

# Accounting for public sector assets: Comparing historical cost and current value models

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## Abstract

The recognition, measurement and disclosure of public sector assets constitute relevant matters for national and international public sector accounting standard-setting. This chapter develops a theoretical analysis drawing upon a dualistic approach contrasting current value and historical cost accounting models. Accordingly, the latter should be adapted and then preferred to cope with public sector specificities, with a view to providing information for and enforcing accountability to citizens and their political representatives. Drawing upon this theoretical setting, our analysis develops a consistent design for the conceptual overarching accounting framework for assets in general, providing illustrative examples for specific categories such as financial, heritage, natural and military assets.

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A short bio for each author (80-100 words)

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## Section 1 - Introduction

The recognition, measurement and disclosure of public sector assets are important matters of national and international public sector accounting standard-making. They relate to the ongoing debate on which model of accrual-based accounting best serves the needs of public sector stakeholders (Biondi, 2012b; Biondi 2007; Oulasvirta, 2014a, 2021). Our theoretical analysis draws upon a dualistic approach contrasting current value and historical cost accounting models. On the one hand, current value accounting adopts a balance sheet approach which takes assets and liability as the basis of accounting (the stock method of accounting). On the other hand, the historical cost accounting model adopts an income statement approach which takes revenue and expenditure as the basis of accounting (the flow method of accounting). Our analysis shows how the latter may be adapted to public sector specificities and then preferred in order to provide information for, and enforce accountability to, citizens and their political representatives (Biondi, 2013; Oulasvirta, 2014a, 2014b).

The chapter aims to provide a theoretical comparative analysis of these two models of accounting for public sector assets: historical cost and current value. Our analysis is developed in two stages. First, we develop a consistent design for the conceptual framework which backs our recommendations and facilitates their application by preparers (Sections 2 and 3). Second, we provide some guidelines for their application, including an overview of the preferred accounting treatment for relevant asset categories (Sections 4 and 5).

A consistent design draws upon a logical chain of consequential developments based upon a set of assumptions of reference. In particular, our design builds upon the core assumption that information provided by public sector accounting statements (including financial and budget reports, as well as non-financial reports) is organised with a view to satisfying the key needs of the most prominent public sector stakeholders and users of public sector accounting statements. A complementary assumption is that the most prominent users are citizens and their political representatives. Drawing upon these assumptions, our theoretical analysis concludes that a historical cost model should be adapted to public sector specificities and then preferred for general purpose financial statements (GPFS) of public sector entities (PSE).

The rest of the chapter is organised as follows. Next, Section 2 develops a consistently designed conceptual framework for the accounting of public sector entities (PSEs). Section 3 addresses the fundamental choice of an accounting model of reference. While the IPSASB did not prioritise any of the existing models, we argue for a historical cost accounting model for the public sector. Section 4 adapts this latter model to public sector specificities by introducing both reversed matching between expense and revenue and matching to the period of reference. Section 5 provides application guidance, including illustrative examples of cost accounting for some asset categories. Section 6 concludes by providing a summary of the main findings and their implications.

## Section 2 – Developing a consistent design for the conceptual framework

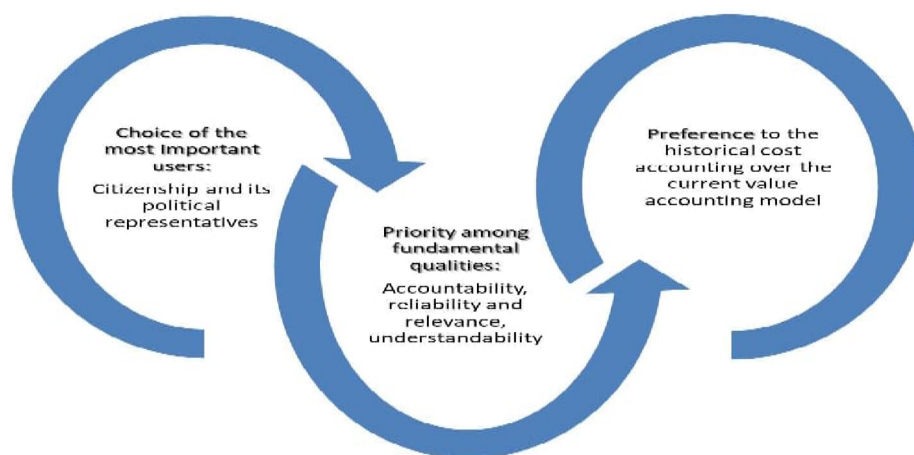
A conceptual framework for accounting standards has both financial and operational consequences (Zhang & Andrew, 2021, p. 4). From our theoretical perspective, the conceptual framework (CF) for public sector accrual-based financial accounting should be consistently designed to provide a true and fair, trustworthy view on how tax-financed and debt-funded public PSEs function. This means

that financial accounting is expected to provide a trustworthy representation of the PSE, taking into account public sector specificities and related information and accountability needs (Ellwood & Newberry, 2016, pp. 321–233). Furthermore, the separately issued standards and guidelines should draw upon this CF, the latter taking hierarchical priority over the former as a sort of constitutional law for accounting purposes.

