

Review of Postal Operator Efficiency

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Contents

List of figures	iii
List of tables	vi
1 Introduction	9
1.1 Background and objectives	9
1.2 Postal terminology	12
2 Identification of comparator operators	16
3 Comparison of postal operations	20
3.1 Common pattern for modernizing mail operations	20
3.2 Common pattern for modernizing parcel operations	23
3.3 Trends in postal technology	25
3.4 Assessment of comparator operators	28
4 Austrian Post (Austria)	34
4.1 Background	35
4.2 Postal operations	42
4.2.1 Overview	42
4.2.2 Mail operations	44
4.2.3 Parcel operations	48
4.3 Efficiency programs	49
5 Deutsche Post (Germany)	52
5.1 Background	53
5.2 Postal operations	63
5.2.1 Overview	63
5.2.2 Mail operations	64
5.2.3 Parcel operations	68
5.3 Efficiency programs	71
5.3.1 Mail operations	71
5.3.2 Parcel operations	78
6 Post Danmark (Denmark)	81
6.1 Background	82
6.2 Postal operations	91

6.2.1	Overview	91
6.2.2	Mail operations	93
6.2.3	Parcel operations	98
6.3	Efficiency programs	100
7	La Poste (France)	103
7.1	Background	104
7.2	Postal operations	113
7.2.1	Overview	113
7.2.2	Mail operations	114
7.2.3	Parcel operations	119
7.3	Efficiency programs	121
7.3.1	Mail operations	121
7.3.2	Parcel operations	124
8	PostNL (Netherlands)	126
8.1	Background	127
8.2	Postal operations	135
8.2.1	Overview	135
8.2.2	Mail operations	136
8.2.3	Parcel operations	139
8.3	Efficiency programs	141
8.3.1	Mail operations	141
8.3.2	Parcel operations	148
9	Posten (Sweden)	150
9.1	Background	151
9.2	Postal operations	159
9.2.1	Overview	159
9.2.2	Mail operations	161
9.2.3	Parcel operations	164
9.3	Efficiency programs	166

List of figures

Figure 1-1	Approach of the study	11
Figure 1-2	Stylized postal pipeline	13
Figure 3-1	Pattern of modernizing mail operations	20
Figure 3-2	Pattern of modernizing parcel operations	23
Figure 3-3	Overview of processing equipment for postal operations	25
Figure 4-1	Austria: Milestones in corporatization, privatization and market opening	35
Figure 4-2	Austrian Post: Business divisions	36
Figure 4-3	Austrian Post: Development of letter post and parcel volumes	37
Figure 4-4	Austrian Post: Development of the basic letter tariff	38
Figure 4-5	Austrian Post: Revenues and expenses (group data)	39
Figure 4-6	Austrian Post: Profitability (group data)	40
Figure 4-7	Austrian Post: Employment (group and company data)	41
Figure 4-8	Mail and parcel sorting centres of Austrian Post	43
Figure 4-9	Austrian Post: Characteristics of mail operations	44
Figure 4-10	Mail sorting centres of Austrian Post	46
Figure 4-11	Austrian Post: Evolution of mail operations	49
Figure 4-12	Reorganization of Austrian Post's delivery offices	50
Figure 5-1	Germany: Milestones in corporatization, privatization and market opening	53
Figure 5-2	Deutsche Post DHL: Business divisions	54
Figure 5-3	Development of letter volumes in the German mail market and at Deutsche Post	55
Figure 5-4	Deutsche Post DHL: Development of parcel volumes	56
Figure 5-5	Deutsche Post: Development of the basic letter tariff	58
Figure 5-6	Deutsche Post: Revenues (group and company data)	59
Figure 5-7	Deutsche Post: Expenses (group and company data)	60
Figure 5-8	Deutsche Post DHL: Profitability	61
Figure 5-9	Deutsche Post DHL and Deutsche Post AG: Employment	62
Figure 5-10	Deutsche Post DHL: Mail operations	64
Figure 5-11	Mail sorting centres of Deutsche Post	65
Figure 5-12	Parcel sorting centres of Deutsche Post before the upgrade	69

Figure 5-13	Deutsche Post: Evolution of mail operations	71
Figure 5-14	Projects and time schedule of “Brief 2000”	73
Figure 5-15	“Brief 2000”: Improving transit time performance	74
Figure 5-16	“Brief 2000”: Improving productivity	75
Figure 5-17	“Brief 2000”: Degree of automated sorting after the transformation (2002)	75
Figure 6-1	Denmark: Milestones in corporatization, privatization and market opening	82
Figure 6-2	Post Danmark: Business divisions (until 2008)	83
Figure 6-3	PostNord: Business divisions (since 2009)	83
Figure 6-4	Post Danmark: Development of letter post and parcel volumes	85
Figure 6-5	Post Danmark: Development of the basic letter tariffs	87
Figure 6-6	Post Danmark/PostNord: Revenues and expenses	88
Figure 6-7	Post Danmark/PostNord: Profitability development	89
Figure 6-8	Post Danmark/PostNord: Employment development	90
Figure 6-9	Mail and parcel sorting centres in Denmark (2008)	92
Figure 6-10	Post Danmark: X/Y distribution model	97
Figure 6-11	Post Danmark: Evolution of mail operations	100
Figure 7-1	France: Milestones in corporatization, privatization and market opening	104
Figure 7-2	La Poste Group: Business divisions	105
Figure 7-3	La Poste: Development of mail and parcel volumes	106
Figure 7-4	La Poste: Development of the basic letter tariff	108
Figure 7-5	La Poste: Revenues (group and company data)	109
Figure 7-6	La Poste: Expenses (group and company data)	109
Figure 7-7	La Poste Group: Profitability	111
Figure 7-8	La Poste: Employment development (group and company data)	112
Figure 7-9	La Poste: Characteristics of mail operations	114
Figure 7-10	La Poste: Evolution of mail operations	121
Figure 8-1	Netherlands: Milestones in corporatization, privatization and market opening	127
Figure 8-2	PostNL: Business divisions (2012)	128
Figure 8-3	Development of letter post volumes in the Dutch mail market and at PostNL	129
Figure 8-4	PostNL: Development of the basic letter tariff	131

Figure 8-5	PostNL: Revenues and expenses	132
Figure 8-6	PostNL: Profitability	133
Figure 8-7	PostNL: Employment development	134
Figure 8-8	Delivery pattern	138
Figure 8-9	PostNL: Evolution of mail operations	141
Figure 8-10	PostNL: Envisioned organization of mail operations as foreseen in "Master plan III"	146
Figure 8-11	PostNL: Investment plan for the new parcel network ("New Logistics Infrastructure" NLI)	149
Figure 9-1	Sweden: Milestones in corporatization, privatization and market opening	151
Figure 9-2	Posten: Business divisions (2008)	152
Figure 9-3	PostNord: Business divisions (2012)	152
Figure 9-4	Posten: Development of letter post and parcel volumes	153
Figure 9-5	Posten: Development of the basic letter tariff	155
Figure 9-6	Posten/PostNord: Revenues and expenses	156
Figure 9-7	Posten/PostNord: Profitability development	157
Figure 9-8	Posten/PostNord: Employment development	158
Figure 9-9	Posten: Characteristics of mail operations	161
Figure 9-10	Posten: Evolution of mail operations	166
Figure 9-11	Posten: New terminal structure and service areas	168

List of tables

Table 1-1	Major postal activities	13
Table 2-1	Extract of indicators and final selection	18
Table 3-1	Development of mail sorting centres and delivery offices	20
Table 3-2	Key indicators of mail operations (2012)	28
Table 3-3	Key indicators on parcel operations	31
Table 3-4	Comparator operators: Status of development / progress made	32
Table 4-1	Austrian Post: Size and weight structure of basic letter products	37
Table 4-2	Austrian Post: Development of delivery quality	39
Table 4-3	Austrian Post: Key figures of postal infrastructure	42
Table 4-4	Austrian Post: Sorting technology	45
Table 4-5	Efficiency program “Gesamtlogistik-Konzept” (1999-2006)	50
Table 5-1	Deutsche Post DHL: Size and weight structure of basic letter products	57
Table 5-2	Deutsche Post DHL: Development of delivery quality	58
Table 5-3	Deutsche Post DHL: Key figures of postal infrastructure	63
Table 5-4	Deutsche Post: Sorting technology	66
Table 5-5	Restructuring of mail operations “Brief 2000” (1992-1999)	72
Table 5-6	Upgrading sorting technology (2009-2012)	78
Table 5-7	Efficiency and capacity enhancing program “Paket 2012” (2011-2015)	79
Table 5-8	Paket 2012: Size categories of parcel sorting centres	80
Table 6-1	Post Danmark: Size and weight structure of basic letter products	86
Table 6-2	Post Danmark: Development of delivery quality	87
Table 6-3	Post Danmark: Key figures of postal infrastructure	91
Table 6-4	Post Danmark: Sorting technology	94
Table 7-1	La Poste: Size and weight structure of basic letter products	107
Table 7-2	La Poste: Development of delivery quality	108
Table 7-3	La Poste: Key figures of postal infrastructure	113
Table 7-4	La Poste: Sorting technology	115
Table 7-5	Efficiency program “Cap Qualité Courrier”	122
Table 7-6	Modernization of parcel operations	124
Table 8-1	PostNL: Size and weight structure of basic letter products	130

Table 8-2	PostNL: Development of delivery quality	131
Table 8-3	PostNL: Key figures of postal infrastructure	135
Table 8-4	PostNL: Sorting technology	136
Table 8-5	Efficiency program “Briefpost 2000”	142
Table 8-6	Master plans: Overview on planned and realized cost savings	143
Table 9-1	Posten: Size and weight structure of basic letter products	154
Table 9-2	Posten: Development of delivery quality	155
Table 9-3	Posten: Key figures of postal infrastructure	159
Table 9-4	Posten: Sorting technology	162
Table 9-5	Posten: Centralize sorting and reinvestment automation (2010-2018)	170

1 Introduction

1.1 Background and objectives

This study explains how postal operations are organized in selected foreign postal operators, and how and to what extent these operators have improved their efficiency to ensure financial viability. It provides a useful background for understanding postal operations and the concept of efficiency in this sector. Ofcom's regulatory duties mean that efficiency in post is an important consideration to it.

Ofcom's regulatory duties

In October 2011, the Postal Services Act 2011 came into force and Ofcom was given the responsibility and powers to regulate postal services. Additionally, the Postal Services Act 2011 established the basis for privatising Royal Mail and allowed for the historical pension deficit to be passed to the UK Government.

Article 29 of the Act determines Ofcom's statutory duty to secure the provision of a universal service. The Act further determines that when performing its tasks "Ofcom must have regard to (a) the need for the provision of a universal service to be financially sustainable but also (b) the need for the provision of a universal service to be efficient before the end of a reasonable period and for its provision to continue to be efficient at all subsequent times."¹

In March 2012, Ofcom implemented a new regulatory framework for the British postal market and for the universal service provider Royal Mail.² In line with its duty to secure the provision of a universal postal service, Ofcom removed the substantial majority of price controls to provide Royal Mail with greater commercial and operational freedom.

Ofcom's expectation was "that Royal Mail will use this greater flexibility to secure the long term sustainability of the universal service in a manner that responds to its customers' needs".³ However, Ofcom reserved the right to review the regulatory framework if Royal Mail failed to improve its efficiency. Royal Mail raised its postal tariffs (particularly single-piece rates) in 2012, and this resulted in an improved financial situation despite the continuous decline in overall mail volumes. Additionally, Royal Mail has been implementing a program of work to modernize its postal operations since 2006/07.⁴ This program affects the different segments of the postal pipeline, including the core structure of its postal network, and required substantial investment in modernized or new sorting centres, new sorting technology, and a re-organization of delivery operations. The modernization process is ongoing.

¹ Postal Services Act 2011, Art. 29 (3).

² Ofcom (2012), Statement: Securing the Universal Postal Service, Decision on the new regulatory framework.

³ *ibid.*, p. 10.

⁴ Royal Mail, Royal Mail Holdings plc, Annual Report and Financial Statements 2011-12, p. 22.

In March 2013, Ofcom published final guidance on its approach to assessing the impact of end-to-end competition in the postal sector on the universal postal service.⁵ This sets out that if Ofcom anticipates “that Royal Mail’s returns will fall below 5% to 10% EBIT margin on a sustained basis [it] would expect to intervene unless [it] conclude that this is due to Royal Mail failing to take appropriate steps to respond to the challenge posed by competition, such as failing to improve efficiency levels.”⁶ Ofcom’s statement highlights that the assessment of whether Royal Mail has been able to achieve (or is planning to achieve) a reasonable rate of efficiency improvement is a key aspect of any consideration of potential intervention in relation to end-to-end competition.

To effectively monitor Royal Mail’s financial performance, particularly with respect to the universal service network (‘the Reported Business’), Ofcom has established a monitoring regime to track the level of efficiency improvement (amongst a number of other measures). The reported business consists of Royal Mail’s UK Parcel, International & Letters segments but excludes Parcelforce Worldwide.

Approach to this study

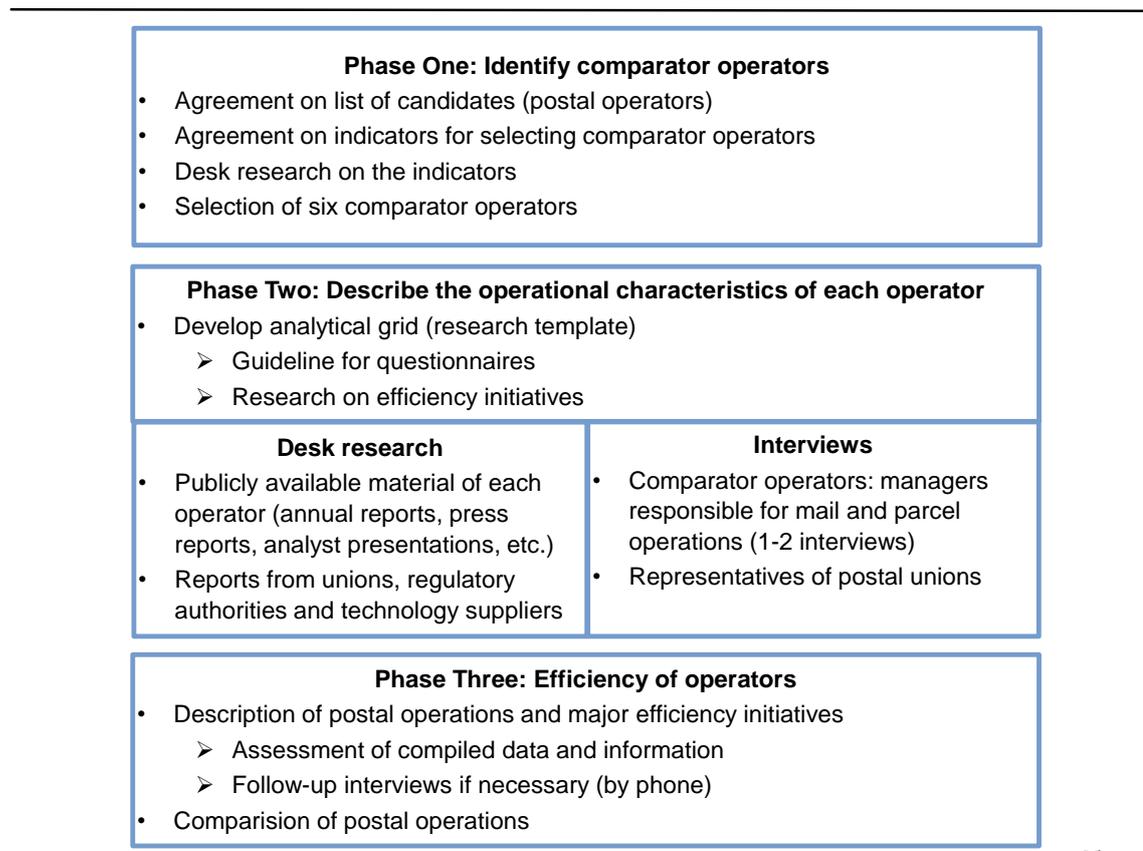
Figure 1-1 outlines WIK’s approach to this study. The major sources for this study are, first, publicly available material for each comparator postal operator and, second, interviews with company officials responsible for letter and parcel operations. In some cases, WIK visited mail and parcel sorting facilities and interviewed union representatives to fully understand the situation in the comparator organizations. This report does not contain any confidential or commercially sensitive information.

WIK-Consult gratefully acknowledge the constructive assistance provided by representatives of the comparator postal operators Austrian Post, Post Danmark, La Poste and Sweden Post and by representatives of the postal unions Abvakabo (the Netherlands) and DPVKOM (Germany). They generously contributed their time and expertise in responding to our questions and follow up inquiries. While gladly acknowledging the assistance of all, WIK-Consult is, of course, solely responsible for the final report, including any errors it may contain.

⁵ Ofcom (2013), End-to-end competition in the postal sector, Final guidance on Ofcom’s approach to assessing the impact on the universal postal service.

⁶ Ibid., p. 2.

Figure 1-1 Approach of the study



The study consists of three parts.

- Chapter 2 explains the selection of the six comparator operators.
- Chapter 3 summarizes conclusions based on an informed comparison of the comparator operators in terms of postal operations and efficiency programs.
- Chapters 4 to 9 present, for each comparator postal operator, information on their postal operations and relevant efficiency programs.

For each comparator operator, WIK provides detailed information on

1. the background of each postal operator including milestones in corporatization, privatization, market opening and efficiency programs; market developments; mail/parcel volumes and competition; product types, price developments and quality of service; business organization, developments in revenues and profitability; and labour developments;

2. characteristics of today's postal operations including a detailed description of how major elements of the postal pipeline (i.e. collection, sorting, transportation and delivery) are organized in mail and parcel operations;
3. the most important efficiency programs highlighting the scope and effect of each program on the postal operators' operations, employment, and productivity.

1.2 Postal terminology

In this study we describe and evaluate mail and parcel operations. For this reason we use some technical expressions. The most important expressions are introduced in this section.

Postal items comprise letter post items and parcels. They can be separated into priority and non-priority items. Priority items are usually delivered the next working day after posting; non-priority items have a transit time of more than one working day. Letter post items include correspondence, postcards, advertising, newspapers, magazines, periodicals, and small packets up to 2 kilograms. The maximum shape of a letter post item must not exceed 900 millimetres defined as the sum of length, width and thickness of a mail item. Each dimension (length or width or thickness) must not exceed 600 millimetres.⁷ In this report, we use the terms "letter post item" and "mail" synonymously.

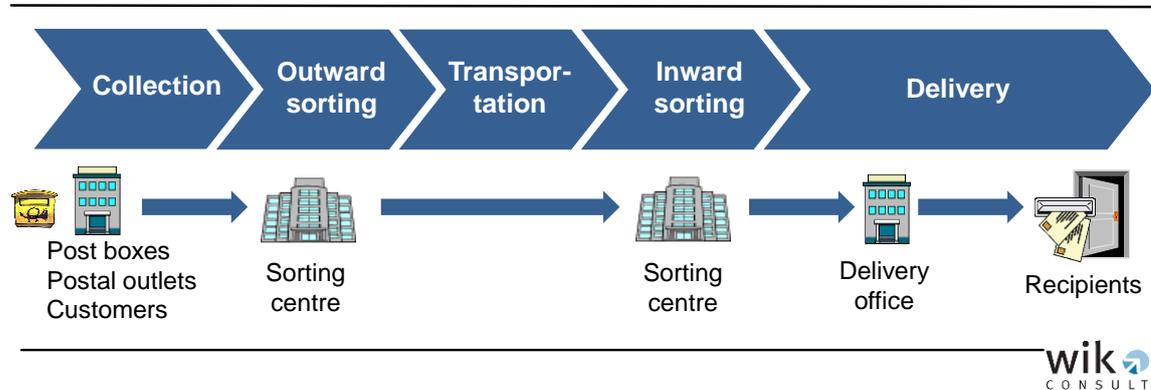
The distinction between mail formats has its origin in the introduction of mail sorting machines. Industrial mail processing was made possible by consolidation and concentration of letter post items in centralized sorting facilities and requires more standardized letter formats. Starting in the nineties, this development has substantially affected the design of mail products and promoted price models that depend on the weight and shape of mail items instead of weight only. In this report we distinguish between the following formats of mail items:

- Letters: Postal items that can be sorted in specialized letter sorting machines;
- Flats: Postal items that can be sorted in specialized flat sorting machines. Flats include large letters, magazines and catalogues;
- Packets: Postal items that are either larger or thicker or both than flats but not weighing more than 2kg. Packets cannot be processed by letter and flat sorters;
- Parcels are usually bulky postal items weighing up to ~30 kilograms (if processed in the postal pipeline).
- In practice, some letters and – usually a higher proportion of – flats cannot be sorted by machine, because they are too thick, too heavy and/or too inflexible. We refer to

⁷ Universal Postal Union, Letter Post Manual, Article 12.

these items as “rest mail”. Rest mail may also include packets if these items are processed in mail sorting centres.

Figure 1-2 Stylized postal pipeline



The stylized postal pipeline basically consists of five core activities: collection, outbound sorting, transportation, inbound sorting, and delivery (see Figure 1-2).

Table 1-1 describes in more detail how postal operations are generally organized.

Table 1-1 Major postal activities

Postal activity	Description
Collection	At least once per working day, postal items are collected from post boxes (only mail), postal outlets or mailers’ premises and transported to the initial sorting centre. In some countries, mailers or their agents (consolidators and mailing houses) take mail in bulk to the outward sorting centre or to the inward sorting centre.
Outward sorting	<p>Sorting centres are used to consolidate mail and perform outward and inward sorting activities.</p> <p>The outward sorting centre accepts the mail from the collections, and undertakes the first phase of processing of mail for dispatch and transport to destination mail sorting centres or, in case of local mail, to delivery offices:</p> <ul style="list-style-type: none"> • Mail collected from post boxes and (sometimes) postal outlets has to be pre-processed including revenue protection, stamp cancellation and segregation of mail i.e. by format, product (priority/non-priority), major destinations (e.g. domestic and cross-border mail). Mail from post boxes is prepared either manually or by pre-processing machines (Culler-facer-canceller (CFC) machines) to prepare letters for automatic mail sorting. The pre-processing machines position the letters correctly, check the postage and cancel the stamps. • Sorting usually starts with reading the postcode (at least) or the full street address by optical character reading (OCR). If automatic reading fails the missing information (at this stage it is normally the postcode) is added via online or offline video coding. In this case an image of the address is sent to a computer in order to enter the missing information manually. If it is possible for this to be completed within the time the item is in the machine, the barcode is applied and the item is sorted to the correct destination (online video coding). If this is not possible, the information is manually entered and the item has to be put through the sorting machine a second time (offline video coding).

Postal activity	Description
Outward sorting	<ul style="list-style-type: none"> • Many postal operators use barcodes which are printed on the mail item to transpose the address information in an easily readable code. Alternative technologies, e.g. “fingerprints” (Siemens) or “virtual ID codes” (Solystic), allow the machine to read and save the complete image of the exterior part of the envelope and convert the content of the address into a unique code to support processing the mail. The information read by the sorting machine is matched with database entries (an up-to-date address database is a “must” in postal operations). • Depending on size and thickness, distinct machines are used for letters and flats. Postal items that cannot be processed by sorting machines (“rest mail”) are manually sorted. • In the sorting centres letter post items are usually packed in trays which are either transported in trolleys and/or by automatic conveyor systems to the next processing step. <p>Finally, postal items are prepared for transportation to the destination sorting centre or – in case of local mail – remain in the sorting centre.</p> <p>Parcel operations: Depending on daily parcel volume, parcels are either manually handled or processed by conveyor belts and/or parcel sorting machines.</p>
Transportation	<p>Transportation between sorting facilities is important for the speed and the level of quality in postal service provision. The size of the country and the daily volume determines the transportation devices. Trucks are the most common vehicle used to transport postal items between sorting centres. Because air transportation is the most expensive option only a few routes are served by flights (depending on the service standards and geography of a country). In some countries railways are additionally used to transport postal items in an environmental-friendly way.</p>
Inward sorting	<p>Inward sorting usually takes place in the same sorting centres used for outward sorting but during a different time slot. Postal items are prepared for the final handling in the delivery offices at the mail centre that is closest to the delivery office. This may include sorting of postal items according to</p> <ul style="list-style-type: none"> • postal codes; • delivery offices; • group of delivery routes; • delivery routes; • delivery order (per route). <p>The sorting level depends on the sorting equipment and the IT system (including address databases) that vary among postal operators.</p> <p>Finally, the mail is prepared for transport to the delivery offices.</p>
Delivery Delivery office / in office activities	<p>In delivery offices, the mail is prepared for final delivery. Depending on the mail preparation level provided in the sorting centre, this comprises the following processing steps:</p> <ul style="list-style-type: none"> • separation of postal items to delivery routes; • sorting of items in delivery order (manually or by machine, if installed in the delivery office); • Preparation of delivery bags / trolleys / other vehicles (e.g. bicycles, motor and electric bikes or cars); • Handling of returned items after delivery.

Postal activity	Description
<p>Delivery Delivery route / street activities</p>	<p>The delivery route comprises the journey of the postman from the delivery office to their delivery district, the basic track, the stops to drop postal items into letter boxes or to hand over postal items to a person (e.g. in case of postal items that require a confirmation of delivery or are too bulky to be placed in the letter box).</p> <p>Mail is delivered to residential and business customers by foot, bicycle, car or van. The delivery mode depends on the density of delivery points and mail volume delivered. Postal operators sometimes deliver mail to selected business customers by van on distinct delivery routes. Parcels are usually delivered by car or delivery van. In rural areas, in particular, parcels and letter post items are often delivered jointly.</p>

2 Identification of comparator operators

The first phase of this project was about identifying at least four postal operators that offer a relevant comparison for Royal Mail's Reported Business. The Reported Business includes the services that use the universal service network such as domestic and cross-border letter and parcel services, including wholesale (access) services. It is a sub-set of Royal Mail's UK Parcels, International & Letters (UKPIL) business unit and has been determined by Ofcom for regulatory purposes (such as regulatory cost accounting and assessing the financial sustainability of the universal service).

Identifying postal operators that are comparable to Royal Mail's reported business is challenging for a number of reasons:

- First, geography is different because countries differ in size, population and density. Given the differing universal service requirements and commercial considerations, postal operations have been differently organized.
- Second, there are differences in institutional development across national postal operators, both in their timing and nature. While some are partly or even fully privatized, others are state-owned enterprises. The same is true for the market opening process in different countries. Some opened their markets earlier, some at the latest possible date (in the European Union) and others have a legal monopoly (non-EU members).
- Third, the demand for mail services has developed differently in national postal markets in terms of its level and structure. Moreover, electronic substitution and competition additionally challenges the mail volume development of universal service providers⁸.
- Fourth, some universal service providers have formed their business divisions based on commercial considerations. For this reason, it is unlikely that publicly reported business divisions coincide with Royal Mail's Reported Business. Mail divisions often include international activities (e.g. in foreign mail markets) or supporting postal activities like mail production services (e.g. mailing houses) or consulting services. Parcel operations are often assigned to other business divisions (i.e. separate from the mail division). Moreover, in many cases the mail divisions also manage retail networks (i.e. post offices and postal agencies).

⁸ In this report we use the term "universal service provider" and "postal operator" synonymously.

Based on these considerations we used the following indicators for selecting appropriate candidates:

- The key facts of each country: country size, total number of households and population density, income per capita and urbanization rate, broadband penetration (affects mail demand) and use of e-commerce;
- Information on each candidate operator: legal status and degree of public ownership, share of employees organized in a union, number of employees and their development; revenues and profitability (earnings before interest and taxes in relation to revenues), proportion of letters sorted by machine;
- Postal demand: letter post items per capita and recent developments in the postal operator's mail volume;
- Competition in the mail market: market share of each postal operator
- Universal service requirements and performance: delivery frequency per week, transit time target and performance;

In cooperation with Ofcom we determined the following postal companies as potential candidates for benchmarking:

- | | |
|-----------------------------------|---|
| 1. Australia Post (Australia) | 8. PostNL (Netherlands) |
| 2. Österreichische Post (Austria) | 9. New Zealand Post (New Zealand) |
| 3. bpost (Belgium) | 10. Posten (Norway) |
| 4. Canada Post (CA) | 11. Posten (Sweden) |
| 5. Post Danmark (Denmark) | 12. Schweizerische Post (Switzerland) |
| 6. La Poste (France) | 13. U.S. Postal Service (United States) |
| 7. Deutsche Post (Germany) | |

For this report we selected in total six postal operators out of these 13 candidates. In Table 2-1 the key indicators for each candidate operator are presented.

For the final selection Ofcom and WIK agreed that the comparator operators should be broadly similar with respect to a combination of aspects, including size and structure of services (i.e. letter and parcel services) and be subject to comparable regulatory regimes. Additionally, comparator operators should have implemented substantial and effective initiatives in the past to ensure that they can act as “examples of good practice”.

Table 2-1 Extract of indicators and final selection

Postal operator	State ownership	Mail volume	Mail volume per capita	Volume change 2010-2011	End-to-End competition	Access competition	EBIT margin	Automation (Letters)
Österreichische Post	52.8%	2.0bn	241	-3.6%	<2%	No	7.2%	~90%
Australia Post	100%	5.0bn	223	-2.1%	0%	No	6.7%	n/a
bpost	50% plus 1	~2.6bn	236	-2.0%	<1%	Yes	2.9%	78%
Canada Post	100%	9.8bn	285	-4.6%	0%	n/a	-3.4%	n/a
Schweizerische Post	100%	2.3bn	297	-1.3%	<1%	No	10.6%	85%
Post Danmark	100%	0.8bn	139	-12.4%	<5%	n/a	3.8%	90%
Deutsche Post	30.5%	13.9bn	170	0.2%	10.2%	Yes	4.6%	>90%
La Poste	100%	14.3bn	220	-3.0%	<1%	Yes	3.1%	n/a
PostNL	0%	3.8bn	227	-9.0%	15.7%	No	9.7%	85%
Posten (Norway)	100%	2.2bn	452	-2.9%	<5%	No	4.2%	79%
New Zealand Post	100%	0.8bn	181	-4.5%	<5%	Some	-2.7%	n/a
Posten (Sweden)	100%	2.4bn	258	-3.0%	19.2%	No	5.8%	90%
U.S. Postal Service	100%	167.9bn	567	-1.7%	0%	Yes	-5.6%	n/a
Royal Mail	100%*	16.6bn	266	-5.7%	<1%	Yes	3.2%	82%

Source: WIK research.

Notes: The figures refer to financial year (FY) beginning in 2011. With the following exceptions, these end in 31 December: Australia Post (FY 2010/11, end of FY 30 June), New Zealand Post (FY 2010/11, end of FY 30 June), U.S. Postal Service (FY 2010/11, end of FY 31 March), Royal Mail (FY 2010/11, end of FY 31 March).

*Since the start of the project Royal Mail has been part-privatised. The state holds less than 40 per cent in Royal Mail.

Differences in the institutional framework (i.e. legal status and degree of privatization) as well as mail competition played an important role in the final selection of comparator postal operators because these settings may incentivize postal operators to become more efficient. The postal operators of Australia, Canada, the United States, Switzerland and Norway enjoy postal monopolies without a fixed date for full market opening. Based on this argument in combination with very low population densities in Australia, Canada, New Zealand and Norway (see Appendix 2) we agreed with Ofcom that these candidates should be excluded from the list.

From the remaining postal operators Ofcom and WIK decided to include the following companies:

1. Österreichische Post (Austria)
2. Post Danmark (Denmark)
3. La Poste (France)
4. Deutsche Post (Germany)
5. PostNL (Netherlands)
6. Posten (Sweden)

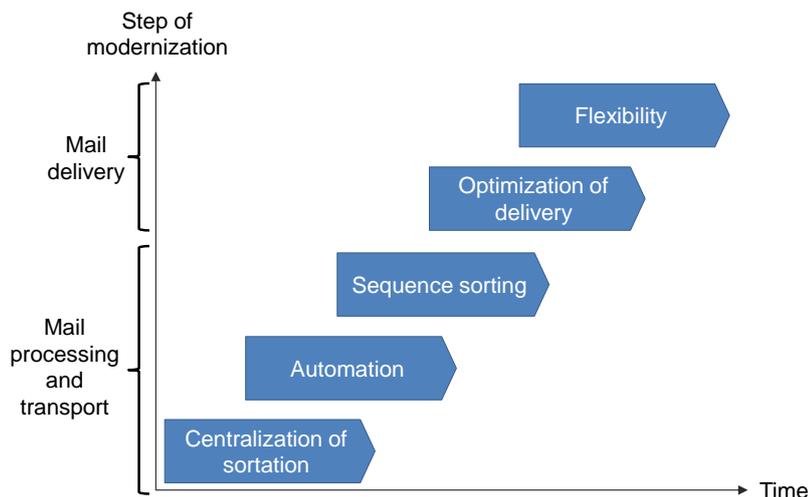
Deutsche Post and La Poste are of a similar size to Royal Mail (in terms of mail volume, revenues and employment). Furthermore, Deutsche Post, PostNL and Swedish Posten face some competition in their domestic letter markets which additionally drives efficiency and customer orientation. Finally, Austrian Post, PostNL and Deutsche Post have substantial private ownership and are listed companies. Before the merger of Swedish Posten and Post Danmark, the Danish post was partly owned by a private equity company (CVC). Additionally, Post Danmark is considered very advanced in innovative measures to improve cost efficiency. CVC and Post Danmark, together, had a stake in the Belgian bpost (formerly De Post - La Poste) and - from a technical point of view - Post Danmark served as a blueprint for the modernization process of bpost.⁹ Finally, among all European postal operators Post Danmark has the most significant challenges due to declining letter volumes. Since 2009, it has lost 30 per cent of its letter volumes mainly due to the increasing use of electronic communication channels.

⁹ A consortium formed by Post Danmark and CVC Capital Partners took a stake of 50% less one share in De Post-La Poste at the beginning of 2006. In 2009 Post Danmark left the consortium and sold its shares to CVC. According to bpost “[t]his strategic partnership strengthened De Post-La Poste and helped prepare it for the full opening of the postal market in 2011” (De Post – La Poste, Annual Report 2009, p. 11) and they “will continue their cooperation in terms of knowledge sharing and benchmarking” (De Post – La Poste, Annual Report 2009, p. 36).

3 Comparison of postal operations

3.1 Common pattern for modernizing mail operations

Figure 3-1 Pattern of modernizing mail operations



Source: WIK-Consult.

Our research has revealed that the transformation of postal operations broadly follows a common pattern among the postal operators we have assessed in this study. Figure 3-1 illustrates this stylized pattern for modernizing mail operations. The actual sequence of the stylized phases, however, depends on the starting date of the modernization process and the existing technological and financial options.

Table 3-1 Development of mail sorting centres and delivery offices

Postal operator	Mail sorting centres		Delivery offices	
	2000	2013	2000	2013
Austrian Post	39	6	1,880	260
Deutsche Post	83 328 (1992)	82	~3,700 11,500 (1993)	~3,100
Post Danmark	8	3	341	153
La Poste	112	48	n.a.	~3,000
PostNL	6 12 (1997)	6	525 (2003)	260
Posten	13	7 (planned)	650 (2003)	~400

Source: WIK research and interviews with the postal operators.

Note: 'n.a.' means 'not available'.

Centralization of sortation

The consolidation and concentration of mail streams are the key conditions for industrial mail sortation. Moreover, the network is designed to ensure that a high proportion of mail is reliably delivered the next working day (i.e. to improve quality of service). The reorganization of the network has generally resulted in less sorting facilities. These are used for both, outbound and inbound sorting, in order to operate the sorting machines at full capacity. The reduction of “network nodes” reduces the number of transport routes between sorting facilities. Mail transportation between sorting facilities (from the origin to the destination facilities) and between sorting facilities and delivery offices are organized by a fixed schedule. Mail is mainly transported by road usually provided by subcontracted transport companies.

Two comparator postal operators, Austrian Post and French La Poste, started the centralization process relatively late, after 2000 while the other operators have set up the core structure of their networks in the nineties. Post Danmark and Posten further reduced the number of mail sorting centres to tackle the decline in mail volume.

Automated sorting

Centralization goes hand in hand with automation of mail sorting processes in mail sorting centres. The types of machines installed in the centres depend on the state of technological development at the date of investment. Postal operators usually install machines for culling and facing of letters, address reading, coding and sorting of letters and specific sorting machines for flats. The use of sorting machines substantially improves the productivity (items sorted per man-hour) and, more generally, reduces the handling time of mail items.

Bulky letters and, more generally, non-machineable mail (rest mail) is sorted manually. Postal operators strive to minimize the share of rest mail in their operations and look for machines that are able to process bulky mail items. Austrian Post, Deutsche Post and Posten, for example, acquired flat sorters made by Siemens for this reason. Posten additionally uses multi-sorters which allow it to sort items thicker than 30mm (small packets up to 2 kilograms).¹⁰

The life cycle of sorting machines is between 10 and 12 years. Between 2009 and 2012 Deutsche Post, for example, replaced its letter and flat sorters which had been installed between 1994 and 1998.¹¹ The more expensive flat sorters usually outlast the letter sorters. Furthermore, some elements of the sorting machines are modernized during the life cycle, like the IT systems to control sorting, and the technology to read addresses (particularly due to progress in OCR technology).

¹⁰ See section 9.2.2.

¹¹ See section 5.3.1. The sequence sorters were installed later, between 2000 and 2004 and had therefore a shorter life cycle.

Mail items are packed in standardized trays instead of bags for transportation purposes. The use of trays reduces the risk of damage to the mail items and better utilizes transport capacities. Centralization of sorting and the introduction of highly efficient sorting machines have resulted in less employment in sorting facilities and in changes in work practices: instead of manually sorting mail items workers now operate machines. Finally, automation promotes the introduction of pricing models related to the weight and the shape of mail items (“pricing in proportion”).

Sequence sorting

Today, sequence sorting of letters by machine is state of the art. The machines are mostly located in the mail sorting centres. Only La Poste has some sequence sorting machines in large delivery offices.¹² Sequence sorting of flats by machine has not been fully established by the comparator postal operators, yet. Sequence sorting by machine further promotes the centralisation of sorting activities in mail sorting centres and reduces the tasks to be undertaken in delivery offices. Manual sequence sorting is located in the delivery offices in most cases. Only Post Danmark has nearly fully centralized sequence sorting (by machine and manually) in the mail sorting centres. PostNL was also centralizing manual sequence sorting at the mail sorting centres. However, the company back-pedalled after serious quality of service problems emerged and is now following a more decentralized approach.¹³

Optimization of delivery

Postal operators that modernized their network in the nineties started with the reorganization of the core network first (i.e. mail sorting centres and the overall network structure) before adapting the delivery processes. Sequence sorting by machines additionally affects the delivery operations because the postmen spend less time manually sorting. Generally, delivery is a very labour-intensive activity and difficult to change because a high proportion of postal workers are affected by these changes.

The optimization of delivery operations is accompanied by a reduced number of delivery offices and delivery routes. All comparator operators have reduced the number of delivery offices (see Table 3-1). Fewer delivery offices with, on average, more postmen in each allow the operators to adapt the organization of the work more efficiently. This has changed from the “one postman-one route” rule to teams of postmen that organize delivery in a more flexible way: the number of delivery routes, for example, varies during the week (depending on workload).¹⁴ Technology, particularly geographic information systems, promotes optimization of delivery routes which has resulted in fewer routes. Deutsche Post, for example, reduced the number of delivery routes from more than 80,000 before 2000 to around 51,500 today.

¹² See section 7.2.2.

¹³ See section 8.3.1.

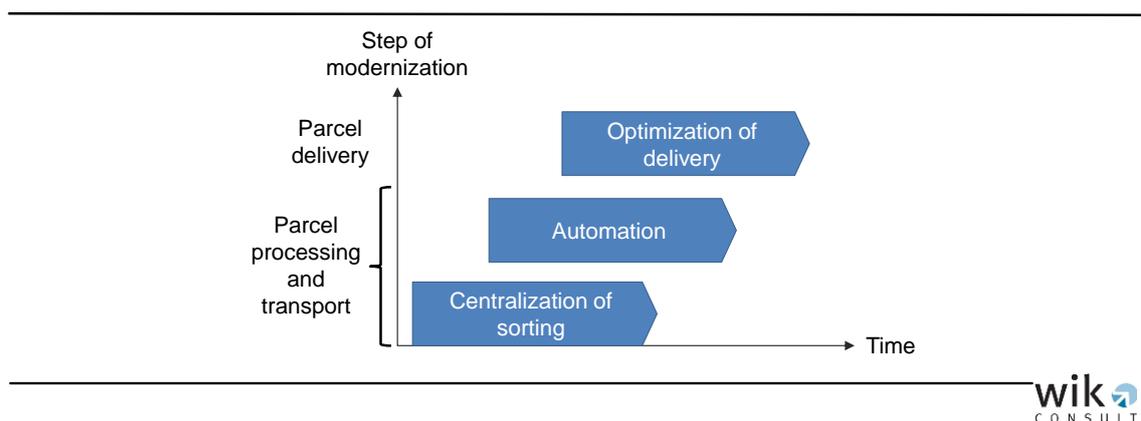
¹⁴ See for example La Poste (section 7.2.2) and Deutsche Post (section 5.3.1).

Flexibility in delivery

More recently, the most advanced postal operators have implemented new delivery models to increase flexibility in their delivery operations. These new models improve the management of different product lines in terms of transit time, i.e. priority products with next day delivery compared to non-priority products that need to be delivered the second or third working day after posting, or on determined delivery days. Post Danmark, for example, delivers non-priority mail every second day. All mail that needs overnight delivery is delivered six days per week. Post Danmark’s “X/Y distribution model” allows it to concentrate non-priority mail to three delivery days instead of six.¹⁵ PostNL, similarly, concentrates delivery of non-priority business mail on three days per week (on Tuesdays, Thursdays and Saturdays).¹⁶ Moreover, Post Danmark and PostNL have been fully separating mail preparation from mail delivery. While Post Danmark relies on full-time deliverers, PostNL mainly uses part-time deliverers.

3.2 Common pattern for modernizing parcel operations

Figure 3-2 Pattern of modernizing parcel operations



Source: WIK-Consult.

Figure 3-2 shows a stylized pattern for modernizing parcel operations. The development of parcel operations is characterized by three core steps: centralization, automation and delivery optimization. Current developments in parcel operations are, in contrast to mail operations, driven by growing parcel volumes which require more sorting, transport and delivery capacities in parcel operations.

¹⁵ See section 6.2.2.
¹⁶ See section 8.2.2.

Centralization of sortation

All comparator postal operators operate dedicated parcel sorting centres. Centralization of sortation allows an increase in the number of parcels processed per location. Similar to mail sorting centres, parcel sorting centres are used for outbound and inbound sorting of parcels.

Driven by the dynamic growth of parcel volumes and increasing quality of service requirements of customers, postal operators are adjusting the “hub and spoke” structure to a more hybrid network structure with parcel sorting facilities that combine the sorting and the distribution function (e.g. PostNL¹⁷ and Deutsche Post¹⁸).

Automated sorting

Centralized sortation lays the foundations for automatically sorting parcels by more sophisticated conveyor and sortation systems. All comparator companies have sufficient parcel volumes that justify the investment in automated conveyor and sortation systems equipped with sophisticated scanning technology. In contrast to letter and flat sorters that are specifically developed for postal operations, the conveyor technology for parcel operations is widely used in other logistics operations (e.g. airports and warehouses) and has to be adapted to postal-specific requirements. The life cycle of automatic conveyor belts appears to be longer than that of mail sorters. Deutsche Post, for example, still uses the tilt-tray sorters it installed around 1995 when the company built its parcel sorting centres. Technological progress is particularly visible in the development of the IT systems and the scanning technology.

Optimization of delivery

Transportation and delivery costs are the most important cost elements in parcel operations. For this reason, postal operators seek to minimize these costs. This is mainly achieved by outsourcing transportation and delivery, and techniques to simplify and optimize loading and unloading of trucks (e.g. loading “en vrac”, i.e. trucks are loosely loaded with parcels to save space as applied by La Poste¹⁹ and by Deutsche Post²⁰). Moreover, outsourcing of parcel delivery appears to be more common in parcel than in mail delivery. Two comparator operators, PostNL and Deutsche Post, outsourced parcel delivery routes to sub-contractors.²¹ Finally, mail and parcels are jointly delivered by postmen, mostly in rural and less populated areas, by all presented postal operators except for PostNL. But even PostNL is now considering jointly delivering mail and parcels in some areas.

¹⁷ See section 8.3.2.

¹⁸ See section 5.3.2.

¹⁹ See section 7.2.3.

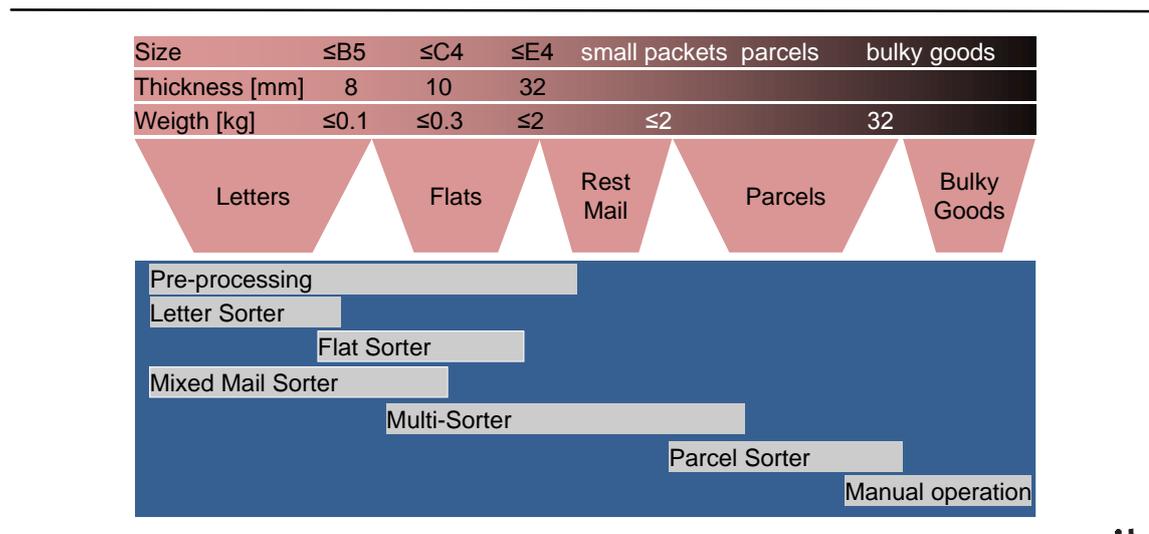
²⁰ See section 5.2.3.

²¹ PostNL outsourced 80 per cent and Deutsche Post 12 per cent of their dedicated parcel delivery routes (see Table 3-3 in section 3.4).

3.3 Trends in postal technology

In the nineties, many European postal operators started to modernize their mail operations by centralizing the sorting processes in order to be able to sort mail items at an industrial scale. At that time there were specialized sorting machines for sorting of specific formats (see Figure 3-3)

Figure 3-3 Overview of processing equipment for postal operations



Source: WIK-Consult based on Siemens (2011), Aspects through the mail supply chain – from collection and sortation to delivery, June 2011.

Over time, postal operators continuously invested in the modernization of the IT systems and in optical character recognition (OCR) technology to optimize sorting processes (e.g. to sort mail items to delivery routes) and increased the proportion of hand-written addresses successfully read by machine. In the late nineties, the first sequence sorting machines for letters were installed. Notably Post Danmark was a frontrunner in the field of postal technology: it invested in sequence sorting by machine in the late nineties.²² While sequence sorting of letters by machine is now widely implemented, this is less common for flats (only Deutsche Post has recently started sequence sorting flats by machine).

²² See section 6.3.

Most of the comparator postal operators intend to reinvest, or have recently reinvested, in new mail sorting technology. We identified following trends:

- Pre-processing machines (CFC machines) are able to handle letters and flats (e.g. Siemens CFC 3004 and Toshiba TSC-1000). Generally, only thin flats (up to 4-6 mm) can be mechanised. Moreover, modern pre-processing machines are also able to sort letters in delivery order due to their modular structure (e.g. Siemens CFC 3004²³).
- The new generation of sorting machines are characterized by higher throughput per hour and highly efficient OCR technologies. For letters, the throughput increased from typically 30,000 items per hour to a maximum of more than 60,000 items (the operational throughput is usually lower because it depends on the mix of mail). These letter sorters are able to carry out outbound, inbound and sequence sorting of letters (e.g. Siemens, IRV 3000 installed by Deutsche Post and Post Danmark).²⁴
- Solystic developed a mixed mail sorter that handles letters and flats up to 10mm thickness and 350g weight. The machine is also able to sequence sort letters and flats (in one bundle, i.e. letters and flats are automatically merged for final delivery). Currently, Solystic and PostNL are developing a mixed mail sorter that will be able to sort letters, flats and small packets up to 32mm thickness and 2kg weight which PostNL will allow it to minimize the share of “rest mail” (particularly small packets) in mail processing.²⁵
- Siemens is the first supplier that developed a sorting machine in close co-operation with Deutsche Post to sequence sort flats (up to 32mm thickness) in one sorting pass (Siemens, OMS Open Mail Handling System).
- Multi-sorters are used to process bulky mail items up to 2 kilogram in mail sorting centres. These are usually small parcel sorters (e.g. supplied by Fives Cinetic, Beumer or Siemens) installed by postal operators that face an increasing number of flats and small parcels processed in mail sorting centres (e.g. Posten²⁶). They can handle items thicker than 32mm and are usually not able to sort small packets to sequence order.

