From Cash to Accrual Accounting: A Model to Evaluate the Performance of Public Museums

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Abstract

According to New Public Management principles, all sectors of public administration must be able to measure their annual performance multi-dimensionally, in order to evaluate the socio-economic impact of their activities. Public museums - state, municipal, university, etc. - are frequently part of the administration. In particular, the accounting data and, consequently, the final accounts are mixed with those of the museum's public owner and they refer mainly to cash accounting principles, so it is impossible to correctly measure the annual economic, financial and assets performance of the museum. The paper identifies a methodology for quantifying the profit or the loss of the museum. The research method is mainly deductive, with successive steps. The paper begins with an analysis of the mainstream theories and techniques for performance measurement and ends with a critical analysis of the theoretical model.

Keywords: *public museums, museums results, museum economic performance, multidimensional evaluation.*

JEL classification: H83, M41.

Introduction

In recent years the museum sector has undergone profound changes (Burton and Scott 2003). From an organizational-economic viewpoint, museums undoubtedly have an interesting role since, like any other business, they acquire resources and use them in their production processes. So in the museum sector, too, it is necessary to optimise use of resources in accordance with the objectives to be reached (Basso and Funari 2004; Johnson and Thomas 1998).

The variety of owning bodies of museums has resulted in a proliferation of forms of administration that, in turn, has produced a large number of ways reporting the results in the balance sheet (Christensen and Mhor 2003). Today, therefore, museums are the centre of lively debate at national and international level regarding the need to use specific accountability instruments and, primarily, regarding reporting methods to stakeholders (Rentschler and Potter 1996; Zan

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2002). In recent years, there have been numerous investigations aimed at identifying instruments to improve museum accountability (Anderson 2004; Canergie and Wolnizer 1996; de Bruijn 2002; Finocchiaro Castro and Rizzo 2009; Gilhespy 1999). These have taken into account the positive correlation found between communication of museum performance and the museum's ability to attract financing and visitors (Canergie and Wolnizer 1995; Rentscheler and Potter 1996), as well as generally justifying themselves to the community. In other words, the more a museum reaches high levels of effectiveness and efficiency, the more confidence it inspires in its stakeholders (Basso and Funari 2004). Consequently it is important for museum organisations to pursue aims of management and socio-cultural effectiveness and efficiency and, at the same time, to have available suitable performance measurement instruments, to facilitate the accountability process with respect to their stakeholders (Wilson, Katteulus and Hay 2001). So European museums require management and reporting systems designed around the principle of accountability (Darnell, Johnson and Thomas 1998; Throsby 1994).

These points are even more relevant if we consider the fund-raising activities of public museums. European museums have always given preference to use of public funding, as opposed to American museums where the managerial culture is deeper ingrained (Scheff and Kotler 1996). The situation is further complicated by recent trends of reducing public spending (Maddison 2004). Inevitably this has affected the culture sector, with decreased resources and increased attention to the ways of finding and using resources (Jaffry and Apostolakis 2011). Nonetheless, despite public spending cuts, the use of public resources to finance publicly owned museums remains considerable (Fedeli and Santoni 2006). It is justified by the need to promote culture and make it available to all levels of society (Baumol and Bowen 1966; Heilbrun and Gray 1993). In practice, these museums receive funds both for general running costs, but often also to cover losses. This is a disincentive in improving managerial performance (Camarero, Garrido and Vicente 2011).

In the light of the above, a need emerges to measure public museum performance from a business management viewpoint. However, give the wide variety of legal status of public museums and, above all, their lack of accounting independence, it is clear that we are facing an authentic accounting dilemma.

1. Theoretical framework

In spite of the importance of studying the museum sector from a business administration viewpoint, attention from the literature is fairly recent (Feldstein 1991; Jackson 1988; Jhonson and Thomas 1998; Peacock and Godfrey 1974), due to difficulties in measuring performance of non-profit bodies, as well as the variety of museum outputs (Ames 1997). In particular, Jackson (1988) presented a cost function for a museum, Bailey and Falconer (1998) evaluated the marginal costs, and Martin (1995) estimated the added value of a museum, while Lucsetich and Partridge (1997) focused on the demand for museum services.

