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Attributing Liability for Autonomous Vehicles: EU Multi-Level Approaches and Implications for Vietnamese Law

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Abstract: Autonomous vehicles (AVs) call into question the driver-centered premises of road traffic liability, as the task of driving becomes a distributed, socio-technical process involving software, sensors, updates, connectivity, infrastructure, and (sometimes) remote supervision. This article offers a doctrinal comparative analysis of how liability can be attributed across three axes, civil, administrative, and criminal, when accidents occur where there are higher levels of automation. It argues that the European Union does not (and need not) rely on a single AV liability code. Instead, EU law combines an insurance-first, victim-compensation logic with the modernization of product liability for software-enabled harms and a risk-based regulatory style that imposes documentation, post-market, and safety-management duties on upstream actors. Using Germany, France, and the Netherlands as illustrative models, the article maps Vietnamese law through the same framework. It shows that Vietnam already embodies a strong victim-protection baseline through strict "source of extraordinary danger" doctrines and is developing more stringent product responsibility tools. At the same time, Vietnam faces persistent mismatch risks in evidentiary access, cyber incident attribution, and the calibration of criminal accountability. The article concludes with a direction of reform, modified as appropriate for Vietnam, that preserves rapid compensation while structuring recourse, data governance, and controlled piloting.

Keywords: autonomous vehicles, liability allocation, compulsory motor insurance, product liability, Vietnam-EU comparative law

1. Introduction

While AVs are often discussed in terms of a technological leap forward, their most disruptive legal effect lies in how they reconfigure the basic grammar of road traffic responsibility. For over a century, accident law has treated driving as a human activity for which blame can be apportioned, insurance provided, and deterrents and prohibitions put in place. Higher levels of automation complicate this picture, since harm may be caused by a composite of machine perception, software inference, update management, connectivity, and organizational decisions about deployment, oversight, and operational design. The familiar binary system of "driver fault" versus "unavoidable accident" becomes less informative, while the social expectation of swift compensation remains unchanged. European legal debates are instructive not because the EU has produced a single model statute on AV liability, but because it has treated the problem as a multi-level design question. At the EU level, the baseline is primarily structured around two stable logics: (1) victim

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protection through compulsory motor insurance and loss-spreading, and (2) upstream accountability through product safety and product liability techniques that increasingly recognize software-enabled risks.[1] At the same time, Member States remain central to operational attribution as they define when the automated driving system is legally "in control," which human role (if any) is required to monitor, and what evidence architecture supports ex post reconstruction. The diversity of national solutions is not merely a fragmentation problem; it serves as a policy laboratory that reveals different ways to align compensation, deterrence, innovation, and legal certainty.

Vietnam enters this debate from a different starting point. It is often assumed that jurisdictions without large-scale, commercial AV deployment must first catch up in legislative terms. Vietnamese private law already embodies strong risk-allocation intuition through strict liability for hazardous sources, and Vietnam's recent consumer protection reforms strengthen product responsibility tools directly relevant to AV-caused harm.[2] These features position Vietnam not only as a policy-taker, but also as a practical comparative reference point, where Vietnam's doctrinal commitment to swift victim compensation highlights an enduring normative anchor that many European discussions share, even when the doctrinal pathways differ. At the same time, Vietnam faces distinctive "mismatch risks" if AVs arrive under current frameworks. Vietnam can draw several lessons from the EU's multi-level approach to AV liability. The European experience demonstrates the value of combining rapid victim compensation with clear avenues of upstream accountability. By observing how EU jurisdictions integrate compulsory insurance with product liability and targeted safety regulations, Vietnam can anticipate potential gaps and overlaps in its own regime. For example, Europe's diversity of national solutions offers Vietnam concrete models for balancing innovation and safety, showing that it is possible to encourage AV development (through controlled pilot programs and regulatory sandboxes) while still maintaining strong protection for accident victims. Vietnam can leverage these insights to craft a legal framework that avoids known pitfalls (such as evidentiary barriers or unclear responsibility gaps) and aligns with international best practices, rather than reinventing the wheel.

Methodologically, this article adopts a doctrinal, comparative approach, examining primary legal sources (statutes, directives, regulations, and case law) and scholarly commentary across jurisdictions. It relies on the EU's legal instruments (such as the Product Liability Directive and Motor Insurance Directive) and the illustrative national laws of Germany, France, and the Netherlands, juxtaposing them with Vietnamese civil, administrative, and criminal liability rules. Comparative analysis identifies functional equivalents and divergences, highlighting areas where Vietnam's legal framework converges with or departs from European approaches.

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1 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; Directive (EU) 2024/2853 of the European Parliament and of the Council of 23 October 2024 on liability for defective products (repealing Council Directive 85/374/EEC).

2 For Vietnam's developing smart vehicle governance baseline and the relevance of product responsibility reforms, see reporting on the Law on Road Traffic Safety and Order (in force: January 1, 2025) and the classification of smart vehicles into five levels.

2. Autonomous Vehicles Levels and Liability Architecture

2.1. Definition of AVs and Automation Levels

An autonomous vehicle (AV) is a vehicle equipped with an Automated Driving System (ADS), capable of controlling driving with minimal or no human intervention. The Society of Automotive Engineers (SAE) has defined six levels of driving automation, from Level 0 (no automation) up to Level 5 (full automation).[3] Only vehicles at SAE Level 3 and above are considered "self-driving" or autonomous, since at Level 3, the system can perform the task of driving under certain conditions, and higher levels entail even greater autonomy and less human control.[4] At Level 3 (Conditional Automation), the human driver is still expected to serve as a fallback and take over when the ADS so requests or when obvious system limits are reached. By Level 4 (High Automation), the vehicle can operate on its own within its defined operational design domain (ODD), without expecting a human to intervene, effectively making the human a passive occupant (sometimes termed a "technical supervisor" rather than a driver). Finally, Level 5 (Full Automation) envisions a vehicle capable of self-driving under all road and environmental conditions, with no human driving role at all.

2.2. Liability Architecture for Autonomous Vehicles

2.2.1. Civil Liability

When an autonomous or highly automated vehicle causes harm, civil liability remains the primary channel for victim compensation and the subsequent allocation of accident-related costs among the relevant actors.

