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# Library Management with Cost Data

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***Abstract:***

*The paper deals with methods of cost analysis in libraries and with the use of cost data in library management. It explains the difference of cost accounting to the traditional statistics of income and expenses and shows the value of cost data for organizational decisions. Cost accounting must always be seen in connection with the mission and goals of the library and with quality measures; it should be used as one component of an integrated controlling.*

Libraries today are experiencing growing problems when organising their work and offering their services within the given budget and resources. The rapid development of electronic publications and technology raises the demand for new web-based-services and for information delivery directly to the working place. On the other side, funding cuts and rising prices reduce the scope for acting: The dilemma is how to accomplish more with less resources.

In addition, there is a general demand for transparency as to costs and quality in all areas, especially in the public sector. Funders, institutions, and the public want to know about the resources spent and the values achieved. Thus, financial problems as well as evaluation procedures make it imperative to use more differentiated methods of cost analysis than the traditional budgeting system.

## 1. Cost accounting

Traditionally, libraries collect data about their income and expenditure. Income is differentiated as to various sources (institution, external funding, income generated, donations). The expenditure data show the expenses on collection building and maintenance, on automation, on the library operation, and on staff. Capital expenditure - expenditure for new buildings, computer systems etc. - is in most cases counted separately.

But expenses are not synonymous with costs. The term "expenses" describes financial transactions. Costs can be defined as the consumption of resources in order to produce or maintain goods or services or to maintain the capacity for producing such goods or services.

- Services need activities.
- Activities consume resources.
- Consumption of resources causes costs.

Costs, therefore, include more than the expenses of a certain period. There are "hidden" costs, that do not appear on the library's bills or payrolls:

- Payments made by other parties, e. g. the institution. Typically, these are utility costs (heating, water, sewage, security …).
- Depreciation costs (of the building, equipment, the computer system …)

Cost accounting tries to assign costs to the different products and services of the library and to answer the questions:

- What types of costs arise? ⇨ Cost type accounting
- Where do the costs arise? ⇨ Cost centre accounting
- For what products/services do the costs arise? ⇨ Cost unit accounting

**Cost type accounting** means identifying all types of costs that arise by the production of library services during a specified period (accounting period). Broad groups of cost types in a library are:

- staff costs (differentiated between staff types, project staff, student helps etc.)
- collection building costs (differentiated as to subjects and types of media)
- administrative costs (e.g. maintenance and repair of equipment, material costs, communication)
- utility costs like heating, electricity, water, sewage, cleaning, security …
- calculatory depreciations of assets (buildings, IT- and other equipment).

For calculatory depreciation the easiest method is to define a minimum useful life-time for groups of assets (e.g. 4 years for a PC). The purchase price is divided by the number of years of useful life-time, and for each of these years the annual depreciation can thus be calculated.

Defining and collecting all costs arising in the library will prove difficult the first time it is done. Data for expenses managed outside the library (e. g. central cleaning services of a university) must be split up in order to define the library's part. Depreciation costs and staff costs are calculated differently in many institutions, so that comparison will be difficult.

The assessment of the total costs of a library during an accounting period, and the assessment of the percentage that is consumed by different cost types, give a first overview of the cost structure. Staff costs will probably be predominant. For management decisions, it is necessary to know not only what costs arise, but also where they arise, in which cost centres.

**Cost centre accounting** assigns the costs to working areas of the library and usually follows the departmental structure, e. g. media processing, lending service, reference service etc. It is a necessary step when trying to assess the costs of separate services or products.

Some costs can be assigned directly to each cost centre, e. g. the staff costs in media processing. Other indirect costs like utility costs (cleaning, heating), depreciation, or IT costs must be assigned by using keys. Utility costs or building depreciation can be assigned per square meter; IT costs can be calculated according to the number of PCs in the department.

Collection building costs are usually not split up as to cost centres. In most cases where libraries and information centres are working with cost accounting, the collection is regarded as a separate item with the help of which the products and services are produced by the library. The library's services and products consist of collecting, offering and supporting the use of information and media - not of the media themselves.

