An analysis of the parcels market
and parcel carriers' operations in the UK

by

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Carried out as part of the FTC2050 project

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ABOUT THE FREIGHT TRAFFIC CONTROL 2050 (FTC2050) PROJECT

This report has been produced as part of a research project entitled "Freight Traffic Control 2050 (FTC2050): Transforming the energy demands of last-mile urban freight through collaborative logistics". It is an EPSRC-funded project that began in April 2016 and will run for 36 months.

Freight transport currently makes up around 16% of all road vehicle activity in our cities and by 2030, the EU would like to see largely CO_2-free logistics systems operating in our urban centres. With van traffic predicted to increase by 20% in London by 2030, and the uptake of alternatively fuelled and electric goods vehicles slow, more radical strategies are needed to reduce the numbers and impacts of freight vehicles in our cities.

Working with parcel carriers in London, this project will examine the potential for closer operational collaboration between carriers to reduce urban traffic and energy demand whilst maintaining customer service levels, and evaluate to what extent such relationships can develop naturally within a commercial setting or whether a 3rd party 'Freight Traffic Controller' (FTC) would be necessary to ensure equitable distribution of demand across a city. The key research objectives are to:

1. Investigate the collective transport and energy impacts of current parcel carrier activities in urban areas;

2. Create a database to gather and interrogate collection and delivery schedules supplied by different carriers;

3. Use the data with a series of optimisation algorithms to investigate the potential transport and energy benefits if carriers were to share deliveries and collections more equitably between them and develop tools to help visualise those benefits;

4. Evaluate what business models would be needed to enable carriers to collaborate in this way;

5. Investigate the role a 3rd party 'Freight Traffic Controller' could play in stimulating collaboration between carriers to reduce energy demand and vehicle impacts across a city;

6. Identify the key legal and privacy issues associated with the receipt, processing and visualisation of such collaborative schedules;
7. Consider the wider application of this approach to other sectors of the urban freight transport market.

The project is a multidisciplinary collaboration, led by the University of Southampton's Faculty of Engineering and the Environment (CEE), and involving the Southampton Business School (SBS), Lancaster University's School of Computing and Communications and Data Science Institute (LU), the University of Westminster's Faculty of Architecture and the Built Environment (UoW) and University College London's Bartlett Centre for Advanced Spatial Analysis (CASA). Two major carriers (TNT and Gnewt Cargo, (the latter operating for DX and Hermes)) have agreed to participate in the research along with Transport for London (TfL).

For further information about the FTC2050 project please visit the project website at:
http://www.ftc2050.com/

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1. INTRODUCTION

This report consists of a literature review and analysis of the UK parcels industry. It has been carried out as part of the EPSRC-funded FTC2050 project.

The report covers: the UK parcel market (**section 2**), the operational practices of UK parcel carriers in making last-mile deliveries and collections (**section 3**), and operating depots and practices used by parcel carriers in London (**section 4**).

The report uses the following definition of a parcel (Ofcom, 2015):

- Larger than a large letter (i.e. an item with a length no more than 353 mm, width 250 mm, thickness 25mm, and weighs no more than 750g)

- Weighs no more than 31.5 kg

- Can be lifted by a single average individual without mechanical aid.

2. THE UK PARCELS MARKET

2.1 The size of the UK parcels market

As part of its on-going review of the Royal Mail's performance, Ofcom seeks to collect information from all parcel operators providing UK-wide services (Ofcom, 2015). This data comprises these companies operations in handling domestic parcels and international parcels sent from and delivered within the UK (Ofcom, 2015).[1] This data collected by Ofcom shows that in 2014-15 the total national parcel volumes and revenues of these major carriers were 1.9 billion items and £7.4 billion respectively (Ofcom, 2015). By comparison, government estimates of the entire UK parcel sector (i.e. including carriers who provide services with less than entire national coverage) indicates that sector generated almost £9 billion in revenue in 2015, which represented a 6% increase on the previous year (Keynote, 2015). Another forecast (by Apex Insight) put the size of the entire parcel market in the UK in 2014 at £8 billion (Apex Insight, 2014; Ofcom, 2014a). Another forecast estimates that 1.7 billion parcels were handled domestically in the UK by all parcel operators (Postal and Logistics Consulting Worldwide, 2015).

It is estimated by the Royal Mail that total volumes of parcel deliveries in the UK will increase by approximately 4% per annum in the medium term (Royal Mail, 2015a). Another forecast of the parcels sector between 2015 and 2019 provided similar results, predicting a 15.6% growth over the four year period (Keynote, 2015). Meanwhile, a third report by Apex Insight forecasted in 2014 that the total UK parcels market would grow by 7% between 2014-2018 (Apex Insight, 2014; Ofcom, 2014). Royal Mail expects the fastest growing product categories to be clothing and footwear, and toys and sports equipment. Other products which are increasingly purchased digitally rather than physically, including DVDs, CDs, and books are likely to decrease (Royal Mail, 2015a).

The UK parcels market comprises a large number of companies. In 2014 there were 11,765 such companies registered in the UK (Keynote, 2015). However, the vast majority of these companies are relatively small and specialise in providing specific services or in particular geographical locations. In 2014, 47% of these companies had turnovers of less than £50,000, and 87% had turnovers of less than £250,000. Only 3.1% of these companies (360 companies) in the parcels market had turnovers of between £1 million and £4.9 million in 2014, and only 0.8% (95 companies) had turnovers of £5 million or more (Keynote, 2015). Only approximately 10-15 parcel carriers have networks that provide services across the entire country (Royal Mail, 2015a; Postal and Logistics Consulting Worldwide, 2015).

In 2014, approximately 250,000 people were employed in the UK parcels market. Of the 11,765 companies in the UK postal market, 90% employ fewer than 5 people, and only 35 companies employ more than 100 people (Keynote, 2015). Approximately 11% of companies in the UK parcel market are based in London, while another 15% are based in the south east (Keynote, 2015).

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[1] These companies are: The Alternative Parcels Company Limited, Citipost AMP Limited, DHL International (UK) Limited, DPD Group UK Limited (formerly Geopost UK Limited), DX (Group) plc, FedEx UK Limited, Hermes Parcelnet Limited, Royal Mail Group Limited including Parcelforce Worldwide, TNT UK Limited, Tuffnells Parcels Express Limited, UK Mail Limited, UPS Limited and Yodel Delivery Network Limited. Only one of these companies, DHL, has not provided the requested information to Ofcom. Ofcom believes that the data it collected represents the significant majority of all UK parcel volumes and revenues carried by national operators, with the exception of DHL. Ofcom did not include parcel companies who offer only same-day delivery services, or from retailers who deliver their own parcels (such as Amazon Logistics delivering its own parcels) as the intention was to make comparisons with Royal Mail's operation involving a hub and spoke network rather than point to point operations (Ofcom, 2015).

Department for Transport statistics provide insight into the quantity of parcels and mail handled by heavy goods vehicles (HGVs – goods vehicles with a gross weight over 3.5 tonnes) in both London and Britain as a whole.

This data shows that mail and parcels accounted for 3 per cent by weight of all freight lifted by HGVs on journeys, to, from and within London in 2014 (a total of 3.3 million tonnes of parcels and mail). Given that these movements are in HGVs, it is likely that these journeys are mostly associated with transfers of products between hubs and depots, rather than final deliveries and collections to customers (most of which take place using light goods vehicles (LGVs) (DfT, 2016).

Mail and parcels accounted for 2% of all goods lifted by HGVs in Britain in 2014 (a total of 27 million tonnes of parcels and mail). These journeys had an average length of haul of 140 km and approximately 80% of mail and parcels were transported in HGVs with a gross weight above 35 tonnes (DfT, 2015). Therefore, as for these movements in London, it is likely that these journeys are mostly associated with transfers between hubs and depots, rather than final deliveries and collections to customers.

2.2 Key parcel carriers with UK national networks

Table 2.1 provides listings of the major parcels carriers with national networks in the UK – these were extracted from recent market research reports and are the main parcel carriers profiled in these reports. These constitute the largest parcel carriers in the UK in terms of parcel volumes and revenues.

Figure 2.1 shows the market share held by a selection of the biggest national UK parcel carriers with national networks in terms of revenue (Royal Mail, 2013). Royal Mail can be seen to be by far the largest of these UK national parcel carrier in revenue terms with 36% of total domestic parcel revenue among these national carriers (Ofcom, 2014b). Royal Mail uses a different methodology to Triangle Management Services for calculating its proportion of total revenue and volume, which it estimated to be 38% and 52% respectively in 2014-15 (Royal Mail, 2015b).

Figure 2.1: UK Domestic parcel revenue market share, 2014
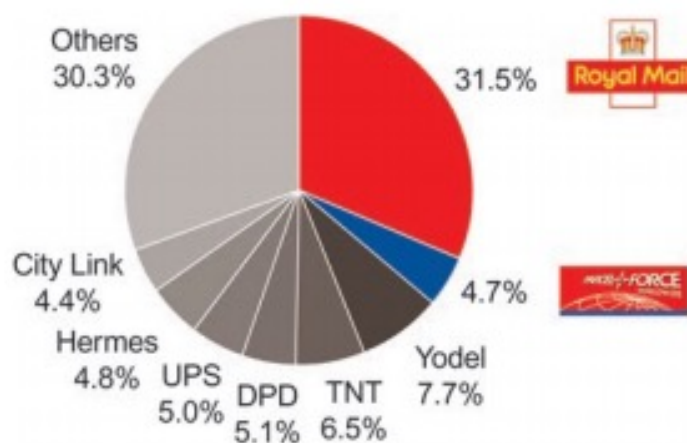
Source: provided in Royal Mail, 2013 (taken from Triangle Management Services/Royal Mail Group Fulfilment Market Measure, 2013).

Table 2.1: Major UK parcel carriers – profiled in recent market research reports

Triangle Management Services Ltd (2014) UK Domestic Express Parcel Carriers Digest 2014	Postal and Logistics Consulting Worldwide (2015) Review of the Impact of Competition in the Postal Market on Consumers	Keynote (2015) Courier & Express Services: Market Report 2015	Mintel (2016) Courier and Express Delivery UK 2016 report	Ofcom (2015) Annual Monitoring Update on the Postal Market: Financial Year 2014-15
APC Overnight DHL Express DPD DX Group (including DX Freight) FedEx UK Fulfilment by Amazon (FBA) Hermes Interlink Express Parcelforce Worldwide Royal Mail TNT Express Tuffnells UK Mail UPS Yodel	Royal Mail UPS Ltd DHL DPD TNT UK Ltd Parcelforce Hermes Yodel UK Mail FedEx UK Ltd DX UK Ltd Tuffnells APC City Sprint	DHL Express DPD Group UK Fed Ex Royal Mail TNT Express UK Mail UPS	CitySprint DHL Express (UK) DX Group FedEx UK DBD Group UK (formerly Geopost UK Ltd) Hermes Parcelnet TNT UK Tuffnells UK Mail UPS Yodel	The Alternative Parcels Company Ltd Citipost AMP Ltd DHL International (UK) Ltd DPD Group UK Ltd (formerly Geopost UK Ltd) DX (Group) plc FedEx UK Limited Hermes Parcelnet Ltd Royal Mail Group Ltd (including Parcelforce Worldwide) TNT UK Ltd Tuffnells Parcels Express Ltd UK Mail Limited UPS Limited Yodel Delivery Network Ltd

Another analysis of market shares of national parcels carriers was carried out by Postal and Logistics Consulting Worldwide for Citizens Advice using available turnover figures for the companies concerned. This is shown in **Table 2.2**.