Tort-based liability. Traditionally, traffic accidents have been governed by tort law principles of fault or negligence. However, many legal systems modify or replace fault-based rules with strict liability for motor vehicles, given that vehicles are inherently hazardous instrumentalities.[5] The policy behind such strict liability schemes is to distribute the risks connected with using advanced but dangerous technology among those who operate or benefit from it, and to compensate victims swiftly. On the other hand, if a human operator of an AV can be shown to have been negligent (for instance, by misusing the technology or failing to take over control when required at Level 3), traditional fault-based liability may still apply. In practice, jurisdictions are grappling with how these principles should be modified as human control diminishes.[6]

Product liability. Most jurisdictions have established product liability regimes that hold manufacturers strictly liable for harm caused by defective products, without requiring the victim to prove negligence.[7] This means that if an ADS or any component

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3 Debbie Hopkins and Tim Schwanen, "Talking about Automated Vehicles: What Do Levels of Automation Do?," *Technology in Society* 64 (2021): 101488, https://doi.org/10.1016/j.techsoc.2020.101488.

4 Michael A. Gerber, Ronald Schroeter, and Bonnie Ho, "A Human Factors Perspective on How to Keep SAE Level 3 Conditional Automated Driving Safe," *Transportation Research Interdisciplinary Perspectives* 22 (2023): 100959, https://doi.org/10.1016/j.trip.2023.100959.

5 Ibid.

6 Hopkins and Schwanen, "Talking about Automated Vehicles."

7 Sara Vanetta, Christian M. Theissen, and Isabelle Peltier, "Navigating Product Liability in High-Security Sectors: Addressing AI-Driven Risks under German and European Law," White & Case LLP, December 16, 2025,

of an AV malfunctions in a way that causes an accident, the injured party can seek compensation from the producer under product liability law.[8] In the context of AVs, product liability is crucial because the "driver" may argue that the accident was caused by an autonomous decision or technical failure beyond their control. Indeed, as vehicles become more automated, the locus of responsibility shifts increasingly toward the entities that design and sell the technology. One practical challenge, however, is that determining whether an AV's performance was "defective" (i.e., did not meet reasonable safety expectations) can be complex. It may require technical reconstruction of what the vehicle saw or decided at the moment the defect occurred, often a difficult task when software algorithms are involved.

2.2.2. Administrative and Regulatory Compliance

Operators, owners, and manufacturers of AVs may be subject to specific compliance obligations, for example, keeping the vehicle's software up to date, performing required maintenance and safety checks, restricting the use of the AV to its approved ODD (i.e., a vehicle only certified for highway driving is not operated on urban streets or in adverse weather), and having a system in place for oversight when the vehicle is in autonomous mode. Failure to comply with these requirements can result in administrative sanctions, including fines, permit revocation, or other penalties.[9] If the supervisor or owner does not comply with these legal obligations, and thus ignores a mandatory safety update issued by the manufacturer or allows the vehicle to operate outside its legal parameters), they could face regulatory consequences. Thus, administrative law tools work in tandem with liability rules.

2.2.3. Criminal Liability

Criminal liability for road incidents (e.g., dangerous driving, vehicular manslaughter) traditionally presupposes a human driver who engages in blameworthy conduct (recklessness, gross negligence, etc.). However, when a vehicle is driving itself, the human occupant may be essentially a passenger, not actively controlling the motion.[10] In other words, if the autonomous system's actions (rather than a human's direct input) lead to a traffic violation, or even a collision, the human in the driver's seat would generally not be prosecuted for that outcome. Instead, responsibility shifts to the vehicle's makers and people maintaining it, as the incident would be handled as a regulatory matter by the Automated Driving System Entity (ADSE). This is typically the manufacturer or software provider, who would be investigated or sanctioned by regulators. In cases of egregious malfunction or safety lapses, this could even lead to corporate criminal liability, for instance,

accessed February 23, 2026, https://www.whitecase.com/insight-alert/navigating-product-liability-high-security-sectors-addressing-ai-driven-risks-under.

8 Tiago Sérgio Cabral, "Liability and Artificial Intelligence in the EU: Assessing the Adequacy of the Current Product Liability Directive," *Maastricht Journal of European and Comparative Law* 27, no. 5 (2020): 615–35, https://doi.org/10.1177/1023263X20948689.

9 Antonios E. Kouroutakis, "Autonomous Vehicles: Regulatory Challenges and the Response from Germany and UK," *Mitchell Hamline Law Review* 46, no. 5 (2020): 1103, https://open.mitchellhamline.edu/mhlr/vol46/iss5/3.

10 Chris Tennant et al., "Public Anticipations of Self-Driving Vehicles in the UK and US," *Mobilities* 20, no. 2 (2025): 292–309, https://doi.org/10.1080/17450101.2024.2325386.

prosecution under product safety laws or general criminal negligence if the company was reckless in deploying unsafe technology.

On the other hand, individuals may still face criminal charges, even if their own misconduct contributed to an AV incident. If a "driver" intentionally misuses the automation, for example, by engaging the self-driving mode in inappropriate conditions or ignoring a takeover request, traditional offenses like negligent homicide or endangerment could apply to that individual. Similarly, if an operator is required to be available (as in Level 3), but is found to be wilfully inattentive,[11] prosecutors may treat that as criminally negligent behavior on the part of the human.

3. EU Legal Framework for Autonomous Vehicle Liability and Member State Approaches

3.1. EU Level

3.1.1. Civil Liability

At the European Union level, there is currently no dedicated AV liability statute; instead, existing EU civil liability frameworks apply. The cornerstone is the Product Liability Directive (85/374/EEC), which imposes strict liability on manufacturers for defective products that cause damage.[12] Additionally, all EU Member States must implement the Motor Insurance Directive (2009/103/EC), which requires compulsory vehicle liability insurance, so that traffic victims are compensated regardless of fault.[13] Despite these frameworks, the EU currently lacks harmonized rules that explicitly divide liability between human users and automated systems.[14] Questions such as whether a human "driver" should be legally considered at fault when an automated driving feature is engaged are not yet uniformly answered at the EU level. In 2017, the European Parliament called for EU civil law rules on robotics (including AVs) to ensure consistency.[15] In response, the European Commission proposed an "AI Liability Directive" in 2022, as an aid in pursuit of victims' claims involving AI systems. However, it does not introduce new, substantive liability rules specific to AVs.[16] In parallel, the EU has been developing the AI Act, a regulatory regime that classifies AI systems by risk. Automated driving systems are considered "high-risk" AI,

11 Gerber, Schroeter, and Ho, "A Human Factors Perspective on How to Keep SAE Level 3 Conditional Automated Driving Safe," 3.

