid*, p 1.

<sup>262</sup> *ibid*, p 13.

<sup>263</sup> For instance, how the concept of fault would apply to damage caused by artificial intelligence.

<sup>264</sup> Safety and Liability Report (n 139), p 12.

<sup>265</sup> *ibid*.

schemes, thus possibly increasing the fragmentation of liability frameworks across the EU. The risk of marginalisation stems from the fact that, as demonstrated above, the Union's product liability system is not a system of fully fledged strict liability because the development risk defence allows the manufacturer to be discharged from liability.<sup>266</sup> Furthermore, unlike strict liability and fault-based liability, the burden of proving the damage, the defect and the causal link between the two may put the injured person at an insurmountable disadvantage in the context of product liability for emerging autonomous and connected technologies.

The Commission has also stated that it is important to ensure that victims of accidents of products and services, including emerging digital technologies like artificial intelligence, are not subject to a lower level of protection compared to similar other products and services for which they would get compensation under national tort law.<sup>267</sup> This statement raises the question of whether the Commission is planning on introducing a harmonised strict tortious liability regime for services with an artificial intelligence component or attempting to come forth with a harmonised set of criteria that serve as a basis for a reversal of the burden of proof with regard to AI applications.

In explaining how new technologies challenge the existing legal frameworks and in what manner these challenges could be addressed, the Commission focuses on the complexity, connectivity, openness, autonomy and opacity of products, services, value chains and IoT environments.<sup>268</sup> Given that subsection 1 of § 1063 of the LOA explicitly refers to software as a product, the author welcomes the Commission's admission that the software steering the operations of a tangible product could indeed be considered part or component of the product and the intention to clarify the definition (scope) of the term 'product' in the PLD in the light of the realisation that software can render a tangible product defective and lead to physical damage.<sup>269</sup>

Since the Commission is seeking views on whether and to what an extent it may be necessary to mitigate via an appropriate EU initiative the consequences of complexity by alleviating/reversing the burden of proof required by national liability rules,<sup>270</sup> the author would like to point out that from the perspective of the functioning of Estonian substantive and procedural law such an initiative

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<sup>266</sup> See Article II, pp 185–187 and fn 45 on p 23 in Andrea Bertolini and others, Annex 3 'Task 3 & 4, A prospective foresight study on testing, certification, liability and insurance of advanced robots, autonomous and AI-based systems including connected and automated vehicles' to 'Study on Safety of non-embedded software. Service, data access, and legal issues of advanced robots, autonomous, connected, and AI-based vehicles and systems: Final Study Report regarding CAD/CCAM and Industrial Robots' (Brussel, European Commission 2019), pp 1–169 DOI: <<https://www.doi.org/10.2759/448974>>.

<sup>267</sup> Safety and Liability Report (n 139), p 13.

<sup>268</sup> *ibid*, pp 13–16.

<sup>269</sup> *ibid*, p 14.

<sup>270</sup> *ibid*.

might not be necessary. As explained above,<sup>271</sup> the Estonian Supreme Court has taken the view that where one needs to prove a circumstance the occurrence of which was under the control of another party and the party relying on the circumstance cannot objectively furnish proof and where the other party refuses to aid the proving of the circumstance, the burden of proof may be reversed based on the principle of good faith. Thus, from the narrow perspective of Estonian law there is not urgent need to reverse the burden of proof in this regard, but for the purposes of increasing legal clarity it can, in principle, be done.

As regards the Commission's suggestion that the PLD term 'putting into circulation' could be revisited, to take into account that products may change and be altered,<sup>272</sup> the author notes that once the European legislature clearly stipulates in Union legislation that software is a product, it is bound to attend to the consequences of such stipulation and this inevitably calls for taking into account the characteristics of such products. Thus, the term 'putting into circulation' not only could but indeed should be revisited in the light of emerging autonomous technologies such as, for instance, self-driving cars.<sup>273</sup>

Since the Commission is, based on the NTF Report, thinking of the reversal of the burden of proof in a situation where the potentially liable party has not logged the data relevant for assessing liability or is not willing to share such data with the injured person,<sup>274</sup> the author of this dissertation would like to point out that the complexity of some of the so-called conventional systems is so high that it may take years for an error to manifest itself or be detected, found and established.<sup>275</sup> In the case of systems using artificial intelligence, there is no reason to believe that the situation will be any different. Thus, it may prove impractical or outright impossible to find out where the error truly lies. In the light thereof, perhaps the idea of associating a self-driving vehicle's defectiveness with the mere fact that it has caused damage is not so far-fetched after all.

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<sup>271</sup> n 114.

<sup>272</sup> Safety and Liability Report (n 139), p 15.

<sup>273</sup> For further information see Article II, pp 180–182.

<sup>274</sup> Safety and Liability Report (n 139), p 16.

<sup>275</sup> As a recent example of difficulties detecting errors in complex conventional technology see, for instance, the article by Alan Levin, Siddharth Vikram Philip and Christopher Jasper, 'Boeing Fixing New Software Bug on Max; Key Test Flight Nears' (*Bloomberg*, 6 February 2020) <<https://www.bloomberg.com/news/articles/2020-02-06/boeing-identifies-new-software-problem-on-grounded-737-max-jet>> accessed 8 October 2020. Such difficulties have been brought to the attention of the EU legislature also by, for example, in the following study: Andrea Bertolini, 'Artificial Intelligence and Civil Liability' (July 2020) Policy Department for Citizens' Rights and Constitutional Affairs, Directorate-General for Internal Policies, PE 621.926, p 110 <[https://www.europarl.europa.eu/RegData/etudes/STUD/2020/621926/IPOL\\_STU\(2020\)621926\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/621926/IPOL_STU(2020)621926_EN.pdf)> accessed 8 October 2020.

The results of the open public consultation on the European White Paper on AI<sup>276</sup> show that a vast majority of the respondents consider the possibility that AI endangers safety or takes actions that cannot be explained very important and are highly concerned over AI's lack of accuracy as well as lack of compensation following harm caused by AI. To address these concerns, most (42%) of the respondents would like the introduction of a new regulatory framework on AI, while a somewhat smaller group (33%) find the current legislation to be in need of modification to address the established gaps.<sup>277</sup> Nearly 61% of the respondents supported a revision of the PLD to cover particular risks posed by certain AI applications.<sup>278</sup>

In its second and most recent deliverable<sup>279</sup> the High-Level Expert Group on Artificial Intelligence has, in the spirit of the subsequent requirements listed in the Commission's White Paper on AI<sup>280</sup> and the Safety and Liability Report,<sup>281</sup> suggested considering the necessity and desirability of introducing traceability and reporting requirements for safety-critical AI applications in order to facilitate their auditability, external oversight prior to deployment, systematic monitoring, ongoing oversight by competent authorities. The expert group emphasises that civil liability rules should be able to ensure adequate compensation (as the expert group puts it, 'either through strict or tort liability') in case of harm and violation of rights and that these liability rules may need to be complemented with mandatory insurance rules.<sup>282</sup> However, the feasibility, effectiveness and cost of these otherwise reasonable requirements remain a concern.

This latter concern has been dealt with extensively in the European Parliament's recent European assessment of the civil liability regime for artificial intelligence,<sup>283</sup> which is based on a realisation that a clear and coherent EU civil liability regime for AI has the potential to reduce risks and increase safety, reduce legal uncertainty and related legal and litigation costs as well as safeguard consumers rights and increase their trust in AI. The report concludes that the European Parliament, the Commission's expert group and the Commission itself

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<sup>276</sup> Commission, 'Summary Report on the open public consultation on the White Paper on Artificial Intelligence' (22 July 2020) <[https://ec.europa.eu/newsroom/dae/document.cfm?doc\\_id=68462](https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=68462)> accessed 8 October 2020.

<sup>277</sup> *ibid*, p 4.

<sup>278</sup> *ibid*, p 5.

<sup>279</sup> Commission, High-Level Expert Group on Artificial Intelligence, 'Policy and Investment Recommendations for Trustworthy AI' (26 June 2019) <[https://ec.europa.eu/newsroom/dae/document.cfm?doc\\_id=60343](https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=60343)> accessed 8 October 2020.

<sup>280</sup> White Paper on AI (n 186).

<sup>281</sup> Safety and Liability Report (n 139).

<sup>282</sup> *ibid*, p 39.

<sup>283</sup> Tatjana Evas, 'Civil liability regime for artificial intelligence. European added value assessment' (EPRS, European Added Value Unit, September 2020) PE 654.178 <[https://www.europarl.europa.eu/RegData/etudes/STUD/2020/654178/EPRS\\_STU\(2020\)654178\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/654178/EPRS_STU(2020)654178_EN.pdf)> accessed 8 October 2020.

seem to agree on a need to adapt the PLD to the challenges of new technologies such as, for instance, self-driving cars and artificial intelligence.<sup>284</sup>

On 5 October 2020, the European Parliament's Committee on Legal Affairs published the Report with recommendations to the Commission on a civil liability regime for artificial intelligence.<sup>285</sup> While the Parliament wishes to refrain from major changes to the Union's liability framework, it does see a legal gap in the liability of deployers of AI-systems.<sup>286</sup> To overcome this gap, the Parliament recommends dividing AI-systems into two categories: high-risk AI-systems<sup>287</sup> and all other AI-systems. The Parliament recommends that strict liability be applied to high-risk AI-systems, while fault-based liability be applied to other AI-systems.<sup>288</sup>

Simultaneously, the EU is working on replacing the e-Commerce Directive with the Digital Service Act<sup>289</sup> in an attempt to bring liability and safety rules applicable to platform, products and services up to date with the market reality of today<sup>290</sup> and the outcomes of these efforts may also affect product liability associated with self-driving vehicles.

### **3.3. Policy efforts in Estonia in relation to the topic of the dissertation**

In Estonia, the respective discussions have been sparked and fuelled by the development of self-driving delivery robots regulated in the TA, the self-driving shuttles that are being developed and tested by the Tallinn University of

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<sup>284</sup> *ibid*, p 65.

<sup>285</sup> European Parliament, Report with recommendations to the Commission on a civil liability regime for artificial intelligence (2020/2014(INL)) (5 October 2020) PE650.556v02-00 <[https://www.europarl.europa.eu/doceo/document/A-9-2020-0178\\_EN.pdf](https://www.europarl.europa.eu/doceo/document/A-9-2020-0178_EN.pdf)> accessed 8 October 2020.

<sup>286</sup> *ibid*, the Explanatory Statement, p 33.

<sup>287</sup> *ibid*, p 34. The Parliament compares the deployers of such systems with car-owners and pet-owners.

<sup>288</sup> *ibid*. See Articles 4 and 8 of the Proposal for a Regulation of the European Parliament and of the Council on liability for the operation of Artificial Intelligence-systems, pp 25 and 28.

<sup>289</sup> Website of the European Parliament, 'Legislative Train Schedule: A Europe Fit for the Digital Age' (September 2020) <<https://www.europarl.europa.eu/legislative-train/theme-a-europe-fit-for-the-digital-age/file-digital-services-act>> accessed 8 October 2020.

<sup>290</sup> Hans Schulte-Nölke and others, 'The legal framework for e-commerce in the Internal Market,' Study for the committee on the Internal Market and Consumer Protection (Luxembourg 2020) Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament, p 15 <[https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652707/IPOL\\_STU\(2020\)652707\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652707/IPOL_STU(2020)652707_EN.pdf)> accessed 8 October 2020; Tambiama Madiaga, 'Reform of the EU liability regime for online Intermediaries. Background on the forthcoming digital services act' (EPRS, May 2020) PE 649.404 <[https://www.europarl.europa.eu/RegData/etudes/IDAN/2020/649404/EPRS\\_IDA\(2020\)649404\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/IDAN/2020/649404/EPRS_IDA(2020)649404_EN.pdf)> accessed 8 October 2020.



Technology, the driving automation-related cooperation between Bolt (one of Europe's largest ridesharing companies) and the researchers of the University of Tartu, and the yet-to-be-introduced self-driving robot couriers of Cleveron.<sup>291</sup>

In October 2016, the Cabinet Office, in cooperation with the Ministry of Economic Affairs and Communications, formed an expert group on self-driving vehicles to, inter alia, come up with legislative amendment proposals for the purpose of enabling the use of self-driving vehicles on roads and streets.<sup>292</sup> In August 2017, the interim report of an analysis on putting vehicles of SAE Levels 4 and 5 was published.<sup>293</sup> The interim report contains a short section on civil liability, notably strict liability, product liability and the burden of proof,<sup>294</sup> but remains a brief insight into a few individual issues, which cannot be compared to an analysis expected of, for instance, a dissertation. The final report emphasises that further legislative drafting in the field should provide the Estonian state and its people with a new level of quality instead of merely adapting the existing legal rules to self-driving vehicles.<sup>295</sup> Arguably based on feedback from the members of the expert group and the public,<sup>296</sup> the focus of the legal discussion on self-driving

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<sup>291</sup> For further information on the mentioned initiatives, see Raivo Sell and Krister Kalda, 'Self-driving shuttle ISEAUTO' (26<sup>th</sup> ITS World Congress, Singapore, 21–25 October 2019) <[www.researchgate.net/publication/337720410\\_Self-driving\\_shuttle\\_ISEAUTO](http://www.researchgate.net/publication/337720410_Self-driving_shuttle_ISEAUTO)> accessed 8 October 2020; Epp Joala, 'Isejuhtiv buss alustas Kadriorus regulaarset opereerimist' [*Self-driving shuttle begins regular operation in Kadriorg*] (*TalTech*, 29 August 2019) <<https://ttu.ee/isejuhtiv-buss-alustas-kadriorus-regulaarset-opereerimist>> accessed 8 October 2020; University of Tartu, 'University of Tartu and Bolt presented autonomous driving lab's test car' (29 January 2020) <[www.ut.ee/en/news/university-tartu-and-bolt-presented-autonomous-driving-labs-test-car](http://www.ut.ee/en/news/university-tartu-and-bolt-presented-autonomous-driving-labs-test-car)> accessed 8 October 2020; Janno Riispapp, 'Cleveron arendab uut isejuhtivat kullerrobotit' [*Cleveron is developing a new self-driving robot courier*] (*Postimees*, 29 March 2019) <<https://tehnika.postimees.ee/6557088/cleveron-arendab-uut-isejuhtivat-kullerrobotit>> accessed 8 October 2020. See also the website of Cleveron, 'Self-Driving Robot Courier' <<https://cleveron.com/products/robot-courier>> accessed 8 October 2020.

<sup>292</sup> Cabinet Office, 'Isejuhtivate sõidukite ajastu algus. Ekspertühma lõppraport' [*Beginning of the Era of Self-driving Vehicles. Final Report of the Expert Group*] (2018), p 3. Available in Estonian: <[www.riigikantselei.ee/sites/default/files/riigikantselei/strateegiaburoo/isejuhtivad\\_loppraport.pdf](http://www.riigikantselei.ee/sites/default/files/riigikantselei/strateegiaburoo/isejuhtivad_loppraport.pdf)> accessed 8 October 2020.

<sup>293</sup> Karmen Turk, Maarja Pild and Ergo Blumfeldt, 'Analüüs SAE tase 4 ja 5 sõidukite kasutusele võtmiseks koos seaduseelnõu väljatöötamiskavatsuse kirjeldustega, Vaheraport' [*An analysis for the introduction of vehicles of SAE Levels 4 and 5 along with descriptions of a letter of intent of a bill. Interim report*] (24 August 2017) <[www.mkm.ee/sites/default/files/analuu\\_sae\\_tase\\_4\\_ja\\_5\\_soidukite\\_kasutusele\\_votmiseks\\_riigikantselei\\_2017\\_08\\_23\\_ver\\_6.docx](http://www.mkm.ee/sites/default/files/analuu_sae_tase_4_ja_5_soidukite_kasutusele_votmiseks_riigikantselei_2017_08_23_ver_6.docx)> accessed 8 October 2020.

<sup>294</sup> *ibid*, pp 15–19.

