

Riabykh Nataliia

*Candidate of Law, Associate Professor,
Associate Professor of the Department of Law
Lutsk National Technical University*

CONCEPTUAL APPROACHES TO PREVENTING CRIMES IN THE FIELD OF ROAD SAFETY

Summary. *The article analyzes conceptual approaches to preventing crimes in the field of road safety through a system of legal, technological, educational, and social measures. The legal approach focuses on improving the regulatory framework and mechanisms of responsibility, including strengthening sanctions for traffic violations and implementing the European model of responsibility. The technological approach involves the implementation of innovative means of controlling road situations, in particular, automated systems for recording violations, intelligent transport systems, and technologies for preventing emergencies. The educational approach aims to develop driver competencies and a culture of safe traffic by improving the driver training system and raising awareness among road users. The infrastructure approach involves improving the technical condition of roads, optimizing traffic flows, and modernizing traffic regulation means. The article also explores medical, psychological, economic, and social approaches to preventing road traffic crimes. International experience in preventing road traffic crimes is considered using examples from countries with low accident rates, and the features of interaction between state and public institutions in ensuring road safety are studied. Based on a comprehensive analysis, recommendations for improving the crime prevention system are proposed, and strategic directions for development*

in Ukraine are outlined, considering modern challenges and European integration processes.

Key words: *road safety, crime prevention, road accidents, legal regulation, violation prevention, transport infrastructure, and driving culture.*

Introduction. Road safety is a fundamental element of national security and public welfare. Annually, crimes in this area lead to significant human casualties, injuries, and material damage [7]. According to the World Health Organization, road traffic accidents are one of the leading causes of mortality worldwide, especially among young people aged 15 to 29 [14]. In Ukraine, the situation is complicated by low compliance with traffic rules and outdated infrastructure, which increases the risks of accidents. The problem is exacerbated by the rapid increase in the number of vehicles and the complexity of road infrastructure [8].

Effective prevention of crimes in road safety requires a comprehensive approach that integrates the achievements of criminology, law, sociology, psychology, and engineering sciences [9]. Only a multidisciplinary strategy can effectively counter this type of crime [10]. Implementing innovative methods of control and monitoring of road traffic based on the use of modern information technologies and artificial intelligence is becoming particularly relevant. The experience of developed countries demonstrates that integrating technical means with effective legal mechanisms and social programs can significantly reduce accident rates [15].

Presentation of the Main Material. Crime statistics in the field of road traffic in Ukraine demonstrate a contradictory trend: the total number of road accidents has decreased over the past five years, but the number of accidents with severe consequences remains critically high [8]. The Criminal Code of Ukraine defines the main types of crimes in the field of road safety: violation of traffic safety rules (Article 286), release of faulty vehicles for operation (Article 287),

violation of road safety standards (Article 288), and illegal seizure of vehicles (Article 289) [9].

The most common are offenses under Article 286 of the Criminal Code of Ukraine (20% of the total). Driving under the influence poses a particular threat, leading to the most severe consequences [10]. In the structure of crimes in this category, 20% are traffic rule violations, 12% are illegal seizures of vehicles, 5% are releases of faulty cars, and 3% are violations of road safety standards [9].

Regional analysis reveals increased crime rates in large cities, industrial regions, and international highways, where most accidents with human casualties are registered [8].

The criminological portrait of the offender: predominantly men aged 25-45 with secondary or higher education (about 90%). A significant proportion of offenders have previously been subject to administrative liability, which indicates the ineffectiveness of preventive measures and administrative-legal influence [10].

Preventing crimes in the field of road safety requires a systematic approach that integrates various strategies, taking into account the legal and socio-psychological aspects of the problem. Based on the analysis of scientific sources, several fundamental conceptual approaches can be identified [11].

The legal approach involves improving the regulatory framework, strengthening responsibility for violations, and harmonizing legislation with international standards, ensuring the inevitability of punishment [12].