**Cost unit accounting** is the last step in cost analysis. Cost centre accounting shows where the costs have arisen, but it does not allow to identify with which product / services the costs are associated. In order to assess unit costs, it is necessary to list all activities occurring in a cost centre and to note down the time spent on each activity during a specified period. Staff fill out log sheets, and the results are extrapolated to a year with due consideration of holidays and other absences. The costs for each process or activity can be calculated by allocating the total costs of the cost centre to the process according to the percentage of staff time spent on the process.

Finally, the costs for one unit (product) are calculated by dividing the process costs by the number of products or services produced.

**Example**

| | |
|---|---|
| Costs of the cost centre "Undergraduate library" | 188.000,00 € |
| Costs of the activity "Book processing" | 67.716,00 € |
| Number of books processed | 5.232 |
| Costs of one book processed | 13,20 € |

After applying this method - activity-based-costing - the library will be able to demonstrate the amount of each cost type, the origin of costs, the costs of each single service or product and - finally - even the average time needed for producing one service or product. This will answer the demand for cost transparency; but how to use the data for managing and planning?

## 2. The use of cost data

The first simple result of cost accounting will be that it produces cost-consciousness, awareness of all causes for costs, and therewith a mental attitude that is favourable to a consequent organization of processes in order to reduce costs. Being aware of all overheads and hidden costs may also induce the library to think about methods and technics to reduce costs of heating or electricity, even if they do not touch the library budget.

Management whith the background of cost data for all services will help organizational decisions in many areas.

### 2.1 Reduction of unit costs

Libraries need resources for new and improved services and for investment in the growing tasks of the "digital library". As funding is in most cases scarce, resources must be set free by

raising efficiency in the delivery of existing services. Generally speaking, efficiency can be achieved in two ways:

- doing the same with less costs,
- producing more with the same costs.

If, for instance, book processing for one item in the undergraduate library comes up to 13,20 €, methods like streamlining processes, using more copy cataloguing, or deleting controlling activities might lower the unit costs. Thus, resources might be set free.

The other way to reduce unit costs would be to increase the number of units produced with the same costs. This would apply in cases where the library has to maintain a certain capacity, e.g. staff at a reference desk during opening hours. If there are not enough reference queries, the available resources will not be fully used; there will be "idle capacity costs" that will raise the costs of one reference transaction. Promoting the reference service, e.g. in user education, might raise the demand for reference transactions and thus lower the unit costs. There will be no free resources, but a higher productivity.

Identifying high unit costs will not always allow the library to act on this knowledge. In libraries, capacity costs are predominant. They have to maintain a large potential for the delivery of services: qualified staff, a broad collection, good equipment etc. Many costs therefore arise independently of the amount of use and are - at least for a certain time - fixed costs. If circulation decreases, this will not immediately reduce the costs of the lending department. It takes at least medium-term planning to adapt the resources in this area to the topical demand.

### 2.2 Planning with cost data

Knowing the costs for each service enables the library to allocate resources to services that have high priority for the library's goals. Resources that have been set free by a cost-effective organisation can be invested in building up new services or in enlarging or improving existing services.

Planning new services with cost data will yet be difficult if cost data for the new activities are missing. But existing data might at least give an estimate of potential costs, and cost accounting will help to decide what overhead costs will probably be connected with the new service. If, for instance, the library plans to introduce a new user training course in electronic publishing, the following cost data could be used:

- staff costs for the preparation and delivery of a 10-hour training (according to data of other training courses)
- percentage of utility costs and depreciation for equipment and locality (allocated as to training hours)

### 2.3 Cost recovery

Most libraries offer at least their basic services free of fees. But for special services like document delivery within 24 hours or bibliographical services there is a possibility of getting paid, and in some cases libraries can also sell their products to commercial firms. In these cases libraries must be able to name a price that at least covers all costs. The same applies when one institution - e.g. a university with private funding - wants to make use of the library services of another institution, e.g. a publicly funded university.