²³ The Siemens CFC 3004, for example, is available in two configurations: the basic configuration with focus on culling, facing and cancelling but without sophisticated sorting equipment and the high-end configuration that includes a 2-level sorter for letters (see <http://www.mobility.siemens.com/mobility/global/en/logistics/postal-automation/sorting-machines/pre-processing/pages/pre-processing.aspx>).

²⁴ Three comparator operators (La Poste, PostNL and Posten) still use dedicated letter sorters to sequence sort letters instead of the fully integrated letter sorters (Solystic MARS).

²⁵ PostNL has the most restrictive definition of mail items in terms of shape and, particularly, thickness (maximum thickness of domestic mail items is 32mm, see Table 8-1 in section 8.1). Domestic items thicker than 32mm have to be sent as parcels.

²⁶ See section 9.2.2.

The actual throughput of a sorting machine basically depends on the mail mix and the number of feeders to load the sorting machine. Usually, sequence sorting of letters requires two or three sorting passes (i.e. a letter will ‘travel’ through the same process two or three times). The total number of sorting passes depends on the number of stackers the machine has.²⁷ Moreover, flat sorting by machine is more demanding than letter sorting. One reason is that flats are often plastic-wrapped (e.g. magazines) which has led to problems with reading barcodes/addresses in the past.

27 The total number of stackers varies with the machine size. The Siemens compact letter sorters, for example, have 16 to 192 stackers and the IRV 3000 72 to 320 stackers (see Siemens (2013), Compact Letter Sorter CLS 3000/3004 and Siemens (2013), Integrated Reading and Video Coding Machine IRV 3000).

3.4 Assessment of comparator operators

Mail operations

Table 3-2 Key indicators of mail operations (2012)

Comparator operator	Austria	Germany	Denmark	France	Netherlands	Sweden
	Austrian Post	Deutsche Post	Post Danmark	La Poste	PostNL	Posten
Daily mail volume	8m	50m	2.6m	48m	11.4m	9.2m
Addresses (households)	3.6m	40m	2.3m	28m	7.4m	4.6m
Daily items per address*	~2.2	~1.3	~1.0	~1.7	~1.5	~2.0
Quality of service, D+1 (Delivery frequency/week)	96.0% (5 days)	92.3% (6 days)	93.5% (6 days)	87.9% (6 days)	93.9% (6 days)	94.8% (5 days)
% priority mail (D+1)	~45-50%	~50-60%	~50%	~30%	<50%	~40-45%
Post boxes	16,000	110,000	7,400	142,000	19,000	24,000
Postal outlets	2,000	13,000	718	17,075	2,375	1,547
Mail sorting centres	6	82	3	48	6	11
% mail sorted by machine to delivery routes	50%	95%	>90%	78%	95%	85%
Sequence sorting of letters by machine?	No	Yes (90%)	Yes (90%)	Yes (58%)	Yes (95%)	Yes (80%)
Delivery offices	260	3,100	153	3,000	260	400
Delivery routes	9,000	51,500	4,250	60,000	20,000	8,400
Mail delivery routes with parcel delivery	4,500 (50%)**	31,000 (60%)**	1,500 (35%)**	30,000 (50%)**	None (0%)**	2,500 (34%)**

Source: WIK research and interviews.

Notes: * Calculation based on the assumption of 300 delivery days in case of 6-day delivery per week and 250 delivery days per year in case of 5-day delivery per week).

** Percentage of mail delivery routes that combine letter and parcel delivery.

'n.a.' means 'not available'.

The six comparator operators Austrian Post (Austria), Deutsche Post (Germany), Post Danmark (Denmark), La Poste (France), PostNL (the Netherlands) and Posten (Sweden) all provide nationwide mail and parcel services. Table 3-2 summarizes the key indicators of each universal service provider's mail operations. The figures reflect the important differences in the market sizes in terms of mail demand, population,

geography and service standards as well as other factors. Germany and France (together with the United Kingdom) are the largest mail markets in Europe. In contrast, Austria, Denmark, the Netherlands and Sweden are smaller economies with smaller mail markets. Consequently, the postal infrastructure in these countries is characterized by less sorting centres, delivery offices and delivery routes.

In principle, all companies operate dedicated networks for mail and parcel operations, i.e. they use separate sorting centres for mail and parcel processing. All, except for PostNL, jointly deliver mail and parcels, usually at least in rural areas.²⁸ In these cases, parcels are transported from the parcel sorting centre to the respective mail delivery offices. Mail and parcels are then jointly delivered, generally by car.

Outbound and inbound sorting take place in the same sorting facilities at different times of the day. Transportation between sorting centres is organized by trucks and usually outsourced to transport companies. Only a small proportion of mail is transported by air or by rail. Only Posten transports a substantial share of mail by rail also for environmental reasons.²⁹

There are differences in the application of sequence sorting by machine. Sequence sorting of letters by machine is applied by all except for Austrian Post that will introduce this in the near future. These machines are usually located in mail sorting centres. Only La Poste additionally installed some in selected delivery offices (due to limited time slots for sorting in combination with long distances between sorting centres and delivery offices).

Sequence sorting of flats by machine has recently started at Deutsche Post and is planned at Posten. At this point of time, it is unclear whether sequence sorting of flats by machine will become an established standard in the near future. State-of-the-art flat sorters (made by Siemens) are expensive and it appears that demand (flat volumes), investment and operational costs (manpower, space and energy) do not always justify this investment. This is also reflected in the strategy of PostNL; it is waiting for the development of mixed mail sorters that sequence sort letters, flats and small packets (up to 32mm thickness) to one bundle and hence are not investing in specific sorters for sequencing flats.

Generally, manual sequence sorting of rest mail and flats is located in the delivery offices. Only Post Danmark has nearly fully centralized this manual process in the mail sorting centres so that the delivery offices are only used as locations where the delivery personnel picks up the prepared mail bags. At PostNL, there are also different employees responsible for manual sequence sorting and delivery. In contrast to Post Danmark, the company has failed to fully centralize manual mail preparation at the mail sorting centres; it still uses delivery offices for manual sequence sorting but plans to

²⁸ PostNL is considering to introduce joint delivery in some areas in the near future.

²⁹ See section 9.2.2.

reduce their total number over the coming years i.e. to further concentrate manual sequence sorting.³⁰ PostNL uses the delivery offices as hubs from which the prepared mail bundles are transported to the pick-up points of the deliverers. Deutsche Post has applied this approach (different personnel for manual sequence sorting and delivery) only in densely populated urban areas where the company uses “mail preparation centres” for preparing the bag for the deliverers.

Delivery organization has changed from the “one postman–one route” rule to more flexible teams of deliverers who change delivery routes depending on postal volumes. PostNL is the only comparator postal operator that completely transformed the former full-time postman into part-time (and lower paid) “delivery workers”. The others still rely on some full-time employees in delivery although the proportion of part-time workers is sometimes substantial (e.g. at Deutsche Post). Overall, it appears that full-time contracts are more relevant in delivery than in sorting. None of the comparator operators have outsourced mail sorting or mail delivery activities to third-party personnel.

30 PostNL uses the delivery offices as hubs from which the prepared mail bundles are transported to the pick-up points of the deliverers.

Parcel operations

Table 3-3 Key indicators on parcel operations

Comparator operator	Austria	Germany	Denmark	France	Netherlands	Sweden
	Austrian Post	Deutsche Post	Post Danmark	La Poste	PostNL	Posten
Daily parcel volume	0.22m	4.2m	0.16m	1m	0.4m	0.3m
Parcel sorting centres	7	33	2	14	18 (plan)	5
Parcels sorted automatically to delivery routes?	No	No	Yes	No	Yes	Yes
Delivery bases (only parcels)	20	200	13	70	n.a.	70
Total parcel delivery routes	5,436	39,400	2,300	32,250	n.a.	n.a.
Dedicated parcel delivery routes	936	8,400	800	2,250	n.a.	n.a.
Letter delivery routes with parcel delivery	4,500	31,000	1,500	30,000	None	2,500
Outsourcing of dedicated parcel delivery routes?	No	Yes (12%)*	No	No	Yes (80%)*	No

Source: WIK research and interviews.

Notes: 'n.a.' means 'not available'.

* Proportion of outsourced dedicated parcel delivery routes on total dedicated parcel delivery routes.

All comparator operators have parcel sorting centres in addition to mail sorting centres, which are used for both outbound and inbound sorting. All operators have installed conveyor belts and modern scanning technology to process parcels. Bulky parcels are handled manually. Except for Austrian Post, comparator operators of the smaller countries (Denmark, the Netherlands and Sweden) sort parcels to delivery routes while La Poste sorts parcels only to delivery bases and Deutsche Post to groups of delivery routes (depending on the availability of stackers in sorting centres). All comparator operators, except for La Poste, usually deliver parcels the next working day.

All comparator operators, except for PostNL, jointly deliver mail and parcels in less densely populated, rural areas if these routes are served by car. In these cases parcels are transported to mail delivery offices where the deliverers pick up the parcels for final delivery. In urban areas, where mail is delivered by foot or by bicycle, parcels are delivered in distinct parcel delivery routes (usually by delivery vans). Deutsche Post and particularly PostNL have outsourced parcel delivery routes to subcontractors while the other comparator operators rely on their own delivery personnel.

Table 3-4 summarizes our assessment on the status of development of each comparator postal operator with regard to the key elements of the modernization process in mail operations.

Table 3-4 Comparator operators: Status of development / progress made

Comparator operator	Austria	Germany	Denmark	France	Netherlands	Sweden
	Austrian Post	Deutsche Post	Post Danmark	La Poste	PostNL	Posten
Centralize sorting	●	●	●	●	●	●
Distinct mail and parcel sorting centres	●	●	●	●	●	●
Automate sorting	◐	●	●	◐	●	●
Sequence sorting of letters by machine	○ (planned)	●	●	◐	●	●
Sequence sorting of flats by machine	○	◐	○	○	○	○ (planned)
Centralize sequence sorting by machine	○ (planned)	●	●	◐	●	●
Centralize manual sequence sorting	○	◐	●	○	◐	◐
Optimize delivery	◐	●	●	◐	●	◐
Increase flexibility in delivery	○	○	●	○	●	○

Source: WIK estimation.

Note: ○◐◑◒◓ - not implemented, ..., largely implemented.

The major insights from this general assessment are that all comparator postal operators are very advanced in streamlining network centralisation with highly mechanized sorting processes located in mail sorting centres:

- All comparator operators have centralized their sorting operations.
- All operators use distinct sorting centres for mail and parcel processing.
- There are differences with regard to the degree of sorting: the proportion of mail sorted by machine at least to delivery routes is lower at Austrian Post and La Poste (see Table 3-2 for detailed information).

In contrast, progress made in modernization of delivery operations (including sequence sorting by machine) varies among them:

- Austrian Post reported plans to implement sequence sorting by machine, but has not done so yet, unlike all other operators in our survey. We found that La Poste has

implemented sequence sorting by machine to a lesser extent than the other operators since the proportion of letters that are sorted in delivery order by machine is relatively low at La Poste (see Table 3-2 for detailed information).

- Sequence sorting by machine is less common for flats than for small letters. Sequence sorting of flats has recently been introduced by Deutsche Post. Austrian Post and Swedish Posten may introduce such operation in the future as they have acquired Siemens flat sorters that allow for this option.
- Centralization of sequence sorting on the one hand, and sequence sorting by machine on the other hand are inter-related: Centralization leads to higher volumes at each location and thus increases the economic benefits of automating sequence sorting. We concluded that La Poste has implemented centralized sequence sorting by machine to a lesser extent than other operators since some of its sequence sorting machines are located in delivery offices, not in central sorting centres. Austrian Post has not centralized sequence sorting at all yet (but reported plans to do so in the future).
- Centralization of manual sequence sorting consists of two elements. The first element is the separation of mail preparation and delivery which can then be done by different employees. Post Danmark and PostNL are most advanced in this process while Deutsche Post has implemented this approach only in urban areas, and Posten has started testing it only recently. The second element is the centralization of manual sequence sorting in mail sorting centres rather than delivery offices. This approach has been largely implemented only by Post Danmark.
- The optimization of delivery operations covers aspects such as the systematic application of geographical information systems (GIS) for route optimization, a flexible work organization and the centralization of mail preparation activities which allows it to have fewer delivery offices. Deutsche Post, Post Danmark and PostNL are most advanced in this respect. By contrast, La Poste does not yet use geographical information systems for optimizing delivery routes (but plans to introduce such systems in the near future).
- Post Danmark and PostNL appear as most advanced in rendering their delivery operations more flexible. Both have introduced systems to deliver non-priority mail items only on three delivery days per week (albeit with different approaches), and therefore systematically have different delivery routes every other day.

4 Austrian Post (Austria)

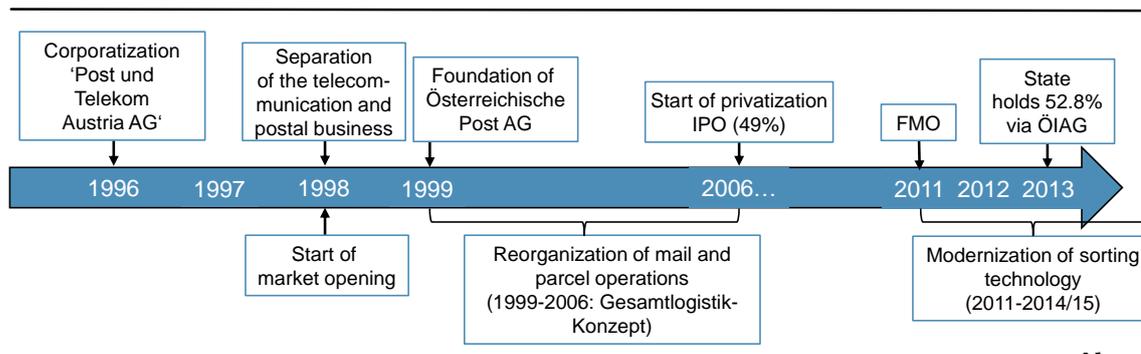
Key facts

- Austrian Post, corporatized in 1996 and went public in 2006. More than 50 per cent of the shares are owned by the Austrian state.
- Austrian Post is a medium-sized postal operator in Europe with total revenues of EUR 2.4 billion (2012).
- The company is focussed on mail and parcel/logistics operations in Austria, Germany and neighbouring Central and Eastern European countries.
- Mail operations are the major source of Austrian Post's profits.
- The Austrian mail market was fully liberalized in 2011. So far, Austrian Post does not face any noticeable competition in mail delivery.
- Austrian Post reorganized its mail and parcel operations later than most comparator operators: Between 1999 and 2006, Austrian Post reduced the number of mail sorting centres from 39 to six.
- Currently, Austrian Post is investing very heavily in new sorting technology for letters and flats. Part of this investment program is to introduce sequence sorting for letters (in delivery order) by machine. This change in postal operations has been introduced earlier by the other comparator operators.

4.1 Background

Corporate developments and organizational structure

Figure 4-1 Austria: Milestones in corporatization, privatization and market opening



Source: WIK research.

Note: In 2006, 49 per cent of Austrian Post's shares were placed with investors. The shareholding held by the Austrian state holding company Österreichische Industrieholding AG (ÖIAG) in the share capital of Austrian Post decreased from a 100 per cent stake to 51 per cent, or a total of 35.7m of the outstanding shares. In relation to the 67.6 million shares currently in circulation, ÖIAG holds a 52.8% stake in the company (see www.post.at/en/footer_about_us_investor_relations_our_share_shareholder_structure.php).

In 1996 the former postal and telecommunication administration was corporatized by foundation of "Post and Telekom Austria AG". Postal and telecommunication activities were separated in 1998 and, consequently, Telekom Austria AG and Österreichische Post AG (hereafter 'Austrian Post') were established, both fully owned by the Austrian state. In 2006 Austrian Post went public and sold 49 per cent of its shares. The remaining shares are administered by the state-owned "Österreichische Industrieholding AG" (ÖIAG) that is responsible for the administration of state shareholdings.

Today, Austrian Post is structured in two divisions: Mail & Branch Network and Parcel & Logistics (see Figure 4-2). Until 2011 the Mail & Branch Network³¹ division used to be two distinct divisions. After the IPO in 2006, Austrian Post has extended its mail and particularly its parcel business internationally with a focus on acquisitions in the Central and Eastern European countries. In 2012 nearly 30 per cent of total revenues came from activities outside Austria.³²

³¹ "Branch Network" refers to the network of postal outlets.

³² Separated revenue figures for domestic and international activities at division level are not available.

Figure 4-2 Austrian Post: Business divisions

Mail & Branch Network	Parcel & Logistics
<ul style="list-style-type: none"> • Letters • Direct mail (addressed and unaddressed) • Newspapers and magazines • Online services • Retail network 	<ul style="list-style-type: none"> • Parcels services • Express services • Logistics • Fulfillment

Source: WIK-Consult based on Österreichische Post (2013): Annual Report 2012, p. 12.

Note: The bold written sub-segments indicate the business areas that include the letter post and parcel operations that are (roughly) comparable to the Reported Business of Royal Mail.

Market opening and competition

Just following the EU timetable set by the Third Postal Directive, Austria fully opened its domestic mail market to competition in 2011. Noticeable competition has not emerged since full market opening. Redmail, founded in 2001 as a joint venture between the Dutch postal company TNT (now PostNL, universal service provider of the Netherlands) and the Austrian publishing house Styria, entered the Austrian mail market in 2002. The core business of Redmail was (and is) the distribution of newspapers and weeklies to subscribers. With support from TNT, this business was extended to the delivery of letters and unaddressed advertising. Following the enactment of the 2011 Postal Act, which was less favourable to competition, combined with the economic recession and TNT's decision to focus its foreign mail activities on Germany, Italy and the UK, Redmail decided to stop its activities in the Austrian mail market in 2010 and refocused on its core business.³³ In the same year TNT sold its stake to Styria.³⁴

In contrast, the Austrian parcel market is more competitive, particularly the B2B segment. The major competitors are DHL and DPD Austria. Austrian Post estimates its market share in the B2C segment at 75 per cent and in the B2B segment at 22 per cent.³⁵

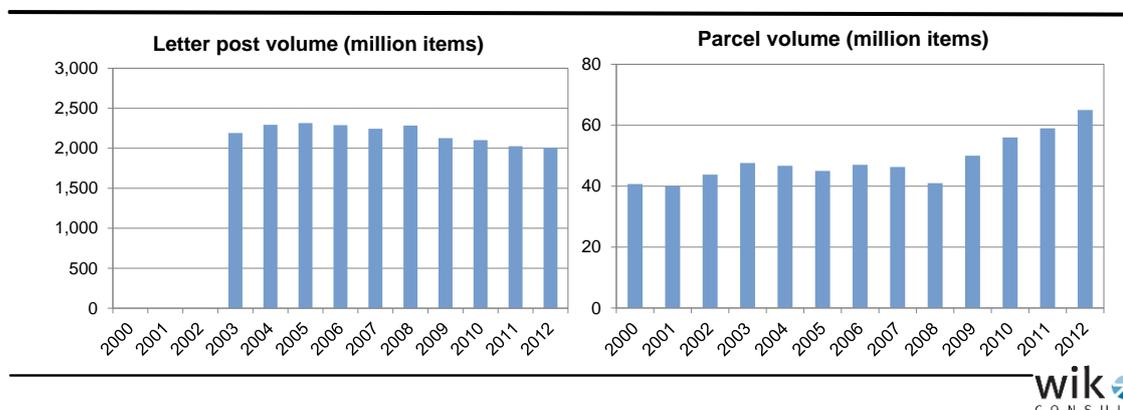
³³ See Redmail (2010), Neuausrichtung Zeitungszustellung, press release of 3 January 2010.

³⁴ See Redmail (2010), >redmail wird Styria Unternehmen, press release of 2 November 2010.

³⁵ See Austrian Post, Annual Report 2012.

Evolution of mail and parcel volumes

Figure 4-3 Austrian Post: Development of letter post and parcel volumes



Source: WIK-Consult based on annual reports of Austrian Post.

Austrian Post has been less affected by mail volume decline than many other postal operators in Europe. Its mail volume remained roughly stable between 2003 and 2008, dropped in 2009 by 7 per cent due to the economic recession and has fallen by less than 2 per cent per year on average since then. Letters were more affected by the decline than direct mail and publications.³⁶

From 2008 on, the parcel volume of Austrian Post has increased by more than 50 per cent. The main drivers are a steadily increasing market share in the B2B segment and dynamically growing parcel volumes in the B2C segment due to e-commerce.

Services, prices and quality

Table 4-1 Austrian Post: Size and weight structure of basic letter products

Format categories	Standard	Standard Plus	Maxi	Maxi Plus	Großbrief
Length	235mm	235mm	324mm	353mm	-
Width	162mm	162mm	229mm	250mm	-
Thickness	5mm	5mm	20mm	24mm	-
Circumference	-	-	-	-	900mm
Weight classes	0-20g	20-50g	0-500g	0-1,000g	0-2,000g
Product attributes	D+1 (Prio) D+3 (Eco), introduced 1 May 2011 (only business customers, volume threshold: 1,000 items per posting)				

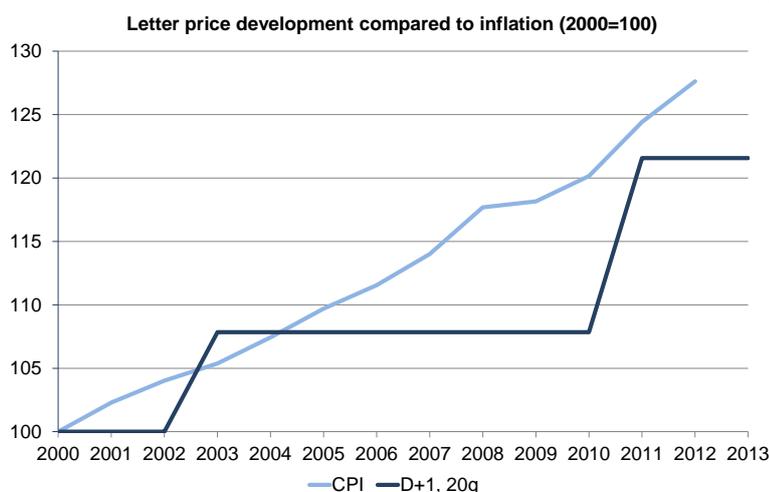
Source: WIK-Consult based on price lists of Austrian Post.

³⁶ See Austrian Post (2013), Austrian Post 2012 Financial Year, Investor Presentation 14 March 2013, p. 12.

Today, basic letter tariffs depend on the format and weight of the item (see Table 4-1). Austrian Post launched this pricing model in May 2011. Before that date prices had depended only on weight within the format limits determined by the Universal Postal Union (circumference 900mm, max. 500mm per side; max. 2,000g).

The basic parcel service includes a track and trace feature and the contents are insured up to EUR 510 without surcharge.

Figure 4-4 Austrian Post: Development of the basic letter tariff



Source: WIK-Consult based on price lists of Austrian Post and Eurostat (Consumer price index CPI).

Austrian Post's basic tariff for letter services has increased roughly in line with the consumer price index. Today, a consumer pays EUR 0.62 (GBP 0.50) for sending a 20 gram letter that is delivered the next working day. Since 2011 business customers have had the choice between a letter service with next day delivery (D+1) and a D+3 service.³⁷ Austrian Post delivers letters and parcels five days per week (Monday to Friday).

³⁷ See Österreichische Post (2013): Produkte und Lösungen für Geschäftskunden. Business customers have to post at least 1,000 items to use the cheaper D+3 service.

Table 4-2 Austrian Post: Development of delivery quality

Delivery quality (in %)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Letters D+1 target	n.a.	n.a.	95	95	95	95	95	95	95	95	95	95	95
Performance	n.a.	79.5	83.7	84.2	93.9	95.9	95.0	96.1	96.3	96.0	95.4	96.1	96.0
Parcels D+2 target	n.a.	n.a.	90	90	90	90	90	90	90	90	90	90	90
Performance	n.a.	n.a.	n.a.	84.0	91.0	94.0	95.0	95.0	95.0	95.0	96.0	98.0	96.0

Source: WIK-Consult based on annual reports of Austrian Post.

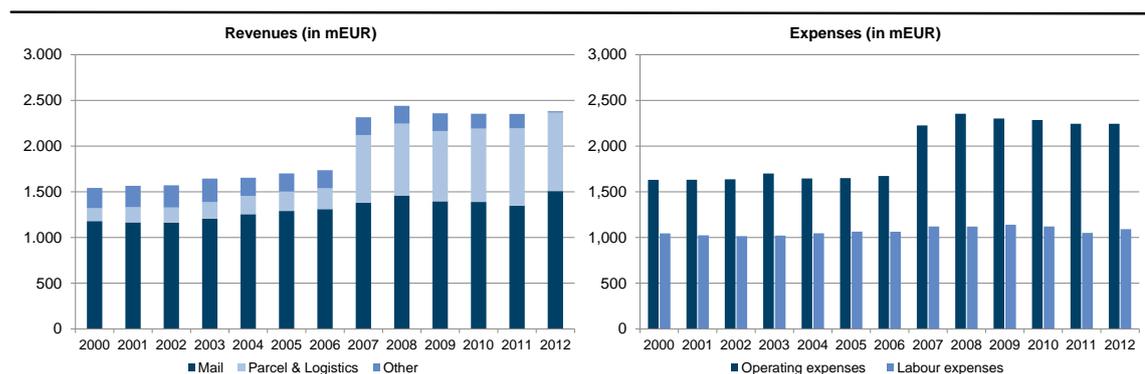
Note: 'n.a.' means 'not available'.

The transit time performance of letters delivered the next working day improved significantly from less than 80 per cent in 2001 to more than 95 per cent in 2005 due to the restructuring of postal operations between 2001 and 2006 (see Table 4-2). This restructuring is discussed further in section 4.3.

Parcels are usually delivered the second working day after posting. The transit time performance of parcels has also significantly increased between 2003 and 2006 and has remained at a high level since then.

Revenues, expenses and profitability

Figure 4-5 Austrian Post: Revenues and expenses (group data)

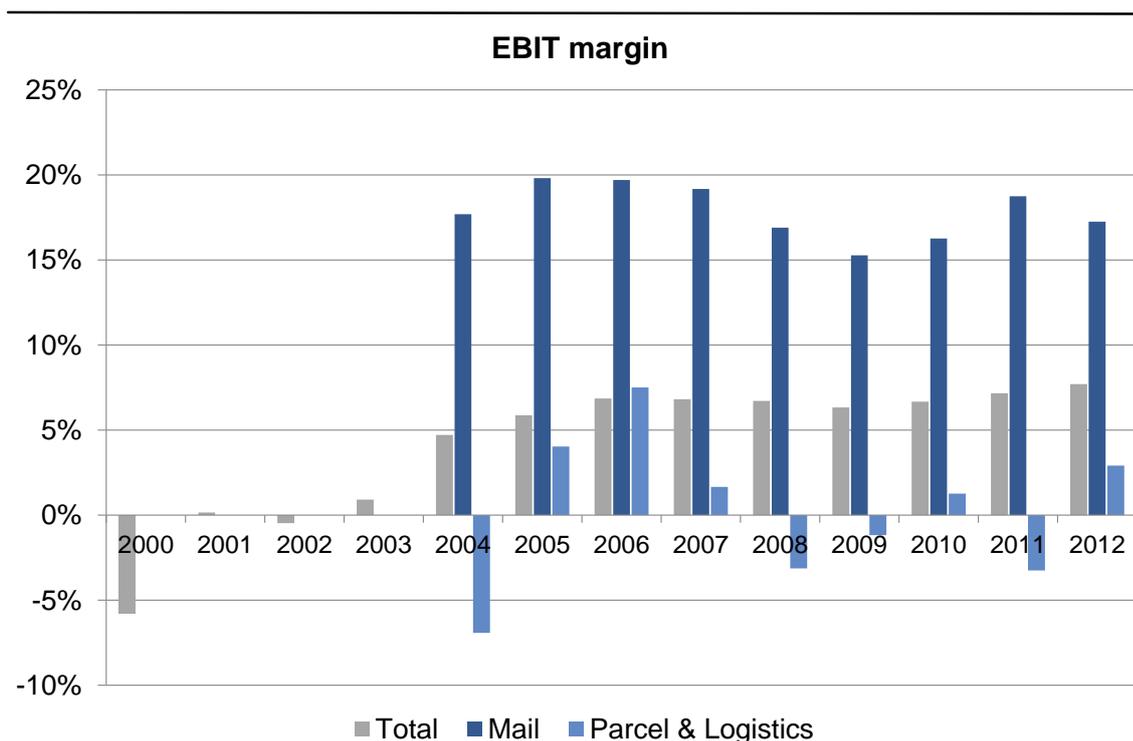


Source: WIK-Consult based on annual reports of Austrian Post.

The international expansion is also reflected in the development of the revenues and the operating costs (see Figure 4-5) that both jumped by more than half a billion Euro in 2007 due to acquisitions related to the mail (e.g. the Austrian company feibra) and the parcel division (e.g. of the German parcel company trans-o-flex). Until 2008 mail

revenues had increased (partly due to the acquisition of foreign distribution companies for direct mail in Eastern European countries), dropped somewhat in 2009 and has slightly declined since then. The small increase in the mail revenue in 2012 resulted from the merger of the Mail division with the Branch Network division. Total labour expenses remained fairly stable between 2000 and 2012 although employment declined from more than 30,000 to less than 25,000 full time equivalents (see Figure 4-7).

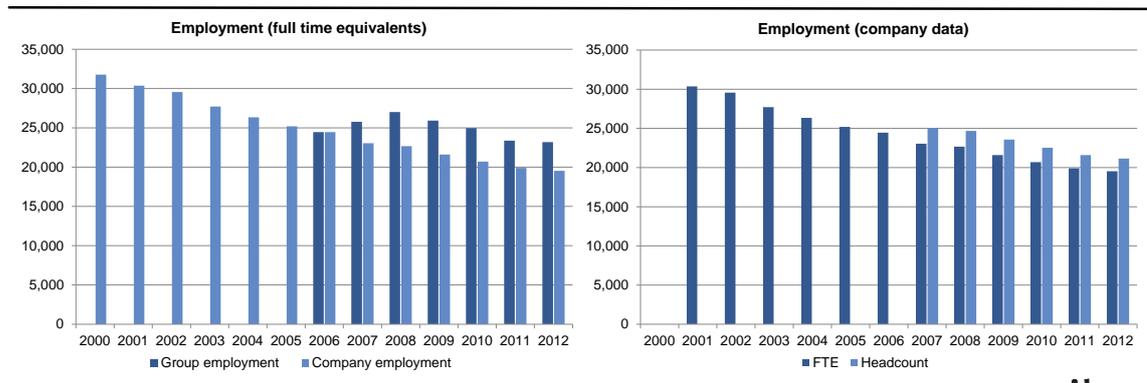
Figure 4-6 Austrian Post: Profitability (group data)



Source: WIK-Consult based on annual reports of Austrian Post.

The development in profitability between 2001 and 2006 reflects the success of the reorganization of the mail operations (see Figure 4-6). Austrian Post was making losses between 2000 and 2002 and managed to improve its profitability between 2003 and 2006 from less than one per cent to nearly 7 per cent. This improvement was fuelled by the substantially increasing surpluses of the mail business that achieved a level of nearly 20 per cent EBIT margin within three years (2003-2005). In contrast, the Parcel & Express division was far less successful with EBIT margins around zero on average.

Figure 4-7 Austrian Post: Employment (group and company data)



Source: WIK-Consult based on annual reports of Austrian Post.

Notes: Company data refers to “Österreichische Post AG”.

Group data refers to consolidated data, i.e. Österreichische Post AG (=company) and subsidiaries in Austria and abroad.

The decline in labour from 2000 to 2001 was the result of the demerger of “Autobus” (passenger transport services) from Austrian Post. The reorganization of mail operations is also reflected in the employment figures. Between 2001 and 2007 employment (in full-time equivalents) declined by nearly one quarter at the company level.³⁸ Around 60 per cent of all full-time equivalents were employed in the Mail division until 2011. The share increased to three-quarters due to the merger of the Mail and the Branch Network division.

³⁸ In 2007 Austrian Post had 23,043 employees (FTE) without acquisitions. See Austrian Post (2009), A transformation strategy: Innovation & diversification to grow revenue, Presentation of CEO Anton Wais 24 March 2009, p. 12.

4.2 Postal operations

4.2.1 Overview

Table 4-3 Austrian Post: Key figures of postal infrastructure

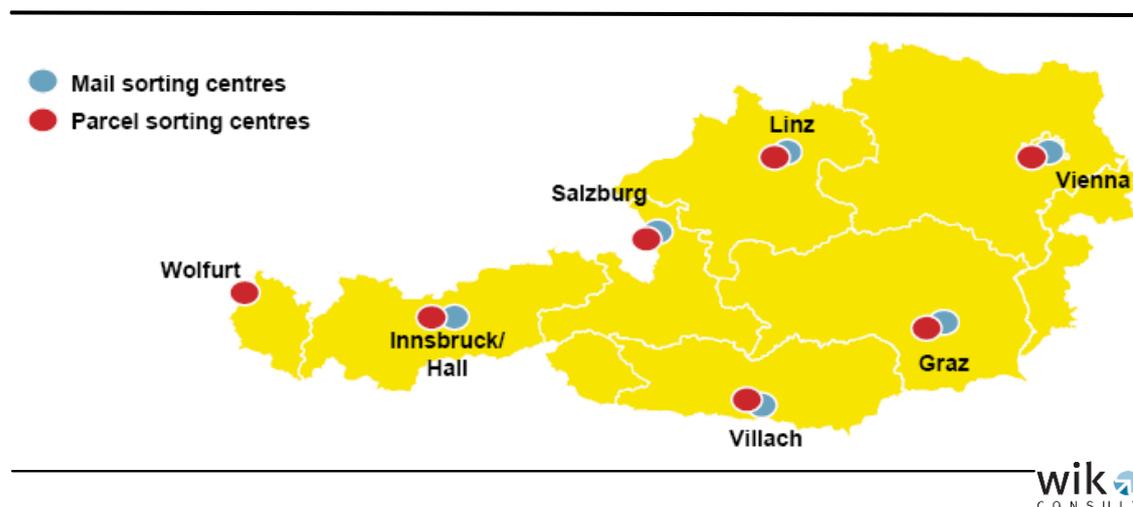
Daily volume (2012)	Mail items: 8 million Parcels: 0.25 million
Collection points	~16,000 post boxes ~500 company operated postal outlets ~1,500 postal partners (postal agencies)
Sorting centres	6 mail sorting centres 7 parcel sorting centres
Delivery offices / bases	260 delivery offices for letters (jointly used with parcels) 20 delivery bases for parcels (of which 7 are at the parcel sorting centres)
Delivery routes	~9,000 mail delivery routes, of which ~ 4,500 routes jointly for mail and parcels 936 routes for parcels
Addresses	4.3m households and businesses
Labour	Mail operations: 9,000 in delivery (total number not available) Parcel operations: ~ 1,700

Source: WIK-Consult based on Österreichische Post, Annual Report 2012; investor presentations and interview Austrian Post.

As outlined in section 4.1, Austrian Post's mail and parcel operations are assigned to different divisions ("Mail & Branch Network" and "Parcel & Logistics"). Austrian mail and parcel operations are part of the parent company "Österreichische Post AG"³⁹ while the international activities and the domestic low-cost distribution of unaddressed advertising ("Feibra") are organized in subsidiaries. Austrian Post delivers on average about 8 million mail items and around 250 thousand parcels per day in Austria.

³⁹ Since the IPO Austrian Post's annual reports do not provide financial information of "Österreichische Post AG"; they only refer to financial information of the group.

Figure 4-8 Mail and parcel sorting centres of Austrian Post



Source: Austrian Post (2007), Mail Division, Austrian Post Investor Day 19 November 2007, p. 8.

Austrian Post reorganized its postal operations between 1999 and 2006 (see section 4.3). Since that time mail and parcels have been operated in distinct sorting centres (six for mail and seven for parcels). The company does not have a specific sorting centre for international mail but uses a transport hub at Vienna airport. Except for one, parcel sorting centres are usually located near the mail sorting centre (see Figure 4-8). This simplifies the handling of specific items, e.g. direct mail bundles are also processed in parcel sorting centres while small packets that fit in private letter boxes are sorted in mail sorting centres. The transportation between parcel sorting centres is separately organized from the transportation between mail sorting centres.

Parcels and letters are jointly handled in collection and, partly, delivery activities. Mail is delivered by car, bicycle, moped or foot on ca. 9,000 delivery routes to 3.6 million households and 300,000 businesses. Mail and parcels are jointly delivered at around 50 per cent of mail delivery routes (if delivered by car). Austrian Post has 270 delivery offices for mail and further 20 delivery offices for parcels. The parcel delivery offices are either located near the parcel sorting centre or in urban areas.

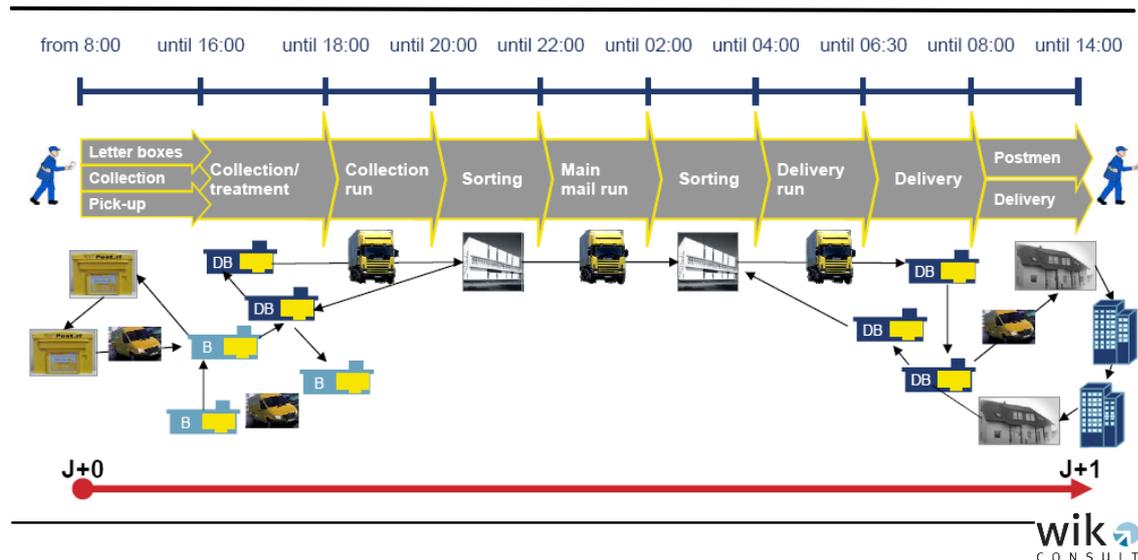
Around 21,100 employees (headcount) work for the parent company, of which about 16 per cent are on a part-time basis (mainly female employees). This share has not changed since 2007.⁴⁰ Nearly half of the employees are civil servants. Around 9,000

⁴⁰ See Austrian Post, Annual Reports 2007-2012.

employees work in mail delivery.⁴¹ Nearly 1,700 employees (including temporary staff) work in parcel operations, of which less than 100 have part-time contracts.⁴²

4.2.2 Mail operations

Figure 4-9 Austrian Post: Characteristics of mail operations



Source: Austrian Post (2006), Success Factor Value for Money, Austrian Post Investor Day 12 December 2006, p. 7.

Note: DB = Delivery Base; B = Branch (retail outlet).

Collection

Austrian Post has about 16,000 post boxes and 2,000 retail outlets. Around 1,500 of the retail outlets are outsourced to third parties (agencies). About 3,300 business customers have a pick-up agreement with Austrian Post.⁴³

⁴¹ See "Die Kommunikationsgewerkschaft" (2013), Post AG: Gewerkschaft kämpft gegen unzumutbare Arbeitsbedingungen [Union fights against unacceptable work conditions], 22 January 2013 (<http://www.gpf.at/news/post-ag-gewerkschaft-k%C3%A4mpft-gegen-unzumutbare-arbeitsbedingungen>).

⁴² Interview Austrian Post, Paket & Logistik.

⁴³ Annual Report 2013 Austrian Post.

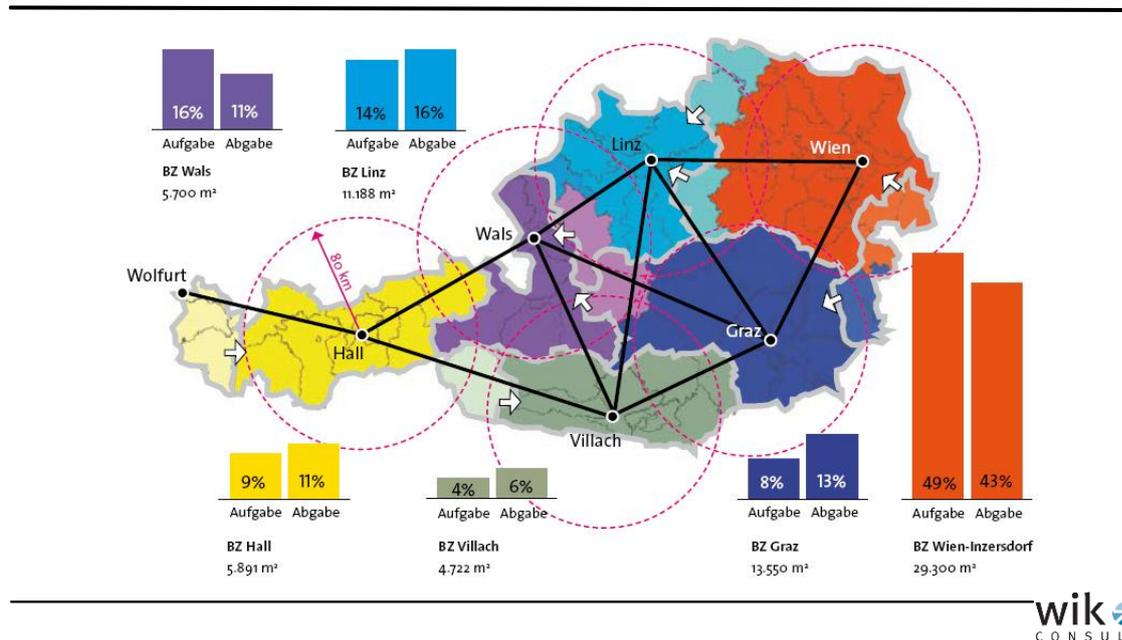
Sorting

Table 4-4 Austrian Post: Sorting technology

Type	Characteristics	Process description
CFC machines	<p>Producer: NEC</p> <p>Total number: 2 (only in Vienna)</p> <p>Location: Mail centres</p> <p>Productivity: 25,000 – 31,000 items per hour</p> <p>Workers per machine: no information</p>	<p>The CFC (Culler Facer Canceller) machines are used to separate small letters and flats collected from post boxes. Small letters (up to C5 and 5mm thickness) are put in the right direction to be cancelled. Flats (>C5 and >5mm thickness) are sorted out for manual cancelling.</p> <p>Only used for outward sorting (preparation of mail for the letter sorter)</p>
Letter sorters	<p>Producers: Siemens</p> <p>Total number: 21 integrated reading and video coding machines (ILV)</p> <p>19 machines for sorting letters to delivery routes (FSM),</p> <p>2 ILV-LS (two-level sorters that combine the functions of ILV and FSM; located in Hall; installed in 2007)</p> <p>Location: Mail centres</p> <p>Productivity: ~34,000 items per hour</p> <p>Workers per machine: 3-4</p>	<p>Outward sorting: Letters are barcoded by the ILVR. Addresses are read by optical character reading (OCR) and the address information is coded on the letter (barcode). If the address is not correctly recognized by OCR the information is added by online video coding. Letters are then sorted to the sorting program of the destination sorting centre (by the FSM).</p> <p>Inward sorting: Letters are sorted to delivery districts ("rayons").</p>
Flat sorters	<p>Producer: Siemens (OMS)</p> <p>Total number: 6 (planned)</p> <p>Location: Mail centres (in five centres, Vienna has two flat sorters)</p> <p>Productivity: 50,000 items per hour (four feeders)</p>	<p>Installation period: 2012-2014</p> <p>Flats (maximum B4) with max. 32mm thickness (including magazines and catalogues) and max. 2 kilograms can be sorted. The flat sorters are equipped with automatic tray handling.</p> <p>Outward sorting:</p> <p>Flats are sorted to the sorting program of the destination sorting centre.</p> <p>Inward sorting:</p> <p>Flats are sorted to delivery districts and delivery offices</p>
Multi sorter	<p>Producer: Crisplant/Beumer</p> <p>Total number: 1</p> <p>Location: Mail centre in Vienna</p> <p>Productivity: 13,000 items per hour</p>	<p>Sorting of bulky letters (circumference=900mm, maximum weight 2kg)</p> <p>Manual sorting of bulky letters in the other sorting centres</p>

Sources: Österreichische Post (2003), Das neue Briefzentrum Wien [The new mail sorting centre Vienna]; Österreichische Post (2009), Die Brieflogistik [Mail logistics]; Austrian Post (2007), Mail Division, Austrian Post Investor Day 19 November 2007; and interview Austrian Post.

Figure 4-10 Mail sorting centres of Austrian Post



Source: Austrian Post (2009), Die Brieflogistik [Mail logistics], p. 10.

Notes: The proportions refer to 2008.
 BZ ("Briefzentrum") = mail centre;
 "Aufgabe" = outbound sorting;
 "Abgabe" = inbound sorting.

Figure 4-10 presents the location and the capacity of Austrian Post's six mail centres. The sorting centre in Vienna ("Wien") is the largest one and handled around 50 per cent of total Austrian mail volume in 2008.

Today, 50 per cent of mail items are sorted to delivery routes and an additional 35 per cent to delivery offices by machine. 15 per cent of mail items cannot be processed by machine and have to be handled manually.⁴⁴ So far, letters and flats have not been sequenced in delivery order. Sequence sorting of letters by machine is envisioned for 2014/15.

Processing of priority items starts in the evening and is operated during the night time in order to achieve next day delivery. Non-priority items are processed during day time. They are often pre-sorted by the customers and are characterized by higher reading and throughput rates.⁴⁵

To simplify the handling of unaddressed items in delivery and to offer a high-quality advertising instrument, Austrian Post purchased collators in 2012. Collators are used wherever multiple products need to be bundled together. Austrian Post uses these machines to bundle unaddressed items in a paper cover to simplify delivery.

⁴⁴ Interview Austrian Post.

⁴⁵ Interview Austrian Post.

Small packages weighing up to 2 kilogram (“Premium Light Paket”) are handled in mail and parcel sorting centres. This special product for business customers includes items that are bulkier than letters but fit into the letter box. “Tracking & tracing” for this product ends at the delivery office. The items are always delivered by the postmen (no confirmation of delivery needed).

Transportation

Between the sorting facilities mail is transported by road. Around half of the connections are outsourced to transport companies, half is done by Austrian Post’s owned trucks. Only a very small proportion is transported by railway (only non-priority items). The transportation is basically organized by direct linkages between the sorting centres (see Figure 4-10).

Delivery

Currently 270 delivery offices are the starting points for around 9,000 postmen⁴⁶ to distribute postal items, unaddressed advertising and, on some routes, parcels.

About 50 per cent of mail is already sorted to delivery routes. Pre-sorting employees distribute the remaining mail items to delivery routes within the delivery offices.⁴⁷ Then the postmen sort letters and flats in delivery order. Additionally, the unaddressed items have to be spread to routes. These items are delivered twice a week only. Registered items and parcels that are jointly delivered with letters are scanned (to ensure track & trace). These in-office activities require about 25 to 35 per cent of the postmen’s daily working time.⁴⁸

Today, delivery routes are fixed and every postman follows the same route every day. Until 2013 each postman had an average working time of 38.5 hours per week (average per year). In 2012 Austrian Post and the union agreed on a new working time model to improve the flexibility in work organization and avoid overtime payments. The new model is based on an annual working time combined with a flex time wage record and became effective at the beginning of 2013. The flex time wage record means that postmen get the same wage each month but in any one month their hours may be higher or lower (averaging out over the year).⁴⁹

The number of items delivered varies among delivery routes from 1,000 to 4,000 items. On average a postman is responsible for approximately 600 households.⁵⁰

⁴⁶ See Die Kommunikationsgewerkschaft (2013), Post AG: Gewerkschaft kämpft gegen unzumutbare Arbeitsbedingungen, 22 January 2013 (<http://www.gpf.at/news/post-ag-gewerkschaft-k%C3%A4mpft-gegen-unzumutbare-arbeitsbedingungen>).

⁴⁷ See Austrian Post (2007), Mail Division, Austrian Post Investor Day 19 November 2007, p. 15.

⁴⁸ Interview Austrian Post.

⁴⁹ See Austrian Post (2012), Post: Einigung auf neues Arbeitszeitmodell in der Briefzustellung [Agreement on new working time model in mail delivery], press release 22 May 2012.

⁵⁰ Interview Austrian Post.