A consistently designed CF draws upon a logical sequence of consequential developments starting from (i) primary users' needs and objectives of financial statements; towards (ii) fundamental qualities of financial information; (iii) criteria regarding definitions and recognition of elements; (iv) alternative measurement options; and (v) the presentation of financial statements. The last three points (iii – v) denote and clarify the main contents of an accounting model of reference.

In particular, our design builds upon the core assumption that information provided by public sector accounting statements (including financial statements, budgets and non-financial reports) is organised with a view to satisfying the key needs of the most prominent public sector stakeholders and users of public sector accounting statements. On this basis, we develop a bottom-up approach which is based upon the fundamental choice of the most important users. A complementary assumption is, then, that the most prominent users are citizens and their political representatives. Figure 1 summarises this logical chain of development for our consistently designed conceptual framework.

Figure 1. Development of consistently designed conceptual framework for public sector accounting



Drawing upon these assumptions, the main objectives of financial reporting (point (i) above) may be disentangled with explicit reference to the information and accountability needs of various user groups (Lee, 2020). Accordingly, our consistent CF development takes a bottom-up approach based upon these needs of primary users of reporting information. For the public sector, the primary financial statement users are – in principle at least – citizens and their political representatives, both having the right to know how an accountable government has been acting and using entrusted resources over time and circumstances. In fact, among these two constituencies, citizens are more potential than real users (Ellwood & Newberry, 2016; Laughlin, 2008, 2012; Mann Lorson, Oulasvirta, & Haustein, 2019). Quite to the contrary, members of councils and parliaments have long been approving and supervising financial decisions regarding budgets, the latter being concerned with expenditures and related financing sources.

Therefore, an accountable government may prepare budget reports concerned with expected expenditures and related sources of funding, followed by budget out-turn reports on actual expenditures and funding. These documents may be accompanied by accrual-based financial statements for public scrutiny (Mann, et al., 2019). All these statements – budgets and financial statements – function as transparency instruments reporting on past performance for the sake of information and accountability (Laughlin, 2012). They provide a reliable basis for assessing the discharge of their obligations by politicians and administrators made accountable through them, as well as a tracking basis for planning future annual budgets, multi-year budgets and other prospective plans.

Since financial information contributes to making political representatives and public sector administrators accountable, the main fundamental qualities (point (ii) above) for public sector accrual-based financial reporting are reliability, relevance and freedom from errors, with the important enhancing trait of understandability. In this context, accountability may be considered as the overarching purpose of financial information. In our opinion, such a hierarchical order gives priority to the fundamental qualities which are best-suited to cope with information and accountability needs by the most important users, namely the citizens and their political representatives.

These qualities emphasise that PSEs' financial statements should contain reliable and trustworthy information on incurred expenditure and earned revenue (income statement), accompanied by capitalised acquisition costs and incurred funding liabilities (balance sheet), rather than speculative information on holding gains and losses, as well as continued revaluations of assets and liabilities at current values (Chan, 2006).

When priority is given to these fundamental qualities, which better serve the information and accountability needs of citizens and their political representatives, the historical cost accounting model may be consistently preferred out of the various accounting models belonging to the accrual basis of accounting (points (iii)-(v) above). This model is based upon matching revenues and expenses in relation to each other and to the period of reference, applying a flow method of accounting. Under historical cost accounting, accrual-based measurement remains compatible with legally binding budgets. Its focus on past performance enables continued financial accountability in line with budget execution over time and circumstances.

The accountability purpose of public sector accounting in particular requires reliable information on past performance, consisting of both financial and non-financial information. Politicians and administrators may be made accountable on the basis of past performance, while their obligations cannot be reliably discharged on the basis of speculative prospective information, which is unreliably measured and subject to structuring opportunities. This is also a matter of legal security for public service officials made accountable on the basis of this accounting information.