Table 2.2: Estimated market shares for the main UK parcel operators

Company	Date accounts made up to	Turnover (£)	Profit (£)	Turnover for parcels to be used (£)	Estimated market share (%)
Royal Mail	30/03/2014	2,653,000,000	N/A	2,653,000,000	33.16
UPS Ltd	31/12/2013	758,021,000	39,230,000	758,021,000	9.48
DHL	31/12/2013	724,437,000	7,968,000	724,437,000	9.06
DPD	29/12/2013	671,612,000	116,512,000	671,612,000	8.40
TNT UK Ltd	31/12/2013	742,880,000	(9,512,000)	557,160,000	6.96
Parcelforce	30/03/2014	509,000,000	N/A	509,000,000	6.36
Hermes	28/02/2014	382,314,000	33,226,000	382,314,000	4.78
Yodel	30/06/2013	389,198,000	(98,297,000)	350,278,200	4.38
City Link Ltd	29/12/2013	289,472,000	(20,107,000)	289,472,000	3.62
UK Mail	31/03/2014	508,500,000	22,400,000	219,900,000	2.75
FedEx UK Ltd	31/05/2013	219,374,000	32,200,000	219,374,000	2.74
DX UK Ltd	30/06/2014	312,000,000	4,000,000	163,600,000	2.05
Tuffnells	31/12/2013	127,801,000	10,820,000	127,801,000	1.60
APC	31/03/2014	88,652,669	3,846,931	88,652,669	1.11
City Sprint	31/12/2013	112,672,827	3,695,110	-	
Total		8,488,934,496		7,714,621,869	
Apex Insight market figure				8,000,000,000	
Residual other operators				285,378,131	3.57

Notes:
City Link Ltd went into administration in December 2014.
Figures extracted from company reports, from the companies' own websites or Companies House. Turnover has been adjusted if revenue other than parcels is included.
City Sprint is a same-day operator and so excluded from this analysis.
TNT turnover for express assumed at 75%.
No separate profit figures for Royal Mail or Parcelforce. DX and UK Mail parcel figures are available from their own accounts.
DHL data combines figures for DHL Express (UK) Ltd and DHL International (UK) Ltd.
The estimated market shares above do not take into account the many small companies and individuals, from taxi drivers to small local delivery companies. Within this sector are many so-called 'lifestyle couriers', who deliver parcels for companies including Yodel and Hermes using the family car.
Deutsche Post DHL purchased UK Mail at the end of September 2016.

Sources: Postal and Logistics Consulting Worldwide, 2015; UK Mail 2016.

Official breakdowns of the total parcel volumes handled by each of the major parcel carriers with national networks in the UK are not available. However it has been estimated that major parcel carriers with national networks handled approximately 1.7 billion parcels domestically

in the UK in 2014. It has been estimated that Royal Mail and Parcelforce jointly handled approximately 900 million parcels of these, while all other parcel carriers with national networks handled approximately a total of 830 million parcels (Postal and Logistics Consulting Worldwide, 2015). Based on this analysis, average revenue per parcel was estimated for 2014 - Royal Mail's was approximately £3.00 per parcel, Parcelforce's was approximately £7, and all other national carriers' was £5 (Postal and Logistics Consulting Worldwide, 2015).

Some parcel carriers with national networks have referred to their parcel volumes in various press articles. Revenues for these companies are publically available. From this data it has been possible for consultants to estimate average annual parcels volumes and average revenues per parcel for some of these carriers (Postal and Logistics Consulting Worldwide, 2015). The results are provided in **Table 2.3**.

Table 2.3: Estimated parcel volumes and average unit revenues for selected carriers

Carrier	Company Revenue (£m)	Indicated parcel volume	Annual volume figure used (m)	Estimated average unit revenue (£)
DPD	671.6	1.6 million per week	83.2	8.07
APC	88.5	1 million per month	12	7.38
Parcelforce	509	70 million per annum	70	7.27
UK Mail	219.9	200,000 per day	50.4	4.36
FedEx	219.2	53.2 million per annum	53.2	4.12
Yodel	350	135 million per annum	135	2.59
Royal Mail	2,089	826 million per annum	826	2.53
Hermes	382.3	190 million per annum	190	2.02

Notes:
Sources used for indicated parcel volumes:
DPD – see http://bit.ly/YXt66X
APC – website
UK Mail – annual report
FedEx – Companies House accounts
Royal Mail – from above
Hermes – article in Motor Transport on 1st September 2014.

Sources used for company revenues:
If not accessed from the company's own website, information has been obtained from Companies House, where a fee of £1 is payable for such reports.
Royal Mail and Parcelforce revenues were obtained from:
Royal Mail plc (2014). Annual Report And Financial Statements For The Year Ended 30 March 2014.
Royal Mail plc. Full Year Results 2013-14 Presentation, 22nd May 2014.

Source: Adapted from Postal and Logistics Consulting Worldwide, 2015.

The data in **Table 2.3** indicates the positioning of the carrier in the UK marketplace in terms of its size (in terms of both annual parcels volume and annual revenue) and in terms of estimated average revenue per parcel. For instance, Yodel and Hermes predominantly serve the business-to-consumer (B2C) market (and also the consumer-to-all-parties (C2X) market

via their local collection point networks) and Royal Mail predominantly serves the C2X and B2C markets (its limited activity in the business-to-business (B2B) is mostly at less time-sensitive end of the market). None of these three companies typically provide guaranteed delivery services and therefore have the lowest average revenues per parcel of all the companies listed. However, they are the three biggest companies in terms of parcel volumes, given the size of the B2C market in terms of parcel volumes. By contrast, the carriers with far higher average revenues per parcel, such as DPD, APC and Parcelforce, predominantly serve the B2B market which charges far higher unit prices given its guaranteed delivery services.

The UK market is less concentrated than many other European markets; there are 10-15 parcel carriers in the UK with national networks (Royal Mail, 2015b; Postal and Logistics Consulting Worldwide, 2015). Some of these can be described as "global integrators" with worldwide end-to-end networks (i.e. UPS, FedEx, TNT and DHL), some can be described as "traditional regional and domestic carriers" specialising in continental European and/or UK operations (such as DPD, Yodel and Hermes) and some can be described as "disruptive business models" (including Amazon Logistics and resellers such as ParcelMonkey) (Royal Mail, 2015b).

In addition, there are a large number of smaller companies operating in the UK parcels market that specialise in specific services or particular geographical locations. In 2014 there were 11,765 such companies registered in the UK (Keynote, 2015).

Table 2.4 provides listings on major companies involved in other aspects of the UK parcels market (namely: same day deliveries; local collection and delivery providers; and e-fulfilment companies). These listings have been taken from recent market research reports.

Table 2.4: Major UK companies involved in parcels/home delivery operations – profiled in recent market research reports

Apex Insight (2016) UK Sameday Delivery Market Insight Report 2016	Apex Insight (2015) UK Consumer & Small Business / C2X Parcels: Market Insight Report 2015	Apex Insight (2015) UK e-fulfilment: Market Insight Report 2015
Same day deliveries	*Local collection and delivery providers*	*E-fulfillment companies*
Royal Mail	Collect+	Allport Cargo Services
CitySprint	myHermes	Amazon
On the dot	InPost	Arvato
Rico Logistics	UPS Access Point	ASOS
Shutl	Ipostparcels	CEVA
Connect Group / Pass	Parcel2Go	Clipper
My Parcel	Interparcel	Cloud Fulfilment
UK Mail	Parcel Monkey	Dalepack
Courier Logistics Ltd		Debenhams
TNT		Delamode
Excel Group Services		DHL
Mach 1 Couriers Limited		eBay
Sameday plc		House of Fraser
ByBox		Iforce
		Ingram Micro
		John Lewis
		Kuehne + Nagel,
		La Poste
		Liberty
		Next
		Norbert Dentressangle
		Royal Mail
		Sainsbury's
		Shipwire
		Shutl
		Spark
		Tesco
		Torque
		Unipart
		UPS
		Weight Watchers
		wnDirect

2.3 Sub-sectors in the UK parcels market

The UK parcels market can be divided into three sub-sectors of parcel flows: business-to-business (B2B); business-to-consumer (B2C), and consumer-to-all-parties (C2X). B2B refers to products sold by one business to another that are sent via parcel carriers, while B2C refers to products sold by businesses to a private individual. Traditionally B2C involved home shopping via magazines and brochures but has increased rapidly as a result of e-commerce. The main parcel carriers in the B2C sub-sector are Royal Mail, Yodel and Hermes Parcelnet (Postal and Logistics Consulting Worldwide, 2015). C2X refers to the sub-sector in which consumers send parcels either to other consumers or to businesses. C2X therefore includes presents, private sellers on eBay and other internet sites as well as via printed magazines and local newspapers. It also includes small businesses selling via these same media that do not have enough volume to qualify for a business account (Postal and Logistics Consulting Worldwide, 2015).

It is estimated that B2B accounts for 54% of the UK market by revenue, B2C accounts for 34% and C2X for 12%. This is a marked contrast with six years earlier when B2B accounted for 74%, B2C for 15%, and C2X for 11% (Apex Insight, 2015 quoted in Herson, 2015). So the importance of parcel flows to and from consumers has increased substantially.

However parcel carriers have to handle far more parcels in the B2C and C2X sectors to generate the same revenue as with the B2B sector. Estimates suggest that B2C and C2X parcel deliveries currently account for almost two-thirds of UK parcel volume, while B2B deliveries account for just over one-third (Royal Mail, 2016). Further breakdown of total parcel volumes in the UK in 2012 showed that B2B accounted for 38% in the UK, B2C accounted for 56%, and C2X for 6% (Royal Mail, 2013).

By comparison, an assessment of parcel volumes in the EU-wide marketplace suggested that B2B accounted for 29%, B2C for 56%, and C2X for 14% in 2012 (Copenhagen Economics, 2013).

The shift towards the growing relative importance of B2C and C2X sub-markets is resulting in the need for greater parcel handling capacity and delivery work, and is thereby requiring carriers to invest in expanding their delivery networks, depot infrastructure, vehicle fleets and supporting technologies.

The UK parcels market is predicted to continue to increase based on the growth in ecommerce from B2C and C2X sectors, which are expected to grow more rapidly than the B2B parcel volumes. Royal Mail has forecast that UK parcel volumes in the B2C and C2X sub-sectors to will grow at approximately 4.5 to 5.5% per annum in the medium term, while it predicts B2B volume growth to either track or be slightly above GDP growth (Royal Mail, 2016).

The B2C parcel subsector comprises three key categories of product: clothing and footwear; media; and toys and sports. It is forecast that the clothing and footwear, and toys and sports categories will continue to grow strongly in the UK as a result of ecommerce, while the rate of growth in media will slow, due to increasing digitisation and streaming of music and films (Royal Mail, 2016).

2.4 Services offered by parcel carriers

A customer can choose between a range of services offered by parcel carriers based on time and space. Carriers offer a wide range of options for the time it takes for the delivery of an item to a receiver (from immediate, the same day, to next day, to second day (often applied to international deliveries). Next day services are also typically offered with or without guaranteed time of delivery (i.e. before a specified time of day). Carriers also vary in terms of the physical area that they cover in their operations. These can range from local services (such as a specific city offered by a cycle courier or smaller van-based carrier, or a specific island); regional services (in which a carrier covers a particular region within a country); national and European services (offered by larger carrier with the necessary fleet and depot infrastructure supporting substantial product throughput); to international services (which are offered by a handful of the largest carriers and typically make use of air and road-based transport services in order to meet the time requirements of customers).

In order to meet the needs of the services they offer customers in terms of time and space, carriers will devise different logistics strategies and networks. For couriers offering immediate and same day services, a door-to-door service is typically operated between shipper and receiver in order to meet such time constraints. A parcel service based wholly

within one city is likely to make use of a single depot from which multi-drop vehicle rounds are performed. Meanwhile a national or international carrier will typically make use of hub and spoke networks (which are likely to be multi-modal if distances are great) in which central hubs and regional/local distribution centres are operated (with large, fully-loaded vehicles operating between hubs and other distribution centres, and smaller vehicles used to perform multi-drop rounds for last mile delivery). The devising of logistics strategies and networks by carriers will be influenced by the services offered, the scale and coverage of activity, and the prices that customers are prepared to pay.

In referring to these different services offered a distinction is often made between 'express', 'parcel' and 'courier' services, however it is difficult to provide precise definitions as the services offered by these different types of carrier often overlap.

'Express' usually refers to services with a specified day of delivery (e.g. next day or two-day) and time of delivery (e.g. before 09:00, before 10:00 etc.). These are typically guaranteed services in which the contract specifies that compensation is payable if the parcel is not delivered in accordance with the day or time guarantee. As a result of these time guarantees, parcels need to be closely tracked in terms of time and location through the network from point of collection to point of delivery. A greater proportion of all B2B parcels are typically sent via such express services than B2C and C2X parcels. These express services obviously attract higher prices than parcel sent without such time/day guarantees (Postal and Logistics Consulting Worldwide, 2015). Major parcel carriers offering these services include TNT, DPD, DHL and Parcelforce.

