



ERGP (11) 16 Rev. 1 - report on common costs allocation

ERGP REPORT ON COMMON COSTS ALLOCATION

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Executive summary

As in many network industries, the level of common costs is significant in the postal sector. Thus the appropriate allocation of these costs to different products and services has a material effect on many fundamental regulatory decisions (e.g. price regulation, universal service net cost calculation, competitive assessment) and it strongly influences market outcomes. In order to develop best practice guidance on common costs allocation methods, the ERGP has therefore been reviewing the area of cost allocation principles.

The ERGP acknowledges the widespread use of the following traditional accounting methodologies among most countries: Activity Based Costing methodology, use of Historical Cost Accounting system and Top-Down cost allocation. In principle, those methodologies are compatible with the Postal Directive. However, the ERGP highlights the need for further work on the scope of regulatory accounts and the consistency of cost allocation rules, especially as regards non-USO services sharing activities, hence costs, with USO services, for which the Postal Directive prescribes a consistent treatment. The ERGP also notes the diverging powers of NRAs as regards regulatory cost accounting.

The ERGP underlines that an accurate cost allocation (especially in the context of the use of a Top-Down methodology) requires a sufficiently detailed description of the postal activities, down to the elementary activity level, hence knowledge of this decomposition by each NRA. In this report, the ERGP sets out a general framework of the postal activities and sub-activities taking into account differences from one country to another.

Appropriate cost allocation also requires a clear understanding of the concepts used. The ERGP sets out definitions of terms related to cost allocation: direct, joint and common costs, cost drivers, activities, etc. and provides some examples. Those definitions highlight the core issues identified so far regarding cost allocation matters: (i) the possible existence of a fixed part of joint cost, (ii) the identification of “nested” and “overheads” common costs, and (iii) the identification of generic cost drivers for elementary activities.

The ERGP finally suggests focusing in future work on the potential interest of Bottom-Up models for accurate costs allocation, as a complementary tool to traditional Top-Down approach, and on best practices as regards checking and validation of traffic measures for proper cost allocation, as traffic is one of the major cost drivers.

Consultation process:

The ERGP launched a public consultation on a draft version of this report on 29 November 2011. The consultation closed on 18 January 2012; the ERGP has received three responses from AnPost, La Poste, and PostNL. Those responses and a synthesis of the public consultation have been published along with this report. They are available at the following address: http://ec.europa.eu/internal_market/ergp/documentation/consultations_en.htm The final version of the report takes into account the suggestions made to the ERGP.



Part 1: Background

1. Goal of ERGP regarding common costs allocation issues

As in many network industries, the level of common costs is also significant in the postal sector. Thus the appropriate allocation of these costs to different products and services has a material effect on many fundamental regulatory decisions (e.g. price regulation, universal service net cost calculation, competitive assessment) and it strongly influences market outcomes.

Those issues directly concern Article 14 of the Postal Services Directive¹ which pursues two aims:

- (i) ensuring universal service provision,
- (ii) preventing the abuse of market power by postal market operators, either directly or indirectly.

The importance of these matters have already been investigated by, for instance, the *Comité européen de régulation postale* (CERP) in its research on regulatory accounting / cost accounting² and also by WIK³.

More recently, and following the European Commission Decision C 217/7 to establish the European Regulators Group for Postal Services (ERGP), the ERGP has been reviewing the area of cost allocation principles. This review is in line with the work program that was agreed for 2011-2012. The main goal of the ERGP review in this context is to develop best practice guidance on common costs allocation methods, to help to ensure cost-oriented tariffs and to prevent any predatory discounting and/or margin squeeze.

2. Agenda

This report is the result of the following work:

1. A literature review⁴ of the field of cost allocation in the postal sector.
The aim of this work was to produce a summary of the latest research available on the subject, highlighting the most critical contributions in the area of cost allocation and to give some direction for future investigations.
2. Setting out definitions of terms related to cost allocation.
The aim of this work was to clarify the concepts that the ERGP was to concentrate on and to set a common framework. Type of costs, such as common costs, joint costs, fixed costs,

¹ Directive 97/67/EC of the European Parliament and of the Council of 15 December 1997 on common rules for the development of the internal market of Community postal services and the improvement of quality of service, as amended by the Directive 2002/39/EC of 10 July 2002 and by the Directive 2008/6/EC of 20 February 2008.

² CERP, Recommendation on best practices for cost accounting rules, 2009.

One of the aims of that review was to collect information on the allocation of non-attributable costs and on the definitions of some of the pipeline processes i.e. the Delivery activity.

³ WIK, Role of regulators in a more competitive postal market, 2009.

This report focuses on the role of regulators and the best regulatory practices in competitive markets. At the time, the on-going transposition of the “Third Postal Services Directive” combined with market developments, encouraged countries to think about the way the Directive could be effectively implemented. WIK provided a series of recommendations, one of which included the development of accurate and appropriate regulatory accounts. The latter was regarded as the “most technically challenging task for the NRA”.

⁴ See Appendix 2: References.



variable costs, non-attributable costs, etc. needed to be defined for the purpose of data collection and to analyse the costing data across different national regulatory authorities (NRAs).

3. The development and processing of an initial questionnaire to NRAs.
This questionnaire, using the outputs of the work on common definitions, was intended to provide a benchmark of the different methodologies and principles used by NRAs and Universal Service Providers (USPs), to understand how regulatory accounts are drawn up and more particularly how common costs are allocated.
4. The organization of an internal ERGP workshop devoted to cost accounting systems and cost allocation issues relating to delivery and collection activities.
The aim of this workshop was to discuss the use of Bottom-Up models in regulatory accounting systems, allocation rules, and the accounting rules for the collection and delivery activities.
5. The development and processing of a second questionnaire, based on the answers to the first questionnaire and taking into account of the issues debated at the workshop.
The aim of the second questionnaire was to confirm all concepts defined and agreed so far and to collect accurate data based on these definitions.

3. Main outputs

This report focuses on definitions and generic principles relating to cost allocations, with a focus on the following areas:

- Scope of regulatory accounting systems;
- Detailed description of processes and activities for postal services;
- Costs definitions and costs drivers.

