

Examining methods for allocating overhead costs



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Overhead cost is an ongoing expense of operating a business and is usually used to group expenses that are necessary to the continued functioning of the business, but cannot be immediately associated with the products/services being offered as in the costs do not directly generate profits.

Overhead cost includes indirect product cost or indirect cost of responsibility centre. Indirect product cost is known as manufacturing overhead whereas indirect cost of responsibility centre is known as non-manufacturing cost.

Manufacturing overhead is those manufacturing costs that are incurred to a variety of products. It cannot be traced to individual products like depreciation and insurance of manufacturing equipment, cost of occupying, managing and maintaining a production facility. Manufacturing overhead is the cost that could be traced to individual product but it is not worth the trouble to like cost of lubricants and glue used. Manufacturing overhead also include cost that is more appropriately to be treated as cost of all outputs like overtime premium, cost of idle time, utilities cost.

Non-manufacturing cost includes customer service, marketing and research & development cost.

ALLOCATING OVERHEAD COSTS

Normally, only manufacturing overhead is allocated to products. However, depending on the industry the business is in and to obtain more comprehensive estimates of product cost, management accountant may allocate non-manufacturing cost to products. One example is Apple Co. with

high research & development cost, to obtain accurate product costing, they allocate part of the research & development cost to product cost.

ABSORPTION COSTING

Production overhead, or usually refer to as manufacturing overhead, is recovered by absorbing them into the cost of a product. This process is known as absorption costing. Absorption costing means that all of the manufacturing costs are absorbed by the units produced. In other words, the cost of a finished unit in inventory will include direct materials, direct labor, and both variable and fixed manufacturing overhead. As a result, absorption costing is also referred to as full costing or the full absorption method.

Absorption costing is often contrasted with variable costing or direct costing. The fixed manufacturing overhead costs are not allocated or assigned to (not absorbed by) the products manufactured under variable or direct costing. Variable costing is often useful for management's decision-making. However, absorption costing is often required for external financial reporting and for income tax reporting.

Absorption costing includes 3 stages, namely apportionment of overheads, reapportionment or allocation of service (non-production) cost centre overheads and also absorption of overhead.

For apportionment of overheads, there are no hard and fast rules for which basis of apportionment to use except that whichever method is used to apportion overheads, it must be fair. Unlike direct cost, indirect cost is usually allocated to cost objects and is not directly traced to cost objects.

Cost object is defined as item that is assigned separate measure of cost. To <https://assignbuster.com/examining-methods-for-allocating-overhead-costs/>

facilitate allocation of overhead cost, overhead cost that have common allocation base is pooled together and is known as cost pool. For each cost pool, bases of apportionment are chosen. Bases of apportionment are some factors or variables that allow us to allocate costs in a cost pool to cost objects. The selection of the base of apportionment should be on causal-and-effects grounds, which mean it should be a cost driver. Some examples of bases of apportionment include floor area, net book value of fixed assets and number of employees. Floor area is usually used for rent and rates overhead. It is assumed that the greater the floor space occupied by the production centers, the more rent, cleaning and electricity usage are consumed. Net book value of fixed assets is used for depreciation and insurance of machinery. It is based on the assumption that – Number of employees is used for canteen cost. The assumption is when the number of employees increases, the canteen cost will increase.

Example:

ABC Ltd has two production departments (Assembly and Finishing) and two service departments (Maintenance and Canteen). The following are budgeted costs for the next period:

The second stage of absorption costing is reapportionment or allocation of service cost centre costs overhead to production cost centers. Service cost centers (departments) are not directly involved in making products.

Therefore the fixed production overheads of service cost centers must be shared out between the production cost centers using suitable basis.

Examples of service cost centers or also referred to as support department

cost centers include maintenance department, payroll department, stores and canteen. In contrast to operating or production department which engages in production of the products and directly adds value to a product or service, support or service department provides the service that assist and complements the smooth functioning of the production departments in the company.

Methods of allocating support or service department cost to production department include direct method, step-down method and reciprocal method.