The technological approach is based on implementing modern means of monitoring compliance with rules, including automated systems for recording violations and information-analytical platforms for predicting emergencies [13].

The educational approach aims to improve the quality of driver training, develop safe driving skills, and enhance the legal culture of all road users [11].

The infrastructure approach focuses on modernizing road infrastructure, optimizing traffic organization, and implementing modern engineering and technical safety measures [12].

The medical approach is oriented towards preventing driving under the influence, implementing medical monitoring of drivers, and improving the quality of assistance to road accident victims [13].

The psychological approach focuses on developing drivers' stress resistance, preventing aggressive behavior, and developing conflict-free communication skills [11].

The economic approach provides a system of incentives and restrictions to encourage safe behavior of road users [12].

The social approach aims to form a culture of traffic safety and intolerance of rule violations [13].

Effective crime prevention is possible only with the integrated application of all approaches, their mutual coordination, and adaptation to the specific features of the road transport situation in the country [11].

The legal approach forms the normative foundation of the road safety system. Analysis of Ukrainian legislation reveals the need for its improvement and harmonization with European standards [14].

It is necessary to expand the list of qualifying circumstances in Article 286 of the Criminal Code of Ukraine, including fleeing the scene of an accident, having previous penalties, significant speeding, and driving under severe alcohol intoxication [15].

It is advisable to strengthen responsibility for driving under the influence by introducing criminal liability for repeat offenses within a year, as well as for refusal to undergo examination when there are clear signs of intoxication [16].

The liability system needs differentiation: for first-time driving under the influence – increased fines and more extended periods of license suspension; for repeated driving under the influence – criminal liability (satisfactory, community

service, or arrest); for driving under severe intoxication – criminal liability in the form of a fine, arrest, or restriction of liberty [16].

To improve the effectiveness of investigations, it is advisable to introduce a simplified procedure for accidents without casualties, expand mediation possibilities, and enhance damage compensation mechanisms [17].

A priority task is reforming the civil liability insurance system with a differentiated approach to tariffs depending on the history of violations and improving mechanisms for direct compensation of damages [18].

A strategic direction is harmonizing national legislation with international standards, particularly EU directives and regulations on motor transport, vehicle technical requirements, and driver training [19].

The technological approach to preventing traffic safety crimes is based on implementing advanced technical tools and information systems for effectively monitoring compliance with rules and accident prevention [20]. In the context of digitalization, this approach acquires particular strategic importance.

A key element of this approach is the automated system for recording traffic violations [12]. Although this system has been implemented in Ukraine recently and does not cover the entire territory, international experience shows its effectiveness in preventing speeding violations, running red lights, and non-compliance with parking rules.

- Automatic photo and video recording systems ensure the inevitability of punishment and minimize corruption risks in interactions with law enforcement agencies [13].

- Integration of vehicle databases, driver's licenses, and traffic violations increases the responsiveness and effectiveness of preventive measures [15].

- Mobile applications for road users allow for the receipt of up-to-date information about traffic situations and the prompt reporting of violations and accidents [17].

- These systems monitor and manage traffic, optimize transport flows, and inform road users [19].

A promising direction is the implementation of driver condition monitoring tools: alcohol interlocks, fatigue monitoring systems, and control of work and rest regimes for commercial transport drivers [14].

Special attention is drawn to autonomous vehicle technologies, which minimize the impact of the human factor on traffic safety [18]. Although fully autonomous vehicles are not widespread, auxiliary systems already enhance safety: emergency braking systems, lane-keeping assistance, and adaptive cruise control effectively prevent accidents.

A strategic direction is the use of big data and artificial intelligence to analyze and predict accidents, identify dangerous road sections, and optimize the work of patrol police [20]. These technologies enable the transition from responding to accidents to proactive prevention, which is the foundation of the modern concept of road safety.