12 Ibid.

13 Eric Tjong Tjin Tai, "Civil Liability for Self-Driving Cars in Dutch Law," in *Autonomous Vehicles and Civil Liability in a Global Perspective*, eds. Hans Steege et al. (Cham: Springer, 2024), 385–403.

14 Didem Polad, "Liability Perspective for Users of Autonomous Vehicles in the EU," RAILS – Blog, April 15, 2024, accessed February 23, 2026, https://blog.ai-laws.org/liability-perspective-for-users-of-autonomous-vehicles-in-the-eu/.

15 Tatjana Evas, "A Common EU Approach to Liability Rules and Insurance for Connected and Autonomous Vehicles: European Added Value Assessment: Accompanying the European Parliament's Legislative Own Initiative Report," European Parliamentary Research Service, February 2018, accessed February 23, 2026, https://www.europarl.europa.eu/thinktank/en/document/EPRS_STU(2018)615635.

16 Polad, "Liability Perspective for Users of Autonomous Vehicles in the EU."

so manufacturers will have to meet strict safety and compliance requirements under this forthcoming regulation.[17]

3.1.2. Administrative and Regulatory Framework

The EU has been proactive in establishing an administrative framework to integrate AVs safely. Notably, the EU General Safety Regulation (2019/2144) introduced a roadmap of new mandatory safety features from 2022 onwards, with event data recorders (EDR).[18] This evidentiary mechanism, mandated at the EU level, supports both civil and criminal proceedings by providing reliable data on vehicle behavior. Also, in August 2022, the EU implemented specific rules for ADS type-approval with Regulation (EU) 2022/1426. Soon after, Regulation (EU) 2022/2236 was adopted to allow small-series production of AVs without human controls, introducing adapted technical standards for completely driverless vehicles.[19] These regulations mark a significant step, as, for the first time, EU law permits vehicles with Level 4/5 automation (no driver onboard or no driver's seat at all) to be legally homologated (approved) for EU roads, provided they meet stringent safety benchmarks.

3.1.3. Criminal Liability Considerations

Unlike civil and regulatory matters, the EU has no unified criminal code for traffic incidents. However, EU-level efforts to implement the aforementioned data recorder mandates and technical requirements support criminal justice by ensuring that evidence is available and that vehicles are traceable in the event of offenses. This implies that Member States should update their own laws to assign responsibility (e.g., to the vehicle owner, operator, or manufacturer) for compliance with traffic laws when a vehicle is driving itself.

3.2. Member State Approaches

Given the absence of a single EU liability regime for autonomous vehicles, Member States have begun developing their own laws and models. Here are three illustrative approaches, those of Germany, France, and the Netherlands, across the three liability dimensions (civil, administrative, criminal).

3.2.1. Civil Liability

Germany. Under the German Road Traffic Act (Straßenverkehrsgesetz), the vehicle owner (keeper) is strictly liable for any damage to persons or property caused by the vehicle, and the driver faces fault-based liability for road accidents.[20] In 2017, Germany amended this law to address Level 3 automation, and in 2021, it passed an Autonomous Driving Act

17 Charles Kerrigan, Sean Musch, and Michael Borrelli, "The EU AI Act," in *Artificial Intelligence*, ed. Charles Kerrigan (Cheltenham: Edward Elgar Publishing, 2025), 178–239, https://doi.org/10.4337/9781035334353.00020.

18 Maria Cristina Galassi et al., "Safety Approval of Automated Vehicles in the EU: Moving Beyond Highway Applications," *Transportation Research Procedia* 72 (2023): 4396–403, https://doi.org/10.1016/j.trpro.2023.11.328.

19 For instance, requirements for failsafe mechanisms, cybersecurity, and software updates. See: Marcin Dziadkiewicz, "Technological Innovations in Transportation: Law and Practice," in *The Use of Information and Communication Technologies (ICT) in the Management of the Innovative and Smart City*, eds. Judyta Kabus, Luiza Piersiala, and Michał Dziadkiewicz (Boca Raton: CRC Press, 2024), 64–99.

20 Maurice Schellekens, "Self-Driving Cars and the Chilling Effect of Liability Law," *Computer Law & Security Review* 31, no. 4 (2015): 506–17, https://doi.org/10.1016/j.clsr.2015.05.012.

for Level 4 vehicles.[21] German law now distinguishes between the roles of a "Level 3 driver" and a "Level 4 technical supervisor." A Level 3 AV (where the human may cede driving tasks, but must resume control upon request) is still legally considered a human-driven vehicle. In contrast, at Level 4, fully autonomous driving, driving is overseen by a technical supervisor rather than a traditional driver. The technical supervisor is typically a person or entity that remotely monitors the vehicle. Under German law, the supervisor is liable under general tort principles (fault-based) instead of the strict/presumed fault regime.[22] If an accident occurs while the vehicle is under automated control (and not due to any supervisor intervention), liability may shift to the vehicle's manufacturer under product liability or system defect theories.[23] Thus, when the technology is truly at the helm (Level 4), the traditional driver-centric liability diminishes, and the manufacturer or system provider bears responsibility if a flaw in the automated system caused the harm.

France. France has a long-standing tradition of protecting road accident victims through strict driver liability, notably through the *Loi Badinter* of 1985.[24] Under the *Badinter* regime, any motor vehicle driver (or keeper) is almost automatically liable and required to compensate victims, such as pedestrians, cyclists, or passengers, except in limited circumstances (e.g., if an unforeseeable external event caused the accident). As AV technology advances, France faces the question of how to adapt this strict liability model. France's Mobility Orientation Law (Loi n° 2019–1428 – MOL) empowered the government to legislate for AV operations, and an Ordinance of 14 April 2021 (effective 2022) set out specific liability rules for automated vehicles.[25] Under this Ordinance (now codified in the Transport Code), when a vehicle is operating in an approved autonomous driving mode, the human "driver" is not civilly liable for accidents caused by the driving system.[26] Instead, responsibility for harm shifts to the vehicle manufacturer or the entity that deployed the automated system. If the human was supposed to take over but failed to do so, and thus ignored an explicit takeover request, the human could still be found to be at fault.[27]

Netherlands. Under Dutch law, the owner or keeper of a motor vehicle is strictly liable for any accident damage caused by that vehicle (Article 185 of the *Wegenverkeerswet* – Road Traffic Act).[28] This strict liability applies even if the vehicle was self-driving at the time of

21 Polad, "Liability Perspective for Users of Autonomous Vehicles in the EU."

22 Thus, this creates a different burden of proof: for Level 3 accidents, the human driver must prove they did nothing wrong to escape liability, whereas for Level 4 accidents, the injured party must prove the technical supervisor failed to meet their duty of care.

