

Annexe I

Background to cost allocation

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1 BACKGROUND TO COST ALLOCATION

Common costs are widespread

- 1.1 It is very common for businesses to incur costs that are common to a number of activities or are instrumental in producing a number of goods or services. For instance, many companies will have significant central overhead costs that must be recovered across all products and services they produce. Therefore, issues of common cost allocation are the norm rather than the exception.¹
- 1.2 There are many ways in which common costs can be spread. Where a firm is serving competitive markets, competition may require costs to be spread in a particular manner. The most profitable way to spread the common cost will depend on what competitors are doing and the response of customers to prices.
- 1.3 Typically, firms will allocate common costs using various different accounting techniques, which we discuss below. Obviously, allocating costs does not mean that we have in any way resolved the issue that some costs cannot be directly identified with certain products. Nevertheless, businesses do commonly analyse profitability of individual business lines on the basis of fully allocated costs and often take them into account when setting prices. Choosing a sensible manner to allocate common costs would then be an important business decision to ensure that prices of individual products and services were structure in a way such that all were competitive with rivals.
- 1.4 Where a firm does not face sufficiently vigorous competition, the allocation of indirect costs may have implications for competition law or even regulation. For example, there may be concerns that costs are being recovered preferentially on products and services where

¹ Common costs are generally defined as those that are incurred for the production of more than one product, and remain unchanged as production of an individual service is varied.

competition is less vigorous. Particular issues arise in vertically organised industries where common assets and facilities may produce both a retail (refined information product and also a 'wholesale' or 'access' (unrefined information) product that competitors require to compete. The telecommunications sector is a good example of this situation, but an analogous situation arises for many PSIHs.

Objectives for PSIHs' accounting systems

- 1.5 Commonality of costs can be expected to be a significant issue for most PSIHs, as costs are incurred in maintaining databases from which multiple products are derived. Nonetheless, although a number of costs are common across unrefined and refined information operations, many other costs can be attributed more directly.
- 1.6 In the case of PSIHs, there are two main objectives for their accounting activities.
- 1.7 First, transparency in relation to the unrefined and refined information operations of the PSIH is important. The vertical nature of PSIHs means that it may not be obvious where costs are being incurred at the various levels of the operation. This is not simply an issue about costs that are common to a number of activities; where accounting systems are poor, it may even be difficult to identify costs that should be clearly attributable to particular products or services (or groups of products and services).
- 1.8 Transparency would help ensure equal treatment as between the PSIH's own refined information operations and those of an independent competing business. Careful analysis of costs should identify those costs that are attributable to particular products, those attributable to certain groups of products (and common amongst them) and those common to all activities, for example, overheads.
- 1.9 Second, where a PSIH has market power in the provision of some of its information services, then the method by which common costs are

allocated is of interest in ensuring that prices are not unjustifiably high for particular services where competition is weak. Although there is unlikely to be more than one reasonable method for allocating common costs, allocation methods should again be transparent so that it is possible to scrutinise them and ensure that particular methods are not being chosen to exploit market power or stifle competition.

Costs and allocation methods

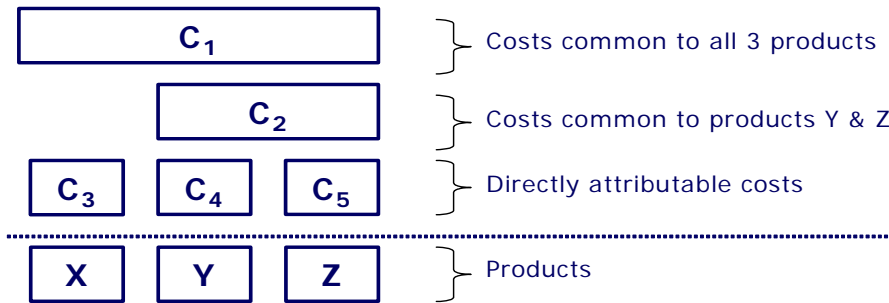
Types of cost and costing standards

1.10 In general, a business or PSIH may incur two main types of cost:

- **Directly attributable costs:** are those that can be clearly ascribed to and are caused by a particular activity. For example, where a PSIH incurs marketing expenses to promote certain of its products then these costs can be considered attributable to those products.
- **Non-attributable costs:** are those that cannot be readily ascribed to a specific product or service. In the main, these may be costs common to a number of products and services, though not necessarily all products and services. Allocating these costs would require an approach that somehow spread the costs across the various products, for example, using a revenue key.