The report also sets out the different issues raised since the commencement of the ERGP work on common costs allocation. The ERGP recognised that one issue to be addressed was the cost allocation rules for USO and non USO services. According to article 14 of the Postal Services Directive, “the same cost drivers must be applied to both universal services and non-universal services”. Nevertheless, USO and non USO products might have different attributes, leading to different costs. Those issues will be investigated in 2012.

The following questions have also been identified as key issues that would need to be investigated at some point in the future:

- Best practices as regards checking and validating of traffic measures for proper cost allocation. Traffic is one of the major cost drivers so proper measurement is therefore crucial for cost allocation purposes.
- Use of Bottom-Up (BU) models for cost allocation. This would include a review of the relevance of BU models to complement Top-Down approaches, reconciliation of BU models with Top-Down data and the possible review of implementation requirements.

4. Outline of the report

This report presents the first conclusions of the ERGP, focusing on a limited number of key issues. Firstly, it highlights the general accounting principles shared and agreed within the ERGP, and where there are discrepancies noted (Part 2). Secondly, it focuses on specific terms and concepts that are essential to costs allocation issues (Part 3). Thirdly, it mentions the issues that have been raised during the work of the ERGP, which could be the subject for future investigations (Part 4).



Part 2: General accounting principles

1. Top-Down ABC costing principles as current methodology in regulatory accounting in post

The ERGP has reviewed the literature on cost allocation in the postal sector, along with the different studies and previous work available on this subject⁵. The ERGP has also processed the results its questionnaire to the NRAs. From this initial assessment, three main observations have been drawn about current regulatory accounting systems in the postal sector for the different Member States:

- Activity Based Costing (ABC) methodology is used as the common accounting approach for regulatory accounts.
- There are two main approaches for the USP to reflect the appropriate costs for calculating regulated charges: Historical Cost Accounting System (HCA) and Current Cost Accounting System (CCA). Given the specific attributes of the postal sector (i.e. low level of capital investment and predictable asset lives and residual values), the use of CCA is not widespread.
- In most cases (exceptions are often limited to one activity of the postal production process), all costs are allocated through a Top-Down approach⁶.

A Top-Down approach means that cost accounting data (from the general ledger) are identified at a global level, and then successively refined to (main) activities, sub-activities and finally to elementary activities / tasks (see definition below) using appropriate allocation keys.

This approach is different from a Bottom-Up approach where an explicit description of elementary activities is used and then combined with activity measures and unit costs for the different resources in an elementary cost function. These costs are then aggregated successively to sub-activities and finally to the (main) activities to recover the total cost. In principle, the two approaches should be reconcilable at some intermediary cost level.

2. Scope of regulatory accounting

The scope of the regulatory accounting systems covers all activities that are used for the provision of the universal service obligation (USO), in particular where those activities are shared with products/services that fall outside the USO. The inclusion of non-USO products/services within regulatory accounts, which share some activities with USO products/services, is necessary for consistent costing principles to be applied and to avoid cross-subsidy between USO and non-USO products/services.

The delivery and collection process are examples of activities that are usually shared between both USO and non USO products. In order to ensure consistent cost recovery, it is therefore necessary to include the costs and revenues of those products in the regulatory accounting systems and to consistently apply the rules set by the NRA for cost allocation.

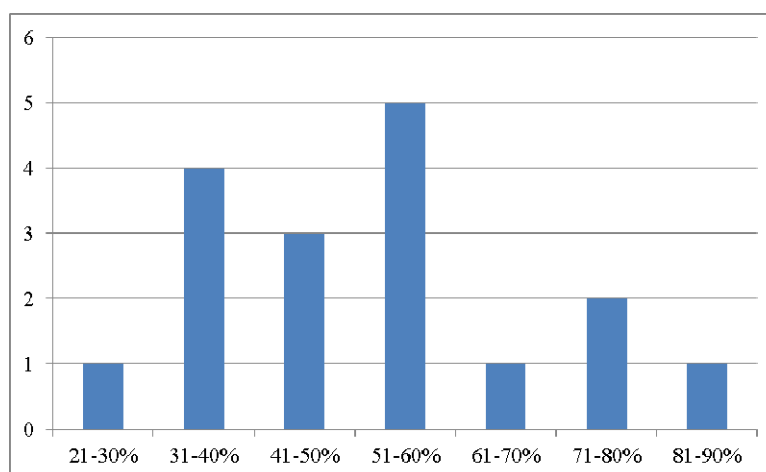
⁵ See Appendix 2: References

⁶ In some cases, the result of this method might need to be adjusted, e.g. to eliminate inefficiencies or correct for wrongly allocated common costs that may create potential for cross-subsidization.

A similar provision applies when the USP⁷ outsources part of the production of its USO activity. If the outsourced inputs are bought on a competitive market, it is normal practice to consider that the price paid by the USP is the cost for producing the input. This price could therefore be used as the cost of the input in the regulatory accounting systems. The outsourcing of part of the transport activity is a typical example of such a case. The assessment can be different if the input is bought from a sister company belonging to the same group as the entity providing the universal service. In this case, the price paid should be considered as a transfer price. Additional control might be required in this case, comparable to the ones performed in fiscal matters. If the transfer price within the group is in line with the competitive price of alternative providers, then this price shall be used as the cost of providing this input in the regulatory accounting systems. If the input is provided by a sister company that enjoys substantial market power (e.g. it is almost unique by the size or scope of its operations, for instance delivery at national level, large volumes sorting, etc.), then the sister company shall fall within the scope of the regulatory accounts, and the allocation rules shall be submitted to the NRA. This would also prevent the circumvention of regulatory requirements by the spin-off of subsidiaries by the incumbent.

Responses to the first questionnaires pointed out the large differences between countries on this issue. For example, the following diagram, based on the questionnaire results, highlights the variation of the share of USO products cost within the USP's total costs, between the countries responding.

Figure 1: Share of USO products costs as %age of USP costs



More importantly, the questionnaire also pointed out the discrepancies regarding the general accounting principles between countries which were not coherent with the Postal Services Directive.

One of these discrepancies is the scope of the regulatory accounts and the ability of NRAs to specify at their discretion the cost allocation rules. ERGP members have expressed their views regarding NRAs ability to specify USO and non-USO accounting rules. Regarding USO rules, while most USPs are required to provide annual accounts to which the NRA has access, there appears to be considerable variation in the regulatory requirements for cost accounting between the different Member States. In all countries, these requirements are enshrined in law or formal regulations, but the level of detail within these regulations varies, and it appears that in some cases there is no further agreement between the NRA and the USP as to their implementation.