23 Benjamin von Bodungen and Hans Steege, "Liability for Automated and Autonomous Driving in Germany," in *Autonomous Vehicles and Civil Liability in a Global Perspective: Liability Law Study across the World in Relation to SAE J3016 Standard for Driving Automation*, eds. Hans Steege et al. (Cham: Springer, 2024), 279–320.

24 Polad, "Liability Perspective for Users of Autonomous Vehicles in the EU."

25 STRMTG, "The French Regulatory Framework for Automated Road Transport Systems (ARTS) Has Been Published," October 4, 2022, accessed February 23, 2026, https://www.strmtg.developpement-durable.gouv.fr/en/the-french-regulatory-framework-for-automated-road-a167.html.

26 Phillip Morgan, "Chapter 1: Tort Liability and Autonomous Systems Accidents – Challenges and Future Developments," in *Tort Liability and Autonomous Systems Accidents: Common Law and Civil Law Perspectives*, ed. Phillip Morgan (Northampton, MA: Edward Elgar Publishing, 2023), 1–26.

27 Polad, "Liability Perspective for Users of Autonomous Vehicles in the EU."

28 Tjong Tjin Tai, "Civil Liability for Self-Driving Cars in Dutch Law."

the accident. Thus, when a self-driving car in the Netherlands is involved in a crash, the victim will claim against the vehicle owner's motor insurer, who will pay out the damages. The insurer (or owner) can then seek recourse against the vehicle's manufacturer if a defect in the AV contributed to the accident.[29] Under Dutch law, the human driver can also be held liable if their negligence contributed to the accident.[30] A key question for higher automation is whether a human in a Level 4 or 5 vehicle is even expected to monitor the driving. Dutch legal scholars anticipate that courts may excuse the human from paying continuous attention in Level 4/5 scenarios, given that the technology is supposed to handle all driving tasks.[31] The Netherlands has not enacted a special AV liability law; instead, it relies on the flexible application of existing rules. The strict liability of vehicle owners provides a blanket of protection for victims (much like the French *Badinter* law), and the law already permits fault to be apportioned to manufacturers for product defects.

3.2.2. Administrative Liability

Germany. In 2017, Germany amended its traffic laws to legalize SAE Level 3 automated driving features, provided that a human driver remains seated and ready to intervene.[32] Building on that, the Act on Autonomous Driving (2021) enabled SAE Level 4 vehicles to operate regularly on public roads if they meet technical requirements, and if a technical supervisor is monitoring it (the supervisor can be remote).[33] The Federal Motor Transport Authority oversees a permit process under which the vehicles must obtain special approval to operate in automated mode in designated zones, and the operating entity must have safety protocols in place.[34] Thus, rather than using *ad hoc* exemptions, Germany codified a framework that allows manufacturers to seek type approval for Level 4 systems (aligned with EU standards), and for operators to deploy them with government authorization. Companies operating AVs must also appoint licensed supervisors who have completed specific training and can take over or shut down the vehicle if needed.[35] In terms of data and reporting, German law (§63a Road Traffic Act) mandates that AVs log operational data and make it available to authorities in the event of incidents.

France. In 2016, France began by allowing limited experimentation with self-driving cars on public roads (with safety drivers and permits). Later, the MOL of 2019 granted the government the authority to issue regulations governing AV deployment. France used this to establish a comprehensive regime in 2021. The Ordinance of 14 April 2021 (and the implementing Decree of 29 June 2021) set out the conditions under which AVs up to Level 4

29 Ibid.

30 For example, if a Level 2 or 3 car gave a handover warning that the human ignored, that human may be found negligent. See ibid.

31 Lena Wrzesniowska, "Can AI Make a Case? AI Vs. Lawyer in the Dutch Legal Context," *International Journal of Law, Ethics & Technology* 4, no. 3 (2024): 1.

32 Kouroutakis, "Autonomous Vehicles: Regulatory Challenges and the Response from Germany and UK."

33 Polad, "Liability Perspective for Users of Autonomous Vehicles in the EU."

34 For example, the law and its regulations specify that Level 4 AVs must have redundant systems, a remote monitoring control center, and fail-safe mechanisms to achieve a "minimal risk condition" (e.g., safe stop) if problems arise. See: Galassi et al., "Safety Approval of Automated Vehicles in the EU."

35 Polad, "Liability Perspective for Users of Autonomous Vehicles in the EU."

can be put into general operation on French roads.[36] Level 4 vehicles are permitted to operate without a driver on board but must be supervised by a remote operator and confined to predefined routes or areas.[37] Administratively, France assigns responsibilities to different actors, since the remote operator must have completed specific training and be capable of taking over or commanding the vehicle remotely: the AV system provider (manufacturer) must supply data access to regulators (to verify compliance and investigate incidents); and the service operator (if different from manufacturer) must implement security measures and ensure that vehicles meet technical requirements. France also created a scheme that holds automated vehicle providers liable for traffic fines and infractions.[38] This administrative rule, unique to France so far, incentivizes manufacturers to design obey-the-law behavior, as they will literally pay the price for traffic violations by their AI.

Netherlands. Rather than immediately overhauling laws, the Netherlands introduced the *Experimenteerwet* (Experimentation Law) for Self-Driving Vehicles, which came into force around 2018.[39] Under the experimental framework, companies or research institutions can apply for a permit from the Dutch Vehicle Authority (RDW) to test AVs on public roads without a human driver inside, as long as a human can supervise and control remotely.[40] This "learning by doing" approach allowed the Netherlands to host early pilots (e.g., automated shuttles, truck platooning) and gather data for assessment regarding permanent regulation.[41] As of the mid-2020s, the Netherlands has been working on transitioning from experimental mode to routine deployment. The Dutch will probably introduce an "Authorized Self-Driving System" operator model,[42] in which a company that operates an AV service is officially designated and accountable for that vehicle's compliance (effectively taking on the role of the driver in the eyes of the law). Administratively, the Netherlands currently employs a sandbox approach, administratively using permits and exemptions to allow AV operation, and is poised to formalize those practices into law once the technology matures.