DIRECT METHOD

The direct method is the most widely-used method where it allocates each service department's total costs directly to the production departments. It ignores the fact that service departments may also provide services to other service departments. Under this method, there is no interaction between service departments prior to allocation.

Example:

Machining and Assembly are the only production departments that used the services of the Human Resources Department in March. Costs from Human Resources are allocated based on the number of new hires. Machining hired seven employees in March and Assembly hired three employees. Human Resources incurred total costs of RM93, 000 in March.

Allocation of H. R. Department costs to Machining: 70% of RM 93, 000 = RM 65, 100

Allocation of H. R. Department costs to Assembly: 30% of RM 93, 000 = RM 27, 900

No information is necessary about whether any service departments utilized services of the Human Resources Department is the characteristic feature of the direct method. It does not take account whether no other service department hired anybody, or whether three other service departments each hired five employees (implying that more than 50% of the hiring occurred in the service departments). Service department to service department services are ignored, and no costs are allocated from one service department to another when using the direct method.

STEP-DOWN METHOD

The step-down method or known as sequential method allocates the costs of some service departments to other service departments. However, once a service department's costs have been allocated, no subsequent costs are allocated back to it.

The choice of which department to start with is very important. The sequence in which the service departments are allocated usually effects the ultimate allocation of costs to the production departments, in that some production departments gain and some lose when the sequence is changed. Hence, production department managers usually prefer over the sequence. The most defensible sequence is to start with the service department that provides the highest percentage of its total services to other service departments, or the service department with the highest costs, or the

service department that provides services to the most number of service departments, or some similar criterion.

Example:

Human Resources (H. R.), Data Processing (D. P.), and Risk Management (R. M.) provide services to the Machining and Assembly production departments, and in some cases, the service departments also provide services to each other:

The amounts in the far left column are the costs incurred by each service department. Any services that a department provides to itself are ignored, so the intersection of the row and column for each service department shows zero. The rows sum to 100%, so that all services provided by each service department are charged out.

The company decides to allocate the costs of Human Resources first, because it provides services to two other service departments, and provides a greater percentage of its services to other service departments. However, a case could be made to allocate Data Processing first, because it has greater total costs than either of the other two service departments. In any case, the company decides to allocate Data Processing second.

In the table below, the row for each service department allocates the total costs in that department (the original costs incurred by the department plus any costs allocated to it from the previous allocation of other service departments) to the production departments as well as to any service departments that have not yet been allocated.

After the first service department has been allocated, in order to derive the percentages to apply to the production departments and any remaining service departments, it is necessary to “normalize” these percentages so that they sum to 100%. For example, after H. R. has been allocated, no costs from D. P. can be allocated back to H. R. The percentages for the remaining service and production departments sum to 92% (7% + 30% + 55%), not 100%. Therefore, these percentages are normalized as follows:

For example, in the table above, 59.78% of RM136,000 (= RM 81,304) is allocated to Assembly, not 55%.

The characteristic feature of the step-down method is that once the costs of a service department have been allocated, no costs are allocated back to that service department. As can be seen by adding RM 105,522 and RM 134,478, all RM 240,000 incurred by the service departments are ultimately allocated to the two production departments. The intermediate allocations from service department to service department improve the accuracy of those final allocations.

RECIPROCAL METHOD

The reciprocal method is the most accurate among the three methods for allocating service department costs. It is because it recognizes reciprocal services among service departments. However, it is also the most complicated method, because it requires solving a set of simultaneous linear equations.

Using the data from the step-down method example, the simultaneous equations are:

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$$H. R. = RM80,000 + (0.08 \times D. P.)$$

$$D. P. = RM120,000 + (0.20 \times H. R.)$$

$$R. M. = RM40,000 + (0.10 \times H. R.) + (0.07 \times D. P.)$$

Where the variables H. R., D. P. and R. M. represent the total costs to allocate from each of these service departments. For example, Human Resources receive services from Data Processing, but not from Risk Management. 8% of the services that Data Processing provides, it provides to Human Resources. Therefore, the total costs allocated from Human Resources should include not only the RM 80,000 incurred in that department, but also 8% of the costs incurred by Data Processing. Solving for the three unknowns (which can be performed using spreadsheet software):

To illustrate the derivation of the amounts in this table, the RM36,423 that is allocated from Human Resources to Machining is 40% of H. R.'s total cost of RM 91,057.