'Parcel' services often attach a day of delivery (next day or two-day) or a maximum date by which delivery will be made. However, in some such parcel services the day is not guaranteed and is instead an average service standard rather than a promise for any given parcel. Compensation may be payable for 'parcel' services that are delivered late but usually only if insurance has been arranged by the sender beforehand (Postal and Logistics Consulting Worldwide, 2015). In the case of the Royal Mail, these are referred to as 'deferred' services and refers to parcels delivered on a second class basis, usually within three working days of sending. Royal Mail's main competitors in these deferred parcel services are Hermes and Yodel (Royal Mail, 2013).

'Courier' services usually require that the courier remains with the parcel throughout its journey from point of collection to point of delivery. Items sent via courier service are therefore usually guaranteed for same day delivery, and in some cases, before a certain time period has elapsed. These are therefore the most time -sensitive parcel deliveries. The market for courier services is much more fragmented than for express and parcel services comprising many small owner operators. One of the largest providers of courier services in the UK is CitySprint (Royal Mail, 2013).

The demand for B2B parcel volumes is usually considered to be strongly related to the state of the economy. By contrast, growth in B2C and C2X volumes is currently experiencing significant growth due to the rise of online retailing.

Traditionally in the UK, carriers tended to specialise in specific service offerings within the courier and parcels sector. Some only provided same day-courier services to B2B customers, others specialised in next day time-guaranteed parcel services to B2B customers, while others offered a wide range of parcels and courier services including B2C and C2X, both with and without time-guarantees.

However, more recently, differentiation between couriers and parcels carriers in terms of the market they serve and the services they offer has become increasingly blurred. Particularly, companies that previously focused exclusively on providing B2B services are becoming

increasingly involved in B2C and C2X services. In addition, in the UK, lifestyle couriers are self-employed owner-drivers working on a freelance basis for parcel carriers. These lifestyle couriers provide 'last mile' delivery on behalf of a parcels carrier in a designated area and are paid for this work on a per delivery basis. The lifestyle courier collects the parcels from the carrier's local depot and then makes the deliveries to fit around their lifestyle commitments (such as other jobs and childcare).

Table 2.5 shows the services offered to customers by major parcel carriers with national networks in the UK.

Table 2.5: Domestic services offered to UK customers by major parcel carriers

Services	Same day	Next day	By 7/8am	By 9am	By 10am	By 12pm	Next day PM	2 days	3 days	Saturday	Sunday
APC Overnight	X	Yes	Yes	Yes	Yes	Yes	Yes	X	X	Yes	X
DHL Express UK	X	Yes	X	Yes	X	Yes	Yes	Yes	Yes	Yes	X
DPD	X	Yes	X	Yes	X	Yes	Yes	Yes	X	Yes	Yes
DX Group	X	Yes	X	Yes	X	Yes	Yes	X	X	X	X
Fed Ex UK	X	Yes	X	Yes	Yes	Yes	Yes	Yes	Yes	Yes	X
Interlink Express	X	Yes	X	X	Yes	Yes	Yes	Yes	X	Yes	Yes
Parcelforce	Yes	Yes	X	Yes	Yes	Yes	Yes	Yes	X	Yes	Yes
TNT UK Ltd	Yes	Yes	X	Yes	Yes	Yes	Yes	X	X	Yes	X
Tufnells	X	Yes	X	X	Yes	Yes	Yes	X	Yes	Yes	X
UK Mail	Yes	Yes	X	Yes	Yes	Yes	Yes	Yes	Yes	Yes	X
UPS	X	Yes	X	Yes	Yes	Yes	X	Yes	Yes	Yes	X
Yodel	X	Yes	X	X	Yes	Yes	X	Yes	Yes	Yes	X

Note:
Deutsche Post DHL purchased UK Mail at the end of September 2016.

Source: Triangle Management Services, 2015; UK Mail, 2016.

In terms of the type of parcel services most commonly used by customers of these national carriers, the Ofcom data shows next day services accounted for 56% of all domestic volumes in 2014-15. By comparison, slower than next day services accounted for 42% of domestic volumes in 2014-15 (see **Figure 2.2**) (Ofcom, 2015). Next day services were even more important in terms of total revenues, accounting for 70% in 2014-15, while slower than next day services accounted for 30%. This reflects the greater price of next day services compared with slower services. The average unit revenue in 2014-15 was £4.36 for next day parcels, compared with £2.41 for slower than next day services (Ofcom, 2015).

Figure 2.2: Domestic measured volumes and revenues by speed of delivery
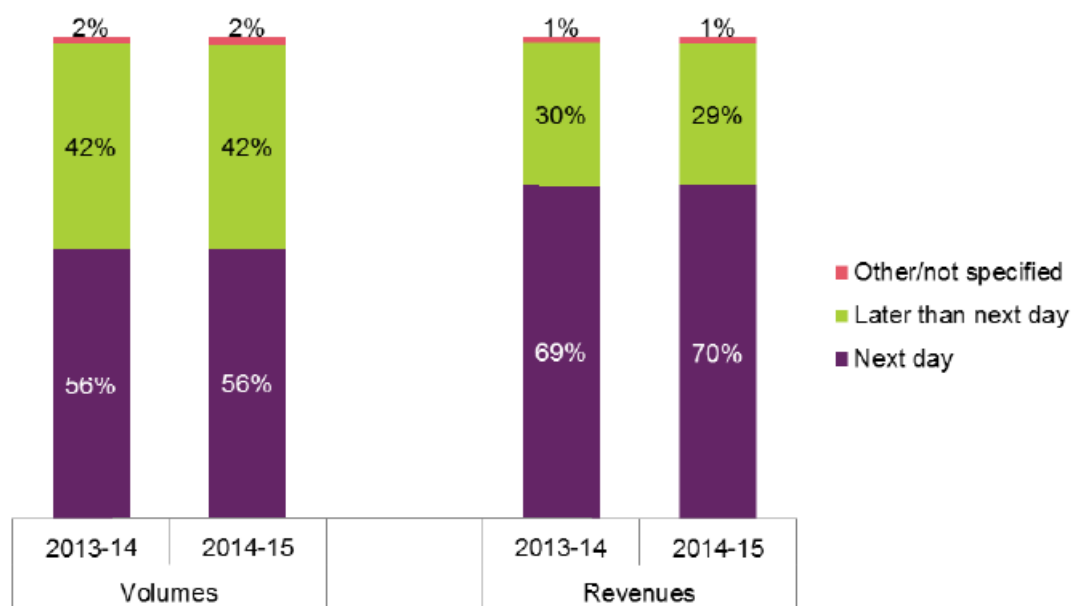
Source: Ofcom, 2015.

2.5 Competition in the UK parcels sector

Competition in the B2C parcel sector increased as a result of a Royal Mail strike in the 1970s. Home shopping companies that sold via brochures were concerned about the impact of this strike on their ability to deliver goods ordered by customers, and hence their survival. As a result, they set up their own delivery operations, which still exist within what are now called Yodel and Hermes Parcelnet (Postal and Logistics Consulting Worldwide, 2015).

Despite the increase in parcel orders in the last year, many parcel carriers responsible for delivering these parcels in the UK have been struggling to be financially profitable in recent times (Consultancy.uk, 2015). This is reflected by the case of City Link, a parcel carrier providing national coverage, which went into administration at the end of 2014, following substantial losses for several years. This resulted in the redundancy of approximately 2,500 staff. It has been argued that key factors in the failure of City Link were the degree of competition it faced, its inability to innovate to meet changing shipper and receiver requirements, and its inability to reduce its costs (Post and Parcel, 2014; Bourke, 2015).

In addition, UK Mail has purchased by Deutsche Post DHL for £243 million in September 2016. It has been reported that UK Mail had encountered serious parcel sortation difficulties with a new automated distribution centre it opened in 2015, that led to substantial falls in the company's profitability and share price. UK Mail operated approximately 50 depots and 2,400 delivery vehicles. It should be noted that Deutsche Post and not DHL has purchased UK Mail – which it is thought is intended to hopefully prevent any investigations by the regulatory authorities concerning monopoly power. Together, the DHL and UK Mail parcel operations are second in size to the Royal Mail in the UK. Deutsche Post has been expanding its operations across Europe in recent years, and now has mail and parcel operations in 16 European countries (both through acquisition and setting up companies) (Jinks, 2016a; UK Mail, 2016).

The growth in total parcel volumes among the national carriers in the UK has led to the need for some of these companies to invest in new hubs and depots to cope with demand and remain competitive in terms of the services that they offer. UK Mail, DPD, Parcelforce, Yodel, and Hermes have all invested in new hubs and depots over the past two years. These investments have further increased total parcel handling capacity in the market (Postal and Logistics Consulting Worldwide, 2015).

The entry of Amazon into the parcel carrier market with the creation of its own logistics and delivery capability (Amazon Logistics) in some locations in the UK (rather than using existing parcel carriers) has added to this competition. It is suggested that Amazon Logistics already delivers as many parcels in the UK as some of the largest national carriers (Royal Mail, 2015b). The degree of competition in the parcels sector (together with the growing importance of B2C and C2X parcel volumes) has resulted in falls in the revenues that carriers receive per delivery (Pooler, 2016).

Several other recent factors have also increased the degree of competition in the parcel market. The growth of ecommerce retail marketplaces is leading to the disintermediation of the traditional relationship between parcel carriers and the shippers (i.e. their customers). For example, eBay has developed its own network of collection points at which end retail consumers can drop-off and pick-up goods through its partnerships with Argos and Sainsbury's. This could lead to reductions in bulk shipping rates (Royal Mail, 2015b).

Local collection point networks have also emerged at a rapid rate in recent years. These provide pick-up and return points in local shops for use by carriers and end consumers (and thereby provide an alternative to the network of Post Office outlets). The speed with which new business models have emerged has accelerated. There has been a very rapid expansion of parcel shop networks. It is estimated that the combined high street presence of these local collection points in the UK is already larger than the Post Office network of approximately 11,500 branches (Royal Mail, 2015b).

There has been a rapid growth in click and collect services provided by physical retailers, which allow customers in the B2C market to have their online orders delivered to the retailer's local store and then pick these goods up in person. There are also a growing range of companies providing online services that provide customers with parcel service price comparisons, and let them choose a carrier on the basis of price. In addition, carrier management providers (for example, Metapack) are emerging to help integrate shippers and carriers (Royal Mail, 2015b).

This high level of competition between companies resulted in the average price per parcel among national parcel carriers decreasing by 1% between 2013-14 and 2014-15, despite the growth in total parcel volumes and revenues (Ofcom, 2015). This pressure on delivery rates is likely to continue as the parcel distribution sector becomes increasingly crowded with the entrance of other non-traditional entrants such as Amazon, and possibly Uber in future (Jinks, 2016b; Lieb and Lieb, 2014; Oliver Wyman, 2015; Sumner-Rivers, 2015).

These three key pressures facing parcels carriers of: i) the growth in the total flow of parcels, ii) the degree of competition and iii) the static revenues per parcel are placing carriers and their infrastructures under great strain. As a result, leading parcels carriers are having to try to better control their operational costs while at the same time having to make infrastructural investments to remain competitive.

Royal Mail believes that there is already approximately 20% overcapacity in the parcel market and that this is still growing as rivals expand their network infrastructures (Royal Mail, 2015b). This is likely to increase further as Amazon continues to expand its logistics and delivery operation, personally delivering an increasing number of its parcels using its own

delivery network and vehicles in the coming years. Royal Mail expects that this will reduce the annual rate of growth in the addressable market to around 1-2% in the short term (compared to the 4% annual growth it predicts in the total parcels market in the medium term). Royal Mail also expects that overcapacity among national parcel carriers will continue to exert downward pressure on prices (Royal Mail, 2015c).

2.6 Domestic and international parcel volumes in the UK

The research carried out by Ofcom into UK carriers with national networks provides insight into the relative importance of domestic and international parcels in terms of volume and revenues. This is shown in **Table 2.6**. **Table 2.6** shows that domestic parcel operations in the UK are far more important to these national carriers than international operations to and from the UK. However, international operations can be seen to account for a greater proportion of revenue than parcel volume. This is because the average unit price of international parcel delivery is far higher than domestic parcel delivery. In 2014-15 the average unit revenue for domestic parcels was £3.52, compared with £8.62 for international outbound parcels (Ofcom, 2015).

