## LES ACTES DE L'ARCEP

January 2010

## Public consultation on the cost accounting rules of La Poste, the universal postal service provider

In application of Article L. 5-2, vi, of the Code des postes et des communications électroniques

## Foreword

ARCEP (Autorité de régulation des communications électroniques et des postes) is conducting a public consultation (scheduled to end on 1 March 2010) on an analysis of the accounting rules to be implemented for preparing La Poste's statutory accounts, in particular those rules that reflect the impact of item weight and format on postal process costs.

This analysis is available for download on ARCEP's website. Comments must be sent to ARCEP, preferably by e-mail, at regles-comptabilisation@arcep.fr. Alternatively, they can be posted to the following address:

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ARCEP will carefully consider the comments submitted. In the interests of transparency, it will publish the comments received in full, except any sections covered by business secrecy. To this end, contributors are invited to submit items they regard as needing to be covered by business secrecy in a specifically identified annex. Likewise in the interests of transparency, contributors are requested to confine passages covered by business secrecy to a bare minimum.

## Introduction

ARCEP has launched this public consultation with a view to taking a decision on La Poste's cost accounting rules, in application of article L. 5-2, vi, of the "Code des postes et des communications électroniques".

The accounting rules under study reflect the impact of the weight and format of postal items on La Poste's costs. The issues at stake are important, especially for pricing, because the postal network conveys items of very different weights and formats. For instance, a press item is five times heavier than a letter, and a parcel 42 times heavier.

This consultation follows up Decision 2008-0165 of 12 February 2008, altering the distribution of the common costs of delivery (mail carrier's round). This Decision stated that the impact of item weight and format on postal-chain costs should be better substantiated and invited La Poste to produce additional studies.

In 2009, La Poste presented the results of a series of statistical studies, which gave rise to the new weight/format index values set out in the consultation. ARCEP continued its work, in particular on the common costs of delivery (mail carrier's round); it is now presenting an analysis of the current method for allocating these common costs and proposing alternative methods.

ARCEP plans to adopt a decision, in March 2010, that would alter La Poste's cost-accounting rules for the "Sorting/Transit", "Delivery preparation/Sequencing", and "Outdoor delivery" processes for fiscal year 2009 (see part III of the document). ARCEP has no plans to change the rules for the common costs of outdoor delivery work (part IV) for fiscal year 2009. At this stage, it is submitting its analyses on the subject in a public consultation, along with a modelling tool template.

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## I. Legal framework

Under the terms of article L. 2 of the "Code des postes et des communications électroniques", La Poste, the universal postal service provider, is subject to obligations in respect of accounting and specific information.

La Poste is therefore required to produce accounting information - its statutory accounts according to a format defined by ARCEP. Article L.5-2, vi, empowers ARCEP to establish the specifications for the accounting systems. Decision No. 20070443 defines the content and structure of the statutory accounts.

The same Article authorises ARCEP to set the cost accounting rules. This is the subject of Decision No. 2008-0165 which notes the cost accounting system currently used within La Poste, and amends the rules to take account of delivery frequency - urgency - in allocating postal delivery costs.

As a result of this decision, further work has been done by both ARCEP and La Poste:

- La Poste has conducted fresh tests on the impact of item weight and format on its costs. These tests are presented below.
-ARCEP has undertaken more work on the specific issue of postal delivery and the sensitivity of its costs to weight and format. Delivery cost is a significant factor in postal costs and is also a cost common to all postal traffic. While delivery frequency is the primary factor in shaping postal delivery costs, the current accounting rules also introduce a further, secondary factor the format and weight of postal items. These rules are analysed below and are the subject of new proposals.


## II. Methodology and background

This section shows: how the weight and format of the items transmitted by La Poste can affect its costs (A), the link between these two characteristics (B), how this impact is usually reflected in postal pricing (C), and the methods that can be used to assess it (D).

## A. The impact of item weight and format on costs

Examination of the postal production chain shows that, in general, the processing cost of items increases with their weight and size, but to degrees which vary with the organisation of each major process in this chain.

