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WEB-BASED SYSTEM FOR DRIVER SELECTION IN TRANSPORT COMPANIES: CONCEPTUAL FRAMEWORK AND FEATURES ¹⁴

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***Abstract:** This report presents the conceptual framework of a web-based application designed to support transport companies in efficiently selecting the most suitable drivers. The system centralizes management of driver profiles, company accounts, and job postings, enabling structured search, filtering, and application processes. Drivers can create profiles detailing their professional experience, language skills, qualifications, and completed courses, while company staff can manage job offers, track applications, and monitor the selection process. The system aims to improve the efficiency and accuracy of driver selection, ensuring a better match between candidate competencies and company requirements, thereby enhancing overall operational effectiveness and reducing recruitment costs in transport organizations.*

***Keywords:** Web-based system, Driver selection, Transport, Logistics, Skills assessment, Job posting.*

INTRODUCTION

The selection of qualified drivers for transport vehicles is a critical process for transport companies, as it directly affects operational efficiency, road safety, and service quality. Traditional recruitment methods are often time-consuming, subjective, and prone to mismatches between candidate qualifications and company requirements. To address these challenges, a web-based application has been developed to facilitate the selection of the most suitable drivers for specific transport positions.

The system allows drivers to create detailed profiles including personal information, professional experience, language skills, competencies, specialized courses (e.g., tachograph, safety, ADR, first aid, cargo securing), and relevant documents. In Bulgaria, professional drivers must meet legal requirements such as minimum age, required driving experience, medical and psychological fitness, possession of a driver qualification card (CPC), and completion of periodic training. Drivers carrying dangerous goods must additionally complete certified ADR courses. These national rules operate alongside EU and international standards, including the Driver CPC Directive 2003/59/EC, Regulation (EC) No 561/2006 on drivers' hours and rest periods, and the European Agreement on the Work of Crews of Vehicles Engaged in International Road Transport (AETR). Together, these regulations ensure that professional drivers are qualified, fit, and compliant with safety and work-time rules.

For transport companies, the system provides a corporate panel to manage company information, employee accounts, and job postings. Staff can post vacancies with detailed requirements including required experience, education, language skills, specific competencies, and type of transport (e.g., refrigerated cargo). Drivers can apply for positions, and companies can track application status, improving transparency and efficiency in the recruitment process.

The system also addresses industry challenges such as driver shortages and rising recruitment costs. By digitizing recruitment processes and implementing web-based filtering tools, the platform enables companies to quickly identify candidates who meet all regulatory and professional criteria while reducing administrative workload. Overall, the application provides a structured, efficient, and compliant method for matching drivers to positions, improving both operational decision-making and workforce management in transport companies.

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EXPOSITION

The proposed web-based system is designed as an interactive digital platform that facilitates the process of selecting and matching professional drivers with transport companies. The concept is based on the idea that both drivers and employers should have access to a transparent, structured, and regulation-compliant digital environment for professional recruitment and assessment.

System Overview

The system consists of two main user roles - drivers and companies (employers) - each provided with separate functional panels. A shared public interface allows browsing and filtering of job postings, while authentication ensures secure access to user-specific features.

