

Report on the measurement and the allocation of delivery costs in the universal service postal network

2018

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Executive summary

This report provides information on the experience of individual NRAs in the measurement and allocation of the delivery costs and some of the various projects undertaken by the NRAs and the USPs in order to determine an accurate estimation of those costs.

The analysis started from the assumption that delivery is typically the most costly part of a universal service postal network and investigated the actual NRA experience starting from the proportion of the costs of delivery in the total costs. The average proportion is more than 40% and the individual cases range from 20% to 73%.

With the intention to highlight the differences in the underlying operational organization and cost drivers, the report sets forth some of the intuitive factors that have an impact on the cost level and structure of the USP.

As it is noticeable from ERGP data, there are different scope of universal service and even definition of postal services that may have an influence on the proportion of delivery in universal services costs and total costs.

Quality of service targets and results are set and met at different levels. Irrespective of the functioning of the other activities (clearance, sorting and transport), delivery is an essential step in fulfilling the obligations.

The geography and the population density have an important influence on the organisation and costing of delivery. The total area covered and the topology have to be taken into account in various manners (the design of the routes, the time it takes to cover a route, the amount and location of both sorting and delivery centres etc.).

The boundaries between activities, particularly sorting and delivery, are sometimes blurred and other times all the operations are allocated to only one of them. This is also influenced by the degree of machine sorting, since the risk of manipulating allocated costs is bigger in cases of labour where the same employees can undertake several activities.

The decline in letter volumes and the increase in parcels numbers suggest a shift and even an innovation in the delivery methods which can have an impact on the costing base. Taking into account that the volume is used as one of the key cost drivers by all administrations, the impact on allocation is straightforward. At the same time, in most of the countries the recent years have been marked by changes in the organisation of the postal network that could be sometimes in opposite directions.

ABC and FDC are used as the preferred costing methodology and cost standard. The prevailing cost modelling approach is top-down using historical cost as a cost base.

The highest factor within delivery costs is labour and this can be influenced by different employment models and different levels of actual salary payments.

In some countries there have been undertaken analyses of the different parameters on delivery costs. The factors identified are the volumes of letters and parcels, the number of delivery days per week and the changes in delivery methods.

The regulatory practice regarding the measurement and allocation of delivery costs in the universal service postal network entails a scrutiny of the cost standard, allocation methodologies, the type of data and models which are adjusted to tariff control, access regulation, assessment of efficiency or financial sustainability, as well as ex ante or ex post competition investigations.

1. Introduction

1.1 Scope and structure of the report

The assessment of the costs of the universal service postal network - whether it is for tariff control, access regulation, assessment of efficiency or financial sustainability, ex post competition investigation etc. - is incomplete without a good understanding of the delivery costs.

This project considers the experience of individual NRAs in the measurement and allocation of the delivery costs and the various projects undertaken by the NRAs and the USPs in order to determine an accurate estimation of those costs. It starts by identifying the operational methods and conditions of delivery (processes, resources, equipment etc.) and the way their costs can be measured. It also assesses the economic implications of how the costs are allocated.

The work captures the relationship between the assessment of the costs and various contextual and practical concerns (e.g. the decline in letter mail volume and the increase in parcels, the frequency of delivery, net cost calculation etc.).

The project considers the different models adopted and examines the boundaries between the primary activities in the postal network operations, in order to ensure consistency of terminology in the defined area of interest (e.g. capture the differences between sorting and delivery).

The report is structured in 4 chapters and 6 annexes:

1. Introduction – presents the background against which the delivery function operates (the evolution of the number of letters and parcels, the universal service area, the preferences and factors that can influence the costs);
2. The role of delivery costs – analyses the link between the concerned potential pricing strategies and other exercises and the cost standard used for the determination and allocation of delivery costs by the Universal Service Provider (henceforth USP) and applied by the National Regulatory Authority (henceforth NRA) for verifying the compliance with regulatory provisions;
3. Operational environment – highlights the differences in the national circumstances with respect to the environmental, commercial and regulatory practices;

4. Measuring and allocating costs of delivery – determines the proportion of the costs associated with delivery, suggesting the delivery costs are one of the largest if not the largest component of the postal network. It also underlines the largest cost categories, the costing methodologies, the cost standards, the main cost drivers and the purposes of analysis;

5. Annexes.

1.2 Background

The delivery function is one of the main segments in the postal flow with respect to the activities undertaken, the underlying costs, the interest in access to or subcontracting of the operations, network optimisation, net cost calculation etc.

Innovation is part of the survival kit of any business. It takes into account the environment in which it operates and the possible evolutions, paying close attention to the adjacent markets as well.

What is visible for now is the continued decline in the number of letters recorded for a number of years which is driven by the increase of electronic communication. Taking into account the commitment of the governments to encourage electronic signature, enhanced 5G mobile networks, the roll-out of Next Generation Networks (NGN) and the computer literacy of the people, it is hard to envisage a comeback of the letters within the foreseeable scenarios. There may also be a bottom line, depending on the situation in different countries (acceptance of electronic solutions, role of direct mail).

Nevertheless, the extent to which the decrease can be considered a steep downslope is to be judged by oneself from the data available from the public sources. The gradient of the line is important because the less dramatic it is, it gives time to the operators to adjust to market changes.

On a serendipitous note, the delivery segment across the entire postal market has witnessed increased number of parcels, both national and cross-border. This trend has been observed for a number of years and is encouraged by retailers, legislators and consumers to the same extent.

It is still yet to be seen if this is a temporary trend that will be balanced by the whole trading industry with impact on the delivery market or if it is to be perpetuated as result of the cost optimisation in terms of displaying the products and storage or of a galloping discretion of the individuals or any factor that may occur.

This chapter sets the target and the context in which we undertake our analysis. The questions addressed to the sub-group members can be found in the annexes.

The analysis of the number of letters and parcels undertaken in a number of reports¹ shows a general decrease in the number of letters and a general increase in the number of parcels. This trend is visible for a number of years and it has already started to impact the regulatory and commercial decisions.

1.3 Activities chain

The general postal flow is depicted in the chart below:

Chart 1 - The postal chain²



The actual consumption of activities is determined by the services to be delivered (e.g. the single piece letters may have a different flow to a registered item, either letter or parcel), the type of contract between parties (e.g. the single piece items use the entire flow while the bulk mail may accesses the network at different levels), the degree of automatic sorting etc.

¹ ERGP (17) 36 Report on Core Indicators for Monitoring the European Postal Market:
<https://ec.europa.eu/docsroom/documents/26961/attachments/1/translations/en/renditions/native>
 Main Developments in the Postal Sector (2013-2016) Study for the European Commission,
 Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs undertaken by Copenhagen
 Economics:
<https://publications.europa.eu/en/publication-detail/-/publication/d22799b5-bbb7-11e8-99ee-01aa75ed71a1/language-en>

² Studies on the Impact of Liberalisation in the Postal Sector On the Liberalisation of Clearance, Sorting and Transport, by CTcon for the European Commission, August 1998, available at:
https://www.anacom.pt/streaming/LibClear.pdf?contentId=74366&field=ATTACHED_FILE

The importance of the delivery function is the greatest considering the higher possibilities to incur economies of scale (and scope).

According to the Studies on the Impact of Liberalisation in the Postal Sector on the Liberalisation of Clearance, Sorting and Transport undertaken by CTcon for the European Commission³, there are a number of criteria relevant for the economies of scale applicable to each of the main activities. A summary of the main aspects as we understood them can be found in the table below:

Table 1 - Economies of scale

Activity	Fixed and sunk costs	Variable and indirect costs
clearance	connecting different points of access (street letter boxes, post offices, customers etc.) irrespective of the number of items	
sorting	automated sorting exhibits economies of scale because of sunk costs of the equipment	labour force is almost perfectly dividable, there are no sunk costs, and the production activities are mostly proportional according to the number of items
transport	fixed relations between geographic points (but could be undertaken by carriers); small and dedicated transport capacity within tight schedule	Choosing different means of transport as well as by changing their size
delivery	sequencing a large number of mail recipients; densely populated areas consisting of large buildings having only one centralised letter box system at the entrance door	the distribution of postal items in single house areas exhibits less economies of scale

³ https://www.anacom.pt/streaming/LibClear.pdf?contentId=74366&field=ATTACHED_FILE

These considerations extracted from the CTcon study are mainly attributed to the addressed mail. If the analysis would be extended beyond, it would need to include factors such as the increase in parcels which adds longer clearance activities, enhanced automated sorting, routes optimisation, increase in transport capacity and larger economies of scope in transport and delivery. Another parameter to factor in would be the scope of the universal postal services because the more flexibility in providing the services, the higher the cost variability, either in direct or indirect manner.

According to a study focusing on business to consumer cross-border parcel delivery⁴, scale and scope are included in the last mile cost drivers, together with behavioral and reach factors.

1.4 USO

The universal service area has a different scope throughout the countries⁵. This would have a direct impact on the delivery costs attributed to the universal service area and might be taken into account as a factor influencing the eventual differences between countries with respect to the percentage of the universal service delivery costs in total universal service costs.

1.5 Reference to other data

The delivery is increasingly impacted by the methods preferred by the customers. This refers to both letter and parcels as the main services provided.

As stated in the ERGP (16) 36 Report on Universal Services in Light of Changing Postal End Users' Needs⁶: "As for residential users, [...] for most postal users taking delivery of a parcel is dependent on someone being at the premises to receive it. Letters, on the other hand, do not require users to be at their premises in order for delivery to take place (except in certain circumstances for example where a signature is required)". According to the same report, the differences in the delivery of letters and

⁴ Cross-Border Parcel Delivery Operations and its Cost Drivers – Department of Transport and Regional Economics: <http://ec.europa.eu/DocsRoom/documents/15943/attachments/1/translations>

⁵ Annex 1 of the ERGP (17) 36 Report on Core Indicators for Monitoring the European Postal Market: <https://ec.europa.eu/docsroom/documents/26961/attachments/1/translations/en/renditions/native>

⁶ <https://ec.europa.eu/docsroom/documents/20672/attachments/1/translations/en/renditions/native>

parcels deepens when analyzing other factors such as the frequency of delivery and fades when the place of delivery is concerned⁷.

The development of e-commerce introduced additional concerns. The delivery is influenced by a receiving party pays model, where the receiver demands particular features for the services.

When choosing a service, the traditional methods are challenged by the users from the products purchased on-line to the devices used for the purchases, to the delivery providers and to the place of delivery.⁸

The Consumer Conditions Scoreboard⁹ includes additional information on the experience of delivery from the point of view of the e-shoppers.

In terms of underlying drivers for the delivery process, the models can be adjusted in order to achieve an optimization of the parameters at the operational as well as costing level. Different initiatives have been undertaken in order to estimate the cost structure of the entire process of delivering parcels in various contexts.

“Cross-Border Parcel Delivery Operations and its Cost Drivers” document includes estimations for a number of countries in the E.U.¹⁰

⁷ “According to the studies analyzed, delivery to the home or office premises is, in most cases, important for both businesses and residential users as well as for both letters and parcels services and, generally speaking, users are satisfied with current national provisions.”

⁸ <https://www.ipc.be/services/market-research/cross-border-shopper-survey>

⁹ https://ec.europa.eu/info/files/consumer-conditions-scoreboard-consumers-home-single-market-2017-edition_en

¹⁰ <http://ec.europa.eu/DocsRoom/documents/15943/attachments/1/translations>

2. The role of delivery costs

The delivery network can be partly deemed as multiple service (letters, parcels, unaddressed etc.) network system with large fixed costs (joint and common costs) that can be covered in case of economies of scale and scope and thus possessing characteristics of natural monopoly¹¹. At the same time, more than 10 years after full liberalization of the postal market, most of the designated universal service providers / incumbents enjoy a dominant position in the delivery markets.

Economic theory tells us that profit-maximizing companies tend to charge high prices in monopolized markets with unreasonable high profits which cause welfare losses for the private consumers. Such a potentially excessive pricing strategy with exploiting effects can be typically supposed for the C2X-letter and parcel markets targeting private consumers with low price sensitivity. In contrast, in competitive market segments (e.g. transactional and direct mail in some countries) serving high price-sensitive clients, the USP may charge low prices aiming at impeding competition and thus counteracting the main objectives of liberalization.

A regulatory framework for the postal sector considers the interests of users of postal services by inter alia promoting effective competition between postal operators, considering that competition contributes to economic welfare. An innovative attitude could as well help the whole industry avert the negative effects on letter mail resulting from 'e-substitution' (email, viewing bank statements and bills online and so on).

Nevertheless, the USP/incumbent is allowed to charge prices that also entail a reasonable profit. From an economic point of view, a reasonable profit is essential for efficient provision of universal services and innovations in services and processes, particularly in the light of declining letter volumes as consequence of e-substitution.

Accordingly, a regulatory framework that promotes competition and incentivizes incumbents' investments is a cornerstone for cost-effective and sustainable universal services at affordable price levels and ensures that the provision of universal services remains affordable in times of declining volumes.

¹¹ Indent 58 of the Guidelines on market analysis:
http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=51836

In some cases, for example where there is a price control or cost orientation requirement, the cost standard constitutes an important tool. The applied cost standard and thus the used allocation method largely affect the outcome of regulatory results with impact on the incumbent's business performance and successfulness of market liberalization.

A more detailed reference to costs and the reasoning can be found in the Commission staff accompanying document to a review of the European Postal Services Directive¹². Pursuant to this document, "Ex-ante approvals can help to ensure that prices of universal services are cost oriented and are therefore necessary where emerging competition might be damaged by universal service providers setting unreasonably low prices or consumers of universal service products or services might be damaged by universal service providers setting unreasonably high prices".