Total domestic parcel volumes of these national carriers increased 5% over the period 2013-14 to 2014-15, while domestic revenues increased by 6% (Ofcom, 2015).

Table 2.6: Total domestic parcel volumes and revenues of major UK carriers

	Total volume of parcels 2014-15	Total revenues 2014-15
Domestic	1.40 billion (75%)	£5.00 billion (68%)
International (inbound)	0.34 billion (18%)	£1.32 billion (18%)
International (outbound)	0.13 billion (7%)	£1.03 billion (14%)
Total	**1.87 billion (100%)**	**£7.35 billion (100%)**

Source: estimates developed from data provided in Ofcom, 2015.

3. PARCEL CARRIERS' OPERATIONS

This section reviews and analyses last-mile operations by parcel carriers in the UK.

3.1 Pressures in last-mile parcels logistics

The degree of competition in the UK parcels sector was previously discussed (see **section 2.5**). Despite the increase in total parcel volumes in the UK, many companies responsible for making these deliveries in the UK have been struggling to be financially profitable in recent times (Consultancy.uk, 2015). There are several important factors involved in the financial difficulties of the UK parcels sector.

First, the difficulty for carriers to cope with the ever-growing additional demand for parcel deliveries during peak periods and the infrastructure investment that this requires. Retailers are adding to these peak demand pressures as they seek to boost sales and their competitive position by importing 'shopping frenzy' with concepts from the USA such as 'Black Friday' and 'Cyber Monday' (Herson, 2015).

Second, the increasingly complex demands of customers for fast, reliable and convenient delivery services which has led carriers to develop and grow timed delivery windows, parcel traceability and alternative delivery location options, including collection points and locker banks, all of which have investment implications and can involve double handling (Copenhagen Economics, 2013; Post and Parcel, 2015a). Retailers are also urging carriers to accept later cut-off times for next day deliveries to gain customer share (Herson, 2015).

Third, probable overcapacity in the parcels sector, which is thought to be leading to downward pressure on prices. The Royal Mail (the formally nationalised post and parcel carrier in the UK) has estimated that there is approximately 20% annual spare capacity in the parcel market (Post and Parcel, 2015a). New entrants to the home delivery market with new logistics business models such as Amazon and Uber are likely to further exacerbate overcapacity and put further pressure on prices (Bourke, 2015; Jinks, 2016b; Lieb and Lieb, 2014; Oliver Wyman, 2015; Sumner-Rivers, 2015).

Fourth, the growth in demand for B2C and C2X deliveries which generate lower average revenues than B2B deliveries for parcel carriers, but which also have attributes that make their delivery less efficient than B2B. These include the sizeable first-time failure rates associated with parcel deliveries to residential customers have has a detrimental impact on delivery efficiency, and also that such deliveries usually involve a single parcel compared with greater numbers of items per address in B2B operations. B2C and C2X deliveries also involve more suburban and ex-urban delivery locations, with lower drop densities and higher inter-drop distances than B2B delivery operations.

Fifth, unlike in many other supply chains, returned products, especially from online B2C and C2X parcel volumes, represents a sizeable proportion of all goods delivered, and has to be catered for in logistics planning and operations.

Sixth, the decision by many retailers to provide 'free' delivery options to their customers in order to attract custom, which has resulted in retailers requiring low pricing models from carriers (Consultancy.UK, 2015). A study in the UK found that 70% of retailers provided free delivery as standard or offered it if the consumer spent a certain amount on their order. This compared with 62% in 2012. The free delivery order thresholds ranged from £10 to £600. The median average spend for free delivery was £50, while the mode average was £100. This data was based on an analysis of 239 UK retail websites to visits to 100 UK retail stores (Micros, 2014). Ofcom research has found that, "56% of adults said that free delivery was an

important factor when choosing a retailer and 55% of those who had not completed an order did so because the cost of delivery was too high" (Ofcom, 2015).

Seventh, worsening road conditions in busy urban areas and difficulties in finding suitable kerbside parking space is making parcel deliveries ever-more difficult to perform in the timely manner required. Taking London as an example, average traffic speeds have been declining at all time periods of the day between 2008/9 and 2014/5. These deteriorations in average traffic speeds have ranged between 2% and 9%, depending on time period and location (Transport for London, 2016). Road traffic vehicle delays have also risen over this same time period by between 17-31% in central London (varying in severity by time of day) (Transport for London, 2016). Journey time reliability has also deteriorated over this period as a result of rising traffic volumes and increased disruption on the network. These traffic delays and unreliability add to operating costs and increase the risk of carriers failing to meet delivery time guarantees which may incur financial penalties. Also, parking difficulties are leading to drivers having to park further from the point of delivery and then having to cover increasing distances and spend increasing periods of time on foot delivering the product to the receiver.

In addition, affordable local depots from which to operate last mile parcel deliveries are becoming increasingly difficult to find in urban areas, due to sharp increases in land values.

All of these factors have an important bearing on current and likely future operating patterns in the UK parcel sector. These issues are discussed in **sections 3.2 to 3.9**. **Section 3.10** considers data available from other studies about the time utilisation of vehicle used in parcel collection and delivery operations. **Sections 3.11 and 3.12** consider the steps being taken by parcel carriers to maintain and improve the efficiency of their delivery and collection operations, as well as to improve their profitability. These steps include the use of technology, the provision of new low-cost services to business customers and new high service, value-added services to residential customers, and operational collaboration. **Section 3.13** considers the results of customer surveys carried out by Money Saving Expert.com into the perceived service provided to receivers.

3.2 Seasonal fluctuations in parcel volumes

The number of parcels handled by parcel carriers varies by time of year, with Christmas resulting in a major peak in retail parcel flows. **Figure 3.1** shows the national volumes of these parcel carriers on a quarterly basis (Christmas is included in quarter 3 data period) (Ofcom, 2015). This seasonal peak in parcel volumes requires carriers to have depot infrastructures and parcel handling systems to cope with this peak demand, and to have sufficient drivers and vehicles available for collection and delivery work.

UK retailers are adding to peak demand pressures in the parcels sector as they try to increase their sales and gain competitive advantage over their rivals. This has involved them 'shopping frenzy' with concepts from the USA such as 'Black Friday' and 'Cyber Monday' which generate mini-peaks in demand for parcel deliveries (Herson, 2015).

Figure 3.1: Quarterly measured volumes for domestic parcels
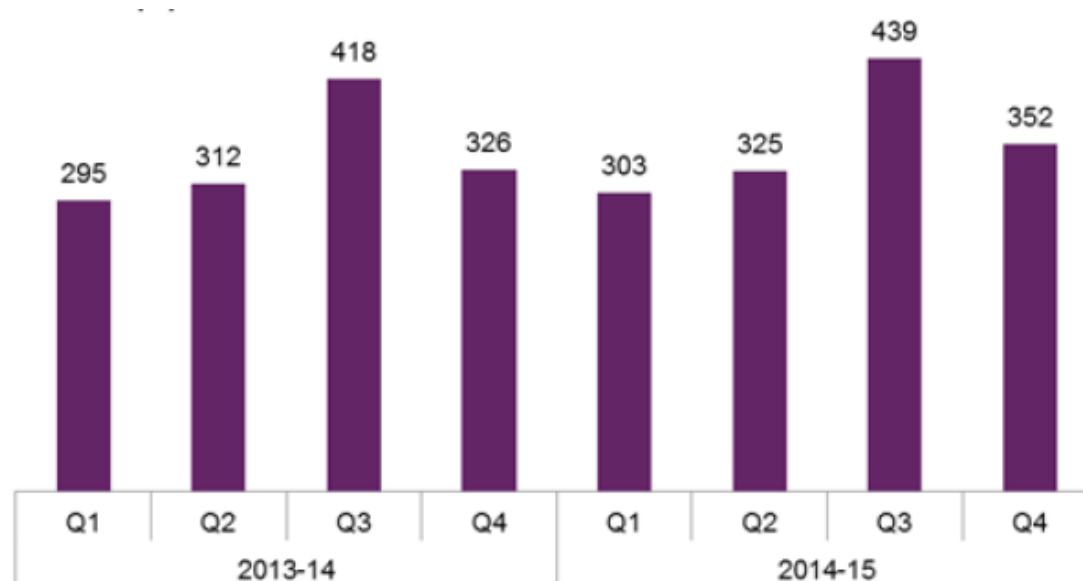
Source: Operator returns to Ofcom (does not include Access volumes) (Ofcom, 2015)

3.3 Meeting time window constraints

Analysis of parcels deliveries for UK ecommerce companies shows that 42% of orders despatched to consumers in September 2015 were sent 'economy' (i.e. with no assured delivery lead time, no specific delivery day or time-slot), 30% were despatched for next day delivery, 4% were despatched using delivery services with even better than next day (including same day, next day before 12:00, next day after 12:00, next day after 17:00, and Saturday or Sunday delivery), while 24% were despatched internationally. These findings were based data from more than 200 retailers with in excess of 6 million orders in the month (Metapack, 2015).

Business users of parcel companies, especially retailers, are also exerting pressure on parcel carriers to gain a competitive edge on their competitors. This has involved these businesses requesting parcel carriers to accept ever-later evening cut-offs for parcel collections (Herson, 2015).

Timed delivery slots are also becoming more common in the B2C parcels sub-sector. For example, DPD has introduced its 'Predict' service which offers receivers one-hour delivery slots which are notified by text or email. Meanwhile, Hermes has developed a service called 'Hermes ETA' – which commenced in August 2015 offering receivers a four-hour delivery window. Hermes aspires to reduce this over time to a two-hour and then one-hour delivery slot (Herson, 2015). UPS has introduced 'My Choice' 24 which provides receivers with the opportunity to accelerate and improve the delivery experience for an additional fee (Accenture, 2016).

Growing uncertainty about traffic urban traffic conditions and the availability of parking space near to the point of delivery add to the pressures involved in meeting these time constraints. Failure by parcel carriers to meet the delivery time guarantees can result in financial penalties being triggered.

3.4 Failed deliveries

It has been estimated that in 2013 approximately 20% of all parcels ordered online for delivery in the UK were of a size that would fit through a UK letterbox, while 80% would not. Of those that would not fit, half were up to the size of a shoebox, while the other half were larger (Barclays, 2014). Parcels larger than the size of a small book will not fit through UK letterboxes. Not all parcel deliveries above this size succeed on the first attempt due to the limited size of letterboxes, the frequency with which there is no-one available to receive goods at residential addresses, and the fact that receiver's signatures are required for some deliveries. Parcel deliveries made to residential addresses are far more likely to be unsuccessful than those made to businesses. It has been estimated that in total 13-14% of all e-commerce deliveries in the UK arrive either late or when the customer is not at home (IMRG, 2014a).

The IMRG has estimated that in 2014 the cost of these 'failed' deliveries to retailers and other traders for goods sold online in the UK was £771 million (IMRG, 2014b). In calculating these costs to companies IMRG considered six delivery failure scenarios: failed first-time delivery that requires a redelivery; failed first-time delivery that is subsequently collected by the customer; failed delivery that is returned to the sender; late delivery; lost goods for which a replacement has to be sent; and lost goods that result in cancellation of the order by the customer (IMRG, 2014). In addition to the costs to retailers and traders, there are also the costs to customers of taking time off work to receive deliveries and the opportunity cost of foregoing other activities.

Therefore, failed deliveries can delay consumers receiving their goods and are costly for retailers and carriers (and for consumers if these costs are passed on to them). Delivering orders to places other than customers' homes can help to eliminate failed home deliveries. Referred to as 'unattended' deliveries, these solutions include the use of collection points and locker banks. However, at present these 'unattended' last mile solutions only account for a small proportion of all parcel deliveries in the UK. One of the reasons for their limited uptake so far is that they introduce additional investment and operating costs into the parcel supply chain, and which the various supply chain parties would need to bear the cost. In addition, research indicates that many customers are currently unwilling to pay more for their deliveries. However other alternative delivery arrangements continue to prove more popular to most online shoppers than collection point and locker bank services. A recent UK survey showed that when asked about their choice of alternative delivery channel (if not delivered to their home) 43% said their neighbour's home, 15% said a friends' or family member's home, 12% said a post office, 11% said a Royal Mail sorting office, 11% said a work address, and 6% said a convenience store (Royal Mail, 2014). The lack of willingness on the part of many consumers to pay more for a wider choice of delivery solutions such as collection points and locker banks make such investments difficult for companies to justify and generate a financial return on.