Another case where cost unit data are needed for cost recovery occurs when institutions want their departments to "buy" all information services from the library. The library would then only get a basic budget for general tasks, but all services delivered to special departments of an institution would have to be paid by those departments. Such cases are known from

- libraries of commercial firms charging their services to departments or working groups,
- libraries of institutions of higher education charging their services to the faculties.

There are many problems involved in such proceedings, especially in universities, where libraries cannot assign each case of use (e.g. a library visit, a reference transaction) to a faculty. But in any case, libraries should be able to show the full costs of each service.

**2.4 Outsourcing**

The same applies when a library does not want to sell, but buy service. It is often cost accounting that leads to considerations of outsourcing. If the costs of products seem too high, the library can compare its costs to prices for the same product if it transferres certain processes to commercial firms. Examples for outsourcing that have been tested are bookbinding and restoration, cataloguing, IT support and even the selection process for collection building.

Decisions about outsourcing require careful consideration of all cost factors, including hidden costs and life-cycle costs of equipment.

**2.5 Claims for resources / Service level agreements**

In the financing plans submitted to their funding authorities, libraries must prove the necessity of the amount of funding they apply for. This is not easy even for collection building, where the price increase and data about collection use can at least support the arguments for better funding. But especially for claims as to new or improved services, it is vital to be able to name all the costs related to the service. Examples are longer opening hours (which cause - besides staff costs - more consumption of electricity, heating, and security costs) or a self-service lending desk (which saves staff costs, but includes depreciation and maintenance costs for the terminal).

If libraries negotiate for their funding by service level agreements with the funding institution, they have to specify the quantity and quality of services that they undertake to produce within a certain time period, and the resources needed for the production. Again, exact cost data will be necessary for such plans and agreements.

Calculation of all costs connected with certain activities or services will also be helpful when argueing against too many requests of the institution or the population to be served. There is always something else that would be welcome to users - 24-hour opening times, training for electronic publishing in every faculty etc. Being able to show the direct and indirect costs involved with such requests will help to set priorities and to waive some expensive claims.

**2.6 Benchmarking**

It is necessary and helpful to know the costs of products and services in the own library - but that does not yet show whether those costs (the "prices" of products) are low, adequate, or perhaps too high. If a library wants to know whether a service could be delivered with lower

costs, the costs must be compared with those in other institutions that deliver the same or a similar service. Such benchmarking partners could be:

- other libraries with a similar structure and clientele
- commercial firms that deliver similar services (e.g. information brokers)
- other non-commercial institutions with comparable products / services ( e.g. archives with conservation / restoration services)

Comparison of costs will include comparing processes and can lead to a more cost-effective organization.

## 3. Cost accounting as part of the controlling system

The results of cost accounting can never be the sole basis for management decisions in libraries. Strategic management in libraries is different from that of commercial firms. The main object of a commercial firm is to keep the firm flourishing by offering services and products that meet a high demand and thereby generate a sufficient - if possible rising - income. Commercial firms must and can

- delete products that are in low demand,
- introduce all sorts of new products that will probably meet high demand.

Libraries - like other institutions of the public sector - have stricter boundaries than commercial firms as to what services they should offer. They are founded based on the political decisions that certain services should be offered - often free of charge - to a specified clientele or to the general public. Those political decisions justify the existence of the library, and the library can change its services only by an agreement with the funding institution.

Another difference to commercial firms is that there is often no real competition for the services of one library. Users often have no alternative to using a certain library because of their membership in the library's institution or because of long distances to other libraries.

A library's strategic management must proceed from that library's mission and goals. It must conform to quality standards that should be approved by the funding institution, and it must consider the needs and wishes of its primary population. In addition, it should be aware of probable future developments and take them into account when allocating resources to the different services.

All these aspects have to be considered when acting on the results of cost accounting and they might limit the possibilities of a cost-effective organization.