Museum performance measurement systems are based on multiple indicators that aim to highlight both qualitative and quantitative-financial aspects (Turbide and Laurin 2009). Recently Zorloni (2010) underlined the need to implement performance measurement systems also in the museum sector. Yet despite every effort, there are still significant difficulties in evaluating cost saving, effectiveness and efficiency levels reached by these organisations (Paulus 2003). The cost saving level measures the ability to achieve the maximum result by minimizing resources, or costs. The effectiveness measures the degree to which a predetermined object or target is met and it is determined without reference to cost but only referring to objectives or target. By contrast, the efficiency measures the relative amount of inputs used to achieve a given level of output. In other words, efficiency measures the capacity of "doing the thing right," while effectiveness is referred to "doing the right thing."

These difficulties in performance measures are related to the particularity of the museums' activities, as their functions are wider than the ones of others non-profit organisations (Glasser and Grace 1980). Camarero, Garrido and Vicente (2011) highlighted that between museums there are many differences in performance as they found that organizational size influences innovations in museums as well as its impact on museums' economic market and social performance.

The New Public Management principles have introduced changes in governance models and increased community requirements, which have given cause to reflect on methodologies for analysing management data (Pollit and Bouckaert 2011). As far as analysis of museum performance is concerned, a need has been noted for measuring their financial and non-financial performance (Panozzo 2000), to achieve synergy between institutional aims and their business dimension, without the latter prevailing (Bryan, Munday and Bevins 2012). In other words, public museums must also aim for a economic balance, which can be verified through analysis of revenue and expenses, income and cost and assets and liabilities of their capital (Christensen and Mohr 2003; Prieto-Rodrìguez and Fernandez-Blanco 2006). This area, therefore, must be measured and evaluated using accrual accounting system, since we cannot control or optimise a value we have not measured and which is consequently unknown. The accrual basis accounting is system of accounting based on the accrual principal, under which revenue is recognized (recorded as income) when earned, and expenses are recognized (recorded as cost) when incurred. This accounting system is generally opposite to the cash accounting one. According to this method, income is recorded when cash is received, and expenses are recorded when cash is paid out, it is simpler than the accrual basis accounting, but this method does not know the value of goods and services produced (income) and the value of those employed (costs). The cash accounting system highlights only the cash result as difference between receipt and payment of money. Instead the accrual accounting system is able to determine the cash result, the profit that is realized when the amount of revenue gained from the activity exceeds the expenses, costs and taxes needed to sustain the activity, or on the contrary the loss if costs exceed income. In other words, accrual accounting method provides a more accurate picture of the museum's current condition, but its relative complexity makes it more expensive to implement. The need for this method arose out of the increasing complexity of museum activity and a desire for more accurate financial information.

In general, non-national public museums follow the information-accounting system used by their local administration. Normally, given their connection to the public administration, they only prepare budgets and reports of a cash based accounting nature. Weil (2005) proposes a system of measurement based on four dimensions - ability to clearly define strategy, ability to find and coordinate resources necessary to pursue those aims, capacity to use resources effectively and, lastly, managerial ability in managing the museum efficiently. The concept is not new. Orr (1973) had already stated that performance measurement should consider both the continuous process of transforming resources into 'good' services, and their impact on stakeholders. Other authors, discussing a multi-dimensional performance measurement system, underline the need to monitor financial, economic and assets aspects in order to verify the "state of health" of a museum organisation (Basso and Funari, 2004).

Some studies have noted the difficulty in finding information on publicly-owned museums since, often, data is mixed in with the accounts of the public authority or body to which they belong (Basso and Funari, 2004). An absence of standardised performance measuring systems makes it currently impossible to compare public museum results (Larkin and Di Tommaso 2003). It therefore appears essential that public museums prepare accounts, even if not expressly required, in order to provide information on financial, economic and assets results obtained and thus to be able to measure management performance (Carnegie and West 2005).

Given the above considerations, is it possible to determine the year result (profit or loss) of museums that use a cash based accounting system? The aim of this article is to develop a proposal for determining these results using a standardised system.

3. Methods

Although much literature has been produced on the subject of museums, no studies have been found regarding the issue that this article intends to resolve, that is, the measurement of economic-asset results of public museums. The majority of studies, in fact, have other objectives. Frequently, as our review of the literature above shows, they concentrate on the need for adequate social accountability, or performance measurement, or they propose planning and control systems specifically designed for museums.