<sup>295</sup> Cabinet Office, 'Isejuhtivate sõidukite ajastu algus. Ekspertühma lõppraport' [*Beginning of the Era of Self-driving Vehicles. Final Report of the Expert Group*] (2018), p 15. Available in Estonian at: <[www.riigikantselei.ee/sites/default/files/riigikantselei/strateegiaburoo/isejuhtivad\\_loppraport.pdf](http://www.riigikantselei.ee/sites/default/files/riigikantselei/strateegiaburoo/isejuhtivad_loppraport.pdf)> accessed 8 October 2020.

<sup>296</sup> *ibid*, p 16.

vehicles shifted towards robotics and the creation of new legal concepts and definitions such as ‘intelligent robot’ and ‘operator’.<sup>297</sup>

After attending to self-driving vehicles, the state’s exploratory efforts have focused on legal issues concerning artificial intelligence.<sup>298</sup> It is expected that approximately 50 AI applications will be put into use in the public sector in Estonia by the end of 2020.<sup>299</sup> While the expert group on artificial intelligence came to the conclusion that no major overhaul of the legislation was needed and there was no need for a code or Act of Parliament covering all possible uses of artificial intelligence,<sup>300</sup> the Cabinet seems to be determined to come up with such a general statute nonetheless.<sup>301</sup>

Regarding the substance of the prospective statute, it is noted in the report that, in the interests of legal clarity, it should be ensured that, when exercising public authority or performing other public functions, the actions of the AI application are, for the purposes of state liability, attributed to the state via the authority or body that used the application, while in private law the actions of the AI application should be deemed the actions of the individuals and legal entities.<sup>302</sup> In developing the law further in connection with the increasing introduction of AI applications, the report aims at ensuring the legal clarity required for the functioning and development of society via sufficient and sufficiently

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<sup>297</sup> Ministry of Economic Affairs and Communications, ‘Isejuhtivate sõidukite õigusanalüüs tõstatab robotikaseaduse loomise vajaduse’ [*Legal analysis of self-driving vehicles points to the need for the adoption of a statute on robotics*] (25 September 2017) <[www.mkm.ee/et/uudised/isejuhtivate-soidukite-oigusanaluus-tostatab-robotikaseaduse-loomise-vajaduse](http://www.mkm.ee/et/uudised/isejuhtivate-soidukite-oigusanaluus-tostatab-robotikaseaduse-loomise-vajaduse)> accessed 8 October 2020.

<sup>298</sup> Cabinet Communication Unit, ‘Self-driving vehicles waiting for a new law’ (15 October 2019) <[www.valitsus.ee/en/news/self-driving-vehicles-waiting-new-law](http://www.valitsus.ee/en/news/self-driving-vehicles-waiting-new-law)> accessed 8 October 2020.

<sup>299</sup> Cabinet Communication Unit, ‘The e-Estonia council were introduced the vision for the digital state and cybersecurity for 2030’ (25 August 2020) <<https://www.valitsus.ee/en/news/e-estonia-council-were-introduced-vision-digital-state-and-cybersecurity-2030>> accessed 8 October 2020.

<sup>300</sup> Cabinet Office and Ministry of Economic Affairs and Communications, ‘Eesti tehisintellekti kasutuselevõtu eksperdirühma aruanne’ [*Report by the Estonian Expert Group on the Introduction of Artificial Intelligence*] (May 2019) <[https://www.riigikantselei.ee/sites/default/files/riigikantselei/strateegiaburoo/eesti\\_tehisintellekti\\_kasutuselevotu\\_eksperdiruhma\\_aruanne.pdf](https://www.riigikantselei.ee/sites/default/files/riigikantselei/strateegiaburoo/eesti_tehisintellekti_kasutuselevotu_eksperdiruhma_aruanne.pdf)> accessed 8 October 2020; Tanel Kerikmäe, Mari Minn and Reet Pärnmäe, ‘Kuidas elada koos krattidega?’ [*How to live with AI?*] (2109) 4, Õiguskeel, p 6 <[www.just.ee/sites/www.just.ee/files/tanel\\_kerikmae\\_mari\\_minn\\_reet\\_pargmae\\_kuidas\\_elada\\_koos\\_krattidega.pdf](http://www.just.ee/sites/www.just.ee/files/tanel_kerikmae_mari_minn_reet_pargmae_kuidas_elada_koos_krattidega.pdf)> accessed 8 October 2020.

<sup>301</sup> n 298.

<sup>302</sup> Cabinet Office and Ministry of Economic Affairs and Communications, ‘Eesti tehisintellekti kasutuselevõtu eksperdirühma aruanne’ [*Report by the Estonian Expert Group on the Introduction of Artificial Intelligence*] (May 2019) p 56 <[https://www.riigikantselei.ee/sites/default/files/riigikantselei/strateegiaburoo/eesti\\_tehisintellekti\\_kasutuselevotu\\_eksperdiruhma\\_aruanne.pdf](https://www.riigikantselei.ee/sites/default/files/riigikantselei/strateegiaburoo/eesti_tehisintellekti_kasutuselevotu_eksperdiruhma_aruanne.pdf)> accessed 8 October 2020.

clear regulation of matters pertaining to the use of AI applications, ie who is liable, to what an extent, how is the liability divided, etc.<sup>303</sup>

Regarding tort law the report notes that, in principle, it is possible to apply the concept ‘source of greater danger’ to AI applications whereby human control is limited and risks are higher, noting that it could be combined with voluntary or mandatory liability insurance, so that persons benefiting from the sophisticated technology would bear liability for the risk emanating from the operation of the equipment.<sup>304</sup> The report states that those who benefit the most from, above all, self-learning software applications, should also bear the liability for the mistakes and risks of the applications even where the system is unpredictable.<sup>305</sup> Regarding product liability, the report notes that the rules of the burden of proof should be revised due to its possible insurmountability in the light of complex technology.<sup>306</sup>

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<sup>303</sup> *ibid.*

<sup>304</sup> *ibid.*, p 57.

<sup>305</sup> *ibid.*

<sup>306</sup> *ibid.*, p 58.

## 4. METHODS

Although, to the author's knowledge, self-driving vehicles have not been put on the market yet and there is also no infrastructure designed specifically for them, they can nevertheless be hypothetically placed in the existing legal space in order to assess what issues it raises from the point of view of tort liability. To attain its purpose, the dissertation takes a doctrinal approach. It looks at the law governing the tort liability for damage caused by self-driving vehicles, identifies and interprets the relevant primary and secondary sources of law and synthesises those sources to formulate respective legal rules. In this process, an evaluation and critique of the competing and inconsistent sources has been carried out. Doctrinal research has led to suggestions of ways in which the tort law governing self-driving vehicles should develop. The main aim of the doctrinal method was, for the purpose of identifying an underlying system, to accumulate, organise and describe the legal rules and provide comments on the emergence and importance of authoritative legal sources (ie case-law) in which these rules are considered.

A systemic analysis of relevant legislation, case-law and legal writings was carried out. The author has sought to move from assumptions to conclusions. The assumptions are based on the characteristics of self-driving vehicles, the legislation in force and how this legislation functions and is understood in practice via case-law and legal writings.

The focus of the dissertation is on Estonian tort law which, with the exception of product liability, is not subject to EU-wide harmonisation. Thus, in relation to product liability, respective EU law is analysed as well. Unlike fault-based tortious liability and strict liability, the field of product liability has been harmonised in the European Union via the PLD. The PLD seeks to establish a fair apportionment of the risks inherent in technological production between manufacturers and consumers. However, the largely analogue products of the 1970s and 1980s when the PLD was drafted and adopted have become considerably more digital and service-related by 2020s. The dissertation draws comparisons between the PLD and the LOA – the latter being a considerably younger legal act – and identifies key differences and issues of relevance from the perspective of self-driving vehicles. Thereby the relevant case-law of the Court of Justice of the European Union is used as a source of interpretation. To the author's knowledge, there is currently no Supreme Court case-law in the field of product liability in Estonia.

The reason for focusing on Estonian law stems from the fact the Estonian state is determined to bring self-driving vehicles onto roads as soon as possible.<sup>307</sup> In spite of the focus being on Estonian law, parallels are frequently drawn with relevant German legal rules, case-law and opinions of legal scholars because the tort law provisions of the LOA have been inspired by, among other legal systems, German law, case-law and legal scholarly opinions.<sup>308</sup>

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<sup>307</sup> n 298.

<sup>308</sup> Varul and others (n 31), p 2.

## 5. SUMMARY OF THE MAIN CONCLUSIONS OF THE PUBLICATIONS INCLUDED IN THE COMPENDIUM

### 5.1. Fault-based tortious liability for damage caused by a self-driving vehicle

#### 5.1.1. The fault of the tortfeasor for a breach of the duty to maintain safety by the tortfeasor in the event of damage caused by a self-driving vehicle

**Description of the problem.** Under § 1043 of the LOA, a person who unlawfully causes damage to another must compensate for the damage where the person who caused damage is at fault of the damage or bears statutory liability for causing the damage. Fault-based tortious liability is built in three stages. As a general rule, objective elements are verified at the first stage: the tortfeasor's act, damage to the rights of the injured person, and a causal link between them. Unlawfulness is verified at the second stage. The tortfeasor's fault is verified at the third stage. Since, in the event of damage caused by a self-driving vehicle, there is no driver and all the persons inside the self-driving vehicle are merely passengers, establishing both the unlawfulness of the damage as well as the fault of the tortfeasor (ie the prerequisites for fault-based tortious liability) may prove problematic.

**Statement set forth for defence.** The injured person's ability to enforce their claim on the basis of fault-based tortious liability is considerably affected by the fact of whether the damage was caused by a conventional motor vehicle or a self-driving vehicle. Due to the absence of the tortfeasor's fault or breach of duty to maintain safety, the injured person cannot usually enforce a claim for damages based on fault-based tortious liability for damage caused by a self-driving vehicle.

**Reasoning.** In the event of damage caused by a self-driving vehicle, engaging in traffic may be deemed to be the tortfeasor's act. The injured person's legal right that is being violated can, above all, be their life (clause 1 of subsection 1 of § 1045 of the LOA), health (clause 2 of subsection 1 of § 1045 of the LOA) or ownership (clause 5 of subsection 1 of § 1045 of the LOA). The same applies to damage caused by a conventional motor vehicle. Likewise, establishing a causal link between the tortfeasor's act and the damage suffered by the injured person is not special in any way.<sup>309</sup>

At the second stage of the criteria for fault-based tortious liability, the unlawfulness of causing damage is established. Clauses 1–4 of subsection 2 of § 1045

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<sup>309</sup> A causal link is established in two stages. First, the natural cause for damage is assessed (the *conditio sine qua non* test). Next, an assessment of the legal cause for the damage is made by asking whether the purpose of the breached rule was to obligate the tortfeasor and safeguard the injured person for the specific kind of damage (subsection 2 of § 127 of the LOA). See also Tampuu (n 30), p 213.

of the LOA establish the circumstances that preclude the unlawfulness of causing damage (eg consent or self-defence). Where damage is caused by the driver of a conventional motor vehicle, the unlawfulness can alternatively arise from a violation of a protective provision (clause 7 of subsection 1 of § 1045 of the LOA in combination with a protective provision in the TA) or be based on the general catalogue of unlawful damage (clause 2 of subsection 1 of § 1045 of the LOA – causing a bodily injury or health damage to the injured person; clause 5 of subsection 1 of § 1045 of the LOA – infringement of ownership).

In the event of infringement of absolute legal interests such as human life, health or ownership, unlawfulness is based on the harmful effect as such, while it is not important whether the tortfeasor also violated any duty.<sup>310</sup> Unlawfulness comes from the wrongfulness of the outcome.

Establishing unlawfulness merely based on the harmful effect is, however, not an exceptionless rule even in the event of infringing the absolutely protected legal rights. Where an absolutely protected right has been infringed by failure to act or where the harmful effect is a more remote outcome of the tortfeasor's conduct, a duty which the latter has breached must be identified. It may be a statutory duty or the general duty to maintain safety.<sup>311</sup> According to case-law, the general duty to maintain safety means a person's duty to make every reasonable effort to ensure that other persons are not harmed as a result of the person's actions.

While in the event of damage caused by a conventional motor vehicle the unlawfulness of causing damage can usually be derived from harming the injured person's legal right (or, alternatively, also from a violation of the provisions of the TA), it is rather questionable in the event of damage caused by a self-driving vehicle. One might argue that, for instance, in a situation where a person is inside a self-driving vehicle that causes a traffic accident, the person has not harmed the injured person's legal right by their active conduct. In such an event, the damage caused by the person who was inside the vehicle cannot be deemed to be unlawful owing to the mere harming of the injured person's legal right. In order to hold the person inside the vehicle liable, a duty which the person has breached should be established. Presumably, it cannot be a statutory duty (eg under the TA). Thus, the liability of the liable person can be based, above all, on a breach of the general duty to maintain safety. According to case-law, the general duty to maintain safety and the element of fault are entwined.<sup>312</sup> Thus, when examining whether a person has breached the general duty to maintain safety, one must substantively assess whether the person has been externally (ie objectively) negligent. The Supreme

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<sup>310</sup> Varul and others (n 31), p 641 ff; Janno Lahe and Tambet Tampuu, 'Essential Cases on Misconduct' in Bénédicte Winiger, Ernst Karner and Ken Oliphant (eds) *Digest of European Tort Law* (Berlin: de Gruyter, 2018), p 67.

<sup>311</sup> SCCC judgment, 20 June 2013, case 3-2-1-73-13, para 10. For a detailed discussion on the duty to maintain safety, see Iko Nõmm, 'Käibekohustuse rikkumisel põhinev deliktiivsuslik vastutus' [*Delictual liability based on the violation of the duty to maintain safety*] (PhD thesis, University of Tartu 2012) <[https://dspace.ut.ee/bitstream/handle/10062/29910/n6mm\\_iko.pdf?sequence=1&isAllowed=y](https://dspace.ut.ee/bitstream/handle/10062/29910/n6mm_iko.pdf?sequence=1&isAllowed=y)> accessed 8 October 2020.

<sup>312</sup> SCCC judgment, 20 June 2013, case 3-2-1-73-13, para 10.

Court has explained that since the general duty to maintain safety means, according to the generally recognised view, a duty of care for the purposes of the legal theory, negligence is one of the forms of fault under subsection 2 of § 104 of the LOA and subsection 1 of § 1050 of the LOA establishes that a person who unlawfully caused damage is presumed to be at fault, the defendant has the burden to prove that it did not breach the general duty to maintain safety.<sup>313</sup>

It has been argued in the context of German law that putting ‘blind trust’ in the automated vehicle technology over a long period may constitute a breach of the duty to maintain safety.<sup>314</sup> Under Estonian law, one could partly agree with the opinion. The owner or possessor of a self-driving vehicle might be hypothetically criticised for a breach of the general duty to maintain safety where the vehicle is not properly serviced (eg software updates have not been made in a timely manner) or where detected errors are not reacted to. ‘Maintaining safety’ should not usually require more of the owner or possessor.

The fault of the tortfeasor is the third main criterion of the fault-based tortious liability.<sup>315</sup> The types of fault are negligence, gross negligence and intent (subsection 2 of § 104 of the LOA). Negligence means failure to exercise necessary care (subsection 3 of § 104 of the LOA). Gross negligence means failure to exercise necessary care to a material extent (subsection 4 of § 104 of the LOA). Intent means the will to bring about an unlawful consequence upon creation, performance or termination of an obligation (subsection 5 of § 104 of the LOA). In Estonian tort law, the injured person’s fault (including negligence) should also be assessed based on the characteristics of the tortfeasor. Under subsection 2 of § 1050 of the LOA, the situation, age, education, knowledge, abilities and other personal characteristics of a person should be taken into consideration upon assessment of the person’s fault. Under subsection 1 of § 1050 of the LOA, the negligence of the tortfeasor is presumed, ie the tortfeasor who wishes to avoid liability should prove the absence of their fault.

In the event of damage caused by a self-driving vehicle, the absence of fault (or a breach of the duty to maintain safety) may be the reason why fault-based tortious liability is not applicable to the owner or possessor of the vehicle (or a person who simply travelled in the self-driving vehicle at the time of the traffic accident). For instance, if a self-driving vehicle causes damage to a third party due to a bug in the control program, one cannot usually argue that the owner or possessor of the vehicle failed to exercise due care or perform the duty to maintain safety. As noted above, the situation may prove different where the vehicle has not been properly maintained or serviced. Nevertheless, it may be concluded that

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<sup>313</sup> *ibid.*

<sup>314</sup> Volker M Jänich, Paul T Schrader and Vivian Reck, ‘Rechtsprobleme des autonomen Fahrens’ (2015) 28/7 *Neue Zeitschrift für Verkehrsrecht*, p 316.