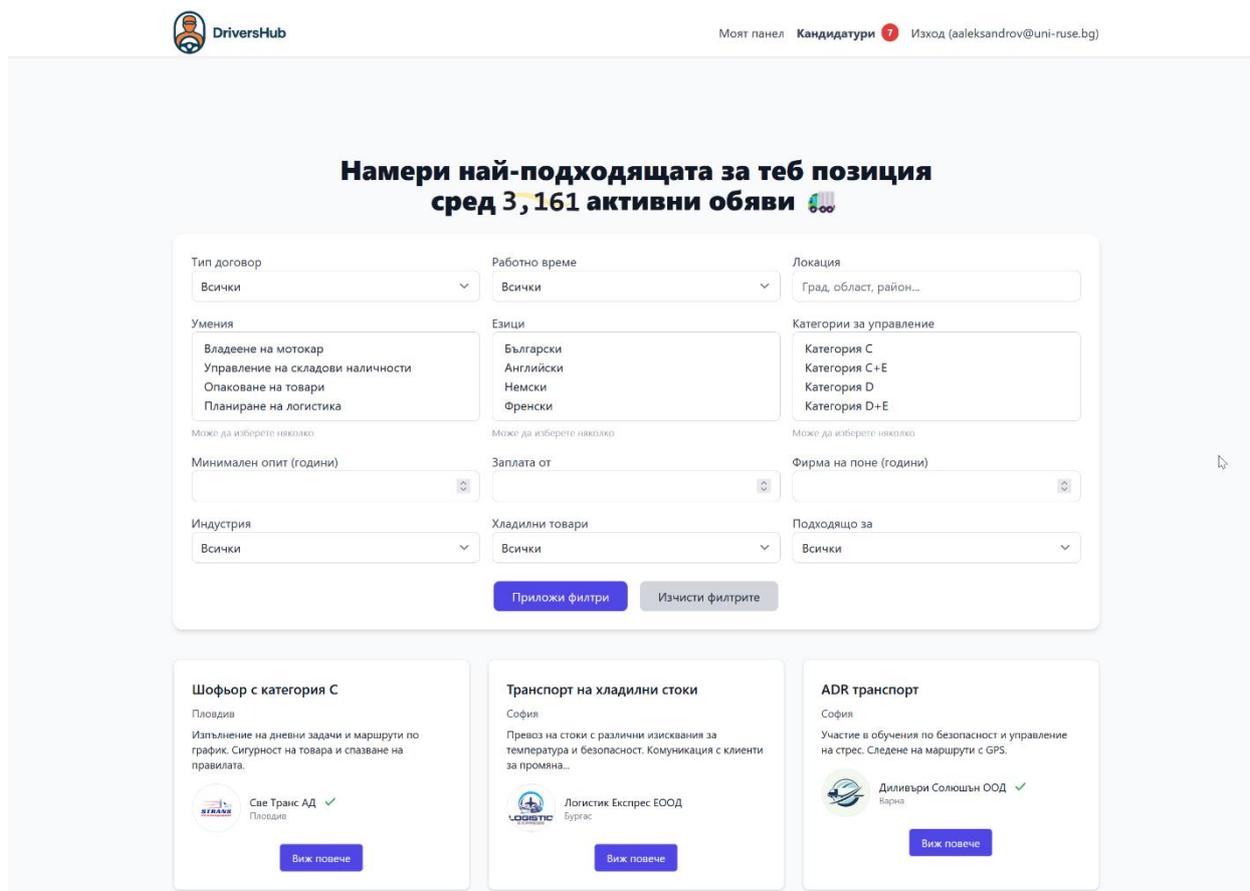


Fig. 1. Homepage of the system showing available filters for job postings.

The platform integrates data on driver qualifications, competencies, and legal compliance with national and European transport requirements. Its main objective is to optimize the driver selection process by combining professional information, legal criteria, and company preferences in one unified web environment.

Driver Panel

The driver module enables individuals to register, manage their personal profiles, and apply for transport-related job offers. Each driver's profile includes the following components:

- Personal Information: name, email, password (for authentication).
- Professional Experience: previous employers, held positions, and duration of employment (from - to).
- Languages: levels of comprehension, speaking, reading, and writing skills in one or more foreign languages.

- Skills and Competencies: such as professional communication, logistics management, cargo handling, punctuality, and responsibility.
- Courses and Certificates: Drivers can indicate participation in specialized professional courses such as tachograph operation, road safety, ADR (transport of dangerous goods), first aid, and cargo securing.
- Documents: The system allows drivers to upload relevant supporting documents such as driving license scans, qualification cards (CPC), medical certificates, or ADR endorsements.