Our research, therefore, is of an exploratory nature. Primarily it is a theoretical exploration, following a process of knowledge generation through logical deduction. At the same time, it is hybrid, in that it combines abstract construction of theories with observation of the reality studied. This hybrid exploration might be conceived as a work method that increases knowledge through a "theoretical realism", or through an attempt to conceptualise, based on the facts. The exploratory and explanatory acts intermingle, creating a circular process that moves between exploration and explanation (Glaser and Strauss 1967).

The method used, as mentioned, is deductive. Research was carried out in successive steps.

Firstly, in order to use an accrual basis principle accounting system, instead of a cash basis principle one, typically used by its public authority owners, a special reconciliation statement was offered to assist in accounts preparation during the shift between the two methods. On this subject, it was found useful to begin by outlining the types of financial expenses incurred by museums in a special chart, so they can be attributed to the correct activities and services.

Secondly, a profit-and-loss form was supplied, into which the museum entered revenue and expense amounts, in order to obtain net results for the year.

Lastly, a statement of assets and liabilities was prepared, containing asset and liabilities values for the museum.

4. A proposal for standardised analysis of economic-asset results in public museums

Very frequently the public museum is considered, within the accounting context of its owning public authority or body, as an administrative cost centre that manages resources and provides services. However, "two logical steps" are necessary to establish the end year result.

Firstly, we must identify the entries relating, directly or indirectly, to museum revenue and expenses within the accounts of the owning body. Revenue entries are easily identifiable, for example, income deriving from tickets, from the bookshop or any external contributions. Entries for expenses, on the other hand, are often confused in the main accounts, e.g. expenses deriving from the museum's utilities, and need to be extrapolated and attributed to the administrative cost centre, by using an adequate basis of division (Zan 2000).

To this end, it is useful to reclassify expenses according to type of activity/service offered by the museum (Table 1):

Table 1

Institutional museum activities
A) Core institutional activities
A1) Care and conservation of collections
Conservation (prevention, maintenance and restoration)
New acquisitions
Documentation and cataloguing
Scientific research
Loans for exhibitions or research
A2) Permanent exhibitions and exploitation of collections
Museological design
Room layout
Choice and order of collections
Exhibition set-up
Education (guided tours and educational workshops), free and paid
B) Other institutional activities
Temporary exhibitions
Special events (video, film programmes, etc.)
Seminars and workshops
Publications
Scientific excursions
Library and sound archives
C) Other institutional activities with cultural aims
Online ticket sales
Paid multimedia services
Third party use of rooms for cultural activities
Reproduction and duplication services (video, photo, etc.)
Permission to use cultural assets and collections for which museum holds copyright
Consulting (bibliographic, archival, restoration, etc.)
Other activities/services
D) Museum commercial activities
Bar/café/restaurant
Bookshop/gadget shop
Other paid activities/services (play area, supervised areas, wardrobe, car park)
E) Reception services
Tickets
Information and booking
Welcome or information point for visit planning
Kids' play area (free)
Reception for diversely able visitors
Supervised areas and wardrobe (free)
Car park (free)

Institutional museum activities
F) Security and hygiene services
Security
Museum attendants
Cleaning
G) Administrative, fund raising, ICT and marketing activities
Accounting and control, personnel management
Marketing, communication and information (publications, information material, etc.)
Fundraising
ICT (website creation and management, etc.)

The next logical step is reinterpreting accounting data according to the principle of accrual based accounting. We must therefore take the cash values found in the museum's cost centre and register them according to accrual accounting. To carry out this transition from cash to accrual accounting, a specially designed reconciliation statement is extremely useful (Table 2).

In general, current cash based operations go to forming revenue and expenses for the year, while capital operations affect above all investments and disinvestments. Payables (debts that must be paid off within a given period) and receivables (debts owed to the company), on the other hand, are influenced by current and capital residual management.

Table 2 shows the reconciliation statement form with its two sections - one for revenue and one for expenses. Each section has three parts, corresponding to the three steps necessary for reaching an accrual analysis of cash data.

The first part of the form lists in detail financial accounting categories, correlated to the revenue and expenses reclassified according to activities and services managed by the museum. In this way, one can "pass" from a cash accounting system to an accruals-based system, as the values are related to the year's assessments and commitments and to residuals of previous years.

The second part of the form concerns the adjustment and integration of financial data and has five columns: two for deferrals (initial and final), two for accruals (initial and final) and one for residual adjustments. Deferrals measure income and costs receipt or paid but not sold or purchased, while accruals are income and costs not receipt or paid bud already sold or purchased. In this step it is important to identify the gap between recording the cause of an action (sale or purchase – accrual basis) and its result (payment or receipt of money – cash basis).