<sup>315</sup> For a comparative discussion on the tortfeasor’s fault see Janno Lahe, ‘The Concept of Fault of the Tortfeasor in Estonian Tort Law: A Comparative Perspective,’ (2013) 38/2 *Review of Central and East European Law*, pp 141–170 DOI: <<https://doi.org/10.1163/092598812X13274154887420>>.

usually it is not reasonable or fruitful for the injured person who has suffered damage caused by a self-driving vehicle to bring a claim against the owner or possessor of the vehicle based on provisions governing fault-based tortious liability.

In view of the above, it can be concluded that the injured person's ability to enforce their claim on the basis of fault-based tortious liability is considerably affected by the fact of whether the damage was caused by a conventional motor vehicle or a self-driving vehicle. However, the difference will not create a deep practical issue where the injured person's chances of receiving compensation for damage are sufficiently ensured using other instruments, above all, rules on strict liability and product liability.

### **5.1.2. Need for a safeguarding provision under tort law in connection with self-driving vehicles**

**Description of the problem.** Germany has already passed traffic legislation governing self-driving vehicles, including related legal definitions. Subsection (2) of §1a of the German Road Traffic Act (*Straßenverkehrsgesetz* or *StVG*)<sup>316</sup> lists the technical equipment that makes a vehicle a highly or fully automated motor vehicle. It follows from subsection (4) of §1a of the StVG that the driver is the one to switch on the highly or fully automated driving function and apply it for controlling the vehicle. Such an approach to automated driving means that even a vehicle with a fully automated driving function is required to have a steering wheel and a licensed driver behind it at all times. This person is required to sit in the front seat to drive, and certain controls, displays, and indicators need to be visible to the driver so that they would be able to drive the vehicle properly. This also means that even a vehicle equipped with fully automated driving functionality must not drive 'empty' – even when there are no passengers, there must be at least one occupant (the driver) while it is driving. In addition, it follows from subsection (4) of §1a of the StVG that the driver must be prepared to take over control of the vehicle at all times. This raises the question whether Estonia should follow Germany's example and also establish a similar safeguarding provision that would require the driver to take over the driving of a self-driving vehicle at any time.

**Statement set forth for defence.** Estonia does not necessarily need to follow the example of the German Road Traffic Act because it is rather an interim solution stemming from the Vienna Convention on Road Traffic of 8 November 1968 and does not take the characteristics of self-driving vehicles into account.

**Reasoning.** For manufacturers, the German approach means a self-driving vehicle must have a steering wheel and other control equipment and could only engage in traffic with the help of a licensed driver. Similarly to conventional

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<sup>316</sup> Road Traffic Act [*Straßenverkehrsgesetz (StVG)*] 5.3.2003 | 310, 919; 10.7.2020 | 1653 <[www.gesetze-im-internet.de/stvg/StVG.pdf](http://www.gesetze-im-internet.de/stvg/StVG.pdf)> accessed 8 October 2020.



vehicles, the driver is required to sit in the front seat and certain controls, displays, and indicators need to be visible to the driver so that they would be able to drive the vehicle safely. This would also mean that a self-driving vehicle could not drive empty.

The German approach seems to be inspired by the characteristics of semi-automated vehicles. The fundamental difference between fully automated (self-driving) vehicles and semi-automated vehicles lies in the fact that in the case of the former a driver is not needed in any circumstances and, thus, there is no need to stay alert and be ready to take over control of the vehicle. The implementation of a safeguarding provision attuned solely to semi-automated vehicles would put Estonian developers<sup>317</sup> of self-driving vehicles at a disadvantage.

The German legislature's choices would strip self-driving vehicles of some of their alleged key advantages (disabled people's access to mobility, reduction of human errors, etc<sup>318</sup>), while giving rise to a plethora of new issues related to the human driver taking back control of the vehicle or, more generally, to human-machine interaction. Once the driver has transferred control of the vehicle to the system, it is difficult to get it back in an instant. Nevertheless, the driver remains responsible and is required to stay alert and ready to retake control in the blink of an eye. While the approach taken by the German legislature is acceptable for SAE Levels 1–4, it practically precludes the introduction of Level 5 vehicles.

The approach taken by Germany might be associated with the fact that, as has the rest of the EU, Germany has ratified the 1968 Vienna Convention on Road Traffic<sup>319</sup> which, in spite of subsequent modifications<sup>320</sup>, rules out the introduction

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<sup>317</sup> Raivo Sell and Krister Kalda, 'Self-driving shuttle ISEAUTO' (26<sup>th</sup> ITS World Congress, Singapore, 21–25 October 2019) <[www.researchgate.net/publication/337720410\\_Self-driving\\_shuttle\\_ISEAUTO](http://www.researchgate.net/publication/337720410_Self-driving_shuttle_ISEAUTO)> accessed 8 October 2020; Epp Joala, 'Isejuhtiv buss alustas Kadriorus regulaarset opereerimist' [*Self-driving shuttle begins regular operation in Kadriorg*] (*TalTech*, 29 August 2019) <<https://ttu.ee/isejuhtiv-buss-alustas-kadriorus-regulaarset-opereerimist>> accessed 8 October 2020; University of Tartu, 'University of Tartu and Bolt presented autonomous driving lab's test car' (29 January 2020) <[www.ut.ee/en/news/university-tartu-and-bolt-presented-autonomous-driving-labs-test-car](http://www.ut.ee/en/news/university-tartu-and-bolt-presented-autonomous-driving-labs-test-car)> accessed 8 October 2020; Janno Riisapp, 'Cleveron arendab uut isejuhtivat kullerrobotit' [*Cleveron is developing a new self-driving robot courier*] (*Postimees*, 29 March 2019) <<https://tehnika.postimees.ee/6557088/cleveron-arendab-uut-isejuhtivat-kullerrobotit>> accessed 8 October 2020.

<sup>318</sup> European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)), para 29.

<sup>319</sup> Convention on Road Traffic, Vienna, 8.11.1968, entry into force 21.5.1977 (consolidated text) <[http://www.unece.org/fileadmin/DAM/trans/conventn/Conv\\_road\\_traffic\\_EN.pdf](http://www.unece.org/fileadmin/DAM/trans/conventn/Conv_road_traffic_EN.pdf)> accessed 8 October 2020.

<sup>320</sup> United Nations Economic Commission for Europe (UNECE) – Inland Transport Committee – Working Party on Road Traffic Safety, 'Report of the sixty-eighth session of the Working Party on Road Traffic Safety' (Geneva, 24–26 March 2014) ECE/TRANS/WP.1/145 <[www.unece.org/fileadmin/DAM/trans/doc/2014/wp1/ECE-TRANS-WP1-145e.pdf](http://www.unece.org/fileadmin/DAM/trans/doc/2014/wp1/ECE-TRANS-WP1-145e.pdf)> accessed 8 October 2020.

of driverless road vehicles.<sup>321</sup> While such restrictions are inevitable in the case of semi-autonomous vehicles, the entire concept of a fully self-driving vehicle is based on the underlying assumption that no human driver is required under any circumstances. Therefore, it may well be that the current solution in Germany is merely a temporary one in place until the Vienna Convention on Road Traffic can be amended and the level of full automation is truly reached.

While there might be a need to clarify the driver's duties while using a highly automated driving mode (ie a semi-automated vehicle), the presence of the driver and their duty to be ready to take over control of the vehicle at any moment does not fully align with the characteristics of self-driving vehicles.

## 5.2. Strict liability for damage caused by a self-driving vehicle

**Description of the problem.** Strict liability is liability for damage caused by a source of greater danger, which does not depend on fault. H. Koziol has noted that strict liability is liability for dangerousness.<sup>322</sup> The LOA's strict liability provisions are structured in such a manner that § 1056 contains the general composition of strict liability, while §§ 1057–1060 set out the special compositions of strict liability. The latter include, among other things, the strict liability of the direct possessor of a motor vehicle: the direct possessor of a motor vehicle is liable for any damage caused upon the operation<sup>323</sup> of the vehicle. The question about who can be deemed to be the direct possessor of a self-driving vehicle arises.

The first sentence of subsection 1 of § 1056 of the LOA states that where damage is caused as a result of a danger characteristic of an especially dangerous thing or activity, the person who controls the source of danger is liable for causing the damage regardless of the person's fault. The first sentence of subsection 2 of § 1056 of the LOA states that a thing or activity is deemed to be a source of greater danger where, due to its nature or the substances or means used therein, major damage or frequent damage may be suffered even where the level of care expected of a professional is exercised. Where statutory liability not dependent on the fault of the person controlling a source of danger is established for a source

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<sup>321</sup> It is explicitly stated in Article 8(1) of the Convention that every moving vehicle or combination of vehicles shall have a driver. The Traffic Act does not explicitly provide for such a requirement but it nevertheless stems from numerous provisions (see, for example, clauses 19 and 41 of § 2, clause 3 of subsection 1 of § 7, subsection 2 of § 8 of the TA, etc).

<sup>322</sup> Helmut Koziol, *Basic Questions of Tort Law from a Germanic Perspective* (Wien: Jan Sramek Verlag, 2012), p 234.

<sup>323</sup> The Estonian Supreme Court has held that damage is caused upon operating a motor vehicle, above all, when it is caused by the purposeful use of the vehicle as a motor vehicle in traffic. The slow movement of a vehicle or, in exceptional circumstances, the static status of a vehicle on the road, may be considered operating the vehicle (see the SCCC judgment, 19 March 2013, case 3-2-1-7-13, para 20).

of danger similar to the thing or activity, it is presumed that the thing or activity is the source of greater danger. In the context of self-driving vehicles one can ask who can be considered the person controlling such vehicle as a source of greater danger.

Overall, the question is who can on the basis of the strict liability rules be held liable for damage caused upon operating a self-driving vehicle.

**Statement set forth for defence.** From the point of view of application of strict liability, the automation or non-automation of the vehicle does not make any difference. A self-driving vehicle is a motor vehicle for the purposes of § 1057 of the LOA and a source of greater danger for the purposes of subsection 2 of § 1056 of the LOA. Variations may arise with regard to the obligated parties and depend on whether self-driving vehicles will come to be owned as conventional vehicles or whether they will be only made available to economic operators who provide transport services.

**Reasoning.** In the case of strict liability, the act and fault of the tortfeasor are irrelevant. The determining factor is whether the harmful consequence was caused by the manifestation of a risk characteristic of the object or activity. Thus, upon holding the operator of a motor vehicle (ie the person controlling it) liable it is of no relevance whether they violated the traffic rules by engaging in traffic or whether they were at fault when doing it. The Supreme Court has also held that the causing of damage by a source of greater danger means that damage is suffered as a result of the realisation of a risk characteristic of the source of greater danger, ie as a result of the manifestation of a heightened threat characteristic of a source of greater danger stemming from the object or activity.<sup>324</sup>

A self-driving vehicle can be deemed to be a motor vehicle for the purposes of § 1057 of the LOA. Thus, the application of strict liability to damage is, in principle, possible also in the event of damage caused by a self-driving vehicle. In addition to § 1057 of the LOA, the fault-based tortious liability provided for in § 1056 of the LOA can also be applied to damage caused by a self-driving vehicle.

The courts have a wide margin of discretion as to what objects or activities to consider to be sources of greater danger on the basis of the provision. Nevertheless, self-driving vehicles quite clearly can be considered sources of greater danger. It is a separate issue of whether the absence of a driver in a self-driving vehicle increases or decreases its dangerousness. If there is no driver who would be standing by at all times to take over control of the vehicle at any moment in order to, for example, fill in the gaps or errors in the vehicle's software, the absence of a driver could be considered a factor increasing dangerousness. On the other hand, traffic accidents largely occur due to human error<sup>325</sup> and, therefore, the absence of a driver could be seen as a dangerousness-reducing factor. It cannot be precluded that the safety of self-driving vehicles will at some point

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<sup>324</sup> SCCC judgment, 2 March 2011, case 3-2-1-161-10, para 11.

<sup>325</sup> See, for example, Christoph Grote, 'Connected vehicles will enhance traffic safety and efficiency' (*The European Files*, 18 February 2019) <[www.europeanfiles.eu/digital/connected-vehicles-will-enhance-traffic-safety-efficiency](http://www.europeanfiles.eu/digital/connected-vehicles-will-enhance-traffic-safety-efficiency)> accessed 8 October 2020.

reach a level where accidents are almost completely precluded. In such an event there would perhaps no longer be any reason for treating self-driving vehicles as sources of greater danger. Thus, at the level of the prerequisites for strict liability there are (similarly to conventional motor vehicles) no such obstacles that would render the application of § 1057 or even § 1056 of the LOA impossible.

In the context of the application of strict liability the question is who can be held liable based on the strict liability rules. As noted above, under § 1057 of the LOA only the direct possessor of a motor vehicle can be held liable. It follows from subsection 1 of § 33 of the LPA that a possessor is a person under whose actual control a thing is. Subsection 2 of the same section stipulates that a person who possesses a thing on the basis of a commercial lease, tenancy, deposit, pledge or other similar relationship which entitles the person to temporarily possess the thing of another person is the direct possessor, while the other person is the indirect possessor. According to the case-law of the Supreme Court, § 1057 of the LOA imposes liability on, above all, the person who has the actual control (be it on a legal ground or not) over motor vehicle.<sup>326</sup> In other words, on the person who controls the vehicle, ie decides where and when the vehicle moves, bears costs and economic risks related to the vehicle and enjoys the benefits of using the vehicle.

Thus, an answer to the question of who can be held liable based on § 1057 of the LOA largely depends on how self-driving vehicles will actually come to be used. If the purchase and sale of future self-driving vehicles remains similar to that of the current conventional vehicles, the person who acquires a self-driving vehicle becomes, in general, its direct possessor as well. However, it may well happen that companies will merely provide a transport service using self-driving vehicles and individuals will not be able to acquire them. Such a service may resemble the conventional taxi service. If a self-driving vehicle causes a traffic accident during the provision of such a transport service, one can raise the question of who the direct possessor of the vehicle at the moment of the accident was. It can be argued that, since a customer of the conventional taxi service does not transform into the direct possessor of the vehicle at the time of receiving the service, the same does not happen in the case of a self-driving vehicle. This means that the person receiving the service is not liable for the damage under § 1057 of the LOA. Above all, the company providing the transport service is liable. Thereby it is irrelevant whether the respective company is the owner of the vehicle that caused damage or possesses the vehicle on the basis of, for instance, a lease contract. In the latter case, the owner of the vehicle is the indirect possessor of the vehicle to whom § 1057 of the LOA does not apply either.

The driver of a motor vehicle cannot always be considered the direct possessor of the vehicle. It follows from subsection 3 of § 33 of the LPA that the possessor is not a person who exercises actual control over a thing in accordance with the orders of another person in their household or business. Such 'servant of possession' or possessory servant is, for example, an employee who uses a vehicle

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<sup>326</sup> SCCC judgment, 19 March 2013, case 3-2-1-7-13, para 21.

to perform the tasks given by the employer. In principle, it may happen in the case of a self-driving vehicle that the employee uses it for performing certain employment tasks. In such an event, § 1057 of the LOA is not applicable to the employee either.<sup>327</sup> At the same time the servant of possession may still be held liable in accordance with the provisions governing fault-based tortious liability. This may not prove doable in practice because the employee's liability would usually be precluded owing to the absence of their fault.