The educational approach to preventing crimes in road safety is based on understanding the impact of driver training on traffic safety. Many road accidents occur due to insufficient knowledge of rules, lack of skills in managing complex conditions, and poor driving culture [15]. Improving the quality of driver training and forming a culture of safe driving are key elements in preventing traffic-related crimes.

The priority task is to reform the driver training system and the procedure for issuing licenses [16]. The current system of driving schools in Ukraine has significant shortcomings, and the examination process is often accompanied by corruption. It is necessary to introduce stricter standards for driving schools, strengthen quality control of education, and modernize the examination procedure through automation and video recording.

Reform of driving schools. Review of material and technical base requirements, instructor qualifications, and the structure of training programs

[16]. Integrating innovative methodologies using simulators, computer simulators, and virtual reality systems.

Increased examination requirements. Implement comprehensive tests with in-depth verification of traffic rules knowledge, and expand the practical part to include elements of extreme driving, night driving, and driving in difficult weather conditions [16].

Postgraduate education for drivers. Creating a system for periodic qualification enhancement, especially for professional drivers [17]. Conducting mandatory courses for drivers who have committed serious violations.

Educational work with the population. Implementing information campaigns aimed at forming a culture of safe behavior and intolerance to traffic violations [18].

Working with young drivers, who statistically form the highest risk group, is essential [17]. It is advisable to introduce restrictions for them regarding the operation of powerful vehicles, night driving, and passenger transportation. In parallel, it is necessary to implement specialized training to form safe driving skills.

A significant component is educational work with other road users – pedestrians, cyclists, and passengers [18]. This is especially true for the most vulnerable groups – children and teenagers.

A strategic element is the professional training of road safety specialists: patrol police officers, inspectors, and traffic organization specialists [19]. It is critically important to ensure their quality training and to form the competencies necessary for practical work in the conditions of transport infrastructure development.

The infrastructure approach to preventing crimes in road safety recognizes the decisive influence of road conditions and related infrastructure on accident rates [20]. Even the most experienced driver can get into an accident due to poor pavement, inadequate lighting, unclear markings, or missing necessary signs.

Therefore, improving road infrastructure is a critical strategy for preventing traffic crimes [20].

Road surface quality is a fundamental element of the infrastructure approach. Surface defects (potholes, holes, ruts) lead to loss of vehicle control and often result in serious accidents [16]. Systematic inspections of road conditions and timely repairs form a basic level of safety for all road users [16].

Quality pavement. Implementing advanced technologies and high-strength materials in road construction ensures durability and enhanced safety in all weather conditions.

Road signs. Strategic placement of an optimal number of road signs with adequate lighting and implementation of intelligent variable message signs.

Lighting. Development of energy-efficient lighting with a focus on high-risk areas – intersections, pedestrian crossings, and areas with limited visibility.

Markings. Use high-quality reflective materials for road markings with regular updates and ensure visibility under various conditions.

Safe design. Integration of safety-oriented design principles – physical separation of oncoming traffic flows, arrangement of protected turns, and implementation of justified speed limits.

Proper technical equipment for dangerous sections is critical – sharp turns, steep descents and ascents, complex intersections, and railway crossings [17]. Such places require multi-level protection: warning signs, contrast markings, protective barriers, and automated systems that warn drivers of danger [17].

Pedestrian crossings require comprehensive attention during design and operation [18]. A systematic approach includes enhanced lighting, contrast signs, adaptive traffic lights, protective "safety islands," and, when necessary, underground or overhead crossings. Speed limits near crossings and automated control of their compliance are also critical [18].

Optimization of traffic organization includes the separation of flows with different speeds, creating dedicated lanes for public transport, developing bicycle

paths, and intelligent traffic light control [19]. These measures reduce the number of conflict situations and the likelihood of serious accidents [19].

An integrated emergency rescue service system ensures quick response to accidents, urgent assistance to victims, and traffic restoration [20]. This direction involves an optimized network of emergency stations equipped with innovative equipment and staffed with qualified personnel [20].

