Partner:

analysys mason

Last Mile Experts

Out of home delivery in Europe 2023

PUDOs and automated parcel machines

June 2023

CONTENTS

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Executive Summary

EXECUTIVE SUMMARY

E-commerce in Europe has been steadily developing since the mid-90s, but it experienced a significant acceleration during the Covid-19 pandemic. 2021 witnessed a rapid increase in e-commerce, which further heightened the demand for efficient last-mile solutions. Subsequently, the impact on consumer uncertainty caused by the war in Ukraine coupled with a return to the high street led to a dip in the market, with 2022 revenue dropping to USD596 billion. However, the market is expected to recover from this disruption in 2023, partly because Europe records some of the highest rates of e-commerce user penetration, with Norway, the UK and Germany boasting the three largest user penetration rates worldwide in 2022, at 82.8%, 82.7% and 80.6%, respectively (source: Statista).

OOH delivery and e-commerce are mutually supportive, with OOH making e-commerce more financially and operationally viable and e-commerce driving the growth of OOH. 2021 and 2022 were transition years between the old and the new normal, which increased pressure on the supply chain and available infrastructure to adapt to this dynamic shift in the logistics industry and an associated growth, especially in APM locations.

Breaking through e-commerce market saturation and returning to steady growth will be one of the main challenges for European B2C online sales. Moreover, while B2C e-commerce boomed in 2020, online platforms have struggled to turn this opportunity into steady growth in parcel volumes.

In fact, the European CEP market is believed to have experienced a 9.1% decline in volume in 2022 when compared to 2021. This decline is expected to result in around 16.5 billion parcels, down from 18,1 billion in 2021. (source: Effigy).

EXECUTIVE SUMMARY

Consumers have been turning to consumer to consumer (C2C) second-hand resale platforms such as Vinted, OLX or eBay, which report relatively high sales growth. 70% of regular e-shoppers in the above survey reported using a C2C platform as a buyer, seller or both (source: DPD Group).

Low price and sustainability appear to be the main factors behind this, and most consumers indicate that inflation is a key motivator to buy pre-owned goods. This trend is supported on the supply side by more brands moving into re-commerce; several retailers have launched take-back schemes, in which customers can trade in old apparel in return for a voucher to spend in-store or a donation to a worthy cause.

In 2021, the European re-commerce market was already valued at some EUR75 billion (USD82 billion) but the market is expected to grow to EUR120 billion (USD131 billion) by 2025 (+60%) and its share of e-commerce will grow from 10% to 14%. This will arguably make re-commerce a new power in the last mile due to the incremental parcels it will bring.

Sustainability within the European e-commerce space is not just limited to the goods bought by consumers: in fact it impacts all aspects of the logistics chain, including environmentally friendly and OOH delivery alternatives. Indeed, more and more studies confirm that the green last mile is not just a fad, but a real challenge and also opportunity, faced by retailers and logistics operators.

Last-mile operators that wish to be competitive and customer centric need to pay attention not only to the economic aspects of transport and distribution, but also to the increasingly important requirement for sustainable transport, which should be low-emission, human and environmentally friendly.

While the evolution of e-commerce sales and parcel volumes has been disappointing in some respects, it is crucial to recognise the varying levels of resilience and growth across European markets. The presence of more-resilient markets creates a diverse landscape, emphasising the need for tailored last-mile strategies and collaborative approaches to unlock the full potential of the parcel industry in Europe.

What is important in unlocking this potential is a business model and strategy which addresses the complex relationship between OOH network density and further e-commerce take-up, new segments such as C2C and changes in consumer priorities driving delivery preferences. Having a denser OOH network can significantly support the post-pandemic resilience of a country's parcel industry; here many people look to Poland, noteworthy for its extremely dense network of ~39 OOH options per 10,000 inhabitants.

In conclusion, while the post-pandemic resilience of the parcel industry varies by country, the density of OOH delivery networks will play a critical role in its future growth.

EXECUTIVE SUMMARY

In this year's report we noted 120,390 unique APMs, which is 51% up on 2021 and the total number of PUDO points grew by 7% year on year.

Key unique PUDO markets:

- Germany 51,090
- France 49,200
- Italy 47,740
- UK 45,340
- Poland 29,520

Key unique APM markets:

- Poland 28,880
- UK 15,460
- Germany 13,450
- France 8,750
- Czech Republic 7,480

Key OOH carriers are:

- Deutsche Post/DHL with 100,300 PUDOs, 23,930 APMs, 124,230 OOH points in total*
- DPD (GeoPost) group with 66,860 PUDOs, 14,040 APMs, 80,890 OOH points in total*
- GLS with 52,090 PUDOs, 5,800 APMs, 57,890 OOH points in total*
- InPost with 24,420 PUDOs, 28,240 APMs, 52,660 OOH points in total*
- UPS with 41,910 PUDOs, 5,700 APMs, 47,610 OOH points in total*

* Including partners and shared points.

Analysis by Analysys Mason has shown that the effectiveness of an OOH network is largely dependent on the deployment strategy of the operator. Operators that take a strategic approach when choosing the location of access points are able to maximise the number of potential customers while minimising the risk of excessive deployment costs, and thus improve the overall effectiveness of the network.

Although deployment strategy is particularly applicable to parcel locker networks, which have more flexibility to position collection points, the metrics are also relevant to PUDO operators.

As OOH develops, and the availability of space becomes more limited, the deployment strategies employed by OOH operators will be a critical factor in determining their success.

Partner:

analysys mason

Last Mile Experts

Introduction

ABOUT THIS REPORT

Background to the report

According to Effigy Consulting data, the European CEP (Courier, Express and Parcel) market is projected to have experienced a 9.1% decline in volume in 2022 when compared to 2021. This decline is expected to result in around 16.5 billion parcels, down from 18.1 billion in 2021. The previous rapid growth of the CEP industry, driven by increased e-commerce volumes during the Covid-19 pandemic, has abruptly halted due to inflation and general uncertainty caused by the Russian-Ukraine war, though Europe's CEP market remains larger than before Covid. In addition, there is a possibility of a general business slowdown and potential economic crisis in 2023 that could have an impact on the growth of the European parcel market, although the extent of the effect remains uncertain as it would depend on various factors.

Over the past few years, there have been significant shifts in market shares of parcel types, particularly between B2C (business to consumer) and B2B (business to business) as well as in first- or last-mile delivery channels, including P2P (point to point) and D2D (door to door).

OOH (Out of home) delivery, including PUDOs (pick-up and drop-off points) and APMs (automatic parcel machines), is playing an increasingly important role.

Our updated and improved report covers market structure, countries, players, growth and key trends.

In this report we seek to understand what is behind the OOH delivery trends and to assess what future impact this will have on the various stakeholders.

What can you find in this report?

- The report covers all key players in the European market for OOH operations.
- We define the OOH market as encompassing PUDOs and APM parcels. These mainly include B2C and C2X (consumer to anybody) parcels and cover the P2D (point to door), D2P (door to point) and P2P channels. OOH can be used in the first and last mile.
- We analyse the evolution of B2C parcel volumes before, during and after the pandemic so as to bring the right market insights on 27 EU countries plus the UK.

Who will benefit from our report?

The report is intended for:

- Owners and operators of OOH networks.
- CEP companies.
- Online retailers.
- Investors in these businesses.
- Market regulators and policy makers.
- Journalists and editors of newspapers and magazines.
- Analysts, consultants and other stakeholders.

ABOUT THIS REPORT

The market is served by a combination of carriers, ranging from the national postal operators to parcel locker operators and indeed CEP players. The report also covers new types of OOH delivery providers.

There are a number of new OOH factors and players which have become more relevant in recent years, such as a growing understanding that PUDO and parcel locker networks are not complementary but in fact necessary for any optimised OOH model.

LME has in-depth knowledge of this market and has made various studies on OOH delivery in Europe and elsewhere. Our team has a strong entrepreneurial background, including the creation of DPD Polska (formerly Masterlink Express, a leading player in the Polish CEP market) and the integration of companies as was the case with UPS Poland. Our consulting work involves providing advice and guidance to numerous companies, including e-commerce businesses and carriers, on the establishment or enhancement of nationwide PUDO/locker models and the implementation of supporting IDM tools.

What are the sources?

The main sources for the report are:

- Extensive desk research on the OOH market and its operators covering company press releases, websites and other sources.
- Analysys Mason internal research and data.
- UPIDO AG internet search algorithm outcomes to estimate B2C parcel volume growth in 27 EU countries plus the UK.
- Published information on key market drivers such as economic data and estimates of home shopping levels and practices.
- Interviews with CEOs, senior-level CEP and e-commerce executives, experts and retailers to develop our core database.
- LME's own in-depth, expert knowledge.

Important notes:

- **Despite our best efforts, we have not yet been able to accurately reflect the number of APM cells or the theoretical capacity of PUDO points in this report.**
- **There are various reasons for this, including a lack of source data, issues with interfaces, and even operators' reluctance to provide the necessary data.**
- **As a result, this year's report focuses on the number of PUDO locations and APMs as a benchmark for size and network density, rather than the capacity of each specific location.**
- **The analysis of PUDO points and APMs contained in this report reflects the situation as of the end of December 2022.**
- **We can produce tailor-made, more detailed country reports if needed. If this is of interest, please contact info@lmexpert.com for more information.**

METHODOLOGY

OOH is not a new parcel delivery solution, but it is still developing fast. To ensure that the collected information* is up to date, we have conducted:

- **Extensive desk research** on PUDO and APM networks in Europe, using company accounts, websites, press reports and other sources.
- **Several interviews** with CEOs, other senior-level management, experts on the CEP industry and PUDOs, APM operators and retailers.
- **Evaluation and analysis of 28 countries** (EU plus the UK) **and 276 networks** (network by network for each country in scope).
- Where actual or published data was not available, estimations have been made based on our market knowledge.

In comparison to last year's report, we have excluded integrators/brokers which lacked their own PUDO points or APMs, resulting in the removal of some networks. Conversely, in certain countries, new players have emerged either as brand-new operators or through the expansion of their existing coverage.

Moreover, we have partnered with UPIDO AG, a company which has created several proprietary algorithms that enable it to exploit internet search data in order to monitor and predict the evolution of e-commerce and B2C parcel volumes.

** It is not possible to state the exact numbers of PUDOs or APMs for all companies. Many companies do not provide figures at all or provide outdated figures.*

TERMS & DEFINITIONS

Definitions and abbreviations used in the report.

APM	Automated Parcel Machine
BOPIL	Buy Online Pick up In Locker
BOPIS	Buy Online Pick up In Store
B2B	Business to Business
B2C	Business to Consumer
C2C	Consumer to Consumer
C2X	Consumer to Anybody
CEE	Central and Eastern Europe
CSEE	Central, Southern and Eastern Europe
CX	Consumer Experience
D2D	Door to Door
D2P	Door to Point
DD	Due Diligence
DIY	Do It Yourself
ERP	Enterprise Resource Planning
EV	Electric Vehicle
FTD	First-Time Delivery
GSA	General Service Agent
IDM	Interactive Delivery Management
LAST MILE	Leg of a journey comprising the movement of goods from a distribution centre to a final destination
LME	Last Mile Experts
OOH	Out Of Home
P2D	Point to Door
P2P	Point to Point
Paczkomaty®	Reserved name for InPost parcel locker
PUDO	Pick-Up and Drop-Off location
ROS	Return On Sales
RPL	Residential Parcel Locker
SB	Supervisory Board
SLA	Service-Level Agreement
USO	Universal Service Obligation

COMMENT

“The convenience of online shopping has become an integral part of customers’ expectations when buying products. Not only do they want fast and free delivery, but they also want the flexibility to choose when and where delivery takes place. This trend has led to increased demand for OOH delivery.

Effective OOH is a customer-centric solution that allows customers to collect their parcel at a convenient time and place, usually on their way to work, within a few days of ordering. OOH delivery also eliminates the inconvenience of missing a delivery due to customers being away from their home. Rather than having a parcel sent back to the warehouse or left unattended on the doorstep, customers can collect it at a convenient time, avoiding any delays or delivery problems.

OOH significantly reduces costs and delivery times, providing an efficient and cost-effective delivery option. It is also environmentally friendly as it consolidates last-mile deliveries, reducing the carbon footprint, by optimising resources and streamlining processes such as courier vehicles and stops.

This LME report shows that the number of OOH points is increasing year on year, particularly the number of APMs. Interestingly, the largest number of OOH delivery points (both APMs and PUDOs) is in Poland. This is due to the very high popularity of this form of delivery (especially to parcel lockers) – with more than half of Polish shipments already going to such points.”

Prof. Arkadiusz Kawa
Managing Director of Łukasiewicz
– Poznan Institute of Technology

Partner:

analysys mason

Last Mile Experts

Authors, Partner and Contributors

CO-AUTHOR - LAST MILE EXPERTS MANAGING PARTNER

MAREK RÓŻYCKI

Experience in courier industry

- Financial Controller - DHL Express Poland
- Financial Controller - DHL Express Poland 1990
- Founder, Masterlink Express (now DPD Polska) 1991
- Turnaround CEO Masterlink Express 1999-2004
- CEO CEE, DPD 2004-2006
- CEO CSEE DPD 2006-2013
- VP Amazon Logistics Europe 2014-2015
- Deal Advisor SB Member Pekaes SA 2015-2017
- Deal Advisor SB Member Advent InPost S.A 2016-2017
- Deal Advisor SB Advisor Urgent Cargus S.A. 2017-2019
- Board Advisor Trendyol Turkey 2020 2022
- Board Advisor eMAG/Sameday Romania 2020-
- Board Advisor Nova Poshta Ukraine 2022-

Selected Projects

- Complete nationwide PUDO/locker implementation plan in CEE
- Restructuring of some 10 CEP businesses
- Launch of fuel surcharge throughout DPD CSEE
- Launch of PUDOs throughout CSEE
- IT4EM/IDM capability at DPD CSEE
- Helped acquire or sell over 10 CEP businesses

Achievements

- Created leading domestic CEP carrier in Poland (DPD Polska)
- Successful turnaround of 10+ BU's
- Developed the most homogenous road based parcel network in CSEE
- Tripled DPD CSEE revenue from 2006-2013, with industry beating ROS
- Conceived and implemented IT4EM (ERP for several DPD markets)
- Part of start up team for Amazon Flex, Fresh and Prime Now
- Participated in creating the successful post acquisition restructuring plan for InPost
- Supported implementation of OOH strategy for Trendyol (TR) and eMAG/ Sameday (RO,HU,BG), PostNord (SE,DK) and Nova Poshta (UA)

Summary

Entrepreneurial ex-regional CEO with multicultural experience; a courier express parcel, restructuring and last mile e-commerce background.

A team builder with a strong industry network who has operated in various CEP markets, especially Poland, with a proven track record of success even in very challenging circumstances.

CO-AUTHOR – LAST MILE EXPERTS VP PARTNER

MIREK GRAL

Experience in courier industry

- Operations Supervisor, Oversea Courier Services 1992-1996
- International Operations Manager, M.S. Stolica 1996-2003 (GSA for Airborne Express, FedEx, Aramex/ GDA, Net Express)
- Founder, COO of MACS brokerage & freight forv. 1998-2004
- Key Account Manager, Frans Maas Polska 2004
- International Operations Manager, M.S. Stolica 2004-2005
- Industrial Engineering Manager, UPS Polska 2005-2010
- PM, UPS NE District 2010-2011
- Industrial Engineering Manager, UPS EMEA Region 2011-2013
- Outside Service Providers Manager, UPS Polska 2013-2014
- PM, Central Hub construction, UPS Polska 2014-2015
- COO, UPS Polska 2015-2019
- PRO Partner Last Mile Experts, CEP consultant 2020-2021
- Partner, Vice President Last Mile Experts 2021-
- Operational advisor (external) for Nova Post Polska 2022-

Achievements

- OCS, Airborne Express, FedEx and Aramex (GDA) next day international services implementation across the Poland
- Full operational and IT integration of UPS and acquired M.S. Stolica
- UPS Nordics HQ and Stockholm package centre relocation
- UPS stage one integration with acquired Kiala B2C company
- UPS Poland central hub construction and distribution network redesign
- UPS Poland best operational performance worldwide

Selected Projects

- Co–founder of Polish Express Carriers Forum
- GSE contracts with Airborne Express, FedEx and Aramex
- UPS Polska integration with M.S. Stolica and complete distribution network redesign
- Launching UPS intercontinental flights via Warsaw airport
- First stage of Kiala B2C/PUDO business merge with UPS network
- Renegotiations of Polish UPS Outside
- Service Providers service agreements with new SLA implementation
- UPS Poland feeder & hub's network redesign
- BREXIT operational set up redesign for UPS Poland
- Subject matter expert during few DD's in CEE CEP market

Summary

More than 30 years of experience in CEP industry supported by co-operation with the largest players in the international market.

Leader and team player with organisational and planning skills as well as experience of work abroad on multinational/multicultural environment and time-critical projects.

WHAT WE DO AT LAST MILE EXPERTS

Last Mile Experts

At Last Mile Experts we support our clients to develop, deliver and sustain competitive advantage across a number of critical business areas, with a particular focus on CEP and e-commerce last mile:

- Business operating models including cross-border.
- General or specific operations solutions.
- Hardware and software selection and contract negotiation.
- People and organisational development.
- Research and benchmarking.
- Support in negotiating the best SLAs and commercial terms.
- Strategic and operational pricing, as well as product portfolio management.

Mergers & Acquisitions
including market reviews, pre-deal due diligence and post-deal advisory

E-commerce / Amazon
and the last mile

Out of Home delivery
options including APMs and hubs (lockers) and PUDOs (access points)

Strategic planning and commercial proposition

Interim / turnaround management

PARTNER

Analysys Mason is the world's leading management consultancy focused on telecoms, media and technology (TMT), the critical enablers of economic, environmental and social transformation.

We have been advising telecoms, media and technology clients for more than 35 years, and for more than 12 years we have assisted postal and courier sector policy makers and regulatory authorities on market reform and regulation.

We bring together unparalleled commercial and technical understanding to deliver bespoke consultancy on strategy, transaction support, transformation, regulation and policy, further strengthened by globally respected research. Clients value our advice, which combines deep domain knowledge with global reach and local insight into markets to help them achieve meaningful business results.

Our postal, courier and related e-commerce experience covers a wide range of regulatory topics, including costing, pricing, wholesale access, efficiency, quality of service, mail statistics and sector strategy, as well as commercial due diligence on e-commerce / e-grocery.

Analysys Mason received a 2021 Queen's Award for Enterprise for International Trade (the highest official UK awards for British businesses).

"Analysys Mason is pleased to work with Last Mile Experts as strategic partners for regulatory, strategy and due diligence advice in the CEP and related digital infrastructure space"

Chris Stanford-Beale,
Managing Partner, Analysys Mason

PARTNER

Analysys Mason has provided a wide range of policy, regulatory and technical costing advisory work in the postal, parcel and courier sector, including in Europe, Africa, Asia and the Middle East.

Postal sector strategy and reform	▪ Review of postal, courier and logistics sector in a South-East Asian country. ▪ Reforming the postal and courier sector in Kenya. ▪ Developing a regulatory framework for postal services in Oman. ▪ Encouraging development of postal services in Namibia. ▪ Preparing the foundations for postal regulation in Qatar.
Cost, pricing and regulatory accounting analysis	▪ Review of courier service pricing and sector development in Malaysia. ▪ Cost/price forecasting in an Asian country's postal and parcel sector. ▪ Product and service costing and pricing support in the UK. ▪ Detailed cost transparency work in the UK. ▪ Compliance of the costing system and its weighting factors in the UK and Ireland. ▪ Accounting separation, transfer pricing and trial accounts in the UK. ▪ Analysis of postal operator cashflow and financing scenarios in the UK. ▪ Review of USO net cost scenarios and model for Belgium's regulator.
Mail measurement and quality of service	▪ Review of real mail sampling, revenue-derived volumes and operational volume measurement in Ireland. ▪ Audit of the design, implementation and interpretation of a quality of service measurement system in the UK (from 2014 to 2028).

For more information on Analysys Mason's expertise, please contact Ian Streule, Partner (ian.streule@analysysmason.com).

PARTNER

Ian Streule, Partner at Analysys Mason

Ian Streule, Head of Postal and Courier Practice at Analysys Mason, has over 25 years' experience at the company, during which time he has delivered, managed and directed a wide range of consulting regulatory, policy and strategy projects in the communications sector.

He leads Analysys Mason's work in the postal and courier sector, and has directed the development of postal and courier sector regulatory strategies for national authorities in the Middle East, Africa and South-East Asia. In the courier sector, Ian has advised on topics including licensing, competition, pricing and long-term options for the nationwide deployment of parcel lockers. In addition, he has provided regulatory support to the postal regulators of the UK, Ireland and Belgium, on costing, pricing, network modelling, quality-of-service monitoring and universal service issues.

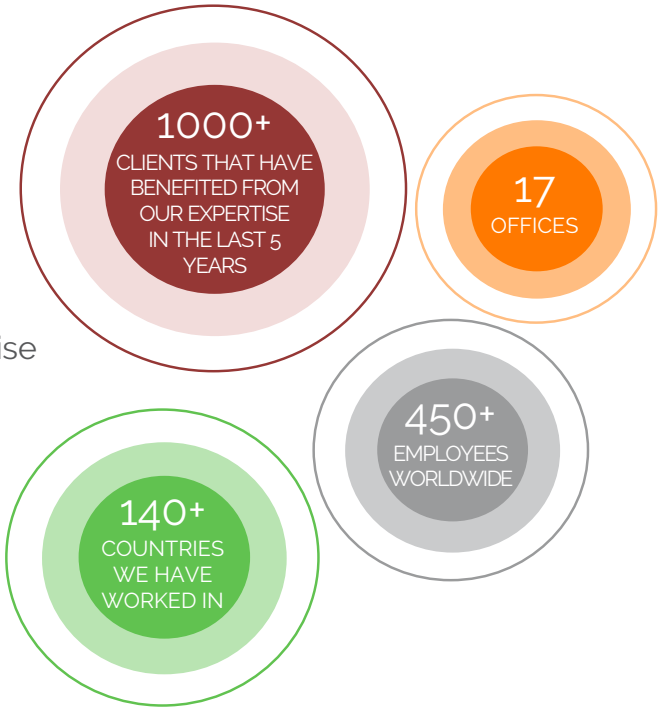
Ian is a recognised expert regulatory adviser to operators and regulators, and has delivered many projects in large and small markets around the world. His areas of expertise include: regulatory strategy and design, wholesale access, regulatory accounting, long-run incremental costing, predatory pricing, market analysis and remedies on dominant operators, and expert witness support.

Analysys Mason – key facts and figures

Our advice on mergers and acquisitions has helped shape the industry

We help clients improve performance and maximise profit, even in difficult market conditions

Our consultancy has been shaping telecoms regulation since 1985, and postal regulation since 2010



Our exclusive focus on communications, media and technology sectors sets our company apart

Clients see us as trusted advisers and partners who deliver honest, independent advice

Our approach to every project is customised to the client's requirement

CONTRIBUTOR

José Anson,
Founder of UPIDO

José Anson is founder of UPIDO (Unlimited Parcel Intelligence & Data Orchestration). He holds a PhD in economics from the University of Lausanne (Switzerland) and made a career as an economist in international organisations including the World Bank, the World Trade Organization and the United Nations. He currently leads economic and big-data research at the Universal Postal Union. He is known for having developed the methodology for the Integrated Index For Postal Development which ranks the best postal services in the world every year.

José is the author of numerous scientific publications in peer-reviewed economic journals on the areas of international trade, development economics and postal economics, and his research is extensively cited by other economists.

UPIDO provides delivery intelligence-as-a-service which is used to continually monitor e-commerce and CEP industry developments in more than 100 countries. Thanks to proprietary machine learning algorithms, it has produced highly reliable B2C parcel volumes, predictions and forecasts, enabling parcel and postal companies to anticipate better in the new delivery normal resulting from the Covid-19 crisis. UPIDO predictions have been used to prevent delivery failures, improve planning for the holiday season, anticipate major shifts in online consumer behaviour, and design the next-generation delivery services with artificial intelligence. Thanks to its accurate prediction of demand from online shoppers, UPIDO brings timely insights to unleash greater lifetime value creation for all e-commerce ecosystem players. UPIDO also strongly supports postal and parcel companies to leverage their unique data assets and better serve customers, both in their own country and worldwide.

CONTRIBUTOR

statista

Mathilde Carlier is a research expert at Statista, specialising in vehicles and road traffic worldwide as well as sustainable transport and logistics. Having authored various Statista reports on topics such as the postal service market and electric vehicles worldwide, Mathilde mainly focuses on new energy vehicles, green trucking, and startup brands, and has a particular interest in how these will reshape the transport and logistics sector. Her research pairs industry insights with in-depth contextual analysis and structure.

Mathilde Carlier, Transportation and Logistics research expert, Statista

The transportation and logistics research team is a part of Statista's Editorial Research Intelligence department. As a team, their focus is on providing insights on dynamic market changes and developments in the transport industry, including maritime shipping, vehicles and road traffic, active mobility, metal manufacturing, and sustainable transportation.

With more than 1 million statistics, Statista is one of the world's leading data platforms for strategic market analysis, statistics, editorial research and data storytelling. Statista.com is a hub for data, insights and trends on 80,000 topics and 170 industries, composed of proprietary surveys, exclusive secondary sources and aggregated data from over 22,500 sources. Since 2007, Statista has grown to more than 1,200 employees at 14 locations worldwide and provides its more than 2.5 million registered users from business, science and the public sector with access to high-quality and reliable data and statistics.

Statista also supports other companies with this expertise: Statista Q carries out analyses and studies for clients, while the Content and Information Design team conceives, realises and graphically edits topics for specific target groups.

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Last Mile Experts

Background to the Report

THE GLOBAL LAST MILE

The rise of e-commerce amid the Covid-19 pandemic accelerated growth in the global volume of parcel shipping, which reached over 159 billion in 2021, a 21% increase from 2020. The 2021 figure equates to around 436 million parcels per day being shipped across the globe*. Pitney Bowes has forecast that the annual volume will increase steadily, reaching between 216 and 300 billion parcels by 2027.

According to data from the Universal Postal Union, the largest share of parcel dispatches and deliveries took place domestically in 2022, while cross-border international services were less popular. The prevalence of domestic parcel deliveries explains the varying growth rates for regional CEP markets (see chart below). For example, Asia–Pacific has recorded steep growth in the market compared to that in Europe and North America, partly due to China's heavy reliance on e-commerce. As a result, last-mile networks are also developing locally, with further stimulation from startups generating investment in the sector.

