

DEVELOPMENT OF THE TRANSPORTATION SECTOR IN TURKEY

Abstract. *This article is devoted to the development of Turkey's transportation system, describing the various modes of transport used in Turkish cities and towns. The Turkish Ministry of Transport and Infrastructure is responsible for the development and management of all transportation networks: highways, railways, civil aviation, and seaports. Tourists and citizens have access to affordable intercity flights, a well-designed public transportation system in major cities, high-speed rail, ferries, and intercity bus services. Innovative technologies, particularly artificial intelligence (AI) technologies, have been applied to the development of Turkey's transportation system over the past decade. Thanks to these technologies, smart buses, smart trains, and smart cars have appeared in Turkish cities.*

Keywords: *transportation systems, Turkish cities, tourists, residents, highways, high-speed trains, metro, taxis.*

Introduction

With its unique geographical location between Europe and Asia, Turkey has become a natural bridge between continents. This strategic factor makes the transportation industry a key element of the economy and international trade. The Turkish Ministry of Transport and Infrastructure (Ulaştırma ve Altyapı Bakanlığı) is responsible for the development and management of all transportation networks: highways, railways, civil aviation, and seaports. These initiatives are part of the "Turkey Transport and Logistics Vision 2053" program, which aims to create an integrated, smart, and sustainable transportation system connecting all cities and industrial areas of the country. Land Transportation and Highways Turkey has one of the most developed road networks in the region - over 70,000 km of paved roads, of which approximately 30,000 km are two-lane highways connecting major cities and industrial centers. The network is managed by the Directorate General of Highways (KGM) and funded through national programmes to improve efficiency and reduce travel times.

Methodology

Despite Turkey being a large country, traveling within it is relatively easy, thanks to its well-developed transportation system. Tourists and locals alike have access to:

- affordable flights between cities,
- a well-developed public transportation system in major cities,
- high-speed rail,
- ferries,
- intercity bus services,
- easy car booking options.

This infrastructure allows tourists of any budget to easily explore even the most remote corners of the country. In our review, we'll cover the main modes of transportation in Turkey, provide links to official company websites, and resources for booking tickets—everything you need to start your trip hassle-free and without unnecessary fees [1].

Results

Public Transportation in Turkey

The easiest way to immerse yourself in the country's culture and feel like a local is to actively use public transportation. Tourist cities like Istanbul, Antalya, and Alanya have well-defined urban and intercity transportation systems that are easy to navigate, even without knowing the language. Buses (Otobüs) are the most common form of intercity transportation in Turkey. Each region has its own intercity bus network, operated by various companies. Buses are typically about half the price of a flight, but take much longer: the average bus speed across the country is approximately 60-80 km/h. For example, in 2023, a bus ride from Istanbul to Antalya will cost \$4-24 USD and take 10-13 hours. In most cases, the quality of service is roughly the same [2].

The bus is equipped with a toilet, air conditioning, a TV, free Wi-Fi, and a phone charging port. The interior is clean, relatively spacious, and comfortable. Complimentary water is provided, and snacks and sandwiches are sometimes included in the price. Some operators offer blankets and pillows for overnight trips. Stops are scheduled along the way for stretching, food shopping, and smoking.

Buses depart from large terminals (Otogar), similar to Russian bus stations. Dozens of different companies compete with each other in a small area, surrounded by numerous eateries and souvenir shops. For ticket purchases, there are Russian and English-language resources with schedules, prices, and useful travel tips. Tickets can be purchased on the day directly at the bus station or online. Buses depart every 1-2 hours on popular routes.

Trams

Low speeds, scenic routes through major tourist attractions, and vintage trams make trams a popular means of transportation for tourists. The T1 route in Istanbul, which runs through tourist hotspots on the European side of the city, is particularly popular. The 11-kilometer tram line in Antalya is also frequently used by tourists, connecting the airport, the historic center, and the city's largest beach. Modern trams operate on non-tourist city routes, but even the vintage trams are often equipped with air conditioning (photo 1).



Photo 1 – City tram

This is a rapid transit system in Istanbul that allows for traffic-free travel over long distances between the European and Asian sides. There are eight routes in the city. They begin with the number 34, run every 1 to 8 minutes, even at night, and are used primarily by local residents, as they connect residential areas.

Minibuses in Turkey A *dolmuş* is a small shared bus that travels between cities and rural areas. It travels between two points along a precisely defined route and at fixed intervals. Passengers can board and disembark wherever they wish. Simply signal the *dolmuş* from the side of the road, and it will stop to pick you up. In Turkish, "*dolmuş*" means "full." The name comes from the fact that a *dolmuş* does not depart until it has sufficient passengers. For example, in Antalya, there are approximately 70 different *dolmuş* routes. It's estimated that there are approximately 1,800 "stops" along these routes. If you're on a *dolmuş* and want to get off, you should shout "*Inecek var*," which means "someone wants to get off." The driver will stop at the first opportunity.