3.5 Returned products

In addition to goods that fail to be delivered to the customer first time, there is also the issue of goods purchased online that are returned by customers. Factors causing customers to return products can include: customers deciding the products are inappropriate once they see them or try them on; impulse purchases that customers later decide were not necessary; and customers ordering more goods than they intend to buy to obtain free delivery that is offered more than a certain total amount of money is spent. Dealing with returned goods is a major logistical challenge, especially in a parcels distribution system that has been established primarily for deliveries to customers.

It has been estimated that return rates in the UK vary from 25 – 50% of total goods purchased depending on retail sector. Another study suggests that 43% of clothing and footwear shoppers in the UK returned items bought online in 2013 with a value of £1.16 billion, while electrical goods returns (which has the second largest returns rate) had a value of £733 million (Clipper, 2014). Approximately 35% of UK online returns are taken to the Post Office, 10% to another collection point, 35% are collected by courier from home or work and 20% are taken to store. Returns are forecast to grow by 50% over the next five years as online sales increase and retailers make it easier to return products (Verdict, 2014).

3.6 Collections and deliveries in same round with dynamic collections

Parcel carriers typically organise their last mile vehicle delivery rounds operated from local depots to also collect parcels as part of the same activity. Each delivery round is organised based on a specific geographical area, the quantity and weight of parcels to be delivered, and the guaranteed delivery times associated with any of these parcels. Vehicle drivers will be informed of known parcel collections that they should make on departure from the depot on their morning delivery rounds. However, as further customers request collections these will be supplied by traffic planners to drivers for them to incorporate into their vehicle rounds. Drivers are often also given the opportunity of declining these collections if they will jeopardise their successful completion of timed deliveries. In such a situation, the collection will be allocated to another driver already on the road making parcel deliveries.

Parcel delivery rounds are reviewed on a regular basis by traffic managers and planners using computer-based routeing and scheduling tools and performance metrics. However, on a day-to-day basis, decisions concerning vehicle routeing and scheduling are often left to the vehicle driver. These drivers will typically perform the same vehicle rounds daily and therefore have unique knowledge and experience about the most suitable routeing and scheduling arrangements for the addresses to be served given the time requirements for the deliveries.

3.7 Node based routing with walking as a key element

The driver also has unique insight into the appropriate places at which to park the vehicles while performing deliveries and collections. Many parcels operations in busy urban environments involve leaving the vehicle on-street while carrying out the delivery or collection. Given the limited quantity of kerbside stopping places available for such activities, and the time restrictions associated with this activity in different on-street locations, it is often not possible to stop precisely outside the location to be served. Instead drivers will, through experience, develop knowledge of the best places to leave the vehicle, as well as the precise point of collection / delivery at each address. Drivers will typically have to walk some distance from the vehicle to the delivery/collection point. As traffic conditions worsen in urban areas, drivers are often having to park in locations further from the point of delivery and then incur greater periods of time making the final leg of the journey on foot.

The vehicle driver will also have to make decisions about whether to move the vehicle between each delivery or whether to leave the vehicle stationery while making several deliveries in a given area. This decision will depend on the density of deliveries to be made in the area, together with the availability of on-street stopping places. Data concerning these issues (including available on-street stopping locations at given times, and walking distances between vehicles and delivery points) typically only currently exists in drivers' heads and has not been collated and digitised by parcel carriers. Therefore, at present, efforts to use computer-based routeing and scheduling tools are prone to produce inefficient and/or inappropriate routes as they do not tend to have any knowledge of parking and walking

options. Gathering such data and producing new routeing and scheduling tools and algorithms that make use of it have the scope to enhance the efficiency of vehicle rounds, especially in an operating environment in which new staff are regularly deployed on vehicle rounds (as currently new, untrained drivers perform far less efficiently than established drivers for many weeks after being recruited); however, with cities continually changing due to construction etc. it may be difficult to keep such software up to date.

3.8 Geographical and volume differences between parcel sub-sectors

The vast majority of B2B parcel volumes tend to be both collected and delivered in urban areas or locations well-connected to the major road network. The geography of B2C and C2X parcel volumes are markedly different. Like B2B, B2C parcels are predominantly collected from businesses in urban or easily accessible locations, but delivery locations are spread across the entire country, both in urban and far less accessible, rural locations. In the case of the C2X sub-sector both parcel collection and delivery locations could be anywhere in the entire country, either urban or rural.

In both the B2B and B2C sub-sectors, parcel collections from businesses often involve bulk quantities. However, whereas deliveries to businesses often also involve bulk quantities, deliveries to consumers frequently involve single parcels. In the C2X sub-sector usually relatively small quantities or single items are sent, and deliveries typically involve single parcels. There are, however, some exceptions to the above description, as some people operate small businesses from their homes and work from home, and therefore receive what are technically business deliveries in residential properties. Also, some employees are permitted by their employer to receive personal deliveries at their workplace.

These geographical and volume differences between the various sub-sectors have implications for the operating cost associated with each, as the operating costs of parcel carriers are significantly affected by the number of parcels to be delivered at a given address, as well as the distance between the delivery locations (also known as the drop density) (Postal and Logistics Consulting Worldwide, 2015).

3.9 Developments in parcel delivery locations

As a result of competition in the parcels market, changes in the retail market especially the rise of online shopping, pressure from customers (both commercial and residential), together with developments in IT there has been much recent innovation in the locations to which carrier make parcel deliveries (and collections). Parcel carriers in the B2C and C2X market are now delivering parcels to a wide range of locations (home, neighbours, retail shops, collection points, and locker banks) and these B2C deliveries are now taking place over a long working day (extending into the evening) and 7 days per week.

In terms of collection points, Royal Mail has a network of 11,500 Post Offices and delivery offices from which recipients can collect their parcels, Hermes has a network of 5,000 collection points located in independent shops and local convenience stores for parcel deliveries and collections, while DPD has a network of 2,500 shop-based collection points in the UK (Herson, 2015). The UK is lagging behind some other European countries in terms of the use of collection points and lockers. For instance, in Germany DHL has 250,000 lockers and 20,000 parcel shops, while in France, 60 million parcels are sent to pick-up points or lockers (Heasman, 2015).

The growth in these alternative parcel delivery and collection locations have cost implications for carriers, due to double handling of parcels and infrastructure costs

associated with these additional facilities. Whether these options prove cost-effective depends on the ability of carriers (and retailers) to recover these additional operating costs from customers in delivery charges and the reduction in savings resulting from reducing delivery failures to residential addresses.

3.10 Vehicle time utilisation

A study carried out in the parcels industry in 2006 investigated the time utilisation of vehicles carrying out collection and delivery rounds. In total, 12 fleets from four separate parcel carriers provided data (DHL Express UK; Geopost (now DPD); OCS Worldwide (Overseas Courier Service); and Parcelforce Worldwide). The vast majority of collection and delivery vehicles used were large vans. Over the 48-hour survey period the vehicles were engaged in 670 parcel collection and delivery rounds. Operators participating in the study recorded the dominant activity of the vehicles every hour for a 48-hour period. **Table 3.1** shows the proportion of time spent by all vehicles studied across the various categories of activity.

Table 3.1: Time spent on each of the activity categories during the survey period

Activity category	Time spent of this activity (%)
Stem mileage*	5%
Collecting and delivering	26%
Taking a break from driving	1%
Loading or unloading in depot	8%
Pre-loaded, awaiting departure	2%
Significantly delayed (>30 minutes delay)	1%
Idle (empty and stationary)	56%
Undergoing maintenance/repair	1%
TOTAL	**100%**

Notes:
* - reflecting time spent travelling either from the depot to the first stop, or from the last stop back to the depot

Source: Freight Best Practice, 2006.

Another project investigated the time utilisation of a parcel carriers' vehicles in their operations in Birmingham, Norwich and Basingstoke. The carrier was involved in B2B and B2C operations, and delivery and collection rounds included urban, suburban and ex-urban locations. A total of 41 collection and delivery rounds were studied. **Table 3.2** shows the average time-based operating statistics for these vehicle rounds, and these indicate that the vehicles were driving for 41% of the round time, and were stationary for 59% of the time. **Table 3.3** shows the breakdown of vehicle activity over the 72-hour time period of the survey work.

Table 3.2: Analysis of time taken for collection/delivery rounds by a parcel carrier in Basingstoke, Birmingham and Norwich

Average no. of coll'ns/ deliveries per round	44
Average time taken per round (mins)	276
Ave driving time as % of total round time	41%
Ave stationary time as % of total round time	59%
Ave time taken per delivery (mins)	3
Ave time taken per collection (mins)	6
Coll'ns/deliveries on-street (% of total)	58%
Coll'ns/deliveries off-street (% of total)	42%

Notes:
Driving time – time when the vehicle is being driven between the depot and all the collection/delivery points;
Stationary time – time when the vehicle is parked while the driver is making collections or deliveries, or when the driver is taking a rest break.

Source: Allen et al., 2003.

Table 3.3: Analysis of vehicle time utilisation by a parcel carrier in Basingstoke, Birmingham and Norwich

Activity	Time spent (%)
Ave vehicle utilisation: time idle (empty) at home depot	55%
Ave vehicle utilisation: time vehicle out on coll'n/delivery	36%
Ave vehicle utilisation: time (un)loading or waiting at depot, or rest period	9%
TOTAL	**100%**

Notes:
* - Vehicle fill measured in either volume or weight depending on measurement appropriate to company. Collection rounds excluded from this analysis.

Source: Allen et al., 2003.

An earlier project (in 1999) studied the vehicle time utilisation of a parcel company's vans used to deliver post and parcels in a central urban are in Norwich city centre. **Table 3.4** shows how the working time of the drivers was split between different activities once they had departed the depot to perform delivery journeys. **Table 3.4** indicates that in this case the vehicles were stationery while delivery operations were carried out for the vast majority of the total time spent on the delivery round.

Table 3.4: Proportion of time spent by vehicles on different activities during Norwich city centre delivery round

Vehicle Activity	Round time while away from the depot accounted for by each activity (%)
Travelling on the road	10%
Held up in traffic	2%
Parked at the roadside with driver present (e.g. completing paperwork, sorting deliveries etc.)	1%
Parked at roadside without driver present (i.e. driver away from vehicle making deliveries)	87%
TOTAL	**100%**

Source: Allen et al., 2000.

3.11 Efforts to innovate to improve the profitability of B2C and B2B deliveries

As mentioned in **section 2.4** differentiation between parcels carriers in terms of the market they serve and the services they offer has become increasingly blurred. Particularly, companies that previously focused exclusively on providing B2B services are becoming increasingly involved in B2C and C2X services. This is a response to the growth in these sectors of the parcels market due to online shopping. However, B2C deliveries generate lower average revenues that B2B parcels (see **Table 2.3** and related text) and also are harder to deliver successfully first time (due to receivers not being present at home – see **section 3.4**). This is leading parcel carriers to try to innovate in order to reduce B2C operating costs and/or increase B2B revenues and thereby improve B2C profit margins.

Technology innovation is taking place in the parcels industry as a response to the levels of competition and customer expectations. In January 2015, DPD launched 'Last Mile Labs', a programme designed to help start-ups develop innovations that improve the delivery business (Post and Parcel, 2015b).

Some of these technology innovations, such as bpost's 'Combo' solution, aim to provide receivers with a new delivery experience that is far more in the consumer's control and which combines new, value-added deliveries (such as local products and laundry services) with standard deliveries (Accenture, 2016). DPD's Predict service (launched in 2010), gives parcel receivers advanced notification (by text or email) of their one-hour delivery timeslot, and provides them with a range of 'in-flight options' such as deliver to a specific neighbour, leave in a specified safe place or divert delivery to the nearest DPD Pickup parcel shop. 'Predict' also enables receivers to communicate with their driver in real-time (UK Haulier, 2015). Other carriers are offering receivers with the opportunity for a guaranteed time slot for an additional fee (see **section 3.3**). Other solutions to improve B2C profitability involve trying to turn single parcel deliveries into multiple parcel deliveries by using collection points and locker banks (see **section 3.9**).