Професионален Опит > Списък

Професионален Опит + Добави професионален опит

Търси

Компания	Длъжност	От	До	
DHL Express Bulgaria	Senior Truck Driver	мар 2007	юни 2011	Редакция Изтрий
DB Schenker Bulgaria	International Freight Driver	юли 2011	фев 2015	Редакция Изтрий
Kuehne + Nagel Bulgaria	Logistics & Delivery Driver	мар 2015	дек 2018	Редакция Изтрий
Gebrüder Weiss Bulgaria	Heavy Goods Vehicle Driver	яну 2019	авг 2022	Редакция Изтрий
TBI Express	Driver & Route Supervisor	сеп 2022	сеп 2025	Редакция Изтрий

Показване на 1 до 5 от общо 5 резултата

Резултати на страница 10

Fig. 2. Driver’s professional experience overview showing previous employers, positions held, and employment periods

Езици > Списък

Езици + Добави език

Търси

Език	Разбиране	Слушане	Четене	Писане	
Български	C1	C1	C1	C1	Редакция Изтрий
Немски	B1	B1	B1	A2	Редакция Изтрий
Румънски	A1	A1	A1	A1	Редакция Изтрий

Показване на 1 до 3 от общо 3 резултата

Резултати на страница 10

Fig. 3. Driver profile page displaying language proficiency levels and option to add new languages.

This structure allows for objective evaluation of each driver’s professional readiness, as required by the Ordinance №41/2008 and Directive 2003/59/EC on driver qualification. The inclusion of language and behavioral competencies also supports soft-skill assessment, which is essential for international freight and passenger transport.

Company Panel

The company (employer) module provides organizations with a complete administrative dashboard for managing corporate data, employees, and job postings:

- Company Information: name, VAT and registration number, address, phone, email, website, and company logo.
- Employee Management: Employers can create internal accounts for staff members (roles such as Manager, HR Specialist, or Administrator), ensuring role-based access control and internal collaboration.
- Employer Dashboard: A centralized dashboard provides a visual overview of key recruitment metrics and job posting statistics, including:
 - Total number of active job postings
 - Number of applications per posting
 - Status of applications (approved, pending interview, rejected, hired)
 - Expired or upcoming job postings
 - Average number of applicants per job
 - Jobs with no applicants
 - Additional analytics such as average time to hire, candidate success rates, and language or skills distribution

The dashboard uses interactive charts and summary cards to help employers quickly monitor recruitment activity, evaluate candidate pipelines, and make data-driven hiring decisions.

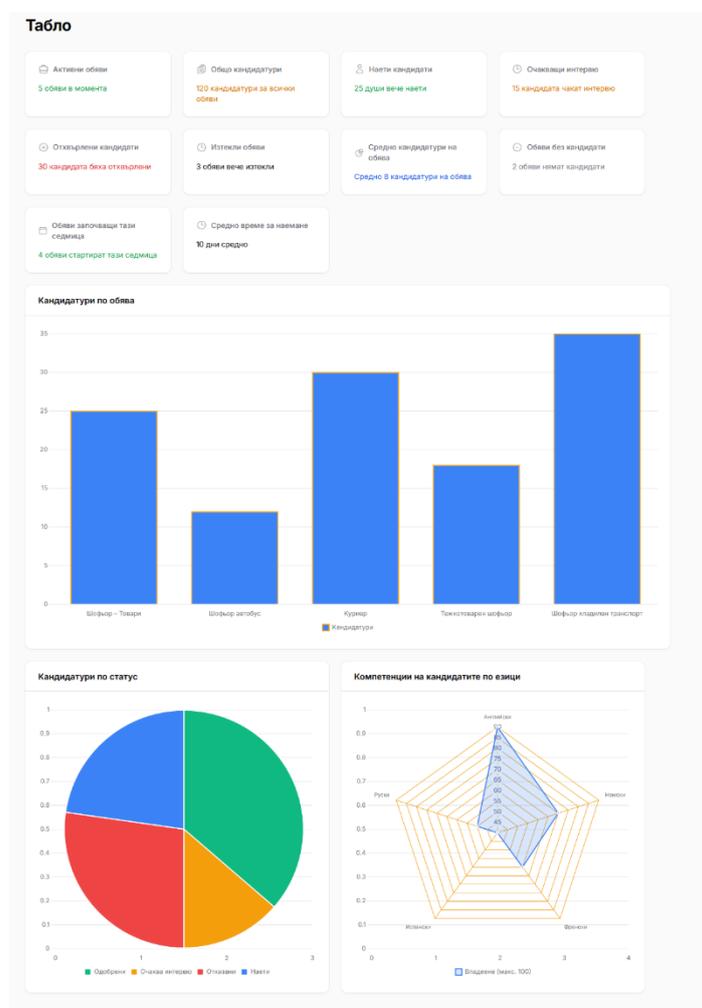


Fig. 4. Employer Dashboard showing overview statistics and charts for job applications and active postings