4.2.3 Parcel operations

Collection

Parcels are collected from Austrian Post's retail outlets, 24 parcel lockers (only located in Vienna and also used as pick-up points for delivery of parcels) and around 100 parcel boxes (only acceptance of parcels). Generally, letters and parcels are jointly collected and transported to the next sorting facility. The same vehicles transport "Infopost" bundles to the delivery offices before collecting mail and parcels to use loading capacity.

Sorting

In the seven parcel sorting centres the items are handled mechanically on conveyor belts that have an operational throughput of approx. 12,000 parcels per hour.⁵¹ They are generally sorted to delivery offices. Between 4 and 5 per cent of the parcels are handled manually because they are too bulky for automatic sorting. During daytime bundles of addressed direct mail ("Infopost") are sorted in parcel sorting centres. These bundles are pre-sorted to delivery offices and fixed with plastic straps.

Transportation

Transportation between parcel sorting centres is organized separately from the mail division and operated by Austrian Post's own trucks.

Delivery

Delivery starts either from 20 parcel delivery offices (of which seven are located at the parcel sorting centre) or from mail delivery offices in case of joint delivery (letters and parcels). There are more than 900 dedicated parcel delivery routes in urban areas. Each parcel deliverer distributes around 120 parcels on average per day. Half of the 9,000 letter routes parcels and letters are delivered jointly by car (mostly rural areas).⁵² On dedicated parcel delivery routes each deliverer distributes 120 to 130 parcels on average per day.⁵³

Currently, Austrian Post is rolling out parcel boxes in order to simplify delivery of parcels in residential areas. These parcel boxes are located in the entrance area of large apartment houses and approximately 20 households jointly use one box. When delivering a parcel the postman drops a note and a chip card in the recipient's letter box. This chip card opens the secured parcel box and remains in the box (for the next use). Mid 2013, 2,600 of these boxes had already been installed. For 2013 it is planned to extend the number to 5,000, and to 15,000 boxes for 2014.⁵⁴

⁵¹ Interview Austrian Post.

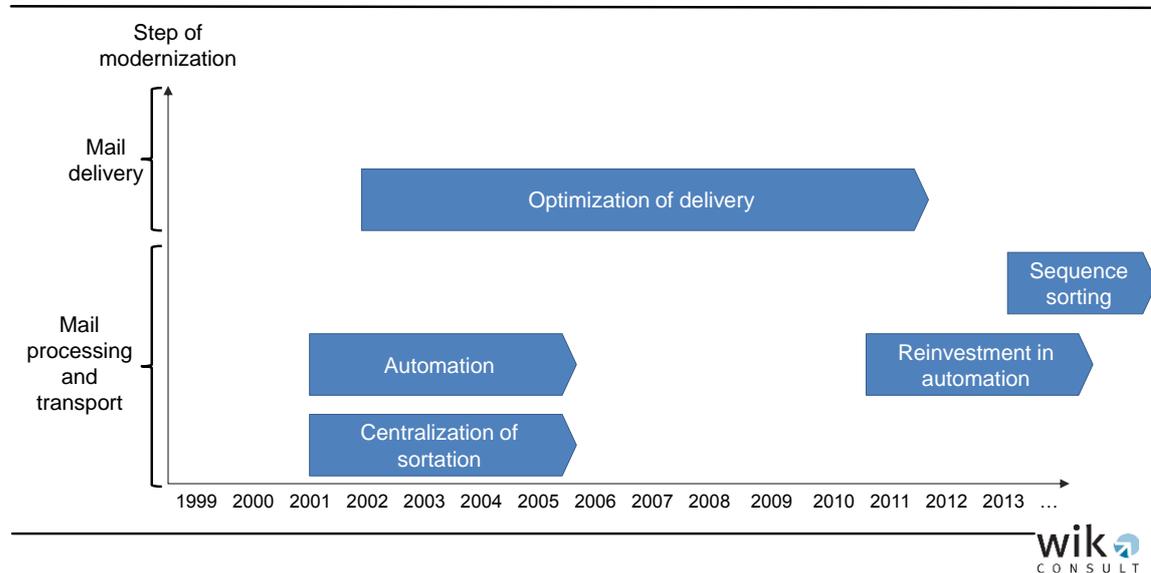
⁵² Interview Austrian Post.

⁵³ Interview Austrian Post.

⁵⁴ Austrian Post (2013), Investorenpräsentation I. Quartal 2013 [Investor presentation, 1st quarter 2013], 17 May 2013, p. 15.

4.3 Efficiency programs

Figure 4-11 Austrian Post: Evolution of mail operations



Source: WIK-Consult.

Centralization of sortation and automated sorting

After the separation of the postal and telecommunication activities in 1998, a new management board was put in place which developed a new strategy with the objective to go public. This strategy included e.g. industrialization and optimization of postal operations to improve the productivity, reduction of costs and improvement of service quality, particularly the transit time performance of letters and parcels.

The key elements of the program “Gesamtlogistik-Konzept” were the separation of mail and parcel processing and the reorganization of the delivery offices. Between 1999 and 2006 the number of sorting facilities was reduced from 39 to six sorting centres for mail and seven sorting centres for parcels. The reduced number of sorting centres allowed the installation of sorting machines for letters and flats (see also Table 4 4) and conveyor belts for parcels.

Table 4-5 Efficiency program “Gesamtlogistik-Konzept” (1999-2006)

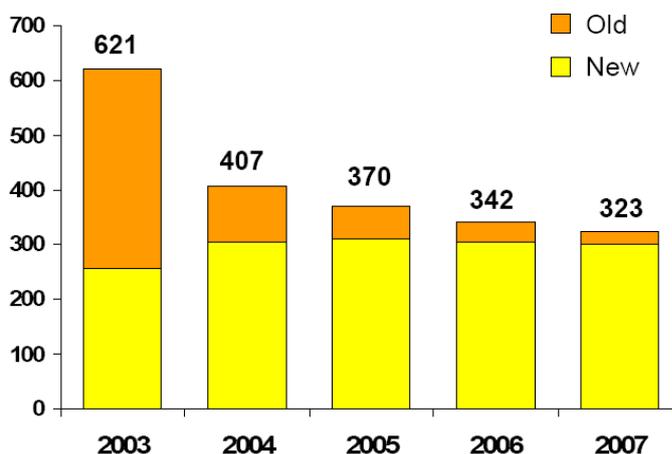
Investment	Planned investment: EUR 276 million in logistics and distribution (only mail) Realized investment: EUR 456 million (including mail and parcel operations) until 2006
Cost savings	Plan: ATS 1.2 billion (EUR 87 million) per year (~5% of 2006 operating expenses) Mail: Reduction in employment by nearly 6,000 FTE between 2000 and 2006 (20%) with volumes remaining fairly constant Parcel & Logistics: Reduction in employment by 320 FTE between 2003 and 2005 (12%)
Efficiency gains	<ul style="list-style-type: none"> Increasing productivity per employee (measured by revenues per employee) Mail: D+1 performance (share of letters delivered the next working day) increased by more than 15 percentage points between 2001 and 2006 (from 79.5 to 95%) Parcels: D+2 performance (share of parcels delivered the second working day after posting) increased by 8 percentage points between 2003 and 2005 (from 87.4 to 94%)

Sources: Austrian Post, analyst presentations and press releases.

Four of the six mail sorting centres were newly built while two locations were pre-existing and were modernized. Step by step, they went online between summer 2001 and winter 2003/04.

Optimization of delivery

Figure 4-12 Reorganization of Austrian Post’s delivery offices



Source: Austrian Post (2007), Mail Division, Austrian Post Investor Day 19 November 2007, p. 11.

In 2000 the company started transferring the about 1,900 delivery offices, usually located at the traditional post office, to ~300 newly constructed delivery offices (see Figure 4-12). This geographical separation of post offices and delivery offices prepared the replacement of traditional post offices by postal agencies (post shops). More

importantly, the centralization of delivery processes simplified the reorganization and increased the number of postmen per delivery office (at least 15 postmen).⁵⁵ Finally, additional employees pre-sorted mail items to delivery routes while the postmen sequenced the items for delivery. In 2006 around 11,300 postmen were responsible for mail delivery.⁵⁶ After 2006 the reduction of delivery offices continued down to 270 in 2013, while the number of deliverers declined to less than 9,000.

Reinvestment in automation and introduction of automated sequence sorting (2011-2014/15)

In 2010 this concept (“Gesamtlogistik-Konzept”) was challenged again. The sorting machines for letters and flats, installed between 2001 and 2003, were out-of-date, and the company decided to replace them with modern machines that are also able to sequence the items in delivery order. At the end of 2011, the company ordered six flat sorters made by Siemens (OMS with three feeders) that are able to sort 25,000 (two feeders) and 50,000 items (four feeders) per hour (compared to the 17,400 items per hour by the old machines). Recently, Austrian Post ordered 20 Solystic STAR Duplex machines.⁵⁷ The purchase of an additional flat sorter and the replacement of the letter sorters are foreseen for 2014 and 2015.⁵⁸ The new letter sorters will not only allow sequence sorting but will also replace two separate letter sorters for video coding and sorting (ILV and FSM, see Table 4-4). Additionally, Austrian Post is going to replace one of the old locations (in Linz near the main station) with a new one outside the city (total investment: 50 million Euro). At this location a new sorting centre for mail and one for parcel processing is being built and will become operational in the second half of 2014.⁵⁹

The new sorting technology will affect the delivery organization insofar that postmen will need less time for manual sorting. Additionally, the company is considering introducing a special delivery model for the distribution of non-priority mail.

⁵⁵ See Austrian Post, Annual Report 2000, p. 39.

⁵⁶ See Austrian Post (2006), Success Factor Value for Money, Austrian Post Investor Day 12 December 2006, p. 6.

⁵⁷ See Solynews (2013), Austrian Post selects the STAR Duplex, June 2013.

⁵⁸ Interview Austrian Post.

⁵⁹ See Austrian Post (2013), Spatenstich für neues Logistik-Zentrum in Allhaming/Oberösterreich, press release 9 August 2013.

5 Deutsche Post (Germany)

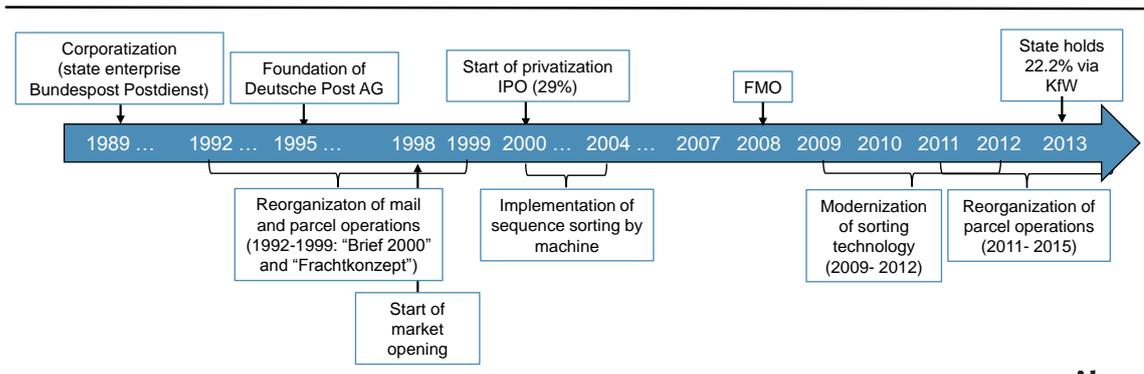
Key facts

- Deutsche Post, corporatized in 1989 and went public in 2000. Today, less than 25 per cent of the shares are owned by the German state.
- Deutsche Post DHL (company group) is the largest postal operator in Europe with a total revenue of EUR 55.5 billion (2012).
- The group offers mail, parcel & express and logistics services. Express and logistics services are provided worldwide. Mail and parcel revenues account for approximately one quarter of total revenues.
- The mail division was the major source of Deutsche Post's profits until 2010 and still is a very profitable business.
- The German mail market was fully liberalized in 2008. Deutsche Post's market share is stable at 90 per cent while about ten per cent of letters are delivered by other end-to-end operators.
- In the nineties, Deutsche Post fundamentally re-engineered the German mail and parcel operations. The need to change was accelerated by the merger of the two postal administrations after the German reunification in 1990.
- A second and third wave of very significant investments consisted of the replacement and modernization of mail automation between 2009 and 2012 (EUR 400 million) and the modernization/expansion of German parcel operations that began in 2011 (planned investment: EUR 750 million).

5.1 Background

Corporate developments and organizational structure

Figure 5-1 Germany: Milestones in corporatization, privatization and market opening



Source: WIK research.

In 1989 the Bundespost Postdienst was incorporated as a state enterprise. It became Deutsche Post AG in 1995 and went public in 2000 with the state being the majority shareholder with 71 per cent ownership. The shares were administered by the state-owned bank "Kreditanstalt für Wiederaufbau". Today, the state holds (indirectly) 22.2 per cent in Deutsche Post.

After the reunification of East and West Germany in 1990 both postal administrations were merged and this required a re-think of how to organize postal operations in the unified country. For this reason the nineties were characterized by a fundamental reorganization of German mail and parcel operations accompanied by the introduction of a new 5-digit postal code system.

At the end of the nineties, Deutsche Post started its internationalization strategy including its most important acquisition of DHL. Today, the group Deutsche Post DHL is a company with worldwide activities and plays a leading role in international express and parcel services (under the DHL brand).

Figure 5-2 Deutsche Post DHL: Business divisions

Mail	Express	Global Forwarding, Freight	Supply Chain
Business units <ul style="list-style-type: none"> • Mail Communication • Dialogue Marketing • Press Services • Value-Added Services • Parcel Germany • Retail Outlets • Global Mail • Pension Services 	Regions <ul style="list-style-type: none"> • Europe • Americas • Asia Pacific • MEA (Middle East and Africa) 	Business units <ul style="list-style-type: none"> • Global Forwarding • Freight 	Business units <ul style="list-style-type: none"> • Supply Chain • Williams Lea

Source: WIK-Consult based on Deutsche Post DHL, Annual Report 2012, p. 20.

Note: The bold written sub-segments indicate the business areas that include the letter post and parcel operations that are (roughly) comparable to the Reported Business of Royal Mail.

Deutsche Post DHL is organized into four business divisions: Mail, Express, Global Forwarding & Freight and Supply Chain (see Figure 5-2). The Mail division is responsible for domestic and cross-border mail and parcel operations as well as Deutsche Post DHL's activities in foreign letter post markets (e.g. in Spain, France and, until 2011, in the Netherlands), and value-added services related to mail production and consolidation, press distribution and advertising. While the domestic mail and parcel operations are assigned to the company "Deutsche Post AG", other activities are usually provided by subsidiaries. As the company figures are more comparable to Royal Mail's Reported Business than the group data ("Deutsche Post DHL") these are also presented in this section. Cross-border mail and parcel operations as well as activities in foreign letter post markets are assigned to DHL Global Mail, a sub-unit of the Mail division.

The other divisions are dominated by international express and logistics operations and organized in subsidiaries. In 2012 Deutsche Post DHL offered its express and logistics services worldwide and earned around 70 per cent of its revenues outside Germany.

Market opening and competition

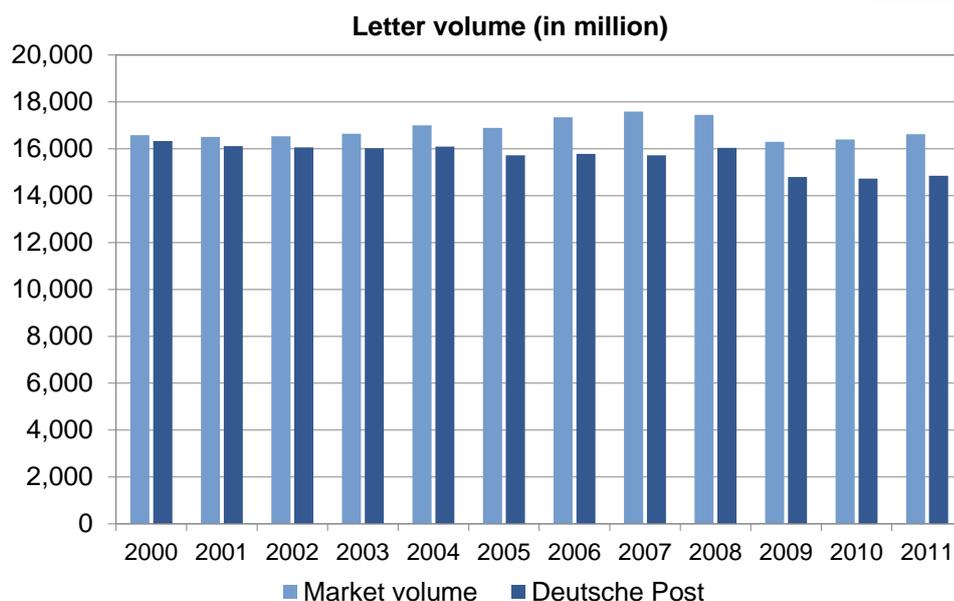
The German letter post market was fully opened to competition in 2008, ahead of the schedule set by the Postal Directive. Competition had emerged prior to full market opening as competitors were able to provide postal services under the so-called D-licence (which is an element of the regulatory framework in the German postal market). This licence allowed the provision of postal services within the weight and price limits of the reserved area that were distinct from universal services, i.e. they had special features and higher quality. Due to the quality requirements D-licensees could only

provide high quality postal services at a local level.⁶⁰ The process of issuing licences was accompanied by numerous court cases regarding the definition of the D-licence.⁶¹ For this reason and other problems like the VAT exemption for universal services and the failed attempt to introduce minimum wages for mail carriers, competitors have only been able to grow their market share slowly, reaching 10.6 per cent of total market volumes in 2011.⁶² There are several hundred operators in the market; the largest one is TNT Post, a subsidiary of PostNL, with an estimated market share above five per cent. Competition has mainly emerged in the letters segment. Direct mail services are mainly provided by Deutsche Post.

Deutsche Post faces more competition in the parcel delivery market where its market share is around 30 per cent.⁶³

Evolution of mail and parcel volumes

Figure 5-3 Development of letter volumes in the German mail market and at Deutsche Post



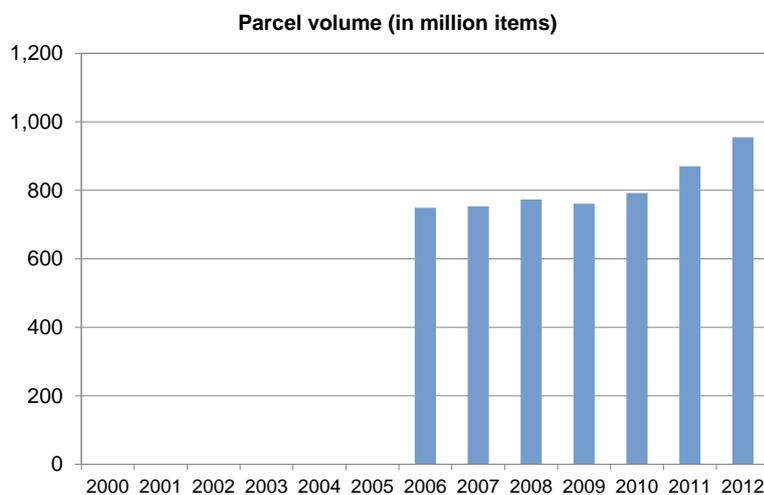
Source: WIK-Consult based on market surveys of BNetzA (the German postal regulator).

Note: Letter volume refers to the licensed area in Germany. This area consists of domestic and cross-border inbound and outbound letters and addressed direct mail weighing up to 1,000g. Publications are not included.

⁶⁰ See WIK-Consult (2004), Main Developments in the European postal sector, case study 4.6.
⁶¹ See ITA Consulting / WIK-Consult (2009), Evolution of the European postal market since 1997, p. 69.
⁶² See Bundesnetzagentur (2013): Lizenzpflichtige Briefdienstleistungen: Marktdaten 2008-2011, April, 2013, p. 14f.
⁶³ See WIK (2012), Postmarkterhebung 2012.

In contrast to many other European countries letter volumes in Germany increased until 2008 and aside from a decrease of 6.6 per cent in 2009 due to the economic recession, they have continued to rise (see Figure 5-3). However, volumes have not yet reached the pre-2008 level and it is unclear whether they will do so. Between 2000 and 2008 Deutsche Post lost some volume to competition but the decline was fairly limited (around 1.8 per cent in total). Deutsche Post experienced an even sharper decline in its volumes in 2009 than the rest of the market with a 7.7 per cent decline. In the following years Deutsche Post's mail volumes have largely remained stable. Today, Deutsche Post delivers more than 64 million letters per day.⁶⁴

Figure 5-4 Deutsche Post DHL: Development of parcel volumes



Source: WIK-Consult based on annual reports of Deutsche Post DHL.

Note: No parcel figures available before 2006 because parcel volumes were included in express volumes before.

Deutsche Post's parcel volume is dynamically growing (see Figure 5-4). It has increased by one quarter since 2009 despite the economic recession. This development is mainly driven by e-commerce. To better meet the increasing demand for parcel services, Deutsche Post is currently expanding its capacity in its parcel operations.⁶⁵ Today, Deutsche Post handles more than 3 million parcels per day.⁶⁶

⁶⁴ See Deutsche Post (2013): Annual Report 2012.

⁶⁵ See annual reports of Deutsche Post from 2000 to 2012.

⁶⁶ See Deutsche Post (2013): Annual Report 2012.

Services, prices and quality

Table 5-1 Deutsche Post DHL: Size and weight structure of basic letter products

Format category	Standardbrief	Kompaktbrief	Großbrief	Maxibrief	DHL Päckchen
Length	235mm	235mm	353mm	353mm	600mm
Width	125mm	125mm	250mm	250mm	300mm
Thickness	5mm	10mm	20mm	50mm	150mm
Circumference	-	-	-	-	-
Weight classes	0-20g	0-50g	0-500g	0-1,000g	0-2,000g
Product attributes	Depends on content of the postal item D+1 (correspondence) D+4 (advertising), only business customer (volume threshold)				

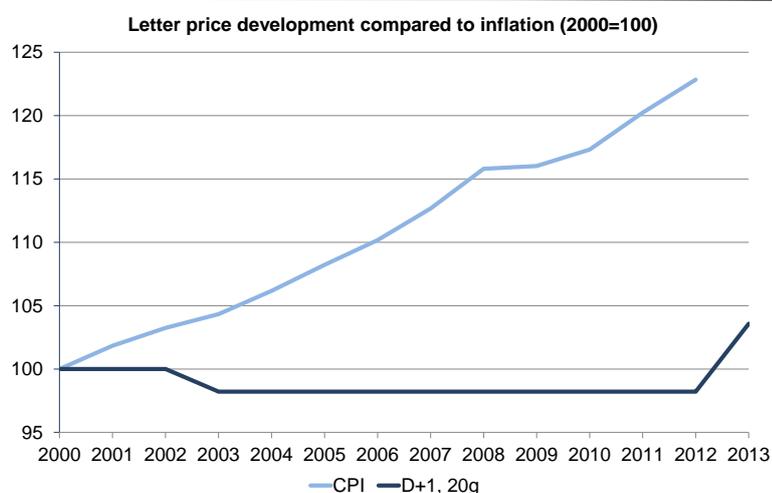
Source: WIK-Consult based on price lists of Deutsche Post.

Deutsche Post’s letter tariffs depend on both the format and weight of the item. The basic structure was introduced twenty years ago, in 1993. Consumers and most business customers do not have a second class (i.e. slower than next day) delivery option. For advertising mail, Deutsche Post offers a specific direct mail service. These items are delivered the fourth working day after posting (D+4). Deutsche Post delivers letters and parcels six days per week (Monday to Saturday).⁶⁷

The basic parcel service includes a track and trace feature and the contents are insured up to EUR 500 without surcharge. Parcels are delivered at the premises of the recipient or, if requested by the recipient, in the closest postal outlet or parcel locker.

⁶⁷ The universal service obligation requires six day delivery per week. Since full market opening no single postal operator is obliged to provide the universal postal service in Germany. So far, Deutsche Post provides this service voluntarily.

Figure 5-5 Deutsche Post: Development of the basic letter tariff



Source: WIK-Consult based on price lists of Deutsche Post and Eurostat (Consumer price index CPI).

Deutsche Post's basic tariff for letter services remained fairly stable and, thus, declined in real terms from 2000 to 2013 (see Figure 5-5). Today, a consumer pays EUR 0.58 (GBP 0.47) to send a 20 gram letter that is delivered the next working day. Overall, we consider that business tariffs for parcel as well as for letter services have declined during the last decade mainly driven by competition.

Table 5-2 Deutsche Post DHL: Development of delivery quality

Delivery quality (in %)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Letters D+1 target	80	80	80	80	80	80	80	80	80	80	80	80	80
Letters D+1 performance	95.0	94.8	95.8	94.5	95.3	95.7	95.9	95.6	95.1	94.7	92.8	93.7	92.3
Parcels D+2 target	80	80	80	80	80	80	80	80	80	80	80	80	80
D+1 performance	n.a.	>90	>90	>90	>90	>90							

Source: WIK-Consult based on annual reports of Deutsche Post.

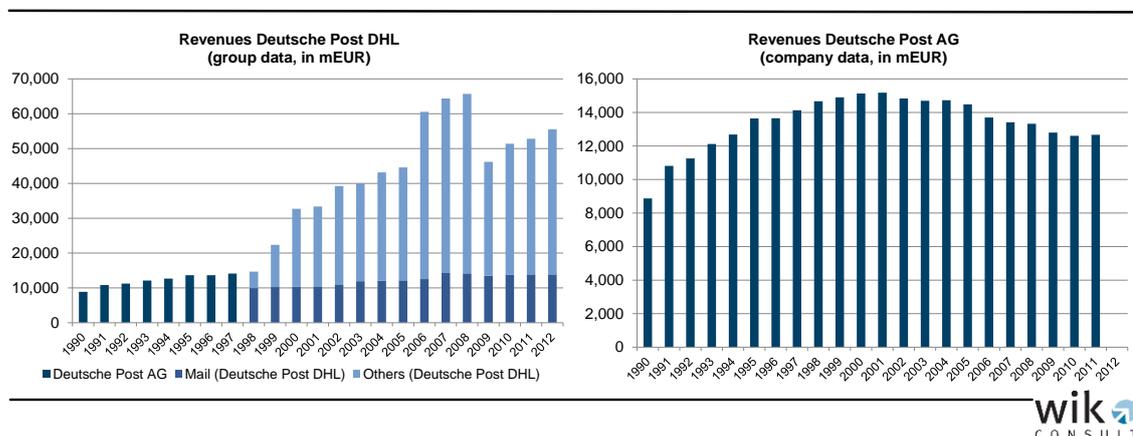
Note: 'n.a.' means 'not available'.

More than 90 per cent of letters and parcels are delivered the next working day. The reduction in the proportion of letters delivered D+1 since 2010 is due to a change in the

way service quality is measured which was required by the German regulatory authority. The standard method (based on CEN standard EN 13850) only reflects the “in-house” transit time of a letter, i.e. the measurement starts with the day of collection and ends with the day of delivery. In contrast, the German postal legislation requires the “user-oriented” view of the transit time, i.e. the measurement starts with the day of posting (e.g. in a public letter box) and ends with the day of delivery.⁶⁸ Deutsche Post has changed the collection times for some post boxes to the early morning, particularly in rural and semi-urban areas, and this has resulted in the “user-oriented” measure being slightly lower than the “in-house” transit time. Deutsche Post reports that the transit time of letters is usually above 95 per cent next day (“in-house” view).⁶⁹

Revenues, expenses and profitability

Figure 5-6 Deutsche Post: Revenues (group and company data)



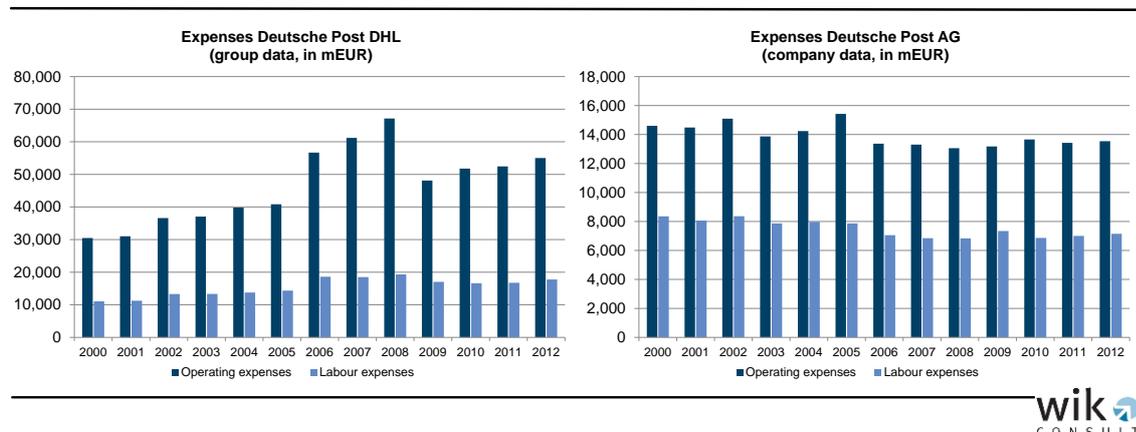
Source: WIK-Consult based on annual reports of Deutsche Post DHL (group data) and Deutsche Post AG (company data).

Notes: Company data refers to “Deutsche Post AG”.
Group data refers to consolidated data, i.e. Deutsche Post AG (=company) and subsidiaries in Germany and abroad.

⁶⁸ See BNetzA (2012), Tätigkeitsbericht 2010/2011, p. 81.

⁶⁹ See e.g. Deutsche Post DHL, Annual Report 2012.

Figure 5-7 Deutsche Post: Expenses (group and company data)



Source: WIK-Consult based on annual reports of Deutsche Post DHL (group data) and Deutsche Post AG (company data).

The revenue development of Deutsche Post DHL (presented in the left chart of Figure 5-6) reflects the substantial growth of the group mainly due to international acquisitions. The revenue decrease in 2008/2009 resulted from the divestiture of DHL's domestic operations in the United States which were highly loss-making and the sale of its financial services business (Postbank) as well as the decrease in demand due to the economic recession.⁷⁰

Between 2006 and 2007 the revenues of the Mail division increased because the domestic parcel operations were transferred from the Express division to the Mail division.⁷¹ Today, domestic letter post operations account for less than 60 per cent of the total division's revenues, with domestic parcel services responsible for nearly one quarter and cross-border postal services and international mail activities (DHL Global Mail) about 10 per cent of revenues. Due to the development of competition, Deutsche Post's share of letter post revenues has declined, while its share of parcel revenues has increased over the last few years.⁷²

Both the national letter post and parcel operations are assigned to Deutsche Post AG (DPAG). For this reason we present the revenue development of DPAG in the right chart of Figure 5-6. The revenues show less variability than for the Mail division. Revenues of DPAG gradually declined between 2001 and 2011 (by 1.7 per cent per year on average). This decline reflects the emerging competition and the introduction of access contracts in the German mail market⁷³ resulting in declining prices for business customers.

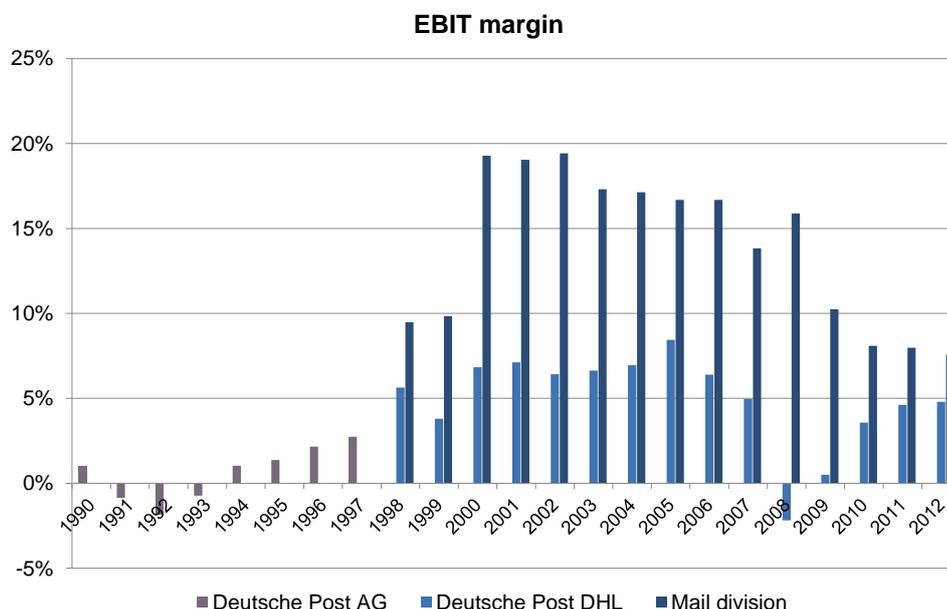
⁷⁰ See Deutsche Post DHL, Annual Report 2009.

⁷¹ See Deutsche Post DHL, Annual Report 2006, p. 75.

⁷² See Deutsche Post DHL, Annual Reports.

⁷³ After decisions from the European Commission, the German competition authority and an additional judicial decision Deutsche Post made first access agreements with consolidators at the end of April

Figure 5-8 Deutsche Post DHL: Profitability



Source: WIK-Consult based on annual reports of Deutsche Post DHL and Deutsche Post AG (company data).

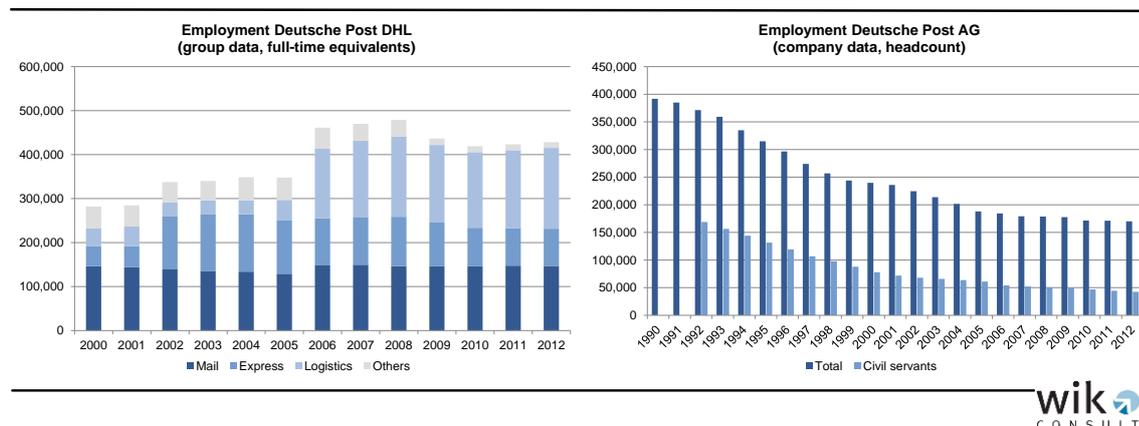
Note: The margin is calculated in relation to the external revenues of the division.

After the fundamental reorganization of the German postal operations following the reunification, the profitability of Deutsche Post AG (until 1997) and of the Mail division (firstly reported in 1998) has substantially improved – nearly reaching a 20 per cent EBIT margin (see Figure 5-8). After the parcel operations were transferred to the Mail division, the EBIT margin started declining to around 8 per cent in 2010 to 2012. The increase in EBIT margin in 2008 is the result of a repayment from the German government of EUR 572 million plus interest.⁷⁴ Without this repayment the EBIT margin would have been 11.8 per cent. Domestic parcel operations are likely to be at least partly responsible for this decline because the German parcel market is very competitive and characterized by a limited number of very large customers (notably Amazon). For this reason, we consider parcel operations are substantially less profitable than the less competitive domestic letter post business.

2005. Access contracts are used by large business customers and by consolidators. Access refers to posting pre-sorted mail at the outbound or the inbound sorting centre. See WIK-Consult (2004), Main developments in the European postal sector, case study 4.8, p. 72 and ITA-Consulting / WIK-Consult (2009), Evolution of the European postal market since 1997, p. 71.

⁷⁴ The European Court of First Instance annuls a decision by the European Commission, which had ordered Deutsche Post to repay purported state aid. As a result, the German government repaid the sum of EUR 1,067 million to Deutsche Post (see Annual Report 2008, p. 135). The original fine of EUR 572 million was booked to the Mail division (see Annual Report 2008, p. 58).

Figure 5-9 Deutsche Post DHL and Deutsche Post AG: Employment



Source: WIK-Consult based on annual reports of Deutsche Post AG (company data).

Note: We present the employment figures of Deutsche Post AG because these figures better reflect the employment development in German postal operations. As noted earlier mail and parcel operations are assigned to Deutsche Post AG. The company does not publish employment figures for mail and parcel operations separately.

Since 2000 group employment has increased with growing international activities (see left chart of Figure 5-9) while employment in national operations has continued to decline. This is best reflected by the employment figures of the parent company Deutsche Post AG (see the right chart of Figure 5-9). The merger of the Eastern and Western postal administration after the reunification resulted in a substantial excess of employees, many of them being civil servants. For this reason, the fundamental reorganization and streamlining of postal operations resulted in a substantial decline of employment between 1990 and 1999 (nearly 40 per cent in total). We consider that this very German-specific development is not fully transferable to other postal operators because it is additionally affected by the merger of the former postal administrations in East and West Germany after reunification. The post-merger reorganization was a combination of streamlining and eliminating duplications and modernization both resulting in less employment. Between 2000 and 2011 total headcount declined by 3 per cent per year on average (or around 28 per cent in total over the period). Deutsche Post managed this reduction in close co-operation with the unions without enforced redundancy (e.g. by early retirement of civil servants).⁷⁵

⁷⁵ Interview DPVKOM.

5.2 Postal operations

5.2.1 Overview

Table 5-3 Deutsche Post DHL: Key figures of postal infrastructure

Daily volume (2013)	Mail items: 50 million (excluding unaddressed items) Parcels: 3.2 million
Collection points	~110,000 post boxes ~13,000 postal outlets (100% agencies) 240 business centres ~2,500 parcel lockers ~1,000 parcel boxes (public collection boxes for parcels)
Sorting centres	82 mail sorting centres 33 parcel sorting centres 1 international sorting centre used jointly
Delivery offices / bases	45 mail preparation centres in urban areas serving around 3,900 mail delivery routes ~3,100 delivery offices for letters ~200 delivery bases for parcels
Delivery routes	51,500 routes for letters (including joint delivery) ~20,500 mail delivery routes (~3,700 by foot, rest by bicycle) ~31,000 delivery routes jointly used mail and parcels (delivery by car) ~8,400 delivery routes for parcels (of which 1,000 outsourced to subcontractors) ~2,500 parcel lockers
Addresses	40 million households 3 million businesses
Labour	Mail operations: ~110,000 (headcount) of which 24,000 in sorting centres and ~86,000 in delivery Parcel operations: ~22,000 (headcount) of which 9,000 in sorting centres and ~13,000 in delivery

Sources: Deutsche Post DHL (2013), Zahlen & Fakten DHL Paket Deutschland [Facts & Figures of DHL Parcel Germany], Deutsche Post DHL (2013), Überblick über das aktuelle Verkaufsstellenetz der Deutschen Post DHL [The current retail network of Deutsche Post DHL in Germany] (Status: June 2013); Interview DPVKOM.

Deutsche Post handles on average 50 million letter post items⁷⁶ and 3.2 million parcels per day (in December up to 7 million parcels per day). Today's structure of Deutsche Post's mail and parcel operations was launched during the nineties (between 1992 and 1999, see section 5.3). Since then, the company has operated letters and parcels in two separate networks. Letter post items up to one kilogram are usually processed in the letter network and small packets ("DHL Päckchen", up to two kilograms) and parcels in

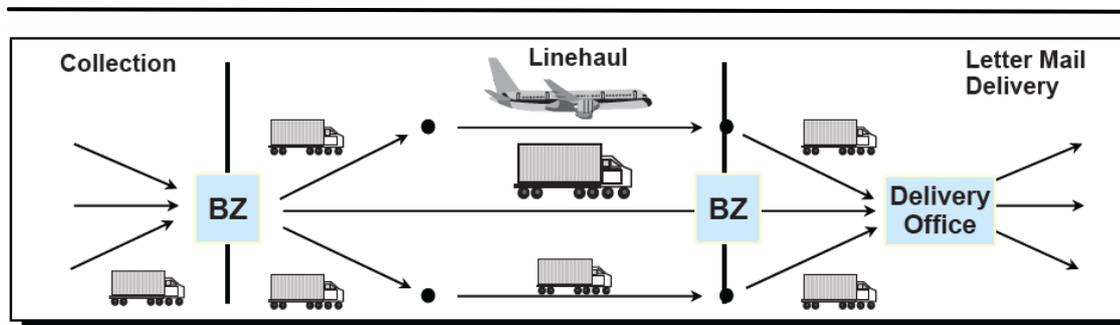
⁷⁶ Deutsche Post usually reports 65 million items per day but this figure includes unaddressed advertisements.

the parcels network. Processing and transportation of letters and parcels (to sorting centres, between sorting centres and from sorting centres to delivery offices) is separately organized. In 1995, the company started delivering letters and parcels on completely distinct delivery routes. Due to high delivery costs for parcels in rural areas, this decision was cancelled in 1996.⁷⁷ Today, letters and parcels are jointly delivered at the majority of letter delivery routes (32,000 of 52,400 in total) to more than half of all households (51 per cent). Since 2008 the number of delivery routes has slightly declined by less than one per cent. Additionally, there are 8,400 distinct parcel delivery routes. Due to growing parcel volumes this number has increased by 15 per cent since 2008. Nearly 1,000 of these routes have been outsourced.⁷⁸

In mail and parcel sorting centres there are only part-time employees (except for administration and management). 24,000 employees are working in mail and around 9,000 in parcel processing (headcount, mainly part-time contracts). In delivery, most employees have full time contracts. Where mail preparation and delivery is separated (i.e. done by different employees), postmen have part-time contracts (in total 3,900 rounds). There are about 86,000 mail and 13,000 parcel deliverers (headcount).⁷⁹

5.2.2 Mail operations

Figure 5-10 Deutsche Post DHL: Mail operations



Source: Deutsche Post (2005), *Modernizing Postal Communications Services and Logistics: The Operations of Deutsche Post World Net*, presentation of Amin Saidoun, June 2005 in New Delhi, p. 12.

Collection

Deutsche Post collects mail from around 112,000 post boxes and more than 13,000 retail outlets (postal agencies). For business customers, Deutsche Post offers a pick-up service and around 240 collection points for bulk mail (including the ones located at the

⁷⁷ Interview DPVKOM.

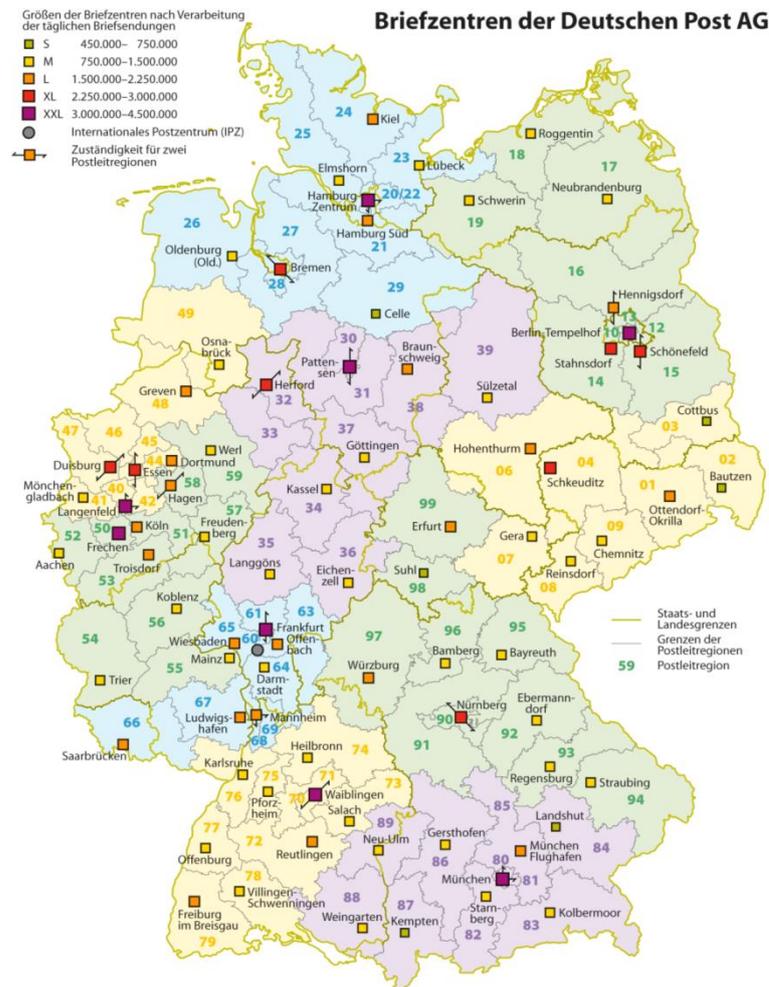
⁷⁸ Interview DPVKOM.

⁷⁹ Interview DPVKOM.

mail sorting centre).⁸⁰ The collection of letter post items from postal outlets and post boxes is partly outsourced to sub-contractors. Deutsche Post employs around 3,400 drivers. The collected items are transported by truck to the next mail sorting centre. Letter post items are generally transported in trays throughout the postal pipeline (three types of trays: one for small letters, one for flats and one for bulky letters).

Sorting

Figure 5-11 Mail sorting centres of Deutsche Post



Source: Wikipedia.

Notes: Briefzentren = mail sorting centres;
Size classes: S, M, L, XL and XXL (in terms of letter post items handled per day).

Letters and parcels are generally operated in distinct sorting centres. Between 1993 and 1998, Deutsche Post built in total 83 sorting centres for domestic letters (one sorting centre was closed in 2003) and one international sorting centre located at

⁸⁰ See Bundesnetzagentur (2012), Tätigkeitsbericht Post 2010/2011.

Frankfurt Airport (opened in 1997). Each centre is responsible for outward and inward sorting of letter post items and they are located at places with good transport connection (by road).

There are two different organization types and five size classes of sorting centres: In the smaller sorting centres (S, M and L), mail sorting is organized as passing through processes (from one end to the other end of the building passing through the sorting processes for small letters (“Standard/Kompaktbriefe”), flats (“Großbriefe”) and bulky letters (“Maxibriefe”). These centres process between 0.75 and 2.3 million items per day. In contrast, the large sorting centres (XL and XXL) are shaped like a “U” and handle between 3 and 4.5 million items per day. Non time-critical postal items are processed during day-time while time-critical letters (delivered the next working day) are processed during night shift. Additionally, Deutsche Post has 10 depots where non-priority items (e.g. advertising mail) are temporarily stored.

Table 5-4 Deutsche Post: Sorting technology

Type	Characteristics	Process description
CFC machines	No information available	
Letter sorters	Producer: Siemens Total number: 288 (IRV 3000, installed 2009-2011) Location: Mail sorting centre Productivity: up to 50,000 items per hour Workers per machine: 3 (one feeder, two to clean the stackers)	Outward sorting: Addresses are read by optical character reading (OCR) and the address information is coded on the letter (fluorescent barcode, information includes an Identification number, the postal code, the street number and the first four letters of the street name). If the address is not correctly recognized by OCR the information is added either by remote video coding or by online video coding. Letters are then sorted to the sorting program of the destination sorting centre. Inward sorting: Letters are sorted in delivery order.
Flat sorters	Producer: Siemens Total number: 87 (Siemens Open Mail Handling System OMS, installed 2010-2012) Location: Mail sorting centres Productivity: up to 40,000 items per hour (with four feeders) and up to 25,000 items per hour (with two feeders) Up to 284 stackers and central output stations instead of manually clearing the stackers (sorters are equipped with internal automatic tray handling system)	Flats and bulky letters up to 32mm thickness (406mm x 305mm x 32mm) are sorted by the machine. The items are not barcoded (like letters) but the “Fingerprint” technology (a virtual ID tag or a digital mail signature) is applied. Additionally, a “Großbriefstempelung” [automatic cancelling of stamps on flats and bulky letters] is integrated. Outward sorting: Flats are sorted to the destination sorting centre. Flats that remain in the same area are prepared for sorting in delivery order. Inward sorting: Flats are sorted in delivery order (not yet fully implemented)

Sources: WIK research based on supplier information.

Note: ‘n.a.’ means ‘not available’.

The first generation sorting machines were completely replaced between 2009 and 2012. The new generation of sorting machines are able to sort small letters, flats and even bulky letters (up to 32mm thickness) in delivery order order. The operational throughput for letters increased from 33,000 to 44,000 items per hour.⁸¹ The automation rate increased to 95 per cent (at least to delivery routes). The share of letters and flats sorted automatically on delivery order increased from 70 to more than 90 per cent.⁸²

Additionally, Deutsche Post operates 45 mail preparation centres, which are located next to mail sorting centres in urban areas. In mail preparation centres pre-sorted bundles of letters are merged and remaining letters and flats are manually sorted in delivery order. The prepared bundles are then transported to the delivery offices where part-time mail carriers pick them up for final delivery.

Transportation

Deutsche Post does not transport letters and parcels jointly. For the transportation of letters, Deutsche Post uses a hub and spoke system, with 10 hubs. More than 95 per cent of letters are transported by road (the rest by air).

