

COURIER SERVICES IN THE AGE OF SUSTAINABILITY: DEVELOPMENT DIRECTIONS AND INNOVATION

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Abstract

Considered the major winners of the 2019 pandemic crisis, courier services are supported in this statement by relevant statistical data, namely: the turnover of the postal and courier services market in Romania increased by 19% compared to 2019 and exceeded the 2011 level by 136%, reaching 6.4 billion lei in 2020. In 2023, a turnover of 8 billion lei—representing 0.31% of Romania’s total turnover—allows us to assert that postal and courier services represent a category of activities worth considering as a business opportunity. It is among the few fields in which the number of companies has grown spectacularly in recent years, rising from 1,000 units in 2011 to 2,400 in 2019, to 3,400 in 2020, and reaching 4,626 economic agents in 2023.

All of us, individuals or legal entities, have used and continue to increasingly use courier services, given the trend toward digitalization of various activities—primarily online commerce—but also due to other aspects such as customer convenience, transport cost, speed, professionalism, etc. Listed under CAEN codes 5310 and 5320, postal and courier services are perhaps the most dynamic services of recent times, an aspect we aim to present in this paper. In the current context of the global economy, courier services are undergoing a continuous transformation driven by technological advancements, the growth of e-commerce, and increasing pressure to reduce environmental impact. The purpose of this research is to highlight the way in which sustainability is becoming an essential factor of competitiveness in the courier sector, influencing both economic performance and the public perception of the companies involved.

Keywords: courier services, sustainability, delivery efficiency, innovation

JEL Classification Codes: L11, L91

Introduction

Courier services represent a vital sector of the modern economy, contributing directly to the efficiency of supply chains and the development of electronic commerce. Over the past decade, the rapid expansion of the e-commerce market, together with changes in consumer behavior, has led to a significant increase in demand for fast, secure, and flexible deliveries. At the same time, pressures exerted by European environmental protection policies and sustainable development objectives require companies in the field to constantly adapt to the demands of sustainability.

It is well known that the term courier services branched off from traditional postal services due to the inefficient functioning of national postal companies and the low quality of the services they provided [5].

In scholarly literature, the competitive advantages of courier operators are often described as short delivery times, an emphasis on customer convenience and high reliability in package delivery [8].

The realities and demands of today’s market have driven courier service companies to be flexible in meeting their customers’ expectations. Nowadays, many companies offer high-level services and meet the expectations of clients who are increasingly informed and demanding.

Operators in the courier services market rely on extensive distribution networks, modern sorting technologies, and increasingly efficient loading and unloading terminals.

Although courier services share certain elements with logistics and postal activities, they also possess specific characteristics that differentiate them, such as delivery times specified with an accuracy of up to one hour, money-back guarantees, pickup of shipments, delivery directly to the recipient's door, the ability to track shipments in the operator's application, and the courier's specific messenger role. These distinctive features make courier services attractive both for legal entities (producers or retailers) and for individuals, leading to an ever-growing number of transactions.

Studies have shown that courier companies aim to reduce delivery times, lower transportation costs, and meet the requirements of individual customers. Customer support is highly valued, considering that the cost of acquiring a new client is often much higher than the cost of retaining an existing one [7].

Only through proper quality management of courier services a company can respond flexibly to changes in demand and adapt to consumer needs. The current courier transport market is highly diversified in terms of the services provided, depending on the market segment, and their adaptability to current demand can be achieved through the implementation of new and innovative solutions.

It is worth noting that technological innovation and digitalization have become key factors in optimizing courier services. The use of solutions based on artificial intelligence, real-time data analysis, and the automation of logistics processes contributes to reducing costs and lowering the carbon footprint. At the same time, strategies focused on green transportation, reusable packaging, and route optimization fall within a broader framework of social responsibility and environmental protection.

This article aims to investigate how sustainability is redefining the courier services industry, identifying the main trends, challenges, and development opportunities. The analysis takes into account both theoretical perspectives and best practices implemented by leading companies in the sector, with the goal of highlighting the relationship between innovation, operational efficiency, and environmental responsibility.

Brief History

A courier is a company that provides specialized deliveries of parcels, documents, shipments, and more. Operating independently from national postal services, couriers can offer both faster delivery times and a wider range of services designed primarily to meet customer needs. There is no truly universal approach among companies when it comes to delivering parcels, packages, and special shipments. Services vary depending on the required delivery speed and the type of shipment [8].