DIFFERENCES BETWEEN METHODS AND PROBLEMS USING THE METHODS

Direct method allocates support cost only to operational departments and there is no interaction between support departments prior to allocation. On the other hand, step down method allocates support costs to other support departments and to operating departments that partially recognizes the mutual services provided among all support departments. Under this method, there is one-way interaction between support departments prior to

allocation. Reciprocal method allocates support department costs to operating departments by fully recognizing the mutual services provided among all support departments. It is full two-way Interaction between support departments prior to allocation.

Direct, step-down and reciprocal methods of support department cost allocation gave slightly different total overhead cost and overhead rates for each production department. It is because of the different recognition that each method gives to support relationships. The direct method does not recognize any relationships that exist between support departments whereas step-down method gives only partial recognition to these relationships.

Reciprocal method gives the most accurate results when allocating of multiple service departments' costs to operating departments. The power of reciprocal method over other methods (direct method, step-down method) lies in its considering the mutual services provided among all service departments which means the costs of service departments are allocated to each service department (except the service provider) besides operating departments.

However the application of this more powerful method is rare. It is because it is more complicated than other methods and it requires sophisticated computer aid. Some firms that use ERP software since this method requires additional modification in coding. Therefore most of the companies prefer employing either of direct or step down methods. Reciprocal method considers mutual services provided among all service departments, direct method and step-down method ignore this point. Moreover service

department cost used by other service departments are also ignored in direct method. The drawback of direct method is partially reduced by step-down method by following a hierarchy among service departments while considering cost allocation.

There is a ranking among service departments as to which department to begin allocation according to different rules which in turn yields different allocation figures. The drawback of step-down method to reciprocal method is that once the cost accumulated in the first in ranking service department is allocated, that department does not take any share from other service departments. Two main rules determine the ranking. The first approach considers the number of departments served by the service departments to judge on which service department to begin allocation and which ones to move on. The service department that serves to the highest number of departments is the first department to begin allocation. In case of more than one department serve the highest number of departments, the department with highest accumulated costs is the first in the ranking and so on.

The second approach adopts the percentage of service in determining the ranking of service department to begin with and to carry on. The service department with highest percentage of service to other departments is the first in the ranking and so on. In case of more than one department with equal the highest service percentage, the one with higher accumulated costs is set as the first and so on.

Lastly reciprocal method or algebraic allocation method (REC) considers all served departments including service departments and operating

departments by a service department except the one whose costs are allocated. There is a two way interaction among service departments unlike step-down method. The method yields equations with multiple unknowns which are equal to the number of service departments since the method considers all the costs of the service departments to be allocated. As the number of service departments increase the number of equations with multiple unknowns increase and hence a computer aid is required to solve the equations simultaneously.

CONCLUSION

Out of the 3 allocation methods to allocate service/ support department cost to production department cost, reciprocal method is said to be the most precise method. It is also the most complicated method as it requires solving a set of simultaneous linear equations. However, direct and step-down methods are simple to compute and easy to understand. Nonetheless, direct method is the most widely used in industry. Direct method allocates each service department's total costs directly to the production departments, and ignores the fact that service departments may also provide services to other service departments. The direct method and step-down method have no advantages over the reciprocal method except for their simplicity, and the step-down method is sometimes not very simple. Nevertheless, the reciprocal method is not widely used. Given advances in computing power, the reciprocal method would seem to be accessible to many companies that are not using it. Presumably, these companies believe that the benefits obtained from more accurate service department cost allocations do not justify the costs required to implement the reciprocal method.