Delivery

Final delivery starts from one of the 3,100 delivery offices.⁸³ Postmen get prepared bundles (i.e. two bundles: one for letters and one for flats) from the sorting centre. Additionally, there is some mail that has to be manually sorted in delivery order. This is usually done in the delivery offices except for those routes where preparation is already done in separate mail preparations centres. It is up to the deliverer how to organize the bundles for final delivery (i.e. whether to merge the bundles or not).⁸⁴ In case of joint delivery of letters and parcels (nearly 32,000 delivery rounds) the mail carriers also have to load the parcels in their delivery vehicles.

The introduction of automatic sequence sorting in combination with route optimization tools (both started in 1999) reduced the time necessary for mail preparation and, vice versa, increased the time for the walk round. Without external mail preparation deliverers need approximately 20 per cent of their daily working time for in office activities.⁸⁵ The number of delivery routes has declined from more than 80,000 before 2000 to around 51,500 today. Around 31,000 delivery routes are served by car, 16,800 by bicycle and 3,650 by foot.⁸⁶ 3,900 routes are served by part-time carriers who pick

81 See Deutsche Post (2011), *Innovation im Großformat*, published in net, a magazine for Deutsche Post's management.

82 See Deutsche Post (2013), *Deutsche Post DHL Toronto Roadshow*, 5 April 2013, p. 50. The union (DPVKOM) notes that the share of flats/bulky letters sorted in delivery order is still below 50 per cent.

83 Interview DPVKOM.

84 Interview DPVKOM.

85 See WIK-Consult (2011), *Review of postal technologies in Europe*.

86 Interview DPVKOM.

up the prepared mail bags at the delivery offices. So far, mail delivery is exclusively carried out by Deutsche Post's personnel (no outsourcing).⁸⁷

To better meet volume fluctuations, carriers have flexible weekly working hours by using flex time wage records. The standard weekly hours are 38.5 hours (full-time). In periods of low mail volume (e.g. during the summer months or on Mondays) deliverers work less than full-time while during peak times (e.g. in December) they extend their weekly hours of work up to 48 hours. The monthly salaries remain stable throughout the year.⁸⁸

5.2.3 Parcel operations

Collection

Small packets and parcels can be posted at around 13,000 retail outlets of Deutsche Post, or at 2,500 parcel lockers for collection of parcels and 1,000 parcel collection boxes.⁸⁹ From retail outlets, parcel lockers, and parcel collection boxes, the items are transported to the next parcel sorting centre, separately from letter post items.

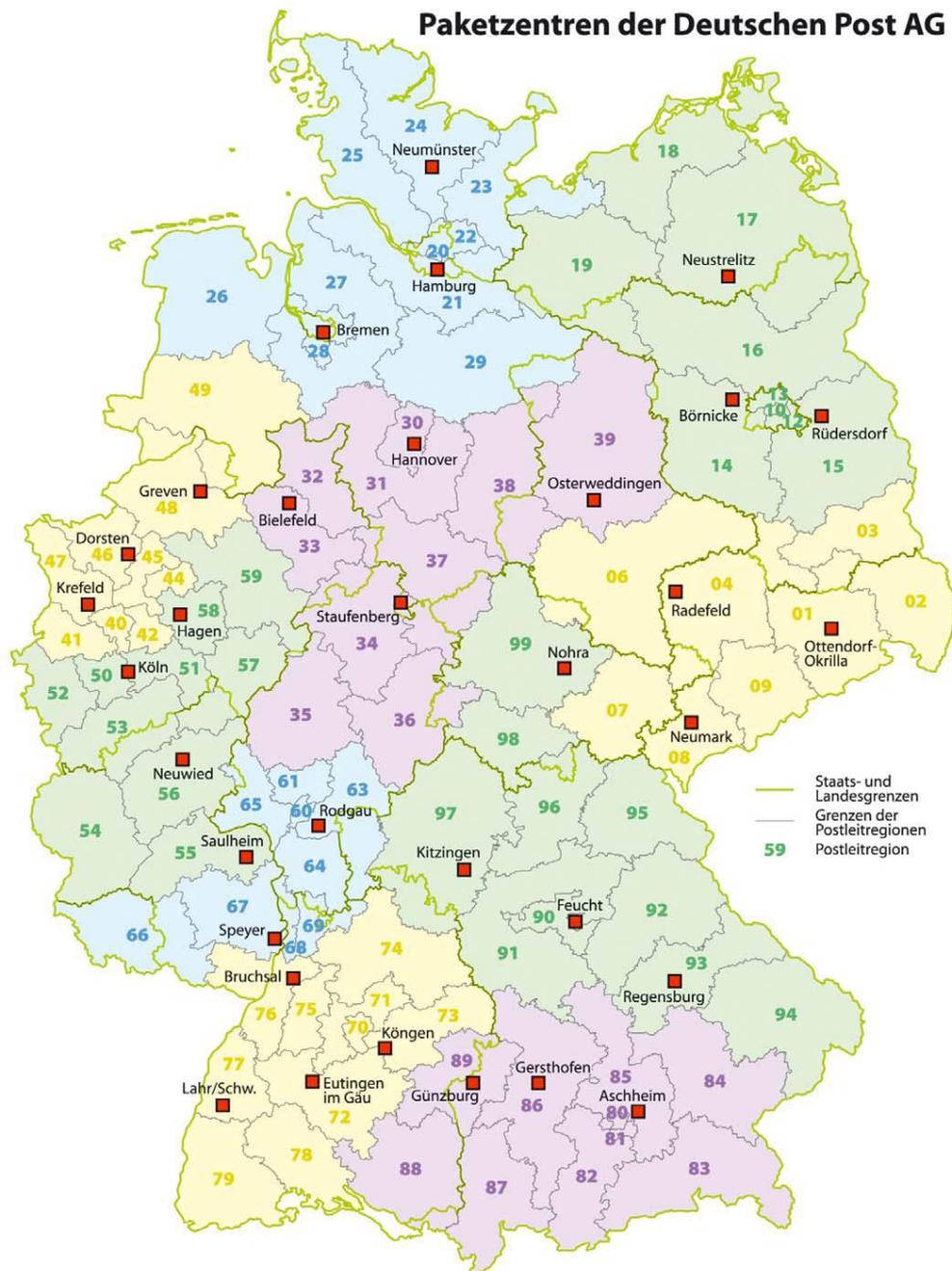
⁸⁷ Interview DPVKOM.

⁸⁸ Interview DPVKOM.

⁸⁹ See Deutsche Post (2013), Annual Report 2012.

Sorting

Figure 5-12 Parcel sorting centres of Deutsche Post before the upgrade



Source: Wikipedia.

Note: Paketzentrum = parcel sorting centre.

Between 1991 and 1995, Deutsche Post built 33 new parcel sorting centres that are still in use today. They are identical in size and workflow. Each of these centres has a capacity of 20,000 parcels per hour. They are equipped with circular sorters (e.g. tilt-tray sorters) that allow the automatic handling of parcels. Bulky parcels are handled manually. Parcels are sorted to three or four parcel delivery routes and 10 to 15 joint mail delivery routes. Currently, Deutsche Post is upgrading its parcel operations in order to extend the sorting capacity (see section 5.3 for more information).

Transportation

Parcels are exclusively transported by road. There are direct transport links among the parcel sorting centres every night. The transportation is organized in swap bodies, and trucks are loose loaded with parcels without any pre-sorting which is done in the parcel sorting centre responsible for inward sorting (similar to La Poste's "en vrac" method). To simplify loading and unloading in parcel sorting centres, Deutsche Post recently introduced extricable chutes that can be extended into the swap body.

Delivery

The parcels are transported from the parcel sorting centres to mail delivery offices (in case of joint delivery) and to ~200 parcel delivery offices. Additionally, each parcel sorting centre also includes a parcel delivery base. In these bases parcels are distributed to delivery routes (two drivers share one chute).⁹⁰ Today, parcels are delivered on 32,000 letter delivery routes and 8,400 distinct parcel delivery routes, of which nearly 1,000 are outsourced.⁹¹ Parcels are either delivered by car (joint delivery) or delivery vans.

Usually, parcels are delivered at the premises of the recipient (i.e. home delivery). Where they have not been able to deliver the item, the carrier delivers a note to inform the recipient that the parcel can be picked up at a neighbour (if authorized by the recipient) or at the next postal outlet. Additionally, recipients have the choice to pick up their parcels in one of the 2,500 parcel lockers. In 2012 Deutsche Post started a pilot with parcel delivery boxes located at single or double family houses (~100 parcel delivery boxes).

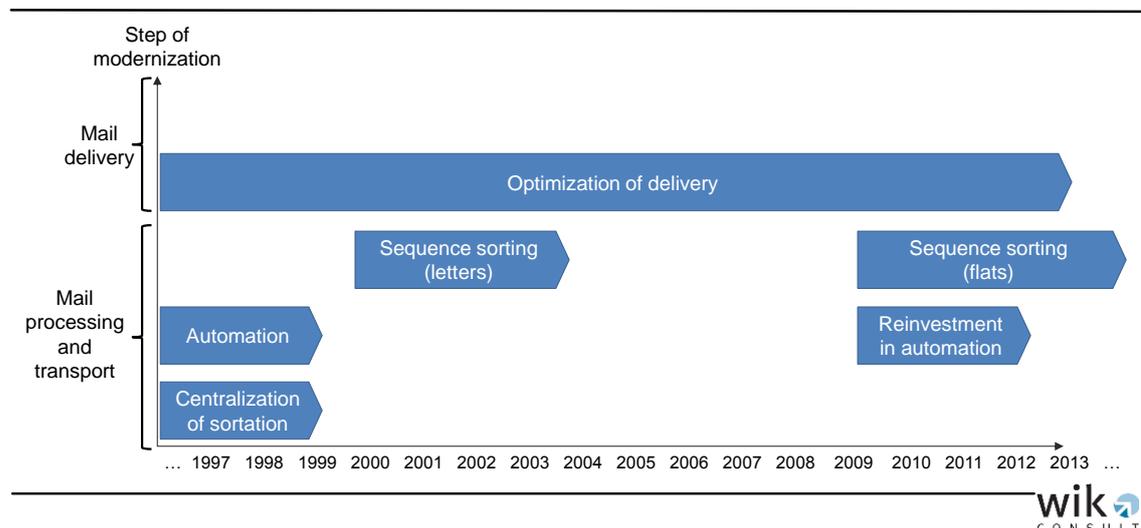
⁹⁰ See Ruhrnachrichten (2013), DHL weiht mechanisierte Zustellbasis in Bochum ein [DHL inaugurates automated delivery office in Bochum], 20 March 2013 (<http://www.ruhrnachrichten.de/lokales/bochum/Ehemaliges-Nokia-Gelaende-DHL-weiht-mechanisierte-Zustellbasis-in-Bochum-ein;art932,1945576>).

⁹¹ Interview DPVKOM.

5.3 Efficiency programs

5.3.1 Mail operations

Figure 5-13 Deutsche Post: Evolution of mail operations



Source: WIK-Consult.

Centralization of sortation and automated sorting

After the German reunification, Deutsche Post launched the investment program “Brief 2000” in 1992. At that time the postal organization was highly loss-making, delivered bad service quality and had too many employees (due to the merger of the Western and Eastern postal administrations), of which nearly 50 per cent were civil servants. The objectives of this program were to improve delivery quality, to reduce long-term costs (particularly labour costs) and increase productivity and efficiency of postal operations to become profitable and better prepared for envisioned full market opening.⁹²

This mega-project comprised the transformation of German mail operations from scratch and was introduced by launching a new five-digit postal code system. The structure of the new postal codes was already linked to the envisioned logistical organization of the mail network. Germany was split up into postal regions, so-called “Leitregionen”. The first two digits of the new postal code indicate such a postal region. Each of the mail sorting centres is responsible for one or two of these regions (see also Figure 5-11 in section 5.2.2).

⁹² See Deutsche Post (2003), Mail Operations – On the Road to Excellence, Presentation of Uwe Rabe, Capital Markets Day 22 August 2003 and Deutsche Post (1998), Die Brieffabriken der Deutschen Post [The mail factories of Deutsche Post].

Table 5-5 Restructuring of mail operations “Brief 2000” (1992-1999)

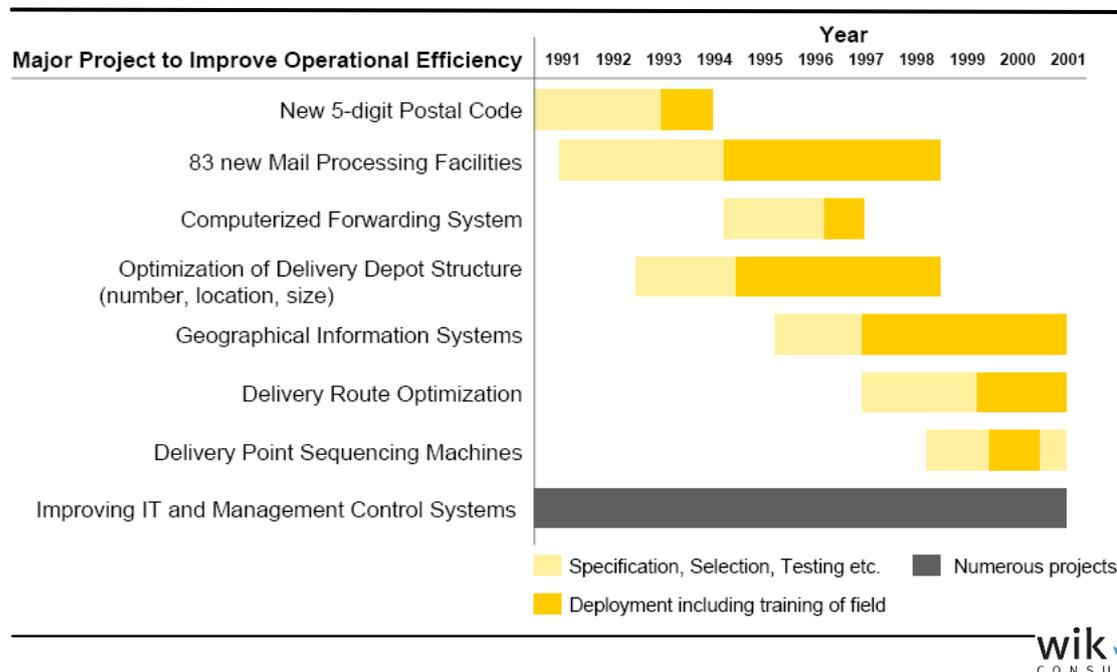
Investment	Total investment: ~DM 4 billion [~EUR 2.1 billion] Investment period: 1992-1999
Cost savings	n.a. Substantial improvement in the profitability of Deutsche Post’s mail segment (see Figure 5-8 in section 5.1).
Efficiency gains	<ul style="list-style-type: none"> • Replacement of 328 “sorting stations” by 83 highly automated mail sorting centres • Reduction of delivery offices from 11,500 to 3,700 • Reduction of transportation costs (less transport relations due to less network nodes) • Reduction of delivery routes from more than 80,000 to 57,000 (between 1999 and 2004) • Improvement in quality of service from less than 74% D+1 to more than 95% D+1 in letter delivery • Substantial reduction in employment between 1991 and 2001 (~40% in FTE) mostly by early retirement of civil servants (more than 100,000 or two third of total employment decline)

Sources: Deutsche Post (2003), Mail Operations – On the Road to Excellence, Presentation of Uwe Rabe, Capital Markets Day 22 August 2003; and Deutsche Post (2005), Modernizing Postal Communications Services and Logistics: The Operations of Deutsche Post World Net, presentation of Amin Saidoun, New Delhi June 2005.

Note: ‘n.a.’ means ‘not available’.

Figure 5-14 highlights the sub-projects as well as their planning and implementation phases. Core elements of “Brief 2000” were: first, the construction of 83 modern mail sorting centres (“mail factories”), and second, the reorganization and downsizing of the delivery operations (particularly reducing the number of delivery offices that were traditionally linked to post offices). An additional sorting facility was built for the handling of international letter post (near Frankfurt airport). The 82 mail sorting centres are still in use, although the sorting technology has changed since then.

Figure 5-14 Projects and time schedule of “Brief 2000”



Source: Deutsche Post (2003), Mail Operations – On the Road to Excellence, Presentation of Uwe Rabe, Capital Markets Day 22 August 2003, p. 5.

The new sorting centres were equipped with sorting machines for letters and flats. The XL and XXL centres had additional sorters for bulky letters. Flats and bulky letters were sorted down to the postal code.

In total seven types of machines were used:⁹³

- Five types for small letters (operational through-put max. 36,000 items/hour)
 - facing and cancelling,
 - address reading, barcoding and pre-sorting (with 24 stackers),
 - address reading and coding,
 - detailed sorting (up to postal code and later up to delivery routes with up to 400 stackers), and
 - sorting in delivery order, introduced between 1999 and 2004 (67 per cent of the small letters were sorted in delivery order by 2004)⁹⁴.

⁹³ See Deutsche Post (1998), Die Briefabriken der Deutschen Post [The mail factories of Deutsche Post].

⁹⁴ See Deutsche Post (2005), Modernizing Postal Communications Services and Logistics: The Operations of Deutsche Post World Net, presentation of Amin Saidoun, New Delhi June 2005, p. 14.

- One type for flat sorting (operational through-put max. 15,000 per hour and 200 stackers)
- One type for sorting of bulky letters (small-sized tilt-tray sorters, operational through-put max. 10,000 items/hour if all feeders are manned)

The large sorting centres (XL and XXL) were additionally equipped with an automatic pick-and-put system to prepare loading and to simplify unloading of trucks. Since the launch of “Brief 2000”, letter post items have been transported in nestable trays throughout the postal pipeline to avoid damaging (in the old system letter post items were transported in sacks). Three size categories of trays were used: for letters, flats and bulky letters.

The new mail sorting centres started their operations in several waves. At the beginning, Deutsche Post started with two pilot mail centres in order to identify challenges and appropriate solutions (including changes in the project planning). Later on, up to 13 sorting centres were connected simultaneously to the network.

The program “Brief 2000” had visible effects on quality of service, on productivity and on the proportion of mail items sorted by machine (see the following three figures).

Figure 5-15 “Brief 2000”: Improving transit time performance

Success in service quality:

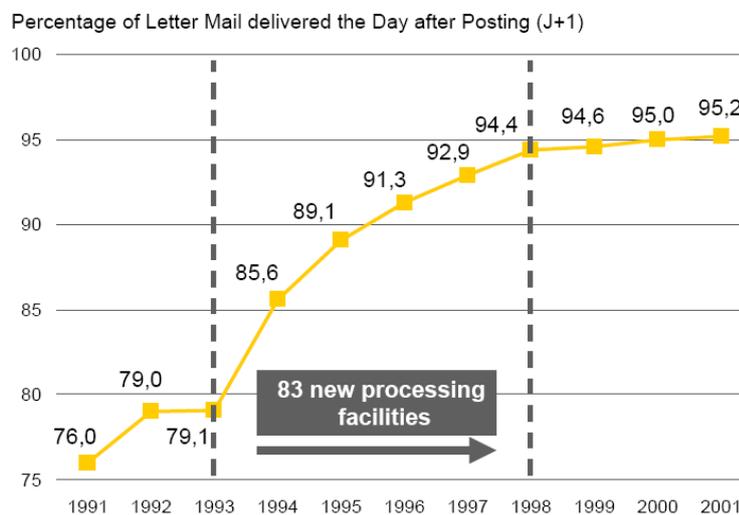
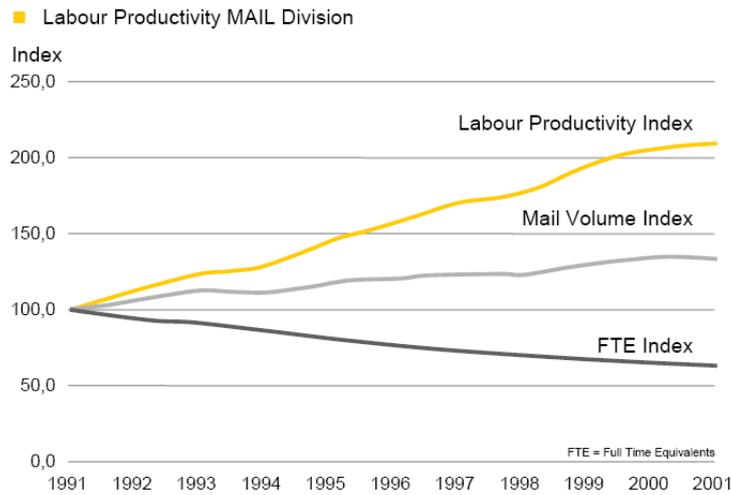


Figure 5-16 "Brief 2000": Improving productivity

Success in labour productivity:



Source: Deutsche Post (2003), Mail Operations – On the Road to Excellence, Presentation of Uwe Rabe, Capital Markets Day 22 August 2003, p. 15.

Note: The labour productivity was calculated by dividing total letter post volume by full-time equivalents.

Figure 5-17 "Brief 2000": Degree of automated sorting after the transformation (2002)

Letter Mail Format	% of Mail Volume	not machine-able	2003 degree of automated sortation to			
			Inward Mail Processing Facility	Delivery Depot	Delivery Route	Walk Sequence
S/C	77%	9%	██████████	██████████	██████████	██████████*)
L	21%	15%	██████████	██████████	██████████	██████████
M	2%	2%	██████████	██████████	██████████	██████████



Source: Deutsche Post (2003), Mail Operations – On the Road to Excellence, Presentation of Uwe Rabe, Capital Markets Day 22 August 2003, p. 21.

Notes: *) Planned after installation of additional sequence sorters in 2004.

S/C: Standard-/Kompaktbrief (letters);

L: Großbriefe (flats or large letters) ;

M: Maxibriefe (bulky letters).

See Table 5-1 for more information on the weight and the shape of these categories.

The program “Brief 2000” had to tackle several problems that created delays in the implementation:⁹⁵

- Construction plans were incomplete and needed amendments;
- Installation of new sorting machines and, particularly, the IT software created problems (not enough well-trained service personnel);
- Too short periods of vocational adjustments of the sorting personnel (learning curve effects);
- Underestimation of staff requirements in the introduction phase and difficulties in hiring adequate personnel at short notice;
- Overload of responsible management with planning tasks, putting the new sorting centre into service and daily business.

Optimization of delivery

During the same period the number of delivery offices was substantially reduced, from more than 11,000 to around 3,700. This development went along with the stepwise replacement of post offices by postal agencies. Notably the sub-project “delivery route optimization” (which started around 1999, i.e. after fixing the new core structure of the mail network in terms of sorting centres and delivery offices) continued in the subsequent years after “Brief 2000” had been officially completed and is ongoing.

Additionally, Deutsche Post changed the work organization in mail delivery. The company replaced the “one postman-one route”-rule by creating self-organizing teams of postmen. Moreover, the size of delivery districts varies with daily mail volume (instead of having fixed routes every day as before).⁹⁶

In the years following “Brief 2000”, Deutsche Post launched additional measures to save costs and improve efficiency:

- Outsourcing of collection from post boxes;⁹⁷
- Reduction of the night air-mail network by 12 flights daily;
- Introduction of sequence sorting by machine.

⁹⁵ See Deutsche Post (1998), Die Briefabriken der Deutschen Post [The mail factories of Deutsche Post], p. 77.

⁹⁶ See Uwe Rabe (1997), Konzeptionelle und operative Fragen von Zustellnetzen [Conceptual and operational issues in delivery organization], WIK Discussion Paper No. 177, November 1997.

⁹⁷ See Deutsche Post (2002), p. 27.

Generally, Deutsche Post DHL managed the decline in employment in close cooperation with the unions and without enforced redundancies.⁹⁸ In 2000 a collective agreement was signed which reduced the wages for new employees of Deutsche Post with hourly wages below EUR 10 for letter and parcel carriers, sorting personnel and drivers (per 1 January 2001). In 2012 around 45 per cent of Deutsche Post AG's employees (excluding civil servants) were under the new wage scheme.⁹⁹

Sequence sorting

Deutsche Post introduced sequence sorting of letters by machine in 2000.¹⁰⁰ They installed 517 "carrier sequence barcode sorters" in 2000 and acquired 202 additional machines in 2003 and 2004. These machines were able to sort letters to walk sequence in three sorting runs with a productivity of 9,300 items per hour and were relatively small (20 square metres per machine). The sorting machines were located in the mail sorting centres. By that time 67 per cent of the letters were sorted in delivery order by machine.¹⁰¹ Today, around 90 per cent are sequence sorted.¹⁰²

Reinvestment in automation and sequencing flats (2009-2012)

Between 2009 and 2012 Deutsche Post invested EUR 400 million in the replacement of sorting machines in their mail sorting centres.¹⁰³ Due to progress in sorting technology, the new machines are, first, able to sort even flats on delivery order and, second, to reduce the number of steps for letter sorting in the mail sorting centres. The new letter sorters are able to combine the tasks of formerly three separate sorting machines: one for reading and coding, one for sorting letters down to delivery routes, and one to sort letters in delivery order. Overall, this investment results in a reduced footprint, less energy consumption and less employment at sorting centres and, indirectly, in delivery activities. The old sorting machines for small and compact letters were replaced by 288 new letter sorters of Siemens (IRV 3000). Additionally, 87 new flat sorting machines of Siemens (OMS) were installed between 2010 and 2012. They replaced 270 old sorting machines. Siemens had developed the new flat sorters in close cooperation with Deutsche Post since 2003, the pilot started end of 2007.

⁹⁸ Interview DPVKOM.

⁹⁹ Interview DPVKOM.

¹⁰⁰ Deutsche Post (2003), Mail Operations – On the Road to Excellence, Presentation of Uwe Rabe, Capital Markets Day 22 August 2003, p. 22.

¹⁰¹ See Deutsche Post (2005), Modernizing Postal Communications Services and Logistics: The Operations of Deutsche Post World Net, presentation of Amin Saidoun, New Delhi June 2005, p. 14.

¹⁰² See Deutsche Post DHL (2012), Deutsche Post DHL US Roadshow, New York, 11. September 2012, p. 14.

¹⁰³ See Deutsche Post (2009), Deutsche Post investiert 420 Millionen Euro ins Briefgeschäft [Deutsche Post invests EUR 420 million in the mail business], Press release of 23. March 2009; and Deutsche Post (2012), Deutsche Post: 400 Millionen Euro ins Briefnetz investiert [Deutsche Post: EUR 400 million invested in mail operations], Press release of 26 July 2012.

Table 5-6 Upgrading sorting technology (2009-2012)

Investment	Planned investment: EUR 420 million Realized investment: EUR 400 million Investment period: 2009-2012
Cost savings	Expected cost savings: more than EUR 100 million as of 2013 per year (less than 1% of 2012 operational expenses in the mail segment)
Efficiency gains	Improved productivity: The new flat sorters process up to 40,000 items per hour (up to 32mm thickness) compared to 13,000 items per hour (up to 20mm thickness) with the old machines. “Since fewer sorting steps are needed and the level of automation is substantially higher, the new sorting systems ensure that mail processing is faster and even better. Such systems allow Deutsche Post to reduce its annual carbon dioxide emissions by almost 5,000 tons, and the new machines use 22% less energy than the older ones.” Unions expected reduced employment in sorting centres (~6,000 employees)

Sources: Deutsche Post (2009), Deutsche Post investiert 420 Millionen ins Briefgeschäft, Press release of 23. March 2009; and Deutsche Post (2012), Deutsche Post: 400 Millionen ins Briefnetz investiert, Press release of 26 July 2012; and Net (Magazine for Deutsche Post’s management), Innovation im Großformat.

5.3.2 Parcel operations

Centralization of sortation and automated sorting (1990-1995)

Between 1990 and 1995, Deutsche Post built 33 parcel sorting centres that are broadly identical in size and workflow (see section 5.2.3 for the description of the network) that replaced 140 old sorting centres. Furthermore, the number of sorting steps was reduced from nine to three.¹⁰⁴ These parcel sorting centres are still in use. Due to increasing demand Deutsche Post is currently upgrading its network. This restructuring resulted in a shift of quality of service: Instead of delivering parcels three or four working days after posting, Deutsche Post managed to deliver a high proportion of parcels the next or the second working day.¹⁰⁵

Reinvestment in automation and capacity expansion (2011-2015)

Since 2011 Deutsche Post modernized and has been expanding its parcel network by investing EUR 750 million (“Paket 2012”). The process is expected to be complete by 2015, by which time the new technology – machines, individual modules and new IT applications – as well as some updated production processes will have substantially increased the company’s overall parcel handling capacity. The expanded network will

¹⁰⁴ See Deutsche Post (2005), Modernizing Postal Communications Services and Logistics: The Operations of Deutsche Post World Net, presentation of Amin Saidoun, New Delhi June 2005, p. 3.

¹⁰⁵ See Deutsche Post (2005), Modernizing Postal Communications Services and Logistics: The Operations of Deutsche Post World Net, presentation of Amin Saidoun, New Delhi June 2005, p. 3.

enable the company to speed up deliveries and ensure a next-day delivery rate of 95 per cent.¹⁰⁶

Table 5-7 Efficiency and capacity enhancing program “Paket 2012” (2011-2015)

Investment	Planned investment: EUR 750 million Investment period: 2011-2015
Cost savings	n.a.
Efficiency gains	<ul style="list-style-type: none"> • Substantial upgrading of capacity (doubling the capacity in parcel sorting centres and delivery bases) • More automatic handling in parcel centres but also in parcel delivery offices (including loading and unloading of trucks and delivery vehicles) • Improving delivery flexibility: Real-time tracking & tracing and rerouting of parcels e.g. to alternative delivery addresses or parcel lockers • Improving transit time of parcel delivery to the same quality level as D+1 letter delivery (i.e. 95 per cent of parcels delivered the next working day) • Later collection of parcels from business customers

Sources: Deutsche Post DHL (2011), Paketkonzept 2012 [Parcel concept 2012], presentation of Jürgen Gerdes 14 September 2011.

Note: 'n.a.' means 'not available'.

The core element of this program is the upgrading of the existing 33 parcel centres and the construction of one new parcel sorting centre with a capacity of 50,000 parcels per hour near Frankfurt (Obertshausen). It is scheduled to begin operations in autumn 2014 and will be fully completed in summer 2015.¹⁰⁷ In the meanwhile, the sorting capacity of the old locations will be extended from 20,000 to 28,000 up to 40,000 parcels per hour. At the end of the process Deutsche Post plans to have parcel sorting centres of three size categories M, L and XL.¹⁰⁸

¹⁰⁶ See Deutsche Post (2013), Deutsche Post DHL legt Grundstein für Paketzentrum Obertshausen [Deutsche Post starts building the parcel centre Obertshausen], press release 19 June 2013.

¹⁰⁷ See Deutsche Post (2013), Deutsche Post DHL legt Grundstein für Paketzentrum Obertshausen [Deutsche Post starts building the parcel centre Obertshausen], press release 19 June 2013.

¹⁰⁸ See Deutsche Post DHL (2011), Paketkonzept 2012 [Parcel concept 2012], presentation of Jürgen Gerdes 14 September 2011.

Table 5-8 Paket 2012: Size categories of parcel sorting centres

Size category	Capacity	Description
S	20,000 parcels per hour	Standard size before upgrading
M	28,000 parcels per hour	Extension of existing parcel sorters to increase capacity from 20,000 to 28,000 parcels per hour
L	40,000 parcels per hour	Installation of new parcel sorters in existing parcel sorting centres (during the reconstruction no parcel operations possible)
XL	50,000 parcels per hour	Construction of one new parcel sorting centre (in Obertshausen near Frankfurt) with new parcel sorters and different work flow compared to the existing locations. Planned construction period: 15 months and additional 6 to 9 months until full completion

Sources: Deutsche Post DHL (2011), Paketkonzept 2012 [Parcel concept 2012], presentation of Jürgen Gerdes 14 September 2011, and Deutsche Post (2013), Deutsche Post DHL legt Grundstein für Paketzentrum Obertshausen [Deutsche Post starts building the parcel centre Obertshausen], press release 19 June 2013.

The second important element of this program is the construction of at least 25 dedicated parcel delivery offices equipped with parcel sorters (“automated” parcel bases) until end of 2013. Existing locations will be used if possible (each new delivery base needs around 16,000 square metres). Parcels will be automatically sorted to delivery route (each delivery route has a separate chute). The new locations will also use extricable chutes for unloading and loading trucks respectively delivery vehicles. The average construction period is less than one year. The first was opened in December 2012.¹⁰⁹

Parcels can be directly transported from the outward parcel sorting centre to the automated parcel bases (i.e. the sorting step “inward sorting of parcels in a destination parcel sorting centre” can be skipped). This measure will on the one hand increase the total number of transport links, and on the other hand relieve the destination parcel sorting centres. This, additionally, allows Deutsche Post DHL to increase the sorting capacity of their parcel operations in peak times.

¹⁰⁹ See Deutsche Post DHL (2012), Erste mechanisierte Zustellbasis von Deutsche Post DHL am Netz [First automated delivery base of Deutsche Post DHL goes online], press release 5 December 2012.

6 Post Danmark (Denmark)

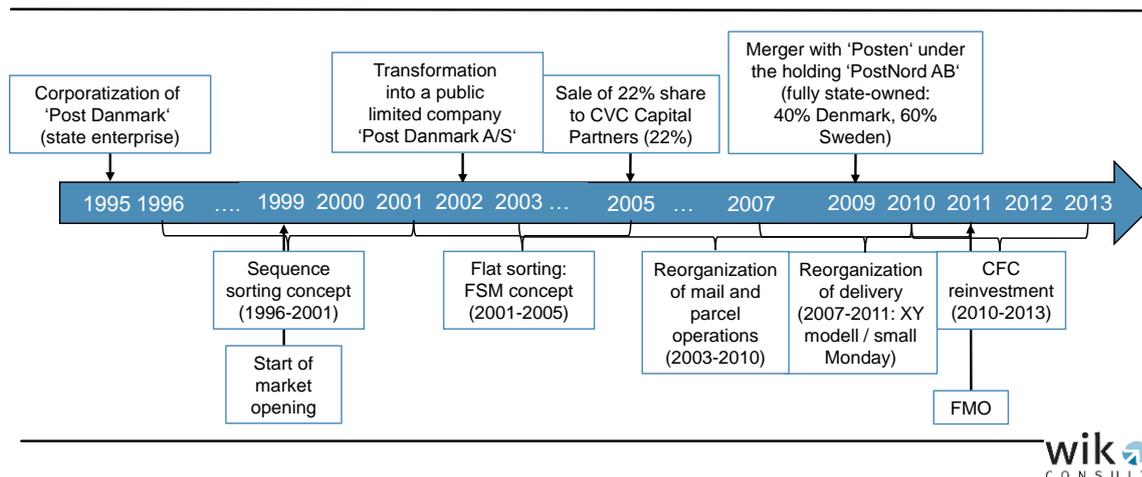
Key facts

- Post Danmark, corporatized in 1995, was partly privatized in 2005 when a 22 per cent stake was sold to a private equity company. In 2009, Post Danmark was merged with the Swedish postal operator Posten. The newly created holding company PostNord is fully state-owned (40 per cent by Denmark and 60 per cent by Sweden).
- PostNord is a medium-sized postal operator with total revenues of EUR 4.5 billion (2012). The Danish mail operations account for one fifth of PostNord's total revenues.
- Post Danmark used to be a profitable company until Danish mail operations went into the red for the first time in 2012.
- The Danish mail market was fully liberalized in 2011. As yet, Post Danmark does not face any noticeable competition in mail delivery.
- Post Danmark's mail volumes have been declining drastically over the past ten years. In 2012, letter volumes in Denmark were half the 2002 levels.
- Substantial volume decline required down-scaling of mail operations from 8 to 3 mail sorting centres between 2003 and 2010.
- Post Danmark's postal operations are highly innovative: The company is widely considered a front-runner in mail processing, particularly in sequence sorting). Post Danmark was the first operator to deliver non-priority mail only on three days a week ("X/Y distribution model"), and it has successfully managed the separation of mail preparation and delivery in delivery operations.

6.1 Background

Corporate developments and organizational structure

Figure 6-1 Denmark: Milestones in corporatization, privatization and market opening



Source: WIK research and Interview Post Danmark.

Post Danmark was corporatized in 1995 and transformed into a public limited company in 2002. In 2005 the Danish state sold 22 per cent of Post Danmark's shares to the private equity company CVC Capital Partners.¹¹⁰ In June 2009, Sweden Post and Post Danmark were merged under the holding company PostNord (formerly Posten Norden) located in Sweden. PostNord is owned by the Swedish and Danish state (60 per cent / 40 per cent respectively) while the voting rights are equally distributed.¹¹¹ It is planned to go public in the coming years (although no date has been fixed so far).¹¹²

¹¹⁰ See Post Danmark, Annual Report 2005, p. 4.

¹¹¹ See Posten Norden, Annual Report 2009, p. II.

¹¹² See PostNord website, <http://www.postnord.com/en/Investor-Relations/New-corporate-strategy/> (Roadmap PostNord 2015).

Figure 6-2 Post Danmark: Business divisions (until 2008)

Business Customers	Residential Customers	Courier, Express, Parcels	International Post
<ul style="list-style-type: none"> Sales to business customers Responsibility for domestic business-oriented letter products 	<ul style="list-style-type: none"> Retail network Domestic letter and parcel services for consumers and small business mailers 	<ul style="list-style-type: none"> Responsibility for domestic business-oriented parcel products Parcel operations 	<ul style="list-style-type: none"> Responsibility for cross-border mail and parcel services International relations including PNL

Source: WIK-Consult based on Post Danmark (2009): Annual Report 2008, p. 18f.

Note: The bold written sub-segments indicate the business areas that include the letter post and parcel operations that are (roughly) comparable to the Reported Business of Royal Mail.

Prior to the merger with Sweden Post, Post Danmark was structured into four sales-oriented divisions: “Business Customers”, “Private Customers”, “Courier, Express, Parcels” and “International Post”. These divisions were supported by four internal business units: “Letter Production and Transportation”, “Distribution”, “Internal Production and Service”, “Information Technology”.¹¹³

Figure 6-3 PostNord: Business divisions (since 2009)

Mail	Logistics	Strålfors (Information logistics)
<ul style="list-style-type: none"> Mail distribution (distribution of mail items/letters weighing less than 2kg) Advertising services (distribution of unaddressed and addressed direct mail) Newspaper distribution Other services (e.g. facility services) 	<ul style="list-style-type: none"> Parcel services (B2B and B2C) DPD partner in the Nordic region Logistics and freight services in the Nordic region 	<ul style="list-style-type: none"> Business communication Data Management Marketing communication Service Fulfilment Active in the Nordic region plus FR, PL and UK
<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px;">Mail Denmark</div> <div style="border: 1px solid black; padding: 5px;">Mail Sweden</div> </div>		

Source: WIK-Consult based on PostNord (2012), Debt Investor Presentation.

Note: The bold written sub-segments indicate the business areas that include the letter post and parcel operations that are (roughly) comparable to the Reported Business of Royal Mail.

¹¹³ See Annual Reports of Post Danmark 2002 to 2008.

PostNord is organized in four business divisions: Mail is subdivided into Mail Denmark and Mail Sweden, Logistics and Stralfors. The Mail division focuses on the distribution of letter post items (letters and advertising) and supporting services for mailers. The Logistics division is responsible for parcel operations and logistics services in the Nordic region including Denmark and Sweden. Until the end of 2012 Mail Denmark was responsible for the Danish domestic and cross-border mail operations including the distribution of unaddressed advertising and newspapers. With effect from 1 January 2013, PostNord transferred organizational responsibility for the Danish parcel business from the business division Logistics to the business division Mail Denmark.¹¹⁴ PostNord outlined that “the purpose of the organizational change is to facilitate additional streamlining efforts to improve competitiveness for parcel distribution in the Danish market and to concentrate efforts”.¹¹⁵

Market opening and competition

Denmark opened its letter post market for competition according to the timetable given by the EU Postal Directive. Since January 2011, the Danish postal market has been completely open to competition.¹¹⁶ Despite full market opening there is no noticeable competition in the Danish mail market. In 2006 Norway Post entered the Danish mail market by setting up a Citymail subsidiary in Denmark. Citymail, in which Norway Post held 57 per cent, is the main competitor to Posten in the Swedish mail market. The Danish Citymail went into operation in 2007, initially offering customers in the Copenhagen area a new distribution service for mail weighing over 50 grams. One reason for the market entry was the expected full market opening in 2009. In 2009 Norway Post closed its Danish mail operations because its Bring Citymail subsidiary failed to become profitable there due to the financial crisis and unequal competition conditions (still existing monopoly and VAT exemption of Post Danmark).¹¹⁷

The Danish parcel & express market is more competitive, particularly the B2B segment. The major competitors are DHL and GLS. In both segments (B2B and B2C) Post Danmark is the market leader.¹¹⁸

¹¹⁴ PostNord (2012), Parcel business to be re-organized in Denmark, Press Release 13 November 2012.

¹¹⁵ PostNord (2013), Interim Report Q1 2013, p. 4.

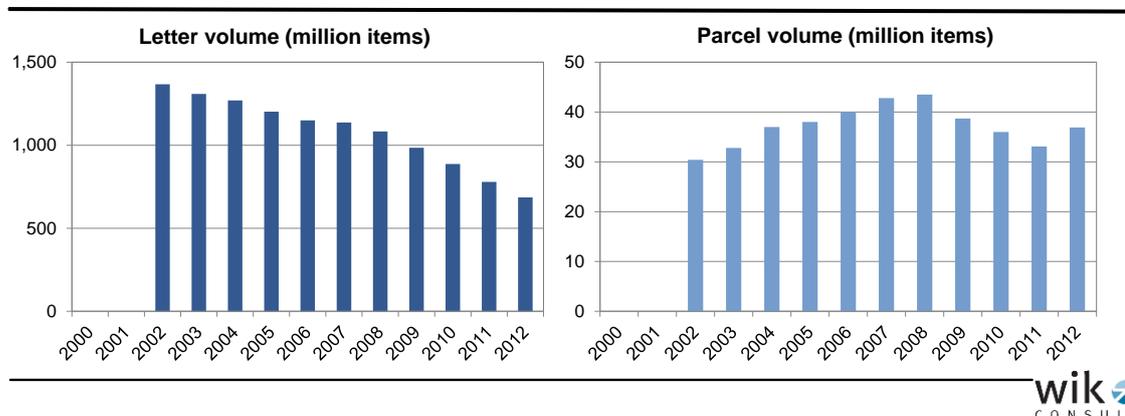
¹¹⁶ See ITA Consulting & WIK-Consult (2009): The Evolution of the European Postal Market since 1997, Annex Country Fiches, p. 29.

¹¹⁷ See Post Norway (2009), Bring Citymail Denmark is starting a process to terminate its mail distribution operations in the Copenhagen area, press release 4 November 2009.

¹¹⁸ See PostNord (2012), Debt Investor Presentation, September 2012, p. 18.

Evolution of mail and parcel volumes

Figure 6-4 Post Danmark: Development of letter post and parcel volumes



Source: WIK-Consult based on annual reports of Post Danmark and Interview Post Danmark.

Note: The letter volume does not include publications.

Post Danmark’s mail volumes have been steadily declining over the past ten years. In 2012, letter volumes were half the 2002 levels. PostNord expects that mail volumes will decline by 12 per cent in 2013.¹¹⁹ This decline has accelerated since 2008: compared to an average decline of 3.8 per cent between 2002 and 2008, the average yearly reduction in volume from 2008 to 2012 was 10.8 per cent.¹²⁰ There are two major drivers for the accelerated volume decline seen in Denmark: the economic recession and, particularly, electronic substitution. One of the reasons for the higher level of electronic substitution in Denmark compared to other countries is the development of the Danish electronic communication system e-Boks, which is a joint venture founded in 2001 between Post Danmark and Nets A/S, a Danish service provider for payment systems. Electronic substitution has also been strongly pushed by the Danish government. The Danish e-government strategy even foresees that each citizen must have a digital mail box as of 2014 and it will be mandatory for citizens to use digital solutions in all their written communications with the public authorities by 2015.¹²¹ All Danish municipalities and regional authorities send mail via e-Boks, as well as a large number of insurances, banks, energy, water, and telecommunication companies. e-Boks can only be used for transactional mail, advertising mail being explicitly exempted from using this service. In 2012, 205 million letters were sent via e-Boks¹²² compared to only 685 million letters delivered by Post Danmark. Customers have also been substituting priority mail for non-priority mail – the proportion of priority mail sent has declined from 78 per cent in 1997 to 49 per cent in 2012.¹²³

¹¹⁹ See PostNord (2013), PostNord Januar-March 2013, presentation interim report 15 May 2013, p. 6.

¹²⁰ See annual reports of Post Danmark (2000-2008) and PostNord (2009-2012).

¹²¹ See eGovernment Factsheets (<http://epractice.eu>), eGovernment in Denmark, January 2012, p.12.

¹²² See e-Boks (2013), e-Boks presentation, 7 February 2013, p. 10.

¹²³ Interview Post Danmark.

Up to 2008 Post Danmark's parcel volumes continued to grow. Due to the economic recession and divestments in the parcel business as consequence of the merger between Posten and Post Danmark¹²⁴, Danish parcel volumes dropped sharply until 2011 (approximately 23% reduction) but have recovered some of these losses in 2012.

Services, prices and quality

Table 6-1 Post Danmark: Size and weight structure of basic letter products

Format categories	Letters	Standardbreve	Storbreve	Maxibreve
Payment channel	Stamped	Franking and PPI	Franking and PPI	Franking and PPI
Length	600mm	230mm	330mm	600mm
Width	-	170mm	230mm	-
Thickness	-	5mm	20mm	-
Circumference	900mm	-	-	900mm
Weight classes	6 classes (0-50g, 51-100g, 101-250g, 251-500g, 501-1,000g, 1,001- 2,000g)	1 class (0-50g)	5 classes (0-50g, 51-100g, 101-250g, 251-500g, 501-1000g)	6 classes (0-50g, 51-100g, 101-250g, 251-500g, 501-1000g, 1001- 2000g)
Product attributes	D+1 (A letter) D+3 (B letter) D+4 (C letter), only for business customers (volume threshold). launched in 2007			

Source: WIK-Consult based on price lists of Post Danmark.

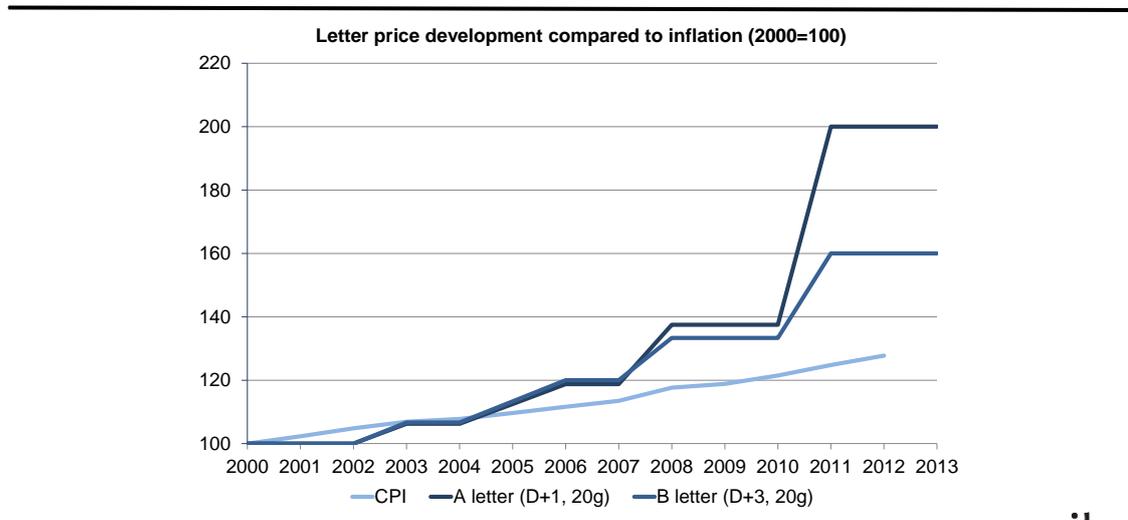
Post Danmark offers different products for consumer and business customers (differentiated by the payment channel, see Table 6-1). The prices for stamped mail depend only on weight. The prices for business mail depend on format and weight.¹²⁵ Consumers have the choice between a D+1 (A letter) and a D+3 (B letter). Business customers have the choice between the A and B letter and an additional non-priority product, the C letter (D+4) which was launched in 2007. Since full market opening, the Danish regulator only approves the tariff for the stamped 50 gram B letter and Post Danmark has commercial freedom to determine other postal tariffs as long as they are cost-oriented, transparent and non-discriminatory.

For parcels, there are two delivery options: the more expensive home delivery and (standard) delivery to the closest post office (or parcel locker). A track and trace feature is included as part of the standard service.

¹²⁴ See Case No COMP/M.5152 – Posten/Post Danmark AS.

¹²⁵ See Post Danmark (2013): Breve og Økonomibreve, Priser pr. 1. januar 2013.

Figure 6-5 Post Denmark: Development of the basic letter tariffs



Source: WIK-Consult based on price lists of Post Denmark and Eurostat (Consumer price index CPI).

Post Denmark’s basic tariff for letter services has increased substantially more than the consumer price index (see Figure 6-5). Today, a consumer pays EUR 1.07 (GBP 0.87) for sending a 20 gram letter that is delivered the next working day (A letter). The B letter (D+3) costs EUR 0.80 (GBP 0.65). This is one of the highest tariffs for a domestic 20g letter in the European Union. Consumers and business customers have the choice between a letter service with next day delivery (D+1) and a D+3 delivery service that costs EUR 0.80 (GBP 0.65).