Lastly, the third part of each section of the form indicates the attribution - profit-and-loss or assets and liabilities - of values obtained applying the accruals-based principle. This is made easier by the use of alphanumeric codes corresponding to specific categories of profit-and-loss or statement of assets and liabilities.

Table 2-The reconciliation statement

Revenues by area	Cash-based assessments	Deferrals		Accruals		Other adjustments of financ. results	Profit-and-loss		statement of assets and liabilities			
		Initial (+)	Final (-)	Initial (-)	Final (-)		Ref.	Total	Ref.	Credit	Ref.	Deficit
Revenues from care and conservation												
Current revenues												
Public and private funding for current expenses												
Fees for study loans or sale of fixed assets												
Other current revenues												
Capital account revenues												
Public and private funding for capital account												
Sale of fixed assets dedicated to the activity												
Other capital account revenues												
Revenues from exhibitions and exploitation												
Current revenues												
Public and private funding for current expenses												
Fees for sales of collections or fixed assets												
Sales of entrance tickets												
Other current revenues												
Capital account revenues												
Public and private funding for capital account												
Sale of fixed assets dedicated to the activity												
Other capital account revenues												
Revenues from other activities												

Revenues by area	Cash-based assessments	Deferrals		Accruals		Other adjustments of financ. results	Profit-and-loss		statement of assets and liabilities			
		Initial (+)	Final (-)	Initial (-)	Final (-)		Ref.	Total	Ref.	Credit	Ref.	Deficit
Current revenues												
Public and private funding for current expenses												
Fees for sales of collection or fixed assets												
Other current revenues												
Capital account revenues												
Public and private funding for capital account												
Sale of fixed assets dedicated to the activity												
Other capital account revenues												
Revenues from other cultural activities												
Current revenues												
Public and private funding for current expenses												
Associated revenues (guided tours, copyright)												
Other current revenues												
Capital account revenues												
Public and private funding for capital account												
Sale of fixed assets dedicated to the activity												
Other capital account revenues												
Revenues from commercial activities												
Current revenues												
Royalties from bookshops and gadget shops												
Royalties from services												
Other current revenues												

Revenues by area	Cash-based assessments	Deferrals		Accruals		Other adjustments of financ. results	Profit-and-loss		statement of assets and liabilities			
		Initial (+)	Final (-)	Initial (-)	Final (-)		Ref.	Total	Ref.	Credit	Ref.	Deficit
Capital account revenues												
Sale of fixed assets dedicated to the activity												
Other capital account revenues												
Revenues from supporting activities												
Capital account revenues												
Sale of fixed assets dedicated to the activity												
Other capital account revenues												
Revenues from financial activities												
Current revenues												
Interest income												
Other current revenues												
Capital account revenues												
Loans and other medium/long term debts												
Other capital account revenues												
Extraordinary revenue												
General total - revenues												
Write-down of assets												
Contingent assets												
Fixed assets internal manufacturing												
Change in inventories												
Balance surplus												

Expenditure by area	Cash-based Commitments	Deferrals		Accruals		Other adjustments of financial results	Profit-and-loss		statement of assets and liabilities			
		Initial	Final	Initial	Final		Ref.	Total	Ref.	Credit	Ref.	Deficit
Expenditure for care and conservation												
Current expenditure												
Ordinary maintenance												
Fees payable												
Consumer goods												
Misc. services												
Other expenditure												
Capital account expenditure												
Purchase of fixed assets												
Extraordinary maintenance and restoration												
Other expenditure												
Expenditure for exhibitions and exploitation												
Current expenditure												
Ordinary maintenance												
Fees payable												
Consumer goods for mounting exhibitions												
Misc. services												
Other expenditure												
Capital account expenditure												