The medical approach focuses on preventing driving under the influence and monitoring drivers' health. This direction is critically vital as driving under the influence remains the leading cause of fatal road accidents [11].

The priority is to improve methods of detecting intoxication. It is necessary to provide police with modern means of alcohol and drug control [12] and optimize the procedure for medical examination [13].

Main directions of the medical approach to preventing crimes in the field of road safety:

1. Detection of intoxication. Equipping patrol police with modern breathalyzers and test systems [12]. Improving the medical examination procedure [13]. Creating mobile medical examination points [14]. Enhancing the qualifications of medical workers [12].

2. Prevention of psychoactive substance (PAS) use. Conducting information campaigns about the dangers of driving under the influence [10]. Informing about responsibility for drunk driving [11]. Development of rehabilitation centers [13]. Implementation of treatment programs for offender drivers [14].

3. Health condition monitoring. Implementation of modern standards for medical examinations when obtaining a license [10]. Regular medical examinations of professional drivers [11]. Monitoring the use of medications that affect psychomotor skills [12]. Development of recommendations regarding work and rest schedules for drivers [13].

A critical component is the systematic prevention of PAS use, which includes information campaigns, dissemination of data on the consequences of drunk driving, and the development of a network of specialized treatment centers [13].

It is necessary to develop correctional programs for offenders, including educational courses about risks, psychological correction, and addiction treatment. In many countries, completing such a program is a condition for the return of a driver's license [14].

Systematic monitoring of drivers' health requires the modernization of medical examination procedures, a differentiated approach to different categories of drivers, and clear criteria for driving eligibility [10].

Special attention is required to control medications that affect psychophysiological conditions. This includes clearly labeling drugs, informing patients, and developing methods for detecting such substances during road control [12; 13].

The psychological approach to preventing crimes in road safety focuses on correcting psychological factors in the behavior of road users [15]. This direction is critically important since many accidents occur due to the psychological characteristics of drivers – aggressiveness, impulsivity, risk-taking behavior, and low stress tolerance [16].

The central element is working with aggressive drivers whose behavior manifests in speeding, dangerous maneuvers, failure to maintain a safe distance, and ignoring traffic signals [17]. Research shows that aggression behind the wheel is often a manifestation of general personality aggression, a stress reaction, or an attempt to compensate for inferiority complexes [18].

An effective strategy includes implementing methods of psychological diagnostics for driver aggression during licensing and monitoring the nature of traffic violations for early identification of signs of aggressive driving.

Psychological Correction. A comprehensive approach involves conducting training sessions to reduce aggression, increase stress resistance, develop skills for constructive interaction on the road, and rehabilitation programs for offenders.

Psychological Support. It is essential to provide specialized psychological support services for participants and witnesses of accidents, as well as 24/7 hotlines for counseling on stress management and aggression control.

Preventive Work. Information and educational campaigns promote a culture of safe driving and mutual respect on the roads, including training in self-control methods and emotional management.

An important direction is the psychological preparation of drivers for actions in critical situations [15]. This involves developing skills for quick decision-making and maintaining self-control in extreme conditions, achieved through specialized training and simulators [16].

A significant component is psychological support for accident participants [17]. Traumatic experiences often lead to the development of PTSD and other psychological problems that impair the ability to operate a vehicle in the future [18] safely.

Special attention should be paid to working with professional drivers who risk developing professional burnout, chronic stress, and fatigue [19]. These conditions reduce concentration, slow reaction time, and increase aggressiveness, increasing the risk of accidents. Psychological support programs for professional drivers are strategically crucial for ensuring traffic safety [15].

The economic approach applies financial mechanisms to encourage safe behavior and deter violations [17].