**Source: Pitney Bowes*

CEP market volume in selected regions (in millions of pieces)

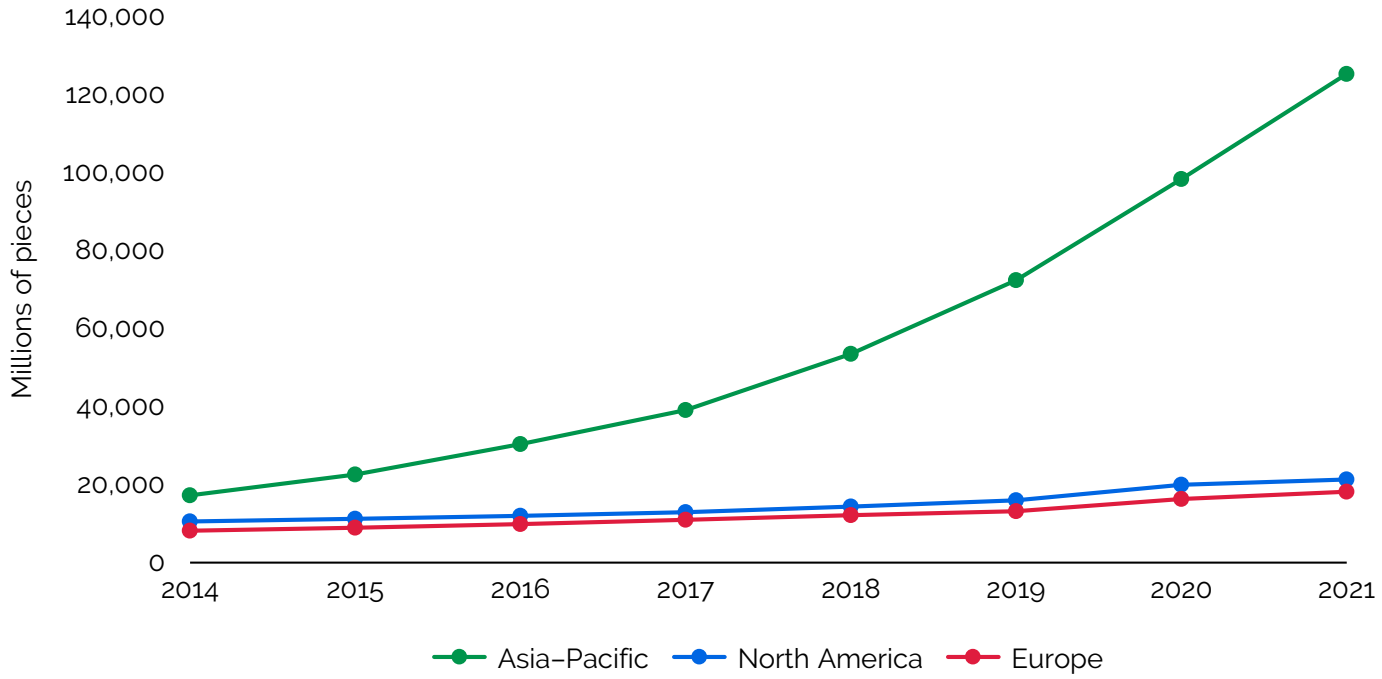


Figure 1. CEP market volume
Source: Effigy Consulting

THE GLOBAL LAST MILE

There are regional variations in the research and development carried out by these last-mile startups, as well as the resulting innovations that they are introducing to the market. North American start-ups are primarily focusing on crowdsourced delivery, autonomous fleet manufacturing, and e-commerce fulfillment, while European companies are investing in crowdsourced delivery, green fleets, and OOH networks.

Sustainability is an ongoing challenge for the last-mile logistics sector, particularly as e-commerce is rapidly gaining popularity. As governments are setting zero-emission targets and introducing more rigorous emission standards for vehicles, it becomes increasingly important for fleet operators to switch to greener vehicles. This has resulted in an increased commitment to fleet electrification in both Europe and the USA. In December 2022, the US Postal Service announced that it would be investing USD9.6 billion over the next five years to promote the transition to an electric delivery fleet. Similarly, in countries like Italy, have been showcasing a similar commitment to reducing delivery emissions, by investing in electric vans as well as cargo bikes and other non-motorised means of cargo transport. The European cargo bike market expanded during 2022, with industry manufacturers and operators estimating that the number of commercial bicycles has more than quadrupled since 2019 (source: cyclelogistics.eu). This commitment to a greener last mile also extends to private fleet operators: For example, Amazon invested in Rivian electric vans in the USA in 2022, while Gorillas added 1,200 new e-bikes to its German fleet in 2021.

EUROPEAN E-COMMERCE

E-commerce in Europe has been steadily developing since the mid-90s but it experienced a significant acceleration during the Covid-19 pandemic. 2021 saw a rapid increase in e-commerce, boosting the need for last-mile solutions for online shops wishing to improve their delivery service offers. Subsequently, the impact of the war in Ukraine led to a dip in the market, with 2022 revenue dropping to USD595.97 billion (see chart below). However, the market is expected to recover quickly from this disruption in 2023. This rebound is partly because Europe records some of the highest rates of e-commerce user penetration, with Norway, the UK, and Germany boasting the three largest user penetration rates worldwide in 2022, at 82.8%, 82.7%, and 80.6%, respectively (source: Statista).

"Quick commerce" – a relatively fast-growing segment in Europe – also depends on last-mile logistics for its operations. It first emerged in the food delivery market but is now expanding rapidly, with online platforms offering consumers expedited delivery across a wide variety of goods.

It relies on some of the same solutions as other e-commerce platforms to provide its services, with a primary focus on express goods delivery. E-commerce on-demand and instant delivery became sought-after logistics services during the pandemic, although they grew less quickly than e-commerce last-mile services overall. In 2022, the value of European quick commerce was forecast to amount to USD7.55 billion, after spiking in 2021 (source: Statista), which represents a shift in last-mile logistics towards faster-paced delivery.

Forecast e-commerce revenue in Europe from 2017 to 2027

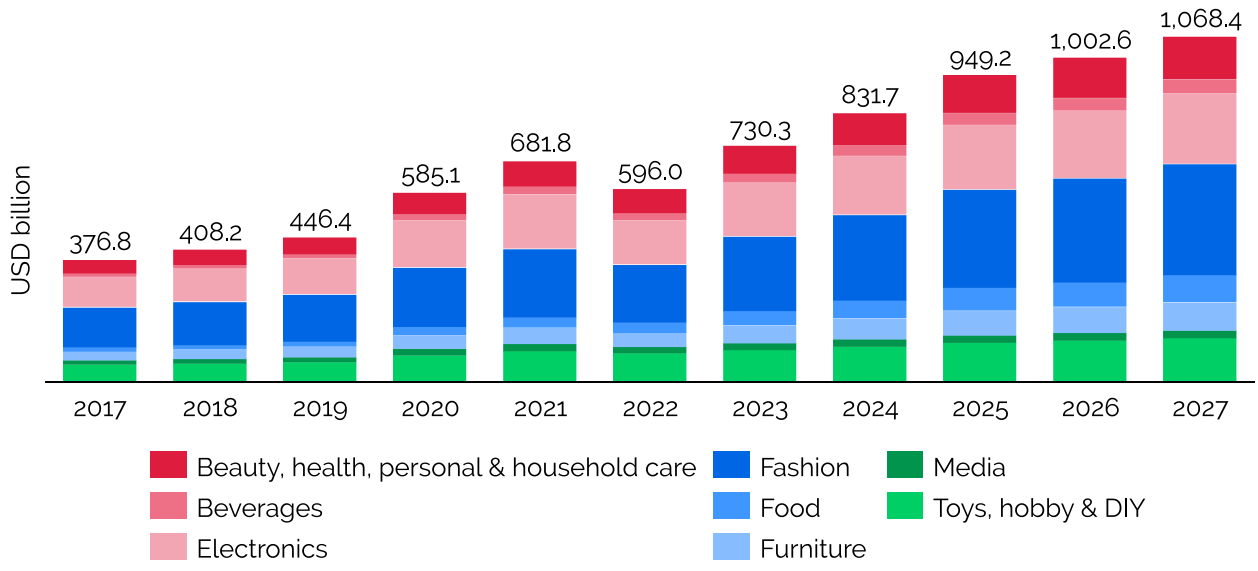


Figure 2. Forecast e-commerce revenue in Europe
Notes: Data shown is using current exchange rates and reflects market impacts of the Russia–Ukraine war.
Source: Statista, February 2023

EUROPEAN E-COMMERCE

E-commerce represents an increasing share of global retail sales. B2C sales were a particular driver of this market throughout 2021 and 2022 and contributed to a rapid increase in parcels dispatched across the globe. At the centre of a B2C transaction, consumers intrinsically influence how sellers interact with their service providers. Despite the rise in quick commerce, express shipping was not the preferred delivery method for European respondents to the fourth edition of the 2022 Statista Global Consumer Survey. Around a third of participants from the UK preferred express shipping services, representing the largest share among the six European countries studied (see the table below). The balance between the urgency of purchase and the cost of express shipping plays a part in this mixed popularity, coupled with various other factors which influence consumers' shipping preferences. An increasing number of retailers and brands have also only recently started to offer faster deliveries in response to the growing volume of online sales.

Home delivery remained the most common delivery location for cross-border online purchases. However, over a quarter of such parcels were delivered using OOH delivery methods, according to the International Post Corporation's October 2021 survey of 33,179 respondents. This share included 6% of packages picked up at postal service points and 5% at parcel lockers (source: International Post Corporation). This rising interest in OOH delivery is contributing to expansion of the e-commerce market.

Share of respondents who prefer express shipping in selected European countries

	When I order an item, I prefer express shipping		
	Share of respondents who agree	Respondents	Survey dates
France	27%	12,195	06 January 2022 to 13 December 2022
Germany	25%	36,171	06 January 2022 to 18 December 2022
Italy	11%	12,181	07 January 2022 to 12 December 2022
Netherlands	31%	12,175	10 January 2022 to 15 December 2022
Spain	16%	12,191	06 January 2022 to 12 December 2022
UK	33%	24,191	06 January 2022 to 14 December 2022

Figure 3. Who prefers express shipping?
Original survey question: Which of these statements about online shopping do you agree with? (multi-pick)
Source: Statista, February 2023

MARKET DISRUPTIONS

The Covid-19 pandemic has changed the way logistics services operate, accelerating the shift to online shopping, digital services, and the demand for last-mile e-commerce, e-fulfillment, and instant delivery instead of traditional in-store distribution. However, while consumers and retailers are embracing these changes, they have become a challenge for the logistics sector.

2021 and 2022 were transition years between the old and the new normal, which increased pressure on the supply chain and available infrastructure to adapt to this dynamic shift in the logistics industry. These pressures were exacerbated by geopolitical and macroeconomic tensions resulting from high inflation rates and European cost-of-living crises. In addition, Russia's war on Ukraine has had a major impact on goods prices and key parts of the supply chain. This could result in lower inventory and higher production costs for suppliers, leading to fewer, more expensive offers in the market. Lockdowns in China in 2022 due to a new wave of Covid-19 also constrained the supply chain and slowed down consumption in the country, which recorded the highest e-commerce revenue that year. In 2022, about 27.2% of all retail sales in China were made online, up from 24.5% in 2021. China's share of e-commerce retail revenue has more than doubled since 2016, and China remained the largest online retail market worldwide in 2022 (source: Statista).

E-commerce revenue by country in 2022 (in USD billion)

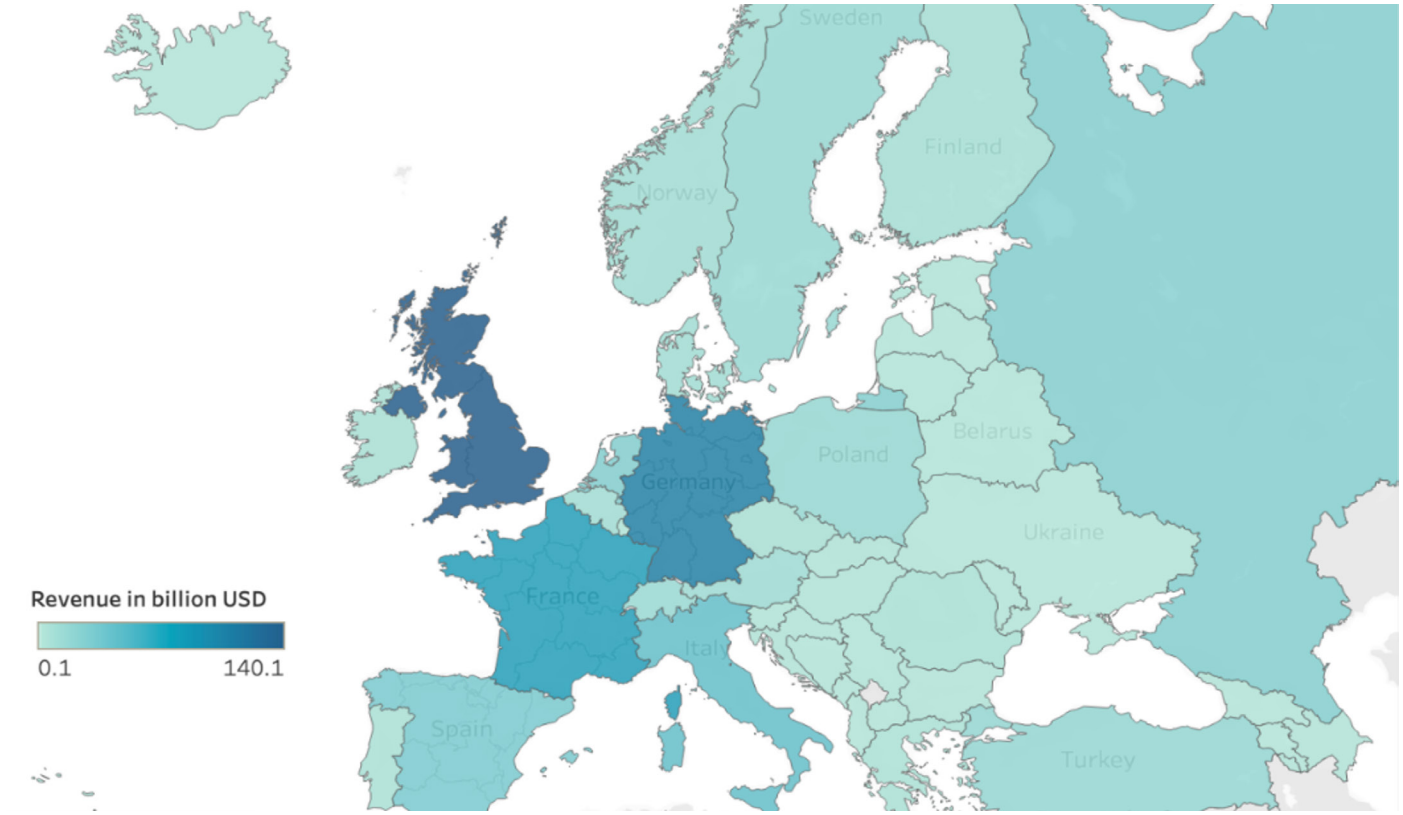


Figure 4. E-commerce revenue by country
Source: Statista, February 2023

MARKET DISRUPTIONS

European e-commerce was still emerging in 2022. The UK and Germany were among the top five European countries in terms of e-commerce that year, but respectively generated nine and twelve times less revenue than China. Breaking through this e-commerce market saturation will be one of the main challenges for European B2C online sales. Another such issue is maintaining sustainable growth. While B2C e-commerce boomed in 2020, online platforms have struggled to turn this opportunity into steady growth in parcel volumes. Some European countries even recorded a slowdown in parcel growth rates between 2020 and 2021.

European e-commerce companies have sought to tap into their growing consumer bases to tackle these macroeconomic challenges. According to a Geopost survey carried out between May 30 and July 26, 2022, 77% of its 23,974 European respondents were e-shoppers. As inflation rates have risen, some of these consumers have also been turning to C2C second-hand resale platforms, such as Vinted, OLX or eBay, which report relatively high sales growth. 70% of regular e-shoppers in the above survey reported using a C2C platform as a buyer, seller or both (source: DPD Group), highlighting future opportunities for the second-hand market in the European e-commerce space.

Sustainability within the European e-commerce space is not just limited to the goods bought by consumers but, in fact impacts all aspects of the logistics chain, including environmentally friendly and OOH delivery alternatives. This increased focus on green logistics in the last few years has created new challenges and opportunities for Europe's last-mile logistics sector.

NEW TECHNOLOGIES

Local fulfilment centres are a critical component in the process of creating a more sustainable logistics sector, with Accenture estimating in 2021 that these centres could help to reduce last-mile emissions by between 17% and 26% by 2025. Service providers are increasingly adopting environmental measures as they make their fleets and buildings more sustainable. One potential hurdle is the reported lack of a definition of an "environmentally sustainable" postal service in EU countries, as reported by 30 national regulatory authorities in a European Regulators Group for Postal Services survey. Many postal legal frameworks, including those in Europe, predate the recent changes related to sustainability, and very few new governmental guidelines have been put into place to promote green postal services. This lack of provision puts part of the responsibility on European operators and service providers to create new sustainability initiatives, and direct investments towards areas such as green logistics to adapt to dynamic and positive changes in the market. Unfortunately, as seen in LME's 2023 Green Last Mile Europe report, there is still significant occurrence of "greenwashing", especially amongst US players.

New technologies are also becoming increasingly attractive for companies, with 31% of 305 executives in the logistics supply chain planning to use collaboration tools in the next 24 months, according to a PwC November 2022 survey. In addition, respondents reported that scanning, intelligent data capture, artificial intelligence applications and machine learning are popular paths for digitising the delivery process. Commercial drone deliveries are also seen as having the potential to disrupt the last-mile space, with around 482,000 deliveries in 2021 (source: McKinsey). Drones are projected to become a cost-competitive and low-emission alternative for last-mile delivery, despite their high labour costs related to operating regulations. LME is more cautious and doesn't see drones operating at scale until technology allows for higher payloads, limited human assistance and high numbers of drones operating simultaneously and safely. By offering a more sustainable alternative to existing home delivery options, these new technologies directly compete with OOH options such as PUDO locations and parcel lockers, yet these spaces currently provide the highest cost and convenience advantage for consumers.

CEP INDUSTRY CHANGES

In the late 1990s, the mail and parcels market started to grow worldwide, fuelled largely by growing e-commerce related volumes. The incumbent players were forced to look for new, more efficient and economic solutions. Originally there were three main OOH shipping streams:

- Business mail and parcels.
- B2C mail and parcels as a result of distance shopping.
- Field engineering service delivery.

Since the start of Russia's war in Ukraine, increased input costs have forced carriers to seek cost reduction, while inflation has made customers look for economies such as those offered by re-commerce. Both favour OOH development.

In line with fast market development and the growing popularity of the internet, e-commerce has become increasingly important, Amazon, in particular, has played a key role in changing the face of last-mile delivery in Europe over the last decade.

RECENT EUROPEAN PARCEL MARKET EVOLUTION: LATEST TRENDS

B2C parcel volumes in the EU and the UK: 2019–29 forecasts

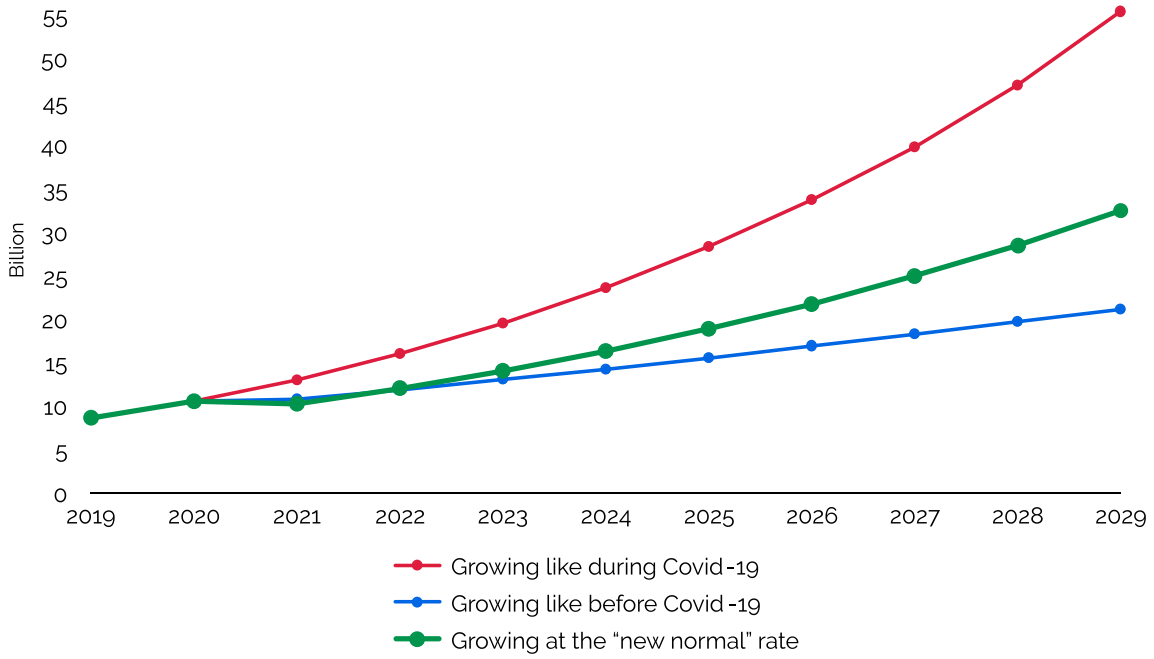


Figure 5. B2C parcel volume
Source: UPIDO

The long-term forecasts for parcel volumes in the EU and the UK encompass three scenarios: The red curve predicts a continuous increase in volumes, assuming the growth rate observed during the 2020 pandemic peak is sustained. The green curve represents a more moderate post-pandemic growth rate, factoring in potential changes in online shopping behaviours. Lastly, the blue curve anticipates expected volumes if parcel growth reverts to pre-pandemic rates.

Contrasted with these forecasts, the estimated parcel volumes for 2022 are more closely aligned with the pre-pandemic trend. In fact, in 2022, parcel volume growth appeared to significantly decelerate, as consumer preference for online shopping waned from its peak during the Covid-19 pandemic.

As we entered early 2023, the trend of declining parcel volumes due to a decreased preference for online shopping persisted. While consumers were not completely transitioning to in-person shopping, their enthusiasm for online purchases declined compared to the peak of the pandemic. This shift in consumer preferences led to a persistent deceleration in the growth of parcel volumes throughout Europe.

The prevailing economic conditions, including inflationary pressures resulting from geopolitical tensions and other factors such as rising interest rates, had a further impact on consumer spending habits and their attitudes towards non-essential and online shopping. As a result, parcel volumes in early 2023 remained below the levels that would have been expected with the continued influence of the pandemic and the subsequent shift in consumer behaviour.

To see a significant rebound in online shopping and a resurgence in parcel volumes there may need to be a more substantial recovery in consumer confidence, along with potential shifts in market dynamics. It will be important to monitor how consumer preferences evolve in the coming months and how the overall economic and geopolitical landscape stabilises, as these factors will likely play a crucial role in shaping the future trajectory of parcel volumes.

Despite the disappointing evolution of European e-commerce sales and parcel volumes, it is worth noting that there is significant variability in parcel market development among individual country markets in Europe. Some countries have demonstrated more resilience in terms of parcel volume growth, contributing to diversification of the overall landscape.

Our analysis will show that one factor which is critical for effective ecommerce and indeed re-commerce is an efficient and proximate OOH network. Within Europe, certain markets have been able to adapt more effectively to the changing dynamics of online shopping, resulting in a more robust growth in parcel volumes. These countries have implemented strategies to facilitate seamless logistics operations, improve last-mile delivery networks (especially in the area of OOH) and enhance customer satisfaction. As a result, they have experienced a stronger performance in parcel volumes compared to other markets.

While some countries may still be grappling with slower growth and reduced demand for online shopping, others are forging ahead with innovative solutions, technological advancements and favourable market conditions that continue to drive parcel volume expansion.

This divergence in performance presents both challenges and opportunities for the European parcel industry. It calls for a nuanced understanding of the specific market dynamics in each country and the adoption of tailored strategies to optimise the growth potential. Parcel service providers and e-commerce companies need to closely analyse and adapt to the unique characteristics of each market, taking into account factors such as consumer preferences, infrastructure capabilities and regulatory frameworks.

Moreover, this heterogeneity in parcel market development highlights the importance of collaboration and knowledge sharing among industry stakeholders. By exchanging best practices and lessons learned, countries with slower growth can benefit from the experiences of more resilient markets and explore avenues for improvement. This collective effort can contribute to a more balanced and sustainable growth trajectory for the European parcel industry as a whole.

In summary, while the evolution of e-commerce sales and parcel volumes has been disappointing in some respects, it is crucial to recognise the varying levels of resilience and growth across European markets. The presence of more-resilient markets creates a diverse landscape, emphasising the need for tailored last-mile strategies and collaborative approaches to unlock the full potential of the parcel industry in Europe.

MEASURING POST-PANDEMIC PARCEL MARKET RESILIENCE ACROSS EUROPE

Pre-pandemic vs. post-pandemic parcel volumes: growth rate between Q1 2019 and Q1 2023

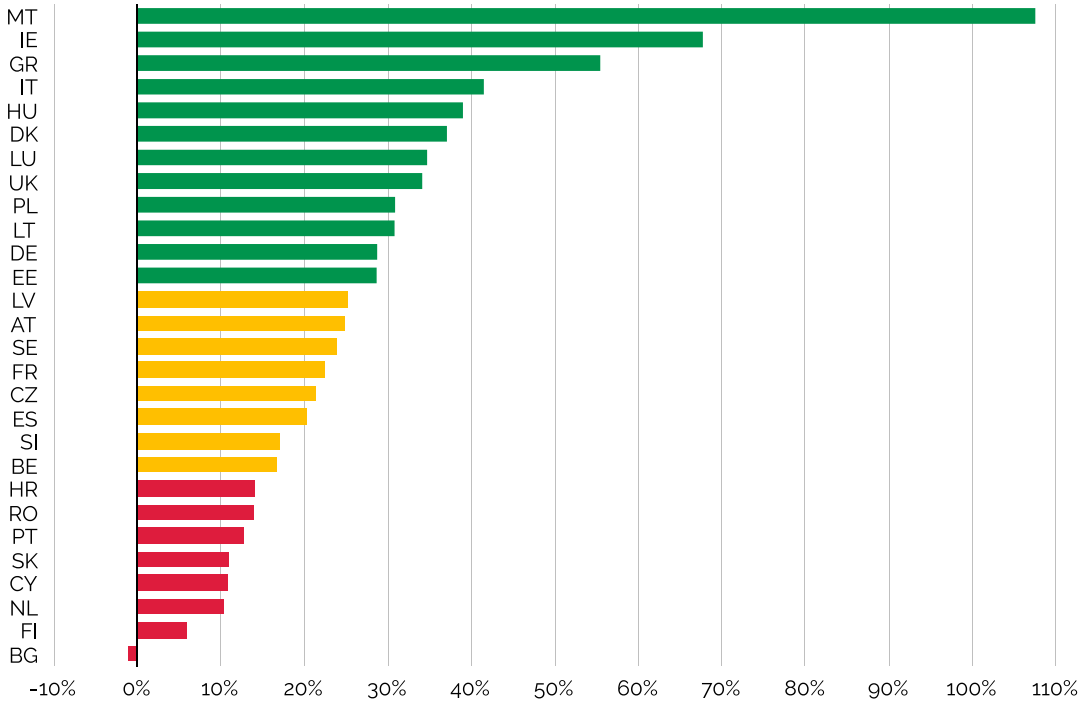


Figure 6. Pre-pandemic vs. post-pandemic parcel volumes
Source: UPIDO

The growth rates of parcel volumes between Q1 2019 and Q1 2023 (shown in the chart above) reflect varying degrees of resilience in the parcel industry across EU countries and the UK. While some countries exhibited weak or moderate resilience, 12 out of 28 markets demonstrated significant resilience, achieving high single-digit or double-digit growth rates despite the economic uncertainties triggered by the war in Ukraine.

Based on the abovementioned growth rates, the CAGR of parcel volumes from Q1 2019 to Q1 2023 across various EU countries and the UK has been estimated. In the context of this analysis, resilience of the parcel market is gauged by a country's ability to achieve a high single-digit or double-digit CAGR, especially in light of the economic uncertainties prompted by Russia's invasion of Ukraine in early 2022.

Countries have been clustered into three groups based on their CAGR performance as a measure of their resilience: the **red group** demonstrating weak resilience, the **orange group** indicating intermediate resilience, and the **green group** representing the strongest resilience.

Weak resilience (red group)

The red group includes Bulgaria (BG), Finland (FI), the Netherlands (NL), Cyprus (CY), Slovakia (SK), Portugal (PT), Romania (RO) and Croatia (HR). These countries reported CAGRs below 3.93%, implying weak resilience in their parcel industries amid the geopolitical instability. The reported CAGRs indicate that these countries have struggled to maintain growth in parcel volumes during the post-pandemic period. These markets have most likely reverted to their pre-pandemic growth trends and will find it challenging to reach the "new normal" volume increases that were initially expected because of the pandemic (as shown in Figure 6 above).

Intermediate resilience (orange group)

The orange group, signifying intermediate resilience, ranges from Belgium's 3.93% CAGR to just below Estonia's 6.52%. This group includes Belgium (BE), Slovenia (SI), Spain (ES), Czech Republic (CZ), France (FR), Sweden (SE), Austria (AT) and Latvia (LV). Despite facing geopolitical and economic challenges, these countries demonstrated a moderate level of resilience by sustaining growth in their parcel volumes. However, they are anticipated to face difficulties in keeping up with the projected growth rates of the "new normal" during the post-pandemic period.