As noted above, the LOA also contains the so-called general composition of strict liability (general strict liability). It is a flexible solution that enables the courts to keep up with the times, declaring technologies whose safety is not yet sufficiently proven to be sources of greater danger. On the basis of the general strict liability, the person controlling a source of greater danger can be held liable. Thereby it should be pointed out that the definition of a person controlling a source of greater danger set out in subsection 1 of § 1056 of the LOA does not overlap with the definition of the direct possessor of a motor vehicle under § 1057 of the LOA. Thus, it cannot be precluded that a person in a self-driving vehicle (eg an employee) who cannot be qualified as the direct possessor of the motor vehicle under § 1057 of the LOA can still be considered a person controlling the source of greater danger within the meaning of subsection 1 of § 1056 of the LOA. Even though this position has not been explicitly confirmed by Estonian case-law, a respective discussion is fuelled by a decision of the Supreme Court where the court held that a person who was riding a horse but was simultaneously not the keeper of the animal for the purposes of LOA § 1060 could be considered a person controlling a source of greater danger within the meaning of subsection 1 of § 1056 of the LOA.<sup>328</sup>

By the same token, it should necessarily not be precluded to consider the owner of a vehicle who is not its direct possessor as the person controlling the source of greater danger. A respective question could be raised, for instance, in the event of the insolvency of the direct possessor. In the light of the aforementioned discussion over the definition of a person controlling a source of greater danger one should nevertheless not draw the conclusion that a person receiving a transport service could be considered a possessor of a self-driving vehicle for the purposes of LOA § 1056. The receipt of a temporary service does not give a person any right or opportunity to control the self-driving vehicle.

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<sup>327</sup> See also Varul and others (n 31), p 696.

<sup>328</sup> SCCC judgment, 18 April 2007, case 3-2-1-27-07, paras 13–14. The application of the general composition of strict liability (LOA § 1056) may be precluded by the fact that the injured person was somehow linked to the source of greater danger. In the same decision, the Supreme Court noted that persons who participate in controlling a source of greater danger, temporarily take the source under their control or benefit from controlling the source are not, in the light of the principle of good faith, entitled to demand that the person controlling the source of greater danger compensate for the damage caused to them based on provisions governing strict liability.

## 5.3. Product liability for damage caused by a self-driving vehicle

### 5.3.1. Defects of a self-driving vehicle as a product

**Description of the problem.** Under subsection 1 of § 1063 of the LOA, ‘product’ means all movables, even though incorporated into another movable or into an immovable; ‘product’ includes electricity and computer software. While 30–40 years ago products with an intangible or service component might have been a relatively new phenomenon for the average consumer, the products of today are increasingly becoming entwined with software and services. Software itself is often provided as a service. Driving automation becomes possible owing to the combination of hardware, software and services. Software replaces the decision-making mechanisms of a human being, while sensors replace their senses. Article 2 of the PLD, which serves as the basis of subsection 1 of § 1063 of the LOA makes no explicit mention of computer software or services. The only intangible product which Article 2 of the PLD refers to is electricity. No reference to services is made in subsection 1 of § 1063 of the LOA or in Article 2 of the PLD.

A bug or error in the software of a self-driving vehicle or in a service used may lead to the causing of damage by a self-driving vehicle. Due to a software bug, the self-driving vehicle may misinterpret the surrounding environment or inadequately react to it and, as a result thereof, cause a road accident. Exploiting a software vulnerability, a third party might take over the control of the vehicle and intentionally cause harm with it. Ensuring the security of the software of a self-driving vehicle is essentially a continuous process that lasts as long as the vehicle remains in circulation.

A self-driving vehicle presumably cannot cope without other important services: it must, among other things, be able to communicate with other road users and traffic signs, be aware of the weather conditions, find a route in and navigate through the surrounding area, know its location towards the surrounding objects with high precision, etc. If any of these key services does not function, the vehicle might be unable to function properly. If the self-driving vehicle is designed in such a way that its safe operation depends on a certain service (eg the operator service, traffic management service, local position service, etc) but there is a disruption in such service or the service provides the self-driving vehicle with misleading input, the vehicle may also misinterpret the surrounding environment or react to it inadequately and cause damage as a result thereof.

**Statement set forth for defence.** If the cause of damage is a defect in the software of a self-driving vehicle or in a digital service used by it, it should be deemed a defect of the self-driving vehicle.

**Reasoning.** The legal definition of a defective product is given in subsection 2 of § 1063 of the LOA (transposes Article 6 of the PLD). By and large, a product is defective where it does not provide the safety which a person is entitled to expect. Thereby account should be taken of all the circumstances, including the

presentation of the product, the use to which it could reasonably be expected to be put and the time of putting the product into circulation. Regarding self-driving vehicles, it ultimately comes down to what the public at large is entitled to reasonably expect of the self-driving vehicle in terms of its safety.

It follows from the guidelines given by the CJEU in *Boston Scientific* that the assessment of reasonable safety expectations must be carried out from the perspective of the public at large, taking into account the intended purpose, the objective characteristics and properties of the self-driving vehicle and the specific requirements of the group of users whom the vehicle is intended.<sup>329</sup> In the light of the function of self-driving vehicles and the particularly vulnerable situation of people using such products, the safety requirements for those vehicles which all road users are entitled to expect are particularly high. Furthermore, it can be derived from the CJEU's analysis set out in *Boston Scientific* that the potential lack of safety of a self-driving vehicle stems from the abnormal potential for damage which those vehicles might cause to the person concerned.<sup>330</sup>

At this juncture, we can merely speculate on the presentation of self-driving vehicles, the use to which they could reasonably be expected to be put and the time of putting such vehicles into circulation. However, we can discuss the intended purpose, objective characteristics and properties as well as the group of users whom self-driving vehicles will be intended. The main purpose of motor vehicles designed to be used on roads is to carry cargo and people. In conventional vehicles, a driver who has successfully completed training in the respective motor vehicle category and passed a test of traffic knowledge and skills (ie holds a driving licence). In spite of such requirements, human errors remain the main cause of traffic accidents. It is hoped that self-driving vehicles will alleviate or eventually solve this problem entirely. Thus, their main intended purpose might be the safe automated transportation of cargo and people from the point of departure to the destination.

Given the laws of physics, above all, the mass and speed of movement of the vehicle, a self-driving vehicle is a source of greater danger for other road users. A conventional vehicle is controlled by a driver, but in a self-driving vehicle the driver is replaced by various hardware and software. Subsection 1 of § 1063 of the LOA explicitly places software among products. Being intangible, software is, as a rule, not final in its original form and it can be and often should be improved and modified. The need for modification arises from the fact that it is not possible to create completely flawless software.<sup>331</sup> Likewise, technology

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<sup>329</sup> For further details see Joined Cases C-503/13 and C-504/13 *Boston Scientific Medizintechnik GmbH v AOK Sachsen-Anhalt – Die Gesundheitskasse and Betriebskrankenkasse RWE* [2015] ECLI:EU:C:2015:148, paras 37–41.

<sup>330</sup> *ibid*; see also Joined Cases C-503/13 and C-504/13 *Boston Scientific Medizintechnik GmbH v AOK Sachsen-Anhalt – Die Gesundheitskasse and Betriebskrankenkasse RWE* [2014] Opinion of AG Bot, ECLI:EU:C:2014:2306, para 30.

<sup>331</sup> See, for instance, Tom Alexander, 'What is a Software Defect' (*Smartbear Zephyr*, 26 May 2018) <<https://qacomplete.com/resources/articles/what-is-a-software-defect/>> accessed 8 October 2020. It should be noted that the understanding of a defect is somewhat different

develops at a fast pace and for this reason the initial solution may subsequently prove unadvisable. A self-driving vehicle as a product is presumably meant for use over a longer period of time. Its software has many critical functions which the safety of the vehicle depends on. Among other things, the security of the software of a self-driving vehicle is of great importance. To ensure this, the software needs to be continuously updated. Thus, keeping the software component of a self-driving vehicle operational is essentially a process. In other words, it constitutes an internal service component of the product. If a self-driving vehicle is designed in such a manner that its safe operation depends, in addition to the internal service component, on the availability or functioning of a certain external service, a bug or error in that service should be treated as a defect of the self-driving vehicle. Road users have the right to expect that a self-driving vehicle does not cause damage in a situation where an important service is disrupted or unavailable.

### **5.3.2. Development risk of self-driving vehicles as a circumstance precluding the manufacturer's liability**

**Description of the problem.** The manufacturer's liability for a defective self-driving vehicle is not absolute. Transposing Article 7(e) of the PLD, clause 5 of subsection 1 of § 1064 of the LOA allows for discharging the manufacturer from liability where the manufacturer proves that, given the level of scientific and technical knowledge at the time of placing the vehicle on the market, the defect could not be detected. While, initially, the European legislature had the plan to establish product liability as strict liability, the manufacturer's strict liability was eventually limited by the development risk defence clause.<sup>332</sup> Similarly to most Member States,<sup>333</sup> Estonia has transposed the given provision to Estonian law without reservations.

However, in the case of self-driving vehicles, the persons affected (ie road users) are in a different situation than, for instance, consumers of medicinal products. Likewise, self-driving vehicles are developed with the aim of saving people's lives.<sup>334</sup> While, for example, the injection of a vaccine affects only the

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among software developers and the legislature. The former see it as a situation where the software does not provide the person with the expected benefits. In the case of a self-driving vehicle, the benefits might include, for example, the chance to engage in other activities while travelling in the vehicle, the prevention of human errors, higher fuel efficiency, smoother traffic, etc.

<sup>332</sup> Case C-300/95 *Commission v UK* [1997] ECLI:EU:C:1997:35, Opinion of AG Tesauro, para 19.

<sup>333</sup> COM(2011) 0547 final, p 8.

<sup>334</sup> U.S. Department of Transportation, 'Preparing for the future of transportation: Automated vehicles 3.0' (October 2018) <[www.transportation.gov/sites/dot.gov/files/docs/policy-initiatives/automated-vehicles/320711/preparing-future-transportation-automated-vehicle-30.pdf](http://www.transportation.gov/sites/dot.gov/files/docs/policy-initiatives/automated-vehicles/320711/preparing-future-transportation-automated-vehicle-30.pdf)> accessed 8 October 2020.



person into whom the vaccine was injected and indirectly also protects third parties via the person's immunity to a disease, a self-driving vehicle is a source of greater danger due to its physical characteristics and the laws of physics, having the capacity to harm the life, health and ownership of third parties (road users).

The underlying idea of the development risk defence was to encourage innovation by reducing manufacturers' risks so that they would take advantage of the most recent knowledge and spend money on research and development rather than insurance policies.<sup>335</sup> However, the opponents argued that it unfairly forced injured persons (consumers) to bear risks arising from developing new products.<sup>336</sup> However, there are car manufacturers that have publicly announced their readiness to voluntarily admit liability for damage.<sup>337</sup>

**Statement set forth for defence.** The development risk defence provided for in clause 5 of subsection 1 of § 1064 of the LOA allows for, in principle, a fair apportionment of liability. However, extensive application of this exception to defects of self-driving vehicles is not reasonable because in such an event the law governing product liability would largely become meaningless in the context of innovative technologies.

**Reasoning.** Completely flawless software cannot be created and, presumably, software developers would be reluctant to guarantee that their software is completely flawless. The software of a self-driving vehicle may also have vulnerabilities through which a criminal can access its systems and cause damage at a far larger scale than with a conventional vehicle. Ensuring software security is a never-ending process that calls for continued improvement efforts and research and development. Thereby a security vulnerability may not become evident at the time of placing a self-driving vehicle in the market but years later. Keeping in mind this possible scenario, the development risk defence could be deemed justified also in the context of self-driving vehicles.

However, one cannot disregard the fact that risks emanating from a product that is not a source of greater danger are not equal to risks threatening persons (road users) in the case of sources of greater danger (including self-driving vehicles). While the defects of a vaccine pose a threat to, above all, the person to whom it has been administered, a self-driving vehicle is inevitably a certain threat to the surrounding road users and property because of its mass and speed of movement, including to road users other than the passengers of the vehicle.

Upon holding the manufacturer liable for damage caused by the defects of a self-driving vehicle or parts thereof, the key question is, above all, how to apply

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<sup>335</sup> SWD(2018) 157 final, p 35.

<sup>336</sup> BEUC, 'Review of Product Liability Rules' Position Paper (2017) <[www.beuc.eu/publications/beuc-x-2017-039\\_csc\\_review\\_of\\_product\\_liability\\_rules.pdf](http://www.beuc.eu/publications/beuc-x-2017-039_csc_review_of_product_liability_rules.pdf)> accessed 8 October 2020.

<sup>337</sup> See, for instance, Jim Gorzelany, 'Volvo Will Accept Liability For Its Self-Driving Cars' (*Forbes*, 9 October 2015) <[www.forbes.com/sites/jimgorzelany/2015/10/09/volvo-will-accept-liability-for-its-self-driving-cars/#10f0878572c5](http://www.forbes.com/sites/jimgorzelany/2015/10/09/volvo-will-accept-liability-for-its-self-driving-cars/#10f0878572c5)> accessed 8 October 2020.

clause 5 of subsection 1 of § 1064 of the LOA. In other words, how extensive will be manufacturers' chances of proving that a defect of the product could not have been detected based on the scientific and technical level at the time. It cannot be precluded that in the case of self-driving vehicles the courts will be more eager to apply the development risk defence arising from clause 5 of subsection 1 of § 1064 of the LOA in order not to adversely affect the development of technology. However, too extensive application of this exception cannot be deemed reasonable regarding defects of self-driving vehicles because otherwise the product liability legislation would largely lose its meaning in the context of new technologies.

On the one hand, as noted above, not all Member States of the European Union have fully transposed the development risk clause to their legislation. On the other hand, there are manufacturers who have expressed readiness to opt for voluntary strict liability and set aside the option of using the development risk defence.

Similarly to strict liability, the manufacturer can be held liable based on fault-based tortious liability in a situation where product liability is precluded (subsection 5 of § 1061 of the LOA). Where product liability rules are not applicable, for instance, because of clause 5 of subsection 1 of § 1064 of the LOA, this fact allows the manufacturer to easily prove that it was not at fault regarding the damage and still be discharged from liability.

#### **5.4. Division of liability in the event of mutual damage caused between a self-driving vehicle and a conventional vehicle**

**Description of the problem.** Situations where mutual damage is caused with motor vehicles occur in traffic on a daily basis. In Estonia, there is no separate legal rule for the division of liability in the event of mutual damage caused by motor vehicles. However, the ultimate damages can be adjusted based on a general rule that regulates the reduction of damages (ie subsection 1 of § 139 of the LOA), which states that where damage is caused in part by circumstances dependent on the injured person or due to a risk borne by the injured person, the amount of damages is reduced to the extent that such circumstances or risk contributed to the damage.<sup>338</sup> The LOA is based on the idea according to which persons who have caused mutual damage with motor vehicles are (above all, based on § 1057 of the LOA) fully liable for causing damage to each other in the first step, but the damages payable by either one of them can be adjusted on the basis of subsection 1

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<sup>338</sup> Special problems arise where more than two motor vehicles have been involved in causing damage. On such a situation see, for instance, Werner Bachmeier, *Verkehrszivilsachen* (Munich: Verlag C.H.Beck, 2010), pp 72–77.

of § 139 of the LOA, ie the damages payable can be reduced because of the share of the injured person in causing the damage.

Under § 139 of the LOA, upon reducing damages, circumstances stemming from the operational risk of the motor vehicle as well as circumstances characterising the drivers' behaviour can be taken into account.<sup>339</sup> The reason for taking into account the motor vehicle's operational risk lies in the understanding that once a person already engages in traffic using a motor vehicle (ie enters a dangerous situation), alone this fact is a sufficient ground for reducing the damages to a certain extent.<sup>340</sup> In the framework of the operational risk, one can distinguish between the general operational risk and a special operational risk.<sup>341</sup> The general operational risk arises from, for instance, the mass, dimensions, speed of movement, roadworthiness and safety equipment of the vehicle, while a special operational risk means the objective nature and dangerousness of a specific manoeuvre.<sup>342</sup> In addition to the operational risk, it is important to also assess the behaviour of the persons who were involved in the accident, above all, whether they failed to exercise due care and disregarded the traffic rules.<sup>343</sup> Based on the operational risk and the behaviour of the drivers, the grounds of reduction of the damages of each party involved in the accident are identified in the light of subsection 1 of LOA § 139.<sup>344</sup>

Regarding self-driving vehicles, the first question is how to assess the size of their operational risk. It is possible to build up a case in one or the other direction. On the one hand, it could be argued that the operational risk of self-driving vehicles should be higher than that of conventional vehicles, because there are merely driven by a computer program and a human essentially lacks the ability to 'correct' for the mistakes of the computer program. On the other hand, it could be argued that the operational risk of a self-driving vehicle should be considered lower, because self-driving vehicles do not cause damage due to human errors and refrain from causing damage to the extent possible according to the laws of physics. It is clear that in the case of self-driving vehicles, it is not possible to take into account the driver's behaviour (ie whether the driver violated the traffic rules) upon reducing the damages. This seems to cause the main problem in the light of a fair division of damages.