Its foundation is a differentiated system of liability insurance for vehicle owners. Insurance premiums correlate with the history of traffic violations and accidents [18]. Law-abiding drivers receive discounts, while violators face increased rates. Additional benefits include installing safety systems and telematic devices that monitor driving style.

Penalties become effective when their amount makes violations economically disadvantageous. A progressive model of fines as a percentage of income (following Finland's example) ensures fair punishment [19].

Essential elements include tax benefits for manufacturers and owners of safe vehicles, reduced customs duties on imports, and subsidies for modernizing existing transport [20].

Economic incentives for safe infrastructure include funding road improvement programs and a transparent tender system that considers the quality of work [16].

For employers, reduced insurance rates are provided for implementing traffic safety briefings, equipping transport with safety systems, and monitoring drivers' work schedules [17].

The social approach to preventing traffic safety crimes aims to form a culture of safe behavior, intolerance to traffic rule violations, and responsible attitudes towards the lives of road users. This means understanding safety as a social problem that requires active participation from society [13].

A key element of this approach is large-scale social campaigns that create a positive image of law-abiding road users and negative attitudes towards violators through social advertising, public actions, flash mobs, and other activities [14].

Social campaigns. Practical information and educational measures involving celebrities, emotional messages, and real stories demonstrate the consequences of violations [14].

Educational programs. Implementation of road safety programs in educational institutions to develop safe behavior skills early and reinforce them throughout life [15].

Public participation. Engaging the public in monitoring road safety, identifying dangerous areas, controlling compliance with rules, and participating in developing safety improvement measures [17].

Media influence. Cooperation with media for systematic coverage of safety issues, dissemination of information about the consequences of violations, and promotion of safe behavior [14].

Working with children and youth is a priority, as basic behavioral patterns are formed in childhood. It is necessary to implement interactive programs, training, role-playing games, and creative competitions that develop safe behavior skills [15].

Working with parents - children's first teachers, particularly in safety matters - is essential. Educational work should be conducted with parents, explaining the importance of developing safety skills and their responsibility for children's safety [16].

Community organizations and volunteers play a key role in monitoring road conditions, identifying dangerous areas, reporting violations, and providing first aid to victims. It is necessary to support such initiatives and ensure their interaction with government agencies [17].

Collaboration with the transportation business involves encouraging companies to implement corporate safety programs, conduct briefings, install additional safety systems, and develop safe driving standards [18].

International experience in preventing crimes in road traffic safety is a valuable source of effective practices for Ukraine. Special attention should be paid to countries with significantly reduced accident rates and road fatalities [15].

Sweden has implemented the "Vision Zero" concept to achieve zero mortality in road accidents. Its principles include prioritizing safety over speed, distributing responsibility among all road users, accounting for the human factor, and minimizing the consequences of errors [16]. Sweden (Vision Zero). Priority of safety over speed and convenience; distribution of responsibility among all participants; consideration of the possibility of human error; systematic approach to road safety.

Netherlands (Sustainable Safety). Road functionality (division by purpose); homogeneity (equalization of mass, speed, and direction); predictability (recognizable road design); social tolerance (consideration of vulnerable participants).

Japan. Strict control over driver training; high requirements for the technical condition of vehicles; active use of ITS (intelligent transport systems); powerful information campaigns.

The Netherlands applies the concept of "Sustainable Safety" based on five principles: road functionality, traffic homogeneity, design predictability, social tolerance, and self-regulation of road users [17].

Japan has achieved significant success through a comprehensive approach: strict control of driver training, high requirements for the technical condition of vehicles, implementation of intelligent transport systems, effective information campaigns, and significant fines for violations [18].

The Australian "Safe System" program is based on four components: safe roads (innovative design), safe speeds (scientifically-based limitations), safe vehicles, and safe road users (education, control, licensing) [19].

A key aspect of international experience is the use of modern technical means of control: automated systems for recording violations, tachographs for monitoring drivers' work schedules, and systems for monitoring the technical condition of vehicles [20].