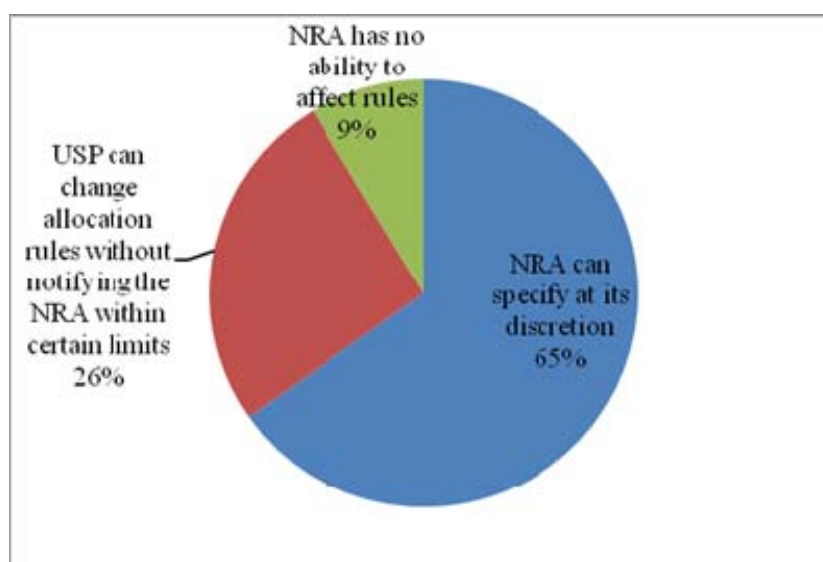
⁷ Or more generally the regulated (= dominant) operator.

Furthermore, there is a significant variation in the transparency of the accounting information: in 55% of responding countries the NRA or USP publishes full accounting information, while in 11% only a summary is published with the NRA receiving additional and more detailed information on a confidential basis, and in 34% of countries (that responded) none of the regulatory accounting information is published.

Finally, there is also wide variation in the extent to which the NRA can specify or influence the basis of regulatory accounting systems and reporting, as illustrated below. At one end of this range, the NRAs of 2 countries (9% of responses) have no ability to determine the basis of regulatory accounting systems and reporting, while at the other end of the range, 15 respondents (65%) said they could specify the basis of accounting and reporting at their discretion. In the remaining 6 (26%), the USP has some freedom to change the cost allocation rules without reference to the NRA, within certain limits.

This variation in NRAs' powers has important implications for the effective way in which best practice in common cost allocation can be developed and adopted in different countries.

Figure 2: NRA powers to affect cost allocation rules



The Postal Services Directive is very clear on these matters. Paragraph 2 of Article 14 states “*The universal service provider(s) shall keep separate accounts within their internal accounting systems in order to clearly distinguish between each of the services and products which are part of the universal service and those which are not. This accounting separation shall be used as an input when Member States calculate the net cost of the universal service. Such internal accounting systems shall operate on the basis of consistently applied and objectively justifiable cost accounting principles.*”

Paragraph 3 of the same article adds “*The accounting systems referred to in paragraph 2 shall, without prejudice to paragraph 4, allocate costs in the following manner: [...] (iv) common costs, which are necessary for the provision of both universal services and non-universal services, shall be allocated appropriately; the same cost drivers must be applied to both universal services and non-universal services.*”

Paragraph 3 of Article 14 insists on the necessity for the regulatory accounting system to apply to products and services beyond the USO that share some common activities (hence costs) with USO



services. The scope of the regulatory accounting system and the corresponding rules approved by the NRA must therefore go beyond the USO activities to all products when the production of the latter share processes with USO services for proper accounting separation.

This was illustrated in a decision⁸ by the French Supreme Administrative Court (*Conseil d'État*) regarding the NRA ability to specify the USP's regulatory accounting system, even for products beyond the scope of USO, but which shared the same processes. This decision was adopted on 7 May 2008 following a complaint by La Poste regarding the decision n°2007-0443 adopted by the French Postal Regulator ARCEP. The ARCEP decision compelled La Poste to present on a yearly basis confidential regulatory accounts with a distinction between USO and non-USO products. More specifically, the decision compelled La Poste to detail the accounts (costs per activity and revenues) of products outside the USO but which shared the same activities as the USO products (one line for mail services and one line for parcel services outside USO). The complaint by La Poste, relying notably on the defence that ARCEP was not competent for such a request, was dismissed by the Supreme Administrative Court in its decision n°309316. Those products have therefore been incorporated into the regulatory accounts, which are submitted to ARCEP.

In addition, the decision given on 8 November 2010 by the Administrative Court of Helsinki regarding FICORA's decision on the pricing of USO products also highlighted the necessity that all costs (including those regarded as fixed costs) should be allocated to all products (USO and non-USO). This ruling set out that the fixed costs should be allocated to USO and non-USO products according to their respective use of resources, instead of allocating a part of the costs (fixed) to only one category (USO) of products.

Itella appealed against the decision of the Administrative Court to the Supreme Administrative Court at the end of 2010. The decision from the Supreme Administrative Court is expected in autumn 2012.

Based on these examples from European and national laws, and on the discussion raised by the ERGP questionnaire, the ERGP wants to draw attention to the scope of the regulatory accounting systems in the future. It is important that in all cases, permitted by individual countries' legal structures, the scope of regulatory accounting shall extend to all activities shared by both USO and non-USO products.

3. Consistency of costs principles within and outside the scope of USO

Following the previous discussion on the scope of regulatory accounts in the postal sector, the issue of consistency of cost accounting principles has also been identified as a key concern in terms of cost allocation principles between USO and non-USO and products/services.

The Postal Services Directive mentions this aspect in paragraph 2 of Article 14 quoted *supra*. It states that: "*Such internal accounting systems shall operate on the basis of consistently applied and objectively justifiable cost accounting principles.*"

If the USP has to keep separate accounts between USO and non-USO products, it also has to operate those accounts with "consistently applied and objectively justifiable cost accounting principles". Hence the necessity to stress the obligation that the USP provides accounts that are consistently operated.⁹

⁸ Arrêt CE n° 309316 du 7 mai 2008. <http://www.conseil-etat.fr/fr/base-de-jurisprudence/>.