Table 6-2 Post Denmark: Development of delivery quality

Delivery quality (in %)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Letters D+1 target	97	97	97	97	97	93	93	93	93	93	93	93	93
Performance (%)	95.0	94.9	93.6	95.1	95.2	93.9	94.1	93.2	93.7	95.7	93.7	94.0	93.5
Parcels D+1 target	n.a.	n.a.	n.a.	n.a.	n.a.	93	93	93	93	93	93	93	93
Performance (%)	n.a.	97.2	97.9	96.6									

Source: WIK-Consult based on annual reports of Post Denmark and PostNord.

Note: ‘n.a.’ means ‘not available’.

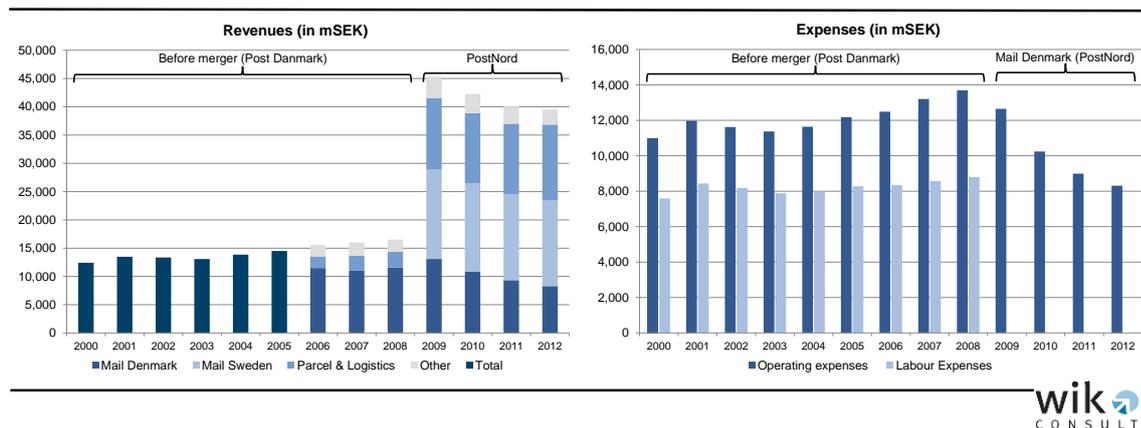
The universal service obligation requires six day delivery for letters and five day delivery for parcels but Post Denmark delivers letters and parcels on six days (Monday to

Saturday).¹²⁶ The proportion of A letters (D+1) being delivered on time fluctuated between 93 and 96 per cent from 2000 to 2012. The delivery quality of parcels is even better than the already high level for letter delivery with a performance around 97 per cent.¹²⁷

In June 2013 the Danish Ministry of Transport published a political agreement on changes in the provision of the universal service.¹²⁸ This agreement allows Post Danmark to stop Monday delivery of priority letters (“A letter”) to residential customers from June 2014. Newspapers and parcels will be delivered on Mondays as usual. Monday delivery to residential customers will remain possible but only at a very high price (product “Monday letter”). Additionally, the transit time of the “B letter” (the only letter subject to ex ante price control in Denmark) will be changed from D+3 to D+4.

Revenues, expenses and profitability

Figure 6-6 Post Danmark/PostNord: Revenues and expenses



Source: WIK-Consult based on annual reports of Posten and PostNord.

Note: The position Post Danmark / “Other” includes “International” i.e. also cross-border mail services that is transferred to Mail Denmark after the merger.

Revenues of Post Danmark were growing slowly between 2000 and 2008. After the merger, Mail Denmark revenue (which does not include the parcel operations) increased mainly due to the transfer of cross-border letter services to the division (formerly assigned to the “International” division). Mail Denmark’s revenues steadily declined between 2009 and 2012 by more than one third in total or 14 per cent on average per annum.¹²⁹ The development in operating expenses since 2008 reflects the decline in mail volume and revenues and Post Danmark’s efforts to reduce their costs

¹²⁶ Interview Post Danmark.

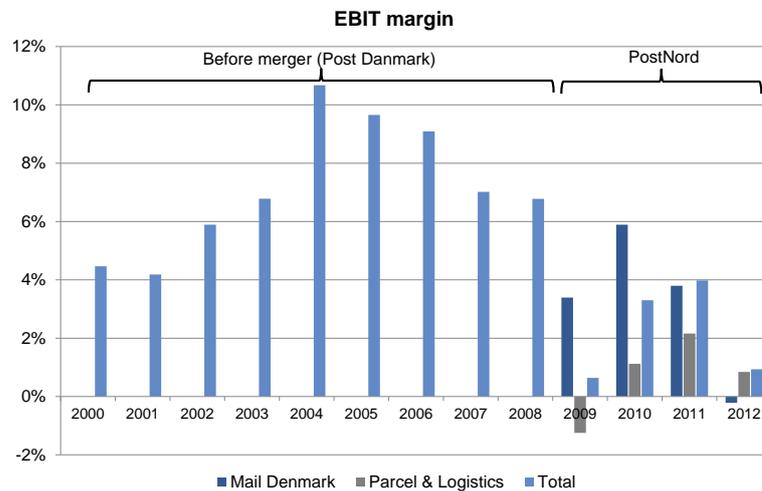
¹²⁷ See Annual Reports of Post Danmark and PostNord 2000-2012.

¹²⁸ See Transportministeriet [Danish Ministry of Transport] (2013), Tillæg til aftale af 27. maj 2010 om sikring af befordringspligten på et liberaliseret postmarked [Addendum to the agreement of 27 May 2010 to ensure the universal service in a liberalised postal market], 26 June 2013 (<http://www.trm.dk/da/nyheder/2013/ny+aftale+om+postservicen+i+danmark/>).

¹²⁹ Currency effects (PostNord reports in Swedish crowns) also contributed to this decline. Excluding the currency effect the decline was about 8 per cent per year and the total decline was 23 per cent.

accordingly. Both, revenues and expenses declined about 10 per cent on average per year; revenues declined slightly more than expenses.

Figure 6-7 Post Danmark/PostNord: Profitability development

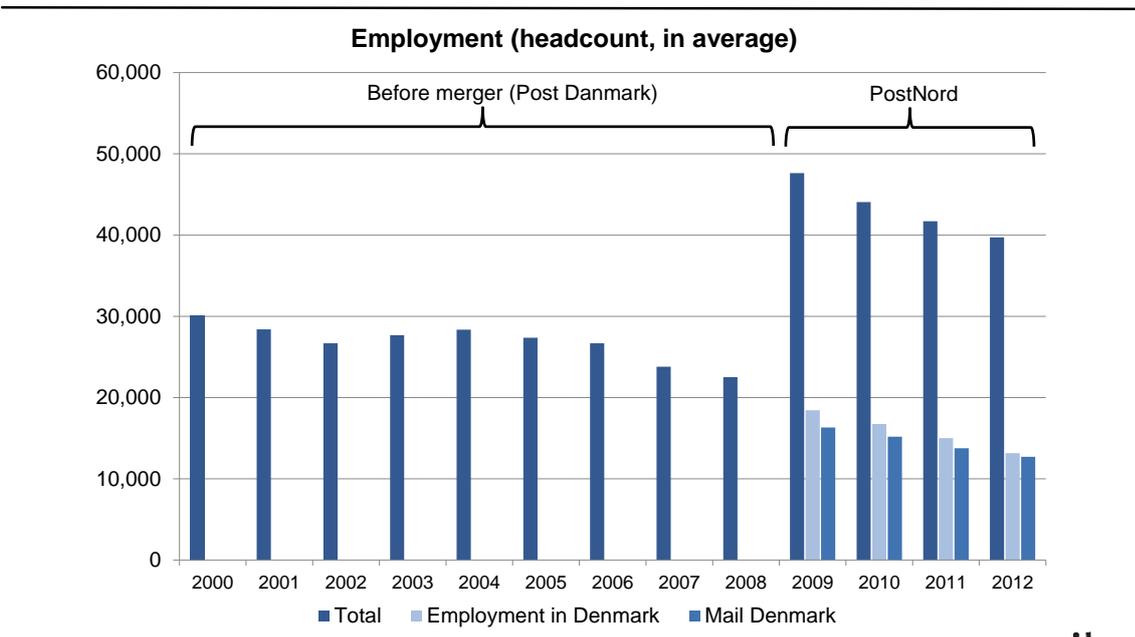


Source: WIK-Consult based on annual reports of Post Danmark and PostNord.

Note: 2000-2003 EBIT before non-recurring items.

Overall however, Post Danmark managed to improve its profitability until 2004 despite the decline in its volumes and profitability remained above 6 per cent until the merger in 2009. In that year, profitability dropped due the economic crisis and reached nearly the pre-crisis level in 2010. Since then profitability continuously declined driven by dropping mail volumes. In 2012 Mail Denmark reported losses the first time since 2000, a trend that seems to be continuing in 2013.

Figure 6-8 Post Danmark/PostNord: Employment development



Source: WIK-Consult based on annual reports of Posten and PostNord.

Average headcount has been declining since 2006 with approximately 8 per cent reduction per annum between 2006 and 2008. Employment at Mail Denmark continued to decline between 2009 and 2012 with a reduction of more than one fifth of average headcount or, again, 8 per cent on average per year. This is reflective of the decline in mail demand in the Danish postal market and Post Danmark’s efforts to reduce its costs in line with the volume decline.

6.2 Postal operations

6.2.1 Overview

Table 6-3 Post Danmark: Key figures of postal infrastructure

Postal volume	Mail items: 2.6 million Parcels: 0.16 million
Collection points	7,400 post boxes 93 postal outlets operated by Post Danmark 625 post shops (agencies) 97 pick-up/ drop-off locations 156 Døgnpost self-service stations (parcel lockers) 300 service points (in a supermarket chain)
Sorting centres	3 mail sorting centres 2 parcel sorting centres 1 sorting centre for international mail
Delivery offices / bases	153 delivery offices for mail, of which 55 delivery offices are for mail and parcels (combined) 13 delivery bases for parcels
Delivery routes	~2,750 mail delivery routes ~800 delivery routes for parcels ~1,500 delivery routes jointly used for mail and parcels
Addresses	~2.2 million delivery places ~3.2 million delivery addresses (households and businesses)
Labour	Mail operations: ~10,200 of which 2,200 are in sorting centres and 8,000 in delivery Parcel operations: 620 in parcel sorting centres (delivery: n.a.)

Source: Interview Post Danmark.

Note: 'n.a.' means 'not available'.

Every day 2.6 million letters, 4.7 million printed items (unaddressed advertising and publications) and 160 thousands parcels are delivered, six days per week. Post Danmark operates letters and parcels in two distinct networks. Collection and sorting is done separately while transportation between sorting facilities and between sorting facilities and delivery offices as well as delivery to less populated areas is done jointly.

During the week, mail volume is low on Mondays and nearly uniformly distributed during the rest of the week. Peak months are December for priority mail, with the busiest weeks being those during Christmas time (weeks 50-51). For non-priority mail, the busiest weeks are at the beginning of the year (weeks two to five). The same holds true

for parcels: December is a peak month while Mondays are in general high volume days. The same happens after national holidays due to e-Commerce orders.¹³⁰

Figure 6-9 Mail and parcel sorting centres in Denmark (2008)



Source: Post Danmark, Annual Report 2008, p. 28.

Note: Post Danmark closed the sorting centre in Ringsteed after 2008.

Today, mail is processed in three sorting centres and parcels in two sorting centres (see Figure 6-9). At the beginning of the decade, Post Danmark operated eight mail and six parcel sorting centres. Post Danmark is one of the most advanced postal operators in sorting technology, and it was the first European postal company that introduced the automatic sorting of letters in delivery order (even before 2000, see also section 6.3).

In total, mail and parcel operations manage 5,050 delivery routes, 800 exclusively for parcel and 2,750 exclusively for mail distribution. Parcel and letters are jointly delivered on around 1,500 routes.

In 2012 PostNord had more than 13,600 employees in Denmark.¹³¹ About 12,500 of these are assigned to the division Mail Denmark (headcount). Roughly 8,000 postmen are responsible for mail delivery.¹³² About 2,200 employees (1,944 full-time equivalents) are working in mail sorting centres and 620 in parcel sorting centres. Most Danish employees have full-time contracts. Only between 11 and 12 per cent of employees are working part-time and a small number of people are paid by the hour.¹³³

¹³⁰ Interview Post Danmark.

¹³¹ PostNord, Annual Report 2012, p. 74.

¹³² In total, 8,250 people are employed in mail delivery. 950 are part-time workers and 200 workers who are paid by hour ("Saturday delivery staff"). Interview Post Danmark.

¹³³ Interview Post Danmark.

6.2.2 Mail operations

Collection

Single piece items can be dropped at one of approx. 1,200 post offices/service points or inserted in one of approx. 7,400 mailboxes. Business customers can additionally post bulk mail at the sorting centres or, by agreement, bulk mail is picked-up by Post Danmark.

Sorting

Post Danmark has split the sorting of letters and parcels into different centres in 2002.¹³⁴ Between 2002 and 2005 Post Danmark reduced the number of domestic letter sorting centres from 8 to 3 plus one sorting centre for international mail at Copenhagen airport.¹³⁵ This structure has been maintained and no changes in number or location of the sorting centres are planned in the near future.

The sorting centres are not standardized in size but have the same sorting technology and process organization. They are used for outbound and inbound sorting.

The work in the mail sorting centres is organized in “self-managing” teams. The group determines a coordinator who leads the team for six to nine months and acts as the contact person to the management. The coordinator is responsible for daily and weekly planning, quality, work organization in case of vacation and daily operations. The regular change in the group leadership ensures that employees learn different activities, to bear responsibility and to work in a team. In total, 1,835 full time equivalents are working in the mail sorting centres.

¹³⁴ See Post Danmark (2002): Annual Report 2001, p. 23.

¹³⁵ See Annual Reports of Post Danmark 2002-2006.

Table 6-4 Post Danmark: Sorting technology

Type	Characteristics	Process description
CFC machines	Producer: Siemens Total number: 7 (CFC 3004, installed 2010-2013) Location: Sorting centres Productivity: 30,000 – 43,000 items per hour (depends on mode) Installed 2010-2013	The CFC (Culler Facer Cancellor) machines are used to separate “machineable” from “non-machineable” small letters and flats collected from post boxes. The machines include integrated reading and video coding modules for small letters.
Letter sorters	Producer: Siemens Total number: n.a. (IRV 3000) Location: Sorting centres Productivity: >50,000 items per hour	Outward sorting: Addresses are read by optical character reading (OCR) and the address information is coded on the letter (barcode, information includes an Identification number, the postal code, the street number and the first four letters of the street name). If the address is not correctly recognized by OCR, the information is added either by remote video coding or by online video coding. Letters are then sorted to the sorting program of the destination sorting centre. Inward sorting: Letters are sorted in delivery order (two sorting runs).
Flat sorters	Producer: NEC Total number: 9 (installed 2001-2005) Location: Sorting centres Productivity: 3,000 items per hour	Outward sorting: Flats (up to 30mm thickness) are sorted to the sorting program of the destination sorting centre. Inward sorting: Flats are sorted to the delivery route.

Sources: Interview Post Danmark and WIK-Consult (2011), Review of postal technologies in Europe; Siemens (2011), Neue Lösung zur integrierten Vorverarbeitung von Briefsendungen: Dänische Post bestellt erneut Postautomatisierung bei Siemens [New solution of integrated mail preparation: Danish post orders again postal automation of Siemens], Press release 30 March 2011; Siemens, Culler Facer Cancellor CFC 3004 (electronic product brochure) [<http://www.mobility.siemens.com/mobility/global/SiteCollectionDocuments/en/logistics/postal-automation/sorting-machines/ePaper-CFC-3004/index.html#/0>].

Note: ‘n.a.’ means ‘not available’.

All sorting centres are equipped with CFC machines, OCR sorting machines and sequence sorters for small letters and flat sorting machines (see Table 6-4). In 2012 the CFC machines were replaced by new Siemens ones. These machines are equipped with a reader system for automatic revenue protection. It is based on image recognition. In case a letter is not (or not sufficiently) franked, the system recognizes the item and is able to mark the letter, read the senders’ address and calculate the difference in payment. The system directly prints a bill for the additional charge on a postcard with the senders address. The postman who delivers the postcard has to collect the surcharge the next day, while the letter is carried on to the receiver who does not have to pay anything.

Post Danmark is a front runner in sequencing. The first machines to sort letters in delivery order order were installed at the end of the nineties. Sortation by delivery order is done in the sorting centres. Today, 90 per cent of letter post items are sorted in

delivery order by machine.¹³⁶ Furthermore, Post Danmark is centralizing manual sorting of flats (and non-machineable letters) in delivery order in the three letter sorting centres. In separate rooms the items are manually sorted by applying the “Voice-Directed Letter Sorting” technology. Postal workers are equipped with headsets and wireless terminals. The employee reads the first letters of the street name on each item out and, based on a voice recognition system and a database of street names, the system informs the postal worker which compartment the item should be placed in.

To simplify the handling of unaddressed items, these are bundled and pre-wrapped with addresses in a plastic wrapper by a subsidiary (Distribution Services A/S). These bundles are then processed in the sorting centres before being transported to the delivery offices. They are sorted and sequenced in the same way as addressed items because the sorting machines are able to process plastic wrappers as well.

Transportation

Letters and parcels are jointly transported between sorting facilities and to the delivery offices. 99 per cent of all letters are transported by road and by own fleet, only one per cent by air.¹³⁷ The drivers are employed by Post Danmark.

Delivery

Post Danmark has 153 distribution centres organized into 12 distribution areas, each managed by an area manager. In the past delivery offices were located near the railway stations. Today, they are usually located in industrial areas depending on local conditions and real estate costs. Delivery offices are generally not standardized. Work flow and the size depend on local needs and conditions. Delivery offices have a size between 200 to 2,000 square metres. In the very near future when sequence sorting is completely centralized at the sorting centres, the offices will only serve as pick up and consolidation points for the deliverers. As long as the centralization of sequence sorting has not yet been completed the delivery offices are equipped with sorting frames.¹³⁸

The time a postman spends on their delivery route varies from day-to-day depending on mail volume. Delivery activities on Mondays account for approx. 9 per cent of the weekly working hours, and approx. 19 per cent on Tuesdays, Wednesdays and Fridays. Around 16 to 17 per cent of the weekly working hours are needed for delivery on respectively Thursdays and Saturdays. In office activities account for roughly 20 per cent of the deliverers’ working time and street activities for 80 per cent.¹³⁹

¹³⁶ Interview with Post Danmark.

¹³⁷ See WIK-Consult (2011): Review of Postal Technologies in Europe.

¹³⁸ Interview Post Danmark.

¹³⁹ Interview Post Danmark, in office activities also include the preparation of the delivery vehicles and the handling of returned and non-deliverable mail.

Today, Post Danmark manages around 4,250 mail delivery routes which serve around 2.6 million households and 280,000 businesses in Denmark. Letters and parcels are jointly delivered at around 1,500 delivery routes. More than 2,700 routes are served by bicycles, e-bikes or mopeds (and none by foot). Only rural routes (approx. 1,500) and dedicated parcel routes are served by car or delivery van. Post Danmark has had a positive experience of using electronic bikes which are used in a radius of 25 kilometres from the delivery office and allow more loading weight and facilitate delivery. A postman delivers between 400 and 500 items per day on average. This includes packages up to three kilograms. On rural routes, 350 letters and 11-15 parcels are delivered on average.¹⁴⁰

Today, on average 1.5 items are delivered per delivery point (0.99 letters and newspapers, 0.19 local weeklies and 0.33 unaddressed mail). Each delivery point has on average 1.44 recipients. 47 per cent of recipients and 51 per cent of delivery points receive mail every day.¹⁴¹

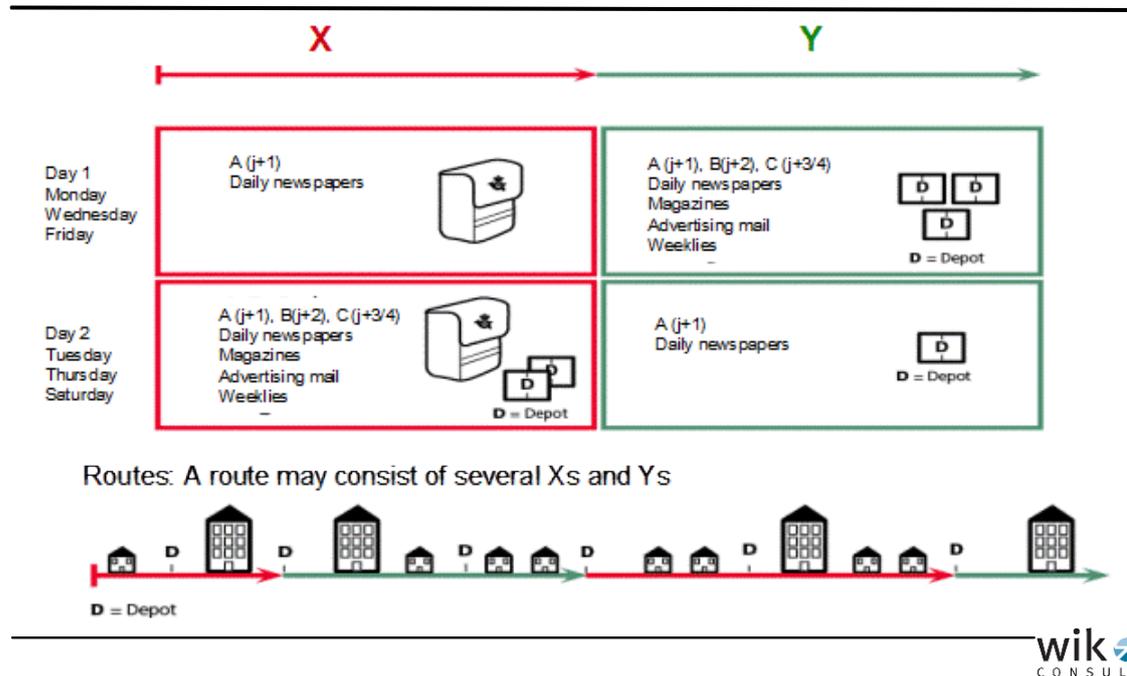
Delivery is organized in a way to ensure stable daily delivery volumes on Tuesdays to Saturdays (and thus full-time employment for deliverers). In 2008 Post Danmark introduced a new delivery model the so-called “X/Y distribution model”. Mail for which overnight delivery is not required (B and C letters and unaddressed mail) is distributed to the delivery places every second day. All mail that needs overnight delivery is delivered six days per week. The X/Y distribution model allows mail to be concentrated on three delivery days instead of six.¹⁴²

¹⁴⁰ Interview Post Danmark.

¹⁴¹ Interview Post Danmark.

¹⁴² See Post Danmark (2009): Annual Report 2008.

Figure 6-10 Post Danmark: X/Y distribution model



Source: Post Danmark (2011), Operations and Delivery Systems as a short term response to universal service demands, presentation at the WIK Königswinter Postal Seminar 1 December 2011, p. 12.

Each delivery route is split in two parts consisting of “X-” and “Y-addresses”. The “X-addresses” receive non-time critical mail on Tuesdays, Thursdays and Saturdays while the “Y-addresses” receive them on Mondays, Wednesdays and Fridays. Unaddressed mail is distributed jointly with “C letters”¹⁴³ on Tuesdays/Wednesdays and on Fridays/Saturdays. This delivery organization is based on complex address databases and detailed knowledge of delivery pattern in combination with highly mechanized and thus flexible sorting in delivery order.

Delivery is facilitated by postal regulation. Since January 1st 2011, the Danish state requires clustered delivery boxes which must be installed in apartment buildings. Owners of one and two family houses have to install letter boxes at the property line since January 1st 2012. Farmers have to place their letter boxes at the property line of their farmland (near the street), but not more than 50 metres from their dwelling.¹⁴⁴

¹⁴³ This is a non-priority letter service, delivered the fourth working day after posting (see Table 6-1).

¹⁴⁴ Interview Post Danmark.

6.2.3 Parcel operations

Collection

Parcels are collected from postal outlets, are posted by business customers directly at the parcel sorting centre, or are picked up at the premises of the sender. Additionally, parcel lockers can be used for sending parcels.

Sorting

Parcels are sorted at two parcel sorting centres, one in Brøndby near Copenhagen and one in Taulov near Kolding, both located in industrial areas.¹⁴⁵ In addition to the two parcel centres, around 50-60 combined distribution centres with mail are used for the handling of parcels, including sorting of parcels which cannot be mechanically sorted. The two-centre structure requires that the customers sort the parcels by destination in either western or eastern Denmark.¹⁴⁶

Both Post Danmark's sorting centres use advanced technology. 96 per cent of parcels are handled automatically.¹⁴⁷ For the handling of the rest, lifting equipment has been installed which provides a more gentle handling of heavy parcels.

The work in the parcel centres is organized in "self-managing" teams, in the same way as in the mail sorting centres. The parcel distribution centres are thus run more by teams and less by the management. In total, 620 full-time equivalents are working in the parcel sorting centres. 73 have part-time contracts.

Transportation

Letters and parcels are jointly transported between sorting facilities and between sorting facilities and delivery offices. All parcels are transported by road on Post Danmark's own trucks. To load and unload trucks Post Danmark has developed an automatic loading system. Parcels are put in special containers with a "moving floor" that can be connected with the transport system of the parcel sorting centre. This technology allows that the containers can be loaded and unloaded automatically.¹⁴⁸

Delivery

For the hand over and final preparation of parcels, Post Danmark partly uses the same delivery offices as for letters. 55 delivery offices for mail also handle parcels, while 13 delivery offices, usually located in urban areas, are exclusively used for parcels.

¹⁴⁵ Between 2003 and 2005 the formerly 8 parcel sorting facilities were reduced to 2 parcel sorting centres, one in Taulov (actually two neighbouring ones, in Taulov and Kolding, both newly built in 2004 resp. 2006) and the other in Brøndby.

¹⁴⁶ See PostNord (2013): Annual Report 2012 and Post Danmark (2007): Annual Report 2006.

¹⁴⁷ See WIK-Consult (2011): Review of Postal Technologies in Europe; interview Parcel Centre Brøndby.

¹⁴⁸ Interview Post Danmark.

Light packets up to 3 kilograms are delivered by mail carriers, and heavier parcels (up to 31 kilograms) are delivered by parcel carriers. Letters and (also heavier) parcels are jointly delivered in around 1,500 delivery routes. Mail carriers deliver around 11 to 15 parcels per day and 800 routes are operated by parcel carriers. There are 85 delivery routes for “evening delivery” to residential areas in order to limit the number of parcels to be collected at postal outlets.¹⁴⁹ A parcel deliverer distributes on average 130 to 150 parcels per day.

In 2010 Post Danmark introduced a new delivery service called “Modtagerflex” in order to reduce the share of unsuccessful delivery attempts of parcels and bulky mail items that do not fit in the private letter box. In April 2012 around 200,000 recipients (13 per cent of households) had subscribed to this service.¹⁵⁰ This option allows consumers, if they are not at home, to determine an alternative location where postmen can leave packages. This could be, for example, a garage or a garden shed. Customers can also opt for having items delivered to an alternative private address. When signing up, they can list up to 10 alternatives where an item can be dropped. The customer puts a sticker (label) on his letter box and the carrier can check on a PDA device where he has to deposit the item.¹⁵¹ The recipients are informed by SMS where the parcel has been left deposited.¹⁵²

Additional pick up points for parcels are parcel lockers (“Døgnposten”), around 300 service points at supermarkets (Coop), and postal outlets.

¹⁴⁹ See Post Danmark (2007): Annual Report 2006. Interview with Post Danmark.

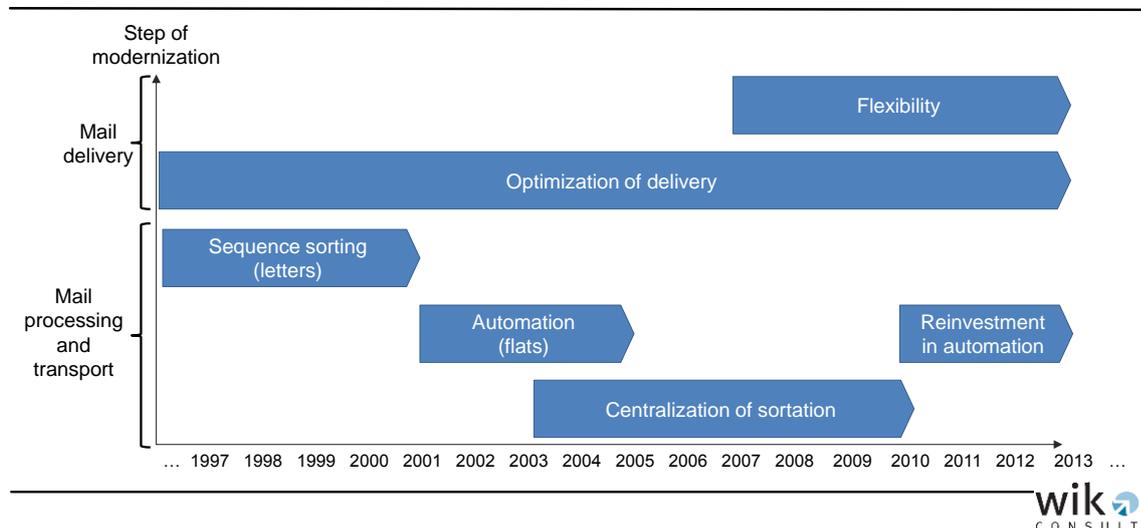
¹⁵⁰ See Post & Parcel (2012), 200,000 sign up for Post Denmark’s flexible parcel delivery, 25 April 2012 (<http://postandparcel.info/47287/news/companies/200000-sign-up-for-post-denmarks-flexible-parcel-delivery/>).

¹⁵¹ See WIK-Consult (2011): Review of Postal Technologies in Europe.

¹⁵² Interview Post Danmark.

6.3 Efficiency programs

Figure 6-11 Post Denmark: Evolution of mail operations



Source: WIK-Consult.

Sequence sorting

Post Denmark was the first European postal operator that introduced sequence sorting machines. Between 1996 and 2001 Post Denmark launched the “Sequence Sorting Concept” in order to reduce sorting and delivery costs and to improve quality of service. In 2002 Post Denmark operated 28 sequence sorters for letters in their mail centres and 70 per cent of all standard letters were sorted in delivery order.¹⁵³ Cost savings were substantial: Due to this program the company saved DKK 700-800 million [GBP 76-87 million¹⁵⁴] which corresponds to 6-7 per cent of total operating expenses per year on average. Compared to the cost savings total investment was limited: the investment was recovered within one year.

Post Denmark’s mail operations are highly mechanized. This involved several waves of investment in automation. Between 2000 and 2013 Post Denmark highlighted two important projects:

- The “Flat Sorting Machine (FSM) Concept” (2001-2005),
- The re-investment in pre-processing equipment and OCR machines (2010-2013).

¹⁵³ Post Denmark, Annual Report 2002, p. 18-19.

¹⁵⁴ Exchange rate from DKK to GBP: 9.18 (2012 average).

Automated sorting of flats

The core element of the FSM concept was the installation of flat sorters for industrially sorting flats (C4-format). The first machine started its operations in 2003.¹⁵⁵ Additional seven followed in 2004 and 2005.¹⁵⁶ At the end of 2004 around 50 per cent of all flats were processed by machine.¹⁵⁷ Total investment was recovered after approximately four years by cost savings (around DKK 100-250 million [GBP 10-27 million] per year).¹⁵⁸

Reinvestment in automation

Between 2010 and 2013 Post Danmark re-invested into pre-processing technology to improve revenue protection and letter processing. The installation of seven pre-processing machines of the type Siemens CFC 3004 which can process letters and flats was a core element of this program. Post Danmark selected the combination of a CFC and an integrated reading and video coding machine (IRV) in a single machine. The machine also includes the dynamic weighing of standard letters and flats up to 300 grams as a standard feature. With an accuracy to within two grams, the weighing modules allow Post Danmark to automatically detect mail items with insufficient postage.¹⁵⁹ Additionally, Post Danmark has installed eight Dispatcher MX systems of ID Mail across its three business mail sorting centres.¹⁶⁰ These machines are able to process non-automation friendly rest mail, which could range from extremely lightweight letters to heavy and bulky flats and packets.¹⁶¹

Finally, Post Danmark introduced the mechanical handling of unaddressed mail between 2003 and 2005 ("MBA project"). The company installed special machines for bundling, wrapping and sorting unaddressed advertising to delivery routes.

Centralization of sortation

Declining mail volumes combined with an increasing share of non-priority mail has resulted in there being less capacity in processing and fewer mail centres. Between 2003 and 2010 Post Danmark reduced the number of mail sorting centres from eight to three. Four were closed between 2003 and 2005, the last was closed in 2010. This centralization resulted in a higher rate of automation.

¹⁵⁵ Post Danmark, Annual Report 2003, p. 21.

¹⁵⁶ Post Danmark, Annual Report 2004, p. 22 and Annual Report 2005, p. 30.

¹⁵⁷ Post Danmark, Annual Report 2004, p. 22.

¹⁵⁸ Interview Post Danmark.

¹⁵⁹ Siemens (2011), New solution for the integrated preprocessing of letters: Danish Post places another postal automation order with Siemens, Press release 30 March 2011.

¹⁶⁰ Postal Technology International (2011), Reinvention, When Post Danmark wanted to replace its franking machines, the solution wasn't at all what it envisaged. (www.postaltechnologyinternational.com).

¹⁶¹ See <http://www.idmailsystems.com/products/dispatchermx>.

The cost savings per year were limited with 1-2 per cent of total operational expenses on average. The investment costs were recovered within three years.

Optimization of delivery

Between 2000 and 2012 Post Danmark reduced the total number of delivery offices from 341 to 153. Moreover, the company centralized the industrial and the manual sorting of all mail items in its mail sorting centres.

Flexibility in delivery

Between 2007 and 2011 Post Danmark substantially reorganized its delivery processes to adjust costs and capacity to changing market conditions and the substantial decline in mail volume. Post Danmark has first launched the “X/Y model” in mail delivery (2007-2008) and second the “Small Monday” model (2009-2011).

The “X/Y distribution model” in delivery allows the distribution of non-time-sensitive mail (B and C mail) every second working day (see section 6.2.2 for a detailed description of the delivery process). Additionally, the company implemented a new electronic processing system with up-to-date address databases to sort letters in delivery order. Finally, Post Danmark installed a new geographical route planning system to flexibly determine delivery routes depending on day-specific mail volume.

The “Small Monday”, introduced between 2009 and 2011, allows Post Danmark to focus its delivery activities on five days per week (Tuesday to Saturday). The delivery organization was transformed so that on Mondays only priority items (“A letter”) and newspapers are delivered, while non-priority mail and unaddressed advertising are delivered on the remaining days (according to the “XY distribution model”).

The investment costs for both projects were negligible while the cost savings per year are substantial with around 3-5 per cent of total operational expenses on average (DKK 400-500 million [GBP 43-55 million] cost savings per year).

7 La Poste (France)

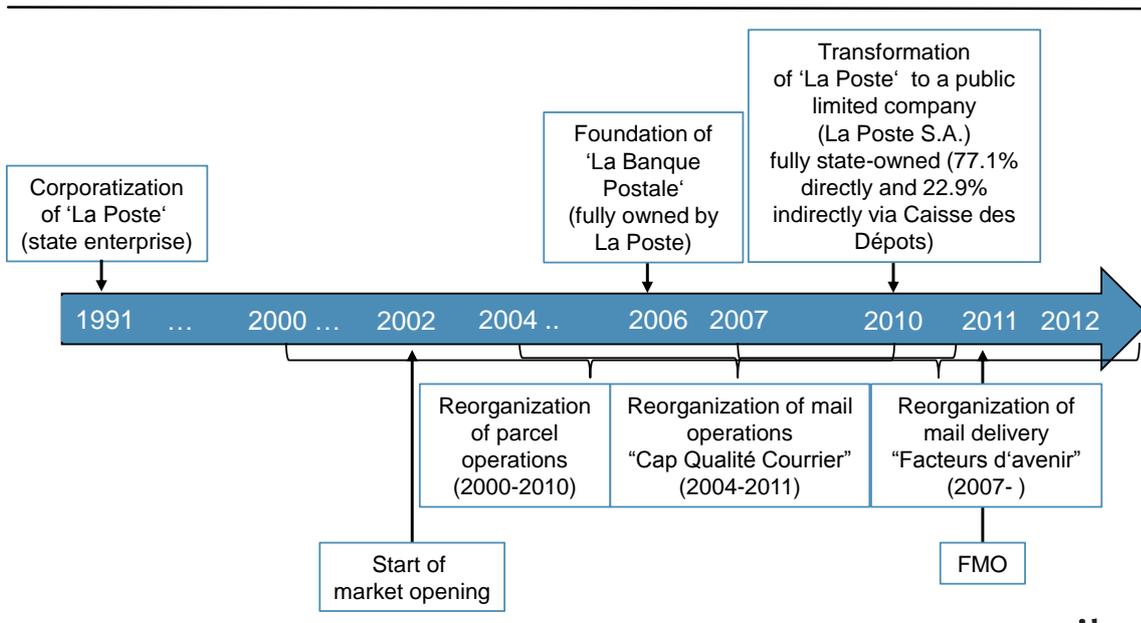
Key facts

- La Poste, corporatized in 1991, is a fully state-owned company. The company was transformed into a public limited company in 2010 which allows La Poste to access the capital market (much later than other comparator operators).
- La Poste is the second-largest postal operator in Europe with a total revenue of EUR 21.7 billion in 2012.
- In addition to the mail, parcel and express business in France, La Poste focusses on financial services and European parcel operations. Mail revenues account for more than 50% of total revenues.
- The French mail market was fully liberalized in 2011 but no noticeable competition has emerged.
- La Poste's transformation from a state enterprise to a public limited company under (at least partial) control of the capital market started substantially later compared to the other operators. This is also reflected in its modernization process.
- Among the comparator operators La Poste reorganized its mail processing and delivery operations last.
 - The modernization of mail operations accompanied by a reduction in mail sorting centres took place between 2004 and 2011.
 - Since 2007 La Poste has been reorganizing its delivery operations, a process that is still ongoing.

7.1 Background

Corporate developments and organizational structure

Figure 7-1 France: Milestones in corporatization, privatization and market opening

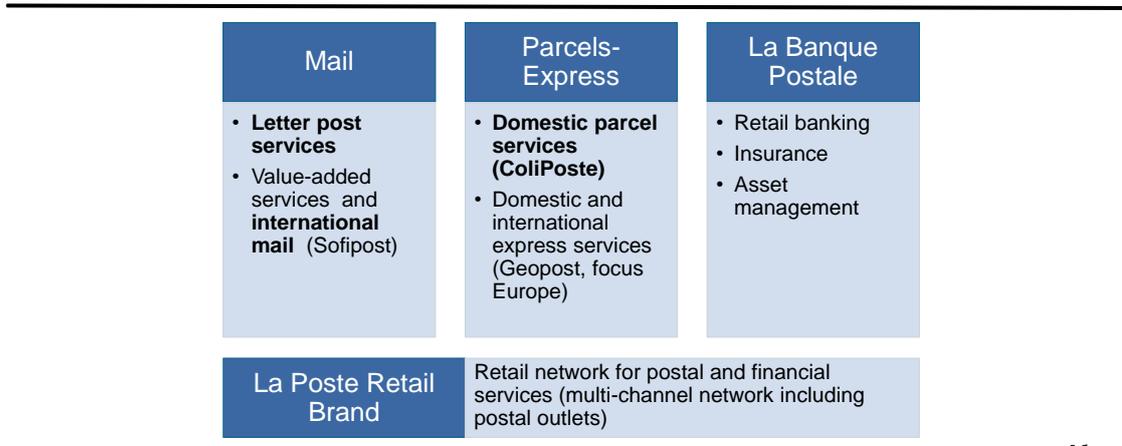


Source: WIK research.

La Poste was corporatized in 1991. In March 2010 La Poste became a public limited company which is fully owned by the French state, directly (77.1 per cent held by the government) and indirectly (22.9 per cent by the financial company Caisse des Dépôts which is also fully owned by the government).¹⁶² This transformation allowed La Poste to raise funds in the capital markets.

¹⁶² See Le Groupe La Poste (2012), Debt investor presentation, November 2012, p.7.

Figure 7-2 La Poste Group: Business divisions



Source: WIK-Consult based on La Poste (2012), Debt investor presentation.

Note: The bold written sub-segments indicate the business areas providing the letter post and parcel operations that are (roughly) comparable to the Reported Business of Royal Mail.

Today, La Poste Group is organized into four business divisions: Mail, Parcel-Express, La Banque Postale and the retail network (Retail Brand). In total, more than 80 per cent of revenues are originated in France.

Domestic mail (“Courrier”) and parcel operations (“ColiPoste”) as well as the retail network are managed by the company “La Poste S.A”. Therefore, the company figures are more comparable to Royal Mail’s Reported Business than the group data and are also presented in this section.

Market opening and competition

In France, the market opening process lagged behind the schedule of the Postal Directive. The first market opening step (350g weight threshold) was implemented in 2002, the second (100g) in 2005 and the third (50g) in 2007. The French postal market was fully opened to competition in January 2011 (consistent with the timetable set out in the Third Postal Directive).

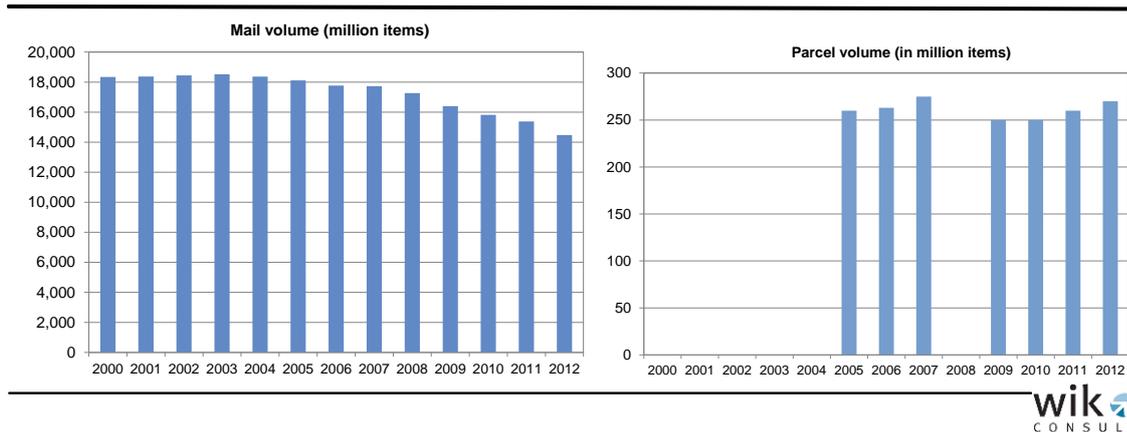
Adrexo Mail, the most important competitor in the French mail market, set up addressed mail distribution networks in several key French regions, including Paris, Lille, Lyon, Marseille and Toulouse in 2006 and 2007. Due to a combination of losses, a difficult operating environment and the delay in postal liberalization from 2009 until 2011, Spir, the parent company of Adrexo Mail, ceased operations in 2008.¹⁶³ Since the market was fully opened to competition in 2011 there has been no noticeable market entry and La Poste has more than 99 per cent share of the French letter post market.

¹⁶³ See CEP Research (2008), French mail competitor gives up, press notice 3 April 2008.

As in other countries, the French parcel market is more competitive although La Poste has a substantial share in this market as well. La Poste estimated the market share of its parcel division ColiPoste in the B2C and C2B segment at 63 per cent in 2012.¹⁶⁴

Evolution of mail and parcel volumes

Figure 7-3 La Poste: Development of mail and parcel volumes



Source: WIK research.

Note: Parcel volume (ColiPoste) for 2000-2004 and 2008 not available.

Mail volumes at La Poste were roughly stable between 2000 and 2007 with around 18 billion letter post items (see the left chart of Figure 7-3). Substantial decline started with the financial crisis in 2008. Between 2008 and 2012 mail volumes decreased by 16 per cent. La Poste reported a decline of 5.6 per cent in 2012.¹⁶⁵ La Poste is expecting an average annual decline of letter post volumes of six per cent over the next few years.¹⁶⁶ More than two thirds of mail volumes are non-priority items i.e. delivered after the second day following posting.¹⁶⁷

In contrast, La Poste parcel volumes have been increasing since 2009 (see the right chart of Figure 7-3), which is consistent with the development of other parcel markets. La Poste delivered 270 million parcels in 2012 which nearly returned it to the pre-economic crisis level (in 2007). Parcel volumes are highly seasonal in nature with the peak season being between late October and January.¹⁶⁸ For example, in December 2012 the average daily parcel volume increased by 50 per cent. To ensure customer service during these peak periods, ColiPoste uses external contractors to expand its parcel delivery operations.

¹⁶⁴ See La Poste, Registration Document 2012, p.36.

¹⁶⁵ See La Poste, Registration Document 2012, p. 25.

¹⁶⁶ Interview La Poste.

¹⁶⁷ See ARCEP (2012), Observatoire annuel des activités postales en France, Année 2011, p. 8. ARCEP considers « la lettre verte » (D+2) and « la lettre prioritaire » (D+1) as priority services.

¹⁶⁸ Interview La Poste.

Services, prices and quality

Table 7-1 La Poste: Size and weight structure of basic letter products

Format category	Letters
Length	-
Width	-
Thickness	-
Circumference	1,000mm – Length = 600mm
Weight classes	<p>“Lettre prioritaire” and “lettre verte”: 8 types (0-20g, 21-50g, 51-100g, 101-250g, 251-500g, 501-1,000g, 1,001- 2,000g, 2001-3000g)</p> <p>Écopli: 4 types (0-20g, 21-50g, 51-100g, 101-250g)</p>
Product attributes	<p>D+1 (lettre prioritaire) D+2 (lettre verte), launched in 2011 D+3/4 (l'écopli)</p>

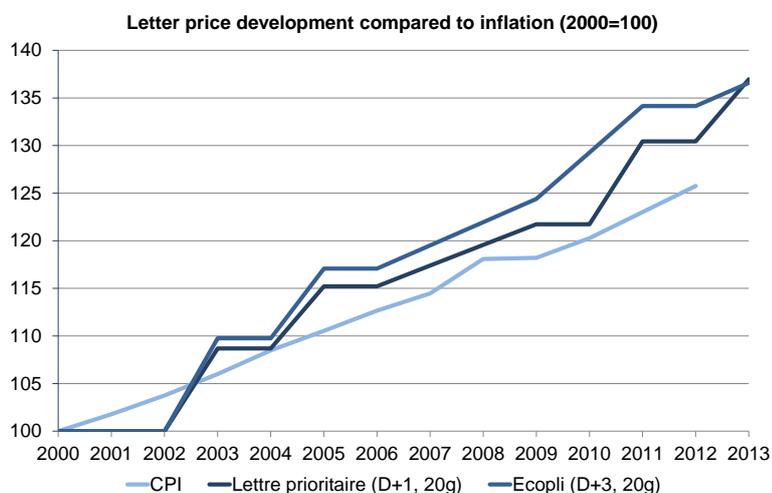
Source: WIK-Consult based on price lists of La Poste.

La Poste offers three basic letter products to consumers that vary in speed of delivery: “lettre prioritaire” (D+1), “lettre verte” (D+2) and “écopli” (D+4). The “lettre verte” product was introduced in October 2011. The price depends only on the weight per item and quality of service. For bulk letters to be sorted by machine, La Poste has separate weight and format requirements (e.g. “plis mécanisables” 0-35g) and lower prices. For advertising mail, La Poste offers a separate product (“Tem’post G” product) with two different delivery options (D+2 and D+4)¹⁶⁹ and it also offers a D+7 delivery service for advertising mail.

Parcels are usually delivered the second working day after posting. La Poste considers next day delivery of parcels as an express service which is offered by its subsidiary Chronopost. The price for basic parcel services (“counter parcels”) only depends on the weight of the item (subject to maximum size constraints). The customer has to pay surcharge of six Euros for parcels that are “non-standard” (e.g. exceeds the maximum circumference of 200cm). The track and trace feature is part of the basic service.

¹⁶⁹ See La Poste (2013): Les offres commerciales de La Poste relevant du service universel postal.

Figure 7-4 La Poste: Development of the basic letter tariff



Source: WIK-Consult based on price lists of La Poste and Eurostat (Consumer price index CPI).

La Poste's basic tariff for letter services has increased slightly more than the consumer price index from 2000 (see Figure 7-4). Today, a consumer pays EUR 0.63 (GBP 0.51) for sending a 20 gram letter that is delivered the next working day. The "la lettre verte" costs EUR 0.58 (GBP 0.47) and "écopli" EUR 0.56 (GBP 0.45) for a 20 gram letter.

Table 7-2 La Poste: Development of delivery quality

Delivery quality (in %)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Letters D+1 target	84	84	84	84	-	-	-	85	83	84	85	85	85
Performance	n.a.	n.a.	n.a.	69.6	74.7	79.1	81.2	82.5	83.9	84.7	83.4	87.3	87.9
Parcels D+2 target	-	-	-	-	-	-	-	90	85	86	87	87	87
Performance	n.a.	n.a.	n.a.	n.a.	n.a.	83.8	84.1	85.8	85.0	87.7	84.8	88.7	89.8

Sources: La Poste (2007-2011), Les résultats de la qualité du service universel postal, and La Poste (2013), Résultats de la qualité du service universel postal 2012; La Poste, Contrats de Plan 1998-2001, 2003-2007, 2008-2012.