Regardless whether prices for the universal services are monitored in an ex-ante or ex-post procedure, the NRA or the competition authority may conduct a comprehensive cost-analysis that includes the delivery costs as the main cost component. This exercise allows verifying whether and to what extent the prices are cost oriented. A prerequisite for this assessment is the availability of detailed cost data deriving from the accounting system, preferably with Activity Based Costing (henceforth ABC) functionalities which provides an appropriate level of analysis of the direct and indirect costs and an explanation regarding why costs are incurred, focusing attention on key activities and services. The cost records may be prepared in a manner that reflects the underlying delivery processes. Such disaggregated data on the level of processes enables the NRA/the competition authority to verify the conformity of pricing strategies with the fundamental requirements of cost-orientation in line with the national sector specific legislation and the resources employed in delivery for other purposes as well.

Regardless of whether the NRA/the competition authority has to conduct a review of discounts within an ex-post procedure or to verify the single letter prices within a price-cap or cost orientation procedure, the NRA/competition authority may need comprehensive cost documentation with a breakdown of cost data into the different steps of the value chain, allowing it to identify excessive pricing as well as potential distorting and anti-competitive effects.

¹² Page 20 - <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52015SC0207&from=EN>

The table below shows the link between the concerned potential pricing strategies and the cost standard that may be applied for determination and allocation of delivery costs by the designated USP/incumbent and applied by the NRA/competition authority for verifying the compliance with regulatory provisions in accordance to the national legislation and the regulatory and competition objectives.

Table 2 - Link between pricing strategies and cost standards

Concerned pricing strategy / costing exercise	Applicable cost standard
Assessment of excessive pricing in ex-ante regulation	Fully allocated costs (FAC)
Assessment of predatory pricing in ex-post regulation	Long run average incremental costs (LRAIC) Average avoidable costs (AAC) Average variable costs (AVC) Average total costs (ATC)
Assessment of discriminatory pricing	Fully allocated (or distributed) costs
Equally Efficient Operator (EEO) - and Reasonably Efficient Operator (REO) - Margin Squeeze test	LRAIC (EEO or REO)
Access regulation	FAC/FDC
Net cost calculation	FAC LRAIC NAC
Efficiency assessment	FAC

2.1 Prevention of excessive pricing

In the field of universal service, policymakers as well as NRAs are concerned with the issue to prevent excessive pricing leading to high profits for the incumbents while exploiting postal end users. In turn, such profits may be used to cross-subsidize competitive services. Within a price-cap regime, incumbents may charge too high prices on a basket of services which may negatively affect a wide group of postal services. In such case, at a level of a basket of services, overall profitability measures may be used.

In an ex-ante procedure, the concerns are that, in the absence of competition, the incumbent may set prices significantly above cost level where they do not have a reasonable relationship to the costs of the delivery activities. When assessing the delivery cost, the NRA may examine the reasonability of the applied method of determination and allocation of the different cost categories of the delivery in order to check whether the applied cost standard affects the boundary between excessive prices and acceptable prices allowing a reasonable profit.

Taking into account that the universal services are provided in a common delivery network, the allocation of the costs of the delivery (the costs for the different in- and outdoor delivery processes, starting with the delivery offices or operating delivery unit and ending with the final sequencing and the delivery to the recipients) to the different universal and non-universal services may make the subject of disagreements between NRAs and USPs, specifically with regard to the allocation rules.

Delivery related joint and common costs need to be allocated in an appropriate manner. Some USPs may try to allocate the costs of the preparatory work done in the delivery offices and the costs for the basic walk largely to the universal services segment and considering the other segments incremental, which results in cross-subsidization of the more competitive segments. For example, in cases where letter, parcels and other postal items are delivered in an integrated delivery network, the USPs may try to allocate the common costs for the preparatory work and the basic walk to the letter segment.

In fact, these cost categories can be allocated using metrics for the utilization of the network elements. In the above mentioned case the costs of the preparatory work would thus be assigned to all services depending on process times as metrics for the network utilization.

2.2 Preventing predatory pricing

One of the competition concerns is that universal service providers could use their less-competitive traditional mail business to cross-subsidize competitive services outside the Universal Service Obligation (henceforth USO). This, in competition law, may lead to predatory pricing. When examining predatory pricing strategies the cost benchmarks often used are LRAIC, AAC, AVC and ATC.

Some of these approaches may tendentiously lead to an allocation of joint and common costs to the universal services area. In an extreme case, in the absence of competition in the universal service segments, the majority of these costs may be arbitrarily attributed to these segments while leaving the non-universal sector with the risk of cross-subsidisation and market-distortion effects jeopardizing the business activities of alternative operators in the competitive segments.

It can therefore be discussed to what extent joint and common costs are included in the test for predation. With reference to the high portion of common costs and the issue of replicability of networks by alternative operators, it can be argued that some fixed costs as part of the common costs shall be included.

Regardless whether the USP applies an incremental or the FAC method, in both cases the NRA/the competition authority could use detailed and disaggregated data for the main delivery processes. In case the documentation is prepared in a way that the NRA/competition authority is able to verify how the different steps of the postal processes, including last mile-delivery, are determined, this would be a plus.

An in depth-investigation of the delivery costs incurred for the provision of specific services can be based on the marginal/incremental costs. Part of the calculation that may be available to the NRA/competition authority is related to the cost of the specific indoor and outdoor delivery processes. When applying an AAC approach, it is advisable to use evidence regarding the expected cost-saving presuming that the service in question will be discontinued.

2.3 Preventing discriminatory pricing

In order to examine different price schemes with potential discriminatory impacts, the NRA/competition authority may carry out a cost benchmark by using the FAC standard or alternatively the LRAIC standard.

To this purpose, the level of detail of the records for the services in question is an important factor. In order to justify the differences in prices, the level of disaggregation of the cost data for delivery is the more usable the more it enables to recognize the differences of the processes and thus of the costs. Based on the total cost figures, the extent of cost-orientation for the different services may have an impact on the process of examination of the potential cost-based justification for price differentiation.

2.4 Margin-squeeze tests

Delivery costs play a role when conducting a margin squeeze test, particularly when it is related to the access to the network and its most requested segment, the delivery network. Margin squeeze tests have emerged in the context of competition policy with emphasis on protecting consumers from the potential abuse of a dominant position that the designated USP/incumbent may enjoy in a relevant market. Competition and regulatory policy and law seek to introduce competition into previously monopolistic markets. In various cases, European jurisprudence and administrative practice applied the concept of the equally efficient operator (EEO) and the reasonable efficient operator (REO).

When investigating margin-squeeze scenarios, the LRAIC standards play a pivotal role whereas the NRAs/competition authorities have to choose between the EEO and the REO concepts. Regardless whether the EEO or the REO tests are applied, in both cases the process of cost analysis involves the assumption concerning the network topology. To the purpose of the REO test, the cost data usually includes detailed information on the delivery costs of the alternative operator, embedding the fact that the entrant provides its services at lower level of economies of scale and scope, at higher unit costs than the designated USP/incumbent.

2.5 Access regulation

Some NRAs have developed distinct calculations for determining the costs of the access to the network. In this context the emphasis is often on the delivery network since it is the most difficult to duplicate and the most costly segment. The table below highlights the costs standards used by USPs and/or NRA in order to evaluate the costs of access to the network:

Table 3 - Cost standard¹³

Cost standard	Objective 1: Price control	Objective 2: Ex ante margin squeeze	Objective 3: Ex post margin squeeze	Objective 4: Other investigations	Objective 5: Financial sustainability	Objective 6: Other	Total
avoidable costs	2	0	0	0	0	0	2
FDC (FAC)	7	1	1	3	1	2	15
LRIC	0	0	0	0	0	0	0
other	1	1	1	6	1	1	11
Total	10	2	2	9	2	3	28

2.6 Net cost calculation

When assessing a net cost calculation, the NRAs have to deal with various issues surrounding the delivery costs, particularly taking into account the fact that the majority of alternative scenarios include an adjustment of this activity. The net cost calculation aims at identifying and quantifying the differences in the net costs of the Universal Service Provider(s) with and without the USO. It serves as a basis for verification and for assessment whether the net cost constitutes a financial burden. Based on the findings of the net cost calculation, the NRA can draw conclusions regarding the financial sustainability and efficiency of the provision of the universal service as well.

For such investigations, full disclosure in relation to the extent of common and joint costs of the delivery processes is advisable. Disaggregated data on delivery processes allow calculating the cost of different reference scenarios and determining the financial burden for the USP. For instance, by relying on delivery-related cost records, the NRA can calculate the cost savings when reducing the delivery frequency.

¹³ ERGP PL (17) 47 Report on costing access:
<http://ec.europa.eu/docsroom/documents/27013/attachments/1/translations/en/renditions/native>

2.7 Efficiency assessment

Another regulatory objective for assessing the costs of delivery is the evaluation of the efficiency of the USP. The optimisation of delivery is one of the main focus of the postal services providers and it translates into a number of operational and financial measures. The ERGP (16) 35 Report on Comparative Methods for Considering Efficiency of Postal Operators¹⁴ highlighted the fact that FAC is the prevalent cost standard used, while incremental or marginal costs are used only in two instances.

¹⁴ <https://ec.europa.eu/docsroom/documents/20823/attachments/1/translations/en/renditions/pdf>

3. Operational environment

The environment in which the postal network is operating has an impact both on the way the delivery is organized and on the financial performance of the USP.

Besides the evolution in the postal network of the post offices and delivery offices (e.g. replacing post offices by franchises, reduction of the number of post offices, moving sorting activity undertaken in the post offices to the delivery or sorting centers, modernization of the post offices with self service facilities etc.) the organization of delivery flow is adjusted as well (e.g. flexible workforce, sustainable delivery by electrical vehicles, bikes, increasing number of pick up points, re-evaluation of the delivery routes, integration/separation of networks, partnerships with different entities, centralization of delivery etc.).

Due to the reorganization (centralization) of sorting and delivery, there may be a shift of cost from delivery to sorting as some sorting activities were transferred from delivery men to sorting centers (see also 3.3.1). Therefore sometimes elements of sorting could be within the cost for delivery.

This chapter analyses both the circumstances and the actual operational conditions for delivery, highlighting the differences that may occur.

3.1 Market circumstances

While in letter markets the competition from other postal operators is low in most countries as shown in ERGP Report of Nov. 2017¹⁵, competition in parcel market is intensive in many countries.

Notwithstanding the reduced competition in the letter market coming from other postal operators, e-substitution leads to a decline in letter volumes. This decline started from different levels of mail volumes, in some countries this started from very high levels of number of letters per inhabitant. Furthermore, demographic (e.g. age, income, education) and geographical differences (e.g. islands, concentration of population in cities, infrastructure etc.) may lead to significant differences in the organization of delivery and in the cost structure between countries. The ownership of the USP (private

¹⁵ ERGP PL (17) 38, Report on recommendations and best practices in regulation for access to the postal network of the incumbent operator:

<https://ec.europa.eu/docsroom/documents/27011/attachments/1/translations/en/renditions/pdf>

or state-owned) may also have an impact on cost, as operators who are in majority private may pay more attention to the cost analysis and cost monitoring.

3.2 National circumstances

The environment in which the postal services and particularly delivery are undertaken has a direct impact on the costs incurred.

The ERGP (14) 23 Report on the benchmarking of the universal service tariffs has examined possible correlations between prices (**not costs**) and different parameters and found a moderate correlation between prices and labour cost. Other correlations were not found¹⁶.

3.2.1 Volumes

Besides the obvious developments in letter and parcel markets, it can be observed that there are significant differences in consumer behavior in different countries. The number of letters and parcels per inhabitant has a wide range¹⁷. This leads to very diverse economies of scale.

3.2.2 Demographic, geographic data, environmental issues

Some of the European countries are facing special conditions related with rural areas, islands, mountains and very sparsely populated areas. For those areas the cost of delivery may be even higher despite the services are offered at a minimum level (delivery once a week, delivery to street-boxes) and cost of labour is low.

Some postal operators are also considering sustainable ways of delivery, offering services on a carbon neutral or even carbon free basis, either on a voluntary basis or based on regulation.

¹⁶ http://ec.europa.eu/internal_market/ergp/docs/documentation/2014/ergp-14-23-report-on-benchmarking-the-universal-service-tariffs-fin_en.pdf

¹⁷ Figures 43 and 44 in the ERGP (17) 36 Report on Core Indicators for Monitoring the European Postal Market

3.3 Organization of delivery (and sorting)

The analysis of the cost of delivery requires detailed knowledge of the processes involved. From the data and the explanations offered by the ERGP members it is visible that the delivery is organized in many different ways. Differences stem from the obligations regarding the delivery frequency, the quality of service, the extent to which the model of home delivery is adopted, the transit time in rural or urban areas, the organization of joint or separate networks for letters, parcels and other services (e.g. unaddressed mail or newspapers). For example, unaddressed mail, which is not considered a postal service in most countries, can be distributed together with letter and parcels or using a completely or partially separated network.

Besides the parameters mentioned above, factors that may have an impact on the cost of delivery are wages, the use of subcontractors, number of delivery points, the degree of machine sorting etc.

The organization of sorting and delivery has a major impact on costs, therefore it is important to understand the differences.

The organization of delivery is changing or has changed due to market developments (decrease of letter volumes and increase of parcel volumes) and technical and operational opportunities (sorting machines, sequencing, route optimization etc.). For many years, postal networks were slanted towards letter services, as this was the main business for many decades. In most countries letter services are still the main business for postal operators¹⁸, but the declining volumes and the processing of sorting machines lead to an evolution of postal networks. The implementation of machine sorting had a major impact on the organization of delivery as well, particularly taking into account attributes such as sequencing.

As we have noticed from the data submitted as answer to our questionnaire, in the European countries the degree of machine sorting differs. In some cases it may be more efficient to maintain hand sorting as the capital expenditure for sorting machines may be too high. The use of sorting machines has a huge impact on the number of sorting centers. The degree of centralization of sorting and the level of sorting (up to route sequencing) differs across countries and is still developing. Sorting machines become more and more efficient and quality is still improving (e.g. regarding speed, quality of reading of hand written addresses, size of items handled by machines etc.). Although it is possible to sort up to the order of the

¹⁸ Chapter 4.4.2 ERGP (17) 36 Report on core indicators for monitoring the European postal market

route, for quality reasons some providers may stick to hand sorting at the last level, as addresses are not always correct and the deliverymen's knowledge cannot be transferred to machines so far. This may change with the development of AI (artificial intelligence). Another reason for hand sorting is that machines cannot sort all items.