Dolmuş also travel between cities. For example, from Antalya, you can take a minibus to Akseki, Aksu, Alanya, Finike, Kaş, Kemer, Manavgat, Beldibi, Belek, and other destinations. *Dolmuş* stands can be found at bus stations. Schedules are usually posted on small boards, sometimes handwritten with a marker. Prices for each route are fixed. Payment is made in cash, handed to the driver by passengers. To the right of the driver, next to the gearshift, there is a small box where the driver places change in the appropriate compartments. This allows the driver to make change even during the journey. *Dolmuş* tickets are not issued.

Metro in Turkey

Metro systems, as they are commonly understood in Russia as underground communication systems, are available in Istanbul, Bursa, Adana, and Ankara. Istanbul also has the Istanbul Light Rail (LRT) system. High-speed commuter rail systems exist in Izmir (Izban), the Istanbul suburbs (Marmaray), and

Gaziantep. Metro maps are available both as apps and at each station. Stops are announced in Turkish in advance, making it difficult to miss your stop. Generally, navigating the metro is hassle-free. For tourist cities, such as Istanbul, detailed metro descriptions are available in Russian. The Istanbulkart fare in Istanbul is 7.6 lira in 2023. Metro rides in other cities are significantly cheaper (1.5 lira in Gaziantep). Those considering buying property in Istanbul should study the Marmaray commuter train station map. The proximity of a home to a station significantly impacts the price per square meter.

Rail Transport

The Turkish rail network is unified and allows travel across the country from both west to east (from Edirne to Kars) and north to south (from Zonguldak to İskenderun); it is most widespread in the western part of the country. Turkey uses the European gauge (1435 mm). The total length of railways is 12,700 km, of which 3,800 km are electrified (2018). A high-speed train of the Turkish State Railways (TCDD) (photo 2). Since 2009, a high-speed rail construction project has been underway; as of 2019, the length of the tracks was 1,200 km (connecting Ankara with Konya and Istanbul). The network density is 1.6 km per 100 km² (2018; 1.45 in 2009). Freight turnover is about 14.4 billion t-km, passenger turnover is 8.9 billion pass-km (2018; 12.7 billion t-km and 8.5 billion pass-km in 2017).



Photo 2 – High-speed train

Despite the abundance of alternatives such as local airlines and buses, some travelers prefer the romance of trains. For these travelers, the Turkish Railways Administration offers high-speed trains (similar to the Russian Sapsan) and standard trains. These trains come in three types of carriages: sleeping compartments, reserved seats, and seats. Tickets are comparable in price to buses. For example, a trip to Ankara from Istanbul costs \$11 and takes 4.5 hours. Trains are chosen when traveling overnight and saving on hotel costs is an option [3].

A combination of train and bus also allows for comfortable travel to Pamukkale and Cappadocia. A major drawback of trains in Turkey is that the railway does not extend to the most popular tourist resorts on the Mediterranean and Black Seas. The closest Mediterranean resort accessible by train is Izmir. There are also named tourist routes (the Blue Train, the Aegean Express, etc.). One such example is the Orient Express. Unlike the famed train from the early 20th century that connected Istanbul with Paris, the modern train travels from Ankara to

the city of Kars in the east of the country. Locals love this route for its picturesque snowy landscapes, which they consider a winter fairytale with an oriental flair.

Turkish Taxi Features

No time to navigate public transportation systems? Then a taxi is your choice. The problem is that in tourist cities, taxi drivers are often cunning, trying to rip off tourists with maximum fares and minimal effort. Taxi prices in Turkey are calculated using meters that measure kilometers and minutes. Therefore, it's a good idea to know how far you're going before getting in a taxi. You'll need to pay any tolls if your taxi ride involves using a toll road or bridge. Drivers are generally very sociable and will often try to communicate with you in English. If you need assistance, drivers will often ask colleagues or relatives who speak foreign languages for help [4].

Fare

Fares vary by city. The cost is calculated the same as in Russia: pickup price + price per kilometer * number of kilometers on the meter + waiting price * waiting time. Some regions have a minimum fare of 20-50 lira. However, many taxi drivers immediately state their price and try to negotiate. The main reference point for fares is the taximeter. There is a standard rate for all taxis in the city. Uber rates are usually the same as the meter, but some drivers may overcharge, especially in central tourist areas. You can try negotiating an Uber rate in advance; it's the cheapest. However, it doesn't include additional costs for toll bridges and tunnels. Pickup fees are typically 13 lira, and the price per kilometer ranges from 3.7 to 5.5 lira.

Car Rental in Turkey (Car Sharing)

If you're staying in Turkey for an extended period, want to see as much as possible in a short period of time, or want more freedom of movement, renting a car is the best option. Do you need an international driver's license to rent a car? The answer to this question depends on the length of your rental. For more information, read our article on driving licenses in Turkey. Most roads, even those of regional importance, are well-paved and safe to drive, and the road signs are familiar to Russians.