Expenditure by area	Cash-based Commitments	Deferrals		Accruals		Other adjustments of financial results	Profit-and-loss		statement of assets and liabilities			
		Initial	Final	Initial	Final		Ref.	Total	Ref.	Credit	Ref.	Deficit
Purchase of fixed assets												
Extraordinary maintenance and restoration												
Other expenditure												
Expenditure for other activities												
Current expenditure												
Ordinary maintenance												
Fees payable												
Consumer goods												
Misc. services												
Other expenditure												
Capital account expenditure												
Purchase of fixed assets												
Extraordinary maintenance and restoration												
Scientific cooperation mid-long term												
Other expenditure												
Expenditure for other cultural activities												
Current expenditure												
Ordinary maintenance on fixed assets												
Fees payable												
Consumer goods												
Misc. services												
Other expenditure												
Capital account expenditure												
Purchase of fixed assets												
Extraordinary maintenance of fixed assets												

Expenditure by area	Cash-based Commitments	Deferrals		Accruals		Other adjustments of financial results	Profit-and-loss		statement of assets and liabilities			
		Initial	Final	Initial	Final		Ref.	Total	Ref.	Credit	Ref.	Deficit
Other expenditure												
Expenditure for commercial activities												
Current expenditure												
Ordinary maintenance on fixed assets												
Fees payable												
Consumer goods												
Misc. services (utilities)												
Other expenditure												
Capital account expenditure												
Purchase of fixed assets												
Extraordinary maintenance of fixed assets												
Other expenditure												
Expenditure for supporting activities												
Current expenditure												
Ordinary maintenance on fixed assets												
Fees payable (hire of fixed assets)												
Consumer goods												
Misc. services (utilities, consulting, advertising)												
Directors' fees												
Staff salaries												
Other expenditure												
Capital account expenditure												
Purchase of fixed assets												
Extraordinary maintenance of fixed assets												
Other expenditure												

Expenditure by area	Cash-based Commitments	Deferrals		Accruals		Other adjustments of financial results	Profit-and-loss		statement of assets and liabilities			
		Initial	Final	Initial	Final		Ref.	Total	Ref.	Credit	Ref.	Deficit
Expenditure for financial activities												
Current expenditure												
Extinction of debts or short-term loans												
Interest payable and financial services												
Other expenditure												
Capital account expenditure												
Extinction of debts or short-term loans												
Purchase of shares												
Other expenditure												
Extraordinary expenditure												
Taxes and duties												
General total - expenditure												
Inventory changes raw or consumer materials												
Amortisation costs												
Bad debts provision												
Contingent liabilities												
Balance deficit												

The reconciliation statement, after the cash accounting data, shows, both for revenue and for expenses, components not included in the financial statement that influence economic-asset documents, that is to say, values deriving from management items that have no cash content, such as amortisation rates and any write-downs and funds. These items, not included in financial reporting, are measured using non-accounting means and complete the transition process with financial data.

To profit-and-loss is registered the algebraic sum of financial values, the five columns of adjustments and any extraordinary revenue and expenses (for example, a capital loss generated by sale of an object not completely amortised). Into the statement of assets and liabilities, on the other hand, go accruals and deferrals deriving from cash movements concerning assets (capital account revenues and expenditure, movement of assets/liabilities and cash reserves).

The profit-and-loss form is progressive, so we can see intermediate results of museum activities and services (Table 3).

Entries are classified according to kind, in order to highlight the contribution of each activity to the final result, and divided into six areas with the following capital letters: A) institutional management B) commercial management C) operative management D) capital management E) non-recurring items and F) fiscal management.

Institutional management is the most detailed area and is made up of the algebraic sum of results from care and conservation of collections, permanent exhibitions and exploitation of collections, associated institutional activities and other cultural activities. In particular, for each activity, we must consider income and funding for current spending and their share in capital account for the financial year. To these entries must be added reimbursements, gifts, donations and sponsorships and other income for each single type of activity. On the expenditure side must be considered purchase of goods and services, use of third party goods, personnel costs, depreciation, changes in inventory and all other costs for the specific activity.

The difference between income and costs of institutional activities (Area A) forms the institutional management result of the museum, which is the first intermediate result of the profit-and-loss account, representing the result of the museum's core business. This measures the economic efficiency of the museum's institutional management and gives an immediate, succinct overview of the internal production efficiency and effectiveness of the actions carried out. A negative result underlines that costs of institutional activities exceed respective income, suggesting careful analysis of the factors that generated this result in order to identify and, if necessary, remove the causes of imbalance.

Area B (commercial activities) identifies the result of these activities that should, by nature, be positive and support institutional activity.