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36 STRMTG, "The French Regulatory Framework for Automated Road Transport Systems (ARTS) Has Been Published."

37 Jonas Knetsch, "La voiture autonome face au droit: les réponses en droit positif et en droit prospectif (Regards d'aujourd'hui vers le futur ?): Rapport français," in *Autonomous Vehicles and the Law*, ed. Gilles Pillet (Leiden: Brill–Nijhoff, 2025), 158–87, https://doi.org/10.1163/9789004711891_006.

38 Knetsch, "La voiture autonome face au droit."

39 This law created a mechanism for the government to exempt specific road traffic rules on a case-by-case basis to permit trials of driverless vehicles. To get approval, applicants must demonstrate robust safety measures, such as remote monitoring capabilities, fail-safe responses, and sufficient insurance coverage. The RDW, in coordination with road authorities and traffic safety experts, evaluates each test proposal individually, considering factors like location, time, traffic conditions, and whether a backup driver might trail or oversee the test. See: Ministerie van Infrastructuur en Waterstaat, "Mobility, Public Transport and Road Safety: Self-Driving Vehicles," 2025, accessed February 23, 2026, https://www.government.nl/topics/mobility-public-transport-and-road-safety/self-driving-vehicles.

40 Ibid.

41 K.A.P.C. van Wees, "Civil Liability for Autonomous Vehicles in the Netherlands," in *Autonomous Vehicles and the Law: A Revolution through the Prism of Civil Liability*, ed. Gilles Pillet (Leiden: Brill, 2025), 289–330, https://doi.org/10.1163/9789004711891_009.

42 Tjong Tjin Tai, "Civil Liability for Self-Driving Cars in Dutch Law."

3.2.3. Criminal Liability

Germany. In German law, traffic offenses and crimes (like dangerous driving or negligent homicide in a traffic accident) are predicated on a human actor's culpability.[43] With Level 3 automation, the human driver is still legally required to monitor the driving environment and to retake control when prompted or when obvious danger arises. Germany's 2017 amendment (Act on Automated Driving) implicitly acknowledged this by prohibiting drivers from fully relinquishing attention, as they may engage in some side activities under certain conditions, but must be ready to drive.[44] As for Level 4 (fully autonomous within limits), since the 2021 law allows no driver on board,[45] German law faces a new scenario to identify who is criminally liable if an uncrewed vehicle causes harm. If the cause was a pure system malfunction, with no reasonable human intervention possible, liability might shift to those responsible for the system's safety, potentially the manufacturer or the organization deploying the AV.[46] However, German criminal law does not readily attribute criminal liability to a corporation or software; it typically requires a natural person's guilt.[47]

France. France introduced explicit provisions in its Traffic Code and Criminal Code to address offenses committed by automated vehicles. Under these rules, when a driver activates an authorized automated driving system, they are exempt from criminal liability for standard traffic violations if the system is under control.[48] However, the human can be liable if they fail to take back control when the law or the system requires them to (e.g., if they ignore a police order to stop or a clear handover prompt), to ensure that drivers cannot use automation to escape responsibility when they should intervene.

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43 Sadaf Fahim, "Criminal Liability of Artificial Intelligence," in *Ethico-Legal Aspect of AI-Driven Driverless Cars: Comparing Autonomous Vehicle Regulations in Germany, California, and India* (Singapore: Springer Nature, 2024), 89–127.

44 This refers to the Eighth Act amending the Road Traffic Act (Achtes Gesetz zur Änderung des Straßenverkehrsgesetzes), which entered into force on June 21, 2017 and is commonly referred to in English by the German Federal Ministry of Transport and Digital Infrastructure as the Act on Automated Driving. See: Marc Ruttloff, "New Legal Rules on Automated Driving," Gleiss Lutz, September 21, 2017, accessed February 23, 2026, https://www.gleisslutz.com/en/know-how/new-legal-rules-automated-driving.

45 Act Amending the Road Traffic Act and the Compulsory Insurance Act – Act on Autonomous Driving (Gesetz zur Änderung des Straßenverkehrsgesetzes und des Pflichtversicherungsgesetzes – Gesetz zum autonomen Fahren), which entered into force on July 28, 2021. Jenny Gesley, "Germany: Road Traffic Act Amendment Allows Driverless Vehicles on Public Roads," Library of Congress, August 9, 2021, accessed February 23, 2026, https://www.loc.gov/item/global-legal-monitor/2021-08-09/germany-road-traffic-act-amendment-allows-driverless-vehicles-on-public-roads/.

46 Tina Sever and Giuseppe Contissa, "Automated Driving Regulations – Where Are We Now?," *Transportation Research Interdisciplinary Perspectives* 24 (2024): 101033, https://doi.org/10.1016/j.trip.2024.101033.

47 There is an ongoing academic debate in Germany about applying concepts like "producer negligence" or corporate responsibility in such cases. See: Miriam C. Buiten, "Product Liability for Defective AI," *European Journal of Law and Economics* 57, no. 1 (2024): 239–73, https://doi.org/10.1007/s10657-024-09794-z.

48 In other words, if a Level 3 or 4 vehicle is driving itself within its legal operating domain, the human occupant will generally not receive a speeding ticket or a violation notice for things like failing to stop at a red light. The law recognizes that the human was not actually driving at that moment. See: Ozan Akyurek, Olivier Haas, and Philipp Werner, "France Plans on Adopting New Rules for Self-Driving Cars," Jones Day, April 2021, accessed February 23, 2026, https://www.jonesday.com/en/insights/2021/04/france-plans-on-adopting-new-rules-for-selfdriving-cars.