Strongest resilience (green group)

The green group encompasses countries with CAGRs of 6.52% and above, demonstrating the strongest resilience. Countries in this group include Estonia (EE), Germany (DE), Lithuania (LT), Poland (PL), the United Kingdom (UK), Luxembourg (LU), Denmark (DK), Hungary (HU), Italy (IT), Greece (GR), Ireland (IE)* and Malta (MT).* Their CAGRs, ranging from 6.52% (EE) to an exceptional 20.03% (MT), indicate that they have successfully maintained strong growth in parcel volumes despite the geopolitical challenges, which demonstrates a high level of resilience. They are expected to keep pace with the post-pandemic "new normal" growth rate for the rest of the decade.

** Both Malta and Ireland are quite distinctive, the former being very small and tourist driven while the latter will have been affected by post-Brexit trade flows.*

E-COMMERCE NEEDS BETTER SOLUTIONS AND CX

E-commerce needs, above all:

- Capacity
- Quality/first-time delivery (FTD)
- Choice
  - Where?
  - How?
  - When?
  - For how much?

"We have observed a strong increase in the number of installations of parcel lockers in Europe in the year 2022, and an even higher growth rate than in 2021. We also observed the start of a consolidation of the market leading to a healthy situation where supply meets demand. All in all, the parcel locker business looks very promising for 2023."

Cesar Lapuerta, MS
Sales Director, Western and Southern Europe
Logistics Automation, KEBA Handover Automation GmbH

DELIVERY PREFERENCES ACROSS EUROPE

While we do not have any accurate and quantitive assessment of the ranking of main delivery places, both parcel shops and especially parcel lockers are clearly increasing in importance. This is due to the increasing proximity of points and more APMs (with high CX) as well as the fact that re-commerce delivery is only commercially viable at scale with OOH. We anticipate that only the most developed OOH Nordic markets are unlikely to experience an increase in OOH delivery as opposed to D2D.

"The popularity of second-hand marketplaces is driven by their low-cost products. However, delivery costs can heavily impact the benefits of these services. Optimised last-mile delivery is crucial to their success. Parcel lockers are emerging as the most effective solution to this issue, allowing for sender serviced drop-off and collection, reducing failed deliveries, and enabling asynchronous deliveries. These factors are especially important for second-hand products, which play a vital role in promoting sustainability. Parcel lockers also help courier companies reduce CO2 emissions, making them an essential component of 'second-life' business models. At Bloq.it, we recognise this need and are working with Lithuanian Unicorn Vinted, a leading platform for second-hand fashion, to develop the first project using smart parcel lockers. We are excited about this opportunity to revolutionise the way second-hand products are handled and to contribute to a more sustainable future."

Miha Jagodic,
Founder and CEO of Bloq.it

GROWING CUSTOMER EXPECTATIONS

Customers are increasingly demanding in terms of deliveries. They want transparency, flexibility and greater influence over their delivery logistics. More and more customers value the fact that online shopping offers a variety of delivery options.

What's more, if delivery is free of charge, consumers are willing to wait.

Customers may even decide to abandon a purchase if the delivery option they want is not available. Given this, and the fact that the trend observed for years has been growth in CEP (B2C and C2X) volumes, it is essential to offer OOH deliveries.

Customers expect features such as:

- Same day – or even same hour!
- Time-slot delivery.
- Alternative delivery options.
  - parcel lockers / PUDOs.
  - safe drop / leave with neighbour (UK).
- In-flight redirection or time-slot changes.
- Consolidation of deliveries.

According to "An eCommerce Merchant Survey 2022" (published by Doddle), a steadily increasing percentage of retailers offer OOH delivery to their customers.

The highest percentages are in:

- Spain (94% of all online sellers).
- Italy (84%).
- France (83%).
- Germany (72%).
- UK (54%).

In addition, based on our review of many surveys and studies of consumer behaviour over a number of years – and especially in times of high inflation – customers cite cost of delivery as the most important element in their purchase decision.

The publications we analysed show that, in 2022, 25% to 40% of consumers (depending on the country) put the price of shipping as the most single important element in terms of the delivery of goods.

MERCHANTS ONLY HAVE ONE CHANCE TO MAKE A FIRST IMPRESSION

Consumers purchasing for the first time will only return if the CX is good!

Consumers want to have a choice, so various delivery options at checkout are a must.

- Offering a range of delivery options increases the probability of closing a basket, which in turn leads to more revenue.
- A positive delivery experience increases the probability of repeated orders, and thus more revenue.
- Above all, successful first-time delivery means a closed sale … and less chance of a return.
- Empirical data shows that a failed first-time delivery increases the chance of a service failure severalfold.

LAST MILE – THE MAJOR CHALLENGE

- Online shopping, as opposed to traditional trade, involves delivery to the final customer, a process that is complicated and costly.
- According to Eurostat in 2022, 91% of people aged 16 to 74 in the EU had used the internet, 75% of whom had bought or ordered goods or services for private use. The proportion of e-shoppers rose from 55% in 2012 to 75% in 2022, an increase of 20 percentage points.
- The highest shares of internet users who bought or ordered goods or services over the internet in 2022 were recorded in the Netherlands (92%), Denmark (90%) and Ireland (89%). In contrast, fewer than 50% had shopped online in Bulgaria (49%).
- Between 2012 and 2022, growth in online shoppers was particularly significant in Estonia (+47 pp), Hungary (+43 pp), the Czech Republic and Romania (+41 pp).
- **The last mile is a critical point in the entire supply chain** and one that is often still mis-managed. As such, it represents the biggest challenge for operators, especially in light of the ever-growing expectations created by e-commerce.
- It is important to note that transport at the last-mile stage is responsible for **between 40% and 60% of all transport costs** generated between the producer of the good and the consumer.

OOH AS A SOLUTION TO THE LAST-MILE PROBLEM

OOH using PUDOs and APMs is currently the best solution to the last-mile capacity problem.

It helps sustain B2C (and C2C) parcel volumes and the demand from vendors and consignees for ever more consumer-centric and flexible last-mile services.

OOH can be up to 5 times more efficient per route, and provides high quality and customer choice, which are so very important.

Locker routes can serve over 1300* parcels vs. an absolute ceiling of around 200 for a dense D2D urban courier route.

** Based upon actual urban deliveries for InPost in Poland.*

Partner:

analysys mason

Last Mile Experts

OOH PUDOs & APMs

DEFINITIONS / CHARACTERISTICS OF OOH

OOH delivery consists of delivering a shipment to a point or machine located in a convenient place for the customer. They can pick up a parcel on their commuting route at a convenient time, within a timeframe of a few days. OOH most commonly takes one of two forms: APM and PUDO. A PUDO point is a place where parcels can be collected or dropped off, such as a small (convenience) store, larger market, parcel shop or a urban depot/micro depot. An APM is a machine located inside or outside a building, from where packages can be collected or shipped without interacting with another person.

OOH allows the consolidation of shipments, which increases delivery and pickup efficiency and can reduce delivery costs. It reduces the use of resources (cars, couriers) and increases the efficiency of delivery processes (as dropping off more parcels at the same location means fewer stops are required and eliminates unsuccessful deliveries where recipients are unavailable).

OOH delivery involves the customer in the last-mile process. Customers must do some of the work that the courier would otherwise do, as they must go to the OOH point and pick up parcels for themselves.

OOH facilities have to be easily accessible to everyone. In bpost's words, they must be "slipper distance" from the customer's residence, workplace or another place that they regularly visit or pass by.

If a consignment cannot be delivered to the door, it should be redirected as close as possible to the delivery address specified in the order, so as to minimise operational costs and any negative effect on customer experience.

OOH PROVIDERS

OOH are provided by various players:

- **National postal operators** which historically had the largest last-mile infrastructure, usually with a mixture of traditional postal outlets, third-party agency/PUDO points and, increasingly, lockers.

- **CEP companies** such as DPDgroup, DHL, InPost/Mondial Relay, UPS, Evri/Hermes, GLS or FedEx and local heroes such as Zásilkovna, Matkahuolto, Sameday or Colis Privé have their own PUDO.

- **E-commerce** - Amazon and AliExpress as well as local heroes such as eMAG or Allegro as OOH providers. Re-commerce players, notably Vinted, have become increasingly involved in OOH.

- **Retail point owners** such as 7-Eleven, Żabka, Orlen, Lidl and PayPoint.

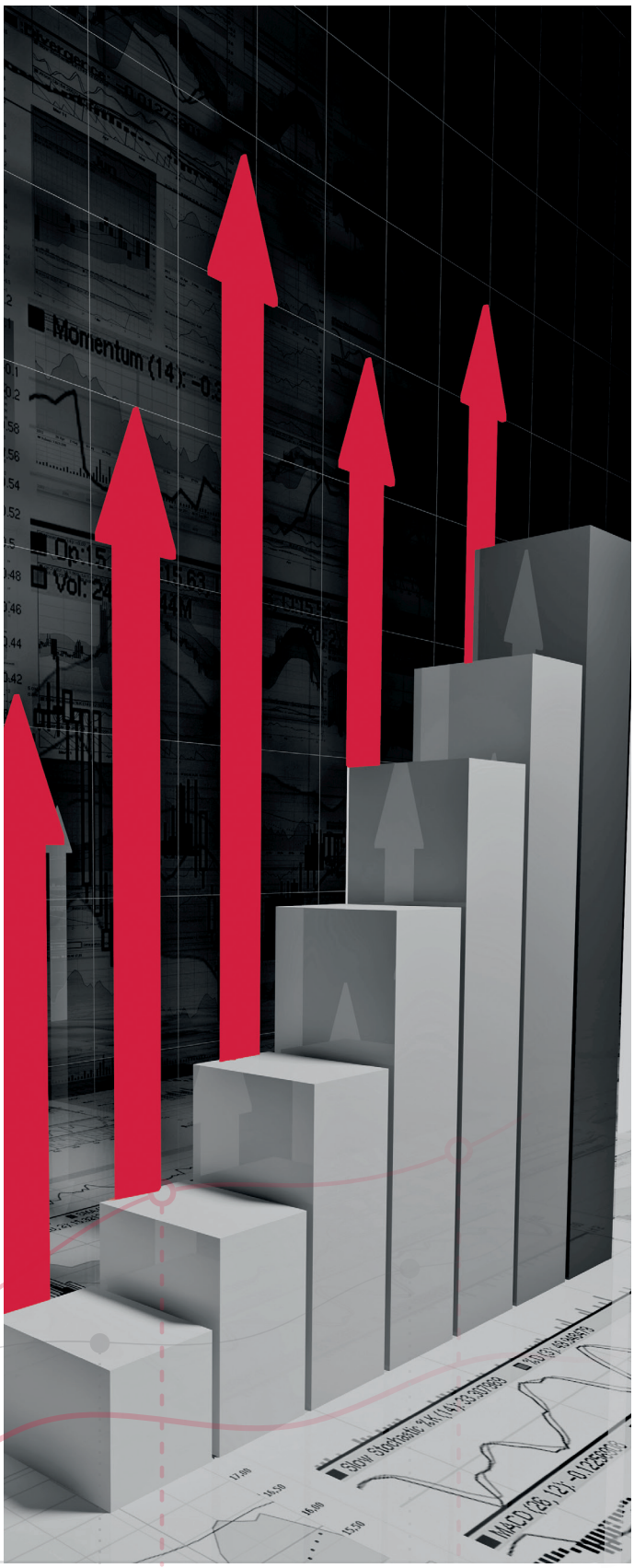
- **Infrastructure owners** such as public transport, rail companies, local or city authorities or, more recently, private (parking) infrastructure owners/operators.

- **IT platforms/consolidators**
  The evolution of courier brokers such as Apaczka, Asendia, Auctane or Seven Senders involves the adoption of IT solutions that integrate various forms of delivery and the establishment of physical PUDO points.

ADVANTAGES OF OOH

- OOH offers ever more **consumer-centric** and flexible last-mile services.
- Almost **100% first-time delivery.**
- **Proximity** to customers (best-in-class urban networks are <350m away) so they can pick up their package "on the way", e.g. when shopping or coming back from work.
- **Convenient – 24/7** (outside APMs) or extended PUDO opening times.
- **Contactless** (APMs).
- Cheap and **easy returns.**
- More flexibility; **long period of storage** (5+ days in most PUDOs).
- **Operationally and financially efficient.**
- **Ecologically superior where the PUDO or locker is proximate to customer homes.**
- Fast and relatively cheap **means of increasing capacity*.**

** Where operating at reasonable capacity.*



REASONS/DRIVERS FOR OOH DEVELOPMENT

"APMs have been revolutionising the last-mile delivery landscape in 2022, as lockers become a more cost-effective, convenient and sustainable mode of last-mile delivery.

SwipBox has proven to be at the forefront of this transformation with our "Infinity" lean locker solution.

In 2022 we have seen a significant growing interest in lean APMs, especially coming from European markets with limited out of home presence."

Kasper Cort Pedersen,
CCO, SwipBox

The reasons for OOH success are:

- More choices for the customer.
- High first-time delivery rates.
- Ease of locating and accessing by couriers.
- Highly efficient delivery method which can increase last-mile capacity severalfold.
- Significant cost benefits vs. D2D.
- Significantly less traffic congestion.
- Some 60% fewer carbon emissions in urban areas and even less in rural ones*.

- The Covid-19 pandemic and recent economic crises further accelerated the popularity of OOH.
- The lack of available labour and an increase in fixed costs can be expected to reduce the significance of D2D courier services, which will become more expensive and evolve into a premium alternative.
- Economy delivery services and subscription models will further drive the demand for OOH capability, which will be the only way to achieve acceptable cost levels.
- Re-commerce (second-hand) trends and new entrants such as Vinted, OLX and Zalando are further increasing the demand for C2X services, which is ideally suited to OOH networks due to the low cost of both the first and last mile (only to/from the access point, with the customer/consignee doing the rest).

** Reduction in carbon emissions due to a higher delivery success rate.*

OPEN/AGNOSTIC VS. CLOSED NETWORKS

Discussion of open (carrier-agnostic) or closed OOH networks has become increasingly topical as e-commerce has driven this area of the last mile forward and created a need for new ways of approaching it. Traditionally, incumbent OOH networks (usually postal operators due to their legacy infrastructure) have been unwilling to allow others to use their networks, as they consider them to be part of their competitive advantage. However, this is beginning to change as players become more knowledgeable in this space and as governments and local authorities push for a shared last mile, due to environmental concerns.

While most networks are still closed, the emergence of an open model began in China, where the largest network in the world, HiveBox, operates under an open model.

Open networks offer advantages in four key areas: efficiency, proximity, speed of development and sharing benefits. In general, open networks will be the most efficient, and in our view they should be the "go to" model.

In the end it is arguably the customer, and possibly local government, who will push for fewer but larger and more proximate OOH networks.

Fully open networks in Europe include Myflexbox (DE, AT) Smartmile (FI, NL), Quadient (UK).

Many carriers and postal operators don't understand the value of an open (agnostic) network – here's why they make sense.

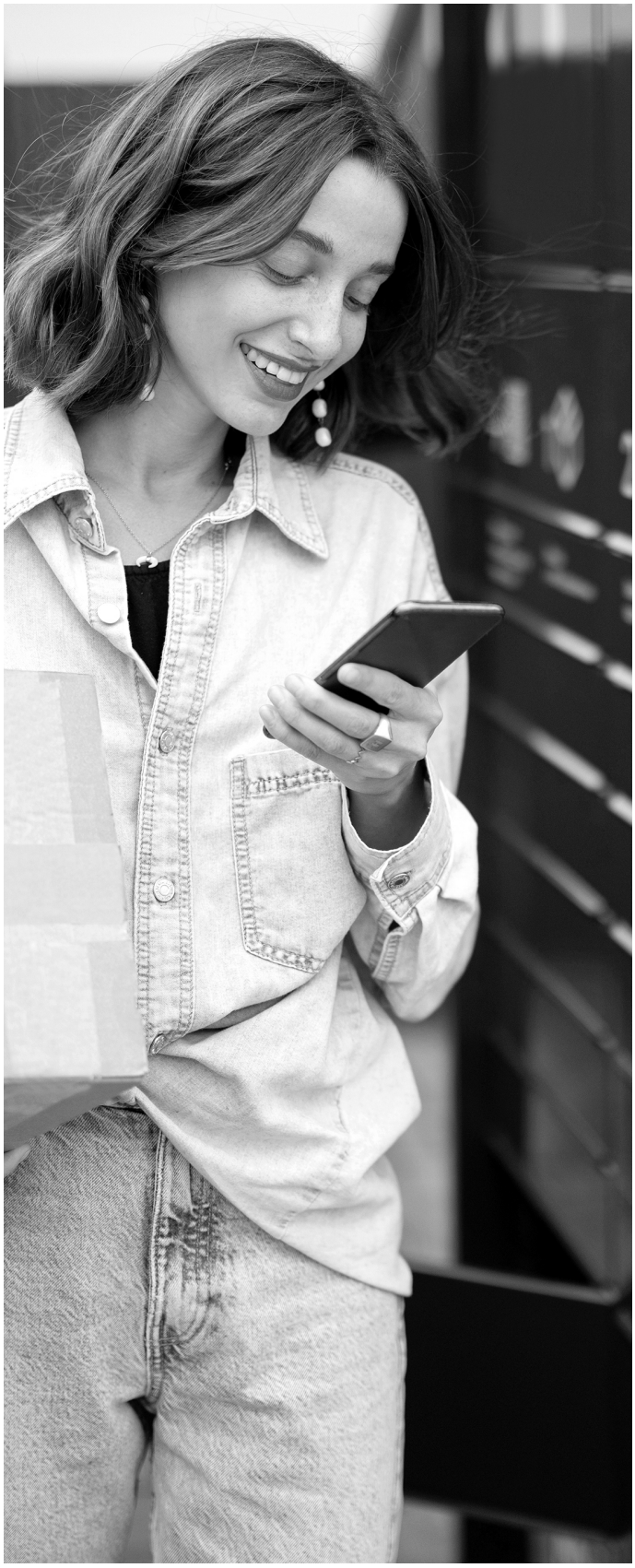
PREFERENCES BY GROUP

OOH offers benefits to all major user groups:

For **consumers** (consignees), the key is to have a choice of delivery options. Not only carrier brands, but also various types of services that best match their current shopping needs.

For **merchants**, the key is to have a sufficient variety of delivery methods that will increase the basket closing indicator and ensure high scores for both first-time delivery and the all-important CX.

For **carriers**, the key is the ability to offer last-mile capacity and good customer service efficiently and effectively. OOH is a key element, without which it is unlikely that subscription models can be operated profitably.



CONSUMER VIEW

D2D is theoretically the most convenient (if the consignee is home), but parcel lockers create the best overall customer experience

PARCEL LOCKERS "COLLECTION AT MY CONVENIENCE"	PUDO "PARCEL SAFELY DELIVERED"	CARRIER HOME DELIVERY "THERE'S NO PLACE LIKE HOME?"
Convenience: ▪ Convenience and flexibility – **access 24/7*** ▪ Located **"on my way"**, with easy access and parking ▪ Physical proximity	**Convenience:** ▪ **"It's on my way"**, in my shop or petrol station, etc. ▪ Physical proximity – **it is nearby … but not generally 24/7 (unlike lockers)**	**Convenience:** ▪ Location comfort – unlimited geographical coverage ▪ Delivery comfort – **it comes to my doorstep** as long as I'm at home
Customer centric: ▪ Customer has more choice ▪ Ease of use – **one click to open the locker** ▪ Fast and easy – remote access & reducing queues	**Customer centric:** ▪ Customer has more choice ▪ Extended time to pick up vs. APMs (usually a few more days) ▪ **Easier for (older) non-tech savvy customers**, who prefer non-standardised "human interface	**Customer Centric:** ▪ **Ease of delivery** – I don't have to leave my home!
Efficient: ▪ **Low/attractive delivery price for fast delivery** (typically next day) ▪ **No more missed deliveries** – high success rate for first delivery attempt	**Efficient:** ▪ Low/attractive delivery price for 2- to 3-day delivery ▪ **No more missed deliveries** – high success rate for first delivery attempt	**Efficient:** ▪ Operationally the **least efficient** ▪ **Fast delivery** (typically next day) ▪ **Delivery to the doorstep but at a higher price**

** In the vast majority of cases*

"I strongly believe in agnostic networks.
As sustainability has become not a differentiator but a necessity, one big APM for several carriers is more environmentally friendly than several of them for different operators. Local governments will encourage this idea.
E-com players without physical delivery points can benefit strongly from open networks.

Lockers for logistics will still be prevalent in the market.
When it comes to parcel lockers in retail, I believe that the biggest DIY stores will offer BOPIL very very soon.
See the examples of Kingfisher's Castorama, Leroy, or Bauhaus."

Roman Melnychuk,
Product Marketing Manager,
Modern-Expo Group

MERCHANT VIEW

Capacity, high first-time delivery and good customer experience make OOH an important delivery channel

PARCEL LOCKERS	PUDO/ STORE PICK-UP	CARRIER HOME DELIVERY
Delivery ▪ **Safe place** for parcels reduces the level of damages ▪ **High success rate for first-time delivery vs. D2D** ▪ **Good CX**	**Delivery** ▪ **Safe place** for parcels ▪ Intermediate level of damages ▪ **High success rate for first-time delivery vs. D2D** ▪ **Generally good CX**	**Delivery** ▪ **Highest level of damages** ▪ **Relatively low first-time delivery success rate** ▪ High chance of service failure if first attempt is missed
Customer experience: ▪ **Simple returns available at no/low cost**	**Customer experience:** ▪ **Consumer returns generally easy** and available ▪ **Less standardised experience** than from a machine	**Customer experience:** ▪ **Few players can achieve good CX** ▪ **Consumer returns are costly and challenging**
Volume/capacity management ▪ **Flexible to sudden volume changes, until capacity is reached**	**Volume/capacity management** ▪ **Flexible to sudden volume changes, up to a point**	**Volume/capacity management** ▪ **Intermediate sensitivity to sudden volume changes***

** Especially where last-mile delivery is outsourced/subcontracted by the carrier.*

CARRIER VIEW

Home delivery is the legacy option, but labour and fuel costs favour OOH

LOCKER NETWORK	PUDO NETWORK	CARRIER HOME DELIVERY
Location ▪ Urban areas, ideally located in "bedroom" districts "close to home" ▪ **APM access is generally 24/7** ▪ Need accessible and dense network (can be supported by PUDOs)	**Location** ▪ Urban areas (or rural centres) with higher traffic ▪ **Indoor access with limited opening hours/days**	**Location** ▪ Mainly residential, with some business ▪ **Unlimited geographical coverage**
Delivery service ▪ Most efficient, with **highest number of parcels per stop*** ▪ Automated process ▪ **Delivery success at the first attempt**	**Delivery service** ▪ **Better than D2D**, with several parcels per stop ▪ Manual process ▪ **Delivery success at the first attempt**	**Delivery service** ▪ Most expensive and **least efficient for carriers (~1 parcel per stop)** ▪ **Relatively low FTD success** (especially without IDM) ▪ **Leave safe** options
Customer experience ▪ **No direct contact with consumer** ▪ High possibility to manage on-time delivery to meet SLA, and **generally best CX**	**Customer experience** ▪ **No direct contact with consumer (unless PUDO points are owned by carrier)** ▪ High possibility to manage on-time delivery to meet SLA, and **generally good CX**	**Customer experience** ▪ **Full personal contact with each consumer … but can be damaged by poor courier behaviour** ▪ Moderate possibility to manage on-time delivery to meet SLA, and **variable CX**

** Except for large PUDO/micro depot alternatives*

OOH SOFTWARE – THE "SECRET SAUCE" IN THE OOH LAST MILE

A great customer experience is important for OOH deliveries

With OOH growing rapidly within the last-mile delivery industry, it's important to ensure that customers have a great experience when using these options.

OOH has proved itself to be a better model for last-mile delivery, and good customer experience is a key way of increasing the adoption of OOH options instead of traditional home deliveries.

Good software is the key to customer experience

Software effectively dictates the user experience because, ultimately, it is software which defines how intuitive and easy the OOH process will be.

What the final customer interacts with typically depends on the software used by the company making the deliveries. If the software on the user interface or operational processes are unreliable or unintuitive/difficult to use, the customer experience will suffer. In contrast, if the software is operationally strong, simple to use and functional, the customer will have a good experience.

Better software in PUDOs

PUDOs will be a key part of OOH for the foreseeable future and are an important complement to APMs. A good PUDO experience will likely be more dependent on in-store operational software than on human to customer interfaces.

The process should be extremely simple for the final consignee. It should be as easy as presenting some form of valid authentication (such as a QR code or a PIN code) or confirming a notification in an app, following a geocode check.

However, the tools to manage the PUDO shop for the operator should be reliable, allowing them to easily communicate statuses or service issues to the delivery company, and authenticate the customer who is trying to collect a package.

PUDO software which will make the user experience much closer to that in lockers is an area that requires investment and is a key focus for LME.

Better software in smart lockers

In contrast, when the final consignee chooses an APM as an OOH option, they have to interact with a machine-based customer interface at the APM itself. As a result, it is imperative that the APM is simple to interact with and allows for an easy pick-up or drop-off process.

Increasingly, APMs also make use of external interfaces, such as mobile or web apps. Besides the customer experience aspect of APMs, an even more important element is how they are able to communicate with all the other operational components in the process.

Good APM software enables efficient operations, simple and integrated flows, data collection for continuous improvement, and avoids a lot of the problems typically associated with APMs (such as overbooking).

Since APMs are autonomous machines, it is also important to ensure that they are cost-efficient to maintain – here software can play a crucial role through preventive maintenance, remote monitoring and troubleshooting.

Software as a tool to close OOH gaps

OOH can involve multiple elements, from PUDO points and APMs to newer solutions such as PUDO locations equipped with smart locks (both personal and communal). Also, applications can serve different flows such as first-mile, last-mile and, increasingly, C2C operations.

These systems should ideally be interconnected, to ensure that customers have a similar and uniform experience when interacting with each of them.

Moreover, operationally, it is important for the delivery company to have different systems and operation types aligned and communicating with each other inside the same system, in order to avoid extra flows and disconnected solutions that will increase the operational complexity and risk of error.

IDM as a tool to improve the user experience and drive OOH adoption

IDM is one of the key drivers in optimising the last-mile user experience, for both home and OOH deliveries.

Almost like "Uber for parcels", it not only gives the customer a sense of control, by allowing them to track the progress of an order, but also enables them to change delivery option after the purchase has been made. As well as being convenient for the final customer, this is also operationally efficient for the delivery company. It allows the consignee to warn the delivery company in advance about a potential missed delivery and give them an alternative delivery option in time.

IDM as a catalyst for OOH adoption

IDM can 'convert' customers into OOH delivery users. For example, if a consumer requests home delivery when they make a purchase, but then realises they won't be available to receive it, if they have access to a customer-centric IDM tool they could easily use this to switch to an OOH option instead. If that change leads to a successful delivery, the customer will be more likely to select OOH delivery in the future.

Concluding thoughts

Although hardware and other physical infrastructure are important in the last mile, software is the "secret sauce" that makes everything work. For this reason, companies like ours are increasingly focused on creating software tools that will help to develop the new last mile.