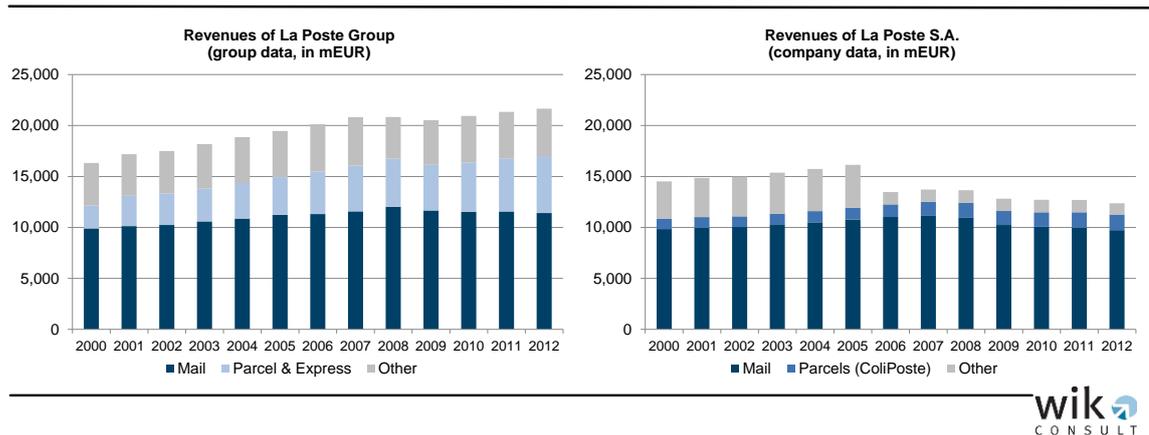
Notes: Letters – lettre prioritaire égrenée;
 Parcels – colissimo guichet.
 'n.a.' means 'not available'.
 "-": no target defined.

La Poste delivers six days per week (Monday to Saturday) and the quality of service for D+1 letters has significantly improved from less than 70 per cent in 2003 to nearly

88 per cent in 2012. Quality of parcel delivery increased from nearly 84 to almost 89 per cent from 2005 to 2011. La Poste has stated these improvements are the result of the modernization process it has undertaken for its letter and parcel operations.¹⁷⁰

Revenues, expenses and profitability

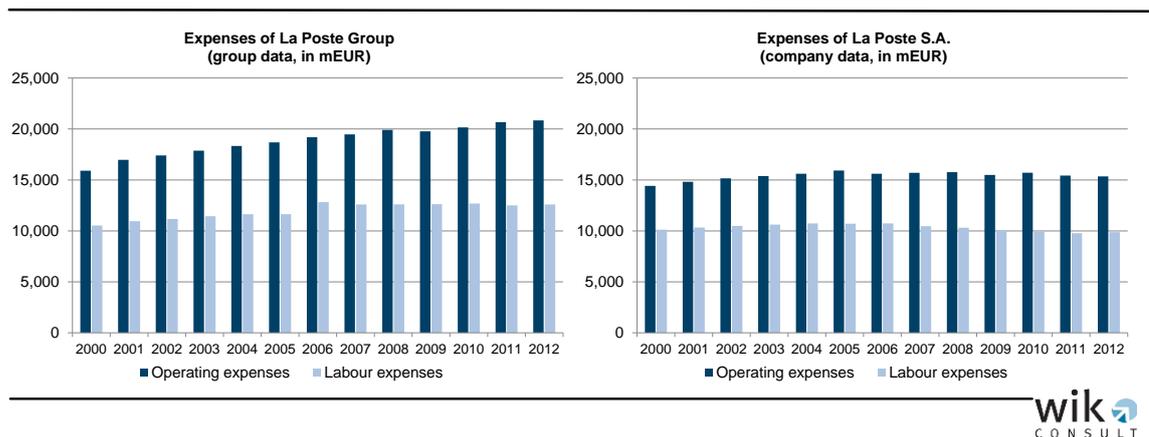
Figure 7-5 La Poste: Revenues (group and company data)



Source: WIK-Consult based on annual reports of La Poste Group (group and company data).

Notes: Company data refers to “La Poste S.A.”.
Group data refers to consolidated data, i.e. “La Poste S.A.” (=company) and subsidiaries in France and abroad.
“Other” includes the division La Banque Postale and other revenues (including consolidation).

Figure 7-6 La Poste: Expenses (group and company data)



Source: WIK-Consult based on annual reports of La Poste Group (group and company data).

Notes: Company data refers to “La Poste S.A.”.
Group data refers to consolidated data, i.e. “La Poste S.A.” (=company) and subsidiaries in France and abroad.

¹⁷⁰ Interview La Poste.

The left chart in Figure 7-5 shows the revenues of La Poste Group from 2000 to 2012. Although Mail revenues have been relatively stable in absolute terms, their share of overall revenues has declined from 61 to 53 per cent. This was mainly due to the growth in Parcel & Express revenues, whose revenue share increased from 14 to 26 per cent between 2000 and 2012 as a result of acquisition and continuous growth in the demand for parcel services.

The Mail division (“Courrier”) includes the domestic and international letter post business but domestic mail activities account for 93 per cent of this revenue.¹⁷¹ La Poste also offers services to support customers in mail production and to prepare advertising campaigns and international mail services (Asendia, joint venture of La Poste and Swiss Post started in July 2012). These activities are assigned to La Poste’s subsidiary Sofipost and account for 10 per cent of the division revenues.¹⁷²

The Parcel-Express division consists of national and international parcel and express services which account for one quarter of total revenues (EUR 5.5 billion). Roughly three-quarter of the division’s revenues come from express, with the remaining quarter coming from parcel services. The national and international express services are organized in the La Poste owned holding companies Chronopost (mainly national express services) and Geopost (international express and parcel services under the DPD brand). The significant majority (three-quarters) of express revenues are from the Geopost international services, mainly within Europe.¹⁷³

Domestic mail (Courrier) and parcel operations (ColiPoste) are managed by the company (“La Poste S.A.”, see the right chart in Figure 7-5). Three-quarters of the company’s mail revenues are born by universal postal services.¹⁷⁴ In 2006 total revenues dropped because of the demerger of financial services (foundation of “La Banque Postale S.A.”).

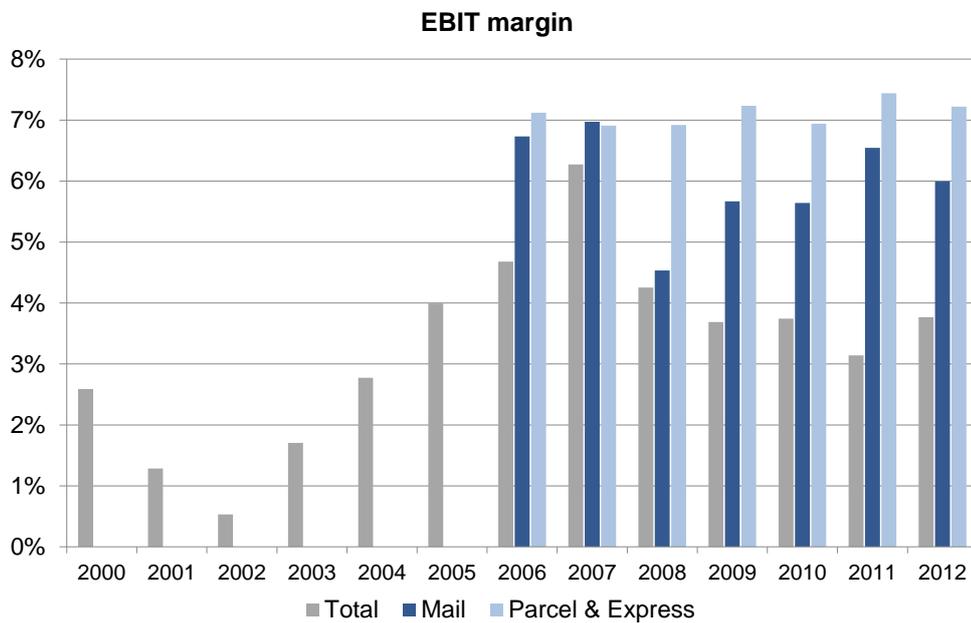
¹⁷¹ See Group La Poste, Registration Document 2012, p. 262.

¹⁷² See Group La Poste, Registration Document 2012, p. 20.

¹⁷³ See Group La Poste, Registration Document 2012, p. 263.

¹⁷⁴ See Group La Poste, Registration Document 2012, p. 20.

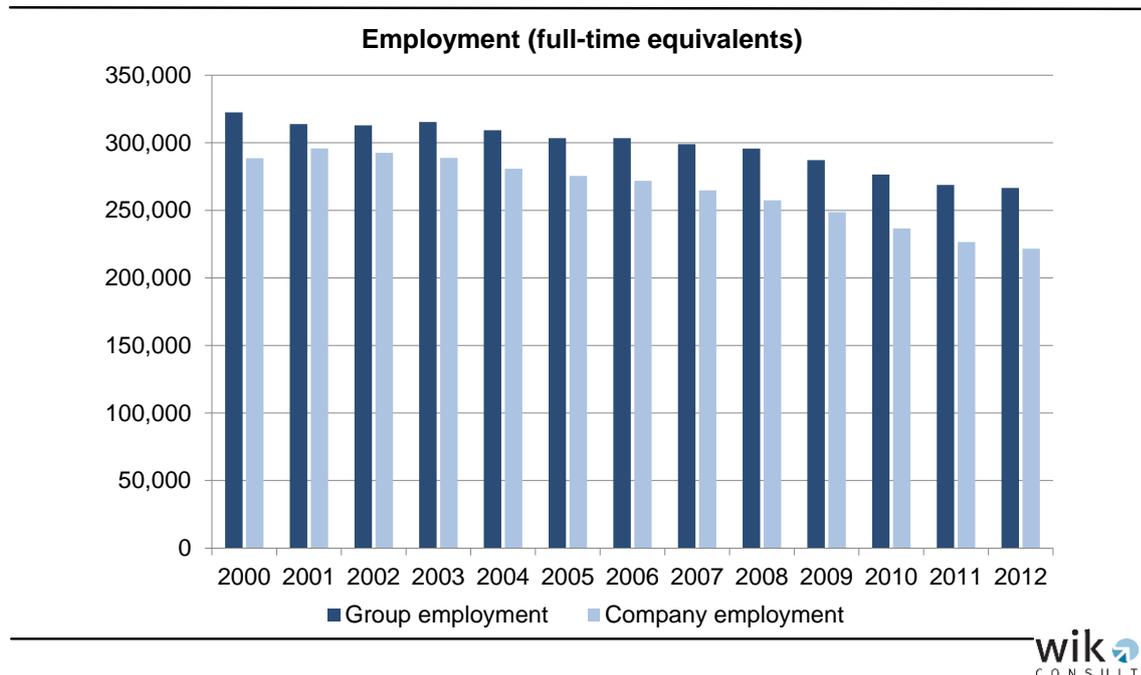
Figure 7-7 La Poste Group: Profitability



Source: WIK-Consult based on annual reports of La Poste Group.

Overall profitability of La Poste Group increased between 2002 and 2007 from less than one per cent to more than six per cent (see Figure 7-7). Between 2008 and 2012 the EBIT margin varied between three and four per cent. The relatively low EBIT margin resulted from the continuously loss-making 'Retail Brand' division that is responsible for post offices. Mail and Parcel & Express operations are more profitable with fairly stable EBIT margins between six and seven per cent since 2006 when La Poste reported revenues and profits separately. Mail operations have also been more profitable than the group but with lower EBIT margins than parcel & express operations (between four and seven per cent over the same period).

Figure 7-8 La Poste: Employment development (group and company data)



Source: WIK-Consult based on annual reports of La Poste Group.

Notes: Company data refers to "La Poste S.A."

Group data refers to consolidated data, i.e. "La Poste S.A." (=company) and subsidiaries in France and abroad.

The figures include employees with temporary contracts.

Figure 7-8 shows the change in full-time equivalents employed at group and company level. The number of FTEs employed by La Poste has steadily declined since 2002 (the year before the modernization program started), with an overall reduction of one quarter (i.e. an average decline of 2.5 per cent per year). This decline is mostly fuelled by the reduction in part-time employment. For example, while full-time employment declined on average by 1.4 per cent per year, part-time employment has declined by 7.6 per cent. As a result the share of part-time employment declined from 19 per cent in 2000 to 11 per cent in 2012.¹⁷⁵ In France (and thus at La Poste) since 2001 full-time employees only work 35 hours per week.

¹⁷⁵ Source: database of the Universal Postal Union (UPU) on postal employment (see www.upu.int).

7.2 Postal operations

7.2.1 Overview

Table 7-3 La Poste: Key figures of postal infrastructure

Daily postal volume	Mail items: 48 million Parcels: 1 million
Collection points	141,646 post boxes 17,075 postal outlets (>40% agencies) Business customers and consolidators can post bulk mail at mail preparation and delivery platforms (PPDC, "plat-forme préparation et distribution courrier") and sorting centres (PIC, "plat-forme industriel courrier")
Sorting centres	48 sorting centres for letter post (20 new and 28 modernized centres) and one sorting centre for international letter post (PIC, "plat-forme industrielle courrier") 14 sorting centres for parcels, one sorting centre for mail order and one sorting centre for international parcels 7 transportation hubs
Delivery offices / bases	~3,000 delivery offices (PDC, "plat-forme distribution courrier") including ~300 delivery offices with hub function for collection (PPDC, "plat-forme preparation et distribution courrier") ¹⁷⁶ ~70 Dedicated parcel delivery bases located in urban areas
Delivery routes	~ 2,250 parcel delivery routes ~60,000 mail delivery routes of which <ul style="list-style-type: none"> • ~10,000 routes on foot • ~20,000 routes by bicycle or moped • ~30,000 routes by car 50% mail delivery routes 50% delivery routes for mail and parcels (ColiPoste parcels), only routes by car
Addresses	~36 million addresses
Labour	Mail operations: ~130,000 (headcount) of which ~30,000 in mail sorting centres and ~100,000 in delivery Parcel operations: ~6,500 (headcount) of which ~3,000 in parcel sorting centres and ~3,500 in delivery

Source: WIK-Consult based on La Poste (2013): Annual Report 2012 and the interview with La Poste.

La Poste handles around 17 million letter post items and one million parcels every day. It has separated the sorting and transportation (trunking) parts of the pipeline for mail and parcels. Mail sorting takes place in all 48 mail sorting centres, while parcels are sorted in the 14 parcel sorting centres. All mail sorting centres are equipped with CFC machines (Culler Facer Cancellor) and sorting machines for letters and flats. The parcel sorting centres have cross-belt sorters for parcel sorting. All sorting centres are used for both outbound (national) and inbound (local) sorting and the 20 newly built sorting

¹⁷⁶ La Poste reports in its annual report (2012) on 3,482 PDCs and 239 PPDC (see La Poste, Registration Document 2012).

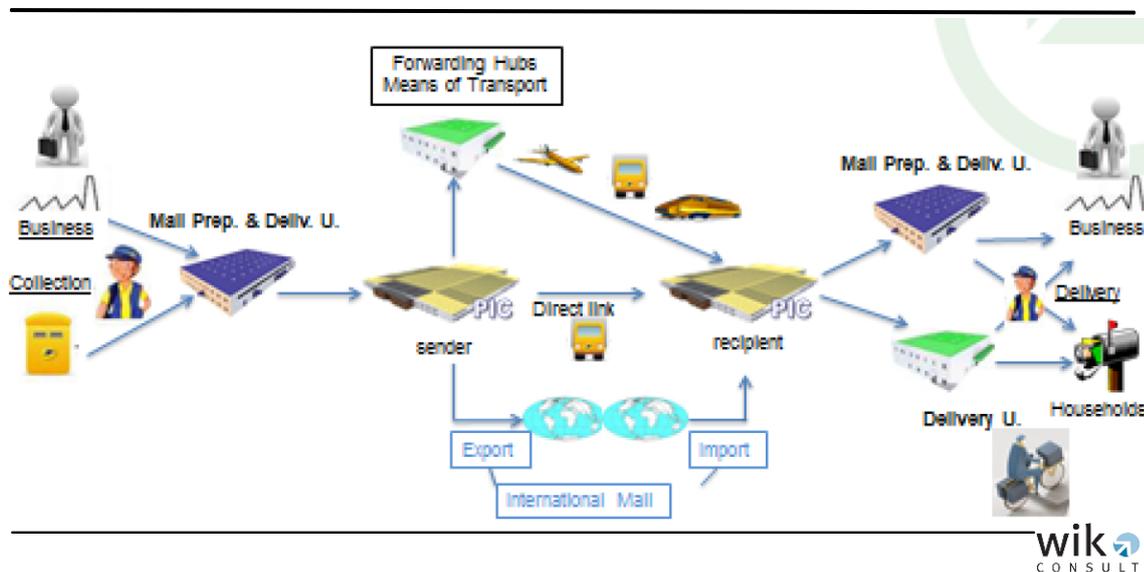
centres, in particular, are located in business areas with easy access to the motorway. The largest mail sorting centre in France (and most probably in Europe) is located in the south of Paris and on average handles seven million mail items per day.

There is substantial sharing of collection and delivery operations between letter mail and parcels.¹⁷⁷ They are both collected from post offices and transported to one of the 300 mail preparation and delivery platforms (PPDC). In these locations parcels and letters are separated and prepared for transportation to their respective sorting facilities. For final delivery, parcels are transported either to parcel delivery offices (responsible for the delivery in more densely populated areas) or to PPDCs for distribution to areas where letters and parcels are jointly delivered.

In total around 130,000 mainly full-time employees work in mail operations: roughly 30,000 in processing (sorting centres) and 100,000 in delivery. Around 6,500 employees work in ColiPoste’s parcel operations: around 3,000 in processing and 3,500 in delivery.

7.2.2 Mail operations

Figure 7-9 La Poste: Characteristics of mail operations



Source: La Poste, presentation of the PIC Wissous Paris Sud.

¹⁷⁷ See La Poste (2013): Registration document 2012, p. 33.

Collection

La Poste collects mail and parcels six days per week from more than 142,000 post boxes and around 17,000 postal outlets. Business customers can order a pick-up service from La Poste. Additionally, they can hand over mail items at the PPDC or the PIC (depending on mail volume). Parcels and letter post items are collected from the post offices respectively from post boxes and transported first to the PPDC. In the PPDC parcels and letters are separated and prepared for transportation to the sorting facility for either parcels or letters. Preparation of letter post items includes the separation by format, by destination (local mail and national mail) and by delivery quality (D+1, D+2, D+4/7).¹⁷⁸ Around one quarter of all ColiPoste parcels are collected by the mail division while three quarters are collected by the parcel division.

Sorting

Table 7-4 La Poste: Sorting technology

Type	Characteristics	Process description
CFC machines	<p>Producer: Toshiba</p> <p>Total number: ~110</p> <p>Location: PIC and PPDCs (only within Paris)</p> <p>Productivity: 30,000 items per hour</p> <p>Workers per machine: 2-3 per machine</p> <p>Developed in close co-operation with La Poste (development of a prototype)</p>	<p>The CFC (Culler Facer Canceller) machines are used to separate “machineable” from “non-machineable” items collected from post boxes. The CFC machines have an additional sorting module for letters. Letters that can be handled by machines are faced into the same direction so that they can be cancelled and are segregated by format, destination (local, national, cross-border) and delivery time (D+1, D+2, D+4). “Non-machineable” items are faced for manual cancelling.</p> <p>Only used for outward preparation of mail for the letter sorter and segregation of non-machineable items.</p>
Letter sorting machines	<p>Producers: Solystic and Siemens</p> <p>Total number: ~260 (50% Solystic STAR, 50% Siemens machines)</p> <p>Location: PIC</p> <p>Productivity: 40,000 items per hour</p> <p>Workers per machine: 3 (one feeder, two to clear the sorted mail from the stackers)</p>	<p>Outward sorting: Addresses are read by the optical character reading (OCR) machines and the address information is then printed on the envelope in the form of a barcode (this includes an identification number, the postal code, the street number and the first four letters of the street name). If the address is not correctly recognized by OCR machine the information is added either by remote video coding or by online video coding. Letters are then sorted to the inward (destination) mail centre and the relevant sorting program for the address.</p> <p>Inward sorting: Letters are sorted in delivery order by the same machines (two sorting runs).</p>

¹⁷⁸ See La Poste (2013): Registration Document 2012, p. 23-24 and interview La Poste.

Type	Characteristics	Process description
	Producer: Solystic Total number: ~700 (Solystic MARS) Location: PIC and PPDC Productivity: 45,000 items per hour Worker per machine: 1	The smaller letter sorters of Solystic are either located in the PIC (i.e. removed from the PPDC to the PIC) or at the PPDCs (if distance to PIC is more than 20-25km). For delivery order sorting the machine needs three sorting runs.
Flat sorters	Producer: Solystic Total number: ~50 (Solystic TOP 2000) Location: PIC Productivity: 30,000 items per hour Workers per machine: 5 (4 feeders and 1 supervisor) Stackers: 120-480	Flats up to 32mm thickness (including magazines and catalogues) are sorted in flat sorters with special feeders that transport the trays to the sorting machine. In large sorting centres the flat sorters are equipped with an automatic tray handling system. Addresses are read by OCR and flats are sorted to one of the 480 destinations. Outward sorting: Flats are sorted to the sorting program of the inward sorting centre. Inward sorting: Flats are sorted to the delivery route.

Sources: Interview La Poste and supplier information.

In the sorting centres (PIC) 93 to 95 per cent of the letter post items are outward sorted by machine, around 78 per cent are sorted to delivery routes and 58 per cent are sequenced in delivery order. The residual mail is manually cancelled and then sorted to the inward mail centre and the delivery routes at the inward mail centre.

La Poste aims to centralize as much delivery order sorting in the PICs as possible. PICs undertake the sequence sort for those PPDCs that are located within a radius of 20-25 kilometres (which accounts for about 25 per cent of machineable letters). The other PPDCs are equipped with small sorting machines (Solystic MARS) which sequence sort the mail.

As discussed above, La Poste has products with four different delivery standards (D+1, D+2, D+4 and D+7). While there is capacity in the sorting centres to sort all items that arrive during a 24 hour period, irrespective of the delivery time, experience has shown that if this mail is sorted 'quickly' and sent to be held at the PPDCs, it results in an overload of the delivery offices. Therefore, to support the effective management in the delivery offices, non-priority items are retained in the sorting centres until the day before they are due to be delivered. This means that sorting centres operate according to the requirements of delivery offices. As a result, PICs need physical space as they might keep/store mail which is not urgent (e.g. D+3/4, flats).

Transportation

Transportation between the sorting centres is outsourced to third parties. It combines various forms of transport (i.e. air, road, and rail) depending on the delivery standard for the mail and the distance between sorting facilities. In 2012, 91.5 per cent of letter post items were transported by road, 4.8 per cent by rail and 4.1 per cent by air. For transportation of letter post items La Poste uses 355 trucks, 3 high-speed trains (TGV) and 12 airplanes serving 15 destinations.¹⁷⁹ Transportation by air is mainly used for the D+1 service and for destinations outside the French mainland (Corsica and overseas¹⁸⁰). Non-priority items (D+2, D+4/7) are always transported by train or truck. Letter mail and parcels are transported separately between sorting facilities.¹⁸¹

For PPDCs that are located closer than 20 kilometres to the PIC, there are two separate transports: the first for manual sort mail that will need to be sorted in delivery order and the second for machine sequence sorted letters. For other PPDCs (i.e. further than 20km), there is only one transport wave because in these cases the PPDC is responsible for both manual and machine sequence sorting.

*Delivery*¹⁸²

There are two types of mail delivery offices. The first type, the PPDC, is also used as hub for mail and parcel consolidation in the collection phase. The second type, the PDC, is only used for delivery purposes. PPDC's are responsible for the limited number of PDCs in their service area (to organize collection and delivery). Sequence sorting by machine is done either in the PIC (~25 per cent) or in the PPDC that are equipped with the Solystic MARS letter sorters (~75 per cent). La Poste is aiming to centralize the sorting in delivery order in the PICs. Publications (newspapers and magazines) are usually directly transported to the destination PPDC (i.e. without going through the sorting centres) and are already sorted in delivery order.

In the PPDC, the incoming mail is handled in three working steps: First, for each route flats and letters are segregated to streets or street sections. Second, the items are sequence sorted in distinct sorting cabinets with compartments that are subdivided into single addresses or a group of addresses (depending on average volume delivered). Third, the different bundles (pre-sorted newspapers, sequenced letters by machine (approximately 58 per cent) and the letters sequenced manually) are bundled together and the delivery vehicles are prepared.

As discussed above, letters and parcels are delivered six days per week. Mondays and Tuesdays are low-volume letter days. In addition, the summer months (July-August) are low volume months. Unlike with some of the other operators, La Poste does not

¹⁷⁹ See La Poste (2013): Registration Document 2012, p. 23-24 and interview La Poste.

¹⁸⁰ DOMTOM: "Département d'outre-mer – Territoire d'outre-mer".

¹⁸¹ Interview La Poste.

¹⁸² Interview La Poste.

observe a December peak in letter post volume.¹⁸³ To manage peak and low volume delivery days the postmen are organized in working groups. In these groups, the number of postmen exceeds the number of delivery routes (e.g., 12 delivery routes and 15 postmen) to manage absences (e.g. due to holidays and illness). On off-peak days (e.g. Mondays and Tuesdays or during the summer months), the number of delivery routes can be reduced by e.g. splitting two routes and allocating them to the remaining ten.

For about 50 per cent of delivery routes (mostly in suburban and rural areas), letters and parcels are delivered together and merged at the PPDC and PDC. Unaddressed advertising mail is also delivered alongside addressed letters and newspapers outside the Paris area (Ile de France). Additionally, many PPDCs (in less densely populated service areas without separate parcel delivery offices) are also used for preparation of parcel delivery.

Mail preparation takes around one fifth of the standard hours in the delivery office. Fulltime postmen work 35 hours per week, and the offices are usually staffed by full-time employees with fixed salaries. Working arrangements are organized at local level and there are no national standards and individual postmen are relatively free to organize their working day. Delivery routes are generally completed between 1:00 and 4:30 p.m..

On average around 60 per cent of all addresses (including businesses) and 50 per cent of households receive one letter post item per day. Access to letter boxes is relatively easy in most areas. In apartment blocks, letter boxes are usually located downstairs inside the building (as a block). In around 180,000 buildings electronic locking systems are installed.¹⁸⁴ In family houses the letter box is mostly (~95 per cent) located at the border of the property.¹⁸⁵ Additionally, French letter boxes have different dimensions compared to letter boxes in other countries. A national standard¹⁸⁶ requires that in new buildings (built after July 1979) letter boxes have the following size: 260mm x 260mm x 340mm (inside dimensions). The aperture should allow the delivery of items up to 24 to 32mm thickness. Moreover, postmen can open the letter boxes with a standard key to deliver bulky letters and small parcels.

183 Interview La Poste.

184 See for example http://www.vigik.com/rubrique.php3?id_rubrique=55.

185 Interview La Poste.

186 NF D 27-404 for letter boxes located inside and NF D 27-405 for letter boxes located outside the building, see www.sirandre.fr/PDF/Norme_POSTAL.pdf.

7.2.3 Parcel operations

Six of the current 14 parcel sorting centres are newly built premises and eight have been modernized from existing locations. The reorganized parcel processing was implemented between 2003 and 2010. Between 2000 and 2007 La Poste built 70 “Agences ColiPoste” (ACP, parcel delivery offices) in urban areas. In less densely populated areas, parcels and letters are prepared in the mail delivery offices (usually the PPDC). The network is organized in a way that parcels are delivered six days per week the second working day after posting. Around 80 per cent of La Poste’s parcels are tracked electronically.¹⁸⁷

Collection

Single-piece parcels are collected at postal outlets. Bulk mailers have the opportunity either to hand over parcels at one of the 70 ACPs, ~300 PPDCs or 14 parcel platforms. Additionally, La Poste offers the possibility to pick up parcels at business customer premises. As noted above, around one quarter of total parcels are collected by the mail division.¹⁸⁸

Sorting

Parcels are sorted in one of the 14 industrialized parcel sorting centres. Six of these sorting centres are “new generation” platforms installed between 2003 and 2010 with capacity to sort between 150,000 and 250,000 parcels per day.¹⁸⁹ Eight sorting centres are modernized locations. In each of the platforms, separate conveyor belts for the handling of light parcels (up to 15 kilograms) and heavy parcels have been installed.

In the inward parcel sorting centres, the parcels are sorted by postal code via optical character readers. Hand-written addresses that cannot be read by the scanner are video-coded, i.e. the picture of the address is transferred in real-time to specific terminal workplaces where employees read and type in the postal code in time for the code to be printed while the item is still on the belt (although it goes through one more tour on it). To date, the label does not include the number of the delivery district but it is planned to integrate this information in the near future. From the parcel sorting centres the parcels are either transported to the ACP or to PPDCs (i.e. where letters and parcels are jointly delivered, which accounts for roughly one quarter of the parcels). The parcels are loaded in “swap bodies” with moving floor (see below) for transportation to either ACPs or PPDCs.¹⁹⁰

¹⁸⁷ Interview La Poste.

¹⁸⁸ Interview La Poste.

¹⁸⁹ See La Poste, Annual reports 2004-2010.

¹⁹⁰ See La Poste (2013): Registration Document 2012, p. 33.

Transportation

Parcels are transported by trucks between parcel sorting centres and as with letters this has been outsourced to third parties. The ColiPoste road network serves all parcel sorting centres daily with direct linkages. Transportation capacity was significantly improved due to the introduction of transporting “en vrac”, i.e. trucks are loose loaded with parcels without any pre-sorting which is done in the parcel sorting centre responsible for inward sorting. La Poste highlights that this method is efficient because it saves space in trucks (more items can be transported when loaded ‘en vrac’ than in roll cages), it reduces damage to parcels (parcels are handled only once (as opposed to being put in roll cages/boxes then re-sorted and put in other boxes) and, finally, it minimizes physical handling by employees (and injuries).¹⁹¹ To simplify the loading and off-loading of trucks, parcels are put in special swap bodies with a “moving floor” that can be connected with the transport system of the parcel sorting centre. This technology allows swap bodies to be emptied and loaded automatically.¹⁹²

Delivery

Each parcel delivery office serves specific postal code areas. Each postal code area consists of a couple of parcel delivery districts. Their number depends on the average volume delivered. In peak times (i.e. from late October to mid-January) delivery districts are divided and in off-peak times (e.g. on Tuesdays or during summer) delivery districts are merged. In the delivery offices the parcels are sorted to parcel delivery districts. The deliverer sorts the parcels in delivery order when they are loading the van. Around 50 per cent of the pure parcel delivery routes are outsourced to third-party drivers.¹⁹³

Parcels are generally delivered to the premises of the recipient. In most cases (around two thirds of all tracked parcels) a signature on delivery is not required (e.g. the basic product Colissimo). Due to the large and easily accessible letter boxes, La Poste estimates that around 50 per cent of the parcels can be delivered directly to the letter box.¹⁹⁴ If the parcel does not fit in the private letter box and the recipient is not at home the parcel can either be delivered to a neighbour or deposited at an agreed location. In these cases the postman will need to deliver a note to inform the recipient that a delivery attempt has been made and where they can pick the parcel up from. The first delivery attempt fails in less than 10 per cent of delivered parcels.¹⁹⁵ In addition, 25 per cent of the parcels are jointly delivered with mail items on around 30,000 car delivery routes.¹⁹⁶ Postmen working out of the PPDCs and PDCs are employed by the mail division (regardless of whether they are delivering letters only or a combination of letters and parcels). All employees in ACPs are assigned to Coliposte.

¹⁹¹ Interview La Poste.

¹⁹² Interview La Poste.

¹⁹³ Interview La Poste.

¹⁹⁴ Interview La Poste.

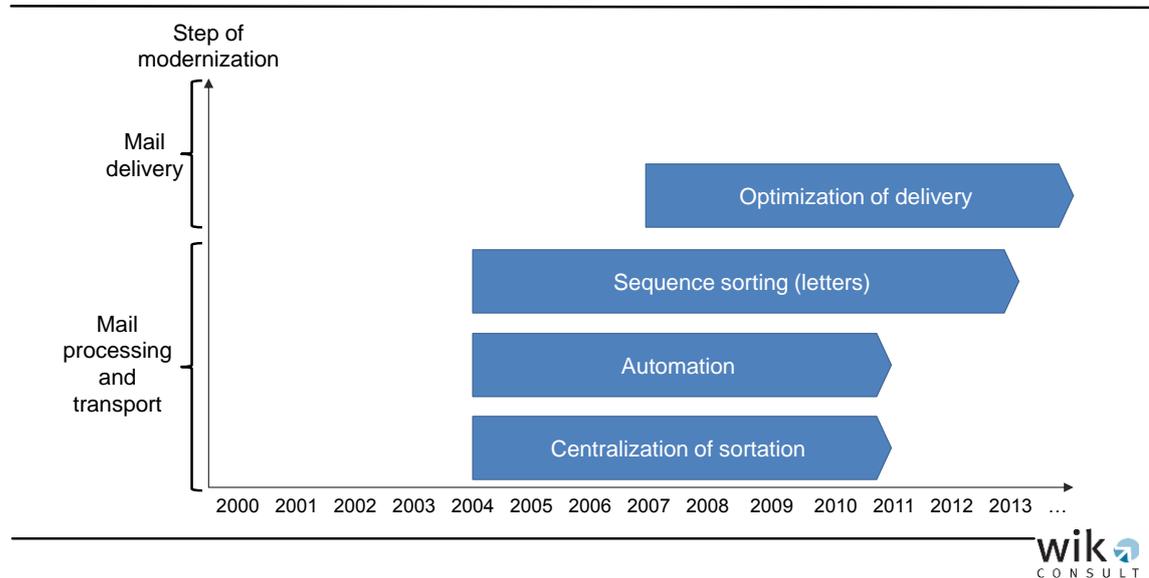
¹⁹⁵ Interview La Poste.

¹⁹⁶ Interview La Poste.

7.3 Efficiency programs

7.3.1 Mail operations

Figure 7-10 La Poste: Evolution of mail operations



Source: WIK-Consult.

Between 2004 and 2011 La Poste completely reorganized its mail operations. Under the name “Cap Qualité Courrier” (CQC) La Poste’s initiative is aimed at improving the quality of postal service provision in order to be prepared for full market opening. Additionally, as La Poste estimated that the mail volume would decline by two to three per cent per year between 2004 and 2012,¹⁹⁷ the program expected that La Poste would reduce costs in mail operations by one fifth. This would improve process flexibility to manage volume variability, and it also expected to recover the total investment within eight years (return on investment of 12 per cent per year).¹⁹⁸

Centralization of sortation, reinvestment automation and sequence sorting

The major element of this program was the restructuring and transformation of the former 112 sorting centres into 48 modern, industrially organized sorting facilities: 20 new sorting centres and 28 modernized (existing) centres (PICs). In total La Poste invested EUR 3.4 billion in this modernization project.¹⁹⁹ The program also included the installation of sequencing machines in PICs and selected large delivery offices.

¹⁹⁷ See Cour de Comptes (2010), La Poste: un service public face à un défi sans précédent, une mutation nécessaire, réponse du président – directeur general du groupe La Poste, p. 176.

¹⁹⁸ See Cour de Comptes (2010), La Poste: un service public face à un défi sans précédent, une mutation nécessaire, réponse du président – directeur general du groupe La Poste, p. 176.

¹⁹⁹ See La Poste, Annual Report 2010.

Table 7-5 Efficiency program “Cap Qualité Courrier”

Investment	Planned investment: EUR 3.4 billion End of 2008: 47% of investment End of 2009: 65% of investment End of 2010: 76% of investment, 83% of the new letter sorters and 77% of the new flat sorters were installed
Cost savings	20% per year in mail operations (planned). No information on realized cost savings and after how many years these savings are realized.
Efficiency gains	<ul style="list-style-type: none"> • Proportion of mail sorted by machine in the sorting centres: 54% (2008), 72% (2009), 90% (2010), ~95% (2012) • Proportion of letters sequence sorted: 30% (2009), 40% (plan 2010), 50% (plan 2011), 58% (actual 2012) • Change in productivity <ul style="list-style-type: none"> ○ more than 2% per year between 2004 and 2008 (number of mail items sorted and delivered by employee) ○ 2008: mail volume declined by 3% while the number of mail items per employee reduced by 1% which reflects a productivity gain of 2% in sorting and delivery ○ 2009: mail volume declined by more than 5% while the number of mail items sorted per employee (in sortation) reduced by less than 1% (productivity gain of more than 4%) and the number of mail items delivered per postman declined by 1.6% (productivity gain of more than 3%). • D+1 quality performance increased by more than 18 percentage points between 2003 and 2012 (see section 7.1)

Sources: Cour de Comptes (2010), La Poste : un service public face à un défi sans précédent, une mutation nécessaire, réponse du président – directeur general du groupe La Poste, p. 166-182; Annual reports of La Poste.
Interview La Poste.

The automation program resulted in an increased proportion of mail sorted by machine (see Table 7-5), and the quality of service performance of letters delivered the next working day increased by more than 18 percentage points between 2003 and 2012.

During the implementation of the program La Poste met a number of challenges:²⁰⁰

- A drop in mail volume due to the financial crisis in 2008 and intensifying electronic substitution affected the implementation plan. As a consequence, fewer new sorting centres were built than originally planned.
- It took a substantial amount of time to find and acquire the right locations for the new sorting centres (given the considerable space needed).
- There were technical problems in the installation of the new Toshiba CFC machines (the test of a prototype developed in close co-operation with La Poste needed more time than expected).

²⁰⁰ Interview La Poste.

- In some cases, due to management problems, there were issues in the first weeks after starting operations.
- There is no national agreement with the unions on how to deal with overcapacity in employment. For this reason unions and management have to find solutions at a local level (i.e. for each PPDC and PIC separately).

Optimization of delivery

In addition to the automation program (CQC) that also included delivery order sorting, La Poste set up a separate program for the reorganization and optimization of delivery activities in 2007, called “Facteurs d’avenir” (FA). Traditionally, La Poste’s delivery operations were very inflexible. Every postman had a specific, unchangeable delivery district (“quartier”) considered as their vested right.²⁰¹ Moreover, these districts were not created based on efficiency considerations, and their rigidity was not appropriate given La Poste’s objective to improve quality of service and increase productivity.

The program aimed to reorganize the distribution process to improve flexibility. To manage delivery on peak and off-peak days, postmen have been organized in working groups. The number of postmen usually exceeds the number of delivery routes to manage time of absences (due to holidays and illness). On off-peak days (e.g. Mondays and Tuesdays or during the summer months) the number of delivery routes can be reduced by splitting up one or two routes and allocating them to the remaining routes.

The implementation of the FA initiative started in the second half of 2007. Originally, La Poste expected to roll out the new processes within two years (i.e. until mid-2009).²⁰² However, the FA program encountered resistance by postmen and unions. This resulted in a delay in the reorganization of delivery operations: for example changes to delivery routes took two years (instead of the expected six months). In general, responsibility for the reorganization was devolved to the local units (i.e. the PPDC and associated PDCs). If the unit has more than 200 employees the unions take part in decision-making in case working conditions were being affected. By the end of 2011, 95 per cent of the country had switched to the new delivery organization.²⁰³ The number of postmen had declined by three per cent per year mainly due to natural attrition in the last years.²⁰⁴

La Poste is planning to continue reorganizing delivery operations by reducing the number of PDCs as there are also very small PDCs with less than ten delivery routes. The management of delivery units has already been streamlined, so that on average

²⁰¹ Cour de Comptes (2010), La Poste : un service public face à un défi sans précédent, une mutation nécessaire, p. 11.

²⁰² See La Poste, Financial Report 2007, p. 4.

²⁰³ See La Poste, Registration Document 2011, p. 126.

²⁰⁴ Interview La Poste.

one manager will supervise five PDCs (currently 600 managers in total)²⁰⁵. In addition, La Poste is currently collecting detailed information on delivery routes, which combined with a geographic information system (GIS) is to be used to further optimize delivery routes.

7.3.2 Parcel operations

During the last decade La Poste has also modernized its French parcel operations (ColiPoste) to improve quality of service and to launch tracking & tracing as a standard service. The program had the following elements:²⁰⁶

- Separation of letter and parcel delivery in urban areas (establishment of dedicated delivery offices for parcels);
- Separation of letter and parcel sorting (before 2003 30 per cent of parcels were sorted in letter sorting centres);
- Automation of parcel operations.

The first element was implemented between 2000 and 2007. During that period ColiPoste launched around 70 parcel delivery offices in densely populated areas. The separation of sorting processes and the automation of parcel sorting was implemented between 2002 and 2010. From the current 14 parcel sorting centres six were newly built premises and eight were modernized locations. The first parcel sorting centre became operational in 2004. It took around 18 months for La Poste to build a new sorting centre and connect it to the network.²⁰⁷ In 2005 La Poste introduced the swap bodies with “moving floors”.

Table 7-6 Modernization of parcel operations

Investment	n.a.
Cost savings	Cost savings in transportation and real estate because of reduced number of locations outside the city centres and optimized transportation (“en vrac”). La Poste estimated that the investment was covered by cost savings within three years after implementation.
Efficiency gains	D+2 performance increased by more than 6 percentage points between 2003 and 2012.

Source: Interview La Poste.

Note: ‘n.a.’ means ‘not available’.

La Poste is planning further development in the automatic sorting of parcels. This includes putting the delivery district on the parcel label which will allow finer machine

²⁰⁵ In the past, the principle was one location–one manager.

²⁰⁶ Interview La Poste.

²⁰⁷ Interview La Poste.

sortation. In densely populated areas like the Parisian area, each postal code consists of many delivery districts. For this reason La Poste plans to install additional local parcel preparation offices to pre-sort parcels to districts. Finally, La Poste intends to improve the handling of returns.

8 PostNL (Netherlands)

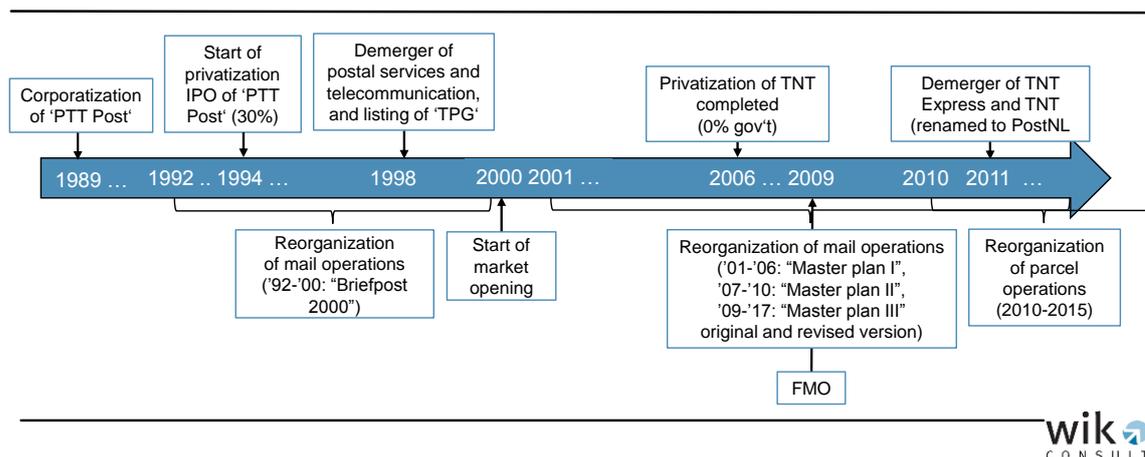
Key facts

- PostNL (formerly TNT) is the only fully privatized postal operator in Europe.
- PostNL evolved from the demerger of TNT Express and TNT in 2011 and is focussed on the Dutch mail and parcel business as well as mail operations in Germany, Italy and the UK.
- Today, PostNL is a medium-sized postal operator with total revenues of EUR 4.3 billion (2012). The Dutch mail business accounts for half of total revenues.
- The Dutch mail market was fully liberalized in 2009. PostNL's market share has been steadily declining during the last ten years because the delivery of printed matter has been fully liberalized long before the implementation of the Postal Directive. In 2012 the company held a market share of 81 per cent (by volume).
- Since 2002 PostNL's mail volumes have been declining, a process that has accelerated since 2009. In 2012, its mail volumes were 60% of the 2002 levels.
- PostNL is a profitable company but profitability of the Dutch mail operations is being challenged by volume decline, despite substantial price increases since 2010.
- PostNL has fully reorganized and modernized its postal operations in the nineties ('Briefpost 2000') and reduced the number of mail sorting centres from 12 to 6.
- Since 2001, the company has been reorganizing its delivery operations in order to reduce labour costs ("Master plan"). The "Master plan" has been subject to several revisions since.
- PostNL is very innovative in reorganizing its delivery organization: The company separated mail preparation and delivery activities earlier than other operators. Post NL has been systematically replacing full-time postmen by part-time delivery workers (that earn lower wages in the Netherlands). Non-priority mail is delivered on three days per week only.

8.1 Background

Corporate developments and organizational structure

Figure 8-1 Netherlands: Milestones in corporatization, privatization and market opening



Source: WIK research.

In 1989 the Netherlands Postal and Telecommunications Services (PTT Post) was incorporated, becoming Royal KPN Nederland NV (KPN). The company went public in 1994, with the state being the majority shareholder. KPN acquired the Australian express operator TNT in 1996, which was followed by the demerger of the postal and telecommunication businesses into TNT Postgroep (TPG) and KPN Telecom in 1997. TPG was listed from the very beginning with more than half of its shares being in private ownership and was fully privatized in 2006. In May 2011, the express and postal operations were demerged into separate companies: TNT Express and TNT N.V. The mail business (TNT N.V.) was renamed to PostNL N.V. Both companies are listed. PostNL has a 30 per cent share of TNT Express. PostNL is responsible for the national and international mail business and the parcel business in the Benelux region.

Since the late nineties, the Dutch incumbent was organized in three business divisions: Mail, Express and Logistics.²⁰⁸ The logistics division was divested in 2005 and as noted earlier the express division was demerged in 2011. The Mail division includes Mail Netherlands (including the Dutch parcel business), the mail activities in other European countries (European Mail Network) and the cross-border mail business (Spring).

After the demerger, the former Mail division formed PostNL. The sub-divisions were upgraded to divisions (see Figure 8-2). For this reason PostNL is organized in three divisions: "Mail in the Netherlands", "Parcels" and "International". The mail division is

²⁰⁸ See annual reports of TPG from 1997 to 2004 and TNT from 2005 to 2009.

responsible for domestic mail operations while parcel operations are assigned to the parcel division.

Figure 8-2 PostNL: Business divisions (2012)

Mail in NL	Parcels	International
<ul style="list-style-type: none"> • Domestic mail services • Document management • Direct Marketing • Fulfillment services • Retail chain 	<ul style="list-style-type: none"> • Domestic and cross-border parcel services in NL and BE • Fulfillment services 	<ul style="list-style-type: none"> • Cross-border mail services • International business mail services (i.a. Spring) • Domestic mail services in Germany, Italy and the UK

Source: WIK-Consult based on PostNL, Annual Report 2012, p. 8.

Note: The bold written sub-segments indicate the business areas that include the letter post and parcel operations that are (roughly) comparable to the Reported Business of Royal Mail.

Market opening and competition

The Netherlands were ahead of the European market opening schedule. “Printed matter” (advertising and publications) has long been fully liberalized before the implementation of the Postal Directive in the Netherlands. The weight threshold for letters in the reserved area was reduced to 100g in 2000, and to 50g in 2006. The Dutch mail market was fully opened to competition in April 2009. At that time the major competitors in the Dutch mail market were Sandd, a privately owned mail company, and Selektmail owned by Deutsche Post Global Mail with a combined market share of around 14 per cent (2010). Both companies delivered mainly advertising mail and magazines twice a week. To compete with these lower cost networks, PostNL also offered a budget mail service via its subsidiary Netwerk VSP. The most competitive mail segments are the delivery of advertising mail and periodicals, while competition in the delivery of personal and business correspondence as well as transactional mail was (and is still) very limited.²⁰⁹ The Dutch mail market was characterized by substantial price competition in the more competitive market segments and declining volumes particularly in the delivery of correspondence. Between 2008 and 2011 mail volume declined from 5.3 billion to 4.5 billion items, a decline of 5.7 per cent per annum on average.²¹⁰ This general volume trend, combined with price competition, prompted a consolidation process in the mail market. In the first half of 2011, Deutsche Post sold its

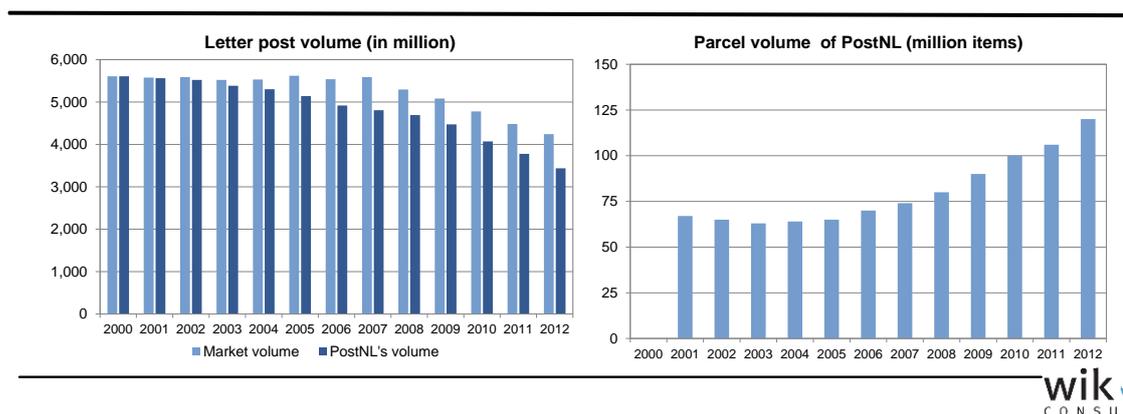
²⁰⁹ See WIK-Consult (2011), Developments in the Dutch Postal Market, p. 26 ssb., see also OPTA (2012), De Nederlandse postmarkt in 2011.