⁹ In this respect, it can be appropriate for external auditors to check and report to the NRA:

1. that the costing methodology used in accounting separation as adopted by the National Postal Operator conforms to the specifications required by the NRA; and



This applies in particular if part of the USO is provided through outsourcing from a sister company within the same group. The accounting system of the company providing the outsourced input shall be submitted as part of the regulatory accounting information to rules specified by the NRA, if the input is provided by a sister company that enjoys substantial market power.

4. Cost allocation for USO and non-USO products/services

Paragraph 3 of Article 14 of the Postal Services Directive sets out that, in the case of common costs: *“the same cost drivers must be applied to both universal services and non-universal services”*. Nevertheless, USO and non USO products may have different attributes which need to be reflected in considering the causality of the costs of the respective products.

These different attributes require investigation when reviewing the cost allocation choices made by existing regulatory accounting systems for USO and non-USO products sharing the same activity. Based on the initial research of the ERGP, completed with theoretical inputs, best practices in this area shall be examined by the ERGP.



Part 3: Process, activities, and cost drivers

1. General definitions

Results from the questionnaire conducted by the ERGP highlighted various levels of understanding of the accounting concepts from one country to another. Those discrepancies partly result from the different organizations of the postal process that can be observed in different countries. Indeed, the organisation of the postal process, and the degree of knowledge that the various NRAs have about it, leads to heterogeneous costs decomposition.

One example lies in the definition and measurement of common costs which, in certain regulatory accounting systems, are well separated from other costs, and, in others, are partly nested in other costs. The decomposition of costs per categories in the questionnaire between labour (including pensions), other operating costs (including depreciation and amortisation), taxes and other, also raised questions. In essence, the classification between each of these cost categories was not always consistent between countries.

Additional work also indicated some level of disagreement on processes and activities between the various countries.

Finally, the ERGP recognized the necessity to have a more accurate definition of cost drivers, from both a conceptual as well as a pragmatic point of view.

As such, the ERGP has worked to form some common definitions of the terms and concepts so that the work of the ERGP on cost allocation principles could be carried out more consistently. Hence the following common definitions were agreed:

a. Process

A process gathers the activities which are required to be undertaken together in order for an operator to produce outputs (postal services). A process is the sum of product-related activities, sub-activities and single tasks (elementary activities). There are both production and support/management processes, which can be distinguished for costing purposes. In some countries the process for support/management may be identified as an “activity”.

b. Activities, sub-activities, etc., elementary activities

In Activity Based Costing (ABC) the production processes are split into a number of different activities. The activities required for the main parts of production - like collection, transport, sorting and delivery - are divided into sub-activities.

The number of activities, sub-activities and elementary activities, and (typically in consequence) the data available may change from country to country depending on the organisation of postal services provision. Further, sub-activities may themselves be decomposed into sub-sub-activities, and ultimately into elementary activities, which are the most elementary operations required for a specific task. An elementary activity can be defined by the fact that it deals with a limited set of products/services that are treated homogeneously, leading to a simple cost function correctly



translating the underlying technical process. There may be hundreds (or more) of such elementary activities to be defined in order to provide a fully comprehensive description of a given postal business process for the purposes of analysing costs accurately.

The work of the ERGP on common costs allocation emphasises the interest in developing a common framework¹⁰ of activities, sub-activities and elementary activities with a generic description associated to each step, likely to fit more or less with the situation in every country.

Such a framework is in line with the directive, where it states in Article 14 paragraph 5 “*The national regulatory authority shall keep available, to an adequate level of detail, information on the cost accounting systems applied by a universal service provider, and shall submit such information to the Commission on request.*”

c. Direct costs

Costs that can be directly attributed to a particular product, service.

Examples of such costs are advertisement for bulk letter, specific envelope/forms for a specific products or services, terminal dues for cross-border mail.

d. Joint costs

The first definition suggested was: “*Costs that vary when the outputs of products within a group vary in fixed proportions, so that the costs are common to that group of products and cannot be attributed to a single product within the group.*”

Further work between NRAs pointed out the limits of this definition. Indeed, many regulatory accounting systems do not distinguish “joint costs” from “common costs” (see below), these systems being based on the consistency of the cost drivers. In these cases, costs are either allocated to each product by a specific cost driver, or by an Equi-Proportional Mark-Up (EPMU) method.

Therefore on that basis, joint costs are either attached to “direct costs” when specific cost drivers are identified, or associated to common costs when EPMU is used.

That is why, in addition to the previous definition, “joint costs” can be defined as costs that are common to a group of products, but what the cost driver(s) are depend(s) on the specific attributes of these respective products.

Examples of such costs are postal services office workers, other postal services office costs (rent, depreciation, electricity, communications), mail street boxes.

e. Common costs

The first definition suggested regarding common costs was: “*Costs that are incurred in the supply of more than one product, and that cannot be attributed to a single product as they are not directly affected by the variation in the output of any one product.*”

¹⁰ See Appendix 1: Common Framework for the postal activity.



Likewise to the changes made to joint costs and the principle of consistency in cost drivers (see above), this definition has been formed by associating common costs to costs allocated by EPMU method.

This definition changes the scope of common costs since it includes certain costs that could be regarded as joint costs from the original definition. Indeed, most regulatory accounts refer to “common costs” as overheads. Overheads are traditionally split between “general overheads”, which support all activities of the postal process, and “nested overheads” (or “pipeline overheads”, or “sustaining costs”, etc.), which support a limited amount of activities.

Both types of overheads are generally allocated using EPMU (though the base of allocation can change between a nested or non-nested approach, see below) which justifies their recollection in the same cost category, even though some “nested overheads” can be allocated with appropriate cost drivers and are therefore regarded as “joint costs”.

It is important to clearly separate “common costs” from “joint costs”. Within “common costs” it might be advantageous to distinguish between “general” and “nested” overheads, however this is not mandatory.

Examples of such costs are key personnel (board members, marketing director, human resources director, financial director), headquarters costs (rent, depreciation, electricity, maintenance)

f. Cost drivers

The first definition suggested by the ERGP regarding cost drivers was: “*A factor that has a systematic relation to a particular type of cost and which causes that cost to be incurred.*” The following additions to this generic definition are made to clarify the nature of the specific cost drivers in the postal sector.