Moreover, the retained set of fundamental qualities is consistent with the principle of prudent accounting (conservatism) in public sector reporting, implying that all expenditures must be recognised fully as soon as they are incurred, while revenues should not be over-estimated through the reporting period.

Therefore, when public sector specificities are considered, a consistently designed CF prefers the historical cost accounting model, which focuses on past performance and takes realised revenue and incurred expenditure as the basis of accounting. This model should be prioritised over current value accounting models (Biondi, 2012b). In fact, both Biondi (2012a) and Dichev (2017) argue that the

income-based model of financial reporting is suitable even for business accounting, since cash flows adjusted with accruals provide the best foundation for financial reporting.

Next, Sections 3 and 4 further develop the historical cost accounting model which this section has retained according to our consistently designed conceptual framework, with a view to adapting this model to public sector specificities. In particular, Section 3 develops a comparative analysis contrasting historical cost accounting and current value accounting models. By taking accounting for the business sector as a benchmark, this analysis may help in understanding the key reporting differences and the reasons behind the priority given to the former over the latter by our approach. Section 4 adapts the historical cost accounting model to public sector specificities concerning accounting for assets.

### **Section 3 - Two distinctive accounting models: historical cost and current value**

Although widespread, a generic reference to an accrual basis of accounting is inadequate since this does not consider the variety of accounting models that belong to the accrual-basis family (Biondi, 2012a, 2012b). In fact, choosing between these various models constitutes a major issue in the ongoing debate on the preferred financial accounting model for the public sector (Chan, 2003, 2006; Laughlin, 2012; Ellwood & Newberry, 2016; Mann, et al., 2019).

With regard to business accounting models, the entity theory<sup>1</sup> of accounting shifts the accounting basis from the balance sheet, implying a stock method of accounting, towards a flow method of accounting, in which accrued transactions concerning revenues and expenses are taken as the reference with a view to representing financial flows occurring in ongoing business cycles of production and sale. Accordingly, the accounting representation of a business firm as a going concern is based upon operational flows rather than the current values of balance sheet elements, since these flows are critical in determining the business performance and financial position, which accrue over time and circumstances (Penman, 2007; Biondi, 2011, 2012a; Dichev, 2017).

Table 1 provides an overview of the two alternative accounting models for business: historical cost versus current value.<sup>2</sup> By acting as a conceptual framework for financial reporting, these models shape the determination of accounting elements through their definition, recognition and measurement criteria. The current value model points to an accounting definition of business income as wealth creation and value added, determined through a stock method of accounting which takes assets and liabilities as the basis of accounting. The historical cost model points to an accounting definition of business income as the generation of realised net revenues, determined through a flow method of accounting which takes revenue and expenses as the basis of accounting.

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<sup>1</sup> The entity theory focuses on the business firm as a going concern, this accounting entity being functionally autonomous from shareholding investors and other stakeholders. Quite to the contrary, the proprietary theory of accounting focuses on proprietorship by shareholding investors. See Biondi (2011), providing further references.

<sup>2</sup> This dualistic approach opposing static (current value) and dynamic (historical cost) accounting draws upon the original work by E. Schmalenbach and other accounting thinkers especially from Germany, Italy and US throughout the first half of the XX century; see Biondi and Zambon (2012) for an historical overview of national traditions.

Table 1. A dualistic view of the current value and historical cost accounting models for business entities (adapted from Biondi, 2012b, p. 604)

Accounting models	Current Value (static)	Historical Cost (dynamic)
Method	Stock method of accounting (asset-liability approach)	Flow method of accounting (revenue-expense approach)
Measurement	Current value (fair value)	Historical cost
Focus	Net worth of the reporting entity at an arbitrary moment in time	Resource outflows and inflows Resources mobilised and utilised by ongoing activities (matching)

The historical cost accounting model emphasises the income statement, while the matching and realisation principles are applied together. Accordingly, realisation occurs mainly when flows are generated through transactions which have occurred with independent third parties. The historical cost accounting approach is based upon these transactions of the accounting entity with independent third parties, aiming to report on resource out- and inflows through the entity as a going concern. According to Biondi (2012b, p. 606), accounting is not made dynamic here by taking into account the current value of an imagined future (as the static model would do), but by referring to the accrual of actual expenditures related to the ongoing productive process of the accounting entity over time and circumstances. The main qualities are then reliability, freedom from errors and understandability, with a view to fulfilling information and accountability needs.