Table 3 - Profit-and-loss accounting

Profit-and-loss accounting by area
+ Income and funding for care and conservation of collections
- Costs for care and conservation of collections
= (a) Results for care and conservation of collections
+ Income and funding for permanent exhibitions and exploitations of collections
- Costs for permanent exhibitions and exploitations of collections
= (b) Results for permanent exhibitions and exploitation of collections
= (a+b) Results for permanent exhibitions and exploitation of collections
+ Income and funding for associated institutional activities
- Costs for other institutional activities with cultural aims
= (c) Results for other institutional activities
+ Income for other institutional activities with cultural aims
- Costs for other activities with cultural aims
= (d) Results for other institutional activities with cultural aims
= (A) Results for museums institutional activity (a+b+c+d)
+ Revenue commercial activities
- Costs for commercial activities
= (B) Results for commercial activities
= Operating results of museum activity (A+B)
+ Misc. funding for current spending
- Non-institutional costs (supporting fees: administrative, commercial, technical, etc.)
= Operating result before tax and interest
+ Financial income
- Financial costs
= Result of trading profit
+ Extraordinary income
- Extraordinary expenditure
= Result before tax
- Taxation
= Net result of museum activity

The algebraic sum of the institutional result and the museum's commercial result gives the operating result. This is the second intermediate result, which measures the economic efficiency of overall operating management and enables immediate, though not detailed evaluation of internal production efficiency and effectiveness of the action carried out. The significance of this result is connected with the previous one - if both are positive, the museum shows good economic viability, both in its institutional and commercial management. If the first result is positive and the second negative, the commercial management is not instrumental, but affects institutional activity negatively. In this case, it is necessary to investigate the commercial management, which, by its nature, should contribute positively to the final result.

Area C, cross-over activities, contains entries of various types for services and activities in addition to the above, produced in various different ways from museum to museum. An example might be the variety of ways of managing reception services, security and cleaning, administration and fundraising.

The algebraic sum of results from A, B and C give the Operating profit net of financial management results.

Area D, financial management, synthesises positive and negative variations for short, medium and long-term finance operations. It is made up of two entries - income for interest receivable and expenses for interest payable, adjusted as necessary based on the accrual principle. The total of financial income and expenditure, added to the operating profit before tax and interest gives the trading profit result, which shows the "normal" capacity of the museum to generate wealth through its activity, also considering the financial variable. This result, too, must be interpreted in the light of the previous ones. If the result is negative owing to financial management there is clearly a problem in finding and using sources of finance. In the mid-long term this might undermine the financial and economic balance of the company.

Area E, non-recurring items, is the algebraic sum of positive and negative variations relating to non-recurring operations carried out during the year. It includes entries for management events that were unforeseen and unforeseeable or occurrences outside of normal activities. This is not a residual area of the profit-and-loss account, for entries that would otherwise be difficult to place, but a class with its own separate nature and importance, though unforeseeable and having a variable effect, positive or negative, on the net results. The algebraic sum of the partial results gives the result before tax, which must be interpreted as the wealth produced (profit) or destroyed (loss) through overall museum management, whether or not there is an operating surplus or deficit. Fiscal year profits increase net assets and thereby strengthen the museum's future ability to carry out its institutional function. Fiscal year losses mean the opposite - museum assets are reduced, as is its ability to achieve its goals without external or extra assistance. This result, naturally, must be interpreted in the light of the partial results that formed it and, on this subject, it appears essential to achieve a positive operating result.

Finally, Area F, the last area, concerns fiscal effects and considers the negative effect of taxation on the museum's net results. The final result, therefore, is the result after tax of museum management. The structure of the statement of assets and liabilities, in opposite columns, enables confrontation of investments with sources of finance (Table 4). For all entries are shown, in separate columns, the initial amount, variations during the fiscal year and the final amount. Also, the reason is also given for the variations: financial accounting (operations of income or expenditure) or other reasons (for example, depreciation or changes in inventory).

Table 4 - Statement of assets and liabilities.