EVERYONE IS A WINNER

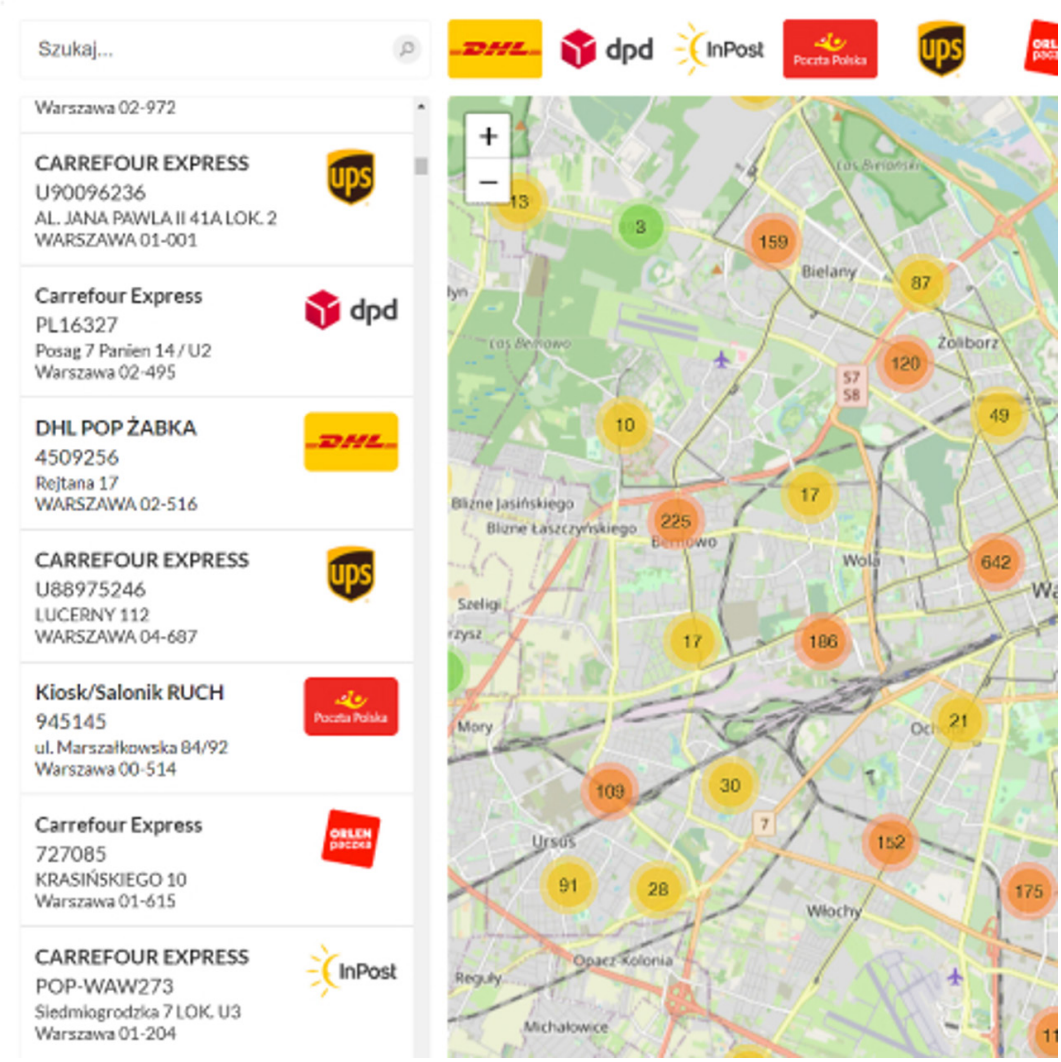
While each user group (consumers, merchants and carriers) benefits from a different value proposition, lockers and PUDOs are key to each of them and can be expected to become more important over time.

OOH is a “must have” if e-commerce is to achieve the capacity that it needs today and that we predict for tomorrow.

LOCAL BROKERS FOR OOH

Parcel brokers or consolidators provide access to large players and "local heroes" with one interface but are mainly geared towards SMEs or even private individuals. A few examples include "Apaczka", which is integrated with Poczta Polska, InPost, RUCH, DPD, UPS and FedEx OOH points. Brokers exist in most EU countries and some leading examples include:

- PL - apaczka/sendit.pl, furgonetka.pl
- IT - spedire.it, sendabox.it
- ES - packlink.es
- UK - parcels2go.com, parcelmonkey.co.uk, parcelhero.com
- DE - letmeship.com
- EU-wide - sevensenders.com



Source: Apaczka

Partner:

analysys mason

Last Mile Experts

Country Analysis

OOH DELIVERY NETWORK DENSITY

Recent OOH delivery development and parcel market resilience in the EU and the UK

This segment of the analysis connects to previous analysis from page 33 with the density of their OOH delivery options. OOH delivery network density has been categorised into three levels: dense (10 or more OOH options per 10,000 inhabitants), intermediate (5 to 9.9 OOH options) and low (fewer than 5 OOH options). The density of the OOH delivery network plays a pivotal role, as the adoption of OOH delivery reportedly begins growing exponentially when the network reaches a dense level of 10 OOH delivery options per 10,000 inhabitants.

Number of OOH delivery options per 10,000 inhabitants in the EU and the UK (2022)

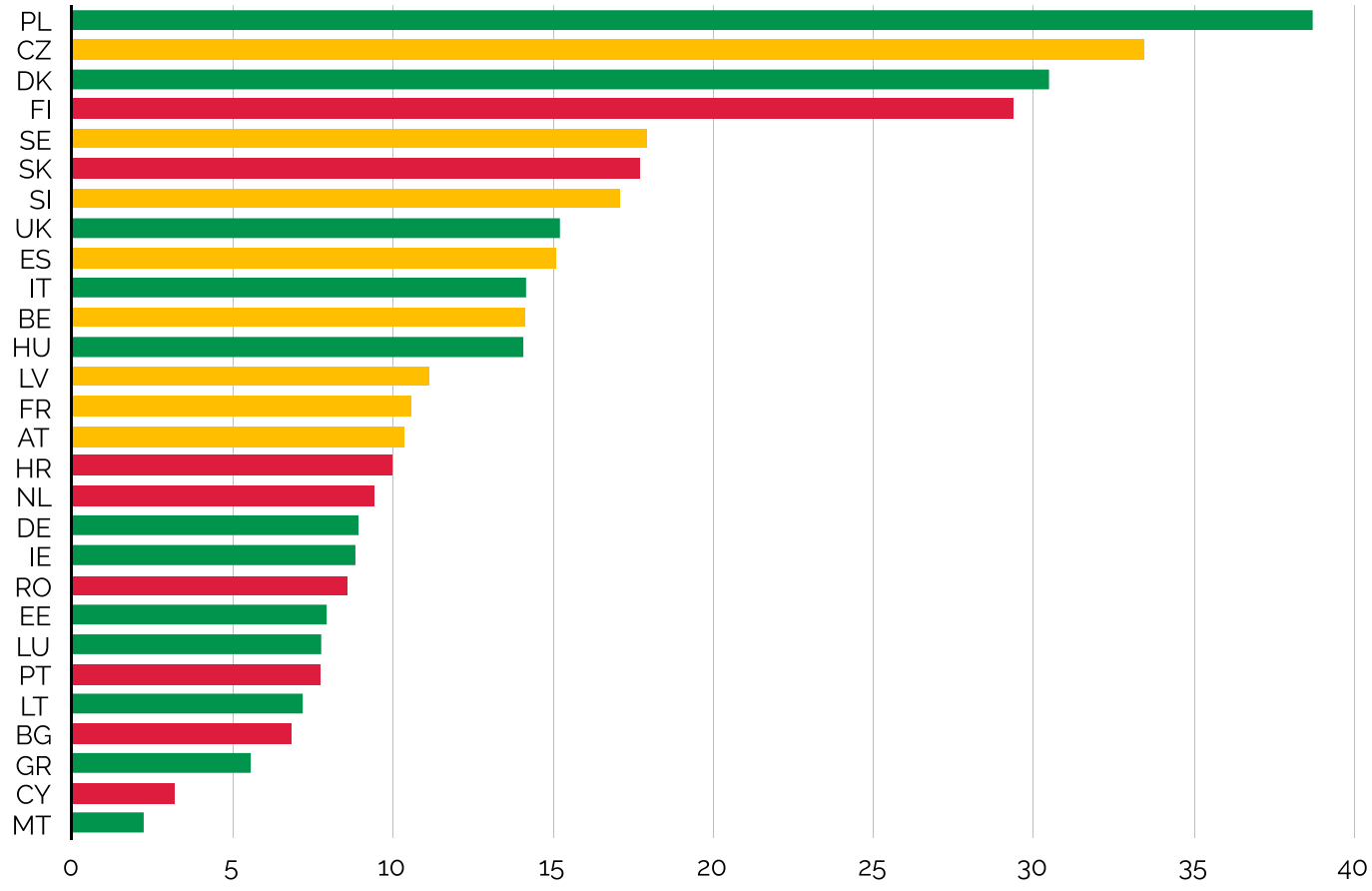


Figure 1. Number of OOH delivery options
Source: UPIDO
Note: All calculations take into account the total number of OOH points accessible to the customer, reflecting a customer-centric perspective in this analysis.

Red group (weak post-pandemic resilience of parcel market)

Countries in the red group, indicating weak post-pandemic resilience, generally have low to intermediate OOH network density. However, the Netherlands (NL) falls into the intermediate category with 9.48 OOH options per 10,000 inhabitants, and Finland (FI) stands out with a dense OOH network which provides 29.42 OOH options per 10,000 inhabitants. This suggests that despite a weak post-pandemic resilience in parcel volume growth, some countries in this group might be able to strengthen their parcel industry through already dense OOH networks.

Orange group (intermediate post-pandemic resilience of parcel market)

Countries in the orange group, signifying intermediate post-pandemic resilience, all display a high number of OOH delivery options per 10,000 inhabitants. For instance, Spain (ES) and France (FR) exceed the threshold for a dense network with 15.15 and 10.60 OOH options per 10,000 inhabitants, respectively. This implies that a dense OOH network might be associated with better post-pandemic resilience.

Green group (strongest post-pandemic resilience of parcel market)

All but one country in the green group (exhibiting the strongest post-pandemic resilience) have intermediate to high OOH network densities. Estonia (EE), Germany (DE) and Ireland (IE) sit within the intermediate level of OOH network density, while the United Kingdom (UK), Italy (IT) and Poland (PL) provide a dense OOH network. Poland is particularly noteworthy, with an extremely dense network of 38.72 options per 10,000 inhabitants. This suggests that a more dense OOH network can significantly support the post-pandemic resilience of a country's parcel industry.

In conclusion, while the post-pandemic resilience of the parcel industry varies by country, the density of OOH delivery networks seems to play a critical role. However, each country's unique market conditions, shopping behaviours and strategic responses to economic uncertainties also have a crucial impact on this resilience. A dense OOH network can contribute positively to post-pandemic resilience, but it needs to be part of a broader strategic approach if it is to effectively bolster the parcel industry in the face of post-pandemic economic challenges.

Malta (MT) is an exception in these analyses. Despite having the highest CAGR for parcel volumes among all the countries studied (20.03%, indicating strong post-pandemic resilience), the density of Malta's OOH delivery network is surprisingly low. With just 2.28 OOH delivery options per 10,000 inhabitants, it falls into the "low density" category.

This suggests that although Malta's parcel volume growth rate has been impressive in the post-pandemic period, its OOH delivery network has not kept pace. Despite the weak OOH network density, Malta appears to have sustained a strong resilience in its parcel industry after the pandemic..

This disparity implies that the density of the OOH delivery network is not the only factor which influences the post-pandemic resilience of a country's parcel industry. Other factors, such as Malta's unique geographical characteristics, market conditions, or potentially efficient alternative delivery methods, might be contributing to its high resilience.

Malta's example highlights the complexity of parcel industry resilience and suggests that a one-size-fits-all strategy might not be effective. Each country may need to identify and leverage its own unique strengths and opportunities to enhance the resilience of its parcel industry in the post-pandemic era.

RECENT PARCEL LOCKER DELIVERY DEVELOPMENT AND PARCEL MARKET RESILIENCE IN THE EU AND THE UK

Number of APM delivery options per 10,000 inhabitants in the EU and the UK (2022)

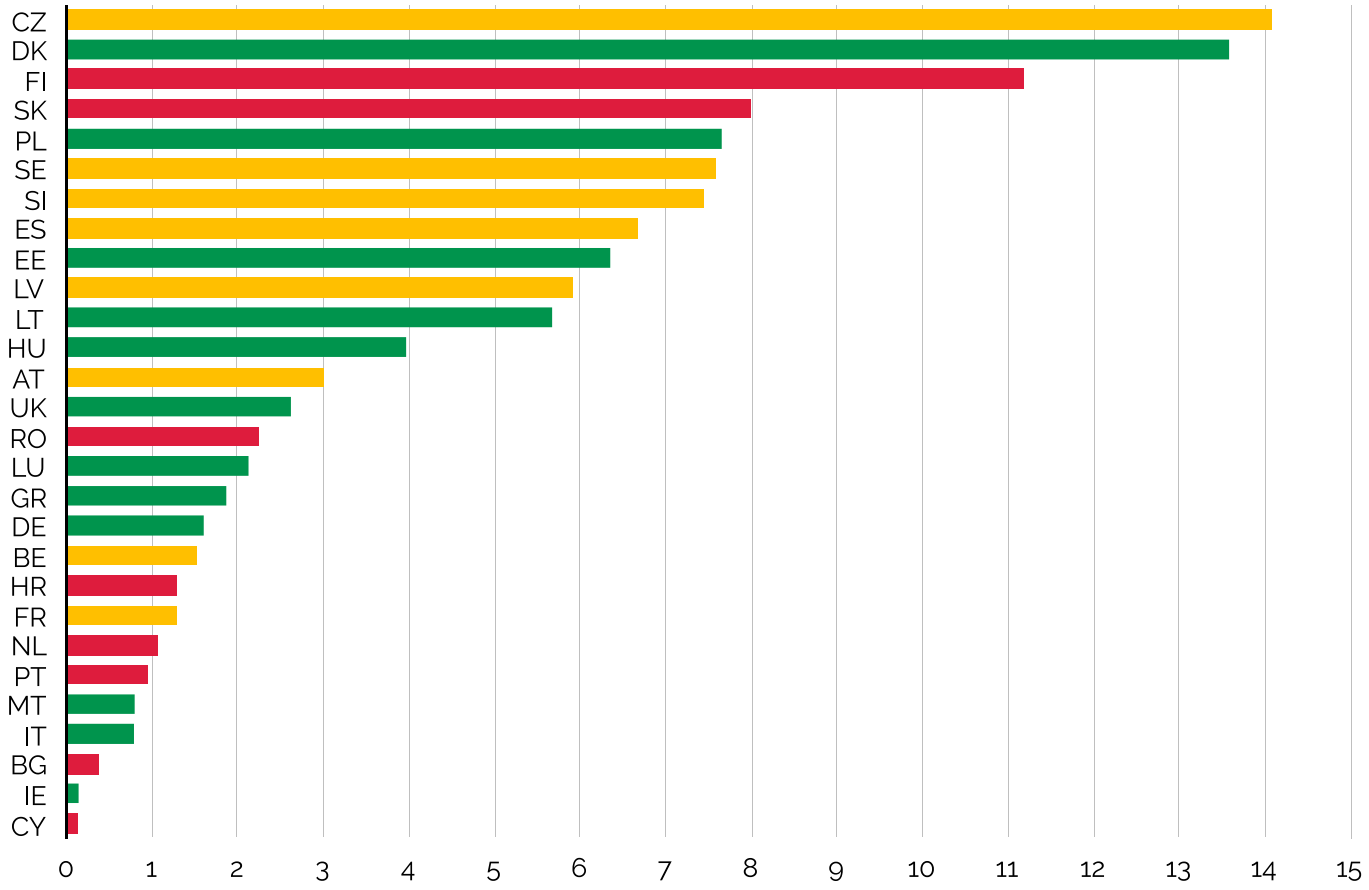


Figure 2. Number of APM delivery options
Source: UPIDO
Note: All calculations take into account the total number of OOH points accessible to the customer, reflecting a customer-centric perspective in this analysis.

In this part of the analysis we turn our attention to the contribution of parcel lockers, also known as APMs, to the overall density of OOH delivery options. The number of APMs per 10,000 inhabitants serves as a specific indicator of the role that parcel lockers play in the broader context of OOH delivery network development.

Red group (weak post-pandemic resilience of parcel market)

In the red group, APM density generally varies from low to intermediate. Bulgaria (BG), Portugal (PT), the Netherlands (NL), Croatia (HR) and Romana (RO) have both a weak APM presence and weak post-pandemic resilience in parcel volume growth. In contrast, Finland (FI) exhibits the highest APM density within the red group, with 11.20 per 10,000 inhabitants, which suggests that strong focus on the development of parcel lockers was insufficient to achieve higher levels of post-pandemic resilience in the Finnish parcel market.

Orange group (intermediate post-pandemic resilience of parcel market)

Countries in the orange group display varying densities of APMs. Latvia (LV) has 5.91 APMs per 10,000 inhabitants, while Austria (AT) has 3.01. Spain (ES), however, surpasses these numbers with 6.69 APMs per 10,000 inhabitants, indicating a stronger preference for this type of OOH delivery method. Overall, there seems to be no clear positive relationship between parcel locker density and higher levels of parcel market resilience in this group.

Green group (strongest post-pandemic resilience of parcel market)

Countries in the green group, exhibiting the strongest post-pandemic resilience, also offer a range of APM densities. Hungary (HU) and the United Kingdom (UK) have intermediate and low APM densities of 4.00 and 2.63 per 10,000 inhabitants respectively. However, Denmark (DK) and Poland (PL) stand out with 13.62 and 7.67 APMs per 10,000 inhabitants, respectively. This data indicates that parcel lockers play a substantial role in their dense OOH networks and contribute to the high resilience of their parcel industries.

In the case of Malta (MT), despite its strong post-pandemic resilience it only has a low presence of APMs of 0.81 per 10,000 inhabitants, which indicates that its resilience may be driven by factors other than the development of parcel lockers.

In conclusion, the density of parcel lockers does not generally seem to align with the post-pandemic resilience of the parcel industry when considered in strict isolation from the development of PUDO networks. Countries with strong resilience do not always have higher APM densities, but the latter can make a decisive contribution to the overall accessibility of an OOH delivery network, through the right combination of parcel lockers and PUDO points. As highlighted by exceptions like Malta and Finland, parcel market resilience is multifaceted, and individual countries may rely on different strategies to boost their parcel industry's post-pandemic resilience.

RECENT PUDO DELIVERY DEVELOPMENT AND PARCEL MARKET RESILIENCE IN THE EU AND THE UK

Number of PUDO delivery point options per 10,000 inhabitants in the EU and the UK (2022)

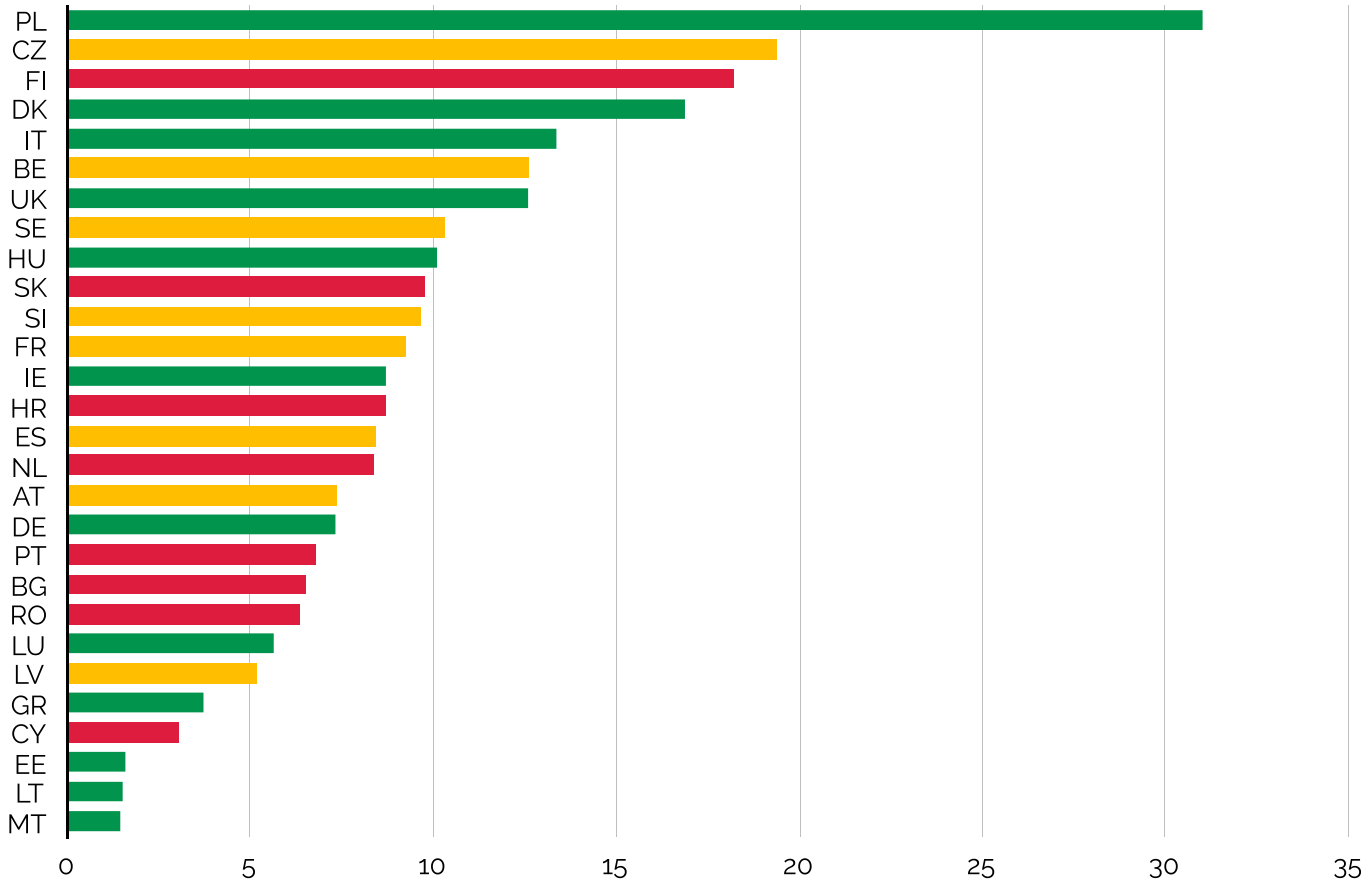


Figure 3. Number of PUDO delivery options
Source: UPIDO
Note: All calculations take into account the total number of OOH points accessible to the customer, reflecting a customer-centric perspective in this analysis.

We now shift our focus to the significance of PUDO points in the broader context of OOH delivery options density. The number of PUDO points per 10,000 inhabitants provides a unique perspective on the utilisation of this particular delivery method in the post-pandemic period.

Red group (weak post-pandemic resilience of parcel market)

Most countries in the red group show a low to intermediate density of PUDO points. Only Finland (FI) stands out, with a very high PUDO density of 18.22 per 10,000 inhabitants, which also indicates a preference for PUDO points over parcel lockers.

Most countries with low parcel market resilience have PUDO network densities below or well below the "dense network" threshold of 10 PUDO points per 10,000 inhabitants. This indicates that the limited availability of PUDO delivery options may have hindered post-pandemic parcel volume growth for online shoppers.

Orange group (intermediate post-pandemic resilience of parcel market)

Within the orange group, the majority of parcel markets have close to or above 10 PUDO point options per 10,000 inhabitants. Even the lowest performer, Latvia (LV), shows an intermediate PUDO density, with 5.23 points per 10,000 inhabitants, trailing behind Austria (AT) with 7.41. Spain (ES), with 8.46 PUDO points per 10,000 inhabitants, continues to exhibit a balanced OOH network with a significant presence of both parcel lockers and PUDO points.

The analysis indicates a positive correlation between the development of PUDO accessibility and parcel market resilience within this group.

Green group (strongest post-pandemic resilience of parcel market)

The green group presents a varied picture of PUDO densities. Lithuania (LT) maintains a low PUDO density with only 1.61 points per 10,000 inhabitants. The UK has a significantly higher density of 12.62 PUDOs per 10,000 inhabitants, which underlines the role of PUDO points in the country's resilient post-pandemic parcel industry. Notably, Poland (PL) has the highest PUDO density (31.05 per 10,000 inhabitants), which reinforces its commitment to a dense OOH delivery network and strong resilience.

It is worth highlighting that large resilient parcel markets such as Poland, Italy and the UK have the densest PUDO delivery networks in Europe.

Malta (MT), a small-size parcel market, has a low PUDO density of 1.48 points per 10,000 inhabitants despite its recent positive parcel market development and resilience. This suggests that Malta's high resilience is possibly influenced by factors other than the widespread availability of PUDO points.

In summary, while PUDO point density generally seems to correlate with post-pandemic resilience in many countries, some countries, like Malta and Finland, deviate from this pattern. This reiterates the multifaceted nature of post-pandemic resilience and the importance of recognising and accommodating unique country contexts when formulating delivery network strategies.

COMPARATIVE PERFORMANCE ANALYSIS OF PARCEL LOCKER VS. PUDO DELIVERY DEVELOPMENT AND PARCEL MARKET RESILIENCE IN THE EU AND THE UK

In order to evaluate the impact of parcel lockers (APMs) and PUDO points on the resilience of post-pandemic parcel volumes, we now compare their densities within each country.

Parcel lockers versus PUDOs in the context of post-pandemic resilience

When looking at the strongest post-pandemic resilience group (green), we see varied preferences in terms of OOH delivery methods. Poland (PL) is an excellent example of a balanced OOH delivery network. Despite having lower APM density (7.67 per 10,000 inhabitants) than PUDO density (31.05 per 10,000 inhabitants), the country still maintains a high combined density of both, contributing to its strong resilience. The United Kingdom (UK), however, leans towards PUDO points (12.62 per 10,000 inhabitants) rather than parcel lockers (2.63 per 10,000 inhabitants), showing the possibility of resilience even with a lower density of parcel lockers.

In the intermediate resilience group (orange), Spain (ES) and Austria (AT) have similar densities of APMs and PUDO points, indicating a balanced approach to OOH delivery methods which could contribute to their resilience.

In the weak post-pandemic resilience group (red), the Netherlands (NL) has a higher density of PUDOs compared to APMs. Despite its lower resilience, this country maintains a strong focus on the development of OOH delivery point options. It is notable that Finland (FI) exhibits high densities of both APMs and PUDO points, indicating that even with a diverse OOH delivery network, other factors could influence post-pandemic resilience.

Malta (MT), despite its strong post-pandemic resilience, shows low densities of both APMs and PUDO points, suggesting that its resilience is attributable to other factors outside the scope of the OOH delivery network.

In conclusion, it is clear that having a balanced higher density of both parcel lockers and PUDO points can contribute to higher post-pandemic resilience. However, as seen in countries like Malta and Finland, OOH delivery options are not the only factor which determines resilience. Therefore, a holistic approach, considering multiple influencing factors, is necessary when developing strategies for enhancing post-pandemic resilience in the parcel industry.

AN OOH ANALYSIS OF UNIQUE DELIVERY POINTS ACROSS THE EU AND THE UK

Unique OOH delivery points per 10,000 inhabitants in the EU and the UK (2022)

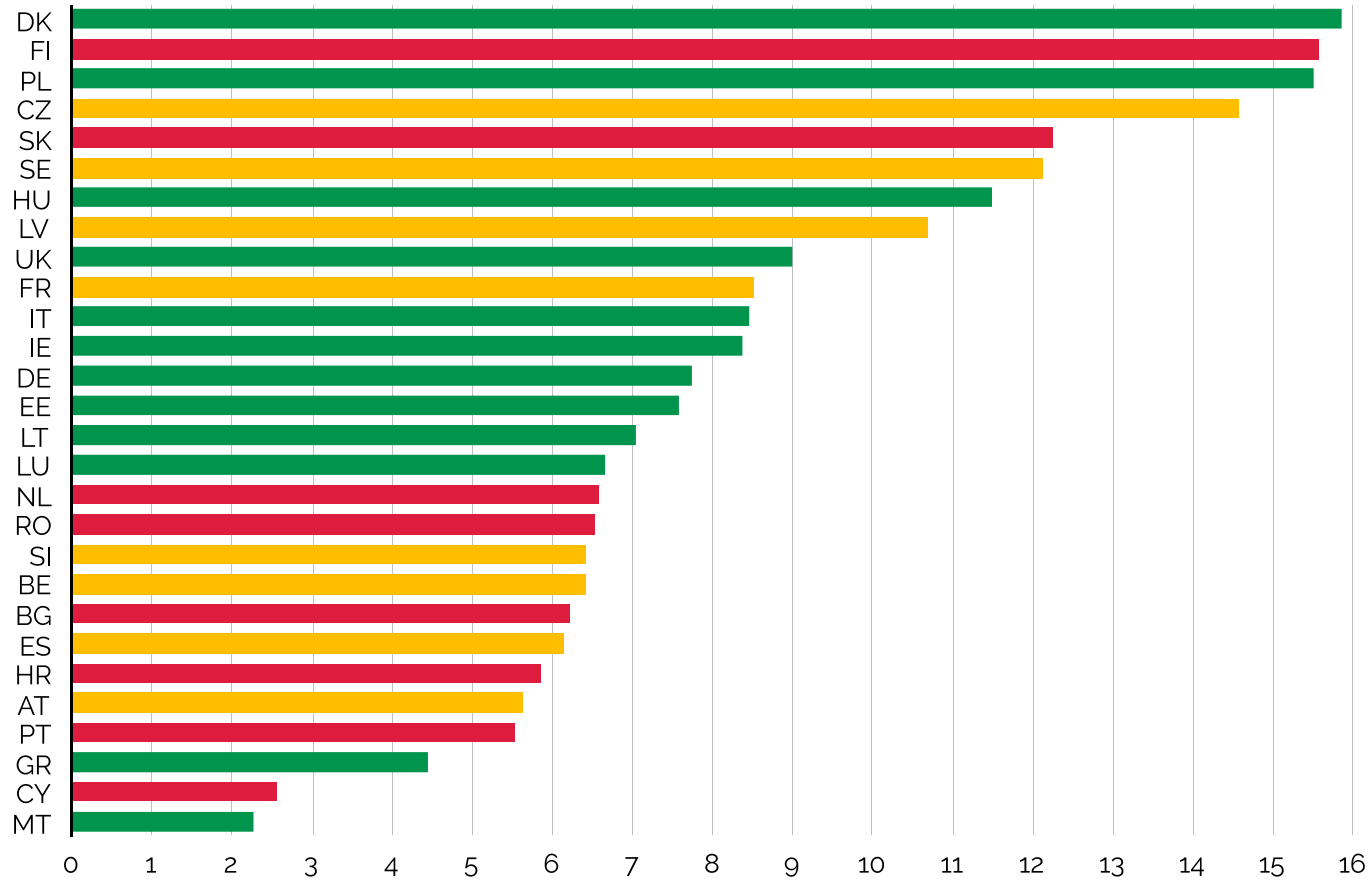


Figure 4. Unique OOH delivery points
Source: UPIDO

Considering unique OOH delivery points per 10,000 inhabitants (whether or not these OOH facilities are shared across different networks) provides an adjusted view of the density of the OOH delivery network in these countries. Below we present analysis of unique OOH delivery points in relation to post-pandemic resilience.