In contrast, the current value accounting model emphasises the balance sheet and the measurement of accounting elements at current values measured at the reporting time. Neutrality rather than reliability is prioritised as the fundamental quality. Furthermore, because various kinds of current value measurements and re-measurements (including reference to market prices, third-party appraisals and marking-to-models) are used, holding gains and losses are either recognised as profits and losses in the income statement or included in the so-called comprehensive income on the equity side of the balance sheet.

What is the economic logic overarching the two accounting models for the business sector? The historical cost accounting model relates to a dynamic view of accounting that focuses on “recovering” the total costs incurred by the ongoing business activity. Its focus is, then, on the incomes generated by the actual productive process of the accounting entity through time. On the contrary, the current value accounting model for business relates to a static view that focuses on “recovering” not only the amounts conferred to the accounting entity but also the values of the investments made. Its focus is, then, on the net worth of the entity at a particular point in time, while income is defined as the difference between two different valuations of the wealth held by the accounting entity at two successive moments in time. In the latter case, the balance sheet recognises the current values of assets, and their amortisation (and depreciation) implies a “recovery” based on these current values, instead of historical cost values.

From a static accounting view, assets are seen as the discounted present value of future cash inflows, or as properties (or separable items) valued at their current market values (as if they were to be liquidated). From a dynamic accounting view, assets consist of the capitalised amounts of outflows incurred, and are reflected as invested costs according to their future usefulness to the accounting entity (Biondi, 2021b, p. 607).

Under both models, business accounting determines incomes that recover investments made to seek those incomes. This is why business accounting matching first determines revenues and then matches expenses (costs) against those revenues. Imagine a business entity investing 100 units. It seeks to generate at least 100 units of income over time to recover that investment. Matching past investment amounts to the flow of income through time may inform stakeholders about the ongoing progress made in this recovery.

Contrary to business accounting, where expenses represent the absorbed costs or values that have to be controlled to generate income, in public sector accounting, expenses represent the resources required by non-lucrative activities that have been performed during the period to provide public goods and services which satisfy social welfare needs (Biondi, 2012b, p. 608).

Consequently, public sector accounting matching should point to determining expenses, i.e., the resources mobilised and utilised during the period. Imagine a public sector entity expending 100 units of resources to provide public goods and services during the reference period. Matching these expenses with contributions gathered to pay for that provision may inform stakeholders about the ongoing financial sustainability of the entity, making it accountable for managing those resources. Two complementary kinds of matching are possible here. In principle, these expenses may be matched against different kinds of contributions, since the expenses must be covered and financed by available contributions. When reverse matching is not possible or convenient, matching to the reference period for both expenses and contributions provides a complementary convenient solution.

In sum, a public sector-specific matching mechanism includes both reverse matching and time period matching. Reverse matching implies that revenues are matched to expenses. Preparers recognise expenses (by allocating expenditures) and attach revenues to them. For instance, when a public sector entity receives a grant conditional to eligible expenses, the grant is recognised as revenue when those eligible expenses are recognised. But, when reverse matching is not possible or convenient (this is the case for general taxation, which is not earmarked for specific expenditures), preparers may have recourse to matching to the time period. The latter may be the most frequent solution in the public sector, and the preferred one for the sake of simplicity and understandability. This public sector-specific matching mechanism implies a distinctive understanding of the accrual accounting basis when applied to public sector entities.

For all these reasons, the current value accounting model is not suitable for the public sector. The historical cost approach may be preferred, since it relates to the accountable use of resources with a view to providing and maintaining public service activities over time. Nevertheless, it should be carefully adapted to take public sector specificities under consideration, including the specific public sector matching mechanism explained above.

Next, Section 4 discusses how to adapt this historical cost accounting model to public sector specificities concerning accounting for assets, developing a constructive critique of the approach shown by the IPSASB on matters of asset definition, recognition and measurement.

## **Section 4 - Historical cost accounting for assets adapted to public sector specificities**

This section takes issue with the received approach of the International Public Sector Accounting Standards Board (IPSASB), which does not express a preference between accounting models of reference. After having considered the IPSASB's position (Paragraph 4.1), we also consider the US Government Accounting Standards Board (GASB), which addresses those specificities better than the IPSASB (paragraph 4.2). Drawing upon these benchmarks, we build upon our PSE-specific conceptual framework with a view to adapting the historical cost accounting model for assets to public sector specificities (paragraph 4.3).