In transmitting an item from its point of posting to the addressee, the postal operator uses an organisation that can be broken down into five processes or activities:
collection of items for transmission (e.g. from yellow letter boxes);
sorting of these items by destination;
conveyance;
preparation of delivery operations (indoor delivery work);
lastly, postal delivery proper (outdoor delivery work).
Postal-sector operational costs are distributed approximately as follows:

| Collection | Sorting | Conveyance | Delivery |
| :---: | :---: | :---: | :---: |
| $16 \%$ | $20 \%$ | $8 \%$ | $56 \%$ |

Reference: Postal Economics, J. Toledano (2004); this allocation is based on European data.

| Process | Sensitivity to weight/format |  |
| :--- | :---: | :--- |
| Collection | No | Basically, it is the method of insertion into the postal network (bulk <br> posting, posting in yellow letter boxes ...) that determines the type of <br> processing. |
| Sorting <br> of which manual <br> sorting <br> - of which mechanised <br> sorting | Yes | The weight and size of items determine where they are processed, for <br> items more than 2 cm thick for instance, and processing times will also <br> vary depending on the item's weight and format. <br> Depending on their format, items will be processed on different <br> machines with different processing times. |
| Conveyance | Yes | The weight and size of items affect conveyance-equipment <br> dimensions. |
| Delivery preparation | Yes | Processing times will also vary with item weight and format. |
| Delivery <br> - of which loading time | Yes | The weight and size of items affect times for mail delivery to letter <br> boxes, especially if the boxes are not standardised as this may <br> necessitate delivery to the eaddressee in person. <br> There are limits on the total weight a mail carrier can carry on foot or <br> by bicycle. |

The weight and size of the items processed impact on postal costs at almost every stage of the postal chain, and in several ways. These effects therefore have to be assessed at every stage.

## B. The link between item weight and size

For the purposes of postal cost accounting, postal items are divided into three weight categories which are regarded as a sufficiently faithful reflection of the diversity of items making up postal traffic. These are:

-     - small format (PF) (weight less than 50 g );
-     - large format (GF) (weight between 50 g and 250 g );
-     - bulky items (ENC) (weight more than 250 g ( 350 g for press items)).

Moreover, the 50 g threshold is of regulatory interest since it demarcates the postal monopoly. This regulatory threshold will cease to exist in 2011, with the total opening of the French postal market to competition.

## 1) Industrial justification of the three categories

In a number of cases, it is the format rather than the weight that is clearly the decisive criterion. In the sorting process for example, upstream preparation of items by format is necessary to facilitate their industrialised processing.

In other cases, it is not easy to identify the decisive criterion. For example, when manual processing times are subjected to statistical measurement, it is difficult to know whether the different item processing times have more to do with weight or format. Similarly, the total weight of items for delivery and their volume both impose constraints on a mail carrier's round.

## 2) Statistical argument

La Poste argues that there is a strong correlation between format and weight, basing itself on the table below, which shows the distribution of 2007 traffic by weight and format categories (including press items and non-universal service traffic):

|  |  |  | Regulatory categories |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Small format |  | Large <br> format <br> 51 to 250 g | Bulky items$>250 \mathrm{~g}$ |
|  |  |  | $<=20 \mathrm{~g}$ | 21-50 g |  |  |
| Format categories | Rectangular, less than or equal to the C5 format | $\begin{aligned} & \text { width }<=140 \text { or height } \\ & <=.90 \mathrm{~mm} \end{aligned}$ | 0.3 \% | 0.0 \% | 0.0 \% | 0.0 \% |
|  |  | width $<=250$ and height $<=120 \mathrm{~mm}$ | 46.9 \% | 7.8 \% | 0.5 \% | 0.0 \% |
|  |  | width $<=250$ and height $<=167 \mathrm{~mm}$ | 6.8 \% | 10.1 \% | 2.5 \% | 0.0 \% |
|  | A4 format | $\begin{aligned} & \text { width }<=325 \text { and } \\ & \text { height }<=230 \mathrm{~mm} \end{aligned}$ | 0.7 \% | 4.2 \% | 13.2 \% | 2.5 \% |
|  | Larger than A4 and other shapes | width $<=360$ and height $<=260 \mathrm{~mm}$ | 0.1 \% | 0.5 \% | 2.3 \% | 0.8 \% |
|  |  | width $<=400$ and height $<=260 \mathrm{~mm}$ | 0.0 \% | 0.0 \% | 0.2 \% | 0.0 \% |
|  |  | width $<=400$ and height $<=300 \mathrm{~mm}$ | 0.0 \% | 0.0 \% | 0.2 \% | 0.1 \% |
|  |  | $\begin{aligned} & >400 \text { and height }>300 \\ & \text { mm width } \end{aligned}$ | 0.0 \% | 0.0 \% | 0.2 \% | 0.0 \% |