Statement of assets and liabilities	Initial amount	Δ from cash based accounting		Δ from other sources		Final amount
Assets		+	-	+	-	
A) fixed assets						
I) Intangible assets						
I) Capitalised ongoing costs						
Total						
II) Tangible assets						
1) Buildings and lands						
2) Machinery, equipment and plant						
3) IT equipment and systems						
4) Vehicles						
5) Office machinery						
6) Museum collections						
7) Over third-party rights						
8) Current fixed assets						
Total						
II) Tangible assets						
1) Bad debts						
2) Security deposit debts						
Total						
Total fixed assets A)						
B) Current assets						
I) Inventory						
Total						
II) Receivables						
I) From public sector						
2) Towards others						
3) For deposits						
Total						
III) Liquidity						
1) Cash funds						
2) Bank deposits						
Total						
Total current assets						
C) Accruals and deferrals						
1) Accrued income						
2) Deferred income						
Total Accruals and deferrals						
Total income (A+B+C)						
memorandum accounts						
D) Works to be carried out						
E) Third-party goods						

Statement of assets and liabilities	Initial amount	Δ from cash based accounting		Δ from other sources		Final amount
Deficit		+	-	+	-	
A) Equity						
I) Net balance						
II) Fiscal year profits/losses						
Total equity A)						
B) Contributions						
I) For capital account						
Total contributions B)						
C) Debts						
I) Debts						
II) Operating debts						
III) VAT payable						
IV) Debts for transfers						
V) Other debts						
Total debts C)						
D) Accruals and deferrals						
1) Accrued expenditure						
2) Deferred expenditure						
Total Accruals and deferrals D)						
Total expenditure (A+B+C+D)						
Memorandum accounts						
E) Works to be carried out						
F) Third-party goods						

The statement of assets and liabilities respects the criterion of the equity method, according to which the income valuation reserves are credited against assets to which they refer.

The fixed assets class includes capital items, renewable intangible assets and intangible property rights, destined for unlimited use for museum activity.

In the current assets class, receivables are divided, according to the type of debtor, as follows: 1) Receivables from public bodies; 2) Receivables from others.

The first category includes the total value of receivables from the entire public sector.

The second entry shows, under residual logic, the total value of receivables that the museum holds for other clients, not included in the public sector.

The negative assets are structured to highlight the distinction between equity and debt. In particular, liabilities are divided into three main classes: A) equity B) debts C) accruals and deferrals.

Equity includes financing for public investments, bequests tied to investments and various reserve funds. From an economic-assets view, increase or decreases during the fiscal year depend upon the net results, shown in the profit-and-loss account.

The section Debts is divided according to the nature of creditors. Other debts include, under residual logic, entries that cannot be placed elsewhere.

At the foot of the statement of assets and liabilities we find the memorandum accounts, i.e. lesser accounting systems that highlight company facts, which, as they are not included in the balance sheet, risk being ignored. These memoranda, not included in assets and liabilities, are used to highlight important elements for the museum management, such as, e.g. values of work to be carried out.

Conclusions

It is essential to determine the year result (profit or loss) of a museum in order to have a complete picture of its performance (Weil 2005) and, at the same time, to properly account for the use of public funds and consequent results (Canergie and West 2005).

This method of "deriving" accrual accounting results from cash based accounts shows that, from a theoretical and applicative point of view, it is possible to draw up a balance sheet for public museums, even when this is not expressly required, in order to produce information on the financial, economic and asset results obtained. In this way we can measure management performance by means of synthesising the profit-and-loss statement with assets and liabilities, in a reporting system organised by management area.

We also believe that the methodology presented may be considered a logical procedure that can be applied to all economic-production organisations that only use cash based accounting, but want to determine their final results (profit or loss).

The forms presented might be a first step towards an accrual database, to be used in calculating financial, economic and asset indicators. The information is also of strategic use for spot checks into management areas with unsatisfactory performance.

Nonetheless, this study has some limits.

Firstly, the reconciliation statement and the connected profit-and-loss forms and balance sheet have been drawn up attempting to identify all kinds of activities normally found in a public museum. However, in applying the model in practice, it will be necessary to eliminate activities and services that are not relevant (Hutter, 1998).

Also, although, from a theoretical viewpoint, there were no significant difficulties in "deriving" accrual results from cash ones, as a further development of research in the future, it will be necessary to test the method on one or more case studies.

Lastly, the main aim of a museum cannot be to achieve a profit, nor is this parameter sufficient to judge its management (Thompson 1999; Throsby 1994). Synthetic economic indicators, as operating results, must be considered as a positive or negative net flow of wealth that increases or diminishes assets and not as the museum's capacity to carry on profitable economic exchanges with third parties. In conclusion, any judgement of year net results must of necessity be accompanied by evaluations of the cultural, social and research functions carried out by the museum. Moreover, it has to consider the visitors' assessment (Ashworth and Johnson 1996).

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