Regarding the different organization of letters and parcels network, there are also divergent approaches across Europe. Sometimes there is only one joint network for letter and parcels, sometimes there is a joint network in rural areas but separated networks in urban areas and there are also countries with separated networks in urban and rural areas.

Changes in the delivery network concern the concentration of delivery offices, self-service terminals (mainly for parcels but also for letters for pick up and for clearance), delivering in the evening or Saturday or even Sunday. Another trend that affects parcel delivery is the increased speed of delivery. For same day delivery, the network has to be adjusted to have shorter delivery times.

Besides the differences in the organization, the cost of delivery is defined in different ways as well. In some countries, the cost of delivery is not singled out as a separate cost category. Due to the varying organization of sorting and delivery, the line between cost for sorting and cost for delivery is blurred.

3.3.1 Sorting

Since the rollout of machine sorting facilities (for parcels and for letters), the sorting is shifted from postal offices to specialized sorting centers. This centralization is advanced at different levels.

The level of machine sorting differs between 0% to almost 100%. But sequence sorting (sorting in the order of the route) is still being done by hand in many countries. Also the sorting done by delivery men has been centralized in most countries.

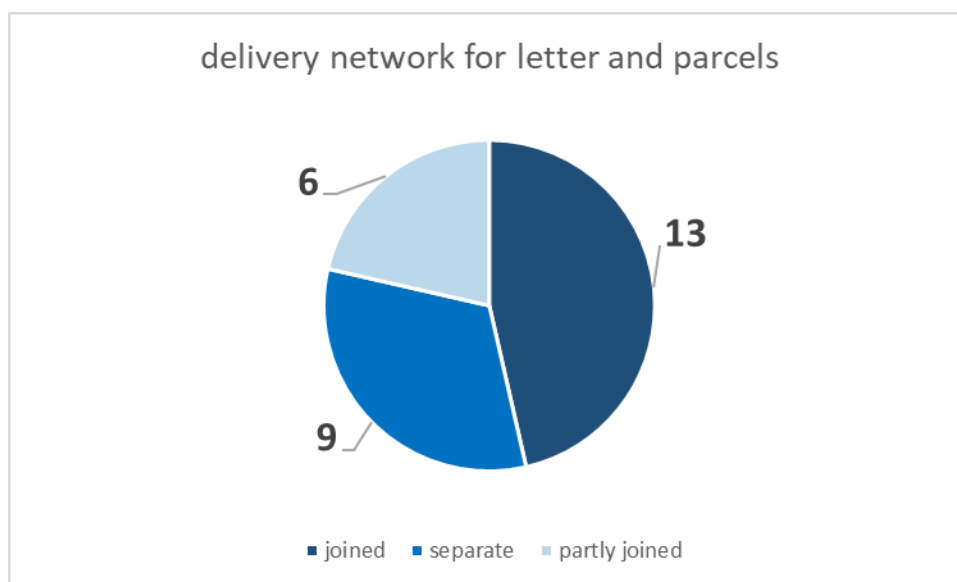
Taking this into account, the cost of delivery may still include elements of sorting although at a lower level than in the past.

3.3.2 Joint or separate network

While in most countries letters and parcels are delivered by the same delivery-person, there are some exceptions. In some countries the network for parcels is totally separated from the letters' network while in others this separation is only in some areas. There are also other services like newspapers and unaddressed items which are also delivered by one of the networks or even with a separate network.

In addition, where there are separate networks, some services can be provided by the 'other' network for efficiency reasons. For example, in the Netherlands registered mail (letters) are delivered with the parcel network (because the door bell has to be ringed for a signature) while small parcels are being delivered with the letters network (if they fit into the letterbox).

Chart 2 - Joint or separate delivery network¹⁹



3.3.3 Number of days of delivery

The national postal acts state, in line with the EU directive, a minimum number of delivery days per week. In recent years it could be observed that there are exemptions to these rules in some countries in

¹⁹ ERGP questionnaire, circulated May 2018

order to reduce the burden for the USP²⁰. At the same time there is also a trend to extend the delivery days in order to compete on the parcels market.

Five (5) days a week delivery is most common for letters with some exemptions. Only two countries (UK and Malta) have six (6) days of delivery for letters. In some countries, parcels are delivered 6 or even 7 days per week. Newspapers and periodicals are sometimes delivered more often than 5 days a week as well (e.g. on Saturday).

3.3.4 Rural/Urban

The strategies for rural and urban areas are different. According to the exemptions of delivery mentioned by the NRAs, some USPs may limit services in rural areas as population density is low and the time dedicated to the routes is high. In order to save costs, there is an increasing trend to limit daily home-delivery in sparsely populated areas. Another approach is to limit universal service obligations in urban areas taking into account that people in urban areas have alternative solutions in place (alternative operators, parcel lockers, newspaper-delivery-services, all kind of shops etc.).

3.3.5 Quality of Service

The quality of service (in terms of both targets and practice) is not homogeneous throughout the European countries as shown in the ERGP Report of Dec. 2017²¹ and there is an increasing propensity to reduce it.

²⁰ In April 2018, Poste Italiane started the implementation of a new delivery model, called "JOINT DELIVERY" that will be completed by 2022. This is a flexible model, based on expected volumes and client needs. In this model delivery is differentiated on the basis of delivery area. In large metro areas (8% of pop., 600 daily items/km²):

- Daily morning delivery for standard mails;
- Daily additional afternoon delivery for parcels and registered mails;
- Weekend delivery on the basis of consumer needs.

In urban areas (68% of pop., 80 daily items/km²):

- Alternate day morning delivery for standard mails;
- Daily additional afternoon delivery for parcels and registered mails;
- Weekend delivery on the basis of consumer needs.

In rural areas (24% of pop., 10 daily items/km²):

- Alternate day delivery.

²¹ ERGP PL (17) 35 ERGP Report on Quality of service, consumer protection and complaint handling: <https://ec.europa.eu/docsroom/documents/26962/attachments/1/translations/en/renditions/native>

When it comes to the exemptions for delivery, besides the safety reasons, remote rural areas are most often mentioned as the object of differentiated regulation and only in few cases urban areas. The exemptions mentioned are applied in different manners: reduced number of delivery days, delivery to boxes on main roads or even no delivery under certain circumstances. The restrictions are mostly driven by economic reasons but sometimes also force majeure. These exemptions are subject to primary or secondary law. Parcels are sometimes not delivered to the recipients address but to local store/office or to the USP's counter.

Exemption of delivery may reduce cost significantly. But as partly seen in the parcel segment of the sector, delivery frequency is in practice higher than the USO requirements when competition is in place.

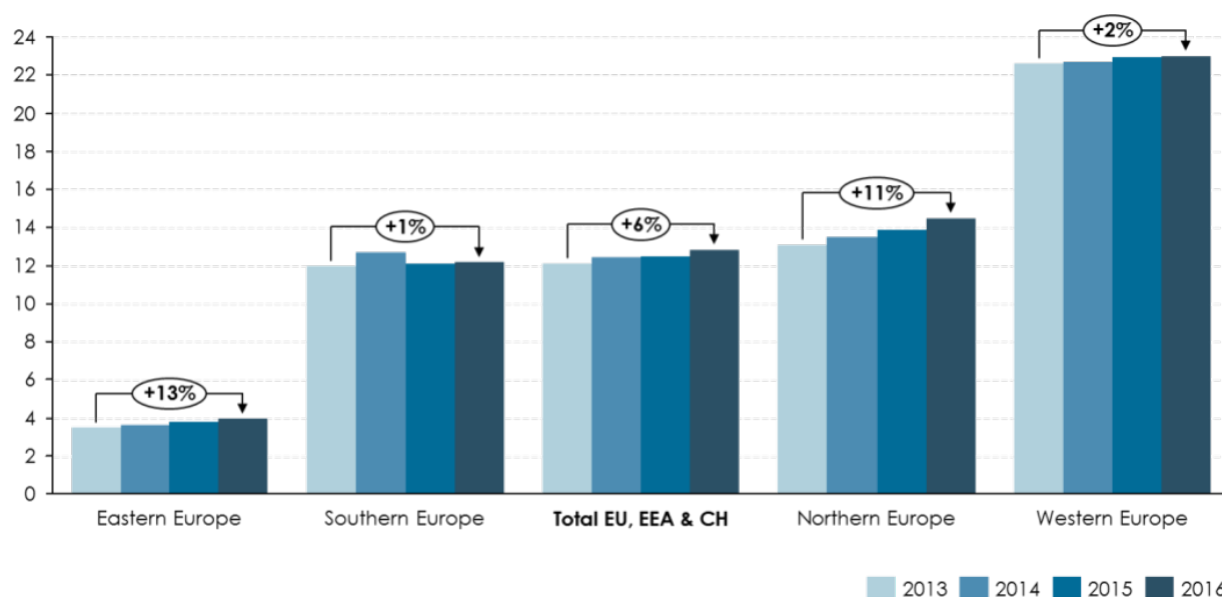
3.4 Pay conditions, subcontractors

For a long period, most of the postal operators were state-owned and the staff was formed by civil servants. Due to privatisation and liberalisation as well as due to the competition from other providers and volume decline, there is a high pressure to reduce costs. As in postal services labour is a main part of costs, full time employees are replaced partly by other solutions, such as part-time employees and sub-contractors. This offers the opportunity for postal operators to react more flexible on market developments. This process is observed in different degrees throughout Europe. For some operators it may be a challenge to reduce labour cost as fast as the volumes and revenues in letters market declines, while for others it may be a challenge to find workforce when needed, exacerbated by the e-commerce boom.

Some operators, especially but not limited to new entrants, work together with independent mail deliverers who are often paid under contract agreements different to the USP (e.g. without labour conditions regulated under a collective labour agreement). The legal frameworks for such conditions are different from country to country and may lead to different costs for delivery.

The following table shows the differences in labour costs across Europe, which may also have an effect on delivery costs. But even when having very low labour cost per hour it doesn't mean that the cost to deliver one item is less than in other countries. In some of the countries with very low labour cost the items per inhabitant is low and thus no economy of scale can be incurred.

Chart 3 - Average gross nominal hourly wages at USPs (EUR/h)²²



Note: The average salary is calculated as unweighted average across the USPs that provided an answer. The figure includes the following 26 countries: AT, BG, CY, CZ, DK, EE, FI, FR, EL, HU, IS, IE, IT, LV, LT, MT, NL, NO, PL, PT, RO, SK, SI, SE, CH, UK. Corresponding to 4 countries out of 8 for Western Europe, 6 countries out of 6 for Eastern Europe, 6 countries out of 8 for Southern Europe, 10 countries out of 10 for Northern Europe.

Source: Questionnaire to USPs

²² Main Developments in the Postal Sector (2013-2016) Study for the European Commission, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs undertaken by Copenhagen Economics:
<https://publications.europa.eu/en/publication-detail/-/publication/d22799b5-bbb7-11e8-99ee-01aa75ed71a1/language-en>

4. Measuring and allocating costs of delivery

4.1 Introduction

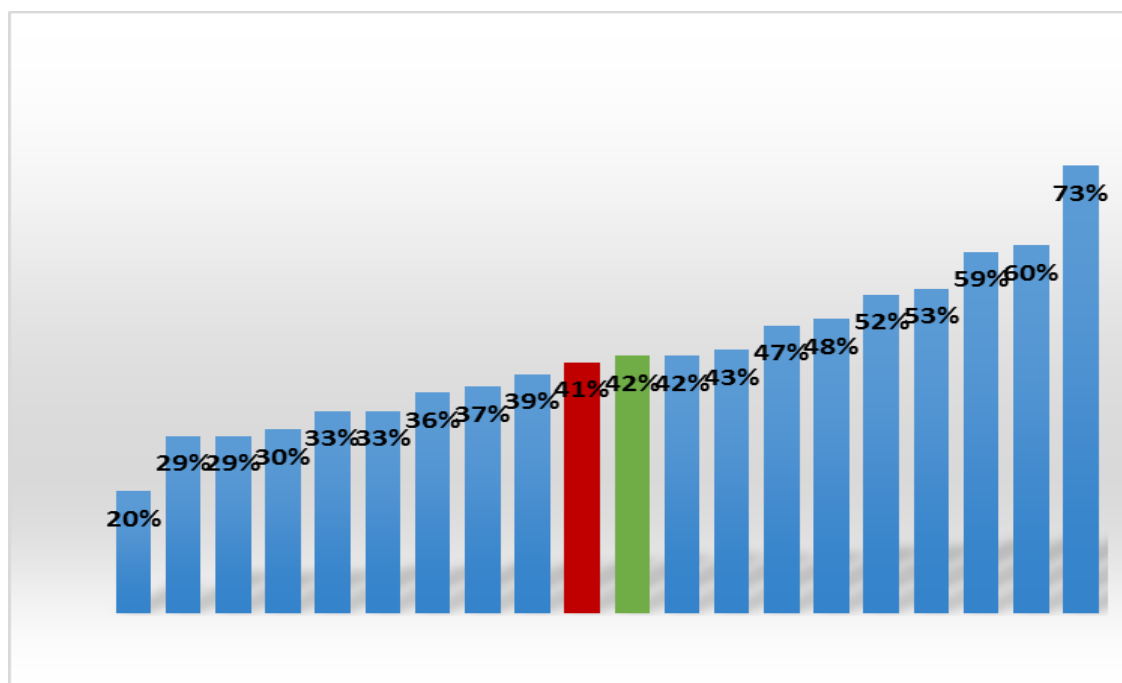
This section summarizes the results of the questionnaire which was submitted to all NRAs for this study, with relation to the costing methodologies and standards used by incumbents and NRAs in the assessment and allocation of delivery costs. For the purpose of providing some background information about the different approaches, a brief explanation of the cost standards, data types and modelling approaches that can be applied to determine the relevant delivery costs are given below.