Looking back in time, the concept of courier services first appears in ancient Egypt, when slaves were sent to deliver stones inscribed with messages to other people or authorities. Later, in the Middle Ages, royal courts employed their own couriers whose task was to deliver political correspondence. In London, for example, the underground railway initially functioned as a postal railway.

The greatest transformation of courier services occurred in the United States at the beginning of the Civil War through the Pony Express, a company known for revolutionizing the speed and efficiency of mail delivery in America. Couriers managed to transport parcels from the East Coast to the West Coast in just 10 days.

In 1969, the courier company DHL was founded in California, becoming the most popular courier service worldwide and remaining one of the leading companies in the industry today.

As in any other industry, the courier industry faces numerous challenges. One might think that anyone can deliver a package—but not every company can do it properly. Many parcels

require safe handling, and in some cases, improper handling can pose serious risks. For this reason, to remain competitive in modern times, it is essential to rely on technology. Automated processes represent by far the greatest competitive advantage a courier company can have.

The courier services market

The courier services market is the segment of the logistics services industry that shows the highest level of dynamism. Courier services have gained importance due to the continuous evolution of electronic commerce. Operators cooperate primarily with the B2B market. At the same time, an increase in the share of the B2C market is being recorded.

The courier, express and parcel (CEP) market is booming around the world and particularly in developing countries. It is driven by increasing Internet penetration and the popularity of online trade with the growing middle-class population, prosperity and improved living standards. In 2019, compared to the previous year, the global CEP market value increased by 7.9%, reaching EUR 330.3 billion, while in terms of volume, it rose by 9.1% to 60.7 billion packages. According to the forecast, this growing trend will continue in subsequent years [1].

Currently, the European market share amounts to 22% of the global market value and 18% of the volume of shipments. The CEP sector in Europe is highly concentrated, as eight countries—Germany, Great Britain, France, Spain, Italy, the Netherlands, Belgium and Poland—generate 76% of the European GDP and 80% of the total revenues from courier service in Europe

The global courier, express, and parcel market size was valued at USD 461.69 billion in 2023 and is projected to grow at a CAGR of 10.6% from 2024 to 2030. The market is a critical component of the global logistics and transportation industry, facilitating the delivery of goods and documents across various distances, from local to international destinations [12].

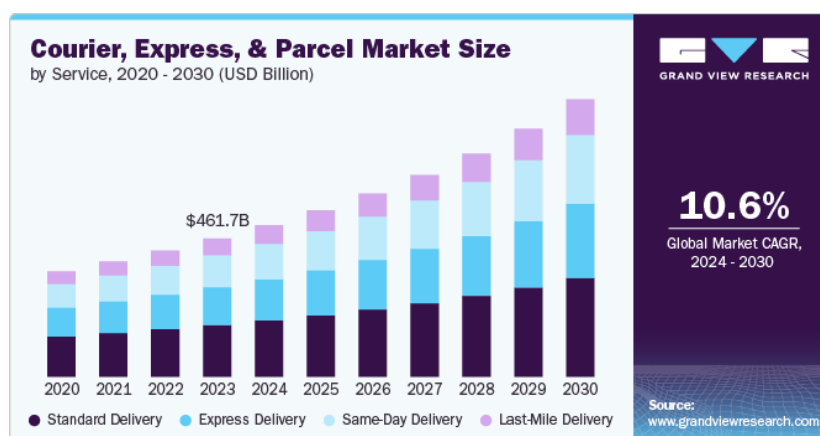


Figure 1 Courier, Express and Parcel Market Size

Source: <https://www.grandviewresearch.com/industry-analysis/courier-express-and-parcel-market-report>

Noticing the growing popularity of smartphones, courier companies have begun to launch mobile applications that allow users to track the following: the status of a parcel, the collection location, the delivery point and time, or any changes, from anywhere in the world.

At the same time, given the increasing expectations of customers regarding the management of pickup times, rising costs—including labor costs—courier operators have started to dynamically develop pickup points.

Currently, in addition to the option of collecting parcels at company branches, post offices, or via automated devices, deliveries can also be made to partner networks, such as stores or fuel station kiosks.

The integration of a crowd component offers good opportunities to create value. However, a number of problems still need to be solved. The findings have strategic importance for courier, express and parcel service providers and (new) crowd-based providers that aim to enter the market. For both, it is critical to determine an appropriate compensation scheme [2].