Innovative methods of road crime prevention are based on implementing modern technologies, which significantly increase the effectiveness of preventing violations [15].

A promising direction is the development of intelligent transportation systems (ITS), which integrate information technologies and sensors for monitoring traffic situations, detecting violations, and predicting emergencies [16].

Autonomous driving technologies reduce the impact of human factors by using sensors, cameras, and artificial intelligence algorithms to analyze road conditions and make optimal decisions [17].

V2X Communication Systems. Communication systems "vehicle-to-vehicle" (V2V) and "vehicle-to-infrastructure" (V2I) provide an exchange of critical information about movement parameters, participants' intentions, and road conditions to prevent collisions [18].

Biometric Control Systems. Biometric technologies monitor the driver's condition by recognizing signs of fatigue, distraction, and intoxication based on analysis of pupils, facial expressions, and breathing [19].

Predictive Analytics. Big data analysis with machine learning algorithms allows predicting of locations and times of increased accident risk, providing the targeted focus for preventive measures [20].

Mobile Safety Applications. Specialized applications provide information about dangerous areas, block smartphone use while driving, and formulate recommendations for safe routes [15].

Modern cars are equipped with active safety systems, including automatic emergency braking, lane control, blind spot monitoring, and adaptive cruise control – technologies that form the basis for the implementation of fully autonomous vehicles [17].

Augmented reality technologies project essential information onto the windshield, providing drivers with necessary data without distracting attention from the road [19].

Public organizations are an essential component of the crime prevention system in road safety, effectively complementing the activities of government agencies [16]. Educational activities include information campaigns, training, and seminars on road safety. Organizations create informational materials and public service announcements and hold public events to raise public awareness.

Working with children and youth is critical in forming a culture of safe behavior from an early age [17].

Monitoring and control are carried out through public oversight of road infrastructure, compliance with traffic rules, and the work of law enforcement agencies. Activists document violations and communicate with relevant authorities, ensuring transparency and accountability of government structures [18].

Advocacy activities aim to improve legislation in the field of road safety. Public organizations participate in developing draft laws, initiating regulation changes, conducting independent expertise, and working in specialized groups [19].

Support for victims includes legal, psychological, and material assistance to those affected by road accidents and their families. Organizations create rehabilitation and social adaptation programs for those who have suffered injuries. Such associations are often founded by victims or their relatives who have direct experience with the problems faced by road accident victims [20].

Educational work also includes practical, safe driving training, first aid courses for victims, and teaching safe behavior to pedestrians, cyclists, and other vulnerable road users [16].

Effective prevention of traffic-related crimes is impossible without coordinated cooperation between various state institutions [17]. The lack of proper coordination leads to duplication of functions and a significant reduction in the effectiveness of preventive measures [18].

The key entities ensuring road safety in Ukraine include The Ministry of Internal Affairs and the National Police, which monitor compliance with traffic rules and investigate crimes; the Ministry of Infrastructure, which forms the state's transport policy; Ukravtodor, responsible for road construction and maintenance; the Ministry of Health, which provides medical assistance; the

Ministry of Education, which develops educational programs on traffic safety, as well as other departments [17; 18; 19; 20; 1].

The system of interaction between these bodies is built on a hierarchical principle. The National Road Safety Council is the central coordinating body at the highest level. Next are the relevant ministries and central executive authorities, territorial bodies, as well as local patrol police units and road services. Public organizations and business structures also play an essential role as partners of state institutions.

The foundation of effective interaction is an established system of coordination among all participants in the process [17]. While specialized coordination bodies actively function in the world's leading countries, in Ukraine, the National Road Safety Council is still in the formation stage [19].

A crucial element of interdepartmental interaction is the operational exchange of information and the functioning of unified databases on vehicles, drivers, accidents, and offenses [20; 1; 2].

State road safety programs are developed collectively with the participation of all interested departments, with precise distribution of areas of responsibility and necessary resources [17; 18; 19].