Stakeholders told the Ofcom consultation into the parcel industry that individuals and companies outside of the parcels sector are developing technology solutions to sell to parcel operators, which is contributing to innovation (Ofcom, 2015). The majority of major parcel carriers (with the exception of Royal Mail) now offer tracking of items as standard.

Royal Mail is not advanced with technological and service innovations for parcels as its competitors. However, it has recently tried to become more flexible and invest in its technology. This has included relaunching its click and collect service (called 'Local Collect') in 2013-14 which allows receivers to collect their parcels from about 11,500 post offices and delivery offices; expanding the IT solutions it provides to its customers (for example, it launched a new portal in March 2015 to enable online retailers to manage returns); and has invested in barcoding so that it can track more parcels (Royal Mail, 2015c). It has also extended the number of days that large customers can access its network (Ofcom, 2015).

Some parcel carriers are aiming to improve the profitability of their B2B parcel activities volumes by offering customers with low-cost, no frills services. Examples include FedEx's service (called FedEx Ground), and Austrian Post's services that offer tracking and delivery in one or two days but without guaranteed delivery by midday and money-back guarantees (Accenture, 2016).

The growth in total parcel volumes (especially B2C parcels) among the national carriers in the UK has led to the need for some of these companies to invest in new hubs and depots to cope with demand and remain competitive in terms of the services that they offer. UK Mail, DPD, Parcelforce, Yodel, and Hermes have all invested in new hubs and depots over the past two years. These investments have further increased total parcel handling capacity in the market (Postal and Logistics Consulting Worldwide, 2015).

Another method by which to reduce the costs of parcel deliveries and collections is through horizontal collaboration, in which parcel carriers share their parcel volumes with other carriers in order to improve the efficiency of vehicle rounds and reduce the vehicles and other infrastructure required. This is addressed in the next section (see **section 3.12**).

3.12 Collaboration in the parcels sector

There is scope for UK parcel carriers to collaborate with one another in making last-mile deliveries and collections in order to reduce their infrastructure requirements and enhance the efficiency of their operations. However, traditionally parcels carriers have viewed each other as competitors and have not countenanced such concepts. Albeit with one exception, that of deliveries to and collections, from the most remote, rural locations in the UK that are difficult to serve. In this situation carriers have accepted that it makes economic sense to pass their parcels to a single local carrier for final last-mile delivery to customers. Such collaborative services exist and are well used by major carriers for the Scottish Highlands and Islands, and the Isle of Man (see case studies in sections **3.12.1 and 3.12.2**), both of which comprise depopulated areas with poor road networks as well as the need for sea crossings. Case studies of both of these examples of collaboration in the parcels sector are provided below.

It is becoming increasing difficult, expensive and inefficient for parcels carriers to serve major urban areas in the UK and elsewhere. This is due to a combination of the cost of acquiring suitably-located local depots, the increasing degree of traffic congestion and journey unreliability, and the lack of suitable kerbside space available for vehicle stopping while making collections and deliveries. Given these challenges, and the extent to which they are likely to worsen over time, it is potentially feasible for such a collaborative last-mile approach to also be applicable to the urban environment. One approach that has been seen in practice is the use of a 'carrier's carrier' for the last mile. In this approach one carrier hands over parcels to another carrier who may be better placed to make the final deliveries due to, for example, their location or their use of electric vehicles, which may be better suited, especially in cities that offer preferential access and parking conditions for environmentally-friendly vehicles.

3.12.1 AJG Parcels Ltd

AJG Parcels Ltd established itself as a parcel carrier in the Scottish Highlands and Islands in 1992. It developed a business that was based on making collections and deliveries of parcels in a remote geographical location in the UK which is served by air, ferry and limited road infrastructure. It provides deliveries to an area the size of Belgium with a population of only 250,000 people (Post and Parcel, 2013). It offers same day and timed and untimed next day delivery services to mainland addresses in the Scottish highlands and the rest of the UK. It also offers next-day delivery services to the Scottish islands. It operates two main distribution centres: a 10,000 sq ft distribution hub in Inverness serving the Scottish highlands and northern islands and another 10,000 sq ft distribution near Glasgow, which services Argyll and western Scottish islands. It also has a network of 13 satellite depots distributed around Scotland. AJG began as a husband and wife operation and has grown its business from the handling of 20 packages per day 20 years ago to making 9,000 deliveries and 800 collections each day in 2015, with 140 staff and a fleet of more than 100 vehicles (Logistics Manager, 2015). A key part of this growth was been due to AJG becoming a neutral consolidator of parcels collections and deliveries on behalf of other parcel carriers. Given the difficulty of transporting parcels to customers in these remote locations it was economically inefficient for many, larger parcels carriers to each operate their own distribution network and vehicle fleet to serve this part of the country. Instead the vast majority of these companies selected AJG to carry out these collections and deliveries on its behalf. In this approach, other carriers, many of whom provide national coverage in the UK, delivered their goods to AJG's depot network for onward distribution by AJG in its own vehicles. The same system was used for parcels collections from customers in the Highlands and Islands. This led to cost savings for the companies as well as reducing the total vehicle activity necessary to distribute these parcels. As a result of this reduced level of vehicle activity, the social and environmental impacts associated with this work were also reduced. At the same time, the customer service of individual companies improved, with the ability to carry out more frequent parcels deliveries and collections from its users.

AJG has reported that the hub and spoke nature of its parcels network helped to keep costs down for the national carriers that use it. As a result AJG delivered a significant portion of parcels on the same day they were received from other carriers, including 75% of all City Link parcels. AJG installed a bespoke IT system to interface directly with the computer systems of the national carriers that use its services. This includes a full track and trace capability for parcels along the supply chain involving the use of Personal Digital Assistants (PDAs) to automate proof of delivery and collection, and the development of a new warehouse scanning (Post and Parcel, 2013; Spirit Data Capture, 2009). The operations manager of AJG has stated that working in a collaborative way requires substantial integration of data systems and transfer of data and has resulted in his company viewing the IT requirement of the other carriers using them as an opportunity to continually improve its own IT system. He has said that ""Being able to link in directly to customer systems, yet still give them savings on consolidation has been, and will always be key to our business success" (Post and Parcel, 2013).

In 2015 AJG Parcels was purchased by the Scottish logistics company John Menzies, which was keen to diversify into parcels delivery and collection work (Logistics Manager, 2015). It has continued to operate this collaborative parcels distribution system in the Highlands and Islands on behalf of other carriers

3.12.2 Manx Independent Carriers

Manx Independent Carriers is the largest distribution company on the Isle of Man, which is a self-governing British Crown dependency in the Irish Sea between Great Britain and Ireland.

It has a size of 221 sq miles and a population of approximately 85,000 people. Manx Independent Carriers offers parcels, pallet, part-load, full load deliveries and collections services and home delivery and installations. It operates two depots (a 45,000 sq ft distribution centre in Skelmersdale in mainland UK, and a 40,000 sq ft distribution centre in Braddan on the Isle of Man – the largest on the island). It has a fleet of 80 goods vehicles and 100 staff. It uses road, sea and air to collect and deliver goods between the UK and the Isle of Man. Goods handled include: parcels, foodstuffs, automotive, industrial and construction equipment, home furnishings, electrical and audio- visual products, and bulk products. Manx Independent Carriers focuses on offering consolidation and distribution services to other carriers needing to serve the Isle of Man, especially those with relatively low volume goods throughputs on a regular basis. The company delivers and collects goods on the Isle of Man on behalf of many other national carriers including DPD, UPS, FedEx, Hermes and Yodel. The company handles more than 3,000 consignments daily, together with palletised freight and full trailer loads (Manx Independent Carriers, 2013; 2016).

Manx Independent Carriers employs a range of IT to gather data and provide this to the carrier and their customers that use its services. These include: satellite tracked vehicles, hand-held devices used for consignment tracking and proof of delivery, and web-based track and trace services for consignments (Holden, 2010; Manx Independent Carriers, 2013).

3.13 Customer surveys of delivery performance

For the last three years, Money Saving Expert.com has carried out an annual online customer survey into the perceived service provided to receivers. Each respondent can rate the delivery performance they have received over the course of the year from 17 listed parcel carriers as either 'Great', 'OK' or 'Poor'. Respondents include both private individuals and company respondents, so responses refer to all parcel sub-sectors (i.e. B2B, B2C, and C2X). It is a random survey with anyone able to choose to take part. Approximately 10,000 respondents take part in the survey each year.

DPD has received the highest scores in each of the three years the survey has taken place. In the survey at the end of 2015 approximately 70% of voters rated its service as 'great'.
The proportion of 'Great' responses for other major parcel carriers in 2015 survey were as follows: Royal Mail (51% 'great'), UPS (50%), Parcelforce (42%), Fed Ex (41%), Hermes (34%), TNT (27%), UK Mail (21%), Yodel (21%), DX (17%) and iPost Parcels (16%). As in the 2014 survey, in the 2015 survey three parcel carriers (DX, iPost Parcels and Yodel received substantially more 'Poor' ratings than other carriers (57%, 58% and 61% respectively in 2015) (Money Saving Expert.com, 2015).

DPD's success is likely to be related to its 'Predict' delivery service which notifies parcel recipients in advance of their one-hour delivery timeslot – see **section 3.11**. Results of each of the three years of Money Saving Expert.com customer surveys of parcel carriers' performance are included in **Appendix 1**.

Which? (the Consumer Association) also carried out annual customer satisfaction surveys in the parcels sector in 2014 and 2015. Over 10,000 members of the public were surveyed in the 2015 survey. Customer scores for each parcel carrier were derived from a combination of delivery satisfaction and likelihood to recommend the carrier to a friend. In both the 2014 and 2015 surveys DPD came top, with 81% and 83% customer scores respectively. Results of both the 2014 and 2015 Which? customer satisfaction surveys of parcel carriers' performance are included in **Appendix 2**.

Survey work about carrier performance has also been carried out among users of B2B parcel carriers. This involved a randomly sampled in-depth telephone survey of 450

commercial users who sent at least 50 parcels per month and asked each respondent about their primary carrier and main secondary carrier.

Figure 3.2 shows overall service levels plotted against price charged as reported by respondents. The results indicate that several carriers scored above the industry average with respect to overall service levels and price (namely APC Overnight, DHL Express, FedEx, Interlink and Parcelforce). However, only APC Overnight managed to achieve a correlation between its service level and price among respondents.

Figure 3.2: Overall level of service and price of primary B2B carrier used in 2014
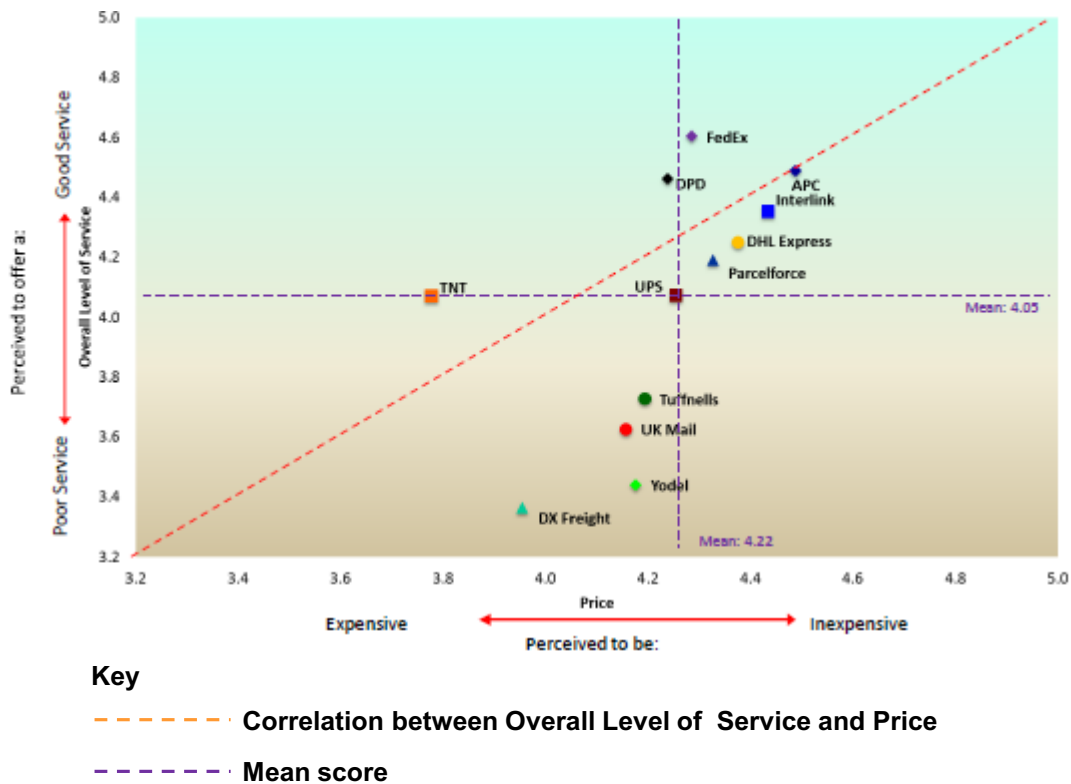
Source: Triangle Management Services, 2015.