The cost of a product or a service is a function of the consumption of the different activities and resources required to produce it.

As set out above, this production is divided into activities, which are composed of sub-activities, etc., until elementary activities are identified. That way, the production process is divided into a set of elementary activities that are then traceable to one or several different products.

On the “elementary” scale, the activity cost is determined by its consumption of each resource employed for this elementary activity. Traditionally, the main resources are:

- labour (separated from other operating expenses, given their significant weight in postal operations),
- operating expenses,
- depreciation and amortisation,
- excise tax,
- outsourced resources,
- others.

Time can be regarded as a consumption unit for these resources, except taxes and outsourced resources (for instance, Transport by third party may be subject to activity and cost allocated by a number of different cost drivers relying on different resources unit e.g. distance, weight, etc.).

The costs measurement of a product thus depends on the cost type linked to the activity:



- if it is a direct cost, then the product unit cost can be calculated based on the quantity of the resources used by the elementary activity as a consequence of the output of the product concerned,
- if it is a joint or a common cost, then the cost drivers of each product must be identified to determine their respective consumption of the resources used by the elementary activity.

The principle of cost causality happens therefore to be the core issue for estimating costs. It is therefore necessary to have appropriate updates of the cost driver indexes, especially in the case of a change in the product mix which would affect the structure of operations.

i) Case of direct costs

The costs can be regarded as variable, and the main cost driver is quantity. Consumption by a single marketed product of a specific resource depends on the attributes of this product, such as its weight, size, etc. Nevertheless, this resource consumption, given some specific product attributes, can be mainly sensitive to the product quantity being produced. In a Top-Down approach, a product unit cost is obtained once the quantity of products (normalized for attributes if required) and the total cost of the elementary activity considered are known. Hence:

$$c = \frac{C}{q}$$

Where:

C is the total cost of one specific elementary activity,

q is the quantity of product processed (with given normalized attributes),

c is the unit (average) cost of the product considered (with these normalized attributes).

In a Bottom-Up approach, *C* is often¹¹ obtained by *c* and the determination of quantity. Hence:

$$C = qc$$

The following table illustrates those formulae:

Elementary activity	X
Total Cost	10€
Number of items	200
Cost per item	0.05€

Top-Down approach: Total Cost and Number of items are identified from accounting data. Cost per item is therefore estimated by $c = 10 / 200 = 0.05$

Bottom-Up approach: Cost per item is one parameter of the model. Number of items is available from operation data, leading to total cost being measured by $C = 0.05 \times 200 = 10$

Note that this method incorporates economies of scale into the unit cost of the products, as *c* is a unit average cost. In some cases, for example for some competitive assessment, it might be necessary to evaluate *marginal cost* or *incremental cost*. This would require further investigation of the cost function. In particular, it might be very difficult to determine economies of scale in a Top-Down approach, as its natural output is average costs. Carefully evaluated Bottom-Up modeling or econometrics is likely to be required if marginal or incremental cost is required.

¹¹ There may be direct cost in a BU model calculated like TD, e.g. advertisement for a specific product, and there may be other examples. The formula fits “only” if costs are a function of quantity; in BU Model mark-up or % of revenue can also be used.



ii) Case of joint costs

Where there are different products being produced and both are efficiently using the same elementary activity in given proportions, the joint production of the different products takes account of potential economies of scale and scope, and these economies should be reflected when allocating joint costs to each specific product.

Therefore, the processing of joint costs requires:

- the list of all elementary activities where different products are jointly produced,
- the effects of the different products' own attributes on the resource consumption at the elementary level,
- the sensitivity of this consumption to the quantities of the products being produced (that may be characterised either by a linear relation or a more sophisticated approach)

Two main cases can then be distinguished:

- a) if there are **no economies of scale and/or scope, therefore no fixed element of cost**, then the total cost of one specific elementary activity is the sum of unit costs of the n different products using this activity that depend on the times required to process the product quantities. It depends on (i) an elementary cost linked to the elementary activity (" c " in the formula below), (ii) the products' attributes that weight the elementary cost (" w_i " in the formula below), and (iii) the product quantities processed (" q_i " in the formula below).

Hence the following formulas for n different products using one activity:

$$C = q_1 c_1 + q_2 c_2 + \dots + q_n c_n = \sum_{i=1}^n q_i c_i$$

For each product i , the unit cost is given by the following formula as a function of the weight of the product and the reference unit cost c :

$$c_i = w_i c$$

Therefore the unit cost for product i is recovered by:

$$c_i = w_i \frac{C}{\sum_{j=1}^n q_j w_j}$$

Where:

C is the total cost of the elementary activity considered,

n is the number of products using the activity under consideration,



q_i (resp. q_j) is the quantity of individual product i (resp. j) processed,

C is a reference unit cost used to derive the weighted unit cost of individual product i (e.g. small letter),

C_i is the weighted unit cost of the individual product i , depending on these product i attributes, derived from the weighting factor W_i and the reference unit cost c ,

W_i (resp W_j) is the weighting factor of product i (resp. j) reflecting its consumption of resources, depending on the product i (resp. j) attributes.

The following table illustrates those formulas:

Product	Traffic	Weight	Unit cost	Total Cost
(a)	100	1	0.2	20
(b)	200	2	0.4	80
	Weighted total	500	0.2	100

In a Bottom-Up approach, unit cost of product (a), using a reference product, is known. The weight of product (b) is also known. Traffic for product (a) and (b) are measured by USP.

In this table, product “a” consumes resources where the unit cost is 0.2. Each product “a” consumes one unit (see weight) of resources. The total cost of one product “a” is therefore given by multiplying the unit cost of the resource (0.2) by the number of resources consumed (1): 0.2. Therefore in this case, the total cost of the product “a” category is given by multiplying the total traffic by the unit cost of product “a”: 20.

Product “b” consumes the same resource (whose unit cost is 0,2), but weighs twice as much as product “a” (see weight). Therefore, the unit cost of product “b” is 0.4 (instead of 0.2 for product “a”) and total cost for product “b” is 80.

This example shows that the treatment of product “a” and “b” consumes 500 units of resources. Since the resource unit cost amounts to 0.2, the total cost of processing “a” and “b” is 100.