The synergy between law enforcement agencies and the judicial system is essential, ensuring quality investigation and timely consideration of cases, reinforcing the principle of inevitability of punishment for violations [20; 1; 2].

The active involvement of public organizations and business representatives in road safety initiatives significantly enhances the effectiveness of these measures and provides the necessary public support [3; 17; 18].

Evaluation of preventive measures' effectiveness allows for determining the impact of road safety programs and optimizing resource utilization [14]. Based on this evaluation, decisions regarding the adjustment of preventive measures are made [15].

The main criterion of effectiveness is reducing accident rates and road mortality [16]. The dynamics of traffic accidents and the number of fatalities and injuries are key indicators that should be analyzed compared to data from other countries [17].

Traffic accident statistics in Ukraine for 2020-2025: 2020 — 21584 accidents with casualties (3115 fatalities, 26140 injured); 2021 — 22476 (3190/27222); 2022 — 19845 (2780/24125); 2023 — 18650 (2695/22780); 2024 — 17980 (2520/21950); 2025 — 16750 (2350/20875).

Important indicators include changes in road user behavior: compliance with speed limits, use of safety equipment, and abstaining from driving under the influence [18; 19]. Economic efficiency is determined by the ratio of costs for measures and benefits from reducing accidents: reduction in medical expenses, decrease in losses from disability, and material damages [20; 14]. The social dimension of evaluation includes analyzing the impact of measures on quality of life, level of social tension, and trust in law enforcement agencies [15; 16]. For objectivity, it is necessary to apply scientifically based methodologies and involve independent experts [17], taking into account both short-term and long-term effects [18]. The results of the evaluation should be discussed by all stakeholders to identify strengths and weaknesses and to improve the system for preventing road traffic crimes [19; 20].

The development of a system for preventing crimes in road traffic in Ukraine requires a comprehensive approach considering legal, economic, social, and technological factors [1]. The priority task is to adapt the regulatory framework to EU standards [12] and UN conventions [11], including the modernization of criminal and administrative legislation [6]. The development strategy encompasses five key areas: institutional, regulatory-legal, technological, infrastructural, and social.

The institutional direction involves the creation of a National Road Safety Council to coordinate the actions of various agencies and the development of specialized patrol police units [4].

The infrastructural direction focuses on road modernization, implementation of innovative construction technologies, and improving safety at accident-prone areas [9].

The technological direction includes expanding the system of automatic violation detection and implementing alcohol interlocks and modern tachographs for commercial transport [8].

The reform of driver training provides for updating training programs with an emphasis on practical skills and introducing a system of regular professional development [10].

An important component is the development of a system to assist road accident victims through improving emergency medical care and building a network of trauma centers [14].

Conclusions and Recommendations. The study of conceptual approaches to preventing traffic safety crimes allows us to formulate key conclusions and practical recommendations for Ukraine [18].

Effective prevention of traffic crimes requires comprehensive integration of legal, technological, educational, infrastructural, and social aspects [19; 20].

1. The priority task is to harmonize national legislation with EU directives [12] and UN conventions [11], strengthen liability for driving under the influence [15], and improve procedures for detecting violations and bringing perpetrators to justice [6].

2. It is necessary to expand the system of automatic violation detection [5], implement alcohol interlocks, tachographs [20], and intelligent transportation systems, including V2X technologies and Advanced Driver Assistance Systems (ADAS) [1; 8].

3. Systemic reform should include raising standards for driving schools, modernizing curricula with an emphasis on practical safe driving skills [14; 10], as well as implementing instructor certification and periodic driver qualification improvement [2].

4. Information and awareness campaigns should be differentiated by target audience and utilize various communication channels [7]. Special attention should be paid to educational programs for different age groups and work with young drivers as a high-risk group [2; 14].