The application of a particular cost standard depends on the objective, the competitive environment and/or legal provisions and may have a significant impact on the evaluation of the service.

4.2 Relative size and structure of delivery costs

The delivery function is typically the most costly part of a universal service postal network with a significant proportion of the delivery costs being the people costs.

Chart 4 - Proportion of delivery costs to total costs



Based on the answers received, the proportion of the costs associated with delivery lies in the range: from 20% to 73% of the total costs (Chart 4 - Proportion of delivery costs to total costs). The average value is 42% and the median 41%²³.

We note however that the definition of the delivery function is not consistent across the USPs and NRAs, for example, some of them include the final stages of sortation carried out in delivery offices in the delivery function while others see delivery as only the activities of the conveyance of mail over the last mile to the final recipient. This sort of differences may account for the wide range observed in the chart above.

It is worth noting that the evolution of the proportion of delivery costs to total costs has remained relatively the same for almost all the countries²⁴ with some minor exceptions being Portugal and Belgium with a 3% and 2% decrease respectively.

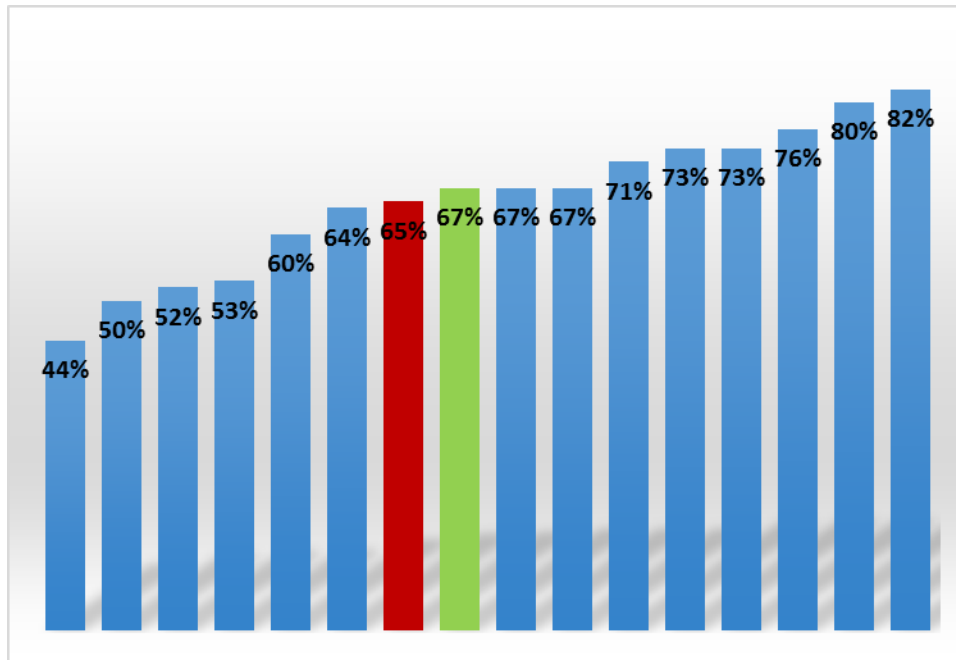
The results of the questionnaire also show that labour costs comprise the largest category within the delivery costs. In most cases the proportion of labour costs is reported to be over 50% of the delivery costs, with the average value at 65% and the median value at 67%. The results are shown in the following chart²⁵.

²³ Depicted in Chart 4 - Proportion of delivery costs to total costs as green bar and as red bar respectively.

²⁴ The data collected are for the years 2012-2016.

²⁵ Depicted in Chart 5 - Proportion of labour cost within delivery costs as green bar and as red bar respectively.

Chart 5 - Proportion of labour cost within delivery cost



Regarding the evolution of the proportion of labour cost within the delivery cost, this has largely stayed the same²⁶ without any considerable changes.

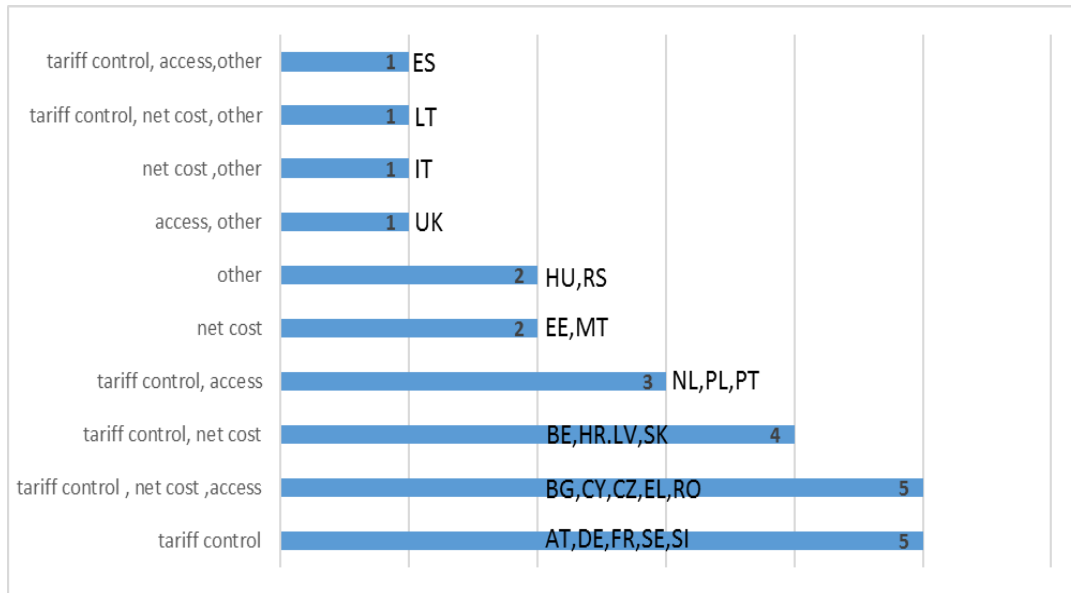
4.3 Objective for delivery cost assessment

NRAs carry out the delivery cost assessment mainly for the purposes of tariff control and net cost calculations of the USO.

According to the answers, 19 out of 25 countries (76%) included tariff control as an objective for delivery cost assessment, while 13 out of 25 (52%) included the net cost of the USO calculations, and 10 out of 25 (40%) included regulation of access.

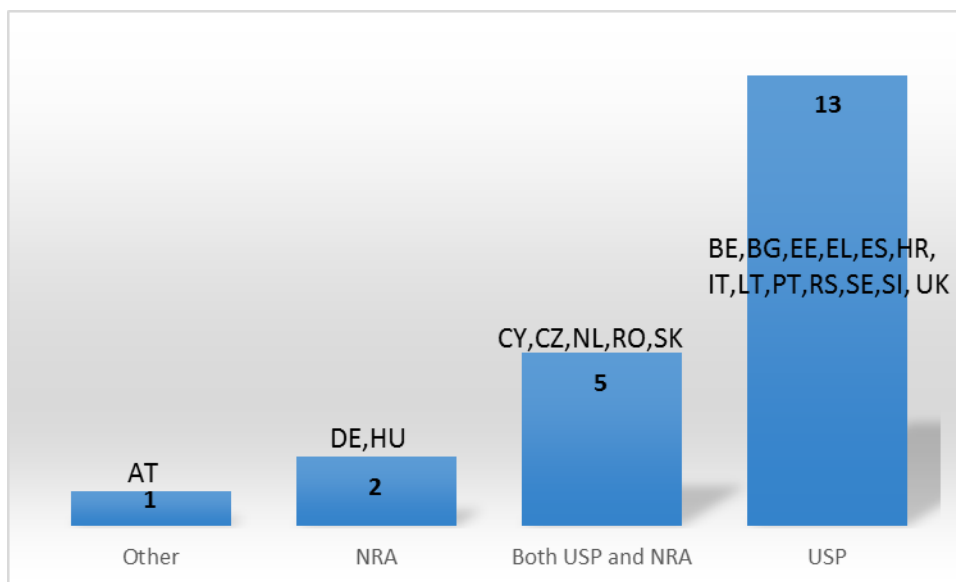
The following chart shows the results in further detail:

²⁶ From 2012 to 2016.

Chart 6 - Objectives for delivery cost assessment


Other objectives for the delivery cost assessment referred to by the NRAs are monitoring financial sustainability, assessing efficiency of the provision of USO, monitoring competition issues and impact on consumer interests (UK), accounting separation purposes (ES, HU, and LT) and margin squeeze tests (IT).

With respect to the costing exercise, in the majority of the countries (17 out of 21) the USP was the one who has undertaken it. The results of the responses are presented in the chart below.

Chart 7 - Who has undertaken the costing exercise of the delivery cost?


4.4 Cost allocation methodologies and standards²⁷

Activity Based Costing (ABC) in combination with FDC is the predominant methodology and standard used respectively by most NRAs for the assessment of delivery costs, with only three exceptions:

- in the UK, in addition to the ABC, zonal costing is used for the purposes of regulation of zonal access (see chapter 5 for further details in the UK case study);
- in Sweden, in addition to the ABC, Stand Alone Costs (SAC) methodology is also used for costing delivery and
- In another country, a bottom-up model is the basis for the ABC costing for delivery and both historical and forecasted volumes and costs are used in the analysis.

4.5 Modelling and cost base

Based on the answers to the questionnaire, the prevalent type of cost modelling is Top-Down and the cost base is historical costs.

4.6 Allocation drivers

Volume is the main allocation driver for all the countries that provided answers. Distance and staff time were also included in many of the responses.

²⁷ Information regarding such methodologies and standards can be found in the following ERGP report: ERGP (12) 28 Rev. 1 – Common Position on cost allocation rules

Table 4- Allocation drivers

Country	Distance	Size	Staff time	Volume	Weight	Other
Austria	-	-	-	√	-	√
Bulgaria	√	-	√	√	-	-
Croatia	-	-	√	√	-	-
Cyprus	√	-	√	√	-	-
Czech Republic	√	-	√	√	√	-
Estonia	-	-	-	√	-	-
Greece	-	√	√	√	√	-
Italy	√	-	√	√	-	-
Lithuania	√	-	√	√	-	√
Malta	-	-	-	√	-	-
Norway	-	-	-	√	-	√
Portugal	-	-	-	-	-	√
Serbia	-	-	-	-	-	√
Slovakia	-	√	√	√	-	√
Spain	-	-	√	√	-	√
Sweden	-	-	√	√	-	√
UK	√	√	√	√	√	√
Country 1	√	-	-	√	-	√
Country 2	-	-	-	√	-	-
Country 3	-	-	-	-	-	√
Country 4	-	-	√	√	√	-
Country 5	-	-	-	√	-	√

Some countries use various other allocation drivers. In Austria, the other refers to cost forecast, while in Lithuania it applies to overhead surcharging. In Norway, the product type is taken into account. Interesting cases can be found in Portugal with the main cost driver being the Equivalent Mail Unit (EMU) based on a single normal letter delivery time and in another country where the salaries allocation drivers are the number of items and the time allocated to the actual delivery and the number of items for the distance. Additionally, other allocation drivers in this country are the number of staff for the equipment used by employees, the direct allocation of the terminal dues paid, the expenses related to the area are allocated based on the surface and then based on the number of items and time allocated, the cash amount in case of money postal orders or other cash based services. Serbia uses a combination of volume and staff time and Slovakia uses the number of processes. Spain allocation drivers include amortisation, number of computers, repairs, revenues and transport costs and Sweden a format of combined size/weight.

4.7 Work undertaken to understand the impact of mail volume trends

In recent years, significant factors such as the structural decline in letter mail volume and the increase in parcels volumes and sizes (in some countries) have been at play, and the frequency of delivery has emerged as an important factor that could significantly affect the delivery costs and the costs of the provision of the USO in general. Despite these developments, it seems, from the responses to the questionnaire, that few NRAs or USPs have undertaken an assessment of the relationship between the volume changes, the delivery frequency and the costs of delivery.

Specifically, only Cyprus, Czech Republic, Greece, Italy, Lithuania and the UK have examined the impact of the evolution of market and the trends that might have in the delivery costs. The results are presented in the table below:

Table 5 - Factors affecting delivery costs

Country	Volume of letter mail delivered	Volume of parcels delivered	Number of delivery days per week	Changes in delivery methods
Cyprus	-	-	√	-
Czech Republic	√	-	√	-
Greece	√	√	√	√
Italy	-	-	√	√
Lithuania	√	√	-	-
UK	√	√	-	-

4.8 Conclusion

The proportion of the costs associated with delivery lies in the range from 20% to 73% of the total costs (in average, more than 40%), suggesting the delivery costs are one of the largest if not the largest cost component of the postal network. Labour costs comprises the largest cost within delivery costs, in most cases more than half (and in average, around 2/3 of the delivery costs).

The delivery cost assessment is carried out mainly for the purposes of tariff control and net cost calculations of the USO and it is undertaken mostly by the USP.

ABC and FDC are used as the preferred costing methodology and cost standard respectively. The prevailing cost modelling approach is top-down using historical cost as a cost base.