In Romania, courier services have experienced considerable growth, as reflected in the fact that the turnover of the postal and courier services market increased by 19% compared to 2019 and exceeded the 2011 level by 136%, reaching 6.4 billion lei in 2020. In 2023, the turnover reached 8 billion lei, representing 0.31% of Romania’s total turnover.

Table 1

Economic Indicators of Postal and Courier Services in Romania

CAEN Code	Number of Economic Agents	Turnover	Number of Employees	Profit
5320 - Other postal and courier activities	4.587	6.4 billion lei	22.508	474.2 million lei
5310 - Postal activities carried out under the obligation of universal service	40	1.6 billion lei	21.329	16.2 million lei

Source: [https://www.topfirme.com/caen/5320 si 5310/](https://www.topfirme.com/caen/5320%20si%205310/)

Courier services are among the few sectors in which the number of companies has grown spectacularly in recent years, increasing from 1,000 units in 2011 to 2,400 in 2019, 3,400 in 2020, and 4,626 economic agents in 2023. Additionally, more than 43,000 people are employed in this sector, and in 2024, a profit of nearly 500 million lei was achieved.

We can also highlight the following statistical data regarding courier services, provided by ANCOM: In 2024, parcel traffic (including small packages) in Romania increased to 335 million items, representing 18 parcels per inhabitant per year. Total revenues from postal services, including courier services, were nearly 6.5 billion lei, an increase of approximately 15% compared to the previous year. Of this, parcels accounted for approximately 5 billion lei in 2024.

Regarding the top service providers for parcel traffic in 2024, the top three companies by volume were: Delivery Solutions – Sameday (~32%), FAN Courier Express (~26%), and Cargus (~11%).

The courier, express & parcel (CEP) market in Europe is described as follows: in 2024, the market size was estimated at approximately USD 94.6 billion and is projected to reach USD 118.5 billion by 2033, with a growth rate of 2.41% for the 2025–2033 period. Another report indicates that the domestic courier market in Europe in 2025 will be around USD 92.13 billion, with an estimated increase to USD 10.46 billion by 2030.

From a quantitative perspective, over 19 billion parcels were delivered in Europe in 2023 through the “out-of-home” segment (pickup points, lockers, etc.)—an increase of nearly 5% compared to 2022. The “out-of-home” network (pickup points, lockers) is expanding rapidly: for example, Geopost reported a 25% increase in out-of-home delivery volumes in the first half of 2024.

Locker numbers are growing across European countries and reflect varying levels of locker popularity among recipients

Parcel locker penetration across European OOH markets

lockers
lockers per 1,000 inhabitants

lockers per 1,000 inhabitants

>0.5

0.5–0.2

<0.2

Note: OOH is out-of-home delivery.

Sources: last-mile experts, Eurostat; Kearney analysis

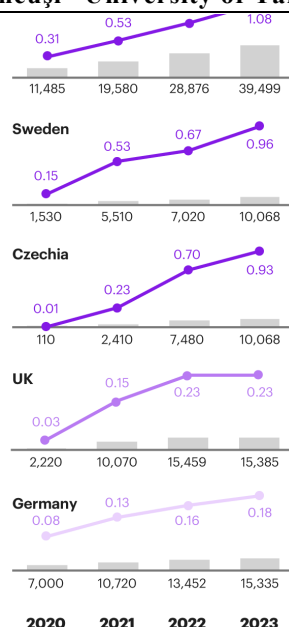


Figure 2 Evolution of locker numbers in European countries

Source: Eurostat

Courier services and sustainability

Courier services are based on the means of transportation used for delivery and are most often measured by the time allocated for this process. However, the reality is more complex, taking into account factors such as delivery completion time, service pricing, safety concerns, delivery methods and coverage area, collection and delivery duration, tracking and delivery guarantees, returns, innovative delivery services, e-commerce solutions, and more.

All these activities that make up global courier services must be reinvented in terms of sustainability.

An important aspect of courier operations is sustainable development, meaning the reduction of negative impacts on the natural environment. As a result, the most modern companies in the sector invest in hybrid and electric vehicles, optimize delivery routes to customers, and use recyclable packaging. This not only enhances the company's reputation but is also linked to corporate social responsibility.

To meet these challenges and remain competitive, courier companies must focus on service improvement as one of their key strategic objectives.

Sustainability is becoming a key element in the courier services industry, especially in the context of increasing parcel volumes and growing pressures on the environment and road infrastructure. Below, the most important trends, concrete practices, and challenges are presented—with a focus on Europe, though many aspects are also applicable to Romania.