- b. if **there are economies of scale and/or scope and therefore a fixed component** of the cost (for instance the route time in the delivery activity which can only be varied when the route is varied), then the total cost of one specific elementary activity depends on (i) an elementary cost linked to the elementary activity, (ii) the product attributes that weight the elementary cost, (iii) the product quantity processed that changes the weight of the product attributes on the elementary cost, and (iv) the fixed component of the joint cost.

In reality the joint costs of elementary activities used to process given sets of postal products in fixed proportions can typically be varied eventually in the longer run – either when the proportions of jointly produced products vary or when the total volume of jointly produced products varies. However, in an appropriate short run perspective, there are typically fixed components of the joint costs concerned with an integrated postal services network with scope and scale economies.

Hence the following formulas:



$$C = F + \sum_{i=1}^n q_i c_i$$

As in case a), we can express the unit cost C_i of product i from a weighting factor W_i and a reference unit cost c

$$c_i = W_i C$$

Hence

$$c_i = W_i \frac{C - F}{\sum_{j=1}^n q_j W_j}$$

Where previous definitions apply and:

F is the fixed component of the joint cost.

Usually, the more activities that are disaggregated to the component elementary activities, the more accurate is the weighting of resource consumption to product attributes and the lower will be the fixed proportion of the relevant elementary activity cost (F/C). In that case (case a), the reconciliation between a Top-Down model and a Bottom-Up approach is fairly straightforward. Nevertheless there are some elementary activities where resource consumption does not actually vary with realistic ranges of product quantity variation over the timescales reflected in postal service providers' historic cost ABC systems.

The identification of the fixed part can be challenging. If the Top-Down model is not able to identify the fixed element of cost, then the evaluation of c_i from a Top-Down approach does not give consistent results. With a Bottom-Up model, the fixed part can be identified as a result of the model. The allocation of the fixed element of joint costs therefore remains the main issue. Two basic alternative allocation methodologies can be considered, along the general principles set out in the Postal Services Directive:

- cost causality relations specific to the costs concerned,
- EPMU (proportional to cost causality in previously-attributed costs).

iii) Case of common costs

Those costs are typically costs related to the support/management processes in postal services.¹² In some countries, such support/management costs are referred to “overheads”. In most countries, part or

¹² For example the costs of rented accommodation associated with long rental commitments, driven by general network coverage requirements rather than particular production activities required for different product sets.



all of these costs are identified to the particular parts of the production process that they are incurred to support. In this particular case, costs are regarded as “nested”.

Two main approaches are therefore identified regarding the allocation of the overheads.

The first, called “non-nested”, does not distinguish “general” and “nested” overheads. Both are allocated as EPMU over the direct costs already attributed to the products. Therefore, all common costs are (i) isolated as much as possible from the production process, (ii) allocated once all costs of the production process have been directly or indirectly attributed to products via specific cost drivers. Therefore, the remaining “common costs” or “general overheads” could then be regarded as a final mark-up on all costs already directly or indirectly attributed.

The second method makes a clear distinction between nested and general overheads. A better representation of the operational reality requires recognition of the role of nested costs in support of direct costs. Therefore, nested costs are first allocated based on EPMU over the allocated direct costs. Then, general overheads are allocated using EPMU over all costs already allocated. This approach requires determination of a hierarchy or order for the application of the different overheads (e.g. How should a mark-up for management and a mark-up for support activities be applied? First by management, then support? Or first by support, then management? Or management and support on the same footing?).

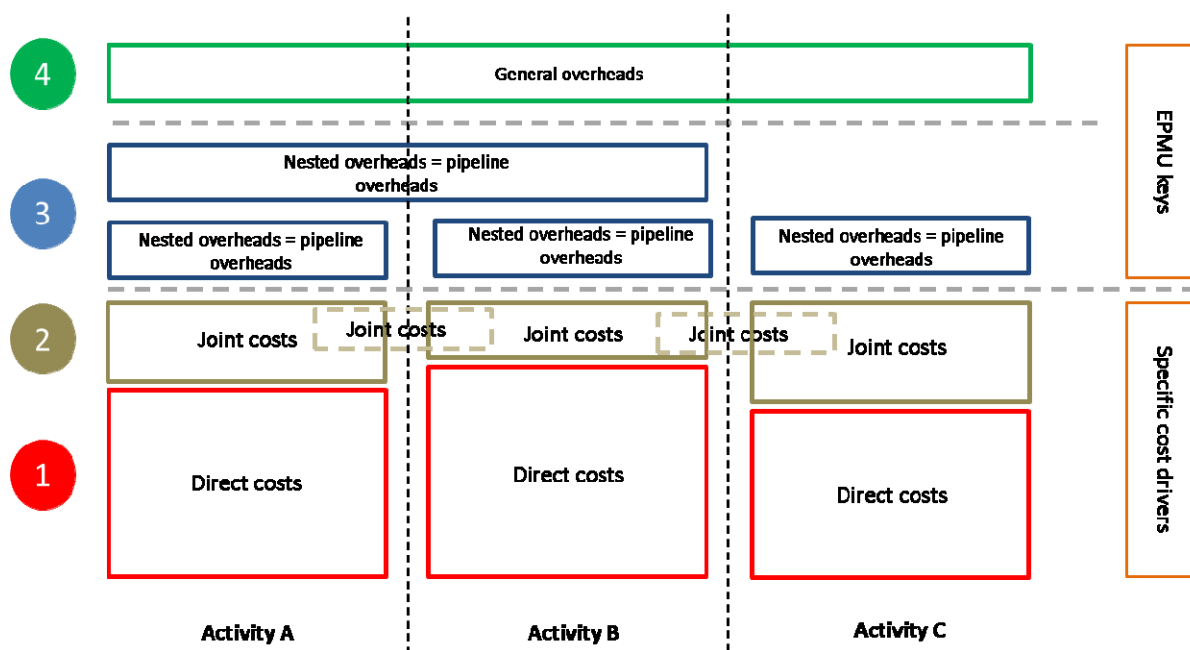
In respect of the fact that consumption by a product of a resource is not always directly (direct costs) or indirectly (through its attributes and elementary activities, joint costs) measurable, common costs are allocated on other principles than “specific” (to each product) cost drivers. Different solutions can be considered:

- Support and management costs could be allocated with appropriate specific cost drivers for the costs concerned (for example overheads for the supervision of complaints in head office could be related to the products most likely to give rise to complaints);
- EPMU could be used, as a last resort, as long as it covers activities that actually use the function involved.