Unique OOH delivery options and post-pandemic resilience

In the strongest post-pandemic resilience group (green), the density of unique OOH delivery options is generally high. Poland (PL), with the third-highest OOH density in this group (15.51 per 10,000 inhabitants) and Denmark (DK) with the highest, continue to demonstrate their resilience. However, Malta (MT) stands out as an exception. Despite having the lowest unique OOH density (2.28 per 10,000 inhabitants), it still shows strong post-pandemic resilience, suggesting that factors other than OOH density may be at play in Malta.

In the intermediate post-pandemic resilience group (orange), the densities of unique OOH delivery options vary significantly. The Czech Republic (CZ), Sweden (SE), France (FR) and Latvia (LV), with relatively high densities, could potentially leverage this to enhance their resilience. Conversely, Austria (AT), with one of the lowest densities on Figure 4, may face challenges in enhancing its resilience through OOH delivery options alone.

In the weak post-pandemic resilience group (red), Portugal (PT) and Cyprus (CY) have the lowest densities per 10,000 inhabitants. They could further accelerate the development of their OOH delivery networks to achieve higher levels of parcel market resilience.

As with the prior analyses, it is evident that having a high density of unique OOH delivery options can contribute to greater post-pandemic resilience. However, this isn't the only determining factor. As shown by Malta, as well as Greece, other influencing factors outside the scope of OOH delivery options play a crucial role in the industry's post-pandemic resilience. As such, a comprehensive approach is vital when developing strategies to enhance resilience in the parcel sector.

The analysis of unique OOH delivery points per 10,000 inhabitants versus all OOH delivery points highlights the impact of collaboration between delivery and logistics providers in expanding access to OOH delivery points.

When examining all OOH delivery options, the analysis takes into account the shared OOH delivery points available across different networks. This approach effectively expands the number of potential delivery points that customers can access, thereby enhancing the convenience and accessibility of parcel delivery and collection. It allows customers to make multiple pick-ups from different carriers in one location, thus streamlining the process and contributing to improved customer satisfaction. Additionally, this integration of OOH delivery points facilitates a more efficient logistics process, benefiting both customers and the overall supply chain.

In contrast, the analysis of unique OOH delivery points presents a more direct comparison of the core networks of each provider. However, it may not reflect the same level of customer accessibility and convenience as the total OOH delivery points options, especially in regions where collaboration between providers is common and thus shared access significantly expands the network.

Therefore the difference in number between all OOH delivery point options and the unique ones illustrates the value of such collaborations. They not only enhance the customer experience by providing more convenient and accessible delivery options, but they can also contribute to higher post-pandemic resilience. By pooling resources, logistics providers can increase their coverage and capacity without the need for significant individual infrastructural investment.

However, it is crucial to manage these collaborations effectively. Shared networks need to provide seamless operations, transparent and efficient sharing of resources, and consistent service quality. As suggested at a number of points throughout our analyses, collaboration in sharing OOH points is just one of many strategies for building post-pandemic resilience in parcel markets across the EU and the UK. Other factors such as market dynamics, local infrastructure, regulatory environment and the specific circumstances and needs of customers also play a significant role.

OVERVIEW OF ALL COUNTRIES

Important notes relating to OOH data in this report:

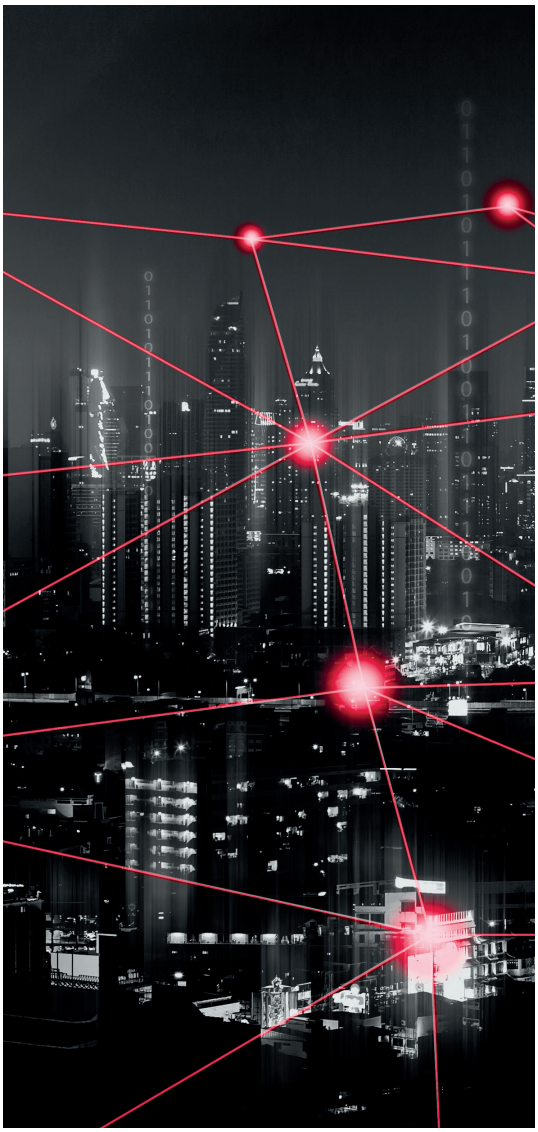
- **As several carriers often use the same OOH network, the number of points available for customers is not equal to the number of unique points. In many cases a single PUDO point, or parcel locker, serves multiple carriers and operators. In this situation the locations (total OOH points) are counted multiple times.**
- **We have removed from our database the so-called "click & collect" points of retail chains that are only available to their own customers. We have also removed all integrators/brokers, which in most cases incorrectly listed their partners' points as their own locations.**
- **We have standardised the methodology so that PUDO points are classified as unique when data is not provided by the network owners/management.**
- **Although Amazon is included in the country analysis, due to difficulties in obtaining accurate data on its OOH locations this year, the figures should be treated as indicative only.**
- **We have taken all reasonable steps to ensure that the data presented reflects the actual market situation. However, due to rapid developments the number of OOH points reported here may differ from what is currently available across Europe.**
- **We invite all interested parties to contact us to participate in the next edition of the report, so we can work together to ensure that we present the very highest-quality data.**

OVERVIEW OF ALL COUNTRIES

Numbers presented in the first section below reflect unique points and this is followed by the number of available delivery points across all operators covered by this report. Values are rounded to the nearest ten. In many cases, a single PUDO point or parcel locker can serve multiple carriers and operators. As a result, the tables include networks with some duplicate locations, as consumers may collect parcels from multiple carriers at the same location, which is also advantageous from a sustainability perspective.

Germany is the leader on PUDOs, just ahead of France, with over 51,000 locations. Meanwhile, with almost 30,000 parcel locker locations (double that of the UK or Germany), Poland can be described as "Lockerland".

- Key markets for unique PUDOs:
  - Germany 51,090
  - France 49,200
  - Italy 47,740
  - UK 45,340
  - Poland 29,520
- Key unique APM markets:
  - Poland 28,880
  - UK 15,460
  - Germany 13,450
  - France 8,750
  - Czech Republic 7,480



120,390 unique APMs, which is 51% up on 2021.
Total number of PUDO points grew by 7% year on year.

- OOH locations offered by key multinational carriers in countries analysed:

– Deutsche Post/DHL	100,300 PUDOs	23,930 APMs	124,230 OOH points in total*
– DPDgroup	66,860 PUDOs	14,040 APMs	80,890 OOH points in total*
– GLS	52,090 PUDOs	5,800 APMs	57,890 OOH points in total*
– InPost	24,420 PUDOs	28,240 APMs	52,660 OOH points in total*
– UPS	41,910 PUDOs	5,700 APMs	47,610 OOH points in total*

** Including partners and shared points.*

AUSTRIA

CHARACTERISTICS

- Unique number of points found: 3,762 PUDOs. 1,300 APMs. In total 5,062 OOH points.*
- Österreichische Post (Austrian Post) is still the largest operator offering its own points to other carriers such as DHL or Evri.
- MYFLEXBOX is the largest open network in Austria.

** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
A1 PAKET STATION		66	Open network for DPD and GLS
AMAZON		300	Closed network
DHL	1,726	524	Partnership with Österreichische Post
DPD	1,892	442	DPDgroup, APM partnership with A1 Paket Station and MYFLEXBOX
GLS	613	437	International Distributions Services plc (formerly Royal Mail Group) subsidiary. APM partnerships with A1 and MYFLEXBOX
MYFLEXBOX		370	Open network for DPD, DHL and UPS. Direct integrations of MTH Retail Group. Recent investment by Star Capital. Plans to install up to 1,000 lockers by the end of 2025
ÖSTERREICHISCHE POST (AUSTRIAN POST)	1,726	524	National postal operator
STOREBOX	65		Core business in warehousing and storage
TAMBURI	30		Open network for Amazon, DHL, DPD, GLS, Österreichische Post, UPS and others
UPS	604		Including MBE locations
VARIOCUBE		40	Solution for residential and commercial buildings
			OOH in total
TOTAL	**6,656**	**2,703**	**9,359**

BELGIUM

CHARACTERISTICS

- Unique number of points found: 6,595 PUDOs. 870 APMs. In total 7,465 OOH points.*
- bpost continues to lead. It is one of the most innovative postal companies in Europe.
- New challengers include Instabee which is only just behind the national carrier in terms of APM numbers.

** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
BPOST	2,065	692	National postal operator. Partnership with DHL, GLS, PostNL and Vinted
COLIS PRIVÉ	1,653		Part of Hopps Group (with historical 25% Amazon share), partnership with Mondial Relay
DHL	2,650		Deutsche Post subsidiary
DPD	1,077		DPDgroup
FEDEX	1,500		Partnership with agnostic network. Including Luxembourg
GLS	567	587	International Distributions Services plc (formerly Royal Mail Group) subsidiary. Partnership with open networks
HOMERR	600		Including crowdsourced neighbourhood points
INSTABEE		500	Former Budbee
MONDIAL RELAY	1,653		InPost subsidiary
POSTNL	1,350		Partnership with Evri (Hermes)
UPS	1,433		
VIATIM	120		Individuals sign up to offer pick-up point services at their home. Partnership with DPD and GLS
			OOH in total
TOTAL	**14,668**	**1,779**	**16,447**

BULGARIA

CHARACTERISTICS

- Unique number of points found: 3,999 PUDOs. 255 APMs. In total 4,254 OOH points.*
- Balgarski Poshti (Bulgarian Post) is the biggest player in terms of numbers of points.
- Econt is the largest quality player, closely followed by Speedy (DPD).
- Speedy (DPD) and its main rival Econt were the only players offering APMs, but they are now being challenged by an important new entrant, Sameday eMAG, which already has the largest APM network in Bulgaria.

** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
ACS	3		Leading Greek CEP operator
BALGARSKI POSHTI (BULGARIAN POST)	3,036		National postal operator
ECONT	634	35	Leading independent local carrier
EMAG/SAMEDAY		135	New entrant
EVROPAT	54		
EXPRESS ONE BULGARIA	48		Österreichische Post subsidiary
G.TACHYDROMIKI	12		Greek CEP operator
IN TIME	44		Partnership with UPS
INTERLOGISTICA	95		Partnership with GLS
LEO EXPRESS	40		
SPEEDY (DPD)	427	85	DPDgroup. RAPIDO (DHL partner) has merged with Speedy
TIP-TOP COURIER	33		
TRANSPRESS	13		Partnership with Dascher
UPS	35		
			OOH in total
TOTAL	**4,474**	**255**	**4,729**

CROATIA

CHARACTERISTICS

- Unique number of points found: 1,866 PUDOs. 402 APMs. In total 2,268 OOH points.*
- Hrvatska pošta (Croatian Post) is the biggest player and has Chinese lockers supplied by Omniva (Estonian Post).
- Overseas Express (Österreichische Post) is the second player in PUDOs, just ahead of DPD.
- DPD is pushing for fast APM development.
- Direct4.me offers the largest open APM network.
- Tisak is the largest kiosk retail chain with a network of just under 600 points of sale throughout Croatia.

** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
DIRECT4.ME		131	Partnership with DPD. Plans to install up to 200 new lockers by the end of 2023
DPD	815	31	DPDgroup. Uses Direct4.me APMs
GLS	94	99	International Distributions Services plc (formerly Royal Mail Group) subsidiary. Partnership with open networks
HRVATSKA POŠTA (CROATIAN POST)	1,016	240	Partnership with DHL
OVERSEAS EXPRESS	850		Österreichische Post subsidiary. Locations include the Tisak kiosks network
TISAK	590		Network of kiosks. Partnership with Overseas Express
			OOH in total
TOTAL	**3,365**	**501**	**3,866**

CYPRUS

CHARACTERISTICS

- Unique number of points found: 219 PUDOs. 13 APMs. In total 232 OOH points.
- GAP AKIS Express is the biggest PUDO operator.
- Cyprus Post is the second largest player and the only operator of APMs, although there are rumours that a competitive network is being prepared.

** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
ACS	47		Partnership with DHL
CYPRUS POST	60	13	National postal operator, including post office PUDOs. Partnership with DHL
DHL	8		Deutsche Post
G.TACHYDROMIKI	4		
GAP AKIS EXPRESS	100		Partnership with UPS
KRONOS EXPRESS	60		PUDOs include post offices. Partnership with Eshopwedrop
			OOH in total
TOTAL	**279**	**13**	**292**

CZECH REPUBLIC

CHARACTERISTICS

- Unique number of points found: 7,861 PUDOs. 7,480 APMs. In total 15,341 OOH points.*
- Zásilkovna (Packeta group) is the leader on the PUDO and APM market, ahead of the national postal operator.
- Česká pošta (Czech Post) is developing Balikovna, dedicated to PUDOs.
- AlzaBox is a leading APM operator that offers access to its machines for most carriers.

** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
ALZABOX		1,293	Open network for DHL, DPD, GLS, Packeta and WEDO Deliver managed by leading Czech e-commerce player. Plans to install up to 2,000 lockers by the end of 2023
ČESKÁ POŠTA (CZECH POST)	5,665	1,443	National postal operator Czech Post includes Balikovna and network of third-party PUDOs. APM network partnership with AlzaBox and OX.Point
DHL	447	1,276	Deutsche Post subsidiary. Partnership with AlzaBox
DPD	1,808	1,237	DPDgroup. Partnership with AlzaBox
GLS	1,180	32	International Distributions Services plc (formerly Royal Mail Group) subsidiary. Partnership with open PUDO networks
LOCKERS.AI		2,400	Open network by Balikobot (integrator). Partnership with AlzaBox and over 30 carriers
OX.POINT		150	Open network partnership with Lockers.ai, WEDO Deliver and Balikovna
PACKETA	6,491	3,709	Packeta group, locally branded as Zásilkovna. Leading OOH and consolidator network in CEE
PENGUIN		1,400	Open network
PPL	3,336	484	DHL Parcel subsidiary
UPS	307		
WEDO ULOŽENKA	1,151	1,405	Part of Mall (Allegro Group). Partnership with AlzaBox
			OOH in total
TOTAL	**20,385**	**14,829**	**35,214**

DENMARK

CHARACTERISTICS

- Unique number of points found: 5,021 PUDOs. 4,294 APMs. In total 9,315 OOH points.*
- PostNord has the biggest OOH network in the country. It has acquired Naerbox from its joint venture partner Swipbox.
- Competition is fierce and PostNord faces challenges from Instabee, GLS and Bring, to name a few.

** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
BRING	1,114	200	PUDO network under the Bring Shops brand and APMs under the Nærboks brand. Both are Posten Norge subsidiaries
DAO	1,178		Partnership with DHL and Posti
DHL	600	500	Deutsche Post subsidiary. Partnership with Salling Group and Nordic Infrastructure
DPD	1,310	300	
FEDEX	1,200		Partnership with agnostic network
GLS	1,732		International Distributions Services plc (formerly Royal Mail Group) subsidiary. Partnership with open PUDO networks
INSTABEE	1,000	200	Formerly Budbee and Instabox. Partnership with Circle K petrol stations
NÆRBOKS		3,194	Nordic Infrastructure. Semi-agnostic network owned by PostNord but serving Bring and DHL
POSTNORD	1,400	3,194	Danish and Swedish postal operator (merged). APMs owned by Nordic Infrastructure (PostNord). Partnership with Bring and DHL
SALLING GROUP		400	Partnership with PostNord, Bring and DHL. Located in Bilka and Netto stores
UPS	393		
			OOH in total
TOTAL	**9,927**	**7,988**	**17,915**

ESTONIA

CHARACTERISTICS

- Unique number of points found: 215 PUDOs. 796 APMs. In total 1,011 OOH points.*
- APMs are the most popular delivery option in this "hi tech" last-mile market which is very open to OOH.
- DPD, Omniva and Itella have dense APM networks in this relatively small country and Lithuania's Venipak has just entered.
- Based on Venipak research 70% of consumers prefer APM delivery.

** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
DPD		260	
ITELLA (POSTI)	40	260	
OMNIVA (AS EESTI POST)	155	327	National postal operator. Switched from Polish (InPost) to Chinese machines designed to its own specification
VENIPAK	20	1	Plans to implement new 130 PUDO points and 150 APMs by the end of 2023
			OOH in total
TOTAL	**215**	**848**	**1,063**

FINLAND

CHARACTERISTICS

- Unique number of points found: 4,105 PUDOs. 4,539 APMs. In total 8,644 OOH points.*
- OOH is dominated by local companies, where Posti is the biggest operator.
- OOH is currently the standard delivery model – the share of home delivery is relatively small compared to the European markets.
- Posti's parcel lockers were first installed in Finland in 2011, and today lockers are the preferred delivery option for Finns.
- Some 90% of Posti's B2C volume is OOH, and Posti dominates the locker space with over 2,200 APMs.

** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
AGORA 24/7		9	Partnership with DB Schenker and UPS
BRING	2,900		Partnership with Posti
DB SCHENKER	1,000	150	Parcel locker partnership with Smartmile
DPD	1,004	873	DPDgroup. Partnership with PostNord
INSTABEE		700	Formerly Budbee and Instabox
MATKAHUOLTO	1,300	850	Parcel locker partnership with Pakettipiste and Smartmile 24/7. Partnership with DB Schenker, DHL Express, K-stores and R-Kiosks
PAKETTIPISTE	1,300	650	Partnership with PostNord, Matkahuolto and DHL Express
POSTI (FINNISH POST)	1,180	2,230	National postal operator
POSTNORD	1,200	600	Danish and Swedish postal operator (merged). Parcel locker partnership with Pakettipiste and Smartmile. Partnership with DPD
SMARTMILE		150	Open network for Matkahuolto, PostNord, DHL Express and DB Schenker
UPS	225		
			OOH in total
TOTAL	**10,109**	**6,212**	**16,321**

FRANCE

CHARACTERISTICS

- Unique number of points found: 49,203 PUDOs. 8,752 APMs. In total 57,955 OOH points.*
- This is a key OOH network in Europe and OOH delivery points for courier companies are quite popular.
- La Poste (Pickup network/Chronopost, Colissimo, DPD) is a strong leader, with widespread coverage.
- InPost (Mondial Relay) is the second biggest network of PUDOs and a large APM network, probably only slightly smaller than Amazon's.
- VintedGo's lockers (powered by Bloq.it) are an important new entrant and potential disruptor due to ambitious plans for growth.

** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comments
AMAZON		2,800	Closed network
BLOQ.IT		3	Ongoing trial with FreshForGood
CAINIAO (ALIBABA)		600	Possible future partnership with DHL
CIBLEX	250		Walden Group
COLIS PRIVÉ STORE	4,500		Part of Hopps Group (with former 25% Amazon share). Previously with Mondial Relay. In 2021, started its own Colis Privé Store network. Finally, in 2022, was fully acquired by CMA-CGM
FEDEX	7,500		Partnership with agnostic network
GLS	10,000		International Distributions Services plc (formerly Royal Mail Group) subsidiary. Partnership with Mondial Relay and Pickme. PUDO points also managed by private individuals
LA POSTE, DPDGROUP	15,550	1,085	National postal operator. Pick-up points include post offices, Chronopost and Colissimo
MONDIAL RELAY	12,000	2,564	InPost subsidiary. Open network, partnership with GLS
QUADIENT (PARCEL PENDING)		1,500	Partnership with La Poste, Relais Colis, multi-family properties, universities and retailers (Carrefour, Decathlon)
RELAIS COLIS	6,500		Walden Group, in which DHL Group has a 34% minority share. Plans to install up to 300 Quadient lockers by the end of 2023
UPS	6,903		Including MBE locations
VINTED GO		200	Infrastructure delivered and managed by Bloq.it. Partnership with Franprix and Carrefour
			OOH in total
TOTAL	**63,203**	**8,752**	**71,955**

GERMANY

CHARACTERISTICS

- Unique number of points found: 51,087 PUDOs, 13,452 APMs, In total 64,539 OOH points.*
- Largest OOH market in Europe.
- Deutsche Post/DHL have the most pick-up points and APMs by far. For APMs they were helped by various patents but we expect increasing competition as these patents end.
- Amazon has the largest independent APM network but Austria's MYFLEXBOX is seen as a particularly important new entrant.
- InPost could potentially be a major disruptor, if it teamed up with Hermes (Advent International has a major shareholding in both companies).

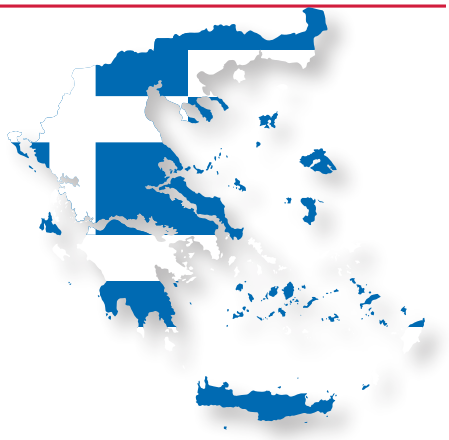
** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
AMAZON		2,000	Partnership with Shell, Aldi and Edeka
DEUTSCHE POST/DHL	25,000	11,300	National postal operator. Deutsche Post/DHL plans to have around 12,000 Packstations nationwide by the end of 2023
DPD	9,261		DPDgroup
GLS	6,952		International Distributions Services plc (formerly Royal Mail Group) subsidiary. Partnership with open PUDO networks
HERMES	16,000		Partnership with Evri
INSTABEE		0	Formerly Budbee and Instabox. No data
LPR	330		Independent, connects logistics and servicing. On request, delivers from/to individually agreed places (vehicles or garages)
MYFLEXBOX		2	Open network for GLS and UPS. More integrations with carriers expected in 2023. Recent investment by Star Capital. Plans to install up to 3,000 lockers by the end of 2025
UPS	3,736		
WORLD OF LOCKERS		150	Open network for UPS and other carriers. Plan to install up to 2,000 lockers by the end of 2023
			OOH in total
TOTAL	**61,279**	**13,452**	**74,731**

GREECE



CHARACTERISTICS

- Unique number of points found: 2,704 PUDOs. 1,960 APMs. In total 4,664 OOH points.*
- ELTA (Greek Post) is the biggest OOH player.
- Box Now is an important new entrant, outpacing Skroutz (local e-commerce marketplace) as the main APM operator.
- ACS, the "local hero" CEP network, is also expected to invest in further development of APMs.
- We observe significant interest in this market and can expect faster OOH development over the next few years.

** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
ACS	500	100	Leading local CEP player. Partnership with DHL and GLS
BOX NOW		1,200	Partnership with DHL
CLEVER POINT	540		Partnership with Aramex, DHL and Courier Center
COURIER CENTER	108		Partnership with Clever Point
DHL	250	10	Deutsche Post. Including ACS and Clever Point locations
ELTA COURIER	800		Subsidiary of ELTA (Greek Post)
ELTA (GREEK POST)	1,400	50	National postal operator. Mainly offering mail and financial services
G.TACHYDROMIKI	264		
SKROUTZ	60	600	Leading e-commerce marketplace. Plans to install up to 900 lockers by the end of 2023
			OOH in total
TOTAL	**3,922**	**1,960**	**5,882**

HUNGARY

CHARACTERISTICS

- Unique number of points found: 8,055 PUDOs. 3,082 APMs. In total 11,137 OOH points.*
- Magyar Posta (Hungarian Post) is the key player, followed by GLS, which has traditionally been strong in this market and has already overtaken Magyar Posta in terms of APM numbers.
- Pick Pack Pont/Sprinter is a legacy leader, but has not developed in recent years.
- Fox Post is the second APM network, but has no PUDO capability.
- eMAG/Sameday has entered the market with vigour and is now an APM leader, offering customers over 600 APMs.
- Paketa is another important entrant, supplementing APMs with PUDOs.

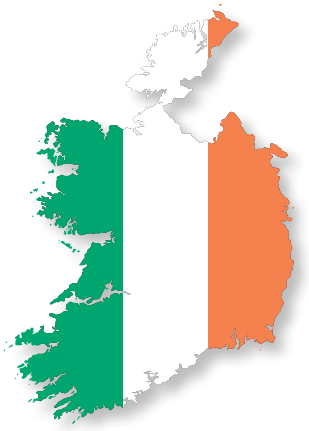
** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
ALZABOX		184	Open network for DHL, DPD and Express One. Plans to install up to 250 lockers by the end of 2023
DPD	420		DPDgroup
EMAG/SAMEDAY		684	Linked to Extreme Digital
EXPRESS ONE	1,460	200	Österreichische Post subsidiary
FOXPOST		800	Plans to install up to 400 new lockers by the end of 2023
GLS	1,080	774	International Distributions Services plc (formerly Royal Mail Group) subsidiary. Partnership with open networks
MAGYAR POSTA (HUNGARIAN POST)	4,953	406	National postal operator. Partnership with MOL, Media Markt and Coop. DHL partner
PACKETA	1,192	808	Leading regional OOH and consolidator network
PICK PACK PONT	700		Sprinter subsidiary. Partnership with Inmedio, Relay, Coop, AVIS, MOL, OMV and others
UPS	10		
			OOH in total
TOTAL	**9,815**	**3,856**	**13,671**

IRELAND



CHARACTERISTICS

- Unique number of points found: 4,166 PUDOs. 75 APMs. In total 4,241 OOH points.*
- COLL-8 Logistics' drop2shop network is the OOH leader in terms of number of points.
- Fastway (franchised courier network) is the second most important network, using Payzone PUDO points.
- AnPost has a small network with some 60 APMs and OOH Pod (formed by the former owner of Parcel Motel) has some 15 machines.
- Ireland represents a major opportunity for OOH and especially APM development due to a relatively low base.

** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
ANPOST (IRISH POST)	900	60	National postal operator. Reportedly plans to install 130 parcel lockers by the end of 2023. Partnership with DHL
DPD	320		DPDgroup
DROP2SHOP	1,400		Owned by COLL-8 Logistics. Partnership with BWG. Located at Spar, Mace, XL and Londis chain stores
FASTWAY	1,300		PUDO network under the Parcel Connect brand
GLS	349		International Distributions Services plc (formerly Royal Mail Group) subsidiary. Partnership with open PUDO networks
OOH POD		15	Open network. Partnership with Lidl. Plans to install up to 500 lockers by 2024
UPS	153		UPS's Parcel Motel APM network was closed at the end of 2022
			OOH in total
TOTAL	**4,422**	**75**	**4,497**

ITALY

CHARACTERISTICS

- Unique number of points found: 47,744 PUDOs. 4,352 APMs. In total 52,096 OOH points.*
- Poste Italiane is a strong leader in OOH. It has the biggest PUDO network (post offices, Kipoint, Nexive), but it is losing ground in terms of lockers.
- Amazon has the largest APM network of some 2,000 APMs and InPost is the only other significant player with over 1,700 machines.

** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
ALFRED 24	10,000	30	Broker with own APMs. Partnership with DHL, FedEx, GLS, Poste Italiane, UPS and others
AMAZON	11,000	2,500	Partnership with Pam and Eni
BRT	6,373	6	DPDgroup
DHL	3,500		Deutsche Post subsidiary
FEDEX	1,150		Network owned and dedicated for Fedex and TNT
FERMOPOINT	7,000	50	Open PUDO network for various carriers. Partnership with DPDgroup. APMs are dedicated for BRT only
GLS	5,612		International Distributions Services plc (formerly Royal Mail Group) subsidiary. Partnership with open PUDO networks
INDABOX	6,338		Open network including 300 locations, serving IndaBox Fresh. Partnership with Poste Italiane
INPOST	2,264	1,736	Initially supplied Poste Italiane, now apparently in competition
KIPOINT	270		Subsidiary of national postal operator Poste Italiane
MAIL BOXES INC	500		Italian franchisee
POSTE ITALIANE	13,700	350	National postal operator. APM network includes InPost machines
PRONTO PACCO	6,601		Inluding PUDOs managed by private individuals. Partnership with BRT, DHL, GLS, Fedex, InPost, Poste Italiane and UPS
SAILPOST	370		HR Parcel subsidiary
SMART LOCKER		30	Open network with the following installations: 18 at companies, 7 residential, 5 retail (click & collect). Partnership with DHL, BTR, Poste Italiane, GLS and Amazon as well as a number of e-commerce platforms
UPS	4,406		Including MBE locations
			OOH in total
TOTAL	**79,084**	**4,702**	**83,786**

LATVIA

CHARACTERISTICS

- Unique number of points found: 901 PUDOs. 1,109 APMs. In total 2,010 OOH points.*
- Latvijas Pasts (Latvian Post) is the biggest OOH player but is behind on APMs.
- Venipak is the second biggest operator in OOH.
- 62% of Venipak customers choose APM as most convenient delivery option.
- Omniva is the largest APM player, with DPD in strong second place.

** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
DPD		251	DPDgroup
ITELLA (POSTI)	80	170	
LATVIJAS PASTS (LATVIAN POST)	672	141	National postal operator. Partnership with Circle K
OMNIVA		349	
VENIPAK	229	198	Plans to implement new 21 PUDO points and 3 APMs by the end of 2023
			OOH in total
TOTAL	**981**	**1,109**	**2,090**

LITHUANIA

CHARACTERISTICS

- Unique number of points found: 383 PUDOs. 1,596 APMs. In total 1,979 OOH points.*
- Lietuvos paštas (Lithuanian Post) is the biggest OOH operator.
- Omniva is the leader in terms of APMs.
- DPD is investing fast in APMs.
- Venipak has a mixed network of PUDOs and APMs.
- Lietuvos Post, Venipak and to a lesser degree Itella's mixed PUDO/APM networks can be very effective if properly configured.
- Recently 64% of Venipak customers stated that APMs are their preferred delivery option.

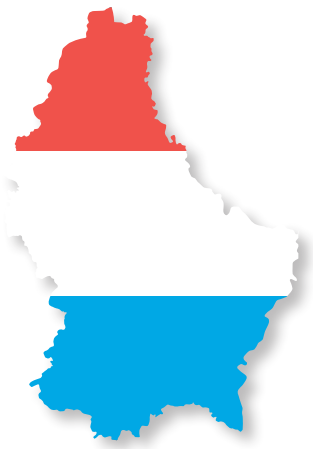
** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
DPD	1	303	DPDgroup
ITELLA (POSTI)	50	220	
LIETUVOS PAŠTAS (LITHUANIAN POST)	189	353	National postal operator
LITHUANIAN RAILWAYS		50	
OMNIVA		419	
VENIPAK	193	251	Relatively new APM entrant
			OOH in total
TOTAL	**433**	**1,596**	**2,029**

LUXEMBOURG



CHARACTERISTICS

- Unique number of points found: 366 PUDOs. 138 APMs. In total 504 OOH points.*
- Post Luxembourg continues to be the biggest player and the only operator of APMs.

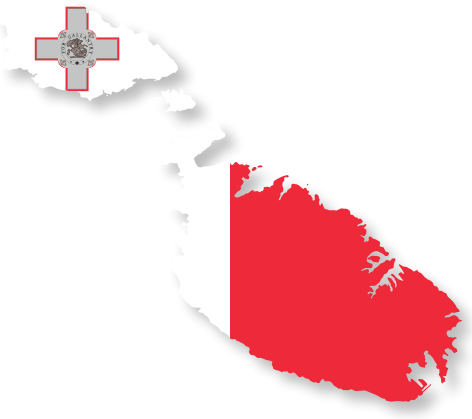
** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
DHL	43		Deutsche Post
DPD	45		DPDgroup
MONDIAL RELAY	200		InPost subsidiary, partnership with Colis Privé
POST LUXEMBOURG	53	138	National postal operator
UPS	25		
			OOH in total
TOTAL	**366**	**138**	**504**

MALTA



CHARACTERISTICS

- Unique number of points found: 77 PUDOs. 42 APMs. In total 119 OOH points.*
- Malta Post is the only operator offering PUDO and APM locations.
- Malta is the smallest OOH market in the EU.
- Megabox, an independent player, is one of 3 companies offering APMs.

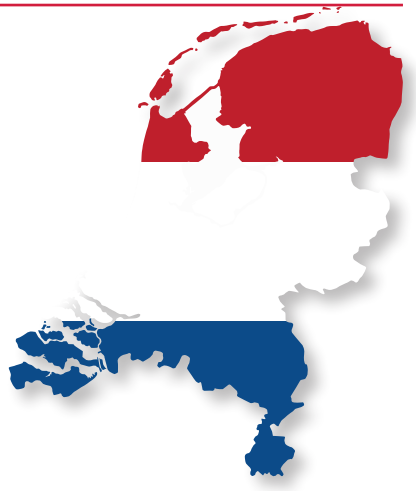
** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
DHL	2	12	Deutsche Post subsidiary
MALTA POST	75	22	National postal operator. PUDOs include post offices and agencies. Partnership with GLS
MEGABOX		8	Agnostic network for Megastore Malta, Shipmybox and Quick Turtle. Plans to install another 5 new lockers by the end of 2023
			OOH in total
TOTAL	**77**	**42**	**119**

THE NETHERLANDS



CHARACTERISTICS

- Unique number of points found: 9,703 PUDOs. 1,897 APMs. In total 11,600 OOH points.*
- PostNL is the biggest operator. It has an APM network (primarily installed at major train stations throughout the Netherlands).
- Smartmile has become the APM network management company for DHL Express and DHL Parcel.

** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
BLOQ.IT		10	Is running a test trial with Lockster
BUDBEE		500	Part of Instabee
DEBUREN		150	Open network for DHL, DPD and UPS
DHL	4,000	530	Deutsche Post, Partnership with bpost. APM network managed by Smartmile and available for DHL Parcel and DHL Express. Includes former Instabox and Smartmile networks
DPD	1,467	5	DPDgroup
FEDEX	100		Partnership with agnostic network
GLS	753		International Distributions Services plc (formerly Royal Mail Group) subsidiary. Partnership with open PUDO networks
HOMERR	1,400		Including crowdsourced neighbourhood points
MONDIAL RELAY	950		InPost subsidiary
POSTNL (DUTCH POST)	4,000	400	National postal operator. Reportedly plans to install over 1,000 new lockers by 2024. Financial constraints could put this in question
UPS	1,509		
VIATIM	600		Individuals sign up to offer pick-up point services at their home. Partnership with DPD and GLS
			OOH in total
TOTAL	**14,779**	**1,595**	**16,374**

POLAND

CHARACTERISTICS

- Unique number of points found: 29,518 PUDOs. 28,876 APMs. In total 58,394 OOH points.*
- Poland (aka "Lockerland") is the third largest OOH country in Europe and has the most APMs.
- Allegro (marketplace) has become the leader in OOH by co-operating with all major carriers, grocery/convenience shops and many others.
- InPost is, however, the "real" leader in APMs, with almost 20,000 in place, supported by a number of PUDOs.
- Other key APM networks include DPD, Orlen (Polish oil company) and Cainiao which now co-operates with DHL.
- Żabka, Poland's "7-Eleven" is a very strong PUDO "infrastructure" player with the largest number of unique points, only beaten by Polish Post.

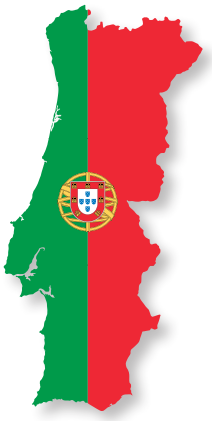
** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
ALLEGRO	45,000	2,800	PUDOs including Allegro One Punkt, partnership with DHL, DPD, GLS, InPost, UPS, Polish Post, Orlen, RUCH, Kolporter, Furgonetka, Żabka and others. Allegro One Box – closed network served by own Allegro drivers and UPS
CAINIAO (ALIBABA)		1,100	Initial plans were much more ambitious. Recently announced a partnership with DHL, probably to leverage capacity and growth potential
DHL EXPRESS	2,500		Deutsche Post subsidiary. Partnership with Inmedio, Relay, Hubiz, One Minute and Discover
DHL PARCEL	14,000	200	Deutsche Post subsidiary. Includes PUDOs by Żabka, Biedronka grocery chain, Inmedio, Relay, Hubiz, One Minute and Discover. Cainiao partnership recently announced; expects a significant increase in available locker numbers. Reportedly planning around 5,000
DPD	8,873	3,270	DPDgroup. Has paid increased attention to APMs recently. Small SwipBox (Infinity) machines are being implemented
EPAKA.PL	337		Broker for Ambro Express, DHL, DPD, Fedex, GLS, InPost, Meest, Orlen Paczka, Raben and UPS
FEDEX	1,200		Partnership with third-party agnostic networks
GLS	5,000		International Distributions Services plc (formerly Royal Mail Group) subsidiary. Partnership with retailers Aldi, Auchan, ABC, Bi1, Carrefour, Dealz, E.Leclerc, Groszek, Jula, Kolporter, Lewiatan, Martes Sport, Smyk and Stokrotka
INPOST	3,660	19,306	Leading local and European network by number of machines/cells
ORLEN	5,898	2,000	Leading Polish and regional petroleum company. PUDOs include RUCH kiosks, partnership with Lewiatan, Globi and Groszek. Plans to expand parcel locker network up to 4,600 by the end of 2023
PAKERSI	100		Broker for Ambro Express, DHL, Fedex, Hellman, InPost and Polish Post
POLISH POST (POCZTA POLSKA)	16,800	200	National postal operator. PUDO points include post offices. Partnership with Żabka, Biedronka, ABC, Delikatesy Centrum and Lewiatan grocery chain, as well as RUCH newspaper kiosks
RUCH	814		Orlen subsidiary. Part of Orlen Paczka PUDO network
SHIPCENTER.PL	105		Broker for DHL, DPD, Fedex, InPost, Polish Post and UPS
UPS	3,632		Including MBE locations
ŻABKA	9,000		Leading convenience store chain with PUDOs for DHL and Polish Post. Partnership with Pointpack
			OOH in total
TOTAL	**116,919**	**28,876**	**145,795**

PORTUGAL



CHARACTERISTICS

- Unique number of points found: 4,761 PUDOs. 979 APMs. In total 5,740 OOH points.*
- CTT (Portugal Post) is the biggest OOH player.
- DPD is growing fast, especially in APMs.
- The open APM network PUDO International is also growing fast.
- While not operating many APMs in Portugal, Bloq.it is an important supplier of APM technology to international players, notably Vinted.

** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
BLOQ.IT		30	Network for Glintt
CTT (PORTUGAL POST)	2,200	500	National postal operator. PUDOs include post offices. Plans to open 300 new PUDOs and install 500 new lockers (under the Locky brand) by the end of 2023
DHL	900		Deutsche Post subsidiary
DPD	970	209	DPDgroup
GLS	534		International Distributions Services plc (formerly Royal Mail Group) subsidiary. Partnership with open PUDO networks
MONDIAL RELAY (PUNTO PACK I LOCKER)	600		InPost subsidiary
MRW	50		Spanish logistics company
NACEX	850		Spanish logistics company
PUDO INTERNATIONAL		240	Open network for DPD, GLS and Nacex. Plans to install 210 new lockers by the end of 2023
SENDING	500		
UPS	480		Including MBE locations
			OOH in total
TOTAL	**7,084**	**979**	**8,063**

ROMANIA

CHARACTERISTICS

- Unique number of points found: 8,169 PUDOs. 4,291 APMs. In total 12,460 OOH points.*
- Poşta Română (Romanian Post) is the biggest PUDO player but has virtually no APMs.
- Sameday is a clear leader in APMs and is a sister company to the leading e-commerce player, eMAG.
- Fan Courier and Cargus both have large, but reportedly underperforming, PUDO networks.

** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
CARGUS	2,544	145	PUDO network including 1 864 PayPoint locations and 680 individual partners. Intense recent activity to catch up with Sameday in lockers by extending network up to 4,000 locations by the end of 2023
DHL	23		Deutsche Post
DPD	71	65	DPDgroup
EMAG/SAMEDAY		3,700	
ECONT	70		Bulgarian logistics company
FAN COURIER	2,850	150	Parcel lockers located at capital, Bucharest. Partnership with PayPoint
GLS		81	International Distributions Services plc (formerly Royal Mail Group) subsidiary. Partnership with open networks
PACKETA	900	20	
POSTA PANDURI		130	Partnership with DHL Express
POŞTA ROMÂNĂ (ROMANIAN POST)	5,600	2	National postal operator. Partnership with eMAG for PUDOs
			OOH in total
TOTAL	**12,138**	**4,293**	**16,431**

SLOVAKIA

CHARACTERISTICS

- Unique number of points found 4,024 PUDOs. 2,640 APMs. In total 6,664 OOH points.*
- Packeta has overtaken the previous leader, Slovenská pošta (Slovakian Post), to become the largest OOH player and dominant APM operator.
- AlzaBox has dynamically expanded its open APM network but is well behind Paketa.
- Slovak Parcel Service (Österreichische Post) is now well behind Packeta, as are GLS and DPD.

** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
ALZABOX		563	Open network for DHL, DPD and Slovak Parcel Service. Plans to install up to 800 lockers by the end of 2023
DEPO	658	550	APM partnership with AlzaBox
DIRECT4.ME		57	Open network for GO4, Slovak Parcel Service and Unipharma. Plans to install up to 750 new parcel lockers by the end of 2023
DPD	516	601	DPDgroup. APM partnership with AlzaBox
GLS	398	18	International Distributions Services plc (formerly Royal Mail Group) subsidiary. Partnership with open PUDO networks
PACKETA	1,403	1,752	Packeta group. Leading CEE OOH and consolidator network
SLOVAK PARCEL SERVICE	890	561	Österreichische Post subsidiary. Partnership with UPS and APM network with AlzaBox
SLOVENSKÁ POŠTA (SLOVAKIAN POST)	1,447	150	National postal operator. Operates the BalikoBOX parcel lockers
			OOH in total
TOTAL	**5,312**	**4,352**	**9,664**

SLOVENIA

CHARACTERISTICS

- Unique number of points found: 635 PUDOs. 723 APMs. In total 1,358 OOH points.*
- DPD, GLS and Pošta Slovenije (Slovenian Post) are the key OOH operators and are all of a similar size, while Express One SI entered the market in 2022 and is growing fast.
- GLS has the largest own APM network in Slovenia, while others use Direct4.me's courier-agnostic network of parcel lockers along with home parcel boxes at people's homes supporting unattended delivery.
- Direct4.me, a new open APM network, is a major challenger to all key players (Pošta Slovenije, DPD, Express One SI), delivering its own courier-agnostic network.

** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
DIRECT4.ME		381	Open network, partnership with Pošta Slovenije, DPD and Express One SI. Plans to add up to 50 parcel lockers by the end of 2023
DPD	634	300	DPDgroup. Parcel locker network includes some APMs from Direct4.me
EXPRESS ONE SI	210	170	Österreichische Post subsidiary. Partnership with Direct4.me
GLS	540	317	International Distributions Services plc (formerly Royal Mail Group) subsidiary. Partnership with open PUDO networks
POŠTA SLOVENIJE (SLOVENIAN POST)	656	405	National postal operator. Partnership with DHL. PUDO network including post offices and MOL and PETROL petrol stations. Parcel locker network includes 381 APMs from Direct4.me
			OOH in total
TOTAL	**2,040**	**1,573**	**3,613**

SPAIN

CHARACTERISTICS

- Unique number of points found: 23,144 PUDOs. 6,097 APMs. In total 29,241 OOH points.*
- Correos, the national postal operator, is the leader in the OOH market. It has the densest network and offers delivery to lockers (Citypaq, Citibox).
- Citibox mainly has RPLs located in Madrid and Barcelona. Citibox's APM numbers seem to be high, but these units have a much lower number of cells than those installed in other countries.
- Punto Pack is the local brand of Mondial Relay in Spain and is now owned by InPost. Accordingly we expect future APM development here.
- PUDO International is a large open network catering for several players, and it is next in size to Correos.
- Cainiao also has a significant network, over 50% larger than Amazon's.

** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
AMAZON		430	Partnership with Repsol
CAINIAO (ALIBABA)		700	Possible future partnership with DHL
CELERITAS	400		Including Canary Islands
CITIBOX		25,000	Mainly operates RPLs (residential parcel lockers) in Madrid and Barcelona. Not counted as unique APMs
CORREOS	8,381	2,863	National postal operator managing the CityPaq parcel lockers. Year-on-year reduction in number of APMs due to a change of strategy in 2022
DHL	2,700		Deutsche Post
FEDEX	3,300		Partnership with agnostic network
GLS	5,128	641	International Distributions Services plc (formerly Royal Mail Group) subsidiary. Partnership with open PUDO networks
HAPIICK		305	Partnership with SEUR (DPDgroup) and GLS
KANGURO	100	8	Open network for GLS, MRW, Max, Tuklo and Ecodeliver. Plans to expand network up to 920 locations (including Palma de Mallorca and Gran Canaria) by the end of 2023
MONDIAL RELAY (PUNTO PACK I LOCKER)	4,243	300	InPost subsidiary
MRW	500		Has some locations in Andorra, Gibraltar and Portugal
NACEX	1,894		Including Canary Islands, Balearic Islands and Andorra
PUDO INTERNATIONAL		850	Open network for SEUR (DPDgroup), GLS and Nacex. Plans to install 450 new lockers by the end of 2023
SENDING	3,000		
SEUR	3,113	613	DPDgroup. APMs by PUDO International and Citibox
UPS	3,778		Including MBE locations
			OOH in total
TOTAL	**40,137**	**31,710**	**71,847**

SWEDEN

CHARACTERISTICS

- Unique number of points found: 5,672 PUDOs. 7,020 APMs. In total 12,692 OOH points.*
- PostNord is the biggest operator, which has good coverage of the Nordic market. Its APMs were initially via a partnership with SwipBox but these have now been taken over by PostNord.
- New players such as iBoxen and more importantly Instabee (formerly Instabox) are potential challengers in the APM segment.

** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
BRING	1,712	68	Posten Norge subsidiary. APM partnership with agnostic iBoxen network
DB SCHENKER	1,600		Partnership with GLS
DHL	1,600	120	Deutsche Post subsidiary
DPD	2,014	849	
IBOXEN		1,400	Open network, partnership with DB Schenker, DHL, FedEx, TNT, UPS, Airmee, Bring, CityMail Early Bird, Best Transport and Premo
INSTABEE	1,000	1,700	Formerly Budbee and Instabox
POSTNORD	2,300	3,800	Danish and Swedish postal operator (merged). Partnership with DPDgroup. Leading OOH player by coverage
UPS	617		Including MBE locations
			OOH in total
TOTAL	**10,843**	**7,937**	**18,780**

THE UNITED KINGDOM

CHARACTERISTICS

- Unique number of points found: 45,336 PUDOs. 15,459 APMs. In total 60,795 OOH points.*
- Royal Mail (national postal operator) is the biggest OOH operator leveraging the Post Office (separate company) network of 11,500 points. This has now been opened up to competitors which puts Royal Mail in a weaker competitive position in OOH, especially as it has no APMs.
- Collect+ (PayPoint) is the most popular non-postal OOH channel.
- APM growth has been significant, led by Amazon and InPost. Quadient has ambitious plans for its open network which, if realised, will be a strong example for other players to follow.
- Inexplicably Evri and InPost (which have a mutual shareholder) don't appear to have a combined OOH offer, which could have created a leading mixed (PUDO and APM) network.
- Bybox has a dedicated B2B APM network which is a quite unusual approach but apparently successful.

** Including partners and shared points.*

NETWORK**

*** Customer view, duplicated numbers, as a single point may serve various carriers.*

Operator	PUDOs	APMs	Comment
AMAZON	9,500	8,000	Partnership with Post Office, Next, Co-op, McColl's and PayPoint
BYBOX		1,400	B2B solution for field technicians
COLLECT+	10,351		Owned by PayPoint. Carrier-agnostic network for DHL, DPD, FedEx, InPost and Yodel, as well as Amazon, eBay and Wish. Plans to add a further 500 PUDOs and 50 APMs
DHL EXPRESS	1,200		Deutsche Post
DHL PARCEL	3,500		Deutsche Post
DPD	6,567	206	DPDgroup
EVRI	7,000	1,500	
FEDEX	3,700		Partnership with agnostic network
HUBBOX	1,200		Own HubBox PUDO points. Open network for DPD, Evri, Hermes Europe and UPS. Partnership with Collect+, providing access to over 78,500 locations in the UK and Europe
INPOST	729	4,333	Significant growth in APMs during 2022, as traction for their use develops
LOCKARS		7	Open network for UPS and consumers who want to collect orders from a preferred locker
OOH POD		10	Open network (Northen Ireland). Partnership with Lidl. Plans to install 100 new lockers by the end of 2023
PARCELFORCE	11,000		Part of Royal Mail. PUDOs include post offices. Partnership with GLS
PARCEL HOLDERS		383	B2B solution for field technicians
PELIPOD		500	B2B solution for field technicians
POST OFFICE	11,500		Partnership with Amazon, DPD, Royal Mail, Parcelforce and Local Collect
PUDO INTERNATIONAL		320	Partnership with UPS. Plans to install 880 new lockers by the end of 2023
QUADIENT (PARCEL PENDING)		1,100	Open network partnership with DPD, DHL and Evri. Also offers a solution to multi-family properties, universities and retailers. Plans to install up to 5,000 lockers in the coming years
ROYAL MAIL	14,000		National postal operator. Includes partner locations which are used by GLS, Amazon and DPD
UPS	4,963		Including HubBox and MBE locations
			OOH in total
TOTAL	**85,210**	**17,759**	**102,969**

WHAT ABOUT AMAZON?

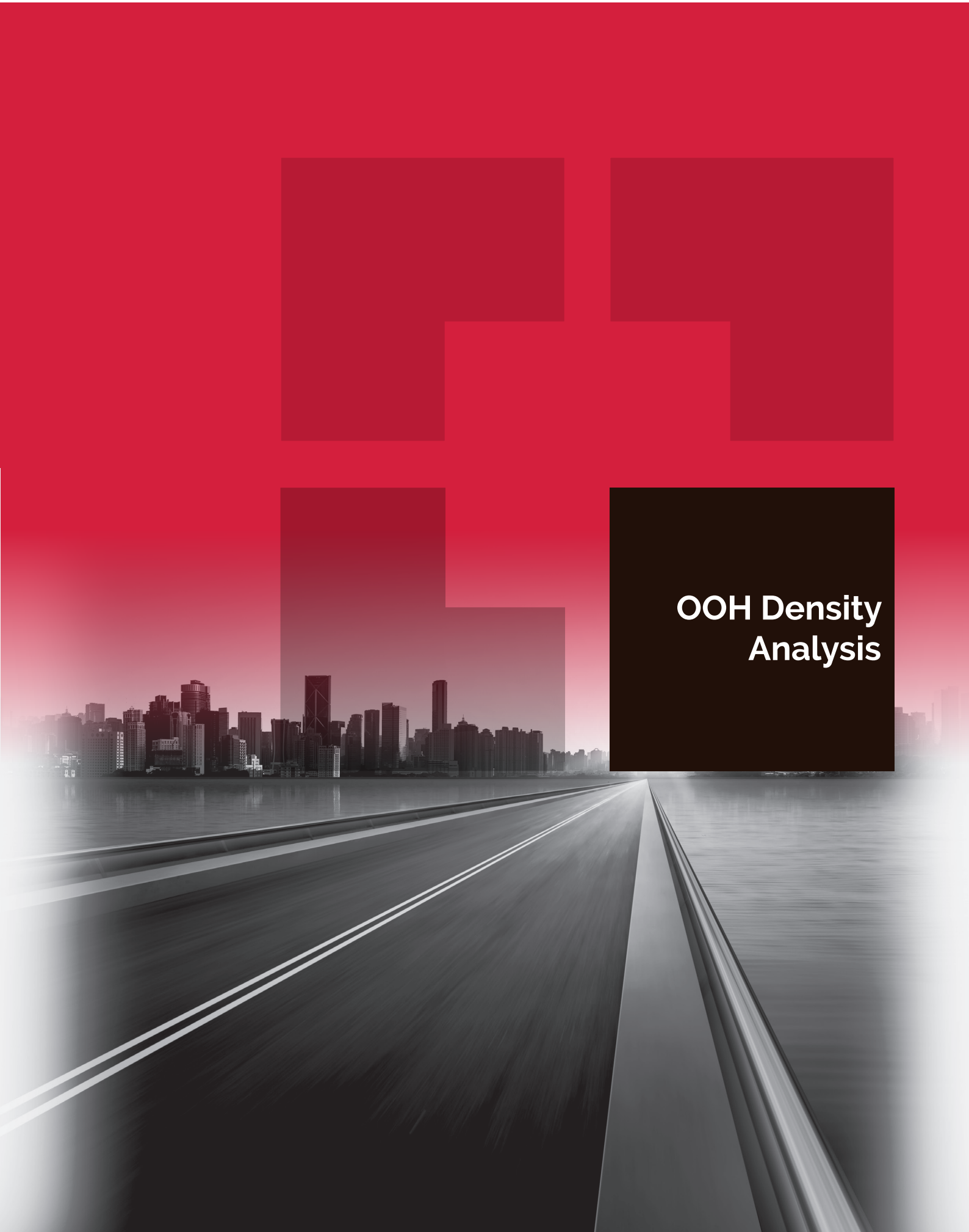
- Amazon is known for its preference for control, rather than being controlled or exposed to strong external partners.
- It has been educating customers to expect ever faster delivery times. Often this service was historically offered at low cost or even free of charge (as part of a subscription package). As pressure on costs comes into play, it is pushing OOH with special offers and vouchers.
- While data is difficult to obtain, we estimate that the e-commerce behemoth has around 8,000 APMs in the UK, and about 9,500 "Amazon counter" locations when last checked (but numbers are rising very rapidly).
- In France, Amazon has around 2,800 lockers, including the recent SNCF agreement.
- In Italy, we estimate that Amazon has some 11,000 "Amazon counter" locations and 2,500 APMs.
- Amazon has also started to develop its new APM networks, with Germany having around 2,000 APMs and Austria around 300 units.
- In addition, Amazon has in-house Amazon Logistics, although we don't believe it currently offers its own PUDO locations.