Table 3.5 shows the carrier achieving the best result among commercial users in this same B2B survey work across a range of performance benchmarks concerning "customer service", "quality of service" and "image to customer".

Table 3.5: Best performing B2B carrier as rated by commercial users in 2014

Descriptor	Top Carrier	Top Score (%)
Customer Service		
Cares about me	DPD	92%
Solves my problems	APC Overnight	98%
Is easy to work with APC	Overnight	98%
Answers the telephone promptly	FedEx	95%
Advises me of late/non delivery	FedEx	84%
Quality of Service		
Collects on time	APC Overnight	100%
Delivers on time	Interlink	96%
Rarely damages parcels	Interlink	98%
Rarely loses parcels	Parcelforce	97%
Image to Customer		
Clean vehicles	UK Mail	100%
Quality of drivers/delivery staff	UPS	96%

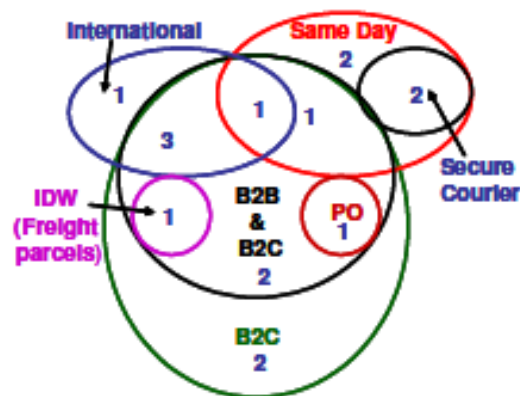Source: Triangle Management Services, 2015.

4. PARCEL CARRIERS' LONDON DEPOTS AND THEIR VEHICLE ACTIVITY

4.1 Background

Transport for London (TfL) commissioned a project in 2010 that investigated current depots used by express parcel carriers to serve London and their locations (Triangle Management Services, 2010). This study also identified changes in parcel depot locations over the previous 30 years. A summary of the project results is provided below. It should be noted that no companies could answer all the questions – so the number of depots reported on varied by question.

Sixteen major courier and express parcel companies participated in the project, which was carried out via interviews using a survey form. The researchers estimated that the participating companies represented approximately 70% of the courier and express parcel market. These respondents comprised same day couriers (including those specialising in high security consignments), express parcels operators (including integrators with significant international traffic), B2C specialists, as well as the national postal operator (Royal Mail). Several companies were active in more than one activity; as shown in **Figure 4.1**.

Figure 4.1: Responding companies' activities (showing the overlap of specialisations)

Source: Triangle Management Services, 2010.

4.2 Depots used and their location

In total the 16 participating companies used 33 main depots to serve the Central Activities Zone (CAZ) (see **Figure 4.2**). However, many of these depots served a larger area of London than just the CAZ; only six of these 33 depots served only the CAZ. Eighteen served the whole of Greater London, while 9 served Greater London and beyond. Fifteen of these 33 depots were located within or on the boundary of the CAZ; these being mainly courier companies handling time critical deliveries. In addition, some respondents noted that additional minor depots were also used to serve the CAZ. The list of the participating companies and these 33 depots are shown in **Table 4.1**.

For the purposes of the project, the CAZ included parts of ten London boroughs (Kensington and Chelsea, Wandsworth, the City of Westminster, Lambeth, Camden, Islington, City of London, Southwark, Hackney, and Tower Hamlets). There was no precise postcode definition for the CAZ, but it was described to respondents in terms of the following twelve postcode areas: EC1, EC2, EC3, EC4, SE1, SW1, SW7, SW8, W1, W2, WC1 and WC2.

Figure 4.2: Locations of participating courier and parcel company depots serving the London Central Activities Zone (CAZ) in 2010
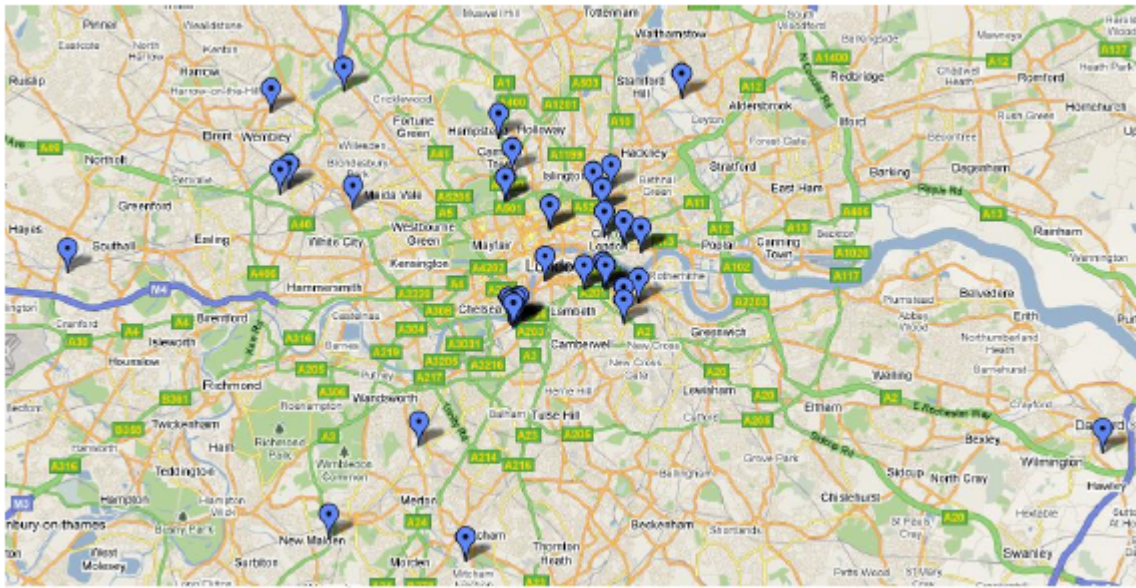
Source: Triangle Management Services, 2010.

Of the 30 depots for which more detailed information was collected, they employed approximately 3,400 people, of which 64% were drivers and delivery staff, 21% were warehouse staff, and 15% of staff performed other roles. The average footprint of these depot sites was approximately 9,250 m^2; Office and warehousing space occupied 49% of this footprint, parking space occupied 41%, and other operational areas occupied 10%. However, the sites of courier companies tend to have no warehousing space and very little parking, and were far smaller than those of parcel carriers.

Table 4.1: The 33 depots that served the London CAZ in 2010 operated by carriers participating in the study

Company Name	Depot Name	Address	Postcode
Addison Lee	William Road	35-37 William Road, London	NW1 3ER
APC	Point To Point	Unit 11 Mitre Bridge Ind Park, Mitre Way, London	W10 6AU
APC	Quicksilver Messenger Service Ltd	Unit 2, 221 New Kent Road, London	SE1 4AG
APC	Rush Couriers	387 Geffrye Street, London	E2 8HZ
APC	Streetwise Couriers New Malden	Unit 8 Shannon Comm. Centre, Beverley Way, New Malden, Surrey	KT3 4PT
City Link	London City	68 Willow Walk, London	SE1 5SF
City Link	London West Central	Unit 5, Nucleus Park, Central Way, Park Royal, London	NW10 7XT
City Link	Park Royal	36 Cumberland Avenue, Park Royal, London	NW10 7RQ
City Sprint	Dock Street	11b & C Dock Street	E1 8JN
City Sprint	Scrutton Street	58-62 Scrutton Street	EC2A 4PH
DHL Express	DHL Vauxhall	Unit A, Ponton Road, Off Nine Elms Lane, Vauxhall, London	SW8 5BA
DHL International	City Of London (Wapping)	8 Princes Court Business Park, 11 Wapping Lane, London	E1W 2DA
DHL International	Lambeth Unit	C, Ponton Road, Off Nine Elms Lane, Vauxhall, London	SW8 5BA
DX Group	CDE	5-10 Bury Street, London	EC3A 5AT
DX Group	LDE	50-52 Chancery Lane, London	WC2A 1HL
DX Group	North London	152-154 Colesgreen Road, Staples Corner	NW2 7HD
DX Group	South London	Units B2-3, Six Bridges Trading Estate, Marlborough Grove, Old Kent Rd	SE1 5JT
DX Group	Waterloo	197 Carlisle Lane, London	SE1 7LH
FedEx	FedEx Nine Elms LONA	Unit 4 Tideway's Industrial Estate,Kirtling Street, Nine Elms Lane	SW8 5BP
FedEx	Leyton	U5 Golden Business Park, Orient Way, Leyton	E10 7FE
GCDA	Vauxhall	46 Ponton Road, London	SW8 5AX
HDNL	Wembley	Unit 7, Olympic Way, Wembley, Middlesex,	HA9 0XJ
Hermes	Weybridge	Brooklands Industrial Estate, Weybridge, Surrey	KT13 0YU
Nightfreight	Capital N/Freight	Unit 15, 59, Weir Road, London,	SW19 8UG
Nightfreight	Dartford	Applegarth Drive, Questor Ind. Park, Dartford, Kent,	DA1 1JD
Nightfreight	Southall	13 Trident Way, Southall, Middlesex	UB2 5LF
Parcelforce	Camden	24-58 Royal College Street, Camden, London,	NW1 0QA
Parcelforce	Mitcham	Units 6 & & The Willows Centre, 17 Willow Lane, Mitcham	CR4 4NX
Royal Mail	South London Mail Centre	53 Nine Elms Lane, London	SW8 5BB
TNT Express	Bermondsey	Enterprise House, 6 Pages Walk, Bermondsey	SE1 4SB
TNT Express	Croydon	Jessops Way, Beddington Lane, Croydon	CR0 4TS
TNT Express	Nine Elms	Units 10-19 Southbank Business Centre, Ponton Road, London	SW8 5BL
UPS	Kentish Town	353 Regis Road, Kentish Town, London	NW5 3RR

Source: Triangle Management Services, 2010.

4.3 Vehicle fleets and their activity levels

Thirty two depots serving the London CAZ in 2010 had a total fleet of approximately 2,300 vehicles, the majority of which were small diesel vans (see **Table 4.2**). These vehicles travelled approximately 95,000 miles per day, which is equivalent to an average of approximately 41 miles per vehicle per day. It should be noted that not all of this travel took place in central London, and that those companies using self-employed drivers with their own vehicles did not typically hold information about the mileage for these subcontractors.

Table 4.2: Respondent fleet composition by vehicle type in 2010 (based on 32 depots)

Vehicle type	Number of vehicles	Proportion of all vehicles
Vans ≤ 3.5T diesel (LGV)	1364	59.4%
Motor cycles	382	16.6%
Vans ≤ 7.5T diesel (HGV)	108	4.7%
Bicycles & HPVs*	94	4.1%
Electric/ Low carbon vehicles	90	3.9%
Cars diesel	64	2.8%
HGV ≥ 7.5T Rigid	59	2.6%
Cars petrol	56	2.4%
HGV ≥ 7.5T Artic	47	2.0%
Vans ≤ 3.5T petrol (LGV)	31	1.3%
"Walkers"	2	0.1%
Total fleet size	**2,297**	**100.0%**

Note:

* - Human-powered vehicles
The majority of the motorbike despatch riders, "walkers" and cyclist couriers were employed by courier companies rather than express parcels carriers.
Source: Triangle Management Services, 2010.