France's most groundbreaking step is making the vehicle manufacturer criminally liable for serious outcomes in autonomous mode. If, while self-driving in compliance with its approved conditions, an AV causes a death or injuries, the manufacturer of that AV can be prosecuted for involuntary manslaughter or causing injury.[49]

Netherlands. Under ordinary Dutch law, traffic offenses (speeding, failing to stop at a red light, causing an accident through negligence) presume a human driver in control. Since fully driverless operation is not generally allowed without a special permit, the permit conditions usually stipulate who is considered the responsible driver.[50] Thus, if a driver uses an AV in adaptive cruise or pilot mode and an offense occurs, Dutch police will treat the human behind the wheel as the responsible driver (automation is not an excuse for violating Article 5 of the Road Traffic Act, which requires drivers to behave safely).

4. Vietnamese Legal Framework

In the context of AVs, Vietnam's current legal framework lacks specific provisions tailored to self-driving technology. This section examines how Vietnam's laws on civil, administrative, and criminal liability would apply to AV-related incidents and contrasts them with approaches in the EU and Member States.

4.1. Civil Liability

4.1.1. Tort-Based Liability

Vietnam's Civil Code 2015 establishes general tort principles, alongside special rules for hazardous activities. Under Article 584, any person who harms another must compensate for the damage caused, unless a lawful exception applies.[51] In the context of traffic accidents, motor vehicles are classified as "sources of extreme danger," triggering a form of strict liability under Article 601 of the Civil Code.[52] This strict liability rule is coupled with a duty on owners to comply with safety regulations in operating and maintaining such dangerous vehicles. Ordinary, fault-based liability may still apply in situations falling outside the "extreme danger" category, but AVs are assumed to fall under the same strict liability regime as motor vehicles.

European legal systems have developed analogous doctrines. German law imposes strict liability on the keeper of a motor vehicle, which makes the keeper liable for any

49 Buiten, "Product Liability for Defective AI."

50 For example, during a driverless test, the remote operator or the company's safety officer might be designated as the responsible party under the law. If an AV test vehicle breaks a traffic rule, the authorities can impose penalties on the permit holder or the remote driver, as agreed in the exemption. See: William H. Widen and Marilyn Wolf, "Human Masters/Robot Servants: Highly Automated Vehicle Design, Intoxicated Drivers & Vicarious Liability," *Journal of Law and Mobility* (2025): 53, https://repository.law.umich.edu/jlm/vol2025/iss1/3.

51 Vietnamese Civil Code (No. 91/2015/QH13 of November 24, 2015), see: https://www.wipo.int/wipolex/en/legislation/details/17200.

52 The regulation provides that the owner (or person to whom the owner has transferred use) of a motorized vehicle must compensate for damage caused by the vehicle, even absent fault, subject only to narrow exceptions (such as the victim's sole intentional fault or force majeure). See: https://www.wipo.int/wipolex/en/legislation/details/17200.

damage caused by the vehicle's operation, "irrespective of any fault."[53] As under Vietnamese law, the German keeper's liability covers even accidents not involving driver error, embodying the concept that the vehicle owner bears the operational risk (*Betriebsgefahr*) related to the car. France's 1985 *Loi Badinter* on traffic accidents created a victim-friendly regime, since motor vehicle operators (and their insurers) are broadly liable towards injured persons (especially pedestrians and passengers), regardless of fault, with limited exceptions for truly unforeseeable circumstances or intentional fault on the part of the victim.[54] Similarly, the Netherlands protects road accident victims through Article 185 of its Road Traffic Act (*Wegenverkeerswet*), which imposes strict liability on motorized vehicle drivers for collisions with non-motorized users.[55]

Despite their common foundation, there are nuanced divergences. Vietnam's strict liability for sources of extreme danger applies to any harm caused by a motor vehicle, whether to other road users or property, and the only exceptions are narrow lines of defense. German law likewise only makes an exception for the keeper in the case of force majeure, or if the injured party wholly caused the incident. Dutch law's strict liability, by contrast, is chiefly limited to protecting non-motorized victims; collisions exclusively between cars fall back on ordinary negligence rules. French law focuses on personal injury, leaving property damage to general tort principles. Another difference is how an AV's self-driving system is treated; Vietnam's doctrine, which does not yet differentiate between human-driven and autonomous modes, could draw from the European experience, for instance, clarifying the liability of an AV operator versus the vehicle's manufacturer when an algorithm, rather than a person, is doing the driving.

4.1.2. Product Liability

Vietnam's current law provides injured parties with recourse under both general tort and consumer protection regimes for defective products. The Civil Code 2015 establishes a general principle that producers or sellers must compensate consumers for damage caused by substandard goods, in terms of safety or quality.[56] More specifically, Article 34 of the Vietnam Law on Protection of Consumer Rights 2023 (LPCR 2023) introduced a regime akin to strict product liability.[57] Then, if an AV's automated driving system or component is defective and causes damage, the manufacturer (or other responsible trader) is strictly liable towards the injured consumer, without the need to prove negligence. The LPCR 2023 broadly defines a "defective" product as one that does not ensure safety

53 Von Bodungen and Steege, "Liability for Automated and Autonomous Driving in Germany."

54 Knetsch, "La voiture autonome face au droit."

55 A Dutch motorist must compensate a pedestrian or cyclist for injuries in almost all cases, barring extraordinary circumstances beyond the driver's control. Even if a non-motorized victim was partly at fault, Dutch law mandates that the driver of the car bear at least 50% of the loss, and 100% if the victim is a child under 14. Wrzesniowska, "Can AI Make a Case? AI Vs. Lawyer in the Dutch Legal Context."

56 Article 608 of the Vietnamese Civil Code.

57 Businesses are liable for damages where products and goods with defects, supplied by them, cause damage to the life, health, or property of consumers, even when such organizations or individuals are not aware of, or at fault for, the defects arising. Article 34 of the Vietnamese Law on Protection of Consumer Rights (No. 19/2023/QH15 of June 20, 2023). See: https://luatvietnam.vn/thuong-mai/luat-bao-ve-quyen-loi-nguoi-tieu-dung-2023-so-19-2023-qh15-259732-d1.html.

for consumers and poses a risk to life, health, or property, even if the product was manufactured in accordance with proper technical standards.[58] In the AV context, this means a design bug in the vehicle's collision-avoidance algorithm, a sensor manufacturing fault, or a failure to warn users of the AV's operational limits. These could each render the vehicle "defective" under the law. Once such a defect occurs, Article 34(1) mandates that the responsible business compensate any consumer for injury or property damage caused by the AV, irrespective of the business's knowledge or care.