²¹⁰ See OPTA (2012), De Nederlandse postmarkt in 2011.

loss-making Dutch mail business, Selektmail, to Sandd and closed down its activities in the unaddressed mail business (via its subsidiary Interlanden). Later in 2011, PostNL also decided to shut down the low-budget addressed mail delivery activities of its subsidiary Netwerk VSP and to refocus this network on the unaddressed mail distribution (where Netwerk VSP could improve its market position after the exit of Interlanden). Netwerk VSP's exit from the addressed mail market additionally increased Sandd's market share. With Sandd and PostNL, there are now two well-established players with nationwide delivery networks and settled customer bases in the mail market. In 2012 PostNL estimated its competitors' market share (mainly Sandd) to be about 19 per cent.²¹¹ The consolidation process in the Dutch mail market has thus created a duopoly (similar to the Swedish mail market) and reduced the competitive pressure, leaving room for price increases particularly for business customers. PostNL expects price increases well above inflation for single piece items and bulk mail.²¹²

Evolution of mail and parcel volumes

Figure 8-3 Development of letter post volumes in the Dutch mail market and at PostNL



Source: WIK-Consult based on market surveys of OPTA (the Dutch postal regulator) and PostNL, Annual Report 2012, p. 23 (parcels).

Note: Letter post market volume 2012 estimated.

Until 2007 PostNL's mail volume decline was mainly affected by emerging competition (see Figure 8-3). While the market volume remained roughly stable, PostNL lost 14 per cent of its market share (in terms of volume). Since 2007 market volumes have declined by nearly one quarter or 5.4 per cent on average per annum. PostNL expects that mail volume will decline between 9 and 11 per cent in 2013.²¹³ Major drivers for this development are: first, the economic recession following the financial crisis in 2008, and second, accelerating substitution of mail correspondence by electronic communication channels. In the same period PostNL's volume shrank by more than

²¹¹ See PostNL, Annual Report 2012, p. 19.

²¹² See PostNL (2013), Q4 & FY 2012 Results, Update 2015, Presentation 25 February 2013, p. 13.

²¹³ See PostNL (2013), Q2 2013 Results, presentation 5 August 2013, p. 3.

28 per cent or 6.4 per cent on average per year. In total PostNL lost nearly 40 per cent of its mail volume between 2000 and 2012. Today, PostNL delivers around 13m letters per day.²¹⁴

Between 2009 and 2012, PostNL's parcel volumes increased by 25 per cent from 90 million to 120 million in the Benelux area. The main reason for this rapid growth is the high internet penetration rate in the Netherlands and the continuing growth of e-commerce.²¹⁵

Services, prices and quality

Table 8-1 PostNL: Size and weight structure of basic letter products

Format category	Letters (consumer mail)	Small (only business mail)	Large (only business mail)	Special (only business mail)
Length	380mm	229mm	324mm	380mm
Width	265mm	162mm	229mm	265mm
Thickness	32mm	32mm	32mm	32mm
Circumference	-	-	-	-
Weight classes	Single-piece: 6 types (0-20g, 21-50g, 51-100g, 101-250g, 251-500g and 501-2,000g) Bulk mail: 0-2,000g ("Mixed")	0-50g	0-500g	0-2,000g
Content	Any type, including goods	Paper	Paper	Any type, including goods
Packaging type	Any type	Paper	Paper	Any type
Product attributes	D+1 ("24 hour") D+2 ("Basic 48 hour"), business mail only D+3 ("Basic 72 hour"), business mail only In the Basic service letters are delivered on Tuesday, Thursday and Saturday (launched in 2011).			

Source: WIK-Consult based on price lists of PostNL.

PostNL has different product offers for consumer and business customers. The prices for stamped mail depend on weight within the maximum format requirements set by PostNL. This format simplifies delivery to private letter boxes which usually have standardized apertures. Business mail prices depend on format and weight.²¹⁶ Consumers do not have the choice between a letter service with next day delivery (D+1) and a 'second class' service. Business customers can select between a "24 hour", a "48 hour" and a "72 hour" service.

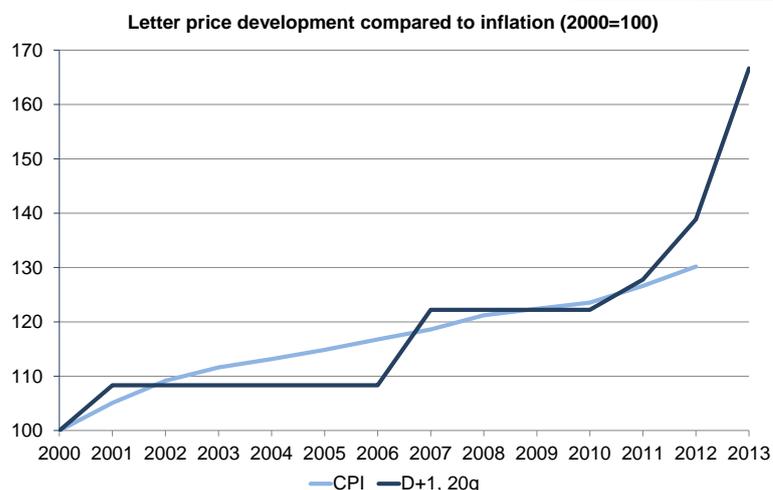
²¹⁴ See PostNL (2013): Veranderingen bij PostNL.

²¹⁵ See annual reports of PostNL from 2010 to 2012.

²¹⁶ See Post Danmark (2013): Breve og Økonomibreve, Priser pr. 1. januar 2013.

Parcels are delivered the next working day after posting. The standard service includes tracking & tracing.

Figure 8-4 PostNL: Development of the basic letter tariff



Source: WIK-Consult based on price lists of PostNL and Eurostat (Consumer price index CPI).

Until 2011 PostNL’s basic tariff for letter services increased largely in line with the consumer price index (see Figure 8-4). Due to volume decline, PostNL was allowed to increase its basic public tariffs by 20 per cent in 2013. Today, a consumer pays EUR 0.60 (GBP 0.49) for sending a 20 gram letter that is delivered the next working day. Overall, business tariffs for letter services, particularly for direct mail, declined until 2011.²¹⁷ As the result of the consolidation process in the Dutch mail market and declining mail volumes PostNL expects price increases well above inflation for single piece items and bulk mail in the near future.²¹⁸

Table 8-2 PostNL: Development of delivery quality

Delivery quality (in %)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Letters D+1 target	95	95	95	95	95	95	95	95	95	95	95	95	95
Performance	95.0	95.6	95.6	96.1	96.5	96.6	96.6	96.3	96.2	95.2	92.9	96.1	93.9
Parcels D+1 target	-	-	-	-	-	-	-	-	-	-	-	-	-
Performance	n.a.												

Source: WIK-Consult based on annual reports of PostNL.

Notes: 'n.a.' means 'not available'.
"-": no target defined.

²¹⁷ See WIK-Consult (2011), Developments in the Dutch postal market.

²¹⁸ See PostNL (2013), Q4 & FY 2012 Results, Update 2015, Presentation 25 February 2013, p. 13.

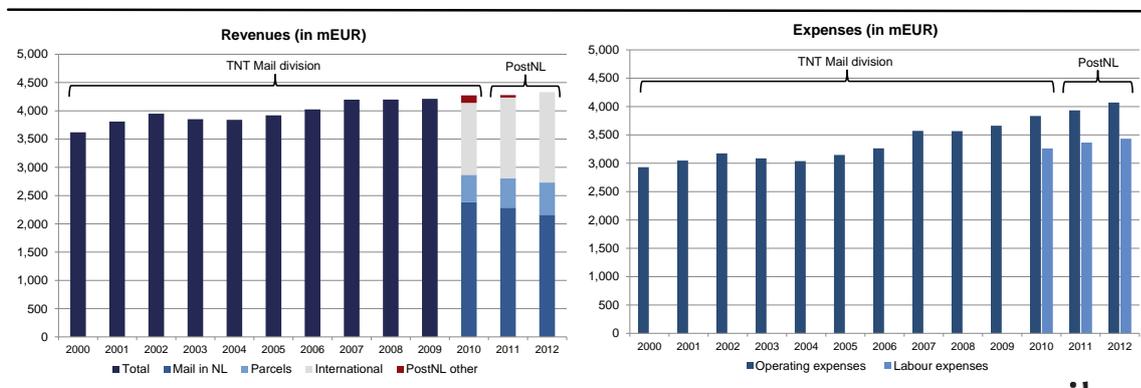
PostNL delivers letters and parcels six days per week. More than 90 per cent of letters are delivered the next working day (see Table 8-2). Overall PostNL’s service performance has been fairly consistent at around 95 to 96 per cent. The drop in service quality in 2010 was the result of industrial action.²¹⁹ In 2012 service quality also declined due to the reorganization of the mail preparation for final delivery (a key element of the “Masterplan III”). Subsequently, PostNL decided to slow down its reorganization progress in order not to further endanger quality of service.

In the light of the market volume decline experienced since 2007 that is expected to continue, the Netherlands decided to reduce the required delivery frequency for the provision of universal postal services from six to five days starting from 2014 onwards. Recently, the responsible ministry submitted an additional request to allow PostNL to halve the number of post boxes (today: ~19,000) and to reduce the minimum number of postal outlets required by postal legislation from 2,500 to 1,000 by 2015.²²⁰

Revenues, expenses and profitability

As outlined above, the former TNT Mail division is the predecessor of PostNL. For this reason Figure 8-5 presents the development of revenues and expenses of the TNT Mail division between 2000 and 2010. For 2011 to 2012 the figures refer to PostNL.

Figure 8-5 PostNL: Revenues and expenses



Source: WIK-Consult based on annual reports of PostNL/TNT/TPG.

Note: In the annual report for 2011 PostNL provided the segment information for 2010.

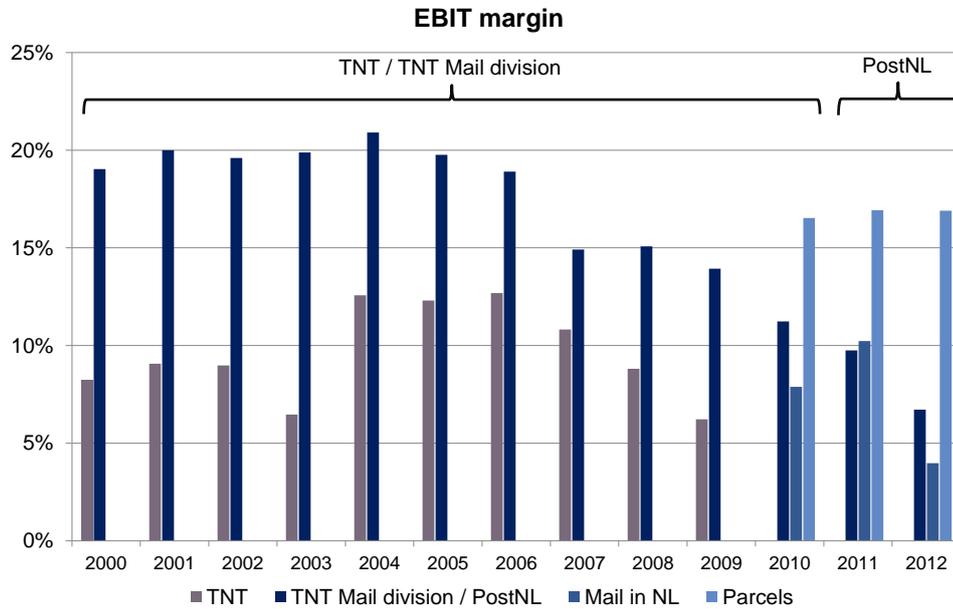
In total, revenues slightly increased between 2000 and 2012. At least in the last three years this growth has been the result of increasing revenues in international and parcel operations which compensates for the decline in mail revenues of more than 9 per cent

²¹⁹ See TNT, Annual Report 2010. The strikes followed after the announcement of 4,500 compulsory redundancies in November / December 2010.

²²⁰ Ministerie van Economische Zaken (2013), Kamerbrief over toekomstvisie op de Nederlandse postmarkt, 3 June 2013.

(over the last three years). Not surprisingly, Mail in NL’s share of total Post NL revenue declined from 56 to 50 per cent between 2010 and 2012.

Figure 8-6 PostNL: Profitability

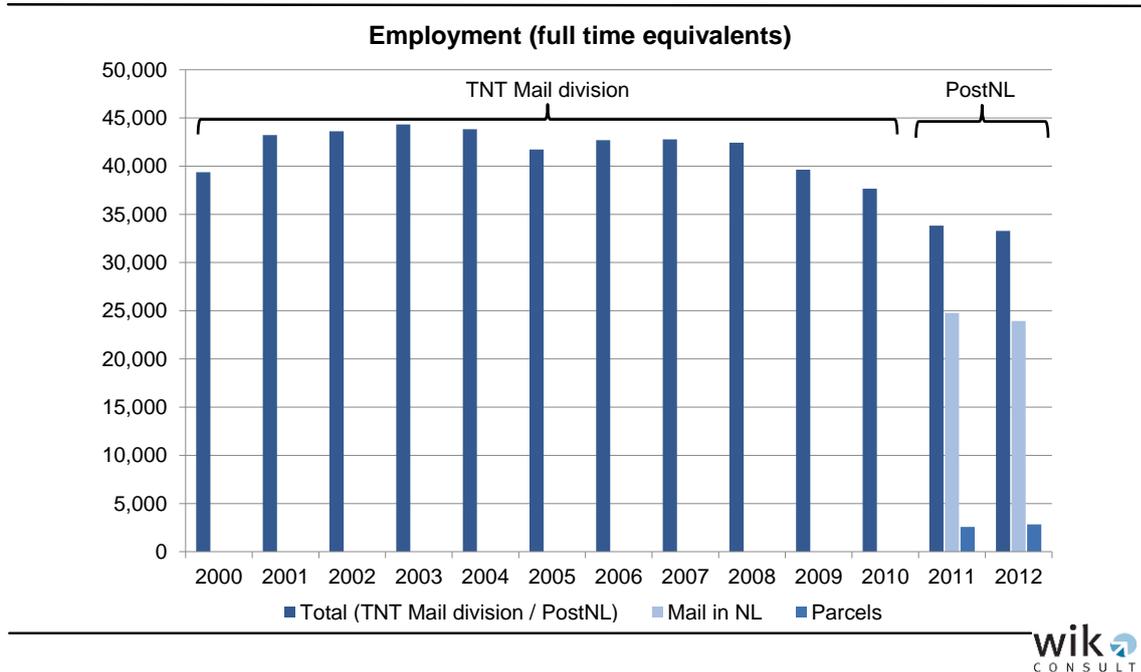


Source: WIK-Consult based on annual reports of PostNL/TNT/TPG.

Note: In the annual report for 2011 PostNL provided the segment information for 2010.

The first reorganization of the postal operations was carried out during the nineties and provided the basis for very profitable mail operations with margins above 15 per cent between 2000 and 2008 despite the continuous volume decline due to competition (see Figure 8-6). Since 2008 the EBIT margin of PostNL has declined from 11.2 to 6.7 per cent, substantially affected by lower EBIT margins in the business division “Mail in NL” and international activities in foreign mail markets that barely break-even. The decline in profitability pushed the implementation of the “Master plan” efficiency and cost saving program which may have contributed to the improved EBIT margin of “Mail in NL” of more than 10 per cent. The margin dropped again below 5 per cent in 2012.

Figure 8-7 PostNL: Employment development



Source: WIK-Consult based on annual reports of PostNL/TNT/TPG.

The same patterns seen in the profitability figures are also visible in the employment developments (see Figure 8-7). Employment (in full time equivalents, FTE) has declined by 20 per cent between 2008 and 2011. In 2012 around 72 per cent of the FTEs were assigned to “Mail in NL”. More importantly, the share of part-time workers, that is traditionally very high in Dutch postal operations, increased substantially: from 56 per cent in 2008 to nearly 80 per cent in 2011.²²¹ This increase reflects one of the major instruments of the “Master plan”: the substitution of full-time postmen by part-time deliverers (see section 8.3 for more information on the “Master plans”).

²²¹ Based on statistics of the Universal Postal Union (see www.upu.int); employment refers to the mother company PostNL B.V.

8.2 Postal operations

8.2.1 Overview

Table 8-3 PostNL: Key figures of postal infrastructure

Daily volume	Mail items: 11.4 million Parcels: ~0.4 million
Collection points	~19,000 post boxes 2,375 postal outlets (100% agencies) 225 business centres ~ 13,000 business customers (pick up service)
Sorting centres	6 mail sorting centres Plan 2014/early 2015: 18 parcel sorting centres (“depots”) that replace 4 old parcel sorting centres Status November 2013: 12 depots are operational, 2 of the old parcel sorting centres were closed down (65-70 per cent of volume goes through the new network)
Delivery offices / bases	260 delivery offices for mail Delivery bases for parcels: 37 before launching the new logistics infrastructure Plan: The 18 “depots” will replace the old delivery bases (combined sorting and distribution function)
Delivery routes	~20,000 mail delivery routes (delivery to residential customers) The number of delivery routes for parcels is flexible; around 80 % of parcel delivery routes are outsourced to self-employed workers ~11,500 business customers (separate delivery routes)
Addresses	7.4 million households
Labour	Mail operations: ~44,000 (headcount) of which ~18,000 are working in sorting (only part-time) and ~26,000 in delivery (~22,500 in part-time) Parcel operations: n.a.

Sources: WIK-Consult based on PostNL (Annual Report 2012 and analyst presentations 2013); PostNL (2013), Veranderingen bij PostNL, February 2013; and interview with Abvakabo.

Note: ‘n.a.’ means ‘not available’.

Letter and parcel operations were strictly separated as part of the Master plan II. Only letter box parcels were delivered alongside letters. With the revision of Master plan III, PostNL is now planning to re-introduce joint letter and parcel operations mainly in collection and delivery.²²²

²²² PostNL (2013): Q1 2013 Results, 7 May 2013, and interview Abvakabo.

8.2.2 Mail operations

Collection

PostNL has about 19,000 post boxes and 2,375 franchised postal outlets (post shops). Additionally, PostNL has 225 business centres mainly located in business areas.²²³ Mail collection is organized by a dedicated transportation unit within PostNL (“Autobedrijf” became operational in 2011).²²⁴ This unit is responsible for all small transportation movements in the organization, including pick-up services for business customers and delivery services to business customers. Mail from post boxes, post shops and business customers is transported to local hubs (usually delivery offices) where the mail is consolidated for transport to the next sorting centre.

Sorting

Table 8-4 PostNL: Sorting technology

Type	Characteristics	Process description
CFC machines for letters and flats	Producer: NEC (CFCR NS-10) Total number: ~18 Location: Mail sorting centres Productivity: 32,000 items per hour	Culling, Facing, Cancelling and Revenue-protection (CFCR) machines for letters collected from postal outlets and post boxes They are used for culling/facing, weight detection, thickness and size measurement, barcoding and sorting of letters and flats from small postcards to C4 mail (up to 8mm thickness and 150g).
Letter sorters	Producer: Solystic Total number: ~60 Location: Mail sorting centres Productivity: 25-30,000 items per hour	Outward sorting: n.a. Inward sorting: n.a.
Letter sorters (delivery order)	Producer: n.a. Total number: ~280 ²²⁵ Location: Mail sorting centres Productivity: n.a.	Inward sorting: Letters are sorted up in delivery order (two to three sorting runs necessary)
Flat sorters	Producer: Siemens Total number: ~25 Location: Mail sorting centres Productivity: 8,000-9,000 items per hour	OCR reading, barcoding and sorting up to delivery route (inward sorting)
Multi-sorter	Producer: n.a. Total number: 6 Location: one in each mail sorting centre Productivity: 5,000 items per hour	OCR reading (by taking an image) and sorting up to delivery route (inward sorting)

Source: WIK-Consult (2011), Review of postal technologies in Europe.

Note: ‘n.a.’ means ‘not available’.

²²³ See PostNL (2013): Veranderingen bij PostNL.

²²⁴ See PostNL, Annual Report 2011, p. 22.

²²⁵ See TPG (2004), Analyst Day 7 December 2004, presentation of Harry Koostra, p. 10.

Today, PostNL operates six sorting centres that specialize in mail processing that perform outward and inward sorting of letter post items. The mail sorting centres were built and equipped with letter and flat sorting machines in the late nineties. The sorting machines for delivery order sorting were installed between 2001 and 2006 (as part of the modernization program Master plan I).

In the sorting centres nearly all mail items are processed by machine. According to PostNL, around 95 per cent of small letters are sequence sorted by machine before being transported to the delivery offices.²²⁶ Flats and bulky letters are sorted to delivery routes by machine (using the flat and multi-sorters).

The most recent investment in sorting machines refers to the replacement of the pre-processing machines for single piece items (letters collected from post shops and post boxes). PostNL ordered 18 NEC NS-10 (CFCRs) in February 2010.²²⁷ These machines are able to cull, face, cancel and ensure correct payment for small letters and flats. This investment indicates PostNL's future strategy in mail processing: the integration of letter and flat sorting into one machine. Since 2011 PostNL and Solystic have been developing a so-called "mixed mail sorter" that will process both, letters and flats, and sort them according in delivery order. This work is still ongoing and the plan is to replace letter and flat sorters by these machines by 2015.²²⁸ For this reason, replacement investment in existing letter and flat sorters has been deferred.

About 18,000 part-time workers are involved in sorting activities either in sorting centres or in delivery offices.²²⁹

Transportation

The transportation of letters and parcels between sorting facilities is separately organized. Letters are exclusively transported by road.²³⁰ The Parcel division is responsible for the operation of the transport fleet.²³¹

Delivery

There are two distinct types of delivery rounds, one for businesses and one for residential customers. The delivery to businesses usually starts early in the morning (around 8 a.m.) and is carried out by van (part of PostNL's "car unit"). The same vans are used for collection of mail at post shops and post boxes.²³² Later in the morning,

²²⁶ WIK-Consult (2011), Review of postal technologies in Europe.

²²⁷ See ACN Newswire (2010), NEC provides TNT Post with the latest pre-processing systems, based on NEC press release 23 April 2010 (<http://www.finanznachrichten.de/nachrichten-2010-04/16704368-nec-provides-tnt-post-with-the-latest-pre-processing-systems-011.htm>).

²²⁸ Interview Abvakabo.

²²⁹ Interview Abvakabo.

²³⁰ WIK-Consult (2011), Review of postal technologies in Europe.

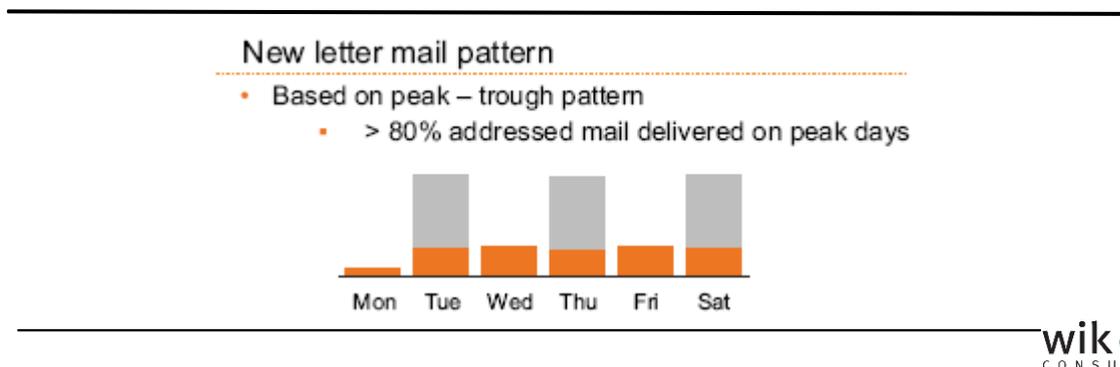
²³¹ See PostNL, Annual Report 2012, p. 24.

²³² Interview Abvakabo.

between 10 and 11 a.m., the delivery to households and small businesses starts and is mostly done by bicycle.

PostNL's delivery operations are still in a transitional state. The transformation from full-time postmen to part-time deliverer started in 2001 and the process of replacing the former with the latter is ongoing. At the end of 2012 PostNL employed about 22,500 (part-time) deliverers and 3,500 (full-time) postmen.²³³ Turnover particularly of part-time deliverers is very high. The Dutch union Abvakabo estimates that the turnover was roughly 30 per cent in 2012.

Figure 8-8 Delivery pattern



Source: PostNL (2011), Mail in NL, Capital Markets Day 9 May 2011, p. 13.

Due to the introduction of the “Basic” service there are peak and trough days during the week. PostNL estimated that on peak days they would need about 25,000 to 30,000 deliverers (once it has completely rolled out the part-time deliverer-model) and on trough days around half of this.²³⁴

In January 2013 mail preparation was organized in 260 delivery offices.²³⁵ Originally, PostNL had planned to centralize mail preparation in so-called mail preparation centres located near the sorting centres. Two of these mail preparation centres became operational in the first quarter of 2012. Due to substantial quality problems, PostNL stopped the use of those centres and relocated mail preparation to the delivery offices.²³⁶ According to Abvakabo the main reasons for those quality problems were the loss of knowledge in local characteristics and the use of inexperienced personnel in manual sequence sorting. Today, workers specialize in sorting supported by experienced full-time postmen, prepare the mail for final delivery in the delivery offices. The prepared bags are then transported to one of around 2,000 depots from which they are picked up by the deliverers. The bags include three bundles, one for priority mail, one for non-priority mail and one for unaddressed mail.²³⁷ Delivery is done mainly by

²³³ Interview Abvakabo.

²³⁴ See PostNL (2011), Mail in NL, Capital Markets Day 9 May 2011, p. 13.

²³⁵ See PostNL (2013): Q4 & FY 2012 Results, Update 2015, 25 February 2013, p. 17.

²³⁶ Interview Abvakabo.

²³⁷ See WIK-Consult (2011), Review of postal technologies in Europe.

bicycle. These bicycles are usually owned by the deliverers and PostNL pays a small fee for their use.²³⁸

The remaining full-time postmen are either undertaking their traditional activities, i.e. mail preparation and delivery, or serve two distinct delivery routes (one morning route for delivery to businesses and then a residential delivery route).²³⁹ Part-time deliverers usually work 8 to 12 hours per week.²⁴⁰ Their maximum working time per day is three hours (otherwise PostNL would have to pay them for an additional break during the working day). The deliverers' payment is geared to the Dutch minimum wage (EUR 8.25 per hour).

The delivery of letters and parcels is currently organized in separate delivery networks. This separation was introduced as an element of the original "Master plan III" in 2008.²⁴¹ As part of the revised "Master plan III", PostNL decided to leverage the synergies between mail and parcel operations. For this reason it has started a pilot to deliver both, mail and parcels, jointly by car in rural areas.²⁴²

8.2.3 Parcel operations

Collection

Parcels can be posted at one of 2,375 franchised postal outlets or at one of 225 PostNL business centres. Additionally, PostNL offers a pick-up service for parcels for business customers.²⁴³

Sorting

PostNL's parcel operations are in a transitional state (see section 8.3). The current investment program aims to extend the capacity of parcel operations from 100 million parcels to 170 million per year. PostNL will install 18 new parcel sorting facilities that also take over the function of parcel delivery bases. At the end of 2012, eight centres were operational. An additional five are planned to be opened in 2013 and the last five centres in 2014.²⁴⁴

238 Interview Abvakabo.

239 Interview Abvakabo.

240 Interview Abvakabo.

241 Interview Abvakabo.

242 Interview Abvakabo and see PostNL (2013): Q4 & FY 2012 Results, Update 2015, 25 February 2013, p. 19.

243 See PostNL (2013), Veranderingen bij PostNL.

244 See PostNL (2013), Q4 & FY 2012 Results, Update 2015, 25 February 2013, p. 26. These plans were not affected by the revision of Master Plan III.

Transportation

Parcels are transported by road. The transportation is organized as hub and spoke system. After the reorganization it will be organized either by direct links or via four centrally located parcel centres.

Delivery

In 2012 parcels were delivered separately from letters. About 80 per cent of parcel delivery routes were outsourced (mostly to self-employed individual contractors with their own vans).²⁴⁵ They were paid per parcel delivered.²⁴⁶ In 2012, 86 per cent of parcels were delivered by subcontractors.²⁴⁷

As part of the revised Masterplan III, PostNL launched a pilot project for combining mail and parcel delivery in rural areas.²⁴⁸

²⁴⁵ Interview Abvakabo.

²⁴⁶ After strikes of the self-employed drivers following a one-sided decline in payment per parcel, PostNL and the drivers reached an agreement on a EUR 1,000 payment per week for an average 145 to 155 stops to drop off parcels during a delivery run. (see DutchNews.nl, (2013), Postal strike settled at PostNL, 28 June 2013, http://www.dutchnews.nl/news/archives/2013/06/postal_strike_settled_at_postn.php).

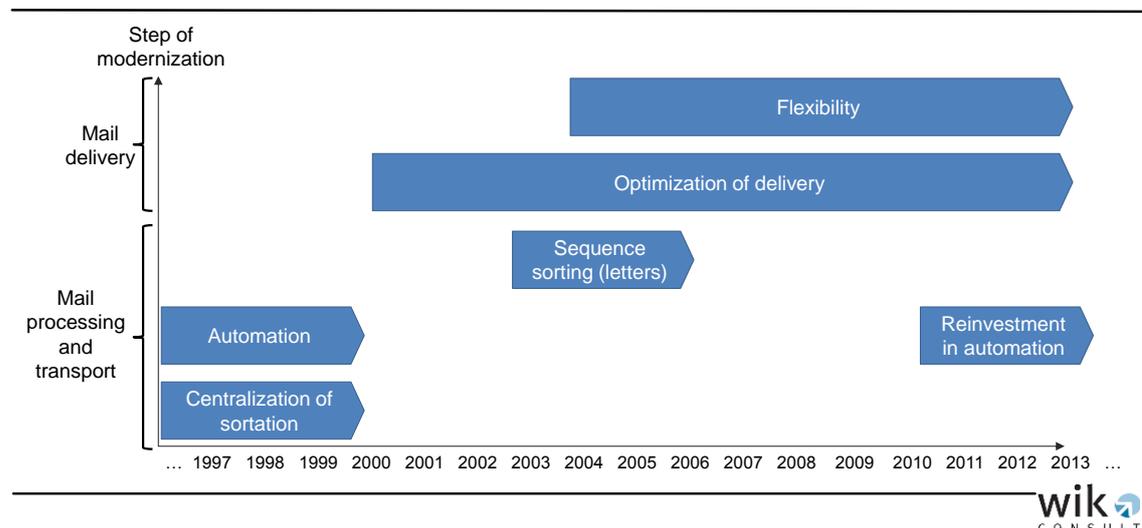
²⁴⁷ See PostNL, Annual Report 2013, p. 25.

²⁴⁸ See PostNL (2013), Q4 & FY 2012 Results, Update 2015, 25 February 2013, p. 19.

8.3 Efficiency programs

8.3.1 Mail operations

Figure 8-9 PostNL: Evolution of mail operations



Source: WIK-Consult.

Centralization of sortation and automated sorting

PostNL (at that time TNT Post Group) transformed its mail operations during the nineties. The program “Briefpost 2000” was implemented between 1992 and 2000. The automation program was driven by the need to²⁴⁹:

- Prepare PostNL for competition;
- Increase productivity;
- Compensate for the rising distribution costs due to increasing number of delivery points (90,000 each year); and
- Manage forecasted volume decline.

Under this program, the proportion of mail sorted automatically was expected to increase to more than 90 per cent.

The program focused on installing an efficient automatic sorting process. The former twelve sorting centres were replaced by six new sorting centres equipped with sorting machines for letters (Alcatel Solystic) and flats (Siemens). The six new sorting centres began operation in 1997 and were officially opened in November 1998.

²⁴⁹ See TNT Post Group, Annual Report 1998, p. 28-29.

Table 8-5 Efficiency program “Briefpost 2000”

Investment	n.a.
Cost savings	Plan: NLG 300 million (EUR 136 million) per year after completion of Brief 2000 (compared to the cost level in 1992) or ~4-5% of the Mail division’s operating expenses in 2000
Efficiency gains	Share of letter post items sorted by machine in the sorting centres: 47% (1997), 56% (1998), 74% (1999), 82% (2000)

Source: TNT Post Group, Annual Reports 1997-2000.

Note: ‘n.a.’ means ‘not available’.

During the implementation of “Briefpost 2000” the company had a number of challenges:²⁵⁰

- Contrary to the expectation of declining mail volume, it rose each year of the plan, and the machine capacity allowed for was therefore not sufficient at peak times. For this reason the company installed additional sorting machines in five of the new sorting centres in 1999.
- “Briefpost 2000” substantially affected postal employment, but the company managed the reduction without compulsory redundancies.
- Approximately 8,000 staff members changed work locations and were retrained for machine sorting. Because of these changes and the new procedures associated with machine sorting, the percentage of consumer mail delivered the next day fell in 1998 and 1999 by 3 percentage points from its usual 95 per cent level. The pre 1998 quality level was only achieved again in 2000.

Even during the implementation of “Briefpost 2000”, PostNL (formerly TNT Post Group or TNT) expected declining mail volumes in the future due to emerging competition and electronic substitution. Although the (substantial) decline started later than expected the company launched additional efficiency programs, called “Master plans” to be prepared for this development. The objectives of these “Master plans” were to increase cost flexibility and to reduce cost so that the profitability of the Dutch mail business would achieve a stable level well above a 20 per cent return on sales.²⁵¹

These “Master plans” were subject to three major revisions. They became necessary because the underlying forecasts of the company’s future volume development had to be corrected downwards several times. Before 2008 PostNL’s volume declined because

²⁵⁰ See TNT Post Group, Annual Reports 1997-2000.

²⁵¹ See TPG (2003), Mail Update, Presentation at TPG Analyst Day 20 November 2003, p. 5 (Return on sales defined as earnings before interest, taxes and amortization divided by operating revenues of Mail NL).

of emerging end-to-end competition in the Dutch mail market. Volume decline accelerated during the financial crisis and following economic recession in 2008 which promoted the substitution of mail communication by electronic communication channels. In total, PostNL put in place four plans: “Master plan I” (“Cost Flexibility Program”), “Master plan II” and “Master plan III”. The last major revision that adapted elements of the delivery reorganization and the implementation timetable took place in 2011. In this report we refer to this revised plan as the “revised Master plan III”.

In total, the “Master plans” cover a period of 16 years, from 2001 to 2017.²⁵² “Master plan I” was announced in 2001 with an original schedule of nine years (until 2010) later extended to eleven years (until 2012).²⁵³ For this period PostNL had expected an average annual decline in mail volumes of between one and two per cent (actually, PostNL’s mail volume declined by more than four per cent on average). In 2006 the company announced “Master plan II” to be implemented from 2007 to 2015 with an expected volume decline between three and four per cent per year. The lifespan of “Master plan III”, announced in 2008, was 2010 to 2017. Originally, volume decline was expected to be an average of six per cent. The “revised Master plan III” now assumes an average decline of between eight and ten per cent. PostNL believes that volume decline may reach its bottom around 2017.²⁵⁴

Table 8-6 Master plans: Overview on planned and realized cost savings

Program	Period	Cumulated cost savings
Master plan I	2001-2012	Plan: EUR 370m Realized: EUR 300m (2001-2006), i.e. EUR 50m per annum on average
Master plan II	2007-2015	Plan: EUR 395m Realized: EUR 265m (2007-2010), i.e. EUR 66m per annum on average
Master plan III	2011-2017	Plan: EUR 200m Realized: EUR 110m (2011-2012), i.e. EU 55m per annum on average
Revised Master plan III	2013-2017	Plan: EUR 290m
Realized cumulated cost savings (2001-2012)		EUR 675 million (~EUR 60 million or 1-2% of operating expenses per year)

Sources: Based on annual reports and analyst presentations of TNT Post Group / TNT / PostNL.

The major purpose of these “Master plans” is to reduce costs (see Table 8-6). As a listed company, PostNL regularly reports on the progress it has made in achieving cost

²⁵² See TNT (2008), Update TNT Post’s strategy: next steps in redefining its (mail) markets, Presentation at Analysts’ Meeting 4 December 2008, p. 13.

²⁵³ See TNT (2008), Update TNT Post’s strategy: next steps in redefining its (mail) markets, Presentation at Analyst’s meeting on 4 December 2008, p. 12.

²⁵⁴ See PostNL (2013), Q4 & FY 2012 Results Update 2015, Analyst Presentation of 25 February 2013, p. 12.

savings. The envisioned cumulated cost savings of “Master plan I” (in total EUR 370 million) were driven by savings in sorting and delivery (EUR 265 million), marketing and sales including post offices (EUR 55 million)²⁵⁵ and administration (EUR 50 million) between 2001 and 2012.²⁵⁶ The company reported on its realized cost savings of nearly EUR 300 million by the end of 2006.²⁵⁷ The cumulated cost savings from “Master plan II” were expected to be EUR 395 million between 2007 and 2015²⁵⁸ and the company realized two thirds of these savings by 2010.²⁵⁹ “Master plan III” aimed to contribute an additional EUR 200 million in cost savings between 2011 and 2017.²⁶⁰ In effect this amount was doubled (in total) by the “revised Master plan III” – in addition to the already realized EUR 110 million of savings made by 2012 it foresees cumulated cost savings of EUR 290 million from 2013 to 2017.²⁶¹ The “Master plans” resulted in annual cost savings of about EUR 60 million on average between 2001 and 2012 (around 1-2 per cent of operating expenses per year).

The cost savings were fuelled by the reorganization of sorting and delivery in mail operations and savings in marketing & sales and administration costs. Cost savings in marketing and sales included the replacement of post offices by post shops while savings in overhead costs were due to the streamlining of administrative functions. In the following we focus on measures PostNL has implemented to save costs in mail operations.

Sequence sorting and optimization of delivery

“Master plan I” had already set the groundwork for these changes. The key measures of this program were²⁶²:

- In November 2003 the company started installing 286 sequence sorting machines in sorting centres and delivery offices to automatically sequence small letters.²⁶³ At the end of 2004 151 were installed and²⁶⁴ the installation was completed in October 2005.²⁶⁵

²⁵⁵ See TNT Post Group (2004), Mail Strategy, Presentation at TPG Analyst Day on 7 December 2004, p. 7.

²⁵⁶ See TNT Post Group, Annual Report 2002, p. 17.

²⁵⁷ See TNT Post Group, Annual Report 2006, p. 42.

²⁵⁸ See TNT (2008), Update TNT Post’s strategy: next steps in redefining its (mail) markets, Presentation at Analyst’s meeting on 4 December 2008, p. 12.

²⁵⁹ See PostNL (2013), Q4 & FY 2012 Results Update 2015, Analyst Presentation of 25 February 2013, p. 14.

²⁶⁰ See TNT (2008), Update TNT Post’s strategy: next steps in redefining its (mail) markets, Presentation at Analyst’s meeting on 4 December 2008, p. 12.

²⁶¹ See PostNL (2013), Q4 & FY 2012 Results Update 2015, Analyst Presentation of 25 February 2013, p. 14.

²⁶² See TPG (2003), Mail Update, Presentation at TPG Analyst Day 20 November 2003, p. 6.

²⁶³ See TNT Post Group, Annual Report 2003, p. 18.

²⁶⁴ See TPG (2004), Mail Strategy, Presentation at TPG Analyst Day on 7 December 2004, p. 10.

²⁶⁵ See TNT Post Group, Annual Report 2005, p. 30.

- The first collective labour agreement (CLA) for the new position of a (part-time) mail deliverer model was agreed in February 2003.²⁶⁶ During that year a total of 1,100 part-time deliverers were employed on this model.²⁶⁷ This number continuously increased in the following years. The plan was that through natural attrition up to 9,000 full-time equivalent postman positions would be replaced by 20,000 part-time deliverers by 2012.²⁶⁸ The Dutch union Abvakabo argued that at that time neither the workers' councils nor the unions expected that in the end the traditional postmen would be completely substituted by the deliverer. For this reason, Abvakabo argued, the unions and the works council accepted the plans.²⁶⁹
- As part of the delivery reorganization PostNL started to reduce the number of delivery offices from 550 (in 2000) to 465 (in 2006)²⁷⁰. At the same time pick-up points were implemented, where deliverers can pick up their prepared mail bags. At the end of 2004 180 of these pick up points were in use.²⁷¹

Flexibility in delivery

“Master plan II” sets out the next stage of the cost saving efforts. The major initiatives in this plan were the ongoing restructuring of the retail network, the closure of the international mail centre and the ongoing optimization of processes in mail operations²⁷² accompanied by a reduction in the number of FTEs. Between 2005 and 2010 the number of part-time deliverers more than doubled from 6,000 (1,400 FTEs) to 13,000 (3,000 FTEs), while the number of postmen declined from 20,000 (15,000 FTEs) to 16,000 (11,000 FTEs).²⁷³ This reflected the replacement of expensive labour by less expensive labour to reduce operating costs in the Dutch mail operations. Additionally, the company concluded a “mobility collective labour agreement” with the unions. That social plan comprised of measures to carry out the planned reduction in the number of employees in a socially responsible manner.²⁷⁴

²⁶⁶ See TNT Post Group, Annual Report 2002, p. 47.

²⁶⁷ See TNT Post Group, Annual Report 2003, p. 18.

²⁶⁸ See TNT Post Group, Annual Report 2004, p. 28.

²⁶⁹ Interview Abvakabo.

²⁷⁰ See TNT, Annual Report 2006, p. 38.

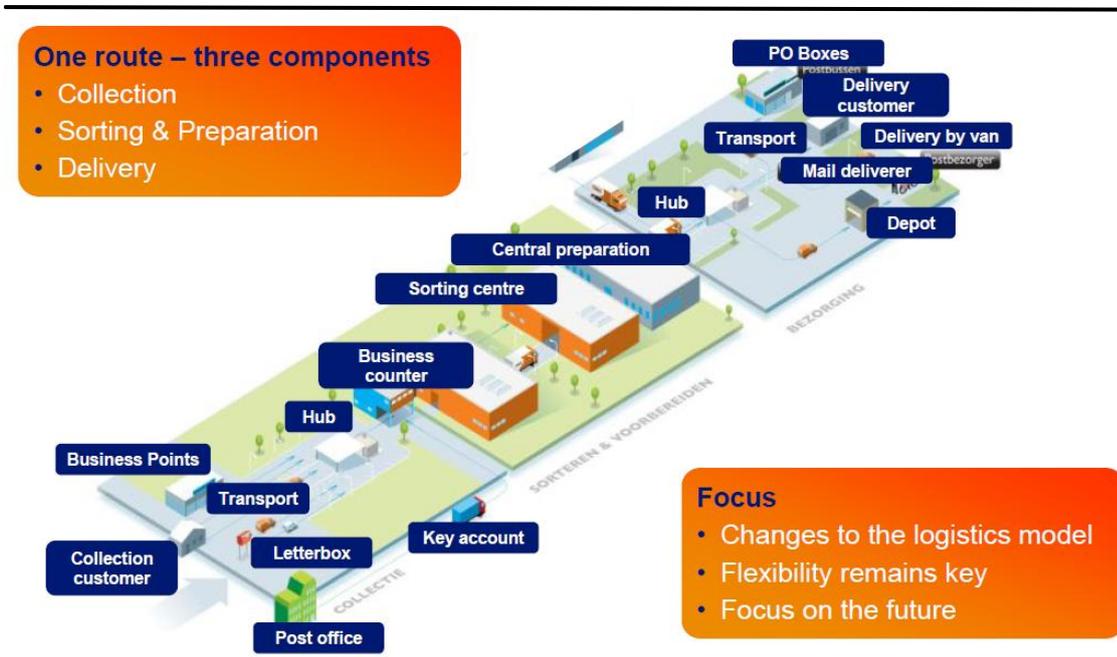
²⁷¹ See TPG (2004), Mail Strategy, Presentation at TPG Analyst Day on 7 December 2004, p. 10.

²⁷² We assume that the machines for sequence sorting were relocated from the delivery offices to the sorting centres as element of “Master plan II”.

²⁷³ See Abvakabo (2011), Liberalization of the postal market in the Netherlands, p. 7.

²⁷⁴ See TNT, Annual Report 2007, p. 88.

Figure 8-10 PostNL: Envisioned organization of mail operations as foreseen in “Master plan III”



Source: PostNL (2012): About PostNL, March 2012, p. 16.

“Master plan III”, which was announced in 2008, intensified the efforts to reorganize postal operations. Implementation started in 2011. Figure 8-10 describes how mail operations would have been organized if implemented as foreseen in the original “Master plan III”. The major difference to the traditional postal pipeline is in the delivery process. Traditionally, the postman who delivers the mail also prepares the mail for final delivery, i.e. they manually sort letters and flats in delivery order (sequencing). PostNL’s vision was to separate the mail preparation (i.e. sequencing) from the delivery process. It originally intended that the final stage of the reorganization mail preparation should be centralized at sorting centres. As some manual sortation is required to sequence the mail for delivery, PostNL considered it was appropriate to create additional workplaces for manual sorting located in a separate mail preparation centres (“Central preparation”). The prepared bundles would then be transported to “depots” where the deliverers would pick them up for final distribution. It considered that overall this would simplify the mail preparation and delivery processes.

The key elements of Master plan III were

- to consolidate the majority of delivery volumes on three days per week. For this reason PostNL introduced a new delivery service called “Basic”, a new non-priority service, in 2011. Depending on the “handover” day mail is delivered the second (“Basic 48 hours”) or the third (“Basic 72 hours”) working day. Peak days are on

Tuesdays, Thursdays and Saturdays (see Figure 8-8 in section 8.2.2). The “Basic” service replaced the former “48 hour” service.

- to centralize the delivery sequencing process: in total PostNL planned to install nine mail preparation centres partly located next to one of the six sorting facilities. Simultaneously, the ~300 delivery offices would be closed and the number of pick up points for deliverers increased to 2,000. Traditional postmen would be fully replaced by part-time deliverers.²⁷⁵
- Replacement of the pre-processing machines (CFS’s with sorting module) for single piece items (letters collected from post shops and post boxes) by machines that are able to process small letters and flats.

This last investment indicates PostNL’s future strategy in mail processing: the integration of letter and flat sorting into one machine. PostNL and Solystic have been developing a so-called “mixed mail sorter” since 2011 that will process both, letters and flats, and sort them in delivery order. The technological development is ongoing and the plan is to replace the current letter and flat sorters with these machines by 2015.²⁷⁶ For this reason replacement investment in existing letter and flat sorters has been deferred.

The centralization of mail preparation created substantial problems in the implementation phase of Master plan III.²⁷⁷ The first two mail preparation centres went “online” in January and March 2012. In the following period, mail delivery was delayed substantially. This resulted in an increasing number of customer complaints and a reduction in quality of service standards. Due to the significant issues related to the roll out of the “Central Preparation Locations”, PostNL decided to delay the implementation of the remainder of the plan (to allow it to review what has happened and develop solutions to resolve the issues):²⁷⁸

“Our clear conclusion was that we had underestimated the complexity of the reorganization. Too many changes were implemented at the same time, with limited tests in real practice and more inexperienced new personnel than expected.” (PostNL, Annual Report 2012, p. 20)

PostNL has since revised its original plan (“Revised Master plan III”).²⁷⁹ Instead of centralizing the preparation of mail in nine central preparation locations, a more decentralized approach was developed based on the delivery offices. Until 2015 the number of these offices will be reduced stepwise from the 260 it has currently to 125. These locations will be used as hubs for collection and delivery purposes. Additionally,

²⁷⁵ See PostNL (2012), About PostNL, corporate presentation and PostNL (2012) Q4 & FY 2011 Results, p. 9.

²⁷⁶ Interview Abvakabo.

²⁷⁷ See PostNL (2012), Annual General Meeting of Shareholders 2012, p. 21.

²⁷⁸ Additionally, the management of PostNL changed. Herna Verhagen, responsible for parcel operations, became CEO of PostNL while Harry Koostra and the responsible manager for mail operations (Pieter Kunz) left the company (see PostNL, Annual Report 2012, p. 46).

²⁷⁹ See PostNL (2013), Q4 & FY 2012 Results Update 2015, 25 February 2013.

the total number of employees subject to redundancies due to business operations will be reduced to between 450 and 650 compared to the previously envisioned 2,800 FTEs. Furthermore, PostNL has said it will better balance the proportion of experienced and new employees in its sorting and delivery operations.