Reference: La Poste. "Determining the impact of shape and weight of mail items on manual processing costs: an experimental approach". Conference at Rutgers, May 2009

For example, nearly $75 \%$ of items are smaller than or equal to C5, and $77 \%$ weigh less than 50 grams. To simplify matters, La Poste assumes that $100 \%$ of letters smaller than or equal to C5 also weigh less than 50 g .

Items weighing less than 250 g account for $80 \%$ of the "Larger than A4 and other shapes" category, raising the question of the relevance of the relationship between weight and format for this category.

The table produces the following distributions:

| Combination of the two factors, format and weight: |  |  |
| :--- | :---: | :---: |
| Small format [0-] 50 g | $71.9 \%$ |  |
| Large format [51]-250 g | $13.2 \%$ |  |
| Bulky items $>(250 \mathrm{~g})$ | $0.9 \%$ |  |
| Total | $\mathbf{8 6} \%$ |  |


| Distribution by weight |  |
| :---: | :---: |
| $[0-50 \mathrm{~g}]$ | $77.4 \%$ |
| $[51-250 \mathrm{~g}]$ | $19.1 \%$ |
| $>250 \mathrm{~g}$ | $3.4 \%$ |
| Total | $\mathbf{1 0 0} \%$ |

In all, $14 \%$ of items are not classed in the format category corresponding to their weight. It is difficult to measure the effects of this on the allocation of costs to products, which is based on weight (and not on format or a combination of the two).

Question 1: What is your opinion of regulatory segmentation based on the "weight" variable? What improvements would you suggest? On the basis of what references or arguments?

## C. The impact of weight and format on postal pricing

In general, tariffs are supposed to reflect costs. When investigating the impact of item weight and size on costs, it is therefore interesting to look at the picture as painted by current postal pricing. ARCEP based itself on the following points:

- La Poste's tariff structure compared with that of the main European postal operators (10 countries). The aim was to study how tariff structures take account of the format or weight of postal products. The study confined itself solely to urgent mail.
- The format segmentation used in the Reims Agreements: letters up to C5 format weighing less than 100 g , flats (non-standardised A4 items) smaller than or equal to C 4 format and not exceeding 500 g , and finally any shape of packet falling within the Universal Postal Union (UPU) weight and size limits.

This comparison made it possible to distinguish between three groups of tariff structures within Europe:

-     - The tariff structure of the first group, consisting of France and Sweden, is based on the weight of items. Though items must comply with minimum and maximum sizes, only a very small percentage of traffic is affected by this size requirement.
-     - The second group, made up of Austria and Belgium, specifies a standard format up to 20 or 50 g at a single tariff and breaks down tariffs for items that do not comply with the standard format by weight bands.
-     - The third group bases its tariff structure on several formats and defines a maximum weight for each of them, as a subsidiary measure. This is the case in Germany, Ireland, Denmark, Italy, Finland, Switzerland and the United Kingdom where various (frequently product-related) formats are on offer. In the United Kingdom, for example, the user first selects the item format (Letter, Large letter, Packet). For each format (except for the "Letter"), the price depends on the weight. For items of the same weight, a "Packet" will be more expensive than a "Large letter", because a "Packet" is bulkier than a "Large letter".

The comparison shows that most countries have a tariff structure based on weight and format; with one or other of these factors as the dominant factor in explaining pricing. Thus, in

Germany, format is the most important criterion. In France and Sweden, however, this criterion is not a decisive tariff-schedule factor, merely a condition of acceptance.