The law covers not only the vehicle's manufacturer, but also the importer and any entity that promotes the product as its own brand, acts as an intermediary in the distribution chain, and directly supplies the product to consumers.[59] Multiple parties can also be jointly liable if their combined actions caused the defect. This structure closely mirrors the European approach, when, under the EU Product Liability Directive of 1985 (now revised in 2024), the producer (including manufacturers, any entity that promotes the product as its own brand, and importers) is strictly liable. If the producer is unknown, the supplier can be held liable.[60] The new EU Directive 2024/2853 explicitly extends liability to cover certain service providers in the supply chain, such as fulfillment service providers and online marketplaces, for similar reasons.

One important divergence lies in who is protected by Vietnam's product liability rules. Article 34 of the LPCR 2023 covers only "consumers," i.e., persons who purchase or use goods for personal or household purposes (non-commercial use).[61] By contrast, European product liability regimes are not limited to consumer plaintiffs, since any injured person can sue the producer for damages caused by a defective product, regardless of consumer status.[62] This divergence may prompt future Vietnamese reforms to broaden protection beyond the consumer category, especially as AVs blur the line between product users and third parties on the road.

Although Vietnam imposes strict liability, Article 35 of the 2023 law provides for several key exemptions that echo those in European law. Most prominently, Vietnam adopted the development risk defense. This means that a manufacturer or supplier can avoid liability if it proves that the product's defect could not have been detected with the level of science and technology available worldwide up to the time the product caused the damage. This mirrors the defense under the EU's 1985 Product Liability Directive,

58 Article 3(2) of LPCR 2023.

59 Article 34(2) of the LPRC 2023.

60 For example, French law defines "manufacturer" to include anyone who presents themselves as the producer or importer, and allows claimants to sue a seller or importer if the actual producer is unidentified. Similarly, German and Dutch laws implemented the EU directive with identical coverage. See also: Morgan, "Chapter 1: Tort Liability and Autonomous Systems Accidents."

61 Thus, if an autonomous vehicle's defect injures a bystander or a business user (for instance, a rideshare driver using an AV for commercial purposes), it is unclear if they qualify as "consumers" entitled to a claim under this law. They may instead have to rely on general tort provisions in the Civil Code (which require proof of fault).

62 The EU's original directive and its national implementations (e.g., Code Civil Article 1245 in France, ProdHaftG in Germany) cover all persons who suffer injury or property damage (excluding property used for business), without requiring that the victim bought or used the product as a consumer.

which allows producers to escape liability for unknown risks.[63] In the AV context, this defense could be invoked if, for example, an advanced neural-network driving system made an unpredictable error that no existing testing method could have identified.

Aside from development risks, Article 35(2) of the LPCR 2023 introduces a defense akin to contributory fault; if the business has fully complied with its duties under Articles 32–33 (e.g., recalling the product and warning consumers in a timely fashion), and yet the consumer knowingly ignores the warnings and continues to use the defective product, then the business is exempt from liability. While the EU directive does not list consumer misuse as a formal defense, national laws (and general principles of tort) provide that damages can be reduced if the injured party negligently contributed to the damage.[64]

4.2. Administrative Liability

The newly enacted Law on Road Traffic Safety and Order (effective 2025) defines "smart vehicles" as motor vehicles capable of partial or complete automation, classified into five levels.[65] Under this law, even vehicles with advanced driver-assistance features (SAE Levels 1–3) are considered "smart" and special operational licenses must be obtained, unlike in the case of conventional cars. By contrast, fully self-driving vehicles (Levels 4–5) are not yet broadly permitted; the Ministry of Public Security has proposed that any deployment of Level 4–5 AVs be tightly restricted and subject to special permits, given Vietnam's current road and traffic conditions.[66] Existing Vietnamese law imposes various duties on drivers and vehicle owners to ensure traffic safety. The regulatory logic is one of personal responsibility, since the onus is on the individual behind the wheel (or the owner, in some cases) to comply with technical and safety standards.[67] However, these rules evolved before the advent of self-driving technology. There is, for example, no legal obligation in Vietnam for a vehicle maker to ensure software updates are installed, nor any concept of a "remote operator" or "technical supervisor."

By contrast, under Germany's 2021 Autonomous Driving Act, Level 4 operation depends on defined operational domains and the appointment of a (potentially remote) technical supervisor, supported by enhanced insurance and stringent system safety

63 France, Germany, and the Netherlands each permit this defense. Germany's Product Liability Act § 1(3) explicitly excludes liability for defects not discoverable given the scientific/technical knowledge at the time of sale).

64 For example, under French civil law, if a claimant knowingly uses a recalled dangerous product, the court could find a causal link broken or the claimant predominantly at fault, defeating the claim. See also: Akyurek, Haas, and Werner, "France to Adopt New Rules for Self-Driving Cars."

65 Vietnamese Law on Road Traffic Safety and Order (No. 36/2024/QH15 of June 27, 2024), see: https://thuvienphapluat.vn/van-ban/EN/Giao-thong-Van-tai/Law-36-2024-QH15-Road-Traffic-Order-and-Safety/620124/tieng-anh.aspx.

66 "Fully Autonomous Cars Not Yet Suitable for Vietnam's Road Conditions: Ministry," Vietnam+ (VietnamPlus), May 8, 2025, accessed February 23, 2026, https://en.vietnamplus.vn/fully-autonomous-cars-not-yet-suitable-for-vietnams-road-conditions-ministry-post323969.vnp.

67 For instance, operating a vehicle that fails to meet required technical inspection standards can result in sanctions against the driver or owner. Other parties can also be held accountable under specific provisions (e.g., inspection officials who falsify roadworthiness results, or companies that assemble vehicles without authorization).

requirements (including minimal risk behavior). The Netherlands has pursued a permit-and-exemption model, administered by the RDW, for controlled trials, typically requiring a designated remote controller. France, through its 2021 framework, has integrated AVs into road traffic administration by specifying when the ADS is legally in control, and by placing compliance, data access, and user notification obligations on manufacturers/operators.