Annex 1 Costing of delivery case studies

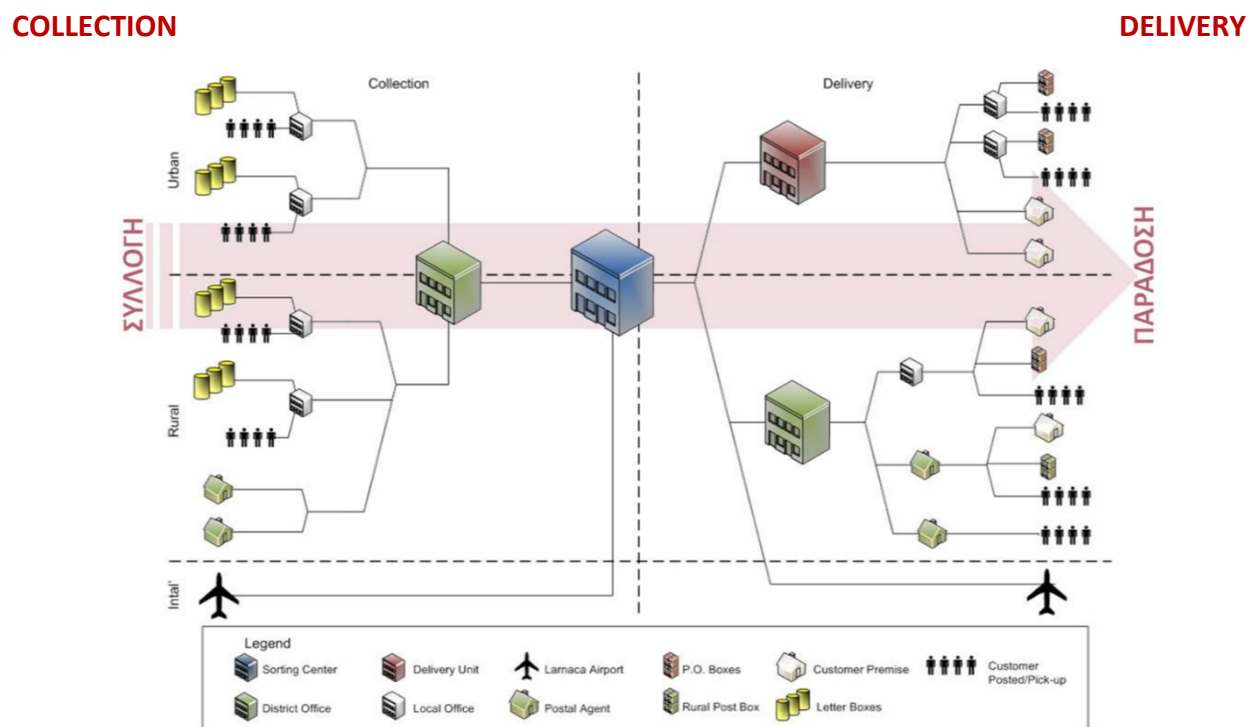
1. Cyprus- OCECPR

1.1 Delivery operations

Cyprus Post²⁸ which is the designated universal services provider in Cyprus collects, sorts, transports and delivers 5 days a week (Mon-Fri) in urban and rural areas, both universal services and non-universal services.

The high-level overview of the Cyprus Post distribution chain is presented in the diagram below:

Diagram 1 - Cyprus post distribution chain



²⁸ Cyprus Post (Department of Postal Services) is a department of the Cyprus Ministry of Transport, Communications and Works.

Delivery activities are labour intensive and form the largest cost in the network compared with the other elements.

The delivery activities consist of:

- Counter activities at the postal offices (for delivery of postal items)
- Delivery conveyance to local offices and postal agency in rural areas
- Delivery conveyance to local offices in urban areas
- Delivery to postal addresses in urban areas
- Delivery to postal addresses in rural areas
- Delivery to P.O.Boxes at local offices urban areas
- Delivery to P.O.Boxes in rural areas
- Delivery to postal agencies
- Delivery support

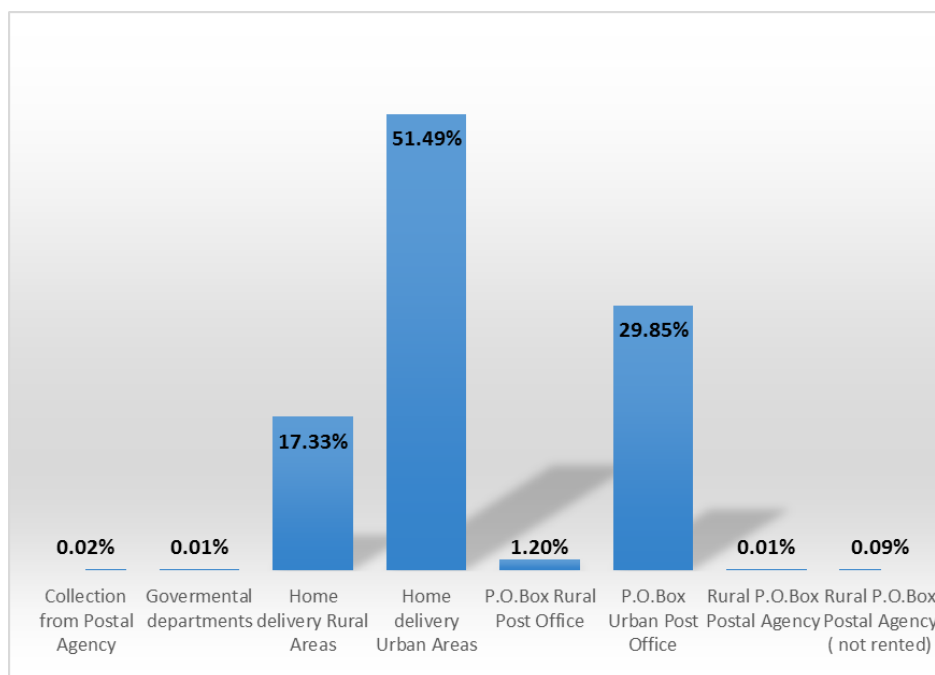
The home²⁹ delivery in urban areas represents the largest activity in terms of volumes within the delivery function followed by delivery to P.O.Boxes³⁰ located in postal offices in urban areas and the home delivery to rural areas.

The following chart shows the percentages of the volumes of the various activities within the delivery function.

²⁹ Includes delivery to both houses and businesses.

³⁰ P.O.Boxes are boxes that are rented to customers and are located in the postal offices. Customers have access to their postal boxes without the need to enter the office.

Chart 8 –Percentages of volumes of activities within the delivery function



1.2 OCECPR's role and objectives of costing delivery

The objectives of the assessment of the delivery costing are:

- Tariff control
- Net cost of the USO
- Regulation of the provision of access to the postal network

According to the National Communication Law 112 (I) /2004, OCECPR ensures that the postal tariffs are cost oriented and provide incentives for the efficient provision of the universal service. In addition, the Postal Services Order states that the Costing System of the USO (which supports tariff control) has to incorporate among other principles the efficiency factor.

Relevant secondary legislation exists related to models and methodology used to allocate all costs including delivery costs.

1.3 Costing methodologies

Cyprus Post is obliged to develop a costing system that incorporates the principles of efficiency, non-discrimination, transparency, objectivity, significance and distribution of costs. Its costing standard is FAC with an ABC cost standard calculated by a Top-Down model using historical costs.

To fulfill its regulatory purposes regarding the assessment of the Cyprus Post costing system, OCECPR has developed a Bottom-Up (BU) cost model that simulates the cost of services offered by the Cyprus Post to calculate retail as well as wholesale prices.

The main features of the OCERPR Postal BU-Model are:

- It is based on an efficient operator.
- It meets the current demand volumes.
- It uses the existing network topology.
- It is Bottom–Up with historical data from the Cyprus Post accounts.

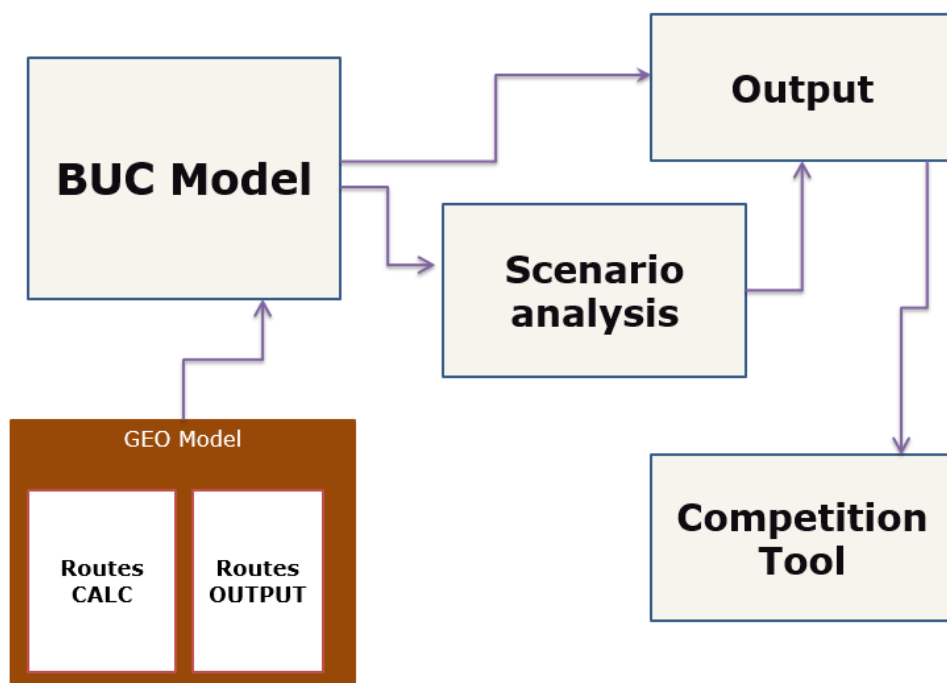
1.4 The OCECPR Postal BU-Model

The OCERPR Postal BU-Model (BUC Model) covers all the activities at each stage of processing and handling postal items.

Diagram 2 - Postal Activity Chain



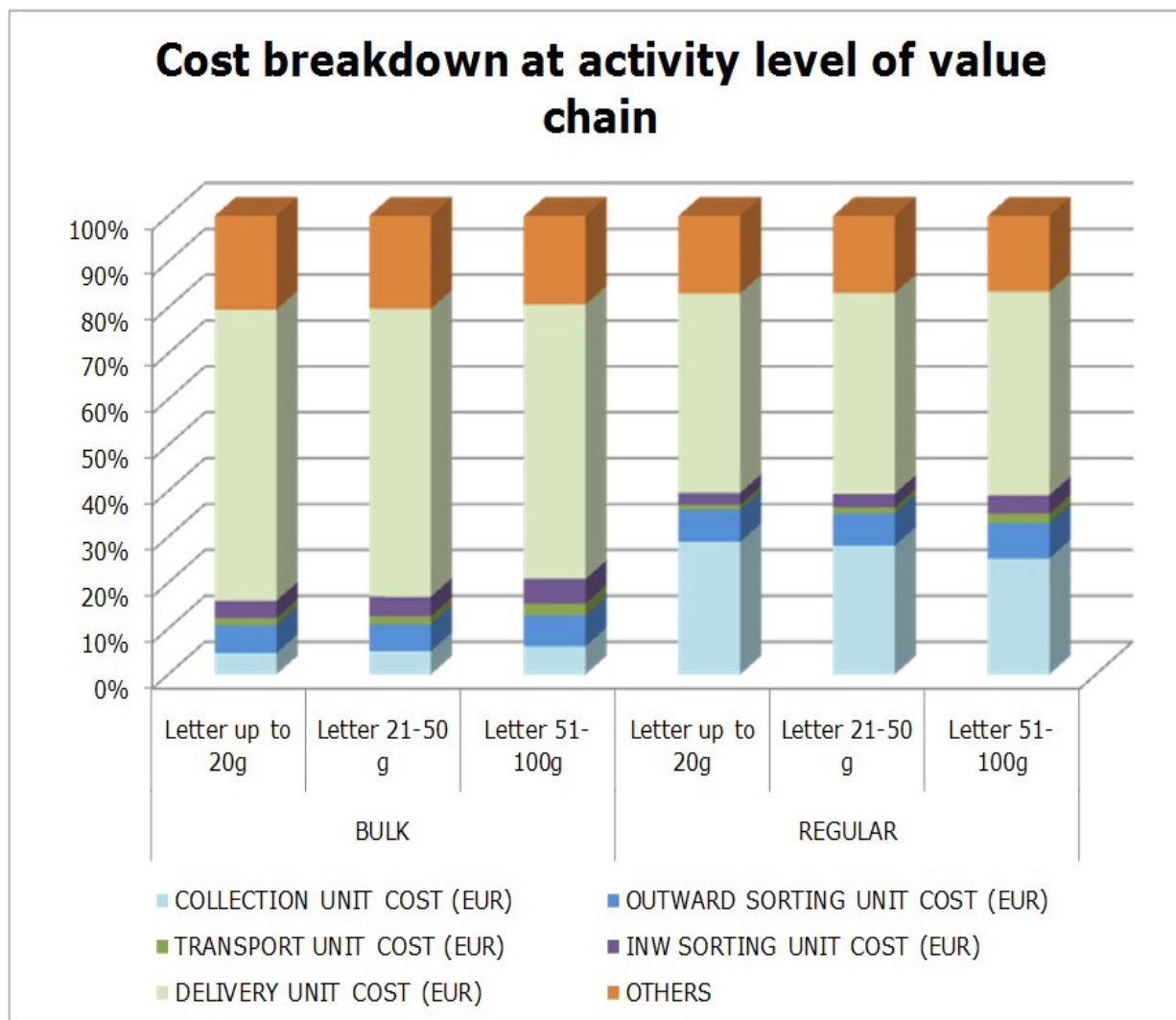
Diagram 3 - OCECPR Postal BU-Model



The BUC Model³¹ provides all the necessary costing information including the cost breakdown at activity level of the value chain (see diagram below):

³¹ The BU Model reflects an efficient operator. The GEO model within the BU model is a geographical representation of the postal routes.

Chart 9 - Breakdown at activity level³²



The results of the cost accounting system of Cyprus Post for both the retail and the wholesale services are assessed and compared in relation with the results of costing models of OCECPR, which is based on the average total cost methodology (ATC) for the same retail and wholesale services. The ATC is calculated to be the average cost associated with the provision of all relevant postal services, taking into consideration efficiencies and a mark-up of relevant general and administrative costs.

³² The other costs includes corporate expenses, marketing and advertising and general and administrative expenses.