1.11 Just because a cost is not attributable to a particular product, it does not mean that it is necessarily common to all products. Rather, a cost might be attributable to a **group** of products even if not attributable to individual products within the group. For example, in the diagram below, Cost C2 is common to products Y and Z (with Cost C1 being common to all products and costs C3, C4 and C5 being directly attributable to products X, Y and Z respectively):

Figure 1: Example of commonality of costs



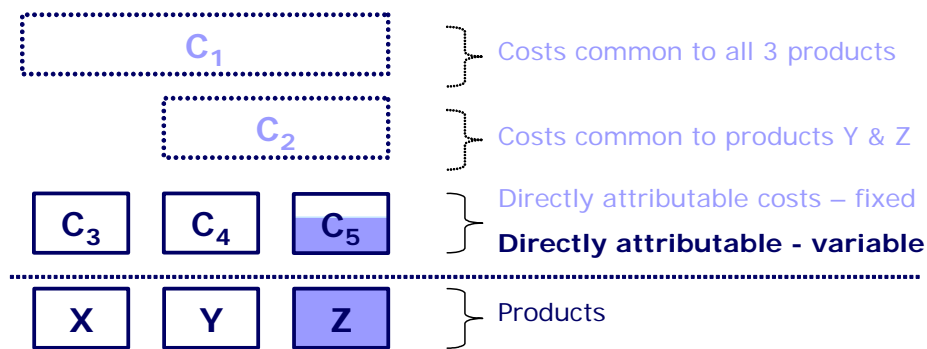
1.12 Where costs are directly attributable to particular products or services, the allocation of these is straightforward. If the allocation is desired at a more detailed level than by group of products, then, where costs are attributable to a group of products, these must in some way be split across the products within the group. A further difficulty arises in the case of non-attributable costs, which in general may be common to a number of products.

1.13 Common costs are those that are incurred for the production of more than one product, and remain unchanged as production of an individual service is varied. Such costs are incurred if any one of the products or services is provided. The nature of common costs is that they result from producing a set of different services at the same time and with indivisible use of resources. In the case of some PSIHs, it may be that a large number of the unrefined information costs may be common across a number of products. Such commonality of costs is, however, a feature of many multi-product firms.

1.14 Attributable and common costs may also be classified as either variable or fixed. Variable costs are costs that vary in relation to changes in output, whereas fixed costs remain unchanged. The variability of a cost or activity may change depending on whether the focus is on the short run or the long run. The former is commonly defined as a length of time in which at least one input into the production process is fixed, while the latter is a length of time in which all inputs are variable.

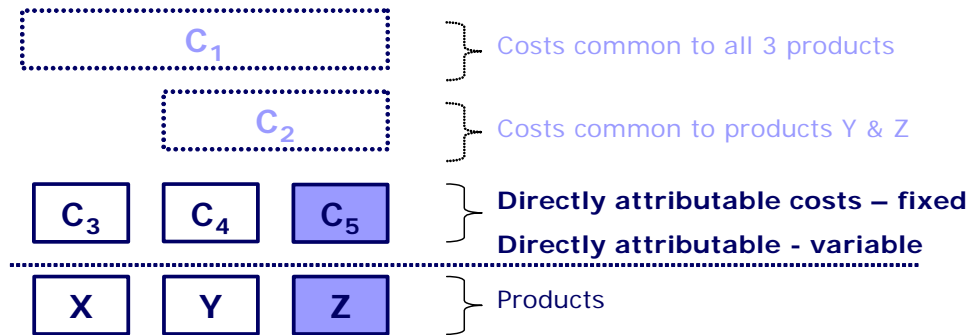
- 1.15 There are a number of approaches to costing and some of the main methods are outlined below.
- 1.16 **Marginal costing:** this measures the cost of increasing output by one additional unit, or alternatively the cost saving resulting from a reduction in output by one unit; in other words directly attributable variable cost would be considered. For example, in the diagram below, only the variable component of Cost C5 would be considered in relation to product Z.