This tendency to take account of item formats in postal pricing is a recent development. Deutsche Post began giving format a more prominent place in determining price structures from 1996 onwards. Post Danmark made the shift in 2003, and Royal Mail in 2006. When Royal Mail's request to alter its tariff structure was approved, Postcomm verified that the change resulted in a better gearing of its tariff structure to processing costs for the various item categories.

This shift towards pricing based on item format rather than weight reflects the objective of encouraging users to send postal items whose processing (including sorting and conveyance) can be mechanised. This depends primarily on standardisation of formats.

Question 2: In your opinion, how relevant and expedient is it to include format as a pricing criterion?

## D. How cost accounting can measure this impact

## 1) Possible allocation methods

The following table provides information about the impact of weight and format on the costs of the four processes and how it is measured:

| Process | How is the weight/format driver measured? |
| :--- | :--- |
| Sorting <br> - of which manual <br> sorting <br> -of which mechanised <br> sorting | Differences in processing times for the three weight/format <br> categories (timing) <br> Differences in technical characteristics of machines (especially <br> the sorting rate) |
| Conveyance | Average volume of a container for the relevant category of <br> items (count) |
| Delivery preparations | Differences in processing times for the three weight/format <br> categories (timing) |
| Delivery <br> - actual delivery <br> - travelling time | Differences in processing times for the three weight/format <br> categories (timing) <br> Allocations are based on theoretical rules and models. |

There are three ways of recording the impact of weight/format on process costs:

## a) Information system

A relevant, accurate information system is the most robust solution, but in the great majority of cases, a direct evaluation of costs by weight or format cannot be assigned to each product by using accounting information.

## b) Studies and statistical testing

When common costs cannot be allocated to several postal products with accounting system information, La Poste sometimes has to rely on economic analyses, time-and-motion studies and "expert opinions". This approach is based on observation of production and cost data, and on the statistical relationship between these figures. The impact of weight/format is then expressed in indexes for each of the three types of format, calculated using linear regressions. These regressions are determined by data derived from timing the manual processing of "batches" of mail, from statistical studies and expert opinions.

Sample-based statistical testing requires methodological rigour. Data collected according to a sampling plan generally have to be updated frequently enough to take account of structural changes in production and developments in traffic structure (such as an increase in the average weight of a product).

## c) Models

When costs cannot be measured either by the information system or physical measurement, a modelled representation of the production chain and the establishment of costs based on public data from operators are called for. "Economic modelling" of this kind must be accessible to parties concerned by the accounting results.

## 2) Assessment of present methods

In its Decision No. 2008 - 0165, ARCEP invited La Poste to further substantiate the impact of item weight and format on costs. The subsequent studies revealed that:
$1)^{\circ}$ while nearly $75 \%$ of postal costs depend on the weight and format of the items that make up postal traffic, La Poste's information system rarely provides an immediately readable measurement.
$2)^{\circ}$ in most situations, however, statistical studies make it possible to draw up "indexes" which can be used to allocate costs to the various item categories. La Poste has therefore conducted new studies to update the current allocations.
3) ${ }^{\circ}$ postal delivery, which represents a high proportion of costs, requires special treatment. By its very nature, this cost is common to all items delivered; there is no simple, quantitative method for assigning common costs to the various traffic components. In particular, it is difficult to quantify the relationship between the weight or format of items and their delivery cost.

Hereafter, ARCEP:

-     - presents the elements that underpin the allocations based on the information system and statistical studies;
-     - gives a detailed explanation of the present methods and possible ways of allocating the common cost of postal delivery.


## III. Costs of sorting, conveyance and delivery preparation work

La Poste has carried out comparative studies on the cost of four processes for the various weight/format categories (PF, GF, ENC), namely conveyance, manual sorting, delivery preparation work and delivery to letter boxes.