The costs quantified are those of an efficient USP, calculated in terms of the resources employed to serve the actual demand and the existing network of the USP in Cyprus. For example, the network is dimensioned assuming a scorched node³³ approach for the main network nodes (local offices, district offices, sorting centres). A uniform distribution is assumed for the other network elements such as customer premises and letterboxes.

For the efficient provision of the universal service, adjustments were made in the OCECPR's model to the entire postal process. For collection, the adjustment was made to the human resources needed; for sorting, the adjustment was made also to the human resources for the non-automated activities. For transportation, the adjustments are focused both on human resources and vehicles needed and finally for delivery the adjustment was made to the human resources.

Also with the BUC Model Competition Tool³⁴ OCECPR can run various scenarios regarding the tariff level as it is depicted in the chart below³⁵:

Chart 10 - Competition Tool



³³ Scorched node approach assumes the already existing nodes and does not assume any new nodes.

³⁴ The Competition Tool is a model of analysis of the replicability of Cyprus Post retail tariffs based on BU Model costs results.

³⁵ The chart depicts the scenario for domestic simple mail. Similar scenarios can be run for bulk mail and parcels.

The results of OCECPR costing model based of the average total cost methodology (ATC) for retail services are used against the retail price of the postal item. The Average Total Cost (ATC) is calculated to be the average cost associated with the provision of all relevant postal services, taking into consideration efficiencies and a mark-up of relevant general and administrative costs.

In considering the various methodologies, OCECPR excluded FDC and LRIC because the former includes the inefficiencies of the USP where calculations based on the latter would have resulted in very low non representative prices due to the fact that postal operation have limited capital expenditure. OCECPR believes that tariffs priced with ATC (with the necessary efficiency adjustments) provide a fair valuation that allows the USP to recover their costs and at the same time provide enough margin for the other operators to make a profit.

2. Germany – BNetzA

2.1 Delivery operations

Deutsche Post AG implemented a nationwide logistic network with 34 inward and outward freight sorting facilities for tracked parcels and 83 inward and outward sorting facilities for letters (single mail, transactional mail and direct mail). In delivery, the incumbent differentiates between the stand-alone delivery processes for letters and parcels in urban regions and urban agglomeration areas on one side and the joint delivery processes preferably in the suburban and rural areas. In 2017 Deutsche Post set up 17,900 stand-alone mail delivery operating units, 4,481 stand-alone parcel delivery operating units and 33,700 joint delivery units, in which approximately 100,000 postmen are employed and deliver annually more than 13.5 billion letters and 2.5 billion parcels to 43 million households 6 days a week.

For the purpose of price regulation, the delivery process can be subdivided into the following sub-processes:

- Administrative processes involving workforce and capacity management
- Indoor activities involving final sortation and the preparatory work for the subsequent walk of the postman; consolidating BZE³⁶-presorted mail with other postal items and non-postal items (unaddressed mail)
- Outdoor activities involving the outward and return journey, the basic route, the final sequencing, and the posting letters in the letter box

The delivery network, including the delivery bases and the incumbent's delivery staff, is characterised by a very large proportion of fixed labour costs. The delivery costs refer to the infrastructure, including the operation and maintenance of the delivery bases and the payroll costs related to the sorting workload at the delivery bases and the subsequent delivery activities to addresses.

³⁶ Briefzentrum-Eingangsbearbeitung (BZE) = inward sorting centre

2.2 Relevance of delivery costs for regulation

Delivery costs have an important role in price-regulation. Often, the German NRA, BNetzA, assesses and calculates delivery costs, when:

- examining the efficiency objectives and determining the x-factor within the context of price-cap regulation
- verifying discount schemes for bulk mail and identifying pricing strategies of the incumbent that take form of selective price discounts

In both cases the NRA conducts an in-depth analysis of the incurred delivery costs involving the underlying delivery indoor and outdoor activities with an emphasis on the potential for rationalization of operational procedures. To this purpose, the NRA relies on the concept of Long Run Average Incremental Costs (LRAIC) that allows the specification of price floors and ceilings in order to ensure the compliance with cost orientation obligations in regulatory environments.

The following paragraphs provide an overview of the cost analysis carried out for price regulation and subsequently discuss the elements and specifications to be considered when establishing a LRAIC calculation.

2.3 Role of delivery costs in the ex-ante procedures

A challenging task for the NRA is to determine the x-factor as a metric for efficiency and productivity which are interlinked with delivery costs. It is of utmost importance to forecast delivery costs taking into account potential changes such as volume decline which undoubtedly influences the level of unit costs for letter items. In order to objectively quantify these effects, the German NRA uses metrics based on cost-volume relationships and functions which are based on observations of the past performance and are also extrapolated for future years. The costs of letter conveyance are largely dominated by staff and depend on the anticipated volume figures.

For the forecast of the volumes in the different letter segments, the German NRA not only relies on the figures submitted by the incumbent, but also looks at publicly available information. A valuable source for the forecast constitutes a publicly available study of a consortium of scientific institutes evaluating the impact of digitalization on the letter market (TAB-study). In this paper they describe the fundamental market developments aiming at providing recommendations to the political institutions. In conjunction with the measured and recorded volumes as a baseline, the forecast in this study allows to objectively estimate volume changes. The NRA relies on these findings and uses the data included in it as the basis for its LRAIC-calculation.

2.4 Derivation of a cost-volume relationship

Information about the cost-volume relationship is needed for recalibrating the relevant cost to be included in the cost base for determining the x-factor, i.e. to quantify the cost effect resulting from the forecast volume changes.

To this purpose the German NRA analyses the cost drivers aiming at finding the cost-volume relationship as the basis for the cost function. As representation of the economies of scale and scope, unit costs for collection, sorting and delivery rise when mail volumes decrease when considering the same cost base. To quantify these effects, first the NRA reviews the delivery activities. The main objective of this exercise is to evaluate, in particular, the extent of variability of costs depending on volumes. The resulting effects are computed using a cost function. As a result of these reviews, the NRA has found that the sorting and delivery processes are largely fixed costs.

The delivery cost function is driven, among others, by factors related to the network topology (number of delivery bases and districts) and to the characteristics of the delivery sub-processes. The cost function is also driven by structural factors related to mail characteristics (format, volumes per sender, pattern of settlement etc.).

2.5 Network operation

Concerning the network topology, the NRA's cost assessment is based on the considerations that the delivery network, including the delivery bases and the delivery staff, are characterized by a very large proportion of fixed costs.

Volume decline that deviates only to a small extent from the forecasted volumes would have scarcely any impact on the number and the facility space of the delivery bases or size of the delivery areas. In order to operate nationwide, the incumbent must maintain a delivery organization with delivery bases in the rural areas. The network capacity must be organized in such a way that:

- deliveries can continue to be made without disruption and malfunctions of the operational processes even when there are fluctuations of mail volume at various times during the year; and
- there are no breakdowns of service caused by time related capacity and other bottleneck problems.

Consequently, the capacities of the delivery bases must be dimensioned at a level which will ensure that there is no need to make organizational changes to respond to slightly higher mail volumes. The delivery infrastructure capacity cannot be adjusted at short notice for single days at a time to a lower delivery volume. In view of the uncertainties surrounding the forecasts of future mail volumes, the incumbent will only take organizational measures, including merging of bases, when a trend has been confirmed over a long period.

For the purpose of LRAIC calculation and the relevant period for price cap regime, the NRA assumes that the delivery costs associated with the network infrastructure can be seen as fixed costs in the short term.

2.6 Assessment of the delivery operational processes

The assessment of the delivery operational processes allows the NRA to draw detailed conclusions with regard to the cost sensitivity.

From the activity analysis, the NRA has found that the costs related to the outward and return journeys depend mainly on distance, particularly on the distance between the delivery base as starting and ending point of a delivery route, and also on the type of vehicle used. The costs for this sub-process are to a large extent independent of the volume delivered. Additional costs for the outward and return journeys only have to be included if capacity bottlenecks resulting from corrected volume forecasts have requested an additional mail carrier or a different vehicle. Consequently, these costs can be deemed as fixed costs.

On the other hand, the majority of process-related costs arising from delivery work must be regarded as predominantly fixed in the short term and a reduced proportion can be considered variable only to the extent they can be adjusted in the real life situation. The basic routes in the delivery areas, which must be handled by the postman, on foot or otherwise, in order to reach recipients' addresses, must be regarded as fixed, as they incur irrespective of mail volumes and therefore constitute fixed costs. Because of the nature of fixed costs, a rise in mail volume leads to a reduction of the average cost per delivered item. Based on the above, the NRA has concluded that the activities linked to delivery processes can be seen as predominantly fixed costs.

In the price cap decision ³⁷, the NRA has comprehensively examined the cost characteristics of the delivery costs. Referring to the specific sub processes that mirror the walking related-activities the NRA has found that the walking processes can largely be regarded as fixed costs:

“The extent to which access roads also have a fixed cost component becomes clear from the following considerations. In the specialist literature on the regulation of business operations a distinction is made, depending on population density, between densely populated areas, rural areas, towns and cities (cf GfK Bevölkerungsstrukturen 2006: Vom Gesamtmarkt zum Straßenabschnitt). For deliveries in densely populated areas, towns and cities the access road can be regarded as a fixed element. On the assumption that a household receives two hundred mail items per year (cf Benjamin Rasch, Wettbewerb durch Netzzugang, page 131), it can be assumed that each recipient receives a letter on two days out of three. In that case every access road with at least two addresses must be covered by the mail carrier daily. Only for the rural area segment access roads can come into the variable category. True, there is the possibility of

³⁷ Price-cap-decision 2015; BK5-15/012

using joint delivery of letter and parcel items, which would mean that the proportion of variable costs would be reduced even further. But this applies only to some of the delivery areas, so for reasons of simplification the access road costs for rural deliveries are taken together and classified as variable. On the basis of the Federal Statistical Office's population density data and having regard to the above-stated classification model, 15% of households are included into the rural delivery cluster. The costs of delivery to the other households are regarded as fixed.

The overall conclusion is that the process costs attributable to the basic route are, as shown here, regarded as fixed, while the process costs related to "final access roads" (last mile activities) show a slight degree of variability. In the event of another examination under different framework conditions, the costs for the basic route would possibly require reassessment. In this case, in response to changes in market conditions, the incumbent might need to adjust both the dimensions of the delivery network and the delivery routes. Such developments, however, would not be relevant within the period of validity of the present decision."

2.7 Role of delivery costs in the ex-post procedures

In 2011, BNetzA initiated and conducted an ex-post procedure against First Mail (FM), a subsidiary of Deutsche Post AG (DP AG) and DP AG itself concerning predatory pricing and discrimination between business customers.

FM - formerly a competitor – had been overtaken by DP AG and since the take-over had only been active in those regions where alternative providers successfully entered the letter market. In the regions concerned, FM offered rebates exceeding those that DP AG granted for similar letter conveyance services in order to react to the competitors' business activities.

In order to assess the cost-orientation of the charged tariffs, the NRA carried out an analysis of the delivery costs. Based on these investigations which included the assessment of cost structures of the incumbent, the NRA concluded that the prices charged by FM to their customers would substantially be predatory and would abusively impair the competitive opportunities of alternative postal operators. FM's tariffs undercut the work-sharing tariffs of its parent company, DP AG. After assessing the cost

documents and calculations carried out by the incumbent, it became clear that the charged tariffs did not cover the long-run incremental cost. By applying the AKZO-test³⁸, BNetzA could evidence that the pricing strategy was aimed at destroying the competition. In particular, the implementation and replication of a delivery network in the urban regions with the highest density did not make any other sense than to foreclose competition.

In order to evidence that the pricing strategy solely aimed at foreclosing the competitors that otherwise did not make commercial sense, the NRA applied the Reasonably Efficient Operator (REO) test and constructed a scenario where the incumbent set up a new network to target business customers in the lucrative city zones. In a hypothetical calculation the NRA determined the costs for a postal network that facilitated an effective letter mail provision exclusively for the targeted regions.

In 2015, BNetzA initiated a further ex-post investigation concerning price discounts in the direct mail segment, in response to the loss of clients in dialogue-marketing³⁹ where the incumbent offered special services for direct mail targeting new clients.

Similarly to the FM case, the NRA conducted an in-depth analysis of the delivery costs. To provide evidence of compliance with cost orientation, the incumbent was requested to submit detailed cost data on the delivery processes. As a result of the assessment, BNetzA concluded that the charged tariffs did not cover the long-run incremental cost. In this investigation, the NRA and the incumbent discussed to what extent common costs shall be included. While the incumbent employed the average avoidable costs (AAC) approach, the NRA argued that such an approach is not in compliance with the German Postal Act. The criterion of the costs of efficient provision laid down in the German Postal Act requires the inclusion of common costs for the maintenance of the letters logistics system. By applying the REO-test, the NRA could provide evidence that the implementation and replication of a delivery network in the urban regions with highest density did not make commercial sense other than to foreclose competition.

³⁸ The AKZO case was an EU case in which predatory pricing was considered, which led to the development of the AKZO test for predatory pricing:

1. Prices below Average Variable Costs are presumed to be predatory.
2. Prices above Average Variable Costs and below Average Total Costs are not presumed predatory, but can be presumed predatory if they are part of a plan to eliminate a competitor.

³⁹ A marketing strategy or tactic in which a company tries to make sales by developing an ongoing friendly business relationship with a potential customer

3. Spain – CNMC

The term ‘Distribution activity’ will be used in this case study instead of ‘delivery’, as it is the terminology employed by the Spanish designated operator in its analytical accounting. The ‘Distribution activity’ is split in different tasks, for instance, ‘Distribution’ (related to the delivery to the addressee’s premises) or ‘Displacement’ (related to the postman’s trip from the post office to the delivery section).

3.1 Regulation issues

According to article 8.2 of CNMC Act 3/2013⁴⁰, the NRA (CNMC) has to verify the analytical accounting of the designated universal service provider and the net cost of the universal postal service and to determine the level of the unfair financial burden involved in the provision of that service.