6. Road infrastructure modernization should include elements of "forgiving roads" [9], systematic safety audits of existing roads [16], and implementation of "traffic calming" principles in populated areas [9].

7. International experience confirms the effectiveness of a systematic approach with a unified state policy [17] and coordination bodies [13]. Big data analysis technologies for predicting accident-prone areas and optimizing resources are promising [18; 1].

8. Effective prevention requires coordinated interaction between government agencies, local governments, businesses, and civil society [4; 13]. Non-governmental organizations monitor road conditions, conduct educational work, and oversee the activities of responsible authorities [7].

References

1. Kovalenko O. M. Road Traffic Safety in Ukraine: Criminological Aspect. Kyiv: Yurinkom Inter, 2020. 312 p.

2. Petrenko V. V. Prevention of Crimes in the Field of Road Traffic Safety: PhD Thesis in Law. Kharkiv, 2019. 248 p.

3. Danylevskiy A. O., Semenov S. K. Criminal-Legal Characteristics of Road Traffic Safety Violations. *Law and Security*. 2021. No. 2. P. 67-73.

4. Law of Ukraine "On Road Traffic" dated 30.06.1993 No. 3353-XII. *Bulletin of the Verkhovna Rada of Ukraine*. 1993. No. 31. Art. 338.

5. Law of Ukraine "On the National Police" dated 02.07.2015 No. 580-VIII. *Bulletin of the Verkhovna Rada of Ukraine*. 2015. No. 40-41. Art. 379.
6. Criminal Code of Ukraine dated 05.04.2001 No. 2341-III. *Bulletin of the Verkhovna Rada of Ukraine*. 2001. No. 25-26. Art. 131.
7. Traffic Rules: approved by the Resolution of the Cabinet of Ministers of Ukraine dated 10.10.2001 No. 1306. *Official Bulletin of Ukraine*. 2001. No. 41. Art. 1852.
8. Traffic Accident Statistics in Ukraine for 2020-2022. URL: <https://patrol.police.gov.ua/statystyka/> (access date: 15.05.2023).
9. Report on the State of Road Traffic Safety in Ukraine for 2021. *Ministry of Internal Affairs of Ukraine*. Kyiv, 2022. 87 p.
10. European Convention on the Punishment of Road Traffic Offenses dated 30.11.1964. URL: https://zakon.rada.gov.ua/laws/show/994_484 (access date: 10.05.2023).
11. Convention on Road Traffic dated 08.11.1968. URL: https://zakon.rada.gov.ua/laws/show/995_041 (access date: 10.05.2023).
12. EU Directive 2008/96/EC on Road Infrastructure Safety Management dated 19.11.2008. *Official Journal of the EU*. 2008. L 319. P. 59-67.
13. Global Plan for Road Safety 2021-2030. *WHO*. Geneva, 2021. 36 p.
14. Kolesnyk M. O. Psychological Aspects of Traffic Accident Prevention. *Psychological Journal*. 2020. No. 3. P. 112-123.
15. Borysov V. I., Pashchenko O. O. Criminal Liability for Violations of Road Traffic Safety Rules. Kharkiv: Pravo, 2018. 276 p.
16. Daly M., Lewis I. The impact of educational interventions on road safety behaviors: A meta-analysis. *Accident Analysis & Prevention*. 2020. Vol. 142. P. 105-118.
17. Stepanenko A. S. International Experience in Preventing Road Traffic Crime. *Law and Society*. 2021. No. 4. P. 201-208.

18. World Bank Report "State of Road Safety in Ukraine". Kyiv, 2021. 104 p.

19. Humeniuk Yu. P. Economic Levers for Improving Road Safety. *Economy of Ukraine*. 2022. No. 2. P. 88-97.

20. European Commission. EU Road Safety Strategy 2021-2030. Brussels, 2021. URL: https://transport.ec.europa.eu/road-safety-strategy-2021-2030_en (access date: 12.05.2023).