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<sup>339</sup> SCCC judgment, 19 March 2013, case 3-2-1-7-13, paras 29–33. The same criteria are relied on upon the division of liability also in German law. See Franz J Säcker and others. *Münchener Kommentar zum Bürgerlichen Gesetzbuch. Band 2. Schuldrecht* (Munich: Verlag C.H.Beck, 2012), p 528.

<sup>340</sup> Lahe, Luik and Merila (n 42), p 94.

<sup>341</sup> *ibid.*

<sup>342</sup> SCCC judgment, 19 March 2013, case 3-2-1-7-13, para 31.

<sup>343</sup> *ibid.*, paras 30 and 32.

<sup>344</sup> For further information on different groups of cases see Janno Lahe and Irene Kull, 'Motor Vehicle Operational Risk and Awarding Damages in the Event of a Traffic Accident' (2014) 5/1 Journal of European Tort Law, pp 105–120.

**Statement set forth for defence.** In order to divide liability fairly, the circumstances of the traffic accident involving a self-driving vehicle should be taken into account. Although it is complicated to talk about a ‘driver’ and their culpable conduct, one should still assess whether the self-driving vehicle violated the traffic rules and the extent to which it affected the occurrence of the traffic accident.

**Reasoning.** The Estonian Supreme Court has held that where it becomes evident that both drivers violated the rules of safe road use established in the TA and their involvement in the traffic accident was, taking into account their behaviour and the operational risks emanating from the vehicles, more or less equal, the court has a ground under subsection 1 of § 139 of the LOA to reduce the compensation for material damage to be awarded to the injured person presumably by 50%.<sup>345</sup> The Supreme Court has also taken the view that where the involvement of a person in a traffic accident was higher than that of another, it must be taken into account upon reducing the damages based on subsection 1 of § 139 of the LOA. A possible violation of the TA by the other party can be assessed upon determining the size of the claimant’s damages, because the significance of the claimant’s own violation depends on it.<sup>346</sup>

In a situation where two self-driving vehicles have mutually caused damage, the violations of the persons in the vehicles cannot be taken into account. Thus, one solution would be, since the operational risk of the self-driving vehicles is presumably equal and the drivers’ behaviour cannot be taken into account, the damages payable to each party should, regardless of the circumstances of the traffic accident, always be reduced by 50%. This does not seem to be a fair solution. Instead, one could argue that also in the event of damage mutually caused by self-driving vehicles, an assessment of the circumstances of the traffic accident nevertheless remains inevitable upon deciding over the division of damages. This means that, instead of the driver’s behaviour, it must be assessed whether the self-driving vehicle followed the traffic rules. If the accident can be traced back to a programming error in one of the self-driving vehicles as a result of which it failed to give way to another vehicle travelling on the priority road, a fair solution would be one where the owner of the vehicle that travelled on the priority road has all or most of their damage compensated for. Thus, a solution according to which, in the context of reduction of damages, the adherence to the traffic rules by a self-driving vehicle can be assessed analogously to the behaviour of a human driver, is worth considering.

In a situation where a self-driving vehicle and a conventional vehicle cause mutual damage, two alternatives can also be considered upon division of the

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<sup>345</sup> SCCC judgment, 26 November 2015, case 3-2-1-64-15, para 11. In German case-law, liability is also divided equally in the event of an equal operational risk and fault. For further information see, for instance, Christian Grüneberg, *Haftungsquoten bei Verkehrsunfällen. Eine systematische Zusammenstellung veröffentlichter Entscheidungen nach dem StVG*. (Munich: Verlag C.H.Beck, 2007).

<sup>346</sup> SCCC judgment, 26 November 2015, case 3-2-1-64-15, para 13.

damages. One option would be, similarly to the aforementioned, to add to the self-driving vehicle an imaginary human driver and ask whether causing damage in the particular manner would have qualified as a violation of the traffic rules and how serious violation it would have been in comparison with the violation committed by the other party. For instance, if the self-driving caused damage in a manner that, in the case of a conventional vehicle, would qualify as a serious mistake by a human driver (eg drives onto an intersection while the traffic lights prohibit it), the damages of the owner of the self-driving vehicle should be reduced to zero and the injured person should be fully compensated for the damage suffered. If both vehicles 'violated' the traffic rules, the impact and relevance of each violation regarding the occurrence of the accident should be assessed. The alternative would be to deem the operational risk of self-driving vehicles to be considerably higher than that of conventional motor vehicles. However, finding a fair final solution in an individual case still calls for taking into account the circumstances of the accident.

In summary, it can be noted that even though a fair division of liability upon damage caused by a self-driving vehicle calls for certain adjustments to the practice of the application of § 139 of the LOA, it is not an overwhelming task in developing case-law.

## CONCLUSIONS

Self-driving vehicles are on their way. Traffic accidents caused by self-driving vehicles cannot be precluded. While the mandatory motor third party liability insurance of self-driving vehicles will certainly be of great importance in the Member States, insurance is bound to come into play, above all, where the tortfeasor is liable. Thereby the key question in the context of Estonian tort law is whether the traditional rules of tort law ensure adequate liability regimes for damage caused by self-driving vehicles. The same question is bound to arise in all countries where self-driving vehicles are put into circulation.

The application of fault-based tortious liability towards the owner or possessor is considerably affected by the fact of whether damage is caused by a conventional motor vehicle or a self-driving vehicle. Above all, it is expressed in difficulties of applying general fault-based tortious liability rules to the owner or possessor of a self-driving vehicle. The reason lies in the fact that, usually, the owner of a self-driving vehicle cannot be accused of negligence or a breach of the duty to maintain safety. The difficulty in applying fault-based liability to damage caused by a self-driving vehicle is universal and should concern other legal systems besides Estonia. However, there is no reason to consider this an insurmountable problem in practice as long as the injured person can claim damages based on strict liability or product liability rules. In addition to the owner and possessor, all other persons including, for instance, digital service providers (backend operators) and users of the self-driving vehicle to whom the provisions governing strict liability and product liability cannot be applied, can be held liable on the basis of fault-based liability rules. In a situation where they are not subject to any statutory duty and damage stems not from a direct act of theirs, fault-based liability may arise from a breach of the duty to maintain safety. In the context of self-driving vehicles such duty may stem from or be associated with the manufacturer's requirements on the use of the vehicle, monitoring the vehicle and maintaining the vehicle.

Strict liability constitutes the easiest means of obtaining redress for an infringement of the injured person's absolute interests safeguarded under tort law because the injured person merely needs to demonstrate the existence and extent of damage and a causal link between the damage and the manifestation of a risk characteristic of the self-driving vehicle which may be considered a source of greater danger. The person who decides where and when the self-driving vehicle goes, bears the costs and economic risks arising from the vehicle, and enjoys the benefits of use of the vehicle, is considered its direct possessor or at least a person controlling the vehicle.

With the introduction of self-driving vehicles and, more broadly, emerging digital technologies, the practical relevance of product liability can be expected to rise. The European legislator should follow the example set by Estonia in the field of product liability and explicitly include software among products. Since self-driving vehicles will be heavily entwined with and reliant on services, greater

legal clarity in terms of division of liability between manufacturers and service providers would be welcome. Where the self-driving vehicle is designed in such a way that damage is not precluded when a service of fundamental importance for its safety proves defective, the defectiveness of the vehicle cannot be precluded either. Furthermore, the author agrees with those who find that the manufacturer's development risk defence should not be available in cases where it was predictable that unforeseen developments might occur. However, contrary to the NTF's recommendation to abolish the development risk defence, the author of this dissertation argues that the development risk defence is not always unfair or unjustified in the case of self-driving vehicles and should not be eliminated.

The author supports the NTF's recommendation according to which, because of the 'informational asymmetry' between the injured person and the manufacturer or service provider, the latter should be required to keep logs and bear at least some of the burden of proving causation, fault and defectiveness. Although Estonian civil procedure rules are already at least to some extent prepared for the attainment of a balanced solution in the event of a civil dispute concerning damage caused by self-driving vehicles, the Estonian legislature should consider whether to introduce a special rule that would eliminate the need to resort to the judicial reversal of the burden of proof based on the good faith principle.

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## ABBREVIATIONS

AI	Artificial intelligence
CCP	Code of Civil Procedure
CJEU	Court of Justice of the European Union
EPRS	European Parliamentary Research Service
EU	European Union
GPCCA	General Part of the Civil Code Act
ICT	Information and Communication Technology
IoT	Internet of Things
ITS	Intelligent Transport Systems
ISSA	Information Society Services Act
ITU	International Telecommunication Union
LOA	Law of Obligations Act
LPA	Law of Property Act
MIA	Motor Insurance Act
NTF	New Technology formation
OUP	Oxford University Press
PLD	Product Liability Directive
RT	<i>Riigi Teataja</i> (State Gazette)
SCCC	Supreme Court Civil Chamber
SLA	State Liability Act
TA	Traffic Act

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## SUMMARY IN ESTONIAN

### **Deliktiline vastutus isejuhtiva sõidukiga kahju põhjustamise korral Eesti õiguse näitel**

Väitekirja **uurimisese** on deliktiõiguslik ehk lepinguväline vastutus isejuhtiva sõidukiga kahju põhjustamise korral. Kuigi isejuhtivate sõidukite kontekstis saab eeldatavasti olema oluline roll ka lepingu- ja kindlustusõigusel, piirduakse väitekirjas deliktiõiguse käsitlemisega. Isejuhtivate sõidukite all peetakse silmas täisautomatiseeritud juhita mootorsõidukeid, milles viibivad isikud on pelgalt reisijad ning mis tulevad toime kõigi dünaamilise juhtimisülesande aspektidega kõigi tee- ja keskkonnatingimuste korral, millega tuleb toime ka inimene.

Kuna tegu on nii tehniliselt kui ka õiguslikult kiiresti muutuva valdkonnaga, põhineb väitekirja autori avaldatud neljal õigusteaduslikul artiklil:

- „Delictual Liability for Damage Caused by Fully Autonomous Vehicles: the Estonian Perspective“, milles analüüsitakse Eesti õiguse näitel, kas deliktiõiguslikku vastutust mõjutab sõiduki isejuhtivus ning kui mõjutab, siis kas asjaomased erinevused on olulised ja kas deliktiõiguse norme on neist erinevustest lähtuvalt vaja muuta;
- „Liability of a Manufacturer of Fully Autonomous and Connected Vehicles under the Product Liability Directive“, milles uuritakse, kas direktiiv 85/374/EMÜ, mis reguleerib tootjate vastutust puudustega toodete eest, on isejuhtivate sõidukite kasutuselevõtuga kaasnevateks väljakutseteks valmis või vajab see muutmist. Artiklis analüüsitakse muu hulgas termini „toode“ määratluse relevantsust isejuhtivate sõidukite omadusi silmas pidades, isejuhtivate sõidukite puuduse tuvastamise kaalutlusi, tootjana käsitletavate isikute ringi ja toote arendusriski tähendust;
- „What Safety Are We Entitled to Expect of Self-driving Vehicles?“, milles analüüsitakse ohutuse taset, mida Euroopa Liidu riikides elavatel inimestel (või ka juriidilistel isikutel) on õigus tootjavastutuse kontekstis isejuhtivatelt sõidukitelt oodata;
- „Strict Liability for Damage Caused by Self-driving Vehicles: the Estonian Perspective“, milles analüüsitakse deliktiõigusliku vastutuse võimalikke erinevusi tavasõiduki ja isejuhtiva sõidukiga kahju põhjustamise korral ning selgitatakse välja, kas isejuhtivate sõidukite kasutuselevõttu silmas pidades on vaja Eestis õiguses muuta riskivastutust reguleerivaid norme.

Ehkki täielikult isejuhtivaid sõidukeid autorile teadaolevalt veel turule lastud ei ole ja puudub ka spetsiaalselt neile mõeldud taristu, saab neid siiski hüpoteetiliselt asetada olemasolevasse õigusruumi ja püüda hinnata, milliseid probleeme see lepinguvälise vastutuse vallas kaasa toob. Väitekirjas on kasutatud selleks dogmaatilist uurimismeetodit. Kuna võlaõigusseaduse (VÕS) asjaomaste sätete väljatöötamisel on võetud eeskuju ka Saksa tsiviilseadustikust, on võlaõigus-

seaduse sätete analüüsimisel kasutatud täpsustava võrdlusmaterjalina ka asjaomaseid Saksa õigusnorme, kohtupraktikat ja õigusteadlaste arvamusi. Deliktalise üldvastutuse ja riskivastutuse analüüsimisel keskendutakse asjakohasele Eesti õigusele ja Riigikohtu praktikale. Erinevalt deliktisest üldvastutusest ja riskivastutusest on tootjavastutuse valdkond Euroopa Liidus põhiosas eelkõige direktiivi 85/374/EMÜ kaudu ühtlustatud. Seda direktiivi võrreldakse töös võlaõiguseadusega. Olulise tõlgendamisallikana on seejuures kasutatud Euroopa Liidu Kohtu asjassepuutuvaid lahendeid. Autorile teadaolevalt Riigikohtu praktika tootjavastutuse vallas puudub.

Eeldatavasti ei saa isejuhtiva sõidukiga tekitatud kahju puhul enamasti rääkida inimese vahetust teost kui selle kahju põhjusest, sest inimese asemel kasutatakse sõiduki juhtimiseks sobivat riist- ja tarkvara, sh inimese vahetu sekkumiseta osutatavaid teenuseid. Eesti seadusandja peab ka tarkvara tooteks, kuid ei saa eirata, et tarkvaraga varustamine võib olla teatavas ulatuses ka teenus. Toodete ja teenuste läbipõimumine tähendab ka erinevate vastutusrežiimide läbipõimumist. Seetõttu võib isejuhtivate sõidukite kontekstis prognoosida kahjutekitaja vastutusele võtmisel näiteks tootjavastutuse regulatsiooni osatähtsuse suurenemist. Isejuhtivate sõidukitega kahju põhjustamise puhul kerkib esile – erinevalt tava-sõidukitega kahju põhjustamisest – muu hulgas ka digitaalsete teenuste osutajate vastutuse küsimus. Seejuures ei saa välistada, et tootjal või teenusepakkujal saabki olema isejuhtiva sõiduki liikumise ja sellega seonduvate riskide üle kõige suurem kontroll.

Alljärgnevalt esitatakse kokkuvõtte töös käsitletavatest probleemidest, kaitstavatest väidetest ja nende põhjendustest.

Väitekirja üldine **eesmärk** on selgitada välja, kas ja millises ulatuses mõjutab deliktioigusliku vastutuse kohaldamist mootorsõiduki isejuhtivus ja mil määral tingib see asjaomaste õigusnormide muutmise vajaduse. Töö eesmärgi saavutamiseks uuris autor alltoodud uurimisküsimusi.

- **Kas ja millistel alustel saab kannatanu maksma panna delikti üldkoosseisule tuginevat nõuet isejuhtiva sõidukiga põhjustatud kahju hüvitamiseks?**

Võlaõiguseaduse § 1043 kohaselt peab teisele isikule (kannatanu) õigusvastaselt kahju tekitanud isik (kahju tekitaja) kahju hüvitama, kui ta on kahju tekitamises süüdi või vastutab kahju tekitamise eest vastavalt seadusele. Sarnaselt Saksa tsiviilkoodeksi (BGB) deliktisesele üldvastutusele tuvastatakse see ka Eestis kolmes etapis. Reeglina kontrollitakse esmalt objektiivset teokoosseisu ehk kahju tekitaja tegu, kannatanu õigushüvede kahjustamist ja nende vahelise põhjusliku seose olemasolu. Teises etapis kontrollitakse õigusvastasust ja kolmandas kahju tekitaja süü olemasolu. Kuna isejuhtiva sõidukiga kahju põhjustamisel on kõik sõidukis viibivad isikud reisijad, võib osutada probleematiliseks nii kahju põhjustamise õigusvastasuse kui ka kahju põhjustaja süü kui delikti üldkoosseisu eelduste tuvastamine.