#### **4.1 – Choosing between accounting models: missing guidance by the IPSASB**

The International Federation of Accountant (IFAC) and its IPSASB have a policy that the private sector international accounting standards (IAS/IFRS) shall be the deliberate starting point for international public sector accounting standards (IPSAS). It is well-known that this policy has its strong advocates as well as fierce critics. It should be noticed here that the IAS/IFRS standards have been further criticised for private sector accounting (Zhang & Andrew, 2022, p. 5).

Assessed against the conceptual benchmark developed in Section 2 above, the IPSASB's (2014) CF does not focus consistently on the primary users of information, which are the citizens and their political representatives in parliaments, councils and other public sector institutions. Furthermore, the IPSASB's CF does not prioritise fundamental qualities in a clear hierarchical order.

According to our theoretical analysis (Section 2 above), this hierarchical order should give priority to the fundamental qualities of reliability and relevance, with a view to fulfilling the overarching needs of accountability and understandability. These qualities are best-suited to cope with the needs of the most important users, citizens and their political representatives. When priority is given to these qualities, the historical cost accounting model is to be preferred over the current value accounting model for tax-financed and debt-funded public sector entities. Quite to the contrary, the IPSASB CF does not express any preference or priority between the two models, enabling accounting according to either of them. This neglect leaves preparers without guidance, and users with financial statements prepared under an inconsistently-designed CF.

Concerning accounting for assets, the definition, recognition and measurement criteria depend on the accounting models of reference. But the IPASB does not assign preference and does not provide guidance on their priority. IPSASB (2014, para. BC7.3) "is of the view that there is no single measurement basis that will maximize the extent to which financial statements meet the objectives of financial reporting and achieve the qualitative characteristics". According to the IPSASB (2014, para. BC7.7), the measurement objective is for preparers "to select those measurement bases that most fairly reflect the cost of services, operational capacity and financial capacity of the entity in a manner that is useful in holding the entity to account, and for decision-making purposes". In fact, the IPSASB (2014, para BC7.8) does acknowledge the disadvantages of using different measurement bases at the same time without prioritising them, but it explains that it is possible to minimise the disadvantages by ensuring that assets and liabilities are reported on the same basis where circumstances are similar. According to the IPSASB, therefore, the different measurement bases can be used simultaneously as long as their use is disclosed transparently, but no guidance is provided to discriminate and prioritise between them.

In a 2019 consultation paper devoted to measurement, the IPSASB (2019) provisionally states that the measurement requirements in the IPSAS are partly inconsistent and should be clarified by this

new special measurement standard yet to be adopted. Accordingly, assets would be classified into three main categories: (i) assets held to provide services (non-cash-generating assets), (ii) cash-generating commercial assets, and (iii) assets for trading or sale. But, again, even this new measurement standard – if adopted – would not choose between the two accounting models of reference. Accordingly, even assets held for operational capacity (category (i) above) may be accounted for either at historical cost or at replacement cost (a kind of current value accounting).

## **4.2 Our public-sector-specific approach in line with the US Government Accounting Standards Board (GASB)**

According to the theoretical analysis (Section 2), a consistently designed conceptual framework (CF) along with a specific standard on measurement based upon this CF should provide guidance to preparers in choosing and prioritising between accounting models of reference. Either the CF or the standard may further limit the preparer's choice according to a coherent set of consistent indications. Therefore, it would be better to first choose the most important measurement basis, and then complement it with few alternative criteria which are deemed to be suitable in exceptional situations, i.e. when those alternative measurement bases are both sufficiently reliable and more relevant and informative for the most important users, citizens and their political representatives.

In its final Concepts Statement No. 6, the US Government Accounting Standards Board - GASB (2014b, pp. 10–11) explains that the cost of current-year services and initial amounts are the most appropriate measurement basis for assets that are used directly in providing services. Furthermore, the GASB strictly limits the use of fair values, by proposing to apply fair value only to certain asset categories; namely, those investment assets that are kept primarily for future income or profit, and where the asset's present service capacity is based solely on its ability to generate cash or to be sold to generate cash (GASB, 2014a, pp. 25, 40; GASB, 2015, p. 4).

According to the GASB (2014b, p. 7), "when only one measurement approach is applied for a specific asset or liability, one objective will necessarily be given priority over the other. In these circumstances, the cost-of-services information has greater relevance in the governmental environment than the service potential information because of the importance of providing information that can be used to assess inter-period equity."

Concurring with this GASB position, we should remember here that the accrual basis of accounting was originally developed for business sector accounting and its profit motive (Section 3). When transplanting it from businesses to tax-financed and debt-funded public sector entities, the one objective which should be given priority is social control over the flow of transactions and their adherence to authoritative budgets, with a view to pursuing public sector goals which are both financial and non-financial (Monsen, 2002; Oulasvirta 2021). This overarching purpose of accountability is far more important to main users than asset valuation at current values based upon the asset's ability to generate net cash inflows in the future.