Conclusion

The previous definitions can be represented as follow:

Figure 3: cost definition



2. Main issues raised by these definitions

a. Knowledge of the production process

The decomposition of the production processes in postal services remains a key issue. Indeed, production processes are different from one country to another, so a one-size-fits-all description is not appropriate. Nevertheless, ERGP agreed on the necessity to build and suggest a common framework which would allow each country to provide an accurate representation of the activities and main sub-activities of the postal production process in each country through description of the main (sub)activities.

In addition, it was also noted that, except with some rare exceptions, NRAs' knowledge of the detailed production processes of their respective postal operators remains poor. Hence the following conclusions were drawn:

- it is imperative to have in common a minimum set of activities and sub-activities and, where relevant, the elementary activities within them, with descriptions for each element,
- each elementary activity should have a main cost driver associated with it,
- each NRA should have available to it a detailed list of the elementary activities relevant to the postal services in that country,
- due to the different organization of the production process and the availability of robust and accurate information, (sub)activities may differ slightly from country to country.

b. Identification and allocation of the fixed part of joint costs



When economies of scale and scope occur as a consequence of the product quantities being handled by different postal service activities, the issue of potential fixed costs and their allocation must be considered. This issue has not yet been addressed in detail, especially since most of the NRAs (and their associated USPs) have not undertaken the supporting activity based costing analysis to isolate the costs concerned.

Nonetheless, the identification of these costs to different products remains a key issue.

c. Identification of the proportion of “overheads” common costs and “nested” common costs within total cost

The definition of common costs distinguishes overheads that would be common to all activities from overheads that would be specific to only one or a limited number of activities or sub-activities. Currently, only a few NRAs are able to identify both types of these common costs.

d. Identification of cost drivers

As most activities differ from one country to another, it seems pointless to look for information on cost drivers which is the same between countries at an elementary activity level. Nonetheless, this identification will be required, specific to each country, in order to attribute costs to products as comprehensively as possible.



Part 4: Additional issues to be tackled in a future work

1. Use of Bottom-Up models

While the use of ABC methodology is in line with the regulatory accounting requirements of the individual NRAs, the predominance of the Top-Down approach raises questions regarding allocation of common costs. The Top-Down approach for cost allocation remains, for now, the predominant tool used in regulatory accounting systems. Indeed, this kind of cost allocation methodology remains appropriate as long as the knowledge of the production process by the individual NRA, based on the information provided by the USP, is sufficient. However, this approach may be limited regarding allocation of common costs.

Indeed, the Top-Down methodology relies on the accounting system of the operator or USP. If the latter is not reliable, transparent, justifiable or accurate enough, e.g. if it does not account for the granularity of the postal process, then the allocation obtained with the Top-Down approach may not be accurate and is likely to result in a higher level of common costs. In this case, it might lead to, for example, distortions in the calculation of the costs of USO and non-USO products/services.

Bottom-Up models may be more efficient in the identification, reduction and allocation of joint and common costs with rules driven by causality instead of EPMU. It presents some other difficulties, though, especially regarding the knowledge of the postal activity that is required with such an approach. Bottom-Up models rely on a detailed decomposition of the activity and the identification of cost drivers associated to each elementary activity, as well as the costs incurred to develop such an approach.

However, the development of Bottom-Up models allows an NRA to cross-check the Top-Down data provided by the postal operator. More precisely, if some costs for an operator happen to diverge from a benchmark of equivalent costs made on other operators or on the same operator at a different time without appropriate explanation, B-U model could contribute to the assessment of the discrepancy.

As such, Bottom-Up models is to be used primarily as a tool estimating the impacts of different allocation rules on costs. In that view, such a model would not be used to challenge the total level of costs, but their allocation on the different products. As such, those models would not be intended to benchmark efficiency, so this issue would need to be addressed at another stage.

Stand-alone use of Bottom-Up models might also be considered by NRAs, especially in cases where the USP either does not provide costing data/results based on accounting separation or the costing data/results based on accounting separation are not reliable, transparent or justifiable. The NRAs should be able to set the conditions and principles to develop the bottom-up models.

2. Best practices for checking and validation of traffic measures

The predominant role of product quantity in driving postal service costs for operators in every country means that it is important to understand how quantities are measured for the purposes of cost analysis from one country to another, and to identify differences (and potential inconsistencies) in the measurement methodologies concerned. The analysis of cost drivers will also require the analysis of the effects of potential scale and scope economies on costs (or quantities as a cost driver).

Traffic (i.e. volume, number of items) is one of the major cost drivers in ABC costing. It is directly used in the attribution of direct costs, and is also used to allocate joint costs, emphasising the principle



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of cost orientation when the operator benefits from economies of scale or scope. Therefore, it is imperative to have transparent and coherent traffic measures depending on the activity considered. Furthermore comparisons of costs functions, of cost allocation between different activities, or of common costs within a given activity depend on the homogeneity of traffic measures between different USPs.

For now, it seems that at least three methods are used to measure traffic:

- Revenue based traffic,
- Traffic measured from operational data sources,
- Statistical measures.

Further studies based on national experience shall help define best practices on this matter.



Appendix 1: Common framework for the postal activity

Experience across participating countries has shown that the number of activities may be a few hundreds (or more). This deep granularity demands a high quality of data to ensure accuracy. In most cases, and at the moment, this information is not or cannot be provided by the postal operators. The aim, however, is to develop an information system providing accurate and reliable data. If the postal operator is not able or not willing to provide detailed data, the use of a Bottom-Up model would be an alternative solution to consider.

The following structure tries to identify the most relevant activities and, in broad order of materiality, sub-activities, without attempting to be fully comprehensive or accurate for any given country.

The Main Categories of activities in a postal services business are Collection, Transport, Sorting and Delivery.

Within Collection the main sub-activities are Collection of Bulk mail, Collection in Post Offices and Collection from Letter Boxes. Further activities are handling of collected items for further transport like stamping, indoor transport, pre-sorting and packaging. Within the collection activity, main products attributes will be, beside volume opening hours of Post Offices, special treatment (e.g. registered mail, Parcel, etc.).

Transport Activities are focused on moving postal items between different geographic Postal Units within an integrated network as well as inside one Postal Unit. It is a matter of definition whether to include Storage Activities as well as transport to the Postman's Route. Appropriate cost drivers for these types of activity are, for example, volume, size, weight, distance and speed between Postal Units.