Article 34 of the Postal Act⁴¹ indicates that the prices of the postal services provided under the public-service obligation system must be affordable, transparent and non-discriminatory and be set in accordance with the real costs of the service, while offering incentives for an efficient provision. If price verification leads to the assumption that these principles have not been observed, CNMC shall issue a Decision with impact on the calculation of the unfair financial burden.

Article 45 of the Postal Act states, regarding access, that both for individual contracts and for the standard contract, the NRA shall verify if the tariffs meet the principles of transparency, non-discrimination and cost orientation and if these tariffs do not lead to an increase in the financing needs of the universal service and determine an unfair financial burden.

Article 46 of the Postal Act indicates that access tariffs may take into consideration, among other elements, the opening hours for presenting postal items, their volume, destination, degree of sorting and preparation, and may not represent financial losses for the network operator. Moreover, in setting the tariffs, the total and the avoidable costs should be taken into consideration.

⁴⁰ www.cnmc.es/node/298924

⁴¹ www.boe.es/buscar/act.php?id=BOE-A-2010-20139

The designated USP's analytical accounting, as indicated in Ordinance FOM/2447/2004⁴² is based on the "historical fully distributed costs" (HFDC) system. The CNMC Decision of 15 February 2018 regarding the procedure for the approval of the standard access contract⁴³ recommends, taking into account the current situation of the postal market, to initiate the appropriate mechanisms to modify the current tariff framework (based on HFDC) towards a more efficient price setting mechanism such as those based on an incremental cost standard like Long Run Average Incremental Costs (LRAIC), due to the fact that:

- HFDC facilitates a simple implementation and reconciles with the financial accounting but it can embed inefficiencies such as overcapacity;
- The digitalization effect does not suggest to follow HFDC, taking into account that the letter postal market is continuously experiencing a significant reduction of the demand due to the pressure exerted by the substitute electronic services, more economical and competitive;
- The evolution to an incremental cost standard for access operators and large clients could alleviate the upward trend in tariffs due to decreasing demand and high proportion of fixed and administrative costs.
- The incremental cost standard would incentivize both Correos and the alternative operators to be more efficient as:
 - They could offer services with higher added value, permitting via prices to recover the fixed and administrative costs.
 - Effective prices (prices after discounts) could become more competitive, streamlining the postal market.

According to article 24 Postal Act, the delivery will be performed at the postal address mentioned on the envelope (in practice, standard letters are delivered to the individual or communal mailboxes and in hand for the registered letters and parcels).

3.2 Operational issues

The designated USP (Correos) employs a common network for standard and priority letters and parcels, unaddressed mail, direct mail, books, catalogues, periodicals, as well as pouch, certified fax, telegram, administrative notifications, and postal money orders.

⁴² www.boe.es/buscar/doc.php?id=BOE-A-2004-13683

⁴³ www.cnmc.es/expedientes/stpdtp00815

There were 1,321 automatic parcel lockers 'HomePaq' and 'CityPaq' already installed in 2016⁴⁴.

Correos distinguishes both in the rates for large customers and access rates for alternative operators two domestic destination types, D1 (populations > 50,000 inhabitants, local destinations are also included in this group) and D2 (< 50,000 inhabitants); within D2, those populations < 5,000 inhabitants are identified as rural areas. The volume discounts in D2 are smaller than in D1, due to the larger delivery costs in the former⁴⁵.

In 2016, Correos began integrating its standard and priority distribution networks. Thus, the priority delivery employees only handle the delivery of large parcels, while small parcels are integrated into the standard delivery units. The entry into force of Act 39/2015⁴⁶ introduced modifications regarding the delivery of notifications. In particular, it established the need to make a second attempt of delivery in the evening and at least three hours after the first one. Therefore, the delivery network had to be adapted. The workforce was reorganized and a new afternoon shift was introduced in the standard distribution units (in addition to priority units), allowed to cover the entire national territory. All of its nearly 30,000 postmen and women are equipped with a mobile device (PDA – personal digital assistant)⁴⁷.

The management of the delivery costs through Correos' analytical accounting is presented in the following sub-chapters.

⁴⁴ <http://owsssfv2.correos.es/COREstaticos/pdf/Correos%20Group%20Integrated%20Annual%20Report%202016.pdf>

⁴⁵ www.cnmc.es/expedientes/stpdtp00815

⁴⁶ <https://boe.es/buscar/act.php?id=BOE-A-2015-10565>

⁴⁷ <http://owsssfv2.correos.es/COREstaticos/pdf/Correos%20Group%20Integrated%20Annual%20Report%202016.pdf>

3.3 Delivery costs in the USP's analytical accounting

3.3.1 The activities

The activities are groups of homogeneous tasks oriented to the provision of the analytical products or for their support. The operational activities are divided in 5 large groups: clearance, sorting, transport, distribution and management (i.e. administrative tasks within the operational cost centres). In particular, Distribution refers to the separation of shipments per delivery section or postman, the preparation for delivery according to the route, and the delivery to the addressee. The delivery can be performed at the post office or at the addressees' premises. Additionally, the non-operational activities would be: Commercial, Administrative, Financial and Other⁴⁸.

The operational activities are broken down in specific tasks, in particular, regarding Distribution: Delivery at post office; Collective Works (manual sorting per delivery section); Individual Works (last mile routing); Displacement to the delivery section; Distribution to the addressee' premises; Settlement (returns, final delivery at post office, cash on delivery); International distribution.

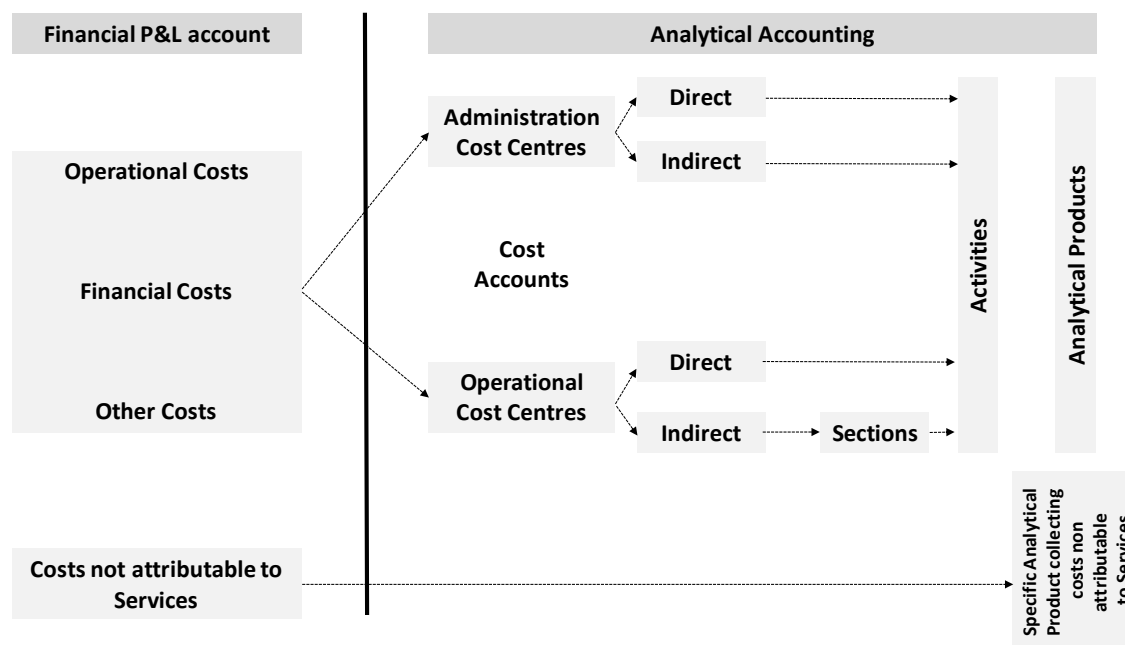
3.3.2 The cost allocation processes

The cost allocation processes are summarized in the following chart⁴⁹, showing a top-down approach from Cost Accounts and Cost Centres towards Analytical Products:

⁴⁸ www.cnmc.es/sites/default/files/969360_1.pdf

⁴⁹ www.cnmc.es/sites/default/files/1970168_6.pdf

Diagram 4 - Correos' cost allocation process



According to the chart above:

- The costs are recorded in cost accounts, which are allocated to Cost Centres and aggregated through Groups of Cost Accounts, facilitating the subsequent cost allocation processes. This allocation is mainly automatic and set in the information systems.
- Regarding the allocation from Direct Administration Cost Centres and Direct Operational Cost Centres to Activities and Analytical Products, it is carried out through criteria built based on volumes and accumulated revenues per activity and analytical product, applied entirely to some Cost Centre or some Cost Account due to existing specific and direct relationship.
- Regarding the allocation from Indirect Operational Cost Centres to Sections, it is mainly done through criteria built based on surveys circulated to the Cost Centre Managers.
- Regarding the allocation from Sections to Activities and Analytical Products, it is mainly done through criteria built from time measurements and volumes for each activity and analytical product.

- Regarding the allocation from the Indirect Administration Cost Centres to Activities and Analytical Products, it replicates the allocation of the accumulated costs from the Operational Cost Centres served by such Administration Cost Centres.

The most relevant Groups of Cost Accounts are: personnel, real estate, terminal dues, IT support, sub-contracted transport, construction amortization, own vehicles, corporate tax, equipment amortization and extraordinary transport (in the peak season).

The most relevant Sections are: displacement, distribution, indoor, clearance and sales, pre-delivery tasks, delivery, indoor tasks, office management, postmen management, loading and unloading dock.

The cost drivers used in the direct allocation from Cost Centres and Cost accounts to Analytical Products are mainly based on the number of shipments, but other types can also be applied, such as revenues, terminal dues, international transport cost or prepaid shipment costs.

The cost drivers used in the indirect allocation from Cost Centres to Sections are mainly work hours, but other drivers may also be considered, such as square meters, number of computers or transport volumes.

The main cost driver used in the indirect allocation from Sections to Activities and to Analytical Products is the work hours, but also the weight of the items in kilograms can be considered.

The cost drivers used in the allocation of 'Financial' and 'Other' activities to Analytical Products are not based on work hours but on the nature of the specific related costs. The most common drivers in these cases are the revenues per analytical product.

3.3.3 The Detailed Analytical Profit and Loss Account

The Income, Costs, Volume, Unit Income and Unit Costs per analytical product are subsequently split per client type, turnover level, destination type and sorting degree in the so-called Detailed Analytical Profit and Loss (P&L) Account, resulting in a quite worthy tool for the NRA supervision functions. The Main client types are:

- Bulk mailing related to large clients
- Bulk mailing related to alternative operators
- Customers with contract depositing at post offices

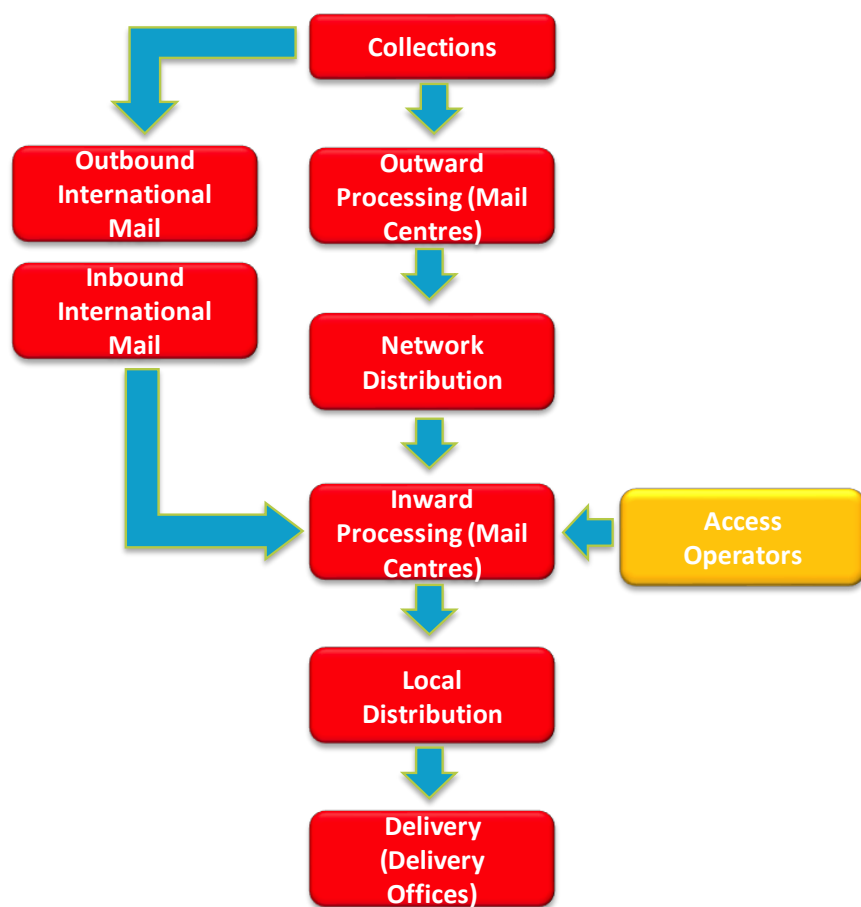
- Cash (household customers buying the stamp and depositing at post office)
- Import
- Collaborating agencies: network of sales agents with a commercialization contract with the designated USP based on commissions on sales
- Tourist agents: network of agents selling the designated USP's stamps and consolidating mail in tourist areas
- Stamps (deposits at collection mailboxes)

4. UK - Ofcom

4.1 Delivery operations

Royal Mail uses a common network to collect, sort and deliver to the recipient's door, 6 days a week, letters and parcels (including unaddressed mail), and both universal services and non-universal services.⁵⁰

Diagram 5 - Royal Mail network



Royal Mail is required to provide access to its network at the point of entry to its Inward Sorting Operations (Inward Processing) at Mail Centres from which point onwards it conveys and delivers the

⁵⁰ Royal Mail also has other specialised parcels businesses with their own separate networks: Parcelforce Worldwide operating in the UK and General Logistics Systems (GLS) operating elsewhere in Europe.

access operators' mail. It provides access operators both national and zonal price plans (four zones of London, Urban, Suburban and Rural).