Additional cost savings in the revised master plan III will be achieved by reducing overhead employment (-350-450 FTE) and in marketing and sales (150-250 FTE). Furthermore, PostNL seeks to leverage synergies between the “Mail in NL” and “Parcels” divisions, particularly in delivery. The company expects “substantial cost savings by [putting in place] a more integrated backbone”.²⁸⁰

8.3.2 Parcel operations

PostNL is currently expanding its parcel operations to increase the sorting capacities from 100 to 170 million parcels per year. Four old parcel sorting centres and 37 delivery bases are going to be replaced with eighteen new “depots” by 2014. To date, 12 centres are operational and two old parcel sorting centres have been closed down. Around 65 to 70 per cent of volumes are processed in the new network.²⁸¹ These facilities will have a combined function: they will serve as sorting centres and delivery bases.²⁸² In these centres parcels are automatically sorted to the delivery route by cross-belt sorters. The deliverer will sort the parcels in delivery order when they are loading the van. Parcels are automatically transported by a flexible conveyor belt to the delivery van. The deliverer loads the parcels directly from the belt into the van.²⁸³ Four centrally located sorting centres will also be used as hubs to efficiently organize the transportation of parcels between the sorting centres.²⁸⁴

²⁸⁰ See PostNL (2013), Q4 & FY 2012 Results Update 2015, 25 February 2013, p. 19.

²⁸¹ See PostNL (2013), Q3 2013 Results, 4 November 2013, p. 6.

²⁸² See PostNL, Annual Report 2012, p. 24.

²⁸³ See the video on the new logistics infrastructure on <http://www.postnl.com/about/parcels/index.aspx>.

²⁸⁴ See PostNL (2011), Parcels, presentation of Herna Verhagen at the Capital Markets Day 9 May 2011, slide 17.

Figure 8-11 PostNL: Investment plan for the new parcel network (“New Logistics Infrastructure” NLI)



Source: PostNL (2011), Parcels, Capital Markets Day 9 May 2011, p. 17.

PostNL plans to invest in total EUR 240 million in its parcel operations between 2010 and 2015, comprised of EUR 190 million for real estates and EUR 50 million for parcel sorters. In total EUR 170 million relates to the replacement of the existing infrastructure, while EUR 70 million is assigned to its expansion.²⁸⁵

²⁸⁵ See PostNL, Annual Report 2012, p. 24.

9 Posten (Sweden)

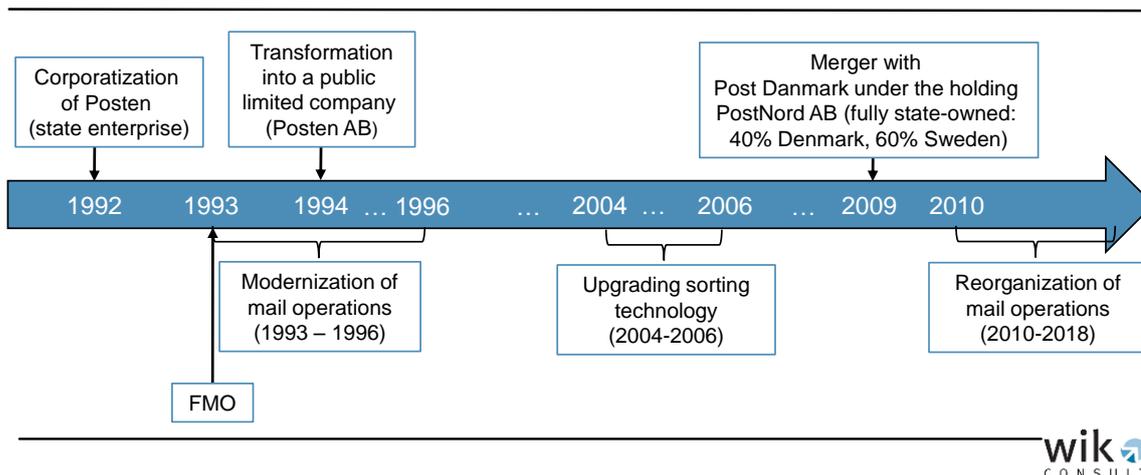
Key facts

- Posten, corporatized in 1992, merged with Post Danmark in 2009. The newly created holding company PostNord is fully state-owned (40 per cent by Denmark and 60 per cent by Sweden).
- PostNord is a medium-sized postal operator with total revenues of EUR 4.5 billion (2012). The Swedish mail operations account for two fifths of PostNord's total revenues.
- Posten's mail operations are profitable despite recent volume declines and fairly stable postal tariffs.
- The Swedish mail market, opened in 1992, was the first fully liberalized market in Europe and one of the first in the world. Posten's market share has been slightly declining since full market opening. The company still holds a market share of more than 87 per cent (by volume).
- Posten's mail volumes have been declining throughout the last decade. In 2012, letter volumes were three quarters of 2002 levels.
- A first wave of investment in postal automation was in the nineties when Posten modernized its mail operations.
- A second wave of investment is currently under way. Posten is reducing the number of mail sorting centres from 11 to 7. The company is now building two new sorting centres (one of which went operational in September 2013) and plans to modernize five existing sorting centres.

9.1 Background

Corporate developments and organizational structure

Figure 9-1 Sweden: Milestones in corporatization, privatization and market opening



Source: WIK research.

Posten was corporatized in 1992 and transformed into a public limited company in 1994. Until the merger with Post Danmark, Posten was fully owned by the Swedish state. In June 2009, Posten and Post Danmark were merged under the holding company PostNord (formerly Posten Norden) located in Sweden. PostNord is owned by the Swedish and Danish state (60 per cent / 40 per cent) while the voting rights are equally distributed.²⁸⁶ PostNord is planned to go public in the coming years (although no date has been fixed so far).²⁸⁷

²⁸⁶ See Posten Norden, Annual Report 2009, p. II.

²⁸⁷ See PostNord website, <http://www.postnord.com/en/Investor-Relations/New-corporate-strategy/> (Roadmap PostNord 2015).

Figure 9-2 Posten: Business divisions (2008)

Posten Meddelande (Mail)	Strålfors (Information logistics)	Posten Logistik (Logistics)	Cashier Service
<ul style="list-style-type: none"> • Distribution and collection of <ul style="list-style-type: none"> – Mail – Periodicals – Direct Mail – Private Parcels • Management of the retail network 	<ul style="list-style-type: none"> • Business communication • Data Management • Marketing communication 	<ul style="list-style-type: none"> • Parcel and express delivery (DPD partner) • Palletized logistics • In-night freight forwarding • Third-party logistics (3PL) 	<p>reflects Posten's legal mandate to provide nationwide financial transaction services</p>



Source: WIK-Consult based on PostNord (2013): Annual Report 2012, p. 8.

Note: The bold written sub-segments indicate the business areas that include the letter post and parcel operations that are (roughly) comparable to the Reported Business of Royal Mail.

The Swedish incumbent was originally organized into two business divisions: Messages (that includes the letter post and parcel operations) and the Cashier Services (postal financial services). After the acquisition of Stralfors in 2006, the information logistics division was created. In 2007 after acquisitions in the logistics area, Posten created the division 'Posten Logistik' and the parcel operations were moved to this new division. Sweden Post has partnered La Poste in the DPD parcel network.²⁸⁸

Figure 9-3 PostNord: Business divisions (2012)

Mail	Logistics	Strålfors (Information logistics)
<ul style="list-style-type: none"> • Mail distribution (distribution of mail items/letters weighing less than 2kg) • Advertising services (distribution of unaddressed and addressed direct mail) • Newspaper distribution • Other services (e.g. facility services) 	<ul style="list-style-type: none"> • Parcel services (B2B and B2C) • DPD partner in the Nordic region • Logistics and freight services in the Nordic region 	<ul style="list-style-type: none"> • Business communication • Data Management • Marketing communication • Service Fulfilment • Active in the Nordic region plus FR, PL and UK
<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px;">Mail Denmark</div> <div style="border: 1px solid black; padding: 5px;">Mail Sweden</div> </div>		



Source: WIK-Consult based on PostNord (2012), Debt Investor Presentation.

Note: The bold written sub-segments indicate the business areas that include the letter post and parcel operations that are (roughly) comparable to the Reported Business of Royal Mail.

²⁸⁸ See annual reports of Posten 1997 - 2008.

PostNord is organized in four business divisions: Mail is subdivided into Mail Denmark and Mail Sweden (“Posten Meddelande”), Logistics and Stralfors. The Mail division focuses on the distribution of letter post items (letters and advertising) and supporting services for mailers. The Logistics division is responsible for parcel operations and logistics services in Sweden and was, until the end of 2012, in Denmark. With effect of 1 January 2013, PostNord transferred organizational responsibility for the Danish parcel business to the business division Mail Denmark.²⁸⁹ To our knowledge, this is not planned for the Swedish postal business.

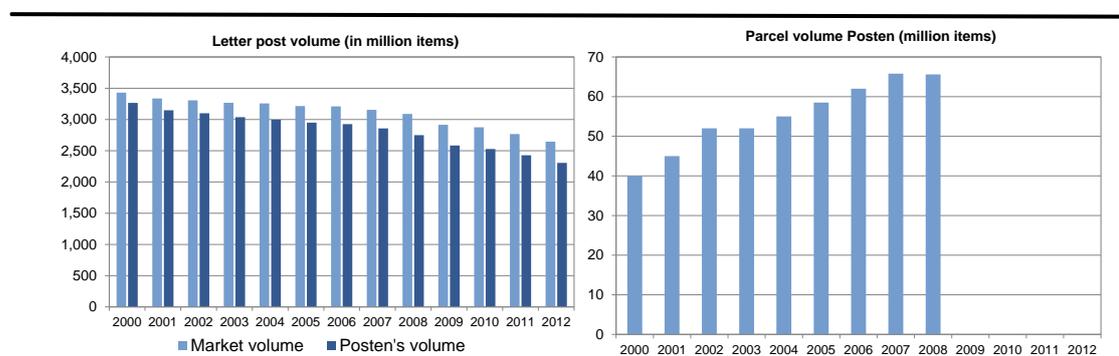
PostNord’s divisions Logistics and Stralfors focus on the Nordic region while the Mail divisions focus on mail operations in Sweden and Denmark. 84 per cent of the total revenues of PostNord are earned in Denmark and Sweden. The mail division (including both Mail Denmark and Mail Sweden) accounts for 59 per cent of total revenues in the PostNord group. Two thirds of these mail revenues came from its Swedish mail operations in 2012.

Market opening and competition

Sweden was the first country to fully open the letter post market to competition, well ahead of the market opening schedule of the Postal Directive: The postal monopoly was abolished in 1993. Bring CityMail (formerly CityMail, owned by Norway Post since 2002) entered the delivery market in 1991 and with a market share of 12.1 per cent (by volume) it is currently Posten’s most important competitor in the domestic letter post market.²⁹⁰ Bring CityMail focuses on pre-sorted bulk mail, including both advertising and business communication (transactional mail), and operates a two day per week delivery schedule. Bring CityMail’s delivery area covers 54% of all Swedish households.

Evolution of mail and parcel volumes

Figure 9-4 Posten: Development of letter post and parcel volumes



Source: WIK-Consult based on market surveys of PTS and annual reports of Posten.

²⁸⁹ See PostNord (2012), Parcel business to be re-organized in Denmark, Press Release November 13, 2012.
²⁹⁰ See Post- och telestyrelsen (2013), Service och konkurrens 2012, p. 14.

Posten has lost nearly 30 per cent of its letter post volume since 2000 (see the left chart in Figure 9-4). This volume reduction was driven by two factors: a general decline in market demand and increasing competition. Between 2000 and 2012 market demand declined by nearly 23 per cent. The decline in mail volume has accelerated since 2007/2008. While the average reduction per year was 1.2 per cent between 2000 and 2007, this rate increased to 3.5 per cent between 2007 and 2012. During the same period the market share of Posten (in terms of volume) declined from 95.2 per cent (2000) to 87.2 per cent (2012). On average it lost 1.9 per cent of mail volumes per annum between 2000 and 2007 and this increased to 4.2 per cent between 2007 and 2012. Another trend Posten has experienced is the substitution of priority mail with non-priority mail – priority mail's share of total letter volumes has declined from 51 per cent to 44 per cent since 2007.²⁹¹

Table 9-1 Posten: Size and weight structure of basic letter products

	Letters	
Format category	Standard format	Other formats (extra charge 12 SEK per item)
Length	600mm	600mm
Width	250mm	-
Thickness	30mm	-
Circumference	-	900mm
Weight classes	6 classes (0-20g, 21-100g, 101-250g, 251-500g, 1001-1000g, 1001-2000g)	6 classes (0-20g, 21-100g, 101-250g, 251-500g, 1001-1000g, 1001-2000g)
Quality of service	D+1 (priority) D+3 (non-priority)	D+1 D+3

Source: WIK-Consult based on price lists of Posten.

Consumers and business customers have a choice between a next day letter service (D+1) and a D+3 delivery service. Posten distinguishes two formats: a standard format that allows sorting by machine and a more general format (see Table 9-1). For example, for letters thicker than 30mm an extra charge must be paid.

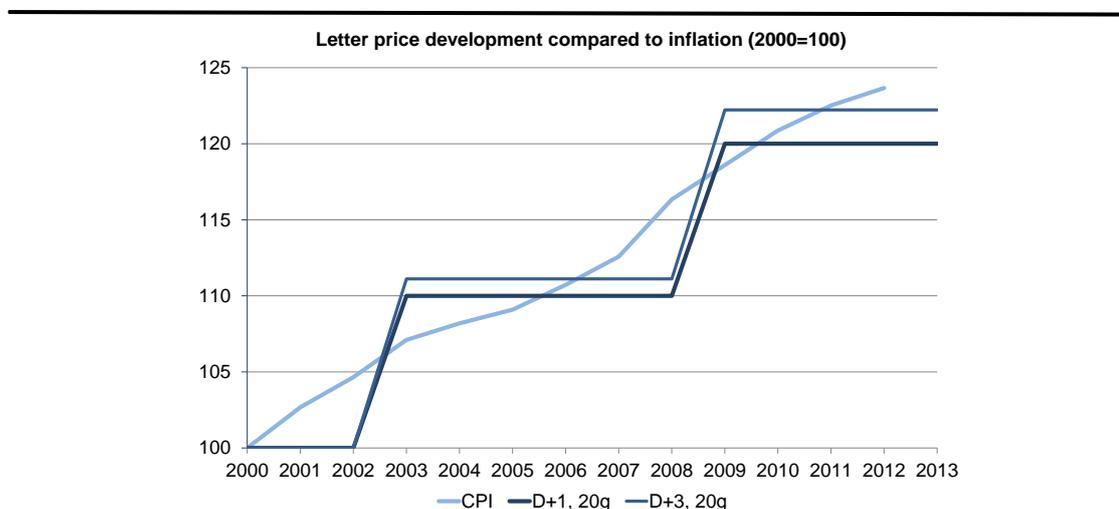
Parcels are usually delivered the next working day after posting. Tracking & tracing is part of the standard service. There are two delivery options for parcels: home delivery and, for an extra charge, delivery to the nearest postal outlet. Less than 10 per cent of the parcels sent to consumers are delivered to the premises of the recipient.²⁹²

²⁹¹ See Annual Reports of Posten and PostNord.

²⁹² Interview Logistics Sweden.

Services, prices and quality

Figure 9-5 Posten: Development of the basic letter tariff



Source: WIK-Consult based on price lists of Posten and Eurostat (Consumer price index CPI).

Posten’s basic tariff for letter services has increased roughly in line with the consumer price index (see Figure 9-5). Today, a consumer pays EUR 0.69 (GBP 0.56) for sending a 20 gram letter that is delivered the next working day. The economy service costs EUR 0.64 (GBP 0.52) for a 20g letter. Posten delivers on five days per week (Monday to Friday).

Table 9-2 Posten: Development of delivery quality

Delivery quality (in %)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Letters D+1 target	85	85	85	85	85	85	85	85	85	85	85	85	85
Performance	95.4	95.8	95.3	95.7	95.6	95.2	94.2	94.5	94.9	95.7	93.7	94.5	94.8
Parcels D+1 target	-	-	-	-	-	-	-	-	-	-	-	-	-
Performance	n.a.	96.6	97.5	96.8									

Source: WIK-Consult based on annual reports of Posten and PostNord.

Notes: 'n.a.' means 'not available'.
"-": target not defined.

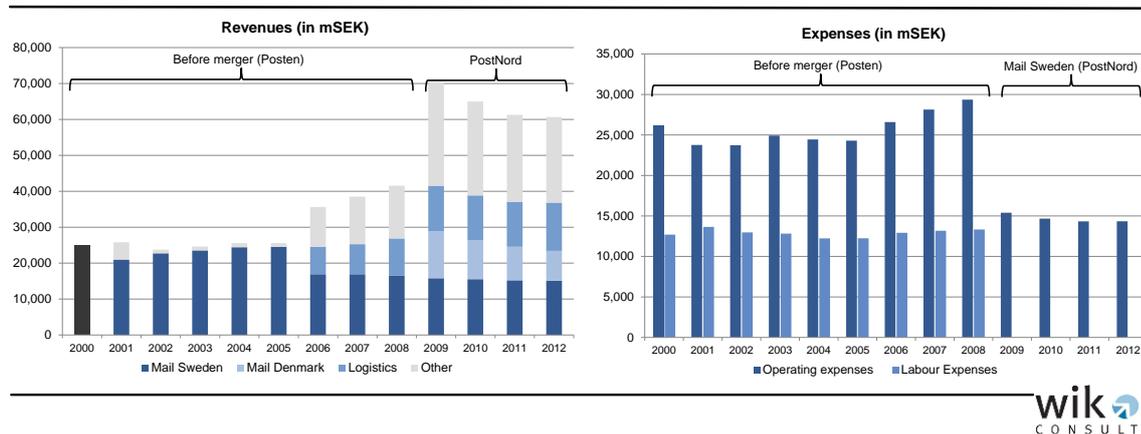
Overall delivery standards fluctuated between 93 and 96 per cent between 2000 and 2012. The slight dip in transit times in 2010 was caused by disruptions to flight traffic due to volcanic ash and internal procedural issues.²⁹³ Over the last three years, the

²⁹³ See PTS (2012): Service och konkurrens 2011, p. 37.

delivery quality of parcels has also been very high in Sweden with around 97 per cent delivered on time.²⁹⁴

Revenues, expenses and profitability

Figure 9-6 Posten/PostNord: Revenues and expenses



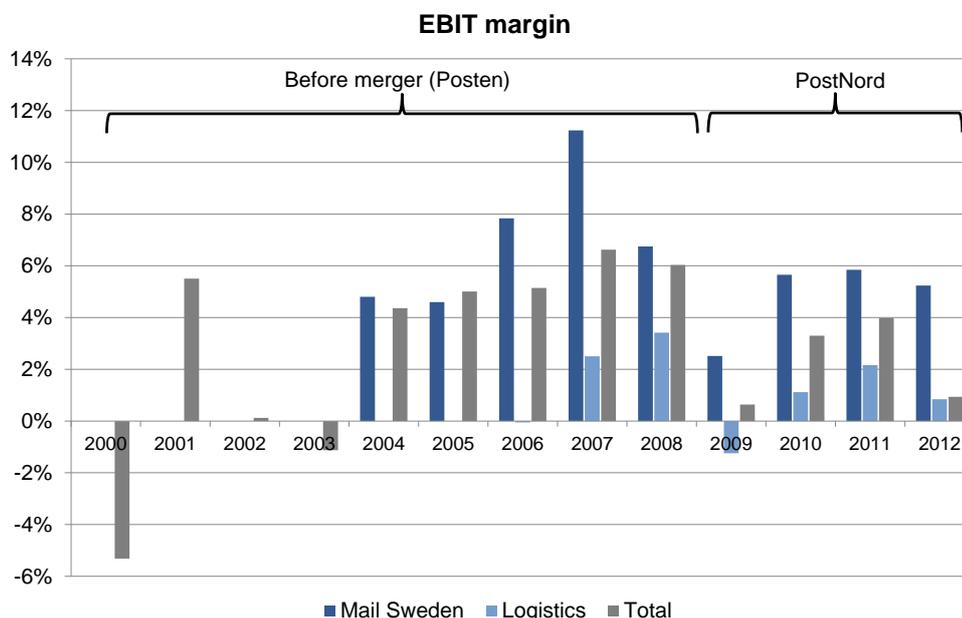
Source: WIK-Consult based on annual reports of Posten and PostNord.

Note: The position "Other" includes i.a. the division Information Logistics.

In 2006 parcel operations were shifted from the mail division to the logistics division resulting in a drop in revenue of around one quarter. Despite the volume losses experienced in the Swedish market, Posten's mail revenues have only declined on average by 1.8 per cent between 2006 and 2012. One reason for this is that Posten not only provides pure mail services but also value-added services to business senders (e.g. consulting on advertising campaigns and facility services). The increasing logistics revenues have mainly been driven by acquisitions but also due to the dynamically growing parcel business.

²⁹⁴ See Annual Reports of Posten and PostNord 2000-2012.

Figure 9-7 Posten/PostNord: Profitability development



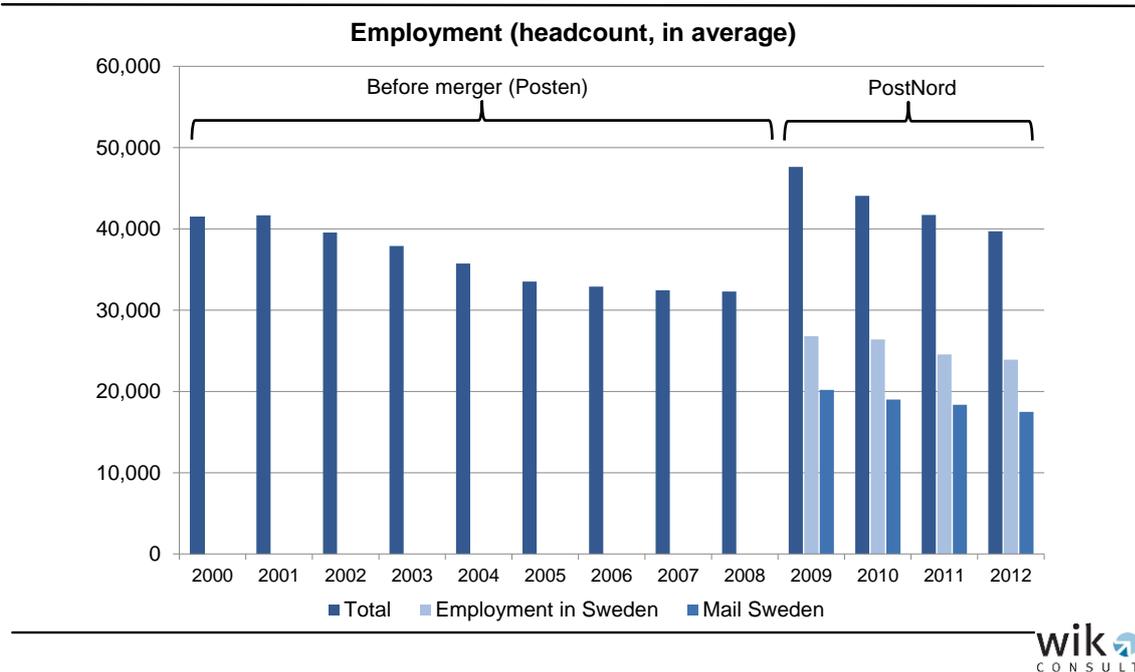
Source: WIK-Consult based on annual reports of Posten and PostNord.

Posten was substantially restructured between 1999 and 2003 accompanied by a drop in profitability.²⁹⁵ Due to cost saving measures mainly affecting administrative functions and the retail network, Posten returned to profit in 2004.²⁹⁶ Profitability was further increased to nearly 8 per cent in 2006 and around 11 per cent in 2007 after Posten separated its mail and parcel operations and implemented the “Action Program” (which included the modernization of Posten’s sorting technology). The parcel and logistics businesses are substantially less profitable than the mail business at Posten and PostNord. After a drop in profitability in 2008 / 2009 due to the financial crisis, the profitability of Mail Sweden returned to more than 5 per cent between 2010 and 2012 despite the substantial decline in mail volumes. This shows that Mail Sweden managed to reduce its cost base in line with the revenue decline – largely due to Posten’s mail operations restructuring program which was launched in 2010.

²⁹⁵ For example, Posten restructured its network of postal outlets and re-organized the loss-making cashier services it was obliged to provide by law.

²⁹⁶ See Posten, Annual Reports 1997-2004.

Figure 9-8 Posten/PostNord: Employment development



Source: WIK-Consult based on annual reports of Posten and PostNord.



Between 2000 and 2008 Posten reduced its headcount on average by 3 per cent per year. This headcount reduction was due to: first, streamlining the administrative functions, second, the restructuring of the retail network (switch from post offices to postal agencies), and, third, the modernization of sorting technology in mail operations.²⁹⁷ Between 2009 and 2012 employment at Mail Sweden was further reduced on average by 4.7 per cent each year. This also reflects the ongoing efforts of Mail Sweden to tackle the volume decline by scaling down its mail operations and becoming more efficient.

²⁹⁷ See annual reports of Posten and PostNord.

9.2 Postal operations

9.2.1 Overview

Table 9-3 Posten: Key figures of postal infrastructure

Daily volume	Mail items: 9.2 million Parcels: 0.3 million
Collection points	~24,000 street letter boxes 1,800 service points of which 1,547 are postal outlets (100% agencies) 290 business centres
Sorting centres	11 mail sorting centres (under transformation) 9 parcel sorting centres (of which 4 small centres with limited functions) 1 sorting centre for international mail and parcels
Delivery offices / bases	~400 mail delivery offices 70 dedicated delivery bases for parcels
Delivery routes	~5,900 mail delivery routes Variable number of delivery routes for parcels (depending on volume) ~2,500 delivery routes jointly used for mail and parcel delivery (in rural areas)
Addresses	4.6 million households 800,000 businesses (incl. SMEs)
Labour	Mail operations: ~15,000 (full-time equivalents) of which ~3,000-3,500 work in sorting and 11,000-11,500 are delivery staff Parcel operations: ~5,000 of which ~2,000 are in processing and ~3,000 in delivery

Source: WIK-Consult based on PostNord (2013): Annual Report 2012 and interviews with Posten and Logistics Sweden.

PostNord's division Posten Meddelande (in the following "Posten") is responsible for Swedish mail operations. On average, Posten delivers more than 9 million letters per day. This volume varies within a month by 40 per cent (between 6 and 14 million letters per day). Mondays and Thursdays are peak days during the week because on these days, additional to letter post, unaddressed direct mail is delivered. Generally, the first and the fourth quarter of a year and in particular December are peak months. 70 per cent of letter post volumes are small letters, a further 20 per cent are flats and 10 per cent are packets (up to 2 kg).²⁹⁸

Logistics Sweden (part of the Logistics division of PostNord) is responsible for Swedish parcel operations. The unit delivers around 300,000 parcels per day. The peak month for delivery of parcels is December (400,000 parcels per day).²⁹⁹ Parcel volumes of Posten have continuously risen during the whole period (since 2009 the company has

²⁹⁸ Interview with PostNord, Mail Sweden.

²⁹⁹ Interview with PostNord, Mail Sweden.

not reported on parcel volumes). Volume growth is driven by the B2C segment due to growth in e-commerce.³⁰⁰

In Sweden sorting of domestic letter post items is separated from parcel sorting. Only international letters and parcels are handled together at the only international sorting centre in Arlanda (near Stockholm). Letter post items are processed in eleven mail sorting centres and parcels in one of the five parcel sorting centres. The sorting centres are used for outward and inward sorting. All sorting centres are equipped with CFC machines (Culling Facing Cancelling), sorting machines for letters and flats. Additionally, Posten is going to install a multi sorter as a pilot to decide which way to go forward when it comes to sorting of flats. Small packets (bulky letters) are sorted in parcel machines within the mail unit. These bulky items have twice as much volume as parcels delivered by the logistics department.³⁰¹ The parcel sorting centres are equipped with cross-belt sorters for parcel sorting.

In less populated areas letter post items and parcels are jointly delivered.³⁰² For final delivery, parcels are transported to letter delivery offices if letters and parcels are jointly delivered. Additionally, the transportation between mail sorting facilities is managed by Logistics Sweden either in its own trucks or by sub-contracted truck companies.

In total around 15,000 mainly full-time employees (~ 18,000 in headcount) are working in mail operations: roughly 3,000 – 3,500 in sorting (of which 50-60 per cent are full-time) and 10,500-11,000 in delivery (80-85 per cent are full-time).³⁰³ About 5,000 employees are working in Logistic Sweden's parcel operations: around 2,000 in processing and ca. 3,000 in delivery.³⁰⁴

300 See annual reports of Posten and PostNord.

301 Interview Posten Meddelande.

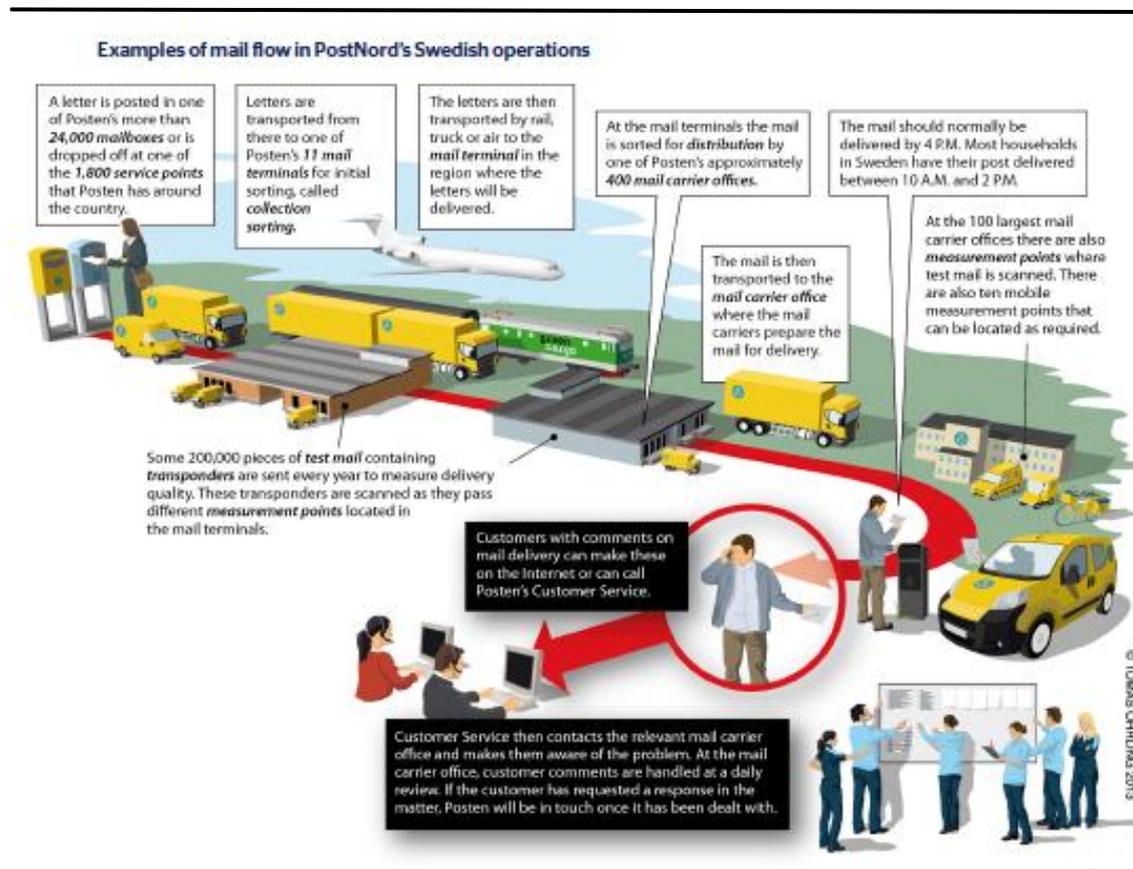
302 Interview Posten Meddelande.

303 Interview Posten Meddelande.

304 Interview PostNord, Logistics Sweden.

9.2.2 Mail operations

Figure 9-9 Posten: Characteristics of mail operations



Source: PostNord (2013): Sustainability Report 2012, p. 14.

Collection

In Sweden, individuals can post letters at one of the around ~24,000 post boxes or at one of 1,800 service points. Small and medium-sized business customers can additionally post letters at one of ~290 business centres that are usually located in business areas.³⁰⁵ Additionally, Posten offers a pick-up service for business customers.

Sorting

Posten has built separate sorting centres for letters and parcels. From 13 mail sorting centres for letters ten years ago, Posten operates 11 sorting centres for outward and inward sorting of letter post. In 2006 Posten has opened a new sorting centre in Arlanda for international mail. Posten plans to reduce the number of domestic mail sorting centres to seven by 2018. It is planned to renew five old sorting centres (Alvesta,

³⁰⁵ See PTS (2013): Service och konkurrens 2012, p. 8 and 28 and Posten (2013): Sustainability Report 2012, p. 14.

Göteborg, Malmö, Sundsvall and Arsta) which were built in the nineties and to build two new ones from the scratch (Rosersberg and Hallsberg). Hallsberg has just started operations in September 2013.³⁰⁶

Table 9-4 Posten: Sorting technology

Type	Characteristics	Process description
CFC machines	n.a.	
Letter sorters	Producers: Siemens and Toshiba Total number: ~85 Location: Sorting centre Productivity: 34,000 items per hour Workers per machine (Siemens, Toshiba): 3 (one feeder, two to clean the stackers)	Outward sorting: Addresses are read by optical character reading (OCR) and the address information is coded on the letter (barcode, information includes address information). If the address is not correctly recognized by OCR the information is added either by remote video coding or by online video coding. Letters are then sorted to the sorting program of the destination sorting centre. Inward sorting: Letters are sorted in delivery order (two sorting runs).
Letter sorters	Producer: Solystic Total number: ~65 (Solystic MARS) Location: Sorting centre Productivity: 34,000 items per hour Worker per machine: 1	Used for sequence sorting; needs three sorting runs.
Flat sorters	Producer: Solystic and Siemens Total number: ~15 (Solystic SSM, old model) and 1 OMS (Siemens) Location: Sorting centre Productivity: <20,000 items per hour (Solystic) Note: Additional 5 OMS (Siemens) are being installed in Hallsberg and Roserberg	Flats (C4) up to 8-10mm thickness are sorted in flat sorters Outward sorting: Flats are sorted to the sorting program of the destination sorting centre. Inward sorting: Flats are sorted to the delivery route.
Multi-sorter	Producer: Fives Cinetics Total number: 1 Note: Additional 4 sorters are being installed in Hallsberg and Roserberg	To sort bulky mail items (small packages up to 2kg)

Source: WIK-Consult (2011), Review of postal technologies in Europe and Interview Posten Meddelande.

Notes: This presentation refers to the sorting machines used in the "old" sorting centres. The sorting technology installed in the new sorting centres is described in more detail in section 9.3 .
'n.a.' means 'not available'.

The mail sorting centres are usually located in areas easily reachable by train or truck. It is planned that each of the seven sorting centres is connected to railway. The old

³⁰⁶ Interview Posten Meddelande.

sorting centres are different in size and structure, but the two new sorting facilities will have a common standard.

Posten has around 170 sorting machines made by different producers (Siemens, Toshiba, Solystic). In order to integrate and upgrade the machines, Posten developed a specific IT platform (GLP) that connects each of the sorting machines (around 2007). The producers provided specifically defined interfaces to safeguard the interconnection of the machines with the IT platform.

The letter sorting machines currently in use have the following functions: OCR reading, barcoding, and sorting at least to delivery route (at the inward sorting). Some machines are also used for sorting in delivery order. They can handle 34,000 letters per hour at a maximum. In case of sorting in delivery order (three sorting passes), the productivity of these sorting machines is substantially lower (~8,000 items per hour). Today, all letters are sorted at least to delivery routes in the sorting centres. Around 85 per cent of letters are handled automatically and 80 per cent of the letters are sorted in delivery order by machine. The remaining items are sorted manually in delivery order in the delivery offices.³⁰⁷

For flats, Posten currently uses around 15 flat sorters of Solystic with the following functions: OCR reading, barcoding, and sorting up to delivery route. They can handle 20,000 letters per hour maximum. To date, 65 per cent of flats (including magazines) are sorted to delivery routes. Magazines are usually pre-sorted by mailers to delivery routes and directly shipped to the delivery offices.³⁰⁸

Posten currently has ~3,000 to 3,500 full-time equivalent employees for sorting activities. 50-60 per cent of these employees have a full-time contract, 40-50 per cent a part-time contract.³⁰⁹

Transportation

Letters and parcels are only transported together for delivery in rural areas. 60 per cent of letters (incl. packets) are transported by rail and 25 per cent by road. 15 per cent of letters are transported by air, particularly to the Northern parts of Sweden to safeguard next day delivery. There are two hubs for air transportation in Sweden.³¹⁰ It is planned to connect the new mail sorting centres by railway.³¹¹

³⁰⁷ Interview Posten Meddelande.

³⁰⁸ See WIK-Consult (2011), Review of postal technologies in Europe.

³⁰⁹ Interview Posten Meddelande.

³¹⁰ Interview Posten Meddelande.

³¹¹ Interview Posten Meddelande.

Delivery

Today, Posten operates ~400 delivery offices for letters. An additional 10-15 pick-up points serve as starting points for mail delivery - a recent development.³¹²

Currently, a deliverer usually needs between 2.5 and 3 hours for in-office activities. Letters and, most importantly, flats (including magazines) are sorted manually in delivery order and are then merged with pre-sorted letters. Basically, the postmen handle three bundles: one with letters and flats, one with unaddressed advertising, and, finally packets (up to 2 kg). Usually, delivery is finished by 4 p.m. at the latest. At each stop, postmen deliver on average 1.9 addressed mail items per day, plus unaddressed bundles on Mondays and Thursdays preferably.³¹³ On average, mail is delivered to 80 per cent of the delivery points per day.

Posten manages 8,400 delivery routes only for letters, of which 2,500 are rural delivery routes jointly used for the delivery of letters and parcels. Around 5,000 delivery routes are served by car, 2,000 by bicycle (mostly e-bikes), 1,400 by motorbike and less than 100 by foot.³¹⁴

9.2.3 Parcel operations

Collection

Parcels are either collected from 1,800 service points or directly from business customers (pick up service). Additionally, business customers can post parcels directly at the parcel sorting centres.

Sorting

Posten strictly separates sorting activities of letters and parcels. The number of parcel sorting centres was reduced from 12 to 9 within the last ten years. Five of them have cross-belt sorters combined with OCR reading, scanning and coding technology. One parcel centre is only equipped with a cross-belt sorter which provides reading functionality and serves as support centre. Finally, there are three small centres without automatic sorting.³¹⁵ Parcels are sorted to delivery routes in the sorting centres.

Transportation

Nearly all parcels are transported on the road. Less than one per cent of parcels are transported by air (express parcels).³¹⁶

³¹² Interview Posten Meddelande.

³¹³ Interview Posten Meddelande.

³¹⁴ Interview Posten Meddelande.

³¹⁵ Interview PostNord/Logistics Sweden.

³¹⁶ Interview Posten Meddelande.

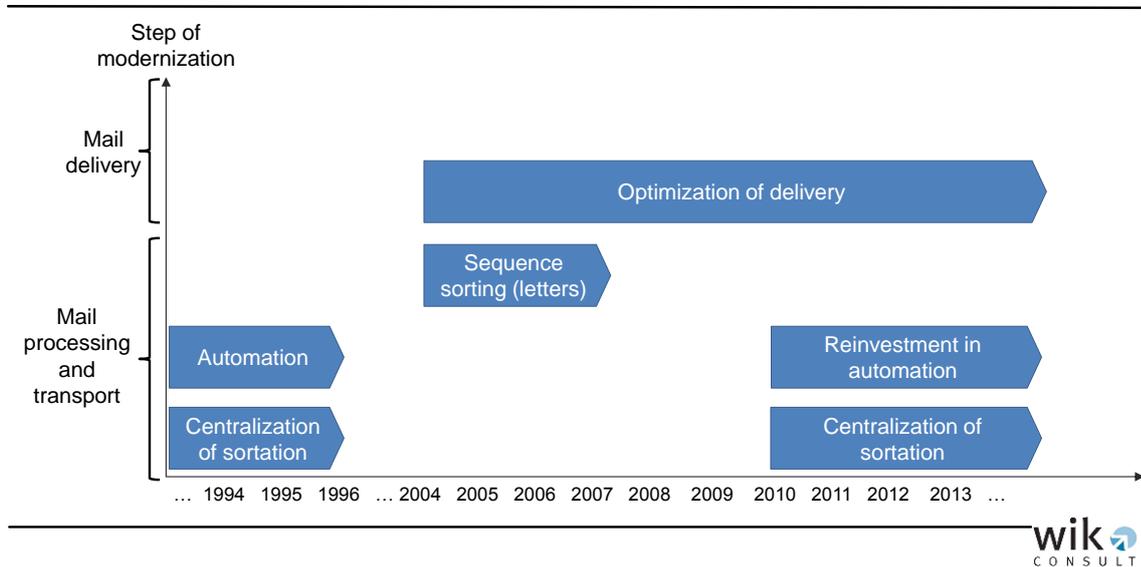
Delivery

Logistics Sweden operates 70 depots exclusively used for parcel delivery. Around 50 per cent of the parcels are delivered to consumers (B2C). More than 90 per cent of these parcels are delivered to postal outlets where the recipients pick them up. Less than 10 per cent of these parcels are delivered at the addressee's premises. Parcels to business customers are usually delivered to their premises. Logistics Sweden operates parcel delivery routes only in more densely populated, urban areas (~800 routes³¹⁷). Apart from that parcels and mail are delivered jointly by mail carriers (~2,500 routes).

317 Interview Logistics Sweden.

9.3 Efficiency programs

Figure 9-10 Posten: Evolution of mail operations



Source: WIK-Consult.

Centralization of sortation and automated sorting

Sweden Post reorganized its letter post operations in the early nineties. Between 1992 and 1996, thirteen sorting centres were built and equipped with sorting machines for small letters and flats. The items were sorted to the postal code.³¹⁸ The conversion was launched as a “big bang”, i.e. all new facilities went operational at the same time. For this reason Posten was faced with a substantial drop in quality of service during the transition from old to new operations. At that time the technical problems related to this strategy were significantly underestimated.

Optimization of delivery

The modernization program is part of the “Action Program 2004-2006”. Additional to measures affecting corporate services and marketing & sales, a bundle of measures dealt with the production & logistics division of Posten in order to improve the efficiency of mail processing, mail carrier and delivery efficiency, efficiency of transportation capacity utilization and purchasing efficiency.³¹⁹

Delivery activities (in office and street activities) account for more than 50 per cent of total costs which are mostly fixed.³²⁰ For this reason Posten is seeking to reduce its delivery costs. The first important element is to centralize processing of postal items in

³¹⁸ See Posten AB (1999): Annual Report 1998, and interview Posten Meddelande.

³¹⁹ See Posten, Annual Report 2004, p. 15.

³²⁰ See Peter Brännström (2010), Developing operations to meet future need while volumes are declining, p. 6.

the mail sorting centres and to maximize the share of mail sorted in delivery order. The second element is to optimize the number and distribution of delivery offices, reduce the number of delivery routes by route optimization in combination with the selection of the right delivery vehicle.³²¹

Since 2004 the number of delivery offices has continuously fallen from more than 670 to about 400 in 2012. The number of delivery offices may be reduced further depending on experiences made by the recently installed pick up points for delivery. During the same period, the number of delivery routes decreased from 10,600 in 2004 to currently ~8,400.³²²

Sequence sorting

One element of the program was an upgrade of sorting technology between 2004 and 2006 in order to increase the proportion of mail sorted by machine. The number of mail sorting centres was reduced from 13 to 11. New letter sorting machines for sorting items in delivery order and flat sorters were installed.³²³ Due to the upgrade, flats were sorted to delivery routes (instead of postal codes before). The old sorting machines in the mail sorting centres were upgraded and all machines were integrated into a common IT platform. This was necessary because Posten had sorting machines developed by different producers. Posten launched a specific IT platform (developed by Lockheed Martin) with an interface that all machine suppliers had to connect to. Finally, the international sorting centre was built at the Stockholm airport Arlanda.

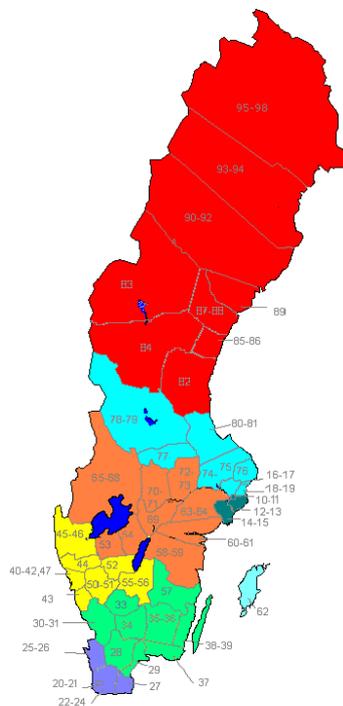
³²¹ See Peter Brännström (2009), *Effective Route Planning*, p. 4.

³²² Interview Posten Meddelande.

³²³ See annual reports of Posten (2004 to 2007), and interview Posten Meddelande, see also the description of current mail operations in section 9.2.2.

Centralization of sortation and reinvestment in automation (2010-2018)

Figure 9-11 Posten: New terminal structure and service areas



Source: Peter Brännström (2010), Developing operations to meet future need while volumes are declining, p. 11.

Posten plans to reduce the number of mail sorting centres to seven by 2018. It is planning to renew five old sorting centres (Alvesta, Göteborg, Malmö, Sundsvall and Arsta) which were built in the nineties. Posten is building two new sorting facilities, one in Hallsberg that started operations in September 2013 and Rosersberg that is expected to be ready in 2014. For these sorting centres Posten maintains its strategy to procure machines that connects to the common IT platform. Hallsberg and Rosersberg will be equipped with CFC machines from Siemens, letter sorters from Toshiba, flat sorters from Siemens and multi-sorters from Fives Cinetic:

- For processing mail collected from service points and post boxes, Posten acquired four pre-processing machines of Siemens (CFC 3004)³²⁴ that handle letters up to 100 grams and 8mm thickness and flats (C4 format) up to 300 grams and 4mm thickness. These machines sort out non-machineable mail, face the mail pieces, check the franking and cancel stamps. Old machines were only able to process small letters. Posten selected a combination of a CFC and an integrated reading

³²⁴ See Siemens (2012), Swedish Post orders preprocessing machines and flats sorting systems from Siemens, Mobility and Logistics Newsletter 6 February 2012.

and video coding machine for address reading in a single machine. Additionally, the dynamic weighing module for mail pieces up to 300 grams allows Posten to detect underpaid items automatically (accuracy within two grams). Siemens reports that the operational throughput of this machine is 30,000 items per hour in the CFC mode. It can sort up to 43,000 items per hour (IRV mode). Moreover, the CFC machines are able to sequence sort letters and flats to delivery.³²⁵ The actual operational throughput depends on the mail mix because processing flats needs more time than letters.

- For processing bulk mail (posted by business customers, usually pre-sorted so that outward sorting can be skipped) Posten acquired 11 letter sorting machines produced by Toshiba (TT-1200) that sort letters in delivery order (items up to 100 grams and 6mm thickness, maximal throughput 60,000 items/hour).
- To sort flats in delivery order Posten ordered five flat sorting machines of the type “Open Mail Handling System” (OMS) of Siemens. This machine sorts flats from B4 upwards, up to 32 mm thickness and weighing up to 2,000 grams. Posten decided to take the version with two feeders, so that the maximum operational throughput is 25,000 items per hour (it is possible to feed in ~12,500 items per workplace). During the pilot project in Göteborg, the machine sorted up to 10,000 flats per hour in delivery order.³²⁶
- To handle bulky mail and small packets by machine the new sorting centres will be equipped with multi-sorters from Fives Cinetic. These machines have an operational throughput of about 10,000 items per hour.

The remaining five sorting centres are still equipped with “old-fashioned” letter and flat sorters i.e. in these facilities two distinct sorting machines are needed to sort letters in delivery order. Flats are sorted to delivery routes. For these sorting centres Posten plans a pilot for a mixed mail sorter (the tender procedure is ongoing), i.e. a sorting machine that is able to process both, letters and flats. Based on this pilot, Posten will decide whether to invest in mixed mail sorters or in distinct sorting machines for letters and flats.

³²⁵ See Siemens website (CFC 3004):
<http://www.mobility.siemens.com/mobility/global/en/logistics/postal-automation/sorting-machines/pre-processing/pages/pre-processing.aspx#CFC%203004%20%E2%80%93%20Culler%20Facer%20Canceller>

³²⁶ Interview Posten Meddelande.

Table 9-5 Posten: Centralize sorting and reinvestment automation (2010-2018)

Planned investment	~SEK 4 billion (total investment for buildings and machinery)
Planned cost savings per year	No forecast for cost savings Reduction in employment: 700-1,000 (FTEs) per year during 2010-2014
Efficiency gains	<p>“For the mail operations, the new terminal structure means a higher level of geographic concentration which will facilitate the more highly automated, cost-effective production of mail.”</p> <p>“Since the two new terminals will be constructed adjacent to main railroad lines, a greater share of transports can be made by rail. [...] The terminals’ locations also mean that air and road transports will be made more efficient.”</p> <p>(PostNord, Annual Report 2012, p. 33)</p>

Source: Interview Posten Meddelande.