The findings of these studies are as follow:

| Process | Small format PF | Large format GF | Bulky items ENC |  |
| :---: | :---: | :---: | :---: | :---: |
| Manual sorting | 1 | $\begin{aligned} & 1.46 \\ & (1.8) \end{aligned}$ | Sorting bin 2.28 <br> (ENC mail: 3.3) | Sorting basket 4.47 <br> (ENC packages: 4.9) |
| Delivery sorting, excluding CEDEX | 1 | $\begin{gathered} 1.18 \\ (1.18) \end{gathered}$ | $\underset{\text { (4) }}{<\mathbf{2} \mathbf{~ c m ~} 2.59}$ | $>\mathbf{2 ~ c m ~}_{\text {(4) }} 7.2$ |
| Delivery sorting, CEDEX | 1 | $\begin{gathered} 1.44 \\ \text { (1) } \end{gathered}$ | $\begin{gathered} 1.88 \\ \text { (1) } \end{gathered}$ |  |
| Delivery to letter boxes | 1 | $\begin{gathered} 2.15 \\ (2.54) \end{gathered}$ | $\begin{gathered} <\mathbf{2} \mathbf{~ c m ~} 2.86 \\ (4.40) \end{gathered}$ | $\begin{gathered} >\mathbf{2 ~ c m ~} 5.64 \\ (4.40) \end{gathered}$ |

Values in brackets are the index currently applied for statutory accounting.
Question 3: What are your comments on the development of these indexes?

## IV. The common costs of delivery

NOTE: This section is of an exploratory nature. It takes a fresh look at the hypothesis that the common costs of delivery are fixed and presents alternatives to the current allocation method for these costs, based on the findings of a model which can still be further refined. The values attributed should be understood as merely by way of illustration.

Travelling time (actual delivery round and getting to/from it) accounts for almost $80 \%$ of these costs which are supposed to be independent of the volume of items delivered. However, the mail carrier's round cannot be regarded as a fixed cost unless the level of traffic necessitates a systematic stop at each delivery point (when the round reaches "saturation point"). Furthermore, if there are very few delivery stops, the round will be shorter because the mail carrier will take shortcuts. As an annual average, the mail carrier's "stopping rate" at a delivery point (building or house) is $72 \%$.

## A. The present cost allocation method

## 1) Recap

Delivery-round costs (excluding post-office preparation work) represent more than a quarter of total postal costs, so their allocation to the various services is important.

The company's information system cannot allocate this common cost direct to products, so that an approach based on economics has to be used. La Poste quantifies the effect of the costs drivers it regards as relevant in the following way:

- -urgency: as a rough guideline, the size of a delivery network is mainly determined by the service frequency it must provide: put very simply, it is assumed that six weekly deliveries are necessary to ensure a $D+1$ service, while one delivery a week could suffice for a $D+7$ service and - all things being equal - would also cost six times less;
- -weight/format: the number of items and their characteristics affect costs in that there are physical and legal limits to the total weight a mail carrier can carry. This qualifies the abovementioned "urgency" argument because round costs can no longer be considered as fixed.

This approach should make it possible to break down the cost of delivery (excluding delivery to the addressee in person) into the different postal traffic components distributed over nine situations:

|  | $\mathrm{D}+\mathbf{1}$ | $\mathrm{D}+3$ | $\mathrm{D}+7$ |
| :---: | :---: | :---: | :---: |
| PF |  |  |  |
| GF |  |  |  |
| ENC |  |  |  |

Since traffic volumes are known under this segmentation, differentiated unit costs can therefore be established.

This approach will attempt to assign costs to the nine categories using a "stand-alone cost" approach comprising two stages:

-     - in a first step (allocation to urgency), $60 \%, 30 \%$ and $10 \%$ of the common cost of delivery are distributed over traffic for the three service levels $(D+1, D+3, D+7)$ respectively;
-     - in a second step (allocation to weight-/format), each of the three costs ascertained in this way ( $60 \%, 30 \%$ and $10 \%$ ) is divided among the PF, GF and ENC item categories. La Poste uses a model that simulates the cost of postal delivery based on actual traffic, its weight composition and its geographical distribution. This model calculates the costs La Poste would incur if the corresponding tonnages of the three weight/format categories were delivered separately. For each level of urgency, La Poste observes each category's percentage of the total costs for its stand-alone delivery.

This produces the matrix of common costs for the nine categories. When linked to traffic for these categories, the result is a broad spread of unit costs: at extremes of the spectrum, an
urgent ENC item ( $\mathrm{D}+1$ ) is allocated a delivery cost 28 times higher than that of a small $\mathrm{D}+7$ item.