Фирмени акаунти

+ Нов акаунт

Търси

Име	Email	Телефон	Роля	Активен	Последен вход	Регистриран на		
Андрей Александров	aaleksandrov@uni-ruse.bg	0890231230	Служител	<input checked="" type="checkbox"/>	преди 6 часа	май 22, 2025	<input checked="" type="checkbox"/> Редакция	<input checked="" type="checkbox"/> Изтрий
Иван Петров	ivan.petrov@company.com	0898641234	Служител	<input checked="" type="checkbox"/>	преди 10 часа	юни 15, 2025	<input checked="" type="checkbox"/> Редакция	<input checked="" type="checkbox"/> Изтрий
Борис Славов	boris.slavov@company.bg	0896843562	HR	<input checked="" type="checkbox"/>	преди 20 часа	юни 15, 2025	<input checked="" type="checkbox"/> Редакция	<input checked="" type="checkbox"/> Изтрий

Показване на 1 до 3 от общо 3 резултата

Резултати на страница 10

Fig. 5. Overview of company staff with assigned roles in the platform.

- Job Listings: Each job posting includes detailed information:
 - Job title and position
 - Location (city or region)
 - Contact information
 - Main responsibilities (free-text editor)
 - Contract type (permanent, temporary, or part-time)
 - Working hours and schedule
 - Number of available positions
 - Start date and active period
 - Minimum required experience
 - Industry type and cargo specifics (e.g., refrigerated transport)
 - Educational level and desired competencies
 - Required languages: proficiency levels in listening, speaking, reading, and writing
 - Mandatory courses and certifications: e.g., ADR (transport of dangerous goods), tachograph, first aid, safety, cargo securing, etc.
 - Special skills and qualifications: e.g., ability to handle refrigerated or heavy cargo, additional vehicle categories
 - Notes and posting status (draft, inactive, active, or expired)

This structured approach ensures consistency across all job postings and makes it easier for employers to maintain accurate and complete information. It also enables the system to automatically filter candidates based on qualifications, experience, and skills. As a result, drivers can be efficiently matched with the most relevant job offers, improving both recruitment speed and quality of hires. Furthermore, it provides valuable analytics for employers, helping them identify trends, optimize job requirements, and make data-driven decisions in workforce planning. Additionally, it supports continuous improvement of the recruitment process by highlighting gaps in candidate availability and helping employers refine job criteria over time.

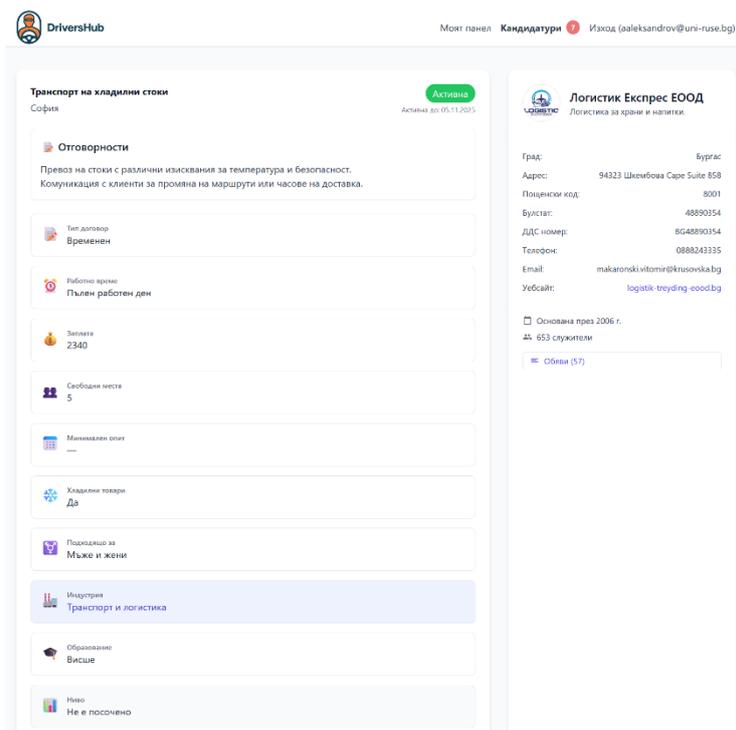


Fig. 6. Display of an active job listing on the platform for users.