Both Vietnam and the European systems recognize administrative law as a vital tool for preventing accidents. However, their doctrinal approaches diverge in allocating responsibility for AV safety. Vietnam's framework remains driver-centric and reactive, focused on punishment for traffic violations after they occur, premised on a human's duty to control the vehicle. In contrast, the European approaches increasingly blend *ex ante* oversight with shared responsibility among the stakeholders. They impose specific legal obligations on manufacturers and vehicle operators with regard to vehicle software, data reporting, and ensuring safe operation, and create new actor roles (technical supervisors, in-use safety regulators) to govern autonomous driving in real time. Vietnam may draw on European experience by instituting measures such as special AV operating permits, mandatory safety self-assessments by manufacturers, and mechanisms to sanction lapses in an AV's performance.

4.3. Criminal Liability

Under the Vietnamese Penal Code, traffic accidents may result in criminal prosecution if individuals violate road safety rules or are grossly negligent.[68] Crucially, however, these offenses presume that a human actor has breached a duty of care behind the wheel. Corporate criminal liability in Vietnam is a relatively new and limited concept. The Penal Code allows legal entities to be prosecuted for certain economic or environmental crimes,[69] but not for traffic offenses or negligent homicide. Thus, under the current law, if an autonomous vehicle operating without active human control were to cause a serious accident, it is unclear who (if anyone) could be criminally prosecuted.

European legal systems are beginning to grapple with the same challenge, and their solutions highlight different regulatory logic. One approach is to shift criminal responsibility from the individual to the entity that effectively "controls" the risk in autonomous mode. Under France's 2021 AV legislation, when a vehicle is driving itself in an authorized autonomous mode, the human user is immune from criminal liability for traffic offenses, and any harm caused is attributable instead to the vehicle's manufacturer

[68] For example, a human driver who causes a fatal crash by speeding or failing to stop at a red light can be charged with violating traffic safety regulations, or even involuntary manslaughter, depending on the circumstances. Vehicle owners or others might be liable as accomplices (for instance, allowing an unqualified person to drive or failing to fix known vehicular defects). See Article 260 of the Vietnamese Law on the Penal Code (No. 100/2015/QH13) amended by Law No. 12/2017/QH14 of June 20, 2017, see: https://luatvietnam.vn/hinh-su/bo-luat-hinh-su-sua-doi-2017-115503-d1.html.

[69] Nguyen Hung, Mai Van Thang, and Tran Thu Hanh, "The Criminal Liability of Commercial Legal Entities in the Current Criminal Code of Vietnam," *PRAWO i WIĘŹ* 40, no. 2 (2022): 185–98, https://doi.org/10.36128/priw.vi40.398.

or system provider.[70] At the same time, French law does not give human users *carte blanche*. If the person in the driver's seat fails to take over manual control despite a legal obligation to do so (for example, ignoring a police officer's order or a clear handover prompt from the vehicle),[71] then that individual can still be held criminally liable for the consequences, in the same way as a conventional driver. Germany and the Netherlands, by contrast, have not fundamentally changed their criminal laws for AVs. German law still requires a natural person to be at fault for a traffic offense or vehicular homicide, and it has no provision allowing prosecutors to impute a road accident crime to an autonomous system or a manufacturer in the absence of human wrongdoing.[72] The Netherlands similarly treats the human as the responsible driver in any AV operation, relying on permit conditions or existing rules to identify an individual (such as a remote operator) who can be blamed for violations.[73]

In the situation in Vietnam, if a truly autonomous vehicle were tested or operated, and a crash occurred, prosecutors would likely resort to existing statutes, perhaps charging a human safety operator for negligence, or an owner for allowing an unsafe vehicle to circulate.[74] However, if an accident is caused solely by an AV's independent action (e.g., a Level 4 test car swerving and hitting a pedestrian due to a sensor algorithm flaw), the attribution of criminal fault under current law is highly problematic. One suggestion is to expand corporate criminal liability to cover traffic-related offenses involving autonomous systems, for example, adding a provision that a "crime committed by an AI driving system" can lead to criminal responsibility of the legal entity that programmed or deployed it.[75] Another recommendation is to create specific offenses (or expand existing ones) to hold manufacturers accountable for gross negligence in the design or deployment of self-driving technology, such as releasing an unsafe vehicle that causes a fatal accident.

5. Conclusion

This article has argued that autonomous vehicles should be analyzed not as a single liability puzzle, but as a liability architecture problem spanning civil compensation, administrative safety governance, and criminal attribution. The comparative research shows that the EU contribution is best understood as a multi-level settlement, rather than a unified AV liability code. On the EU scale, the system prioritizes victim protection through insurance-first mechanisms and the modernization of product liability for software-enabled

70 Akyurek, Haas, and Werner, "France to Adopt New Rules for Self-Driving Cars."

71 Ibid.

72 Thus, if a Level 4 vehicle in Germany crashes due to a software error, with no human misconduct, criminal law may find no one to hold culpable. Galassi et al., "Safety Approval of Automated Vehicles in the EU."

73 While Dutch law does allow corporate criminal liability in principle, it has not yet been applied to an AV-related incident. Wrzesniowska, "Can AI Make a Case? AI Vs. Lawyer in the Dutch Legal Context."

74 The Vietnamese Penal Code does criminalize the act of letting someone use a vehicle that does not meet safety standards (Article 262).

75 Hung, Thang, and Hanh, "The Criminal Liability of Commercial Legal Entities in the Current Criminal Code of Vietnam."

harms, while Member States supply the legally salient roles and evidence tools that make allocation workable in practice. Germany, France, and the Netherlands demonstrate that role definitions, domain restrictions, event data logging, and disclosure pathways do not merely supplement civil liability; they enable it to function under conditions of black-box decision-making and mixed causation.

When viewed through the same architecture, Vietnam's framework is not an empty field. Vietnam already exhibits a strong commitment to rapid victim compensation through strict risk doctrines for hazardous vehicles, and has strengthened product responsibility through the LPCR 2023. The main challenge is fit: evidentiary access, cyber-incident attribution, and the delineation of roles in higher automation. A coherent, Vietnam-adapted direction therefore preserves compensation-first logic while structuring recourse, embeds update/cybersecurity and data logging duties in administrative law, and keeps criminal liability calibrated and exceptional. In this sense, comparative analysis is not a hierarchy of advanced and lagging systems, but a way to identify design measures that can be selectively translated while respecting Vietnam's own doctrinal commitments.

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