Figure 2: Marginal costing



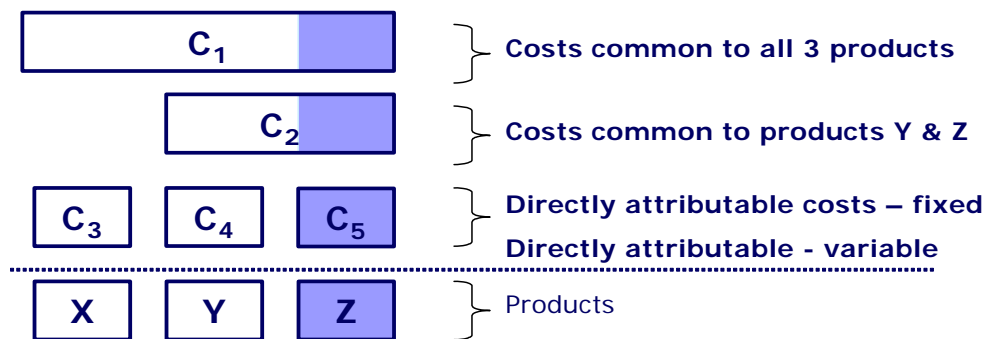
- 1.17 **Incremental costing:** this measures the change in cost when increasing or decreasing the production output by a specific increment (where the increment is a single unit, then an incremental cost equates to a marginal cost). Typically this increment is taken to be the entire output of a particular product or service from a multi-product firm (though the concept can also be applied to groups of products or other specifications of the increment). For example, in the diagram below, both the variable and fixed components of Cost C5 would be considered in relation to product Z.

Figure 3: Incremental costing



1.18 **Fully distributed costing:** this measures those costs directly attributable to the product alongside a proportion of fixed and common costs, until all costs are allocated in this way. For example, in the diagram below, a proportion of Costs C1, C2 and C5 would be considered in relation to product Z.

Figure 4: Fully distributed costing



Allocating common costs and pricing methods

1.19 Once a decision is taken as to the appropriate costing standard that should be adopted (normally we would expect PSIHS to use fully distributed costing), there are a number of ways in which common costs can be allocated, and hence recovered. The most frequently employed methods of allocating common costs include:

- **Relative output method:** where common costs are attributed in proportion to their share of the total output, for example if product Z accounts for 20 per cent of the total output, then 20 per cent of common costs are allocated to product Z.
- **Revenue method:** where common costs are attributed in proportion to their share of total revenues. This may not be appropriate where the cost allocation method is used to facilitate the determination of prices.
- **Activity based costing approach (ABC):** where common costs are allocated based on the activities undertaken to produce the product. ABC methods rely on a concept of 'cost causality' to reduce the number of non-attributable costs that are assigned by a simple, and arguably arbitrary, key (such as the output and revenue methods). For example, where the time of managing staff is split 70:30 between two products, then the costs of those staff are allocated in the same proportion to the respective products.
- **Equi-proportional mark-ups (EPMU):** where common costs are attributed in proportion to the direct and indirectly attributable cost of the service.
- **Ramsey approach:** where common costs are allocated on the basis of relative demand elasticities (products facing inelastic demand have a higher proportion of common costs allocated to them and vice versa).

1.20 Cost allocation methods should be transparent, consistently applied and based on cost causality principles. Activity based costing will often provide a more accurate measure, if appropriate cost drivers can be identified.

Practice amongst PSIHs

- 1.21 PSIHs generally manage large databases of information which they use to provide various information-based products. These databases are acquired under different circumstances:
- by incurring high collection costs (for example, Ordnance Survey and the Met Office)
 - as a consequence of legal rules in place obligating others to provide information (for example, Companies House and the British Geological Survey)
 - as a by-product of other activities (for example, Her Majesty's Courts Service), or
 - by being furnished with information by third-parties (for example, the UK Hydrographic Office).
- 1.22 Many of the larger PSIHs produce a wide range of products from the database and thus face issues about how costs incurred in providing these products are recouped. There are also differences in the extent to which the PSIHs view their costs, and separate their unrefined and refined information operations. In some cases costs are allocated across products or groups of products, in others the PSIHs separate their different types of information products into separate business units (in their accounts and/or for internal operations with transfers in place). Finally, others have structurally separated their collection activities from their dissemination activities.