Partner:

analysys mason

Last Mile Experts

OOH Density Analysis



OOH DENSITY ANALYSIS

Different strategies for the deployment of OOH networks.

The distribution of OOH delivery points and the deployment strategy of OOH network operators is a key factor in their success, allowing them to reach more potential customers with the same number of sites.

OOH network operators must strike a balance between the incremental cost of collection point deployment and the number of potential customers gained, thus maximising the efficiency of their networks while minimising additional deployment costs.

Ian Streule, Partner at Analysys Mason

Using a case study, this chapter explores methods for quantifying the relative effectiveness of OOH networks, which operators can use to improve their selection of deployment locations.

The case study is based on anonymised real-world data for the three significant OOH network operators in a European market: *Operator 1* and *Operator 2* operate separate APM networks across the country while *Operator 3* is a PUDO network operator with collection points in a range of commercial shops across the country.

Operator 3, the PUDO operator, has the largest network, with thousands of collection points, nearly twice as many as the next largest operator, *Operator 2* (as illustrated in Figure 1). *Operator 1* has the smallest network, with around one third the number of collection points run by the largest operator.

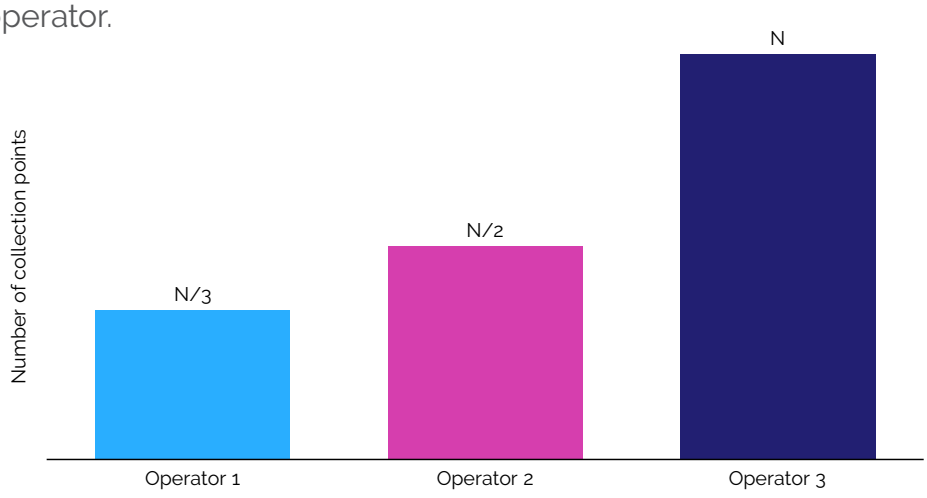


Figure 1. Number of collection points by operator
Source: Analysys Mason, 2023

OOH DENSITY ANALYSIS

Beyond the number of collection points in each operator's network, the population covered by each operator provides a representative view of the scale of each network. Calculation of population coverage requires the definition of a 'catchment radius'; that is, the maximum distance from a collection point that a person can be and still be considered 'covered'. This distance could vary significantly between urban and rural contexts, with a 500m walk in a city taking a comparable amount of time to a multiple-kilometre drive outside a city.

It is therefore helpful to consider a range of distances in order to construct a complete picture of the networks, and to determine the most appropriate 'catchment radius', based on the broader market context and consumer behaviour. The average population density per site is a useful related metric which can provide a view that is independent of the number of points in each network.

Figure 2 shows the population coverage for each operator within 250m, 500m and 1000m of one of their collection points. In all cases the operators with the larger networks have a higher share of population coverage, but the relative population coverage by operator does provide some insight. At 250m, *Operator 3* provides more than double the population coverage of the next largest operator *(Operator 2).* This suggests that *Operator 3's* collection points are located in highly dense areas, which is in line with its position as a PUDO operator.

Within a radius of 500m, *Operator 2* has the highest average population density per collection point with an average coverage of 3,600 people per km2, while *Operator 1* and *Operator 3* achieve 3,400 and 3,000 people per km² respectively.

This indicates that *Operator 2* has the best optimised deployment targeting a typical 500m radius per collection point.

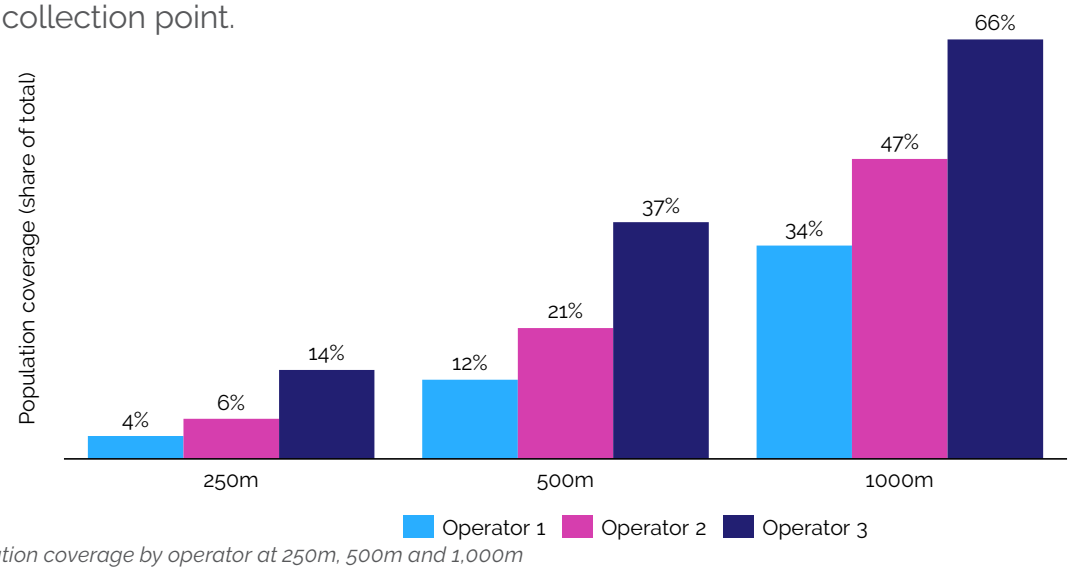


Figure 2. Population coverage by operator at 250m, 500m and 1,000m
Source: Analysys Mason, 2023

OOH DENSITY ANALYSIS

The effectiveness of an operator's deployment may be further assessed by using an 'overlap factor' to measure the degree to which population covered by the collection points is covered multiple times. This is calculated such that:

$$\text{Overlap factor} = \frac{\text{overlapping population coverage}}{\text{population coverage}},$$

where the 'overlapping population covered' is the sum of population covered by each collection point without considering overlap, allowing individuals within the population to be counted multiple times. The ratio between this factor and the overall population coverage of each network provides a proxy measure for the degree of overlap, weighted by population coverage. The overlap factor can be interpreted as the average number of collection points that are within a catchment radius distance of an individual. For a readily walkable distance, such as 500m, operators should look to achieve an overlap factor close to 1, with some minor deviation above this to account for the limited cases in which additional densification is required. At 250m this factor should fall very close to one, indicating that ideally few people would live within 250m of multiple collection points.

Calculating the overlap factor for each operator in the case study at each catchment radius gives the graph shown in Figure 3. At 500m, *Operator 1* and *Operator 2* have similar overlap factors, while *Operator 3's* overlap factor is significantly higher, potentially indicating excessive densification and in line with the expectations that a PUDO operator has limited flexibility in terms of location. The difference between operators becomes more pronounced at 1000m, with *Operator 3* having a very high population overlap factor, again indicating relative over-densification.

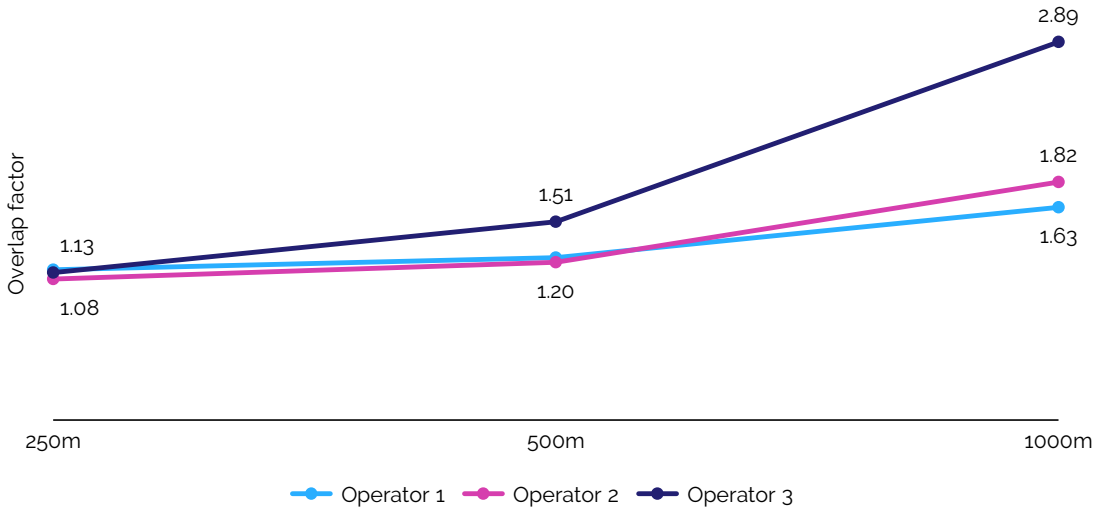


Figure 3. Overlap factor by operator at 250m, 500m and 1,000m
Source: Analysys Mason, 2023

OOH DENSITY ANALYSIS

Network density is another indicator that can be used to assess the effectiveness of an operator's deployment, as well as providing an indication of its overall deployment strategy. Measuring the distribution of distances between collection points across an operator's network provides an intuitive picture of the overall roll-out that cannot be easily interpreted from a single operator average. To illustrate this, Figure 4 provides a schematic view of the network densities of the three operators in terms of the distances between collection points. Operators with well-planned deployments will typically target a specific distance between collection points, with relatively few points closer (which would likely be over-densified) or further away (which would only be useful to provide 'spot' coverage to more isolated areas).

In the context of the case study operators, several important conclusions can be drawn from the network density distributions. The PUDO network *(Operator 3)* has the highest proportion of collection points within 100m of each other, thus providing excessive coverage to a large portion of the population in between locations. This might be expected, given the low flexibility a PUDO operator is able to achieve relative to a parcel locker operator, due to the fixed location of its collection points (existing local shops). *Operator 2* has a strong peak in the 400–500m range, with relatively very few sites located closer than 400m, and network density for *Operator 2* also declines rapidly beyond 500m. In contrast, *Operator 1* shows both a relatively high proportion within 100m and a 'long tail' of collection points more than 1.5km from each other. This suggests a more opportunistic deployment strategy, and that *Operator 1* may be targeting both wide geographical coverage and choice in nearby urban locations.

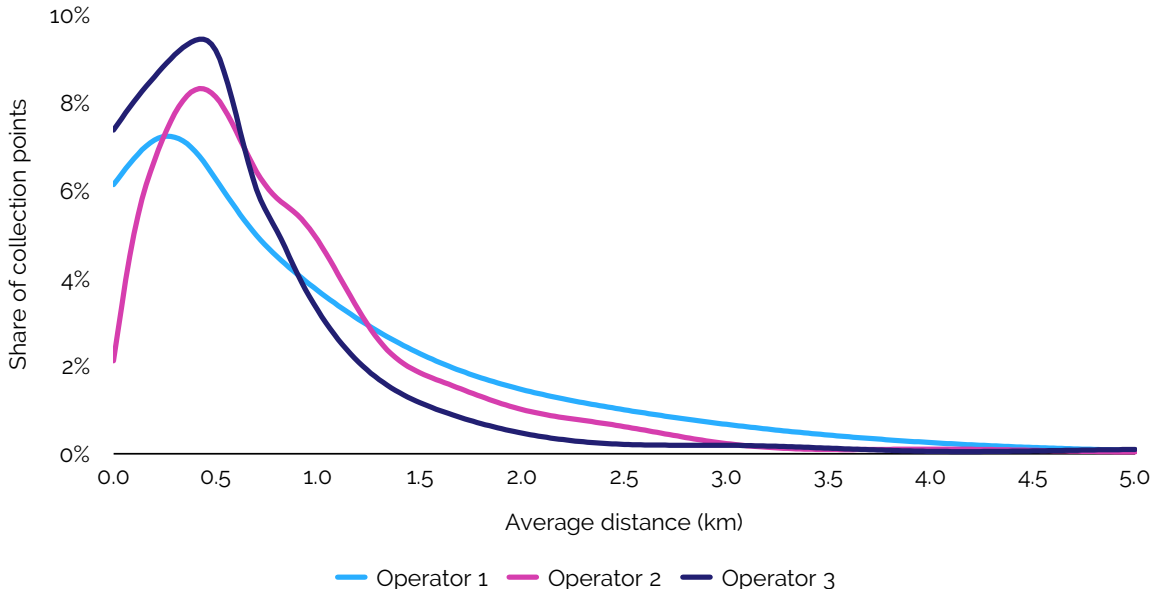


Figure 4. Distribution of average distance to nearest collection point

Source: Analysys Mason, 2023

Note: The share of collection points is generated by grouping distances at 100m intervals and counting the number of sites which fall within that range

OOH DENSITY ANALYSIS

The high-level conclusions drawn by this analysis can be observed by spot-checking areas of deployment by the operators in the case study, as illustrated in Figure 5. *Operator 3* can be seen to have a network with significant overlaps at a catchment radius of 500m, while *Operator 1*'s network remains relatively sparse (although deployments in some areas are in close proximity). *Operator 2* appears to have a well-spaced network, providing good coverage without excessive density.

Figure 5. Map of deployments by operator showing 500m catchment radii
Source: Analysys Mason, 2023
Note: While the scale is accurate, the background image does not represent the actual location of collection points

The effectiveness of an OOH network is largely dependent on the deployment strategy of the operator, in addition to simple counts of the number of collection points. Operators that take a strategic approach when choosing the location of collection points are able to maximise the number of potential customers while minimising the risk of excessive deployment costs, and thus improve the overall effectiveness of the network. Although deployment strategy is particularly applicable to parcel locker operators, which have more flexibility to position collection points, the metrics outlined in this chapter are equally applicable to PUDO operators.

As the sector develops and the availability of space becomes more limited (due to competition and potential local authority planning regulations), the deployment strategies employed by OOH operators will be a critical factor in determining their success.

Further detailed geographical analysis can be used to assess additional questions. For example, if the PUDO operator *(Operator 3)* was considering a partnership or acquisition of a parcel locker network, would *Operator 1* or *Operator 2* represent a better acquisition target? OOH sector stakeholders will have to grapple with these complex geographical questions in the coming years, and also need to factor in operator strategies, consumer preferences, software and hardware technical characteristics, and volume trends.

Partner:

analysys mason

Last Mile Experts

Green Last Mile

THE FUTURE OF LAST MILE

The environmental impact of the last mile

More and more studies confirm that the green last mile is not just a fad, but a real challenge, and also opportunity, faced by retailers and logistics operators.

Last mile operators who wish to be competitive and customer centric, need to pay attention not only to the economic aspects of transport and distribution, but also to the increasingly important requirement for sustainable transport, which should be low-emission, human and environmentally friendly.

Sellers and e-commerce market places, are increasingly aware that their customers and other important stakeholders no longer just look at low-cost or fast delivery.

A growing group of e-commerce customers are willing to pay more, or to choose one supplier over another where the delivery of their package will be environmentally friendly.

Stakeholder awareness is fundamental to the development of the green last mile and while the challenge of making the last mile greener is mainly faced by CEP operators, it is choices made by buyers and merchants, as well as “nudges” from governments or local authorities that will make the difference.

While, based upon UPIDO's calculations, EVs have the most significant carbon reduction effect. Their mass implementation is nonetheless not possible at scale for some time, due to, amongst others, restrictions in charging infrastructure and the numbers of legacy vehicles in use. This means that OOH implementation or "eco education" for merchants, drivers and consignees are arguably the most important short term weapon in the carbon beating armoury.

More than 40 billion B2C parcel deliveries in Europe will generate additional stress on the environment after 2032, during a period that will be critical for limiting global warming to a 1.5oC increase above pre-industrial levels. Our impact analysis of different last mile instruments fighting climate change show that the European CEP industry is already equipped with several powerful green last mile solutions that could significantly contribute to mitigating global warming.

The goal must now be to systematically and effectively switch to these green options and it will take changes in habits to make this possible:

Consumers:
Consumers will need to really understand the environmental impacts of decisions that they take. This can range from single orders versus consolidated ones, acceptance of 24 or even 48 hour delivery versus "on demand", pickup at a proximate consolidated collection point (i.e. parcel locker or PUDO point).

Also consumer returns habits such as checking an order more carefully before clicking the "buy" button, or return via OOH and even to use the circular economy can also make a difference. Finally feedback to merchants who ship air or use eco unfriendly packaging can all help reduce carbon emissions. While data is not easily achievable, available research suggests that Nordic consumers are the most progressive in this respect, and it would be good to seek to understand what can be done to replicate this mindset elsewhere in Europe.

Merchants:
Merchants have a huge opportunity and responsibility in helping consumers make the right choice. This can be done by highlighting and incentivising (with price or other tools) eco options at checkout and explaining why one option is more ecological than another.

They also need to actually offer ecological options such as accessible out of home delivery, and teach their staff to pack goods and not air. Steps such as making customers pay for returns are not always popular but also represent a step in the right direction of achieving a greener last mile. Merchants such as H&M, Etsy or Zalando are already known to be promoting green last mile solutions in their tenders. From a different perspective, OLX and Vinted are promoting the second life economy via out of home, which represents a "double winning" combination of reused items being shipped in an ecological manner.

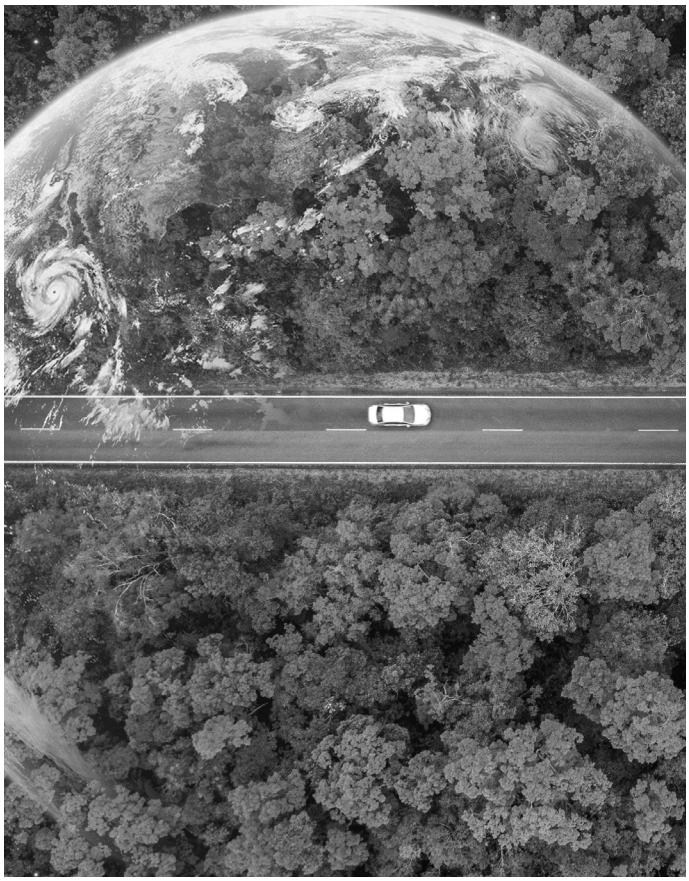
Carriers & Posts:
Carriers & Posts need to offer better interactive delivery options so that consignees can share preferences and change their minds, where needed, so that first time delivery is almost always possible. This will involve more use of out of home and, in many cases, partnerships between carriers with a view to achieving a proximate and effective network.

Of course carrier staff education is also important as misrouted parcels, failed deliveries or driving style will also have an impact on the carbon footprint.

Carriers such as PostNord, InPost and GeoPost Group are investing millions in offering a greener last mile.

At Last Mile Experts we found two interesting takeaways from Kantar's work. Firstly, only 13% of logistics players benefit from a sustainability- enhanced consumer profile. Secondly, some of the players with the largest expected Sustainability Index, such as Collect+ or InPost, were not included in the list, while players such as UPS or FedEx, who have apparently done little in this space, were included. Moreover, the US integrators have an "express delivery model" with significant single D2D parcel delivery, which is expected to generate more carbon emissions.

Unfortunately, many important last mile players, especially those with North American roots, seem to be guilty of playing a "greenwashing" game. This is evidenced by the fact that we were unable to find any meaningful and "real" projects in the public domain nor by repeated requests for details of initiatives that were only shared in the most nebulous terms.



Governments, local authorities and other stakeholders:

Without a concerted effort from the above groups to educate and offer advantages for merchants, carriers or consumers choosing green last mile options and disadvantages or penalties for those who don't, no effective and tenable solution will be possible in the short term.

This can range from subsidies in education or promotion of green options to requiring carbon footprint "health warnings" on last mile services to coercing players to consolidate their last mile services.

The European Union and several national governments are setting goals on fossil fuel usage although few coherent and significant last mile projects appear to be in place at the moment. Local and city authorities seem to be faring better with players such as TFL (Transport for London) who are seeking to implement greener last mile options or Salzburg City who helped set up MYFLEXBOX which is now a leading, open parcel network in Austria.

"Despite the challenging economic conditions, there has been strong growth in the OOH segment, especially for APMs. We have seen that the shift in consumer behaviour away from home delivery to OOH is now also gaining momentum in waking up OOH markets. As a result, demand for open systems is increasing among relevant market players and city governments, as this is more efficient and sustainable."

Jonathan Grothaus,
Co-CEO, Founder, MYFLEXBOX

Let's take an opportunity to look at some possible future models for a greener last mile.

Idea	Time to implement	Difficulty/Cost	Positive environmental impact
Education	short	limited	high
Legal and fiscal incentives/penalties	medium	medium	medium to high
OOH development	short	high (unless consolidation takes place)	high
EV (non fosil fuel) vehicle development	medium to long	high	high
IDM (better first time delivery)	short	low	medium
Route optimisation	short	low	medium
More partnership and consolidation	short	low	medium to high
AGV's & UAV's	medium to long	high	medium
Crowdshipping	medium	medium	medium
Tunnel based transportation	long	high	high

Figure 1. Future last mile delivery developments and concepts
Source: Last Mile Experts

Some interesting myths that need to be "busted":

Many experts state that one cannot unequivocally state that a parcel locker or PUDO network will reduce the carbon footprint as the individual surroundings and framework conditions have to be considered. For this reason, we are careful to state that real gains will only accrue from an efficient out of home infrastructure that is a mixture of:

- proximate or, to coin a bpost phrase "slipper distance" from the consignee.
- easily accessible and, where possible, 24/7.
- operating under the sharing economy rule (e.g. PUDO vs. parcel shop).
- effective IDM and consumer control.

Our view is that where an efficient out of home network exists, carbon reduction will be up to 2/3 in urban areas and even more in rural ones.

Next generation Green Last Mile developments

Several options for enhancing the green last mile are currently being discussed. These ideas include using parcel reception boxes, smart door locks, and in car delivery. Deliveries to parcel lockers and PUDOs are, however, expected to be the main drivers of alternative out of home handover options in the foreseeable future.

As we look towards the future of transportation, it's becoming increasingly clear that non-fossil fuel vehicles and e-cargo bikes will play a crucial role in the last mile delivery. Non-fossil fuel vehicles, such as electric cars and vans, are becoming more popular due to their low carbon emissions and reduced dependence on fossil fuels. E-cargo bikes, on the other hand, offer a cost-effective and environmentally friendly alternative for short-distance deliveries in urban areas.

As cities become more crowded and congested, these modes of transportation are likely to become more prevalent in the last mile delivery sector, helping to reduce air pollution, traffic congestion, and the overall carbon footprint.
In addition to their environmental benefits, the use of non-fossil fuel vehicles and e-cargo bikes is also being promoted by regulatory changes in many large cities around the world. Local governments are imposing stricter emissions standards and implementing policies to encourage the use of sustainable transportation modes, and this trend is gaining traction year after year.

Over time, last mile delivery is expected to undergo significant and positive changes with the introduction of autonomous delivery systems, en-route manufacturing, and robotic stores on wheels.

Figure 2. DHL electric van
Source: DHL

Deliveries to parcel lockers and PUDOs are already playing a major role in changing last mile delivery due to their convenience, cost and security. According to Fortune Business Insights, the global smart parcel locker market is projected to grow from USD806.5 million in 2022 to USD1,833.9 million by 2029. More importantly from our perspective, by utilising these alternative delivery options, companies can reduce the carbon footprint of last mile delivery while also improving customer satisfaction.

The development of new AI and technology is likely to create even more next gen opportunities for sustainable and efficient last mile delivery solutions in the future.

Looking at some of the more interesting ideas. AGV (robotic) and UAV (drone) delivery, must be high on anyone's list. Indeed, there have been over 660,000 commercial drone deliveries to customers over the past three years, not including countless test flights to develop and prove the technology. As of early 2022, it is estimated that more than 2,000 drone deliveries are occurring each day worldwide*.
The technology's benefits include significant cost reduction, particularly for remote areas

with limited delivery options, and time-saving capabilities, with packages delivered in less than 10 minutes. Moreover, drone fleets are an environmentally friendly alternative to existing vehicle-based networks, particularly for last mile delivery, which constitutes up to 60% of logistics costs. Despite this technology's advantages, there are still several issues to address before widespread adoption can be considered. Safety remains a key concern as command and control technology as well as the regulations surrounding drone delivery are still evolving, particularly in terms of airspace usage.

Figure 3. Amazon delivery drone
Source: www.amazon.com

Autonomous robotic delivery has been rapidly gaining traction as a new way to deliver goods in a more efficient and cost-effective manner. While we don't anticipate Boston Dynamics type "humanoid" robots able to operate at scale, nor the use of Starship or Cainiao type street accessible deliveries. We do see an opportunity for autonomous last mile vans which will potentially be non- fossil fuelled and use efficient routing to deliver a "nondriving" courier to a convenient place to make deliveries or collections and then waiting for him/her at a convenient and safe location, or driving back to an optimal pick up location when the courier is ready.

This form of delivery will not only be more efficient but will also potentially reduce congestion and parking issues.

The main challenges and obstacles with autonomous robotic delivery include safety concerns, the need for regulations, lack of public acceptance, high initial and ongoing costs, and limited range.

Crowdsourced delivery or "Crowdshipping" is something that few last mile parcel operators other than Amazon (Amazon Flex), have used. This approach has gained attention as a potential solution to improve delivery services, offering benefits such as cost- saving, environmental friendliness, and trust. Crowdshipping can reduce delivery costs by utilising existing trips and transport modes, promoting the use of clean transport modes to benefit the environment. Trust in the operator and its competence in implementing and managing the system is crucial to attract participants and ensure the safety and reliability of the delivery process. Also, this system will tend to work best for specific point to point deliveries or in supplementing a traditional professional driver type network at peak or holiday/non work times.

Figure 4. Nuro delivery robot
Source: www.nuro.ai

Tunnel-based cargo transport. Cargo tunnels are an innovative solution to reduce the problems associated with conventional delivery vans, such as congestion and emissions. The idea is to use automated guided vehicles or rail-bound cargo vehicles to transport shipments from a central depot outside the city centre via cargo tunnels toward inner-city micro-hubs.

Cargo bikes can then be used to deliver shipments to customer homes. While we quite like the idea, operational requirements and investment costs for the tunnels would seem to be a significant downside. Omniloop in Sweden, Smart City Loop in Germany and Cargo Sous Terrain in Switzerland are seeking to promote this concept.