To qualify for a car through car sharing systems, you must have at least one year of driving experience and be over 18 years old. If you meet all the requirements, you'll need to register in the app and link your bank card. The major car-sharing operators in the country are: Car Rental in Turkey (Car Sharing) If you're staying in Turkey for an extended period, want to see as much as possible in a short period of time, or want more freedom of movement, renting a car is the best option. Do you need an international driver's license to rent a car? The answer to this question depends on the length of your rental. For more information, read our article on driving licenses in Turkey.

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1. Yoyo — This company has parking lots at all major airports in the country, as well as in cities along the coasts of the Marmara and Black Seas. You can rent a car through a mobile app and return it only to the company's parking lots. The fleet includes Renault, Citroen, Ford, Mercedes, Volkswagen, Audi, and even electric cars, all equipped with Spotify access. Daily rentals start at 159 Turkish lira.

2. ZipCarTurkey — operates only within Istanbul and is available to people over 21 with at least one year of driving experience. There are two plans: Flex, which allows you to leave the car anywhere, and Trip, which requires you to return the car to a designated parking lot or face a 500 Turkish lira fine.

How much will it cost? Car sharing in Turkey starts at 60 Turkish lira per pickup, 7 Turkish lira per liter of RON-95 gasoline, and 6.5 Turkish lira per liter of diesel fuel. The rest depends on the car class and rental period.

Conclusion

The development of Turkey's transportation system has undergone significant changes over the past decade. Innovative technologies, particularly artificial intelligence, have been widely adopted in transportation management. Thanks to these technologies, smart buses, smart trains, and smart cars have appeared in Turkish cities.

Key strategic projects:

- Istanbul-Izmir Motorway (O-5): reduced travel time between the cities from 8 to 3.5 hours, stimulating tourism and trade growth.

- Osman Gazi and Yavuz Sultan Selim Bridges: two of the largest bridges in the world, built to relieve congestion on the Bosphorus and improve connections between Europe and Asia.

- Electronic toll systems (HGS and OGS): allow for automatic payment without stopping, reducing congestion and increasing road capacity.

- Land transport remains the backbone of Turkey's domestic logistics: over 90% of passenger and freight traffic is carried by road, thanks to the high quality of infrastructure and easy access to all regions of the country.

Resort towns have chat rooms for visitors where it's easy to arrange shared transportation for sightseeing trips. To find them, simply search for "Russians in Antalya" in messaging apps.

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Мұстафа Кемал Акгүл,
Профессоры, mkakgul@gmail.com

Гази университеті
Түркия, Емниет облысы, Бандырма көш., 6/1¹

ТҮРКИЯДАҒЫ КӨЛІК САЛАСЫНЫҢ ДАМУЫ

Аңдатпа. Бұл мақала Түркияның көлік жүйесінің дамуына арналған, Түркия қалалары мен елді мекендерінде қолданылатын әртүрлі көлік түрлерін сипаттайды. Түркияның Көлік және инфрақұрылым министрлігі барлық көлік желілерін: автомобиль жолдарын, теміржолдарды, азаматтық авиацияны және теңіз порттарын дамыту мен басқаруға жауапты. Туристер мен азаматтар қалалар арасындағы қолжетімді рейстерге, ірі қалалардағы жақсы жобаланған қоғамдық көлік жүйесіне, жоғары жылдамдықты теміржолға, паромдарға және қалааралық автобус қызметтеріне қол жеткізе алады. Соңғы онжылдықта Түркияның көлік жүйесін дамытуға инновациялық технологиялар, әсіресе жасанды интеллект (ЖИ) технологиялары қолданылды. Осы технологиялардың арқасында Түркия қалаларында ақылды автобустар, ақылды пойыздар және ақылды көліктер пайда болды.

Түйінді сөздер: көлік жүйелері, түрік қалалары, туристер, тұрғындар, автожолдар, жоғары жылдамдықты пойыздар, метро, такси.

Мустафа Кемаль Акгүл,
Профессор, mkakgul@gmail.com

Университет Гази
Турция, Провинция Эмниет, ул.Бандирма, 6/1¹

РАЗВИТИЕ ТРАНСПОРТНОЙ ОТРАСЛИ ТУРЦИИ

Аннотация. Статья посвящена развитию транспортной системы Турции, описанию различных видов транспорта, применяемых в турецких городах и поселках.

Министерство транспорта и инфраструктуры Турции отвечает за развитие и управление всеми транспортными сетями: автомагистралями, железными дорогами, гражданской авиацией и морскими портами. Туристам и гражданам доступны: недорогие авиAPERЕЛЕТЫ между городами, понятная система общественного транспорта в крупных городах, высокоскоростные железные дороги, паромы, междугородние автобусные перевозки. В развитии транспортной системы в Турции за последнее десятилетие стали применяться инновационные технологии и, в частности, технологии искусственного интеллекта в управлении

транспортом. Благодаря этим технологиям в городах Турции появились умные автобусы, умные поезда и автомобили.

Ключевые слова: *транспортные системы, Турецкие города, туристы, жители, автомагистрали, скоростные поезда, метро, такси.*