Autor leiab, et kannatanu nõude maksmapaneku võimalikkust deliktilise üldvastutuse alusel mõjutab oluliselt see, kas kahju on talle tekitatud tavalise mootorsõidukiga või isejuhtiva sõidukiga. Kahju tekitaja süü või käibekohustuse rikkumise puudumise tõttu ei saa kannatanu üldjuhul maksta panna delikti üldkoosseisul tuginevat nõuet isejuhtiva sõidukiga põhjustatud kahju hüvitamiseks.

Autor põhjendab oma väidet järgmiselt. Isejuhtiva sõidukiga kahju põhjustamise puhul võib kahju põhjustaja *teona* käsitada isejuhtiva sõidukiga liikluses osalemist. Kannatanu õigushüveks, mida kahjustatakse, saab olla eelkõige kannatanu elu (VÕS § 1045 lg 1 p 1), tervis (VÕS § 1045 lg 1 p 2) või omand (VÕS § 1045 lg 1 p 5). Sama kehtib ka tavalise mootorsõidukiga kahju põhjustamise korral. Ka põhjusliku seose tuvastamine kahju tekitaja teo ja kannatanu kahju vahel ei ole isejuhtiva sõidukiga kahju põhjustamisel kuidagi eripärane.

Deliktilise üldvastutuse eelduste kontrollimise teises etapis tehakse kindlaks kahju tekitamise õigusvastasus. Võlaõigusseaduse § 1045 lg 2 p-d 1–4 sätestavad olukorrad, milles kahju tekitamise õigusvastasus on välistatud (nt nõusolek või hädakaitse). Tavapärase mootorsõiduki juhi poolt kahju tekitamise korral saab õigusvastasus tuleneda alternatiivselt kas kaitsenormi rikkumisest (VÕS § 1045 lg 1 p 7 koostoimes liikluseaduses sisalduva kaitsenormiga) või põhineda õigusvastaste kahju tekitamise juhtude üldisel kataloogil (VÕS § 1045 lg 1 p 1 – surma põhjustamine; § 1045 lg 1 p 2 – kehavigastuse või tervisekahjustuse põhjustamine; § 1045 lg 1 p 5 – omandi rikkumine).

Janno Lahe ja Tambet Tampuu on märkinud, et absoluutselt kaitstavate õigushüvede (s.o inimelu, tervis, omand) rikkumise korral on õigusvastasuse aluseks kahjulik tagajärg ja et seejuures pole oluline, kas kahju tekitaja rikkus ka mingit kohustust, sest õigusvastasus tuleb tagajärje ebaõigsusest. Õigusvastasuse tuvastamine ainuüksi kahjuliku tagajärje alusel ei ole siiski eranditeta reegel ka absoluutselt kaitstavate õigushüvede kahjustamise korral. Nimelt, kui absoluutselt kaitstavat õigushüve on kahjustatud tegevusetusega või on kahjulik tagajärg kahju põhjustaja käitumise kaugem tulem, tuleb kahju põhjustaja vastutusele võtmiseks leida siiski kohustus, mida viimane on rikkunud. Selleks võib olla õigusnormist tulenev kohustus või ka üldine käibekohustus.

Kui tavalise mootorsõidukiga kahju põhjustamise korral on kahju põhjustamise õigusvastasus üldjuhul tuletatav kannatanu õigushüve kahjustamisest (või loomulikult alternatiivselt lisaks ka liikluseaduse sätete rikkumisest), siis isejuhtiva sõidukiga kahju tekitamise korral on see pigem küsitav. Võiks öelda, et näiteks olukorras, kus isik viibib isejuhtivas sõidukis, mis põhjustab liiklusõnnetuse, pole see isik oma aktiivse käitumisega kannatanu õigushüve kahjustanud. Sellisel juhul ei saa ka kahju tekitamist sõidukis viibinud isiku poolt pidada õigusvastaseks ainuüksi kannatanu õigushüve kahjustamise tõttu. Tema vastutusele võtmiseks oleks seega tarvis tuvastada kohustus, mida isik on rikkunud. Eelduslikult ei saa selleks olla õigusnormist (liikluseadus) tulenev kohustus. Seega saab vastava isiku vastutus põhineda eelkõige üldise käibekohustuse rikkumisel.

Eesti kohtupraktika järgi on üldine käibekohustus ja süü element omavahel läbi põimunud, mistõttu vastates küsimusele, kas isik on rikkunud üldist käibekohustust, tuleb sisuliselt hinnata, kas isik on olnud väliselt, s.t objektiivselt

hooletu. Saksa õiguse kontekstis on leitud, et isejuhtiva sõiduki tehnika „pime usaldamine” pika aja vältel võib endast kujutada käibekohustuse rikkumist. Eesti õiguse alusel võiks selle seisukohaga nõustuda osaliselt. Isejuhtiva sõiduki omanikule või valdajale võib ette heita üldise käibekohustuse rikkumist ehk juhul, kui sõidukit nõutavatesse hooldustesse ei viida või ilmnenud vigadele ei reageerita. Enamat ei tohiks „käive” omanikult või valdajalt üldjuhul nõuda.

Kahju põhjustaja süü on deliktilise üldvastutuse kolmas põhieeldus. Süü vormid on hooletus, raske hooletus ja tahtlus (VÕS § 104 lg 2): hooletus on käibes vajaliku hoole järgimata jätmine (VÕS § 104 lg 3); raske hooletus on käibes vajaliku hoole olulisel määral järgimata jätmine (VÕS § 104 lg 4); tahtlus on õigusvastase tagajärje soovimine võlasuhte tekkimisel, täitmisel või lõpetamisel (VÕS § 104 lg 5). Olgu lisatud, et Eesti deliktiõiguses tuleb kannatanu süüd hinnata lisaks veel kahju põhjustaja isikust lähtuvalt. Võlaõigusseaduse § 1050 lg 2 sätestab, et isiku süü hindamisel arvestatakse muu hulgas tema olukorda, vanust, haridust, teadmisi, võimeid ja muid isiklikke omadusi. Võlaõigusseaduse § 1050 lg-st 1 tuleneb, et kahju põhjustaja süüd eeldatakse. See tähendab, et kahju põhjustaja, kes soovib vastutusest vabaneda, peab ise tõendama oma süü puudumist.

Isejuhtiva sõidukiga kahju põhjustamise korral võib just süü (või käibekohustuse rikkumise) puudumine olla põhjuseks, miks deliktilist üldvastutust isesõitva sõiduki omaniku või valdaja (või ka isiku, kes lihtsalt viibis liiklusõnnetuse ajal isesõitvas sõidukis) suhtes kohaldada ei saa. Näiteks juhul, kui isejuhtiv sõiduk põhjustab juhtimisprogrammi vea tõttu kahju kolmandale isikule, ei saa üldjuhul väita, et selle sõiduki omanik või valdaja oleks jätnud järgimata käibes nõutava hoolsuse või rikkunud käibekohustust. Nagu ülal märgitud, võib olukord olla teistsugune, kui sõiduk on jätud nõuetekohaselt hooldamata. Sellest hoolimata võib järeldada, et üldjuhul pole kannatanul, kellele isejuhtiv sõiduk on kahju põhjustanud, mõistlik ega perspektiivikas esitada nõuet sõiduki omaniku või valdaja vastu deliktilise üldvastutuse sätete alusel.

Eeltoodust võib järeldada, et kannatanu võimalust panna oma nõue maksma deliktilise üldvastutuse alusel mõjutab oluliselt see, kas kahju on talle tekitatud tavapärase mootorsõidukiga või isejuhtiva sõidukiga. Kirjeldatud erisus ei tekita sügavat praktilist probleemi juhul, kui kannatanu võimalused saada kahju hüvitamist on piisavalt tagatud muude instrumentidega, eelkõige riskivastutuse ja tootjavastutuse normidega.

- **Kas ja millistel kaalutlustel peaks Eesti seadusandja kehtestama liiklusseaduses eraldi deliktiõigusliku kaitsenormi seoses isejuhtivate sõidukitega?**

Saksamaa Liitvabariik on juba lisanud oma liiklusseadusesse (*Straßenverkehrsgesetz* (StVG)) isejuhtivaid sõidukeid reguleerivad sätted. StVG § 1a lg 2 loetleb tehnilised seadmed, mille olemasolu teeb sõidukist kõrge isejuhtivuse tasemega või täielikult isejuhtiva mootorsõiduki. StVG § 1a lõikest 4 tuleneb, et mootorsõiduki juhiks loetakse ka isikut, kes kõrge isejuhtivuse tasemega või täieliku isejuhtivuse režiimi sisse lülitab ja seda sõiduki juhtimiseks kasutab, isegi kui ta

ise vahetult sõidukit ei juhi. StVG §-st 1b tuleneb, et kõrge või täieliku isejuhtivuse režiimi kasutamisel peab juht siiski jääma tähelepanelikuks ja olema valmis viivitamata juhtimise üle võtma, kui süsteem palub tal seda teha või ta ise mõistab, et kõrge või täieliku isejuhtivuse režiimi kasutamiseks vajalikud eeldused pole täidetud. Tekib küsimus, kas Eesti peaks Saksamaa eeskujul sätestama oma liiklusseaduses sarnase deliktiõigusliku kaitsenormi, mis kohustaks isikut olema igal ajal valmis isejuhtiva sõiduki juhtimist üle võtma.

Autor leiab, et Saksa liiklusseaduse lahendust ei ole vaja Eestis ilmtingimata üle võtta, sest tegu on pigem vahelahendusega 1968. aasta Viini teeliikluse konventsioonist tuleneva juhi olemasolu nõude tõttu, mis ei arvesta isejuhtivate sõidukite eripäraga.

Autor põhjendab oma väidet järgmiselt. Saksa lähenemisviis tähendab tootjate jaoks seda, et neil tuleb ka täielikult isejuhtiv sõiduk disainida nii, et sellel oleks rool ja muud juhtimisseadmed ning liikluses saaks see osaleda üksnes juhiloaga inimese abil. Sarnaselt tava sõidukitele ja kõrge isejuhtivuse tasemega sõidukitele peaks ka isejuhtivas sõidukis olema juht, kes istub esiistmel ning kelle jaoks on olemas juhtseadmed, ekraanid ja näidikud, mis võimaldavad sõidukit ohutult juhtida. Samuti järeldub, et täielikult isejuhtiv sõiduk ei tohi sõita tühja.

Saksa lähenemisviis lähtub üksnes poolautomatiseeritud sõidukite eripärast. Täisautomatiseeritud ehk isejuhtivate sõidukite põhimõtteliseks erinevuseks nendega võrreldes ongi see, et inimesel pole üheski olukorras vaja neid juhtida ja seega pole ka vaja tähelepanelikuks jääda ega juhtimist üle võtta. Saksa lähenemisviisi kasutuselevõtt Eestis paneks Eesti isejuhtivate sõidukite arendajad ebasoodsasse olukorda.

Saksa seadusandja valik võtab isejuhtivatelt sõidukitelt ära nende peamised eelised ja müügiargumentid (mh nt inimlike eksimuste vähendamine, puuetega inimeste juurdepääsu suurendamine liiklusvahenditele). Ühtlasi põlistab see sõidukite praeguse disaini, mis lähtub juhi olemasolust. Saksa õiguses seadustatud lahendus võib kaasa tuua uusi probleeme, mis on seotud sõidukilt juhtimise ülevõtmise tagajärgedega ja inimese-masina vahelise suhtluse arvesse võtmisega vastutuse tuvastamisel. Kui juht on juba kord lülitanud sisse isejuhtiva režiimi, võtab käsitsi juhtimisele üleminek ikkagi teatava aja, mis võib olla õnnetuse vältimiseks liiga pikk. Samas juht ikkagi vastutab ning on kohustatud jääma valvaks ja olema valmis silmapilkselt juhtimist üle võtma. Kui isejuhtivuse 1. kuni 4. taseme ehk osalise isejuhtivuse puhul on Saksa seadusandja kehtestatud nõuded mõistetavad, siis 5. taseme ehk täielikult isejuhtivate sõidukite puhul mitte, sest need ei arvesta täielikult isejuhtiva sõiduki olemusliku erisusega – kõik sõidukis viibivad isikud on reisijad. Ilma kõnealuste säteteta saaks täielikult automatiseeritud sõidukeid disainida selliseks, et neil puuduvad salongis juhi jaoks mõeldud juhtimisseadmed.

Saksa lähenemisviisi põhjuseks võib pidada asjaolu, et Saksamaa on sarnaselt teistele Euroopa Liidu liikmesriikidele ratifitseerinud 1968. aasta Viini teeliikluse konventsiooni, mis – hoolimata täiendustest – ei võimalda juhita maanteesõidukeid kasutusele võtta. Seetõttu võib olla tegu ajutise lahendusega kuni

sõidukite täielik isejuhtivus tehnoloogiliselt saavutatakse ja konventsiooni muudetakse.

Kui Eesti soovib liiklusseaduses täpsustada juhi kohustusi kõrge isejuhtivuse tasemega sõidurežiimi kasutamise korral, siis see võib olla iseenesest põhjendatud samm. Samas, täielikult isejuhtivate sõidukite olemusega ei haaku sõidukis viibiva isiku kohustus olla igal ajahetkel valmis juhtimist üle võtma.

- **Kuidas mõjutab riskivastutuse kohaldamise eeldusi ja kohustatud subjektide ringi see, et kahju on põhjustatud isejuhtiva sõidukiga?**

Riskivastutus on süüist sõltumatu vastutus suurema ohu allikaga põhjustatud kahju eest. Nagu on märkinud H. Koziol, on see vastutus ohtlikkuse eest. Võlaõigusseaduse riskivastutuse sätted on ehitatud üles selliselt, et §-s 1056 sisaldub riskivastutuse üldkoosseis ja §-des 1057–1060 riskivastutuse erikoosseisud. Nende erikoosseisude hulgas on muu hulgas nähtud ette ka mootorsõiduki otsese valdaja riskivastutus: VÕS § 1057 näeb ette, et mootorsõiduki otsene valdaja vastutab mootorsõiduki käitamisel tekkinud kahju eest. Tekib küsimus, keda saab lugeda isejuhtiva sõiduki otseseks valdajaks.

Võlaõigusseaduse § 1056 lg 1 näeb ette suurema ohu allika valitseja riskivastutuse kahju põhjustamise eest eriti ohtlikule asjale või tegevusele iseloomuliku ohu tagajärjel. Sama paragrahvi lõike 2 kohaselt loetakse asja või tegevust suurema ohu allikaks, kui selle olemuse või selle juures kasutatud ainete või vahendite tõttu võib isegi asjatundjalt oodatava hooolsuse rakendamise korral tekkida suur kahju või võib kahju tekkida sageli. Kui asjale või tegevusele sarnase ohu allika puhul on seadusega juba ette nähtud vastutus, sõltumata allikat valitsenud isiku süüist, eeldatakse, et asi või tegevus ongi suurema ohu allikas. Isejuhtivate sõidukite kontekstis saab küsida, keda võib käsitada isejuhtiva sõiduki kui suurema ohu allika valitsejana. Kokkuvõtvalt on küsimus eelkõige selles, keda saab riskivastutuse normide alusel võtta vastutusele isejuhtiva sõiduki käitamisel tekkinud kahju eest.

Autor leiab, et riskivastutuse rakendamise aspektist ei ole vahet, kas kahju on tekitatud tavalise sõidukiga või isejuhtiva sõidukiga. Isejuhtiv sõiduk on mootorsõiduk VÕS § 1057 mõttes ja suurema ohu allikas VÕS § 1056 lg 2 mõttes. Erisused võivad tekkida kohustatud isikute osas ja need sõltuvad sellest, kas isejuhtivaid sõidukeid hakatakse omama nagu tavasõidukeid või hakkavad ettevõtjad nendega üksnes transporditeenust osutama.