The average length of a vehicle round across all depots was 43 miles, however for fleets based at depots in the CAZ was 32 miles, compared with 51 miles for fleets based at depots outside the CAZ. Same day couriers tended to have shorter round journey lengths than express parcel operators, due to the point-to-point nature of their work often handling a single consignment at a time. By comparison the vehicle rounds of express parcels carriers involve regular routes, with far greater number of delivery/collection points per round, and far greater volumes of goods per round.

Average stem mileage (i.e. the distance travelled to the first drop and the distance back from the last drop) accounted for 18% of vehicle kilometres across all 32 depots. The average stem mileage for depots located in the CAZ averaged 12%, compared to 24% for depots located outside.

31 depots delivered 173,500 parcels and made 110,250 parcel collections per day in central London. This excluded Royal Mail, whose depot delivered 4 million parcels per day, (this was excluded because this volume included all types of parcels and packets and not just Special Delivery (i.e. express)). The average number of delivery drops per day per vehicle was 51 (this ranged from 10-100 drop per day). Courier companies and B2C lifestyle

couriers were typically at the lower end of this range because the delivery agents were not working full time. The B2B express parcels companies displayed higher volumes of delivery drops and their average journey lengths were much longer than found across the courier companies (due to the number of drops per day and because more of these depots were located outside the CAZ than was the case for courier companies.

Table 4.3: Average depot fleet activity data serving the London CAZ in 2010

	All Depots	Depots in the CAZ	Depots outside the CAZ
Average delivery drops per day per C&D vehicle	50.9	37.6	62.4
Total Depot Fleet Mileage /Day (miles)	94,888	55,031	39,857
Average C&D Round Journey Length (miles)	42.8	31.9	51.2
Average % 'Stem' mileage	18%	12%	24%
Average journey length (miles)	43	32	51
Average mileage per day per vehicle (miles)	49.7	42.3	55.7
Average mileage per day per depot (miles)	3,163	4,233	2,345
No. Depots	30	13	17

Source: Triangle Management Services, 2010.

4.4 Main trends in the courier and parcels sector over the last 5-10 years

The main trends in the courier and parcels sector over the last 5-10 years affecting operators that were identified by respondents were:

- The increase in electronic documents has reduced the volume of business documents carried by sameday couriers.

- Mergers and acquisitions is reducing the number of courier and express parcel companies and this has led to some consolidation of depots serving London.

- There has been on-going growth in the volume of parcels delivered and collected, particularly in B2C deliveries.

- There has been increased use of subcontract drivers, particularly in London.

- Typically, few company-employed drivers take company vehicles home at night. However, most subcontractors and owner-drivers take their vehicles home.

This issue of driver subcontracting was the trend in the last 5-10 years most frequently mentioned by respondents. Five participating companies mentioned increases in the use of subcontract drivers in recent years (with, in some cases, these being the only type of drivers

now used). At the 11 depots operated by these five companies there were currently 953 drivers, 78% of whom were owner-drivers.

4.5 Changes in London depot locations and number over the previous 30 years

The majority of respondents confirmed that the level of business activity had grown over the previous 30 years. However, efforts to identify changes in parcel and courier depot locations serving central London and depot and vehicle activity levels over this 30 year period proved virtually impossible to determine due to the lack of historic data and the number of mergers and acquisitions that had taken place in the industry. Out of the sixteen companies surveyed about this issue, four did not exist in 1980, four acquired the operations of smaller carriers and two expanded the size of their depot network due to organic growth.

However, 9 companies with depots in the CAZ in 2010 were able to provide some insight into their depot location in central London in 1980; they identified a total of 12 depots in 1980. One carrier used depot in Maidstone depot for its London collections and deliveries, and added four further depots closer to London over the last 30 years.

To put this into perspective, there was a 50% reduction in the number of express parcel companies surveyed by Triangle Management Services between 1989 and 2009. Of the 21 major express parcel (B2B and B2C) carriers in existence in 2003, only 13 existed by 2010 and, of these, 4 had undergone brand name changes.

To illustrate the complexity of the degree of change in the sector over the years the following examples are given (Triangle Management Services, 2010):

"Securicor became Securicor Omega Express which was acquired by Germany's Deutsche Post and subsequently re-branded as DHL Express (which Deutsche Post had also acquired) and is currently (2010) being merged (the domestic express business only) with the Home Delivery Network which itself was created by the merging of White Arrow and Business Express.

United Carriers was acquired by the French logistics company Geodis and became Geodis United Distribution which was subsequently closed down by them. Red Star was acquired by Lynx Express which was later acquired by UPS which had previously acquired Carryfast, with all re-branded as UPS.

Parceline and Interlink were both acquired by the Australian company Mayne Nickless which later sold both to GeoPost (part of the French post office group, La Poste) with Parceline subsequently re-branded as DPD".

The key trend in the industry identified by participants was the increased usage of subcontract drivers, who typically used their own vehicles to make collections and deliveries, and took these vehicles home with them overnight.

4.6 Views on depot-sharing

When asked, respondents were not keen on the concept of depot sharing as a way of accessing the CAZ. Their main concerns were the commercial sensitivity of customer information, data security, the potential difficulties in co-ordinating the timing of traffic flows for more than one fleet, and designing a single facility to meet the needs of different carriers. Most participants had similar concerns about the use of shared consolidation centres. They saw this concept as more applicable to retail than parcel supply chains, given the bespoke nature of most express parcel carriers' IT systems, and given that most larger parcel carriers

already consolidate their parcel volumes at their hub depots (thereby leading to double handling and potentially affecting timed delivery guarantees.

Courier companies did not see the issue of depot sharing and urban consolidation centres as applicable in their sector given that they do not require storage and loading space.

4.7 Other views about operating in central London

Many respondents viewed the main operational problem that they faced in the CAZ as being the lack of designated on-street loading bays (which is worsened by the lack of other kerbside space availability at the times required for timed deliveries especially on Red Routes.

Penalty charge notices (PCNs) were another important problem, often requiring the employment of staff specifically to deal with this matter. All respondents challenged these fines as standard procedure. The majority paid the fines incurred by their driver's, but some did not. Some respondents felt that a common approach across London to loading/unloading times and enforcement was required and that the time allowed for a delivery was unrealistic when dealing with items for companies based in multi-storey office blocks.

Appendix 1: Money Saving Expert.com annual customer surveys of delivery performance (2013-2015)

Results of the December 2015 Money Saving Expert.com survey

Amazon Logistics (not always used by Amazon) (3585 votes)

Great	1349 votes (38%)
OK	1271 votes (35%)
Poor	965 votes (27%)

APC (632 votes)

Great	168 votes (27%)
OK	243 votes (38%)
Poor	221 votes (35%)

City Sprint (425 votes)

Great	74 votes (17%)
OK	216 votes (51%)
Poor	135 votes (32%)

Collect Plus (1489 votes)

Great	786 votes (53%)
OK	568 votes (38%)
Poor	135 votes (9%)

DHL (2695 votes)

Great	1039 votes (39%)
OK	1361 votes (51%)
Poor	295 votes (11%)

DPD (5298 votes)

Great	3739 votes (71%)
OK	996 votes (19%)
Poor	563 votes (11%)

DX (694 votes)

Great	118 votes (17%)
OK	173 votes (25%)
Poor	403 votes (58%)

FedEx UK (1623 votes)

Great	665 votes (41%)
OK	762 votes (47%)
Poor	196 votes (12%)

Hermes/myHermes (6419 votes)

Great	2181 votes (34%)
OK	1897 votes (30%)
Poor	2341 votes (36%)

Interlink (1470 votes)

Great	507 votes (34%)
OK	626 votes (43%)
Poor	337 votes (23%)

iPost Parcels (657 votes)

Great	106 votes (16%)

| OK | | 150 votes (23%) |
| Poor | | 401 votes (61%) |

Parcelforce (4442 votes)

Great		1853 votes (42%)
OK		2006 votes (45%)
Poor		583 votes (13%)

Royal Mail Parcels (5682 votes)

Great		2917 votes (51%)
OK		2169 votes (38%)
Poor		596 votes (10%)

TNT (1176 votes)

Great		317 votes (27%)
OK		612 votes (52%)
Poor		247 votes (21%)

UPS (2247 votes)

Great		1120 votes (50%)
OK		854 votes (38%)
Poor		273 votes (12%)

UK Mail (2086 votes)

Great		440 votes (21%)
OK		868 votes (42%)
Poor		778 votes (37%)

Yodel (6203 votes)

Great		1292 votes (21%)
OK		1395 votes (22%)
Poor		3516 votes (57%)

Never used a delivery firm

28 votes

Had deliveries but don't know which firm

176 votes

Notes:

Each respondent can rate the delivery performance they have received over the course of the year as either 'Great', 'OK' or 'Poor'.
9,479 people voted. Respondents could vote for more than one firm.
Percentages may not sum to 100% due to rounding errors.
Money Saving Expert.com tries to use technology to limit voting to one per person. Occasionally, this may erroneously block a few people's votes (e.g, from shared offices).

Source: Money Saving Expert.com, 2015.

Results of the December 2014 Money Saving Expert.com survey

Parcel Carrier	Great	OK	Poor
DX	12%	31%	57%
iPost Parcels	26%	26%	48%
Yodel	37%	18%	45%
City Link	25%	45%	30%
UK Mail	27%	45%	28%
TNT	28%	49%	23%
Hermes/myHermes	39%	28%	33%
Interlink	31%	49%	21%
DHL	40%	45%	14%
Parcelforce	43%	42%	15%
Amazon Logistics (i)	48%	34%	18%
FedEx UK	43%	45%	14%
UPS	49%	37%	15%
Royal Mail Parcels	50%	37%	13%
Collect Plus	53%	34%	13%
DPD	66%	21%	13%

Notes:
(i) Not always used by Amazon.
Each respondent can rate the delivery performance they have received over the course of the year as either 'Great', 'OK' or 'Poor'.
Percentages may not sum to 100% due to rounding errors.
9,139 people voted. Respondents could vote for more than one firm.

Source: Money Saving Expert.com, 2014.

Results of the December 2013 Money Saving Expert.com survey

Parcel carrier	Good	OK	Poor
Yodel	22%	20%	58%
Hermes	46%	24%	30%
UK Mail	30%	44%	26%
City Link	34%	39%	27%
TNT	33%	47%	20%
Interlink	40%	44%	16%
DHL	50%	38%	12%
Parcelforce	54%	34%	12%
UPS	58%	30%	12%
Royal Mail	58%	30%	11%
Collect Plus	60%	29%	11%
DPD	69%	19%	12%

Notes:
(i) Not always used by Amazon.
Each respondent can rate the delivery performance they have received over the course of the year as either 'Great', 'OK' or 'Poor'.
Percentages may not sum to 100% due to rounding errors.
8,997 people voted. Respondents could vote for more than one firm.

Source: Money Saving Expert.com, 2013.

Appendix 2: Which? annual customer surveys of delivery performance (2014 & 2015)

Results of 2015 Which? survey

Rank	Delivery firm	Sample size	Customer Score
1	DPD	422	81%
2	Private or local independent courier	383	79%
=	Royal Mail	8,463	79%
4	Parcelforce	316	78%
=	Hermes / MyHermes	901	78%
6	TNT	61	74%
7	UPS	79	73%
8	Yodel	1,121	72%
=	Interlink	44	72%
10	Fedex	83	71%

Notes:
We asked 10,505 members of the public in July 2015 about their experiences of shopping online over the past six months. Sample sizes shown in brackets.
Customer scores for each parcel carrier were derived from a combination of delivery satisfaction and likelihood to recommend the carrier to a friend.

Source: Which?, 2015.

Results of 2014 Which? survey

Rank	Delivery firm	Sample size	Customer Score
1	DPD	294	83%
2	Private or local independent courier	414	80%
3	Hermes/MyHermes	646	78%
=	UPS	82	78%
5	Royal Mail	126	77%
6	Parcelforce	271	75%
7	FedEx	37	70%
8	Yodel	434	67%
9	City Link	107	61%

Notes:
Customer scores for each parcel carrier were derived from a combination of delivery satisfaction and likelihood to recommend the carrier to a friend.

Source: Which?, 2014.

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