Why measures to increase the sustainability of courier services are necessary? Measures to enhance the sustainability of courier services are essential because studies show that road transport in Europe is a significant source of CO₂ emissions. According to the European road transport report, heavy vehicles need to reduce emissions by 45% by 2030 compared to 2019.

Consumers are also becoming increasingly attentive to “green” deliveries: a DHL Group study indicates that around 53% of European online shoppers want stores to offer more sustainable delivery options.

There are also two major directions in last-mile logistics:

- Vehicles with low emissions (electric vehicles, cargo bikes)

- Delivery to pick-up points / lockers (out-of-home delivery), which can reduce emissions by consolidating deliveries

More and more companies are integrating “green logistics” as part of their strategy: route optimization (using software), vehicle replacement, reducing packaging, etc.

Some measures to achieve higher sustainability in courier services include:

- Delivery to lockers / pick-up points
- Use of electric or low-emission vehicles
- Route optimization and reduction of failed deliveries / re-deliveries

Challenges and limitations exist despite the “green” trends in courier services in Romania and elsewhere:

- High initial costs for electric fleets or infrastructure (charging stations, etc.)
- Locker or bike delivery models are not always efficient in rural areas due to lower delivery density
- Dependence on the type of energy
- Customer demands for fast delivery, which may conflict with slower but “green” options

Several examples of good practices can be used to sustain the ideas presented:

- FAN Courier invested €1.8 million in a photovoltaic panel installation to produce green energy and charge electric vehicles in its fleet
- Poșta Română launched the “Poșta Verde” program, acquiring electric vans for express courier services, especially in the capital
- A courier in the Bucharest-Ilfov area operates a 100% electric fleet and promotes zero-emission deliveries
- Poșta Atlassib is testing a fully electric vehicle in urban courier operations to evaluate its viability

Innovations and technologies supporting sustainability in courier services are expected to be introduced to enhance efficiency, reduce environmental impact and improve customer experience:

- **Delivery drones** – Amazon, DHL, UPS, and even European companies are testing drone deliveries. In Switzerland, drones are allowed to transport medical samples between hospitals
- **Autonomous robots** – In cities like Tallinn (Estonia) and Hamburg (Germany), small robots already operate on sidewalks delivering “last mile” parcels
- **Artificial Intelligence (AI)** – Major courier companies use AI to optimize routes, predict delays, and analyze seasonal demand
- **Digital twin** – Some firms (e.g., DHL Supply Chain) create digital models of warehouses to simulate parcel flow and reduce idle times.

Conclusions

In conclusion, courier companies are among the main beneficiaries of the current period, especially when other sectors are in decline, responding both to the needs of businesses and individual customers. Therefore, it is essential for courier companies to ensure not only the quality of their services but also their sustainability. Real problems and challenges for courier companies from a sustainability perspective relate to: “last mile” delivery, the most expensive part of a delivery, representing 40–55% of the total cost; re-deliveries (when the recipient is not at home), which can double emissions and costs, hence the promotion of lockers and real-time notifications; low efficiency in rural areas, due to small volumes, long distances, and poor infrastructure or customer pressure for same-day delivery, which raises logistical and environmental issues.

Looking ahead, the sustainability of courier services is expected to be increasingly supported by several key innovations and strategies: *autonomous deliveries*, that is the deployment of driverless vehicles for urban parcel transportation, aimed at reducing emissions and improving

efficiency in last-mile logistics, *urban micro-hubs* – the establishment of localized distribution centers within cities to facilitate faster and more environmentally efficient deliveries, *sustainable and circular couriership*, through the implementation of practices such as reusable packaging and consolidated deliveries, including combined parcel and return shipments, to minimize environmental impact or *subscription-based delivery models*, services as Amazon Prime, which are gaining popularity in Central Europe, offering predictable, streamlined delivery options that can support more efficient logistics planning and reduced carbon footprints.

Technologies that will transform the courier industry include autonomous and electric vehicles, driverless cars, electric cargo bikes, drones and autonomous robots, Artificial Intelligence and Big Data, urban micro-hubs, and urban logistics.

Romania is expected to see a significant increase in the number of electric vehicles in major cities, between 2025–2030, supported by investments and environmentally friendly policies, expansion of locker networks to facilitate deliveries and reduce logistics costs, as well as implementation of automated solutions and AI for route optimization and efficient delivery management.

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