Royal Mail's delivery activities (represented by the last box shown in the diagram above) consist of:

- Indoor delivery - Final sorting, sequencing and preparing of mail in Delivery Offices for delivery
- Outdoor delivery – Taking mail out of the Delivery Offices and delivering it to final recipients

Delivery activities are labour intensive and form the largest cost in the network compared with the other elements.

Royal Mail uses five methods of outdoor delivery:

1. Heavy Capacity Trolleys (HCT) – For letters and foot deliverable parcels delivered on foot close to Delivery Offices
2. Dedicated vans – For non-foot deliverable parcels to complement HCT deliveries
3. Shared vans and Light Weight Trolleys (LWT) - For letters and foot deliverable parcels further from Delivery Offices (park and loop)
4. Van diversions – For non-foot deliverable parcels to complement shared van and LWT deliveries
5. Vans only - All letters and parcels delivered to firms and in rural and some urban areas

4.2 Ofcom's role and objectives of costing delivery

Ofcom requires financial information from Royal Mail in order to carry out its regulatory functions, and in particular to monitor:

- The financial sustainability and efficiency of the provision of the USO
- Competition issues
- Impact on consumer interests

This monitoring regime is an important regulatory tool for Ofcom because Ofcom considerably deregulated Royal Mail in March 2012, removing most of the price controls, introducing only a safeguard cap on second class stamps and an ex ante margin squeeze control on a subset of bulk mail products to protect access competition.

Ofcom has set out regulatory accounting principles and rules in an accounting condition⁵¹. Royal Mail is required to comply with these principles and rules when providing regulatory financial information to Ofcom and in particular when costing activities carried out in its network including indoor and outdoor delivery.

4.3 Costing methodologies

The main costing standard used by Royal Mail and Ofcom is Fully Allocated Costs ('FAC'). Royal Mail employs an Activity Based Costing ('ABC') top-down historical cost approach to calculate the FAC. Royal Mail also uses a Long Run Incremental Costs (LRIC) model to inform its pricing. Ofcom does not use the results of this model because it does not consider it suitable for its regulatory purposes.

Royal Mail estimates the costs of the elements of its network, and the activities within them, including indoor and outdoor delivery, in order to assess the costs of:

- Products and services provided by Royal Mail to underpin the regulatory financial statements and information required by Ofcom⁵² - This is primarily done by Royal Mail's ABC model.
- Total zonal costs of downstream activities (inward processing, local distribution and indoor and outdoor delivery) to support the regulation of zonal access for which Royal Mail identifies four zones in the country (urban, suburban, rural, and London), and access prices differently for each zone – This is done by Royal Mail's Zonal Costing Model ('ZCM').

Ofcom requires Royal Mail to publish its costing methodologies.⁵³

⁵¹ Ofcom's new Accounting Condition and Regulatory Accounting Guidelines (to take effect from 26 March 2018):

https://www.ofcom.org.uk/data/assets/pdf_file/0024/108870/Annex-1.-New-USPAC.pdf

https://www.ofcom.org.uk/data/assets/pdf_file/0025/108871/Annex-2.-New-RAG.pdf

⁵² Royal Mail's published regulatory financial statements:

<https://www.royalmailgroup.com/about-us/regulation/regulatory-financial-statements>

⁵³ Royal Mail Costing Manual:

<https://www.royalmailgroup.com/sites/default/files/ABC%20Costing%20Manual%202017.pdf>

4.4 The ABC model

The ABC Model works in two steps:

1. It allocates various types of costs recorded in the general ledger to all the activities carried out in the network, using drivers that reflect the resources consumed by those activities, mainly staff hours, vehicle hours, machine hours, and building area.
2. It allocates the activity costs calculated in the first step above to all the products that the network provides, using drivers that reflect the level of effort and workload needed by each product from each relevant activity.

A key approach that Royal Mail uses to quantify the effort and workload is the use of standard times. Royal Mail holds a databank of standard times (known as Planning Values, or PVs) that represent the expected time needed to undertake a wide variety of tasks within the operational processes. PVs are obtained from standard industrial engineering measurement exercises which have been undertaken over a number of years. The industrial engineers observe a task, record the specific actions involved in the task, and then apply the relevant time standards to arrive at the length of time it should take to undertake the task at a given rate of working.

Costs which do not involve causal links to products, mainly general and local overheads, are allocated using equi-proportional mark-up approach ('EPMU'). In this approach overheads are allocated to products in the direct proportion to the direct costs already allocated to those products.

4.5 The ZCM

The purpose of the ZCM is to identify cost and volumes of downstream mail activities both by geographic zone and across all zones. Downstream activities comprise processing and distributing each main format of mail (letters, large letters, and parcels) from the start of inward processing at Mail Centres to the point of final delivery in each zone (urban, suburban, rural, and London). The ZCM also provides an estimate of the ratios of unit costs as a percentage relative to the national average unit cost of those downstream activities.

The ZCM does this in the following two steps.

1. Postcode sectors⁵⁴ are mapped to:
 - a. non-London zones (urban, rural, suburban) by reference to delivery point density and the proportion of business delivery points; and
 - b. London zone by reference to Standard Selection Codes related to areas where mail volumes sit within or overlap the boundary of the M25 (the orbital motorway around London).
2. Postcode sector costs and volumes are modelled and then aggregated by zones to calculate total and unit costs of each zone.

Postcode sector costs are calculated by allocating the costs recorded by Royal Mail at individual Mail Centres, Delivery Offices etc., for the following elements of the pipeline:

- a) Inward processing at Mail Centres (handling, sortation and revenue protection⁵⁵)
- b) Local distribution from the Mail Centres to the Delivery Offices
- c) Indoor delivery at the Delivery Offices (sorting by walk and preparation)
- d) Outdoor delivery (delivering the mail to its final recipient)

Each postcode sector falls within a Delivery Office catchment area⁵⁶ and is therefore associated with that Delivery Office and the Mail Centre with which the Delivery Office is associated. The above-mentioned costs are then allocated to all the associated postcode sectors either uniformly using mail volume as the driver, or using specific geographic and volume drivers that differentiate postcode sector costs within a Delivery Office catchment area.

⁵⁴ The UK is split into around 11,000 postcode sectors.

⁵⁵ Activities designed to ensure that the revenue Royal Mail collects from its customers is accurate and in compliance with the terms and conditions of the services provided.

⁵⁶ The geographic area that encompasses all the delivery points which a delivery office serves

Annex 2 Country codes for responding NRAs

Country	Acronym	NRA
Austria	AT	RTR
Belgium	BE	BIPT
Bulgaria	BG	CRC
Croatia	HR	HAKOM
Cyprus	CY	OCECPR
Czech Republic	CZ	CTU
Denmark	DK	FSTYR
Estonia	EE	ECA
France	FR	Arcep
Germany	DE	BNetzA
Greece	EL	EETT
Hungary	HU	NMHH
Ireland	IE	COMREG
Italy	IT	Agcom
Latvia	LV	SPRK
Lithuania	LT	RRT
Luxembourg	LU	ILR
Malta	MT	MCA
Netherlands	NL	ACM
Norway	NO	Nkom
Poland	PL	UKE
Portugal	PT	ANACOM
Romania	RO	ANCOM
Republic of Moldova	MD	ANRCETI
Republic of Serbia	RS	RATEL
Slovakia	SK	RU
Slovenia	SI	AKOS
Spain	ES	CNMC
Sweden	SE	PTS
United Kingdom	UK	Ofcom

Annex 3 Acronyms

AAC = Average Avoidable Cost

ABC = Activity Based Costing

ATC = Average Total Cost

AVC = Average Variable Cost

BU = Bottom-Up

C2X = Consumer to Any

CAGR = Compound Annual Growth Rate

EEO = Equally Efficient Operator

ERGP = The European Regulators Group for Postal Services

FAC/FDC = Fully Allocated Costs / Fully Distributed Costs

HCT = Heavy Capacity Trolleys

LR(A)IC = Long Run (Average) Incremental Costs

LWT = Light Weight Trolleys

NRA = National Regulatory Authority

REO = Reasonably Efficient Operator

SAC = Stand Alone Cost

SMP = Significant Market Power

UPU = Universal Postal Union

USO = Universal Service Obligation

USP = Universal Service Provider

ZCM = Zonal Costing Model

Annex 4 Definitions

Fully Distributed Costs (FDC) or Fully Allocated Costs (FAC) method - This cost standard involves allocating categories of costs which can be directly or indirectly attributed to services or products. It takes into account the total costs of providing access incurred by the incumbent: direct costs as well as a share of joint and common costs, including overhead costs.⁵⁷ No costs are left unallocated.

Long Run Incremental Costs (LRIC) - Costs that are incurred in the long run as a result of the provision of a defined increment to the portfolio of services or activities.

Avoidable costs - Costs that the incumbent would avoid incurring, if it did not provide certain services to the market.

Stand Alone Costs (SAC)- includes all the costs that are needed to be incurred for the standalone provision of a defined increment to the portfolio of services or activities, i.e. assuming the rest of the portfolio of services or activities of the incumbent are not provided. This cost standard typically uses forward-looking costs, i.e. the costs that would be incurred by the incumbent using the most efficient current technologies. It is often used in establishing the limit beyond which prices would be excessive and economically inefficient.

Activity Based Costing (ABC) methodology works in two steps:

- It allocates various types of costs recorded in the accounts of the incumbent in relation to the postal network (e.g. wages, utilities, transportation costs, or property costs) to all the activities carried out in that network (including the delivery activities), using drivers that reflect the resources consumed by those activities, e.g. staff hours, machine running time, or building area.
- It then allocates the activity costs calculated in the first step to all the products that the network provides, using drivers that reflect the level of effort and workload needed by each product from each relevant activity.

There are generally two types of data that can be used for the access costing calculations, that is **historical** data or **forecast** data. In some cases a combination of these two is applicable. The type of data used depends on the regulatory objectives. Ex-post investigations typically involve analyzing a great deal of historical data, while ex-ante price controls are forward-looking remedies and require either forecast costs estimates or historical data.

⁵⁷ ERGP Common Position on cost allocation rules, 2013, p. 39.

With regard to the modelling approach, the NRAs could use a **Top-Down** approach. This means that cost accounting data are identified at a global level, which is then successively refined to activities, sub-activities and finally to elementary activities using appropriate allocation keys. The accuracy and level of the Top-Down allocation depend on the input financial and operational information to the regulatory accounting.⁵⁸ Another approach is **Bottom-up** modelling, where an explicit description of elementary activities is used in combination with activity measures and unit costs assigned to different resources to build cost functions. The resulting costs are then aggregated to sub-activities and activities to recover the total cost.⁵⁹

Equally efficient operator (EEO) refers to an assumed competing operator which is as efficient as the incumbent.

Reasonably efficient operator (REO) refers to an assumed competing operator which is reasonably efficient given the scale of its operations.

Common costs⁶⁰ - Also referred to as “overheads”, concern all resources related to support and management in postal services. Examples of such costs are key personnel (board members, marketing director, human resources director, financial director), headquarters costs (rent, depreciation, electricity, maintenance).

Fixed costs - Costs that do not vary with the output of a firm. In practice, no cost is purely fixed in the long run, but the concept of fixed costs is used in short-term cost accounting or where otherwise relevant in the context of a shorter term horizon.

Joint costs - All resources that are common to a group of product, such as postal services office workers, other postal services office costs (rent, depreciation, electricity, communications, etc.), mail street boxes. They are responsive to the degree of economies of scale and scope – and may include a fixed component.

Variable costs - Costs that vary with changes in the output of a firm.

⁵⁸ ERGP Common Position on cost allocation rules, 2013, p. 22.

⁵⁹ ERGP Report on common costs allocation, 2012, p. 7.

⁶⁰ ERGP (12) 28 Rev. 1 - Common Position on Cost Allocation Rules:

<https://ec.europa.eu/docsroom/documents/14289/attachments/1/translations/en/renditions/native>

Annex 5 Questionnaire

Operational Data	
Separate or common network (for parcel, letter, unaddressed, other)	
Urban versus rural	letter
	parcels
5/6/7 days delivery	letter
	parcels
	others
Exemptions of delivery	letter
	parcels
Degree of machine sorting	letter
	parcels
Organisation of sorting (sorting centers)	letter
	parcels
Organisation of delivery (delivery centers, cars, ...)	letter
	parcels
Remarks delivery cost	What is included/not included in the cost of delivery (part of sorting, P-O. boxes, hand out in the post offices etc.)
Delivery points	
Evolution/trends noticed in delivery in the last 5-10 years (e.g. reduction in QoS requirements, routes optimisation etc.) - e.g. as result of decrease in letter volumes and the increase in parcels volume	letter
	parcels
Remarks staff involvement	e.g. most postmen are part-time, partly subcontractors are used

Costing Data	
Percentage of total delivery costs in total costs	year
	%
Percentage of delivery costs of the US in total US costs	year
	%
The % includes common costs	Yes
	No
Largest categories within delivery costs	people costs
	other / explanation for other
	year
Methodology used for costing delivery	ABC
	other / explanation for other
Cost standard	FDC
	LRIC
	other / explanation for other
Type of modelling	top-down
	bottom-up
	other / explanation for other
Cost base	historical costs
	current costs
	other / explanation for other
Allocation drivers	volume
	staff time
	weight
	size
	distance
	other / explanation for other
Objective for delivery costs assessment	tariff control
	net cost
	access
	efficiency
	other / explanation for other
Which party has undertaken a costing exercise	USP
	NRA
	other
Has the universal service provider or the NRA undertaken an assessment of the relationship between the delivery costs and the following factors?	volume of letter mail delivered
	volume of parcels delivered
	number of delivery days per week
	changes in delivery method
	other / explanation for other

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