PSIHs attempting to allocate costs

- 1.23 Many of the larger PSIHs attempt to allocate costs across their operations and/or products in some way.

- **Companies House:** allocates costs over 12 different categories. These categories cover different areas of collection and dissemination, and do separate out these two business processes. Companies House has set out a list of principles to aid the allocation of costs across its categories.²
- **British Geological Survey:** according to the BGS, it breaks down costs of making 'raw data' and 'value-added data' available by activity; it allocates percentages of its total cost to its different business areas and then uses these costs to set prices for data and for individual tenders. Bespoke services are costed at full economic rates.

PSIHs with internal and/or accounting separation

- **UK Hydrographic Office:** in addition to direct costs being allocated by product, all UKHO indirect (or non-attributable) costs are recorded and allocated to products or projects at rates that fully allocate overheads. These rates are calculated at budget.³ Allocation to products is calculated directly from time bookings or using a standard rate for usage of facilities. The UKHO has an internal market for services with related charging to the appropriate divisions, for example, IT to different divisions through the Director of Service Delivery.

² Companies House has noted that it follows the following principles in allocating costs: 'Support fee setting, Take a straightforward approach, Be consistent, Rely on existing information as far as possible, Focus on material figures, Consistent treatment, and Treating similar overhead cost in similar ways' extracted from 'Principles of Cost Allocation'; Companies House.

³ Note: This is DotEcon's interpretation of UKHO's submission to the OFT, where it reports that 'all indirect costs are recorded to products or projects through fully overheaded rates calculated at budget.'

- Such services are generally charged for on a headcount basis.⁴ Raw data goes into producing data files of charts to pass on to its supply division. The UKHO's licensing team (that is, those that work with re-users) are located in the Finance Directorate as part of its policy to maintain barriers between the UKHO's licensing role and its marketing functions. The Hydrographic Office deducts all costs of acquiring and maintaining data directly from revenue as they are incurred.
- **The Met Office:** The Met Office allocates costs primarily through activity-based apportionment. Corporate overheads are allocated where possible on an activity based methodology to different business units. Where there is no clear activity method costs are allocated according to revenues generated from the respective markets. Not only does the Met Office operate an internal arm's-length relationship between its wholesale and retail activities (with internal cross-charging at the same rate as is applied to third parties), it also separately develops accounts for the two parts of the business.

Structural separation

- **HM Courts Service:** collection of county court judgements by HMCS is decoupled from the downstream roles fulfilled by Registry Trust Ltd (RTL). HMCS allocates costs in a detailed fashion in determining charges to RTL for supplying it with judgement data. That is, the cost of all resources used in producing a copy of a judgement and delivering it from the courtroom to RTL is calculated and multiplied by the number of judgements sent to RTL. In addition, RTL produces both standard and bespoke bulk data products which are considered

⁴ The UKHO technical director is allocated to individual projects. The 'Operations' unit provide all information connected with production. Internal transfers are made from the Director of Safety and Quality to five other divisions and from the Director of Operations to Marketing.