## 2) Critique of this method

One drawback of this method is that the two steps are not based on perfectly homogeneous assumptions:

-     - the "urgency" argument in the first step is based on the premise that the total weight and the number of items delivered do not impact on costs;
-     - in contrast, in the second step, the model used is based on the opposite premise and specifically attempts to describe a variation in the fixed costs of external delivery work when the network handles different volumes.

The results could therefore be disputed on the grounds of methodological inconsistency.
The method results in "weight/format" index sets that depend on the urgency category. However, this does not seem to match operational reality: every round ( $D+1, D+3, D+7$ ) is a daily average round with its own organisation.

Lastly, with regard to assessing the impact of weight and format on fixed delivery costs, the "stand-alone cost" approach does not in itself make it possible to bring out causal links between the characteristics of items for delivery and their delivery cost.

This impact can only be observed through a specific function which, in this case, calls for technical and economic modelling of postal delivery. ARCEP's services developed a modelling template on these lines.

## B Technical/economic model template

## 1) Presentation

This template is a relatively simple modelling of postal delivery economics.

- based on demand, characterised by two parameters - the average number of items delivered daily per point of delivery (letter box) and the average weight per item;
- in particular, the model evaluates a daily delivery cost for one area, assumed to be homogeneous, with two parameters: the average distance between two points of delivery (addresses) and the number of letter boxes per point of delivery.

The basic functions describing the cost incurred in the various phases of delivery are derived from literature on postal-sector economics.

The template also makes it possible:

- to consolidate basic results for a specific area at national level, so as to obtain a daily cost for delivery - the purpose of the exercise;
- to measure the sensitivity of this result to the characteristics of demand in terms of volume and weight.

This model does not aim for total alignment on the values observed by La Poste but rather attempts to represent the variation in delivery costs by simulating the impact of the total weight for delivery and of relaxation of the urgency constraint, on the basis of traffic for the various situations studied. It makes it possible to evaluate the impact of alternative allocation methods.

Question 4: What improvements would you suggest to this modelling approach? In particular, could you cite studies or references that are available for this purpose?

## 2) Result

The main lesson learnt from this modelling exercise is that the "fixed costs of delivery" are nevertheless fairly sensitive to delivery volumes, and are more sensitive to delivery volumes than to item weight. This prompts reconsideration of the assumptions underlying the existing method, in particular the fixed nature of delivery-round costs.

## C. Three alternatives to the present method: an exploratory analysis

## 1) Improving the "stand-alone cost" approach

The weakness of this method lies in the first step. The delivery system is assumed to be identical for all three categories of products - D+1, D+3 and D+7 - even though they represent very different traffic, namely $1 / 6$ th of weekly $\mathrm{D}+1$ traffic alone (approx 18 million items) and, in another case, all $\mathrm{D}+7$ traffic (approx 98 million items). Moreover, the weight/format characteristics of these traffic categories are different ( $\mathrm{D}+7$ is heavier).

The delivery model presented in the annex (like that implemented by La Poste in its cost accounting) can simulate the impact on fixed delivery costs of an increase in traffic and of the total weight for delivery.

Without calling the "stand-alone cost" procedure into question, the approach thus involves extending application of the models to cost allocation by urgency and then by "weight/format" category, and no longer just by "weight/format" category.

Annex 4 explains this approach in detail.

## a) Result

On this basis, costs would be allocated as follows:

|  | D+1 | D+3 | D+7 |
| :--- | :---: | :---: | :---: |
| New distribution, taking actual <br> traffic into account | $49 \%$ | $36 \%$ | $15 \%$ |
| La Poste estimate, taking actual <br> traffic into account | $57 \%$ | $32 \%$ | $11 \%$ |
| Present distribution (theoretical <br> approach, without taking traffic into <br> account) | $60 \%$ | $30 \%$ | $10 \%$ |

The first two lines reflect results based on the same alternative method. The differing results derive from the modelling differences that exist between the template and the more elaborate model used by La Poste.

However, in both cases, the costs allocated to $\mathrm{D}+7$ are higher when volume is taken into account. The stand-alone cost of a $\mathrm{D}+7$ round is greater than the stand-alone cost of a $\mathrm{D}+1$ round because there is a much more $\mathrm{D}+7$ traffic to deliver. This means more stops for the mail carrier, and the greater total weight necessitates the deployment of additional resources.