### 3.1 Mission and goals

The duty of libraries is to offer the required information to its clientele. The clientele, the population that the library is set up to serve, is in most cases clearly defined: the members of an institution, the inhabitants of a community. There is less clearness about what services or media the library ought to offer. Data about frequency of use can only partly support decisions. There is often high demand for certain services. There can, for instance, never be enough copies of law handbooks in the undergraduate library, or of travel guides in the public library. Acting on such data by buying many copies will lead to high use data and therewith low unit costs for that service. But concentrating resources on areas of high demand might lessen resources for services with a low demand, but with a high priority in the libraries goals.

Example: **The rare collection of a university library**

- The production of the service (buying rare books, the cataloguing process, the preservation costs, the use in special reading-rooms with continuous supervision) involves high costs.
- One cost unit (one rare book used in the library) will therefore be very expensive.
- The mission of the library includes the task of preserving and maintaining a rare collection and giving access to it for special research. Therefore, the service cannot be deleted.
- But cost effectiveness could be raised by giving better access to the collection, e.g. by digitising material and putting it on the web. This could save staff costs and restoration costs, as the books can be used without visiting the library and without any possible damage to them.

### 3.2 Quality standards

For several decades, libraries have developed methods for measuring the quality of their services. Such methods, performance indicators, assess the quality of products and services as to

- user-orientation (e.g. of collection building)
- speed (e.g. of document delivery)
- accuracy (e.g. of cataloguing)
- reliability (e.g. of reference answers)
- accessibility (e.g. opening hours).

Libraries can fix certain standards of quality (e.g. book processing within seven days) in their agreements with the institution.

Such quality claims clash with the effort for cost-efficiency.

Example: **The reference service of a university library**

- The service is maintained by professional librarians. Cost accounting shows, that the unit costs per reference transaction are high. But the reference fill rate (the percentage of correct answers) comes up to 60 %, which is good when compared to other libraries.
- The library tries to cut down the costs by rendering the service partly by student helps that have had a short training: The reference fill rate drops to 35 %. User complaints are rising.
- Apparently, the library cannot keep up the quality of the service with less resources. It has to determine the priority of the service and define an adequate quality level according to the importance of the service.

It may even be cost-effective to allocate more resources to a service in order to make it more valuable and thereby raise the demand for the service. A cheap product, that nobody wants or that leads to dissatisfaction would lessen the general opinion of the library's value and would not contribute to cost-effectiveness.

### 3.3 Investment in the future

Cost accounting has more often been used as a retrospective documentation of costs than as an instrument for controlling the costs of existing services. It should also be an instrument for future-oriented planning.

Especially in a time of rapidly changing information channels, libraries must pay attention to predictable evolutions and invest in services that may not find frequent use at the start. Such services could be:

- Establishing a server for electronic publications of the institution.
- Introducing information literacy training or help-desks for multimedia publishing.
- Setting up a long-time archival system for electronic publications.

Such and other services need library staff that is qualified for the tasks: The library has to invest into staff training.

Decisions as to investment into new developments are risky and can only partly be based on existing cost data. New services must often be offered for some time without regard to cost-effectiveness. Setting up a broader variety of services, more complex services with advanced technology, and building up experience in offering such services may indeed be cost-driving, but it makes the library competent to deal with future demand.

### 3.4 The balanced view

Cost accounting is an important factor in library management, but it is only one factor. Managing resources as well for topical as for future demand needs a broad view that considers many factors. A good method for taking such a broad view is the Balanced Scorecard, that combines the following perspectives:

- clients
- finances
- processes
- learning and development.

For libraries, this could be expressed by the questions:

- Do we come up to user expectations?
- How can we allocate our resources in a cost-effective way?
- How should we organize our processes to come up to user expectation?
- How can we guarantee the library's fitness for the future?

Such a differentiated view with indicators for the different perspectives allows the library to view cost-effectiveness in the frame of its mission, of user-orientation, quality standards, and the necessary potentials for future development.

The principal aspect in using cost data should not be:

How can we save resources?

But: How can we best use our resources in the frame of our strategic goals?

And the main question for every service or product of a library in regard to costs is always:

What is it worth to you?

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