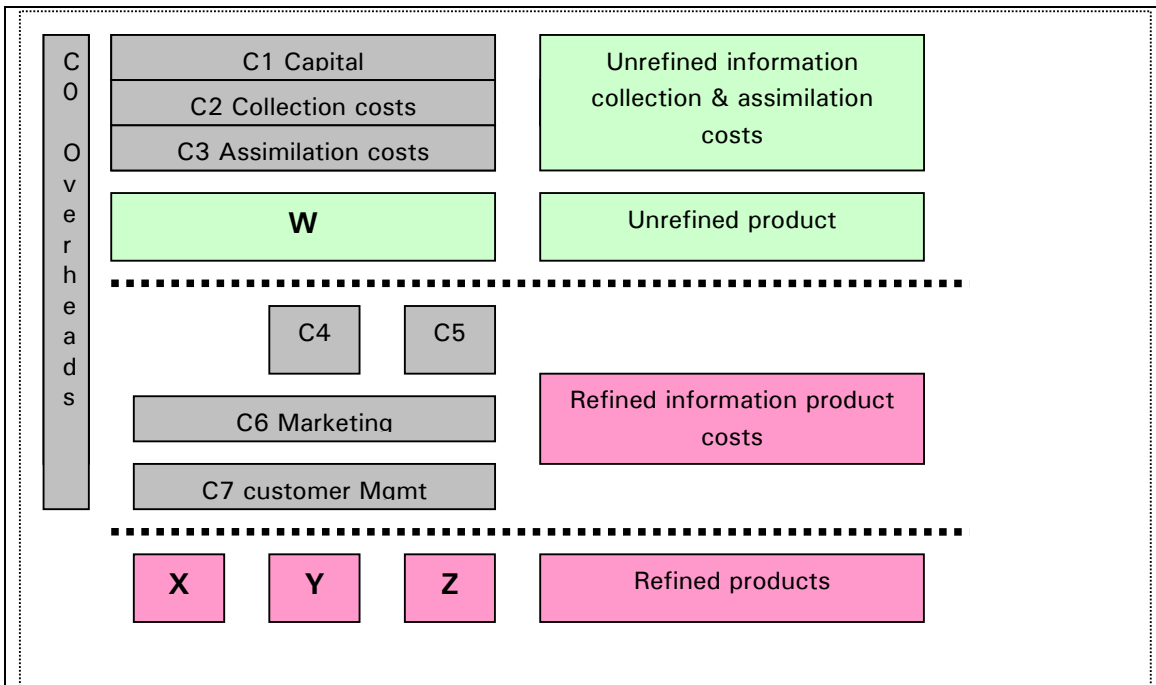
to be un-manipulated. These are sold to third parties,⁵ primarily credit reference agencies although RTL does not compete with third parties in downstream activities in the production of value-added products.

Cost allocation – example for a hypothetical PSIH

1.24 The following box provides an example of how a hypothetical PSIH could allocate common costs between four products, an unrefined product W and three refined products X, Y and Z. Our recommendations in Chapter 7 of the main report do not require PSIHs to undertake this level of detail in the allocating of costs, however the example is instructive as it highlights the principles involved in PSIHs allocating costs. These principles are applicable whether the allocation of costs is between groups of products (for example, unrefined and refined information) or between the individual products PSIHs produce.

Consider a hypothetical PSIH which collects and assimilates information, using the resulting database to create three main products – X and Y which it sells to retail end-use customers and Z which it sells at an unrefined level to businesses re-sellers. The main tasks in terms of cost attribution and allocation are illustrated in the diagram below, and then described in more detail in the following text:

⁵ The total cost of RTL's operations is spread over its customers based on the volumes of bulk data they require.



Task 1: Attributing costs where possible to the unrefined and refined parts of the PSIH.

Task 2: Identifying costs that are directly attributable to individual products (effectively through identifying which products cause the cost to be incurred).

Task 3: Adopting appropriate keys for the allocation of the remaining non-attributable costs.

Identifying costs of the hypothetical PSIH

For the sake of argument, consider that the hypothetical PSIH incurs eight main types of cost as follows:

Overhead costs associated with headquarters along with other management costs (CO): These are likely to be mostly non-attributable either between unrefined and refined products or to individual products themselves. For example, these might include the costs of raising finance or the costs of developing the annual accounts of the PSIH. For the purposes of our example, we treat these costs as non-attributable, though in practice some may be attributable (for example, where a proportion of management time is dedicated to unrefined or refined information activities or to individual products).

Asset costs related to the collection of the unrefined information (including costs associated with systems for managing the database) (C1): In most cases, these assets are likely to be

dedicated to unrefined information activities and to the collection of information. We suppose that this is the case for this example. In practice, there may be a small proportion of C1 that relates to refined information activities (for example the shared use of computing facilities with creating products in which case some usage based allocation of costs might be needed).