Application Process and Matching Logic

When a driver applies for a job posting, the system records the application and assigns it a status reflecting the current stage of evaluation (e.g., “Received”, “In review”, “Interview scheduled”, “Approved”, or “Rejected”). Employers can update these statuses, add internal notes, or invite drivers for interviews.

The system’s matching algorithm prioritizes offers that align with a driver’s qualifications, experience, and course certificates. For instance, a driver with an ADR qualification will automatically appear as eligible for dangerous goods transport positions. Similarly, language skills can filter candidates for international operations.

This model facilitates transparent and efficient decision-making by ensuring that only legally compliant and professionally suitable candidates are shortlisted for employment.

Public Interface and Search Filters

The public (unauthenticated) interface presents all active job postings, sorted by relevance and recency. Users can apply advanced filters, including:

- Working hours (full-time, part-time, hybrid)
- Contract type
- Location
- Skills and competencies
- Language proficiency
- Minimum experience
- Salary range
- Company age (years of operation)
- Industry sector
- Transport type (e.g., refrigerated cargo, ADR)
- Gender suitability (optional and non-discriminatory, used for operational context only)

This filtering functionality enables both companies and drivers to easily identify optimal employment opportunities based on clear and measurable criteria.

Functional Benefits

The web-based system introduces several operational advantages:

- Automation: digital processing of applications reduces manual administrative work.
- Transparency: both sides can track the progress of applications and decisions.
- Compliance: all data fields are designed to ensure that drivers meet legal qualification and certification standards.
- Efficiency: faster recruitment cycles and better drive-job matching.
- Accessibility: as a web-based platform, it is available from any location with internet access, supporting cross-border recruitment in the EU transport market.

Practical Application in Transport Management

From a transport operations perspective, the system contributes to improved human-resource planning and utilization. By integrating driver qualification data into a centralized digital environment, transport managers can make informed decisions when assigning drivers to specific routes, cargo types, or vehicle categories. This contributes to higher safety, reduced downtime, and better compliance with regulatory and company policies.

CONCLUSION

The digital transformation of the transport and logistics industry has made the automation of driver selection processes not only feasible but increasingly necessary. Traditional recruitment methods, which rely heavily on manual screening and paper-based verification of licenses and certificates, are inefficient and prone to human error. A web-based system for driver selection provides an integrated solution that ensures compliance with national and international regulations while improving efficiency, transparency, and fairness in the recruitment process.

Such a system enables transport companies to validate candidate credentials automatically - such as driving-license categories, CPC qualifications, medical and psychological certificates, and ADR endorsements - directly against regulatory standards. By embedding these verification mechanisms into a centralized platform, operators can reduce administrative workloads, enhance data accuracy, and prevent unqualified drivers from entering service. This in turn directly supports the overarching goals of the Road Transport Act, EU Directive 2003/59/EC, and related international conventions, all of which emphasize safety and professional competence.

From an operational perspective, the implementation of a web-based recruitment system also promotes better workforce management. The automation of candidate filtering, ranking, and communication optimizes the HR workflow and reduces time-to-hire - an especially critical advantage amid the ongoing shortage of professional drivers across Europe. Furthermore, the inclusion of data analytics modules can help companies monitor recruitment patterns, assess driver performance post-hiring, and continuously improve their selection criteria.

Finally, beyond compliance and efficiency, the broader significance of such systems lies in their contribution to safety and sustainability in road transport. Ensuring that only properly trained and fit drivers operate heavy and passenger vehicles directly reduces accident risk and enhances public trust in the sector. The integration of digital technologies into driver recruitment thus represents a crucial step toward a smarter, safer, and more adaptive transport ecosystem - one aligned with the long-term vision of sustainable mobility and intelligent logistics management.

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