Autor põhjendab oma väidet järgmiselt. Riskivastutuse korral ei ole olulised kahju tekitaja tegu ega süü. Määrav on, kas kahjulik tagajärg on põhjustatud asjale või tegevusele iseloomuliku riski realiseerumisest. Seega ei ole mootorsõiduki käitaja kui suurema ohu allika valitseja vastutusele võtmisel tähtis, kas ta rikkus liikluses osaledes liikluseeskirja või mitte või kas ta tegi seda süüliselt. Ka Eesti Riigikohus on leidnud, et suurema ohu allikaga kahju põhjustamine tähendab suurema ohu allikale iseloomuliku riski, s.o suurema ohu allikale kui asjale või tegevusele iseloomuliku kõrgendatud ohu realiseerumise tagajärjel kahju tekkimist.

Isejuhtivat sõidukit tuleb pidada mootorsõidukiks VÕS § 1057 mõttes. Seega on riskivastutuse rakendumine võimalik ka isejuhtivate sõidukitega põhjustatud kahju korral. Võlaõigusseaduse §-i 1057 kõrval on isejuhtiva sõidukiga kahju tekitamisel võimalik rakendada lisaks ka VÕS §-s 1056 sätestatud riskivastutuse üldkoosseisu.

Kohtutel on laialdane diskretsioon, millist asja või tegevust selle sätte järgi suurema ohu allikaks pidada. Isejuhtivaid sõidukeid võiks siiski üsna ilmselt pidada suurema ohu allikaiks. Omaette küsimus on, kas juhi puudumine isejuhtivas sõidukis siiski suurendab või hoopis vähendab selle ohtlikkust. Kui juht ei ole igal ajahetkel valmis sõiduki juhtimist n-ö üle võtma, et nt arvutiprogrammi vigu „parandada“, võiks juhi puudumist pidada ohtlikkust suurendavaks teguriks. Teisalt leiab põhiosa liiklusõnnetustest aset just inimlike eksimuste tõttu, mistõttu võiks juhi puudumist pidada seetõttu ka hoopis ohtlikkust vähendavaks asjaoluks. Ei saa välistada, et isejuhtivate sõidukite ohutus jõuab millalgi tasemele, kus õnnetused on pea täielikult välistatud. Sel juhul poleks ehk põhjust isejuhtivaid sõidukeid ka enam suurema ohu allikateks pidada. Seega riskivastutuse kohaldamise eelduste tasandil ei esine selliseid aspekte, mis ei võimaldaks isejuhtivate sõidukite puhul (sarnaselt traditsiooniliste sõidukitega) VÕS §-i 1057 või ka §-i 1056 kohaldada.

Riskivastutuse rakendamise kontekstis tekib küsimus, keda ikkagi saab vastutusele võtta riskivastutuse sätete alusel. Nagu ülal märgitud, saab VÕS §-i 1057 alusel võtta vastutusele üksnes mootorsõiduki otsest valdajat. Asjaõigusseaduse § 33 lg 1 sätestab, et valdaja on isik, kelle tegeliku võimu all asi on. Sama paragrahvi lõige 2 sätestab, et isik, kes valdab asja rendi-, üüri-, hoiu-, pandi- või muu selletaolise suhte alusel, mis annab talle õiguse teise isiku asja ajutiselt vallata, on otsene, teine isik aga kaudne valdaja. Riigikohtu praktika järgi on VÕS §-i 1057 järgi vastutav eelkõige isik, kellel on tegelik võim (olgu seaduslikul alusel või mitte) mootorsõiduki üle, ehk isik, kes sõidukit kontrollib, st otsustab, kuhu ja millal sõiduk liigub, kannab sõidukiga seotud kulusid ja majanduslikke riske ning saab selle kasutamisest kasutuseeliseid. Näiteks Saksa StVG § 7 kontekstis saab mootorsõiduki pidajaks (*Fahrzeughalter*) pidada füüsilist või juriidilist isikut, kes omab sõiduki suhtes käsutusõigust ja kes seda oma äranägemise järgi kasutab. Mootorsõiduki pidaja kannab sõidukiga seotud kulud ja saab vastu sõidukist tuleneva kasu.

Vastus küsimusele, keda saab VÕS § 1057 alusel vastutusele võtta, sõltub seega olulisel määral sellest, kuidas isejuhtivaid sõidukeid realselt kasutama hakatakse. Kui tulevikus peaks isejuhtivate sõidukite ostmise-müümine toimuma samal viisil nagu traditsiooniliste sõidukite puhul praegu, siis üldjuhul saab isejuhtiva sõiduki omandanud isik olema ka selle otseseks valdajaks. Samas on aga ka võimalik, et isejuhtivate sõidukitega hakkavad äriühingud osutama lihtsalt transporditeenust ja üksikisikud neid ei omanda. Selline teenus saab sarnaneda tavapärasele taksoteenusele. Juhul, kui sellise transporditeenuse osutamise ajal põhjustab isejuhtiv sõiduk liiklusõnnetuse, tekib küsimus, kes oli õnnetuse toimumise hetkel selle sõiduki otsene valdaja. Võiks väita, et kuna ka traditsioonilise taksoteenuse klient ei muutu teenuse saamise ajal sõiduki otseseks

valdajaks, ei juhtu seda ka isejuhtiva sõiduki puhul. See tähendab, et teenust saav isik kahju põhjustamise eest VÕS §-i 1057 alusel ei vastuta. Vastutav on eelkõige transporditeenust osutav äriühing. Seejuures ei ole oluline, kas vastav äriühing on selle kahju põhjustanud sõiduki omanik, või valdab seda ta seda sõidukit nt üürilepingu alusel. Viimasel juhul on sõiduki omanik selle sõiduki kaudseks valdajaks, kelle suhtes VÕS § 1057 samuti ei kohaldu.

Mootorsõiduki juht ei ole alati siiski käsitatav sõiduki otsese valdajana. Nimelt sätestab AÕS § 33 lg 3, et valdajaks ei ole isik, kes teostab tegelikku võimu asja üle teise isiku korralduste kohaselt tema majapidamises või ettevõttes. Selliseks nn valduse teenijaks on nt ettevõtja töötaja, kes täidab tööandja sõidukiga tööandja poolt antud ülesandeid. Põhimõtteliselt võib ka isejuhtiva sõiduki puhul olla nii, et töötaja täidab sellega teatud tööülesandeid. Sellisel juhul ei ole vastava töötaja suhtes kohaldatav ka VÕS § 1057. Samas võib valduse teenija vastutada siiski süül põhineva deliktalise vastutuse sätete järgi. See ei pruugi siiski osutada praktikas realiseeritavaks, sest üldjuhul langeks töötaja vastutus ära tema süü puudumise tõttu.

Nagu eespool märgitud, sisaldab VÕS lisaks ka nn riskivastutuse üldkoosseisu. Tegemist on paindliku lahendusega, mis võimaldab kohtutel operatiivselt „ajaga kaasas käia“, lugedes suurema ohu allikaks nt uusi tehnoloogiaid, mille ohutus ei ole veel piisavat tõendust leidnud. Riskivastutuse üldkoosseisu alusel saab võtta vastutusele suurema ohu allika valitsejat. Seejuures tuleks märkida, et võlaõigusseaduse § 1056 lg-s 1 nimetatud suurema ohu allika valitseja mõiste ei kattu mootorsõiduki otsese valdaja mõistega VÕS § 1057 järgi. Seega ei ole välis- tatud, et isejuhtivas sõidukis viibiv isik (nt töötaja), kes ei kvalifitseeru mootor- sõiduki otseseks valdajaks VÕS § 1057 järgi, on samas siiski käsitatav suurema ohu allika valitsejana VÕS § 1056 lg 1 mõttes. Kuigi Eesti kohtupraktikas ei ole see seisukoht veel otsest kinnitust leidnud, annab selliseks aruteluks alust Riigi- kohtu lahend, kus kohus leidis, et suurema ohu allika valitsejaks § 1056 lg 1 järgi võib pidada hobusega sõitvat isikut, kes samal ajal ei ole loomapidaja VÕS § 1060 mõttes. Samamoodi ei peaks tingimata olema välistatud käsitada suurema ohu allika valitsejana sõiduki omanikku, kes ei ole selle otsene valdaja. Vastav küsimus võib tõusetuda nt otsese valdaja maksejõuetuse korral. Eeltoodud aru- telust suurema ohu allika valitseja mõiste üle ei tohiks siiski teha järeldust, et isejuhtiva sõiduki valitsejaks VÕS §-i 1056 mõttes saaks pidada ka transpordi- teenust saavat isikut. Ajutise teenuse saamine ei anna isikule mingit õigust ega võimalust isejuhtivat sõidukit valitseda.

- **Millistel juhtudel tuleks viga isejuhtiva sõiduki tarkvaras või kasu- tatavates digitaalsetes teenustes lugeda isejuhtiva sõiduki puuduseks?**

Võlaõigusseaduse § 1063 lg 1 kohaselt loetakse tooteks iga vallasasja, isegi kui see on osaks teisest vallasasjast või on saanud kinnisasja osaks, samuti elektrit ja arvutitarkvara. Kui 30–40 aastat tagasi olid mittekehalise või teenuse kompo- nendiga tooted keskmise tarbija jaoks veel võrdlemisi uus nähtus, siis tänapäeva tooted on üha enam läbipõimunud tarkvara ja teenustega. Tänu tarkvara, riistvara



ja teenuste kombineerimisele saab isejuhtivus üleüldse võimalikuks. Tarkvara asendab inimese otsustusmehhanisme, samas kui andurid asendavad tema meeli. Võlaõigusseaduse § 1063 lg 1 aluseks olevas direktiivi 85/374/EMÜ artiklis 2 arvutitarkvara ja teenuseid sõnaselgelt ei nimetata. Ainus mittekehaline toode, millele direktiivi artikkel 2 viitab, on elekter. Seega VÕS § 1063 lg 1 laiendab direktiiviga võrreldes toote mõistet. Teenustele VÕS § 1063 lg 1 ega direktiivi 85/374/EMÜ artikkel 2 ei viita.

Viga isejuhtiva sõidukit tarkvaras või kasutatavas teenuses võib aga viia isejuhtiva sõidukiga kahju põhjustamiseni. Tarkvaravea tõttu võib isejuhtiv sõiduk valesti tõlgendada ümbritsevas keskkonnas toimuvat või reageerida sellele ebaadekvaatselt ja seeläbi põhjustada liiklusõnnetuse. Tarkvara turvanõrkust ära kasutades võib kolmas isik isejuhtiva sõiduki „üle võtta“ ja sellega tahtlikult kahju tekitada. Isejuhtiva sõiduki tarkvara turvalisuse tagamine on olemuselt pidev protsess, mis kestab seni kuni sõidukit kasutatakse.

Isejuhtiv sõiduk ei saa eeldatavasti hakkama ka muude oluliste digitaalsete teenusteta: ta peab muu hulgas suutma „suhelda“ teiste liiklejate ja liiklusmärkidega, olema kursis ilmastikutingimustega, ümbruskonnas orienteeruma, teadma oma asukohta ümbritseva suhtes ülisuure täpsusega. Kui mõni taoline oluline teenus ei toimi, ei pruugi sõiduk kohaselt funktsioneerida. Kui isejuhtiv sõiduk disainitakse selliselt, et selle ohutu funktsioneerimine sõltub teatavast teenusest (nt operaatoriteenus, liikluskorraldusteenus, lokaalse positsioneerimise teenus vms), ent selles teenuses esineb tõrge või teenus annab isejuhtivale sõidukile eksitavat sisendit, võib sõiduk samuti valesti tõlgendada ümbritsevas keskkonnas toimuvat või reageerida sellele ebaadekvaatselt ja seeläbi kahju põhjustada.

Autor leiab, et kui kahju põhjuseks on viga isejuhtiva sõiduki tarkvaras või kasutatavates digitaalsetes teenustes, tuleb seda lugeda isejuhtiva sõiduki kui toote puuduseks.

Autor põhjendab oma väidet järgmiselt. Puudusega toote legaaldefinitsioon on esitatud VÕS § 1063 lg-s 2. Üldjoontes on toode puudusega, kui see ei ole ohutu määral, mida isik on õigustatud ootama. Samas tuleb arvestada kõiki asjaolusid, muu hulgas näiteks toote avalikkusele esitlemise viisi ja tingimusi, toote kasutusviisi, mida kannatanu võis mõistlikult eeldada, ning toote turule laskmise aega. Kõnealuses sättes esitatu puhul pole tegu ammendava loeteluga. Võlaõigusseaduse vastavate sätete aluseks oleva direktiivi 85/374/EMÜ kuuendas põhjenduspunktis täpsustatakse, et õigustatud ootuse mõõdupuuks on seejuures üldsuse põhjendatud ootused.

Ohutuse hindamisel peab Euroopa Liidu Kohtu selgituste kohaselt võtma arvesse muu hulgas toote otstarvet, objektiivseid omadusi ja selle kasutajarühma nõudeid, kellele toode on mõeldud. Arvestades, et isejuhtivas sõidukis reisija usaldab sõidukile oma elu ja tervise ning suurema ohu allikana kujutab isejuhtiv sõiduk objektiivselt võimalikku ohtu teiste liiklejate elule ja tervisele ning ümbritsevale varale, on üldsuse ootused isejuhtivate sõidukite suhtes iseäranis kõrged. Tootja vastutust tingiv ohutuse puudumine võibki seisneda erakordselt suures kahjus, mida toode isikule põhjustada võib.

Isejuhtivate sõidukite avalikkusele esitlemise viisi ja tingimuste, kasutusviisi ja turule laskmise teemal saab vaid spekuloida. Küll aga on võimalik juba praegu arutleda isejuhtivate sõidukite otstarbe, objektiivsete omaduste ja võimalike kasutajarühmade nõuete üle. Teedel kasutamiseks mõeldud mootorsõidukite peamine otstarve on vedada kaupu ja inimesi. Tavasõidukite puhul on selleks vaja juhti, kes on läbinud vastava kategooria mootorsõiduki juhtimise koolituse ja kelle liiklusalaste teadmiste ja oskuste piisavuses on veendunud (juhiluba). Sellest hoolimata on inimlikud eksimused liiklusõnnetuste peamine põhjus. Isejuhtivatest sõidukitest loodetakse sellele probleemile lahendust. Seega nende pakutav peamine otstarve võiks seisneda kaupade ja inimeste ohutus automatiseeritud veos lähtekohast sihtkohta.

Arvestades füüsikaseadusi, eelkõige sõiduki massi ja liikumiskiirust, kujutab ka isejuhtiv sõiduk endast teistele liiklejatele suurema ohu allikat. Kui tava-sõidukit valitseb juht, siis isejuhtiva sõiduki puhul asendavad juhti arvukad seadmed ja tarkvara. Võlaõigusseaduse § 1603 lõikes 1 loetakse tooteks sõnaselgelt ka tarkvara. Tarkvarale kui mittekehalisele tootele on iseloomulik see, et see pole algsel kujul reeglina lõplik ja seda on võimalik ja enamasti lausa vajalik täiendada. Täiendamise vajalikkus tuleneb sellest, et täiesti veatut tarkvara ei ole võimalik valmistada. Samuti areneb tehnoloogia pidevalt, mistõttu algne lahendus võib hiljem osutuda mingil põhjusel mittesoovitavaks. Isejuhtiv sõiduk kui toode on mõeldud kasutamiseks eeldatavasti pikema perioodi jooksul. Isejuhtiva sõiduki tarkvaral on palju kriitilise tähtsusega funktsioone, mille toimimisest sõltub sõiduki ohutus. Muu hulgas on väga tähtis sõiduki tarkvara turvalisus, mille tagamiseks on tarkvara vaja pidevalt täiustada. Tarkvarakomponendi töökorras oleku tagamine on seega olemuslikult protsess ehk teisisõnu on selle puhul tegu toote sisemise teenuse komponendiga. Kui isejuhtiv sõiduk disainitakse nii, et selle ohutu toimimine sõltub lisaks sisemisele teenuse komponendile ka teatud välise teenuse kättesaadavusest või toimimisest, tuleb ka selles teenuses esinevat viga käsitleda isejuhtiva sõiduki puudusena. Liiklejatel on õigus eeldada, et isejuhtiv sõiduk ei põhjusta kahju ka olukorras, kus selle jaoks oluline teenus lakkab toimimast või tõrgub.