Labour costs both for the collection of information (C2): Where there is appropriate timekeeping, then labour effort may be easy to attribute, and certainly should be the case for unrefined and refined information activities. In particular, the labour costs for managing the equipment and for collecting the data can be split from the labour costs of sales and marketing and from customer management.

Costs of assimilation (C3): These may or may not be attributable depending on the use to which the data is put. For example, where assimilation is necessary to derive any product from the information database then these will be non-attributable to an individual product (although at least attributable to the unrefined information part of the PSIH). For the purposes of this example, suppose that there are assimilation costs that feed into creating the unrefined information database and which are reflected equally in all products derived from it.

Individual product creation costs (C4 and C5): These are attributable to refined information activities, and may also be to the individual products (where there is no cost common to two or more products). We take a simple example in this case, and consider product creation costs directly attributable to two of the three refined information products.

Marketing costs (C6): Marketing costs are clearly attributable to refined information activities, and some of these costs may also be attributable to individual products, although more general marketing will not be. For this example, we suppose that marketing is non-specific to any particular refined information product, though is not used in the unrefined information product W.

Customer management costs (C7): These costs may be specific to certain products, although it is not typically the case. Suppose here that they are common to all refined information products and services sold to the customer. They might, for example, include costs of contracting with the customer and bad debt.

In this example, we consider the allocation of costs on a fully distributed basis, rather than for other costing standards such as marginal or incremental cost.

Costs attributable between unrefined and refined information

In the first instance, we need to attribute costs between the unrefined and refined information activities of the PSIH. In our example, this exercise would appear fairly straightforward with the exception of overheads, which need to be allocated:

Unrefined information costs: As noted above, collection costs C2 could on the whole be regarded as an unrefined information cost as such costs are dedicated to the collection of the information. Where there are limited costs that are attributable to refined information (for example, additional collection costs that are specific to one product) then these may be treated as product creation costs. In terms of labour costs (C2) and (C3), where there is appropriate timekeeping then the labour effort associated with unrefined information collection and assimilation activities can be separately identified.

Refined information costs: Aside from overheads, all remaining costs - product creation (C4 and C5), marketing (C6) and customer management (C7) - would appear to fall under the heading of refined information activities as these are not relevant to the collection or the assimilation of the information but rather to the development of the products the PSIH sells and to the management of these.

Overhead costs: In the case of overheads, these are not attributable and need to be allocated to the unrefined and refined information activities. These costs might be split in proportion to costs already attributed to unrefined and refined information activities, although an alternative measure could be considered. Typically this would require non-discriminatory prices charged to third parties.

Costs attributable to products or groups of products

In the case where a cost can be directly attributed to a unique product, then there is no allocation issue. In our example, the product creation costs C4 and C5 are directly attributable to products X and Y respectively.

Likewise, where there are indirect costs but the groups of products causing those costs can be readily identified, then those causal relationships should be reflected, with indirect costs recovered only from that group of products. Among the group of products, some allocation method will be needed.

Possible keys for allocation of costs among product groups might be:

Output – if there is a common metric for measuring the outcome of different products).

Revenue – may not be appropriate if prices are cost-based, for example, if a product were excessively priced, this attracts more costs and reduces the appearance of excessive price.

Activity-based costing – where indirect costs are allocated based on the activities undertaken to produce the product.

Mark-up approach – where indirect costs are attributed in proportion to the direct and indirectly attributable cost of the product or service.

Non-attributable costs

In cases where costs are common and these cannot be readily attributed, then an allocation key is required. The approaches adopted can vary, although in all cases the approach should be transparent and consistently applied.

Conclusion

1.25 It is clearly helpful for PSIHs to operate cost allocation systems that allow identification of the costs of building information assets separately from the costs associated with utilising them through value-added services. With internal and accounting separation of unrefined and refined information operations it becomes possible to test whether independent value-added providers are paying a similar amount for access to the PSIH's information database as the PSIH is charging its own value-added operations. Competitors would have a firm basis for complaint if unfairly treated relative to how the PSIH treats its own refined information operations. There is a strong case that PSIHs should adopt such approaches, subject to proportionality in each case.