The Category of Sorting can be split into sub-activities like indoor-transport and storage (if not under Transport), preparation for sorting, manual sorting, mechanical sorting, packaging. Within sorting, main product attributes will be the degree of pre-sorting, speed and detail of sorting (delivery-unit, postman, and sequencing), quality of address etc. For International Mail there are additional specific activities for inbound and outbound service.

Delivery activities may be broken down to pre-sorting, sequencing, route time, delivery to the mailbox, special treatment, administration of registered item, collection of mail from letter-boxes (if not within Collection). For Delivery there are a lot of attributes to take into account in identify relevant cost drivers, such as weight, size, distance to and from the route, distance of the route, density of population, volume per household, type of transport (car, bicycle, walking, etc.).

Each of the sub-activities listed above can be further subdivided using costs weighted by the specific activities required for the different handling characteristics of postal items (like small, large, thick or thin letter, parcels, registered and insured item single or bulk mail, unaddressed items etc.) where these drive costs.



1. Collection

The main activity collection covers all activities concerning receipt of postal items from third parties (customer, consolidators, and other postal operators). Some collection activities may be done by staff who also works for other main activities like sorting, transport or delivery. In this case it should be clearly and separately reported. Sub-activities are for example:

a. Collection from Letterbox

This can be done by staff belonging to different organisational units (postman during or before or after delivery-route, staff of postal offices, staff of sorting and transport units, special unit, etc.).

This sub-activity may include, beside the route and physical collection from the letterboxes, stamping and some kind of preparation and pre-sorting. Collection from letterbox can be one single activity or can be split in more sub-activities, depending on the data available.

Cost drivers for this activity may be the number of letterboxes, the distances to, between and from the letterboxes, number and kind of postal items, kind of vehicle.

b. Collection at Counter in Post Offices

This sub-activity covers a large range of tasks. So it is usually split into more sub-sub-activities. The latter may be selling stamps, weighting postal items, register postal items, stamping, preparation, pre-sorting, checking bulk mail, selling other products like financial services, stationary, telephone products, etc.

Cost drivers are opening hours, number and kind of sold items, degree of preparation and pre-sorting. Within this sub-activity it is obvious that there are, due to opening hours and consumer behaviour (peak times), joint costs which have to be allocated to products. Opening hours may be a universal service obligation and therefore some of the common costs are related to Universal Service Obligation. These costs should be identified and are subject to the net cost of USO. Beside these costs, there are still common costs for idle time which would also occur without a USO. These costs could for example be allocated by using EPMU, but to all products, not only USO products.

c. Collection from large Customer

For large customers the postal operator often offers a service to collect and deliver postal items. So this type of sub-activity can be associated to delivery. The sub-activity may be done by staff employed in delivery, sorting, transport or collection. Therefore it is necessary to report this activity separately. Cost drivers for this activity may be the number of customers, the distances to, between and from the customers, number and kind of postal items, and kind of vehicle.

d. Collection at sorting centre

Large customers often deliver their postal items directly to sorting centres or comparable units. This kind of collection differs significantly from other collections. The main cost drivers are volume/weight per collection and how items are delivered (e.g. truck with lift gate, standardised boxes, etc.).

2. Transport

The main activity “transport” includes, beside the transportation between postal units by truck, plane or ship, indoor-transport within postal units like sorting centres, post-offices and delivery centres. Another sub-activity is transportation from the delivery centre to delivery-boxes on the route of the postman. As some of the transportation sub-activities may be reported under one of the other main



activities, it is important to have good documentation of the operators activities in order to know what kind of transportation is reported within which accounts. The main cost drivers for transportation are kind of vehicle (car, truck, rail, ship), the distance and the size and volume. There may also be other cost drivers for special transport.

3. *Sorting*

The main activity “sorting” has several sub-activities. They can be differentiated into sorting in mostly “pure” sorting centres and into sorting in other postal units like for example postal offices and delivery centres.

Another main distinctive feature is whether the items are sorted by hand or by machine. Sorting activities may differ a lot from one country to another depending on the degree of mechanical sorting, and degree of detail of sorting (e.g. per delivery centre, per postman or even sequenced for postman). Sometimes sorting centres are distinguished between outward and inward sorting centres. Again it is important to have documentation as mentioned above.

Within sorting centres there are a lot of different sub-activities like loading, indoor transportation, supporting handling, preparing, packaging etc. These activities should be reported separately.

Each of the sub activities may have different cost drivers. Cost drivers related to sorting vary substantially: e.g. quality of pre-sorting, quality of final-sorting, size, volume, weight, etc.

4. *Delivery*

The main-activity “delivery” has several sub activities. Main activities are preparation and sequencing, route time and inserting. Additional activities are pre-sorting, administration (for registered items), loading and care of vehicles, taking up postal units from delivery boxes etc. Large parts of the delivery activities are linked to different products and so it is necessary to have as detailed information as possible. As delivery is representing the highest proportion of total cost of postal activities, it should be treated carefully.

a. Pre-Sorting

This sub-activity may include unloading trucks, trains or other transportation vehicles, indoor transportation, pre-sorting and some kind of preparation. If sound data are available, each of the described steps could be separated sub-activities. The costs of these activities are mainly driven by volumes.

b. Sequencing

This sub-activity includes the sorting of the mail in the order of the route. Parameters which influence the cost of this activity are number of items, size and weight of items, quality of address, level of pre-sorting. In some cases sequencing is performed by sorting machines.

c. Route time

This sub-activity is usually linked to several products and is driven by a lot of different parameters. As well as volume, cost drivers may include weight, size, distance to and from the route, distance of the route, density of population, volume per household, and type of transport (car, bicycle, walking, etc.).



d. Inserting

This sub-activity covers the stopping time and insertion of items into the letter-box of the customer or directly to the customer (e.g. registered mail). If data are available this sub-activity may be split into product-related activities.

Main cost drivers are number of boxes at one stop and number of items per box.

e. Administration

Covered within this activity is the administration of items with special treatment (e.g. parcels, registered mail, etc.).

The main cost driver is the number of items.

Delivery activities can be done also by collection, sorting and transport units. In this case it is necessary as mentioned above to track these activities separately.



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