The matrix of common costs in the nine categories can then be produced by calculating the "stand-alone cost" for items in the different weight categories. The result (based on the modelling "template" - see annex 3) is unit costs that are less dispersed than with the previous method.

## b) Limitations

The advantage of this methodology is its uniformity: weight (and associated traffic volume) is taken into account in both allocation stages, which are based on the same approach in terms of "stand-alone cost".

Like the present method, this method requires using a tool that measures the impact of weight and format on the fixed costs of delivery.

However, like the present method, this method also has several limitations:

-     - "weight/format" indexes are still differentiated according to the "urgency" category;
-     - the method does not guarantee there will be no anomalies in the unit-cost index set, so it may result in a higher unit cost for a bulky $\mathrm{D}+3$ item than for the corresponding $\mathrm{D}+1$ item, which does not seem logical.
-     - lastly, the relevance of this stand-alone cost method can be challenged as the cost driver is the weight, whose influence on costs is of secondary importance (urgency and traffic volumes have a much greater impact).


## 2) Developing separate indexes for urgency and for weight/format

This approach takes separate indexes as its point of departure (an "urgency" index and a "weight/format" index), and uses multiplicative cross-correlation to develop an "urgencyweight/format" index table.

The approach is simple: four parameters are enough to establish the allocation of delivery costs according to the nine segmentations.

It has the advantage of countering the criticisms mentioned above by establishing a coherent, logical set of indexes.

However, it must be possible to establish each of the two sets of basic indexes by exogenous analysis.

## 3) An "incremental cost" approach

For competitive analysis purposes, it is useful to have an incremental cost because it constitutes the lower limit of pricing, below which cross-subsidisation is presumed.

In the case of postal delivery, the incremental cost could be constructed as follow:

-     - starting from the premise that the operator needs to run a delivery network (sufficient mail carriers, vehicles ...) that allows delivery six times a week throughout its territory, irrespective of the volume for delivery. This so-called "basic network" therefore generates a
"fixed cost" and is necessary to enable the operator to respond to user needs and to satisfy regulatory constraints (universal, daily delivery). The "fixed cost" can be allocated to traffic according to a $D+1, D+3, D+7$ urgency grid, with $60 \%$ going to $D+1,30 \%$ to $D+3$, and $10 \%$ to $\mathrm{D}+7$. Thus, this cost would not be linked to the quantity of traffic for delivery;
-     - looking for the incremental cost - the cost increase that occurs when this operator has to deliver the different traffic flows of PF, GF and ENC items;
-     - the sum of the incremental cost and a relevant fraction of the common "fixed cost" gives the total amount for allocation to products.

The model shown in annex 3 can also be used for this purpose.
The calculations are of course based on the convention defining the "basic network" which produces the "fixed cost".

Using the model in annex 3 produces a considerably lower cost spread than with the present accounting; (see annex 6). These results are based on the ARCEP model which can be further refined.

## D. Conclusions about common delivery costs

The postal delivery network is a common infrastructure serving the bulk of postal items.
It represents a large proportion ( $28 \%$ ) of the total cost, and its allocation to the various item categories is based on conventions, because there is no direct and identifiable cause-and-effect relationship which would permit direct allocation, except for the time spent by mail carriers delivering to letter boxes.

The current convention is open to criticism on the grounds that it does not take sufficient account of the combined impact on costs of postal volumes and item weights and formats. While it is indisputable that delivery frequency is the primary cost driver in a postal-delivery system, costs also depend on traffic, which determines the number of times mail carriers have to stop. Lastly, and harder to measure accurately, the composition of this traffic with items of different weights and formats also influences the common costs of delivery.

Similar or less similar alternatives may be envisaged. These methods generally produce a lower spread of costs among the different categories of item making up postal traffic, especially because they take better account of the impact of traffic volumes on costs.

As a general rule, allocations made using these methods are based on an economic model and are therefore subject to that model's assumptions and parameters.

Question 5: The analysis shows that the allocation of common costs in two successive steps is not based on perfectly homogeneous assumptions. What do you think of the proposed improvements or possible alternatives?