Coordination of delivery schedules and capacities in the micro-hubs are some of the challenges that need to be addressed.

Despite the lack of scientific operations research literature on tunnel-based last mile concepts, this concept has the potential for future research albeit several hurdles still need to be addressed.

As climate change becomes more evident consumers will become increasingly aware of the environmental impact of their actions. Moreover, technology may be expected to offer new alternatives and sustainable delivery options are likely to become more popular and sought after.

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Partner:

analysys mason

Last Mile Experts

Re-commerce

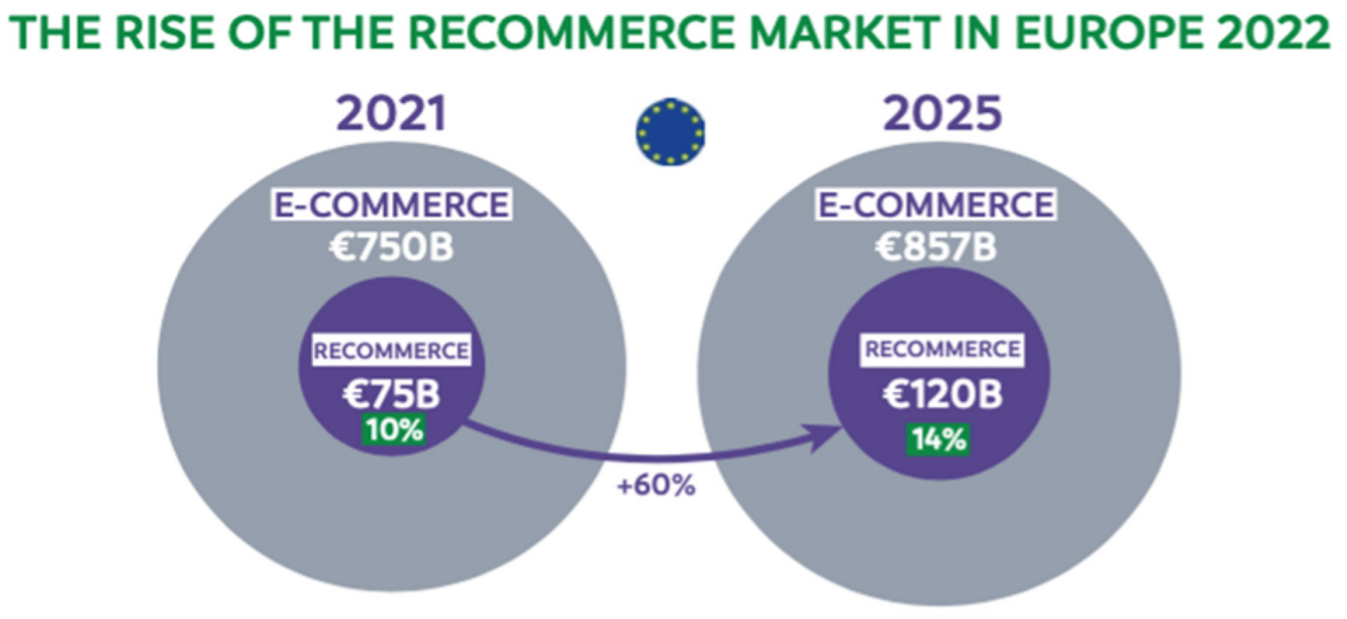
RE-COMMERCE – FUEL FOR FUTURE OOH GROWTH?

Re-commerce, or circular economy commerce, is the sale of second-hand items, generally through online C2C marketplaces. According to a recent press release by Cross-Border Commerce Europe, re-commerce marketplaces are growing 20 times faster than the broader retail market.

Low price and sustainability appear to be the main factors behind this, and most consumers indicate that inflation is a key motivator to buy pre-owned goods.

This trend is supported on the supply side by more brands moving into re-commerce; several retailers have launched take-back schemes, in which customers can trade in old apparel in return for a voucher to spend in-store or a donation to a worthy cause. Classifieds are introducing refurbished items and partnering with re-commerce platforms or brands to source such items.

Most of these brands also sell pre-owned goods directly on their own platform and have a 'resale-as-a-service' model, where a third party manages resale logistics and customer experience on a turnkey basis, including website design, inventory sourcing, processing, photography, customer care, order fulfilment, storage, payouts and returns. As shown in the graphic below, in 2021 the European re-commerce market was already valued at some EUR75 billion (USD82 billion) but the market is expected to grow to EUR120 billion (USD131 billion) by 2025 (+60%) and its share of e-commerce will grow from 10% to 14%. This will arguably make re-commerce a new power in the last mile due to the incremental parcels it will bring.



Source: cbcommerce.eu

RE-COMMERCE – FUEL FOR FUTURE OOH GROWTH?

Last-mile evolution

While re-commerce will undoubtedly bring more parcels, it will also add complexity and require a new approach to the last mile. Above all, there will be a need for low-cost mechanisms that enable consignees to arrange deliveries/pick-ups and even exchange items at the same point. Due to the relatively low value of the items and low parcels-per-shipment numbers, only efficient OOH networks offer financial viability and acceptable customer experience. This is arguably why key re-commerce marketplaces such as OLX and Vinted are beginning to see that the last mile should be a key priority, if they are to grow in a sustainable manner.

So why is OOH so important in achieving a cost-effective last mile for re-commerce? Any dense and effective network of lockers and PUDOs allows for very low cost per parcel. If a traditional D2D courier can deliver 150 B2C parcels in a day in a dense urban area, an OOH courier can do 6-8 times this amount. If we add the fact that no individual collection is needed from sellers, who drop off their parcels themselves, and that OOH first-time delivery is close to 100%, the case becomes clearer. Promotions such as the one below from OLX are an example of how re-commerce players are seeking to get customers to use their last mile.

"The last mile is fundamental to our business as it develops from local to national sales. This requires new tools to allow for secure and customer-centric delivery and collection of items.

We are working hard on new tools that will improve customer experience for our sellers and buyers alike. Technology will play a key role here as will the use of effective and convenient out of home locations."

Nikita Mullovsky
Head of e-commerce
OLX Poland

RE-COMMERCE – FUEL FOR FUTURE OOH GROWTH?

Efficient solutions

Finally, as volumes grow, more and more local transactions can be expected, using the PUDO or automated parcel machines as a 'point of exchange'. Here the logistics cost is limited to that of holding a parcel for a few hours or days. If any doubt remains, LME estimates that for an efficient last-mile network like InPost's in Poland, the end-to-end cost via OOH can be up to eight times lower than for a traditional D2D delivery. One factor that is often overlooked is the fact that any successful last-mile customer experience requires effective interactive delivery solutions. These Uber-like apps allow consignees to see and control how and when their parcels are collected or dropped off. Critically, they can select preferred OOH points and use the app to collect or deliver contactlessly.

While cost is arguably the key factor favouring re-commerce, some customers operating in the circular economy are likely to be more ecologically minded. Accordingly, any efficient OOH network, offering a carbon footprint of around one third of D2D, is an attractive proposition.

Re-commerce companies such as eBay and Vinted have made efforts to create their own last-mile capability, with mixed success. eBay invested in Shutl in 2013 but was unable to leverage this opportunity. More interesting is Vinted's 'Go' network in France.

Here the re-commerce unicorn has teamed up with Portuguese Bloq.it to create one of the leading parcel locker networks in France.

OLX and many other players are seeking to leverage third-party last-mile capabilities. Interestingly, via a joint owner (Naspers), OLX has the capacity to work with Sameday, a leading B2C parcel and locker player in south-eastern Europe. Time will tell if this opportunity is realised. Observing developments, we can see that re-commerce has grown from local classified market type transactions to national ones. The next development we can expect is growth of cross-border re-commerce which has already been offered for some time by eBay but which must now be the new frontier for most large players who have multinational coverage.

However we look at it, re-commerce is here to stay and stakeholders who ignore it do so at their own peril. It is clear that OOH and interactive delivery management are key to success here, and those players who have invested in this space will reap the benefits in future years.

"We are simply blown away by the incredible results of our Easybox locker network and see this as a key enabler for re-commerce in the southeastern European region."

Lucian Baltaru,
CEO, Sameday Group

Partner:
analysys mason

Last Mile Experts

Conclusions

PARCEL VOLUME ANALYSIS

An integrated analysis of parcel per capita volumes, OOH development and post-pandemic resilience of European parcel markets

After adding the number of parcels per capita to our previous analysis and studying how it relates to the number of OOH delivery options per 10,000 inhabitants in each country, we have observed interesting patterns (as shown in the chart below). This comprehensive analysis – combining the CAGR for parcel volumes, parcels per inhabitant and OOH density – provides a deeper understanding of the post-pandemic resilience of the parcel markets in the EU and the UK.

Parcels per inhabitant vs. OOH penetration by market resilience group

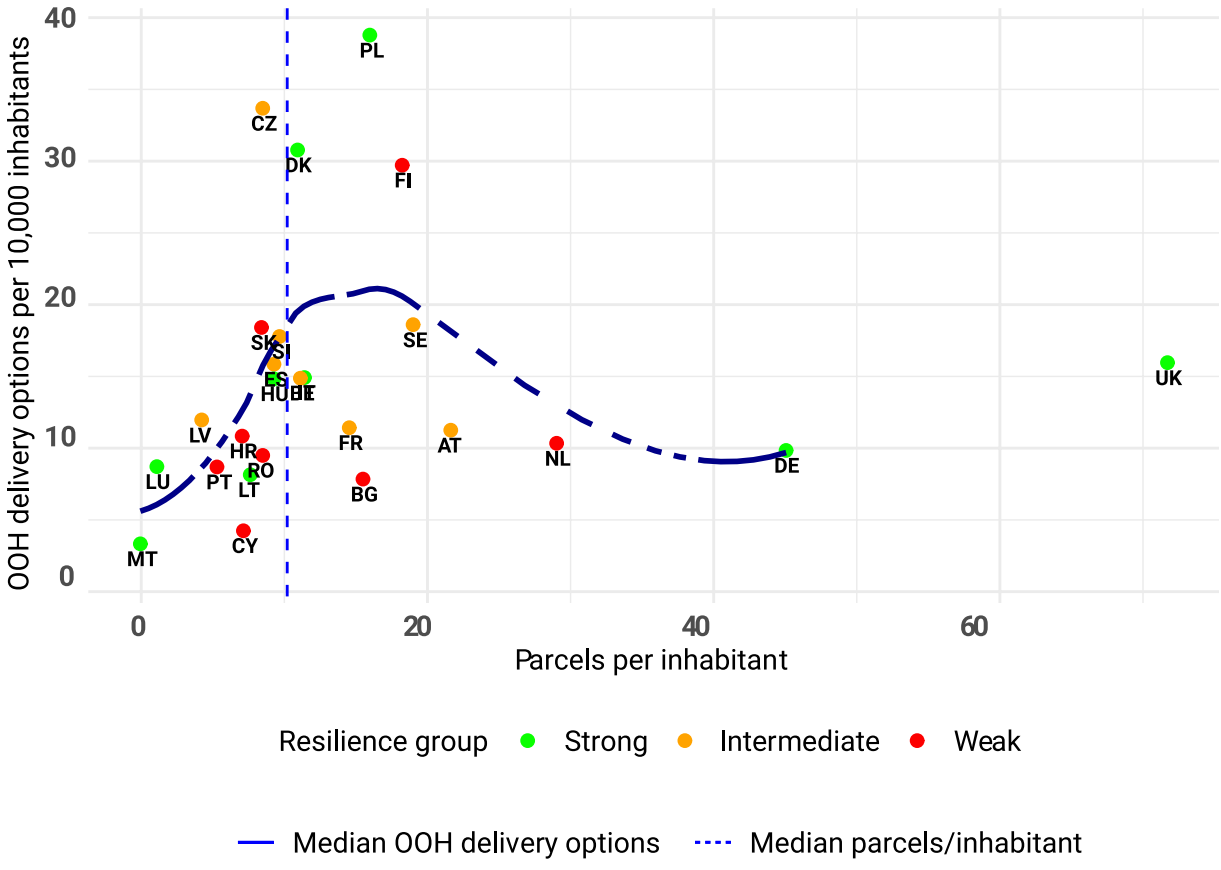


Figure 1. Parcels per inhabitant vs. OOH penetration
Source: UPIDO
Note: All calculations consider the total number of OOH points accessible to the customer, reflecting a customer-centric perspective in this analysis.

Strongest resilience group (green):

This group includes countries like PL, DK, UK, HU, IE and IT. They have usually maintained a high CAGR for parcel volumes, an above-median number of parcels per inhabitant, and a high density of OOH delivery options, indicative of the robustness of their parcel services industry. PL, with 38.72 OOH options per 10,000 inhabitants, tops the chart in terms of OOH delivery options, which supports the resilience of its parcel services. Similarly, the UK's outstanding performance with 74 parcels per inhabitant and relatively high density of OOH options highlights the strength of its market.

Intermediate resilience group (orange):

This group features countries such as AT, BE, CZ, EE, ES, FR, LT, SE and SI, which have demonstrated moderate resilience (with mid-range CAGRs for parcel volumes), relatively high parcels per inhabitant, and a moderate density of OOH delivery options. BE, ES and FR show a substantial presence of OOH delivery options, which contributes to their resilience. However, their CAGR and parcels per inhabitant are lower than for countries in the green group.

Weak resilience group (red):

This group comprises countries like BG, CY, FI, HR, LU, NL, PT, RO and SK, characterised by low CAGRs in terms of parcel volumes, relatively few parcels per inhabitant, and generally lower OOH delivery density. The relatively low density of OOH delivery options might partly explain the lower demand for parcel services in these countries compared to the green and orange groups. Despite its high OOH density, FI exhibits a low CAGR for parcel volumes, indicating a slowdown in growth, which needs further analysis.

Ultimately, the relationship between the number of parcels per inhabitant and the number of OOH delivery point options per 10,000 inhabitants appears to be non-linear. At the onset, there is an increase in the density of the OOH network corresponding to a rise in the volume of parcels per capita. However, this density begins to decline beyond a certain threshold.

This pattern could suggest distinctive consumer behaviour across different stages of market maturity. In markets with lower parcel volumes per capita, online shoppers typically lack strongly established preferences for a particular mode of delivery. As such, they are more open to adopting new options like OOH delivery. In contrast, in more mature markets like the Netherlands, Germany and the UK, online consumers have already developed strong preferences for their mode of delivery, such as home delivery.

It is likely to require considerable effort to alter these ingrained behaviours and encourage a shift to OOH delivery in these mature markets. Financial incentives and "education" on the environmental benefits of OOH delivery options could be an effective strategy for stimulating this change. These incentives would provide added value to consumers, potentially prompting them to reconsider their current delivery mode preferences.

OOH AND PARCEL VOLUME GROWTH: POST-PANDEMIC RESILIENCE RECOMMENDATIONS

Recommendations based on the post-pandemic resilience groups can be made as follows:

Strongest resilience group (green)
Countries in this group have shown an impressive resilience in their parcel volumes since the pandemic. They are advised to maintain their high standards of OOH performance and seek to innovate further to stay ahead. Their focus should be on:

1. **Leveraging data analytics:** Use big data analytics for predicting parcel volumes, customer behaviour and operational efficiency. This will enable further optimisation of resources, lower costs and improved customer satisfaction.
2. **Investing in advanced technologies:** Invest in automation, artificial intelligence and Internet of Things technologies to improve operational efficiency, enhance customer experience and foster innovation in parcel delivery services.
3. **Expanding OOH delivery options:** Continue expanding the OOH delivery network and explore collaborations to share OOH locations across networks and so further improve the customer convenience and experience.

Intermediate resilience group (orange)
These countries have shown decent resilience but there is room for improvement. Recommendations for this group include:

1. **Enhancing OOH delivery options:** Increase the density of OOH delivery options to improve customer convenience and boost parcel volumes.
2. **Improving operational efficiency:** Enhance operational efficiency through technology adoption and process optimisation. This will contribute to cost effectiveness and improved service delivery.
3. **Understanding customer preferences:** Carry out market research to understand changing customer preferences in the wake of the pandemic, and tailor services accordingly.

Weak resilience group (red)
These countries have shown low post-pandemic resilience. Recommendations for this group are:

1. **Investing in OOH infrastructure:** Boost the number of OOH delivery options, as wider access to convenient delivery options can stimulate consumer demand for parcel services.
2. **Strengthening logistics and delivery network:** Invest in logistics and delivery network improvements to enhance service quality and operational efficiency.
3. **Marketing and customer awareness:** Undertake aggressive marketing to inform consumers about the benefits and convenience of parcel services and OOH delivery options.

These recommendations should be tailored further to the unique circumstances of each country and adjusted to reflect new data and evolving market trends that emerge.

REGULATORY INSIGHT FOR OOH/LOCKER PARCEL SERVICES

In "Out of home delivery in Europe 2022", I wrote that regulatory issues surrounding OOH services would become more prevalent as the sector developed. I identified several regulatory aspects that are likely to be considered in future, including:

- the impact of deployment and availability, such as geographical exclusion and first-mover land banking
- competition, including determining market dominance and regulating merger activity
- access to parcel lockers and/or creation of universal OOH services.

As the OOH sector grows, regulators and policy makers will be keen to monitor these aspects and consider the introduction of targeted policies and regulatory frameworks to protect consumers and ensure the benefits for competition and society as a whole. There is evidence that these processes are already underway in some markets, and European regulators will watch closely as these cases develop.

Ian Streule,
Partner at Analysys Mason

Governments are taking steps to improve access to parcel lockers.
To date, direct government intervention in the OOH sector has been rare, due to its relatively small size in most countries and the lack of significant competition issues in these nascent markets. Despite this, there have been a number of notable instances of tangible action or signalling at a national level by governments both within and beyond Europe:

- **Greece:** the regulator (Hellenic Telecommunications & Post Commission, EETT) is conducting a public consultation into the use of parcel lockers, exploring factors which point towards the regulator developing a regulatory framework. Although the consultation appears largely neutral, EETT does argue that open networks, where multiple couriers can use the same parcel lockers, are generally preferable to closed networks, potentially indicating the direction of future regulation. EETT also raises a variety of questions about the deployment of parcel locker networks, including possible refinements to local authority conditions for their widespread deployment in public spaces, open-access obligations, and their potential to reduce the environmental impact of postal delivery.

- **Italy:** in 2021, the regulator (Autorità per le Garanzie nelle Comunicazioni, AGCOM) submitted a formal letter to the central government requesting legislative measures to encourage the use of parcel lockers, notably including a requirement for technological neutrality and interoperability, in addition to tax concessions and standardisation of planning permission processes to encourage deployment. This process was informed by a public consultation issued by AGCOM that considered responses from a range of operators against the wider context of parcel lockers in the Italian market. To date, however, it does not appear that any specific regulation has been implemented as a result of this consultation.

- **Singapore:** Pick Network Pte Ltd offers open-access lockers in housing developments nationwide, in close collaboration with the sector regulator (Infocomm Media Development Authority, IMDA) and other government departments. Deployments are tightly regulated, as the state owns around 80% of residential properties in the country, creating a unique situation for parcel locker deployment in building precincts and lobby areas.

As the OOH sector continues to grow in Europe, regulators will take notice as issues such as competition and access begin to play a more important role, particularly as more providers enter the market and some providers grow to control a majority of parcel lockers or locations. The early approaches adopted in the examples above may provide an important reference for future regulatory frameworks in other markets, and Europe's regulators will watch closely to see how effective these prove to be in the coming years.

Aside from direct government regulation and policies, other developments provide an indication of indirect government stances towards regulatory issues posed by the OOH sector.

To provide insight into the internal government policies that guide their decisions, I have identified some examples of how state-backed regulated USO providers have approached the provision of OOH services:

- **Sweden/Denmark:** PostNord had a target of deploying 12,500 closed-access parcel boxes in the Nordic region by the end of 2022. The overall roll-out largely focused on major cities, although in Sweden a combination of urban and rural locations were targeted. This indicates that a broad parcel-box network providing accessibility across all geotypes is a policy consideration for the Swedish government (one of the owners of PostNord).

- **Norway:** Posten Norge had rolled out 1,500 closed-access postal lockers across Norway as of October 2022. With no indication of plans to provide open access, this suggests that mandating access is not a policy objective of the Norwegian government.

In addition, numerous local authorities and state-owned rail operators in Europe have run trials with parcel-locker operators, providing space for the deployment of parcel lockers in metro stations, train stations and other public transport hubs. The motivations behind these schemes are generally cited as the environmental benefits of OOH deliveries over traditional home deliveries, the convenience benefit to customers of the public transport system, and the diversification of income streams for the public transport operators/local authorities themselves (due to the recurring rental fee typically paid by parcel-locker companies).

Examples of such schemes can be found in the London Underground, Manchester bus and train stations, the Rome Metro, Paris overground and underground stations and Barcelona Metro, among others. We expect that parcel-locker deployments driven by local authority or city/regional governments will increasingly form part of local economic and environmental development policies and urban plans.

Consumer attitudes towards parcel lockers also have an important influence on regulation

Consumer attitudes towards parcel lockers will have a range of secondary effects on potential OOH regulation and are a crucial factor in development of the OOH market in each country. Beyond the obvious impact of consumer take-up of OOH delivery services being a key driver of the market's growth, consumer sentiment will likely affect the physical space available for parcel lockers through its influence on planning constraints.

A positive consumer attitude towards parcel lockers will provide a market for operators to offer an increased density of lockers, as well as opening up space for locker deployment if few planning concerns are submitted to local authorities. From a regulatory perspective, this will help to alleviate availability and potentially competition concerns, while in time a larger OOH sector will bring closer regulatory scrutiny.

In the UK, planning applications for parcel lockers provide insight into consumer sentiment and the receptiveness of local authorities to their construction. Complaints submitted to planning departments feature a number of recurring issues, including aesthetic concerns related to the size and branding of parcel lockers, concerns about increased traffic to the area, and comments on the availability of alternative lockers nearby (implying a resistance to densification). From the perspective of local authorities, parcel lockers are typically granted planning permission except where they significantly detract from the appearance of an area, which is a particular concern for listed (historical) buildings that are often found in prime city-centre locations.

Regulation will continue to be contemplated and likely introduced as the OOH market develops

The OOH market is still at a relatively early stage of its growth, and the current regulatory stance towards it reflects that. Issues related to deployment and availability, competition and access are already emerging, and there is evidence that they are now appearing in policy direction at both a national and local authority level. These issues will need to be addressed more widely as the market develops in Europe.

Fundamentally, proposed or implemented regulation will need to evolve carefully as the market grows over the medium and long term, because parcel lockers will play an increasingly important role in the delivery sector and bring numerous benefits in terms of improved efficiency, cost and convenience, combined with reduced road congestion, CO_2 and pollution emissions.

CONCLUSIONS

- In 2022, the European CEP market recorded over 16.5 billion parcels delivered, which was a 9.1% decline when compared to 2021 (18.1 billion).
- The milestone of 20 billion total annual B2C parcels is forecast to be reached at some point between 2025 and 2026, and the 30 billion level between 2028 and 2029.
- OOH delivery efficiency is above 99%.
- Last-mile delivery is responsible for 40–60% of total distribution costs for carriers.
- OOH is increasingly important in many EU markets – with OOH expected to make up over 50% of deliveries in the Nordics, France, Germany, the Baltics, the Czech Republic, Hungary and Poland.
- Poland has the most APMs in Europe, beating the second market, the UK, by over 85%. The third country is Germany, which has just over 46% of the locations available in Poland.
- Based on Last Mile Experts MVP (minimum viable product) rule, a dense network should have at least 1 point per 10,000 inhabitants.
- Poland has overtaken the Czech Republic and Denmark to become the European leader in terms of OOH density with almost 40 points per 10,000 inhabitants.
- PUDOs still have the greatest impact on the number of OOH delivery points and density, but lockers are growing in importance.
- There is a significant opportunity for bigger APM networks in at least 17 of the 28 countries.
- Without continued investments in OOH delivery networks, the EU and the UK will increasingly suffer from serious delivery infrastructure gaps, leading to last-mile capacity issues and increasing costs.
- More and more open/agnostic networks

are being developed, which support cost optimisation and environmentally friendly delivery. They also allow for greater OOH network expansion in markets where availability of additional locations and partner shops is becoming a challenge.

- According to Business Market Insights, Europe's smart parcel delivery locker market is expected to grow from USD213.3 million in 2021 to USD531.1 million by 2028 (a CAGR of 13.9%). Players in this market are adopting and developing new products to cater to the demands of evolving online marketplaces, emerging businesses, retailers and consumers.

THE FUTURE OF OOH

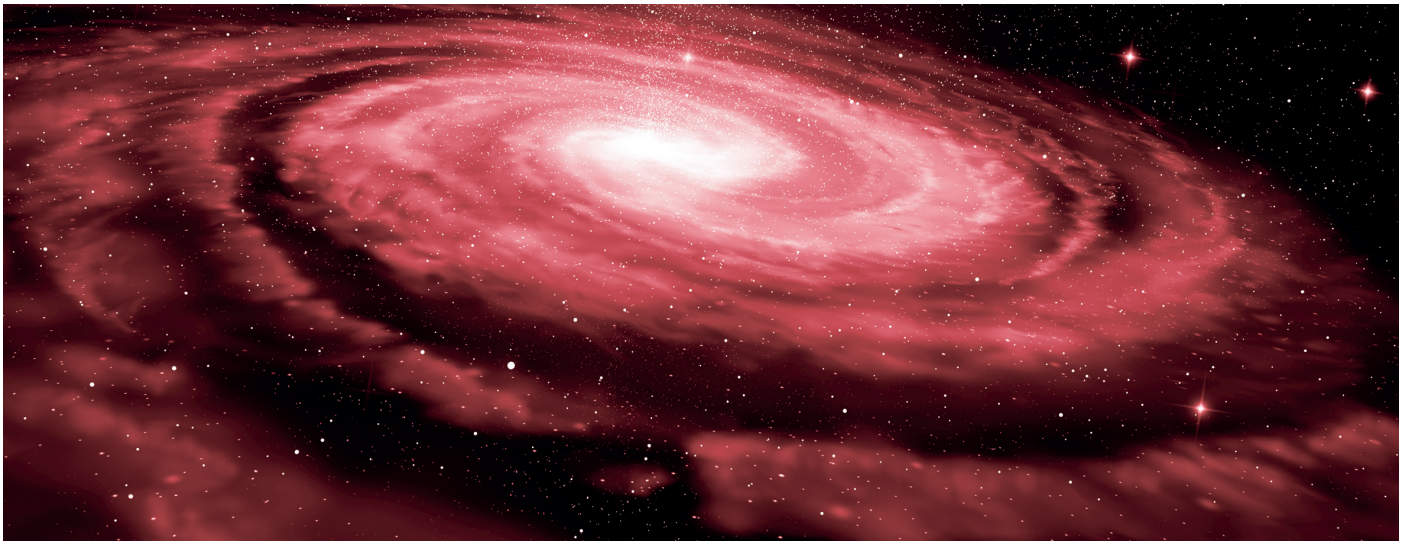
- Almost all industry experts expect an increase in the percentage of B2C parcels going OOH for the following reasons:
  - as the proximity of points increases, they become more convenient and closer to a "home delivery".
  - capacity demands make this the only viable or cost-effective option; especially for the increasingly important re-commerce sector.
  - ecological matters favour proximate OOH delivery.

- While the most developed OOH markets in Europe have up to 90% of volumes going through OOH, we expect that the optimal split for OOH/D2D parcel volumes will range from 40% to 60%, depending upon market-specific and cultural factors.

- Good examples of how APM deliveries are an efficient solution for both operators and customer are not only the Polish giant InPost, but also Pošta Srbije (Serbian post). Both operators saw great potential in building an APM network, which they are using in an exemplary manner. Pošta Srbije average turnover is above 1 parcel per compartment per day, with peaks up to 1.8 or even 2 on in some days. Currently, the operator is continuing its dynamic network expansion based on MultiSpace parcel lockers.

- Some segments will still require home delivery, such as heavy and bulky items, premium "on demand" or e-grocery services. For these to be more efficient, there is a need to develop new technologies such as smart locks (e.g. Amazon Key) for in-home delivery, and refrigerated lockers or robots to make "click & collect" more effective.

- This sector continues to develop so fast that even by the time this report is published some data will already be outdated. Accordingly, we can expect further dynamic change in the next edition.



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