- **Kas ja millises ulatuses on põhjendatud nn arendusriski kaitseklausli alusel isejuhtivate sõidukite tootjate vabastamine vastutusest?**

Tootja vastutus puudusega isejuhtiva sõiduki eest ei ole kehtiva õiguse alusel absoluutne. Võlaõigusseaduse § 1064 lg 1 p 5 võimaldab vabastada tootja vastutusest, kui ta tõendab, et puudust ei saanud avastada toote turule laskmise ajal tollaste teaduslike ja tehniliste teadmiste taseme järgi. Vastav säte on mõeldud soodustama innovatsiooni. See säte tuleneb direktiivi 85/374/EMÜ artikli 7 punktist e. Kui Euroopa seadusandjal oli algne plaan kehtestada tootjavastutus riskivastutusena, siis lõpuks lisati direktiivi siiski tootja riskivastutust piirav arendusriski kaitse. Sarnaselt enamikule liikmesriikidele on Eesti direktiivi kõnealuse sätte riigisisesele õigusele eranditeta üle võtnud.

Isejuhtivate sõidukite puhul on aga mõjutatud isikud (s.o liiklejad) võrreldes näiteks ravimite tarbijatega erinevas olukorras. Ka isejuhtivaid sõidukeid arendatakse muu hulgas sooviga säästa inimeste elu ja tervist. Kui aga näiteks vaktsiini manustamine mõjutab otseselt vaid isikut, kellele ravimit või vaktsiini manustatakse, ja kaitseb kaudselt ka kolmandaid isikuid patsiendil väljakujuneva immuunsuse kaudu, siis isejuhtiv sõiduk on ja jääb oma füüsiliste omaduste ja füüsikaseaduste tõttu siiski suurema ohu allikaks, millel on võime kahjustada kolmandate isikute (liiklejate) elu, tervist ja vara.

Arendusrisiki kaitseklausliga sooviti soodustada innovatsiooni tootjate riskide vähendamise teel seeläbi, et tootjad saavad kulukate kindlustuslepingute sõlmimise asemel suunata vabanevaid vahendeid tootearendusse. Klausli vastased aga leidsid, et uute toodete väljatöötamisega seotud riskide asetamine kannatanute õlule ei ole õiglane. Samas leidub autotootjaid, kes on avalikult teatanud valmisolekust kahju korral vabatahtlikult vastutus võtta.

Autor leiab, et võlaõigusseaduse § 1064 lg 1 p-s 5 sätestatud arendusrisiki kaitseklausel võimaldab põhimõtteliselt vastutuse õiglast jaotamist. Selle erandi ulatuslik kohaldamine isejuhtivate sõidukite puuduste korral pole aga mõistlik, sest nii kaotaks tootja vastutust reguleeriv õigus uuenduslike tehnoloogiate kontekstis suuresti mõtte.

Autor põhjendab oma väidet järgmiselt. Täielikult puudusteta tarkvara ei ole võimalik teha ja võib oletada, et ei leidu ühtki tarkvaraarendajat, kes oleks nõus garanteerima, et tema tarkvara on puudusteta. Ka isejuhtiva sõiduki tarkvaras võib olla nõrkusi, mille kaudu pääseb nt kurjategija selle süsteemidele ligi ja saab põhjustada märksa mastaapsemat kahju kui üksiku tavasõiduki puhul. Tarkvara turvalisuse tagamine on katkematu protsess, mis nõuab pidevat täiendamist ning arendus- ja parendustegevust. Turvanõrkus ei pruugi seejuures ilmned a isejuhtiva sõiduki turule laskmise ajal, vaid aastaid hiljem. Seda võimalikku stsenaariumi silmas pidades võiks arendusrisiki kaitset ka isejuhtivate sõidukite kontekstis lugeda teatud ulatuses põhjendatuks.

Samas ei saa eirata tõika, et ohud, mis lähtuvad toodetest, mis ei ole käsitletavad suurema ohu allikana, ei ole samaväärsed ohtudega, mis ähvardavad isikuid (liiklejaid) suurema ohu allikate (sh isejuhtivate sõidukite) korral. Kui näiteks vaktsiini puhul ohustavad selle puudused ennekõike isikut, kellele vaktsiini manustatakse, siis puudustega isejuhtiv sõiduk on massi ja liikumiskiirust silmas pidades paratamatult teatavaks ohuks ümberkaudsetele liiklejatele – sh neile, kes ise sõidukit ei kasuta – ja ümberkaudsele varale.

Tootja vastutusele võtmisel isejuhtivate sõidukite või nende osade puudustest tekkinud kahju korral on võtmeküsimuseks eelkõige see, kuidas rakendada VÕS § 1064 lg 1 p-i 5. Teisisõnu on küsimus selles, kui ulatuslikuks kujunevad tootjate võimalused tõendada, et isejuhtiva sõiduki puudust ei saanud avastada tollaste teaduslike ja tehniliste teadmiste taseme järgi. Ei saa välistada võimalust, et isejuhtivate sõidukite puhul on kohtud varmamad kohaldama VÕS § 1064 lg 1 p-st 5 tulenevat vastutuse välistust, et tehnoloogia arengut mitte pidurdada. Mõistlikuks ei saa aga pidada selle erandi liiga ulatuslikku kohaldamist ise-

juhtivate sõidukite puuduste korral, sest vastasel korral kaotaks tootja vastutuse regulatsioon uuenduslike tehnoloogiate kontekstis suuresti oma mõtte.

Olgu lisatud, et mitte kõik Euroopa Liidu liikmesriigid pole arendusriski klauslit oma õigusesse täies ulatuses ütle võtnud. Nagu eespool osutatud, on ka autotootjate seas neid, kes on väljendanud valmisolekut minna täielikult riski-vastutuse teed ja loobuda arendusriski klauslile tuginemise võimalusest.

Sarnaselt riskivastutusele on ka tootjavastutuse välistumise korral võimalik võtta tootja vastutusele deliktilise üldvastutuse alusel (VÕS § 1061 lg 5). Samas, kui tootjavastutuse regulatsioon ei rakendu nt VÕS § 1064 lg 1 p-i 5 tõttu, võimaldab see asjaolu tootjal hõlpsalt ka tõendada, et ta ei olnud kahju põhjustamises süüdi ja vastutusest ikkagi vabaneda.

- **Kuidas hinnata isejuhtivate sõidukite käitamisriski suurust ja jagada vastutust isejuhtiva sõiduki osalusel toimunud vastastikuse kahju tekitamise (liiklusõnnetuse) korral arvestades, et isejuhtiva sõiduki puhul ei saa kahjuhüvitise vähendamisel juhi käitumist arvesse võtta?**

Liikluses tuleb igapäevaselt ette olukordi, kus mootorsõidukitega põhjustatakse vastastikku kahju. Eestis puudub eraldi õigusnorm sellises olukorras vastutuse jagamise kohta. Samas võimaldab kahjuhüvitist lõpptulemusena korrigeerida üldine kahjuhüvitise vähendamise norm VÕS § 139 lg 1, milles sätestatakse, et kui kahju tekkis osaliselt kahjustatud isikust tulenevatel asjaoludel või ohu tagajärjel, mille eest kahjustatud isik vastutab, vähendatakse kahjuhüvitist ulatuses, milles need asjaolud või oht soodustasid kahju tekkimist. Võlaõigusseaduses lähtutakse niisiis põhimõttest, mille järgi vastutavad – eelkõige VÕS § 1057 alusel – mootorsõidukitega vastastikku kahju tekitanud isikud üksteisele kahju põhjustamise eest täies ulatuses, kuid kummagi osapoolle kahjuhüvitist saab täpsustada VÕS § 139 lg 1 alusel ehk kahjuhüvitist saab vähendada kannatanu osa tõttu kahju tekkimises.

Võlaõigusseaduse § 139 järgi saab kahjuhüvitise vähendamisel arvestada nii mootorsõiduki käitamisriskist lähtuvaid kui ka sõidukijuhtide käitumist iseloomustavaid asjaolusid. Mootorsõiduki käitamisriski arvestamine on kantud ideest, et kui isik juba asub mootorsõidukiga liikluses liiklema ehk n-ö siseneb ohtlikku olukorda, on ainuüksi see piisavaks aluseks kahjuhüvitise teatud ulatuses vähendamisel. Käitamisriski raames saab eristada üldist käitamisriski ja erilist käitamisriski. Üldine käitamisrisk tuleneb muu hulgas näiteks sõiduki massist, mõõtudest, liikumiskiirusest, tehnilisest korrasolekust ja ohutusvarustusest, samas kui eriline käitamisrisk lähtub manöövri objektiivsest iseloomust ja ohtlikkusest. Lisaks käitamisriskile on vastutuse jagamisel oluline hinnata ka õnnetuses osalenud isikute käitumist, eelkõige käibes vajaliku hoolsuse järgimata jätmist ja liiklusnõuete eiramist. Käitamisriski ja juhtide käitumise pinnalt pannaksegi kokkuvõttes paika see, millises ulatuses kummagi õnnetuses osaleja kahjuhüvitist VÕS § 139 lg 1 alusel vähendada tuleb.

Isejuhtivate sõidukite puhul tekib esmalt küsimus, kuidas üldse hinnata nende käitamisriski suurust. Argumenteerida saab nii ühes kui ka teises suunas. Saab

väita, et isejuhtivate sõidukite käitamisrisk peaks olema võrreldes tavasõidukitega suurem, kuna neid juhib üksnes arvutiprogramm ja inimesel sisuliselt puudub võimalus arvutiprogrammi vigu „parandada“. Teisalt võib aga ka väita, et isejuhtiva sõiduki käitamisrisi tuleks lugeda hoopis väiksemaks, sest isejuhtivad sõidukid ei põhjusta kahju inimlike eksimuste tõttu ja hoiduvad kahju põhjustamisest niivõrd kuivõrd see on füüsikareeglite järgi võimalik. On selge, et isejuhtivate sõidukite puhul ei ole kahjuhüvitise vähendamisel võimalik vahe- tult arvestada juhi käitumisega ehk sellega, kas juht rikkus liiklusnõudeid. See näib tekitavat peamise probleemi kahjuhüvitiste õiglasel jagamisel.

Autor leiab, et vastutuse õiglane jagamine liiklusõnnetuse toimumisel eeldab seda, et ka isejuhtiva sõiduki osalusel toimunud õnnetuse korral arvestatakse liiklusõnnetuse toimumise asjaolusid. Kuna „juhist“ ja tema süülisest käitumisest on isejuhtivate sõidukite puhul keeruline rääkida, tuleb nende puhul hinnata siiski seda, kas isejuhtiv sõiduk rikkus liiklusnõudeid ja mis ulatuses mõjutas see rikku- mine liiklusõnnetuse toimumist.

Autor põhjendab oma väidet järgmiselt. Riigikohus on leidnud, et kui selgub, et mõlemad juhid rikkusid liiklusseaduses sätestatud ohutu liiklemise nõudeid ja nende osalus liiklusõnnetuses oli – arvestades nii nende käitumist kui ka nende sõidukitest lähtuvaid käitamisriske – enam-vähem võrdne, on kohtul alust VÕS § 139 lg 1 järgi vähendada kannatanule mõistetavat varalise kahju hüvitist eel- duslikult 50%. Riigikohus on samuti asunud seisukohale, et kui ühe liiklusõnne- tuses osaleja osalus õnnetuse põhjustamises oli suurem kui teisel, tuleb seda VÕS § 139 lg 1 alusel hüvitise vähendamisel arvestada. Ühe osapoolle võimalikku liiklusseaduse rikkumist saab teise osapoolle kahjuhüvitise suuruse määramisel hinnata, sest sellest sõltub viimatinimetatu enese rikkumise olulisus.

Olukorras, kus vastastikku on tekitanud kahju kaks isejuhtivat sõidukit, ei saa sõidukis viibinud isikute rikkumisi arvesse võtta. Seega oleks üheks lahenduseks see, et kuna isejuhtivate sõidukite käitamisrisk on eelduslikult võrdne ning juhtide käitumist arvestada ei saa, tuleks alati – sõltumata liiklusõnnetuse toimumise asjaoludest – vähendada kummagi osapoolle hüvitist 50%. See aga ei tundu õiglane lahendus. Pigem võiks väita, et ka isejuhtivate sõidukitega vastastikuse kahju tekitamise korral on kahjuhüvitise jagunemise üle otsustamisel mõõdapäasmatu hinnata siiski liiklusõnnetuse toimumise asjaolusid. See tähendab, et juhi käitu- mise asemel tuleb hinnata seda, kas isejuhtiv sõiduk järgis liiklusnõudeid. Kui õnnetuse põhjustas programmeerimis- või anduri viga ühes isejuhtivas sõidukis, mistõttu see näiteks ei andnud teed peateel liikuvale teisele sõidukile, oleks õig- lane lahendus selline, mille järgi peateel liikunud sõiduki omanik saaks siiski kogu kahju või põhiosa kahjust hüvitatud. Seega väärib kaalumist lahendus, mille järgi kahjuhüvitise vähendamise kontekstis saab isejuhtiva sõiduki poolt liiklus- reeglite järgimist hinnata analoogselt juhi käitumisega.

Kui vastastikku põhjustavad kahju isejuhtiv sõiduk ja tavasõiduk, on kahju- hüvitise jagamisel samuti võimalik kaaluda kaht alternatiivi. Ühe võimalusena võib – sarnaselt eelkirjeldatule – lisada isejuhtivale sõidukile kujuteldava juhi ja küsida, kas sel konkreetselt viisil kahju põhjustamine kujutanuks endast liiklus- seaduse nõuete rikkumist ja kui raske see rikkumine olnuks võrreldes teise osa-

poole rikkumisega. Näiteks kui isejuhtiv sõiduk on põhjustanud kahju viisil, mis tavasõiduki puhul kujutaks endast juhi rasket eksimust (nt sõidab keelava fooriga ristmikule), tuleks vähendada isejuhtiva sõiduki omaniku kahjuhüvitist nullini ning kannatanule hüvitada kahju täies ulatuses. Kui liiklusnõudeid „rikkusid“ mõlemad sõidukid, tuleks hinnata kummagi rikkumise mõju ja tähtsust õnnetuse toimumisele. Teine võimalus on hinnata isejuhtivate sõidukite käitamisriski lihtsalt oluliselt suuremaks võrreldes tavapäraste mootorsõidukitega, kuid tuleb mõõnda, et üksikjuhul õiglase lõplahenduse leidmine eeldab siiski õnnetuse asjaolude arvesse võtmist.

Kokkuvõtvalt võib öelda, et kuigi vastutuse õiglase jagamine isejuhtiva sõidukiga ja tavasõidukiga kahju vastastikusel põhjustamisel eeldab VÕS § 139 rakenduspraktika teatavat kohandamist, ei ole see kohtupraktika kujundamisel eeldatavasti ülemäära keeruline ülesanne.

## **PUBLICATIONS**

## CURRICULUM VITAE

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**Career**  
1994–... entrepreneur

### Education

2016–... Doctoral studies, Information Technology Law, School of Law,  
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2015–2016 MA in Information Technology Law, School of Law,  
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2007–2009 MA in Law, Faculty of Law, University of Tartu, Estonia  
2003–2007 BA in Social Sciences (law), Faculty of Law, University of  
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2007 Salzburg Summer School on European Private Law, University  
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2000–2001 Applied MA in Conference Interpreting, Faculty of Philosophy,  
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1996–2000 *Baccalaureus artium* in English Language and Literature  
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### Publications

Strict Liability for Damage Caused by Self-driving Vehicles: the Estonian  
Perspective. *Baltic Journal of Law & Politics* (2019) 12/2, pp 1–18.  
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2007 Euroopa eraõigus, Salzburgi suveülikool, Salzburgi Ülikool, Austria  
2000–2001 konverentsitõlke kutsemagister, filosoofiateaduskond, Tartu Ülikool  
1996–2000 *baccalaureus atrium*, inglise keel ja kirjandus (põhieriala), kirjalik ja suuline tõlge (kõrvaleriala), filosoofiateaduskond, Tartu Ülikool

### Publikatsioonid

Strict Liability for Damage Caused by Self-driving Vehicles: the Estonian Perspective. *Baltic Journal of Law & Politics* [*Riskivastutus isejuhtiva sõidukiga põhjustatud kahju eest Eesti näitel*] kd 12/2 (2019), lk 1–18.  
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## DISSERTATIONES IURIDICAE UNIVERSITATIS TARTUENSIS

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