Another key point in favour of the historical cost accounting model is that public sector assets are generally held and maintained only to provide social benefits to citizens. Most public sector properties, facilities and equipment are not intended to yield direct economic benefits to the accounting entity. Heritage and natural assets are the most striking illustrative example here, since the accounting entity holds in trust, protects and maintains them on behalf of current and future

generations (Woon, Chatterjee, & Cordery, 2019). Moreover, public sector financial reporting focuses on the use of resources and measuring costs, rather than evaluating the current values of assets and liabilities. An accounting model aiming to assess net financial wealth is quite meaningless for the public sector, since the resources under control are not and cannot be liquidated at will, generally speaking. Moreover, an accounting focus on current values could mislead public sector management away from accomplishing social welfare missions. For instance, accounting for a publicly-owned cultural center building at current value may encourage its management to seek for commercial rents for its rooms, although social welfare objectives might be better achieved by implementing non-lucrative arrangements for their use.

In order to make political representatives and public sector administrators accountable, a consistently designed conceptual framework for the public sector connects accrual-based financial reporting with the cash-based process depicted by budgets (see Section 2). Accordingly, in the preparation of financial statements, the accounting elements of a public sector entity may be classified following their economic substance between expenditures, revenues and (pure) financial transactions (FGAB, 2009, p. 4).<sup>3</sup> Here the definition of an asset depends on the definition of expenditure and its assignment to the period(s) of reference when unexpired. This method is consistent with a historical accounting model for asset accounting.

### **4.3 Accounting for public sector assets: definition, recognition and measurement**

This section addresses how to define, recognise and measure a public sector asset according to a historical cost accounting model adapted to public sector specificities, taking as a comparative benchmark the alternative current value accounting model.

#### **4.3.1 Definition of asset under historical cost and current value accounting models**

The two accounting models – historical cost and current value – define the basic accounting elements in distinctive ways. The balance sheet approach under the current value model takes assets and liabilities as the basis of accounting. Indeed it derives its definitions of expenses and revenues from the definitions of assets and liabilities. Following this approach, the IPSAS CF (IPSASB, 2014, p. 55) defines an ‘expense’ as follows: “Expenses are decreases in the net financial position of the entity, other than decreases arising from ownership distributions”. This definition is derived from the net financial position as determined by balance sheet changes. Accordingly, this approach requires regular asset re-measurement in order to keep current values up to date.

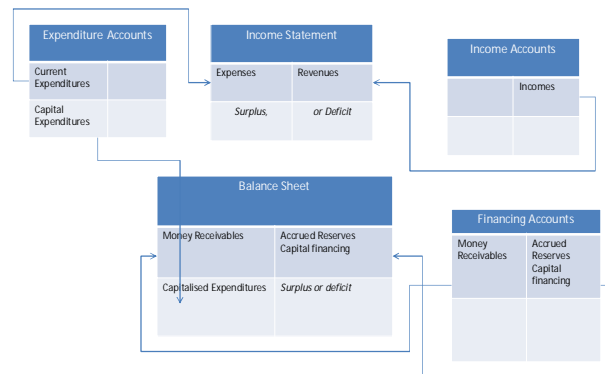
Not surprisingly, the historical cost accounting model leads to different definitions of accounting elements. The current value accounting model first defines an asset (and liability), deriving a definition of expenses from this definition. The historical cost accounting model does the opposite. It defines an asset by drawing upon the driving notion of accrued expenditure. Accordingly, an expense is that part of an expenditure that will no longer bring future benefits, thus accruing to the current accounting period of reference. This expense will be reported by the income statement. The residual part of that expenditure, that which is expected to bring further benefits in future periods, is reported by the balance sheet as an unexpired asset. This represents a resource which remains

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<sup>3</sup> FGAB, the Finnish Government Accounting Standards Board, investigated during 2003-2010 all by-then-issued IPSAS standards from the point of view of suitability for government accounting.

available for future periods. Its amount is determined by a conventional carry-over calculation of its acquisition cost from one initial accounting period to the next ones. Figure 2 depicts this flow-based accounting logic for asset accounting. The historical cost accounting model draws upon a flow method of accounting which takes revenues and expenses as the basis of accounting, defining assets according to the driving notion of accrued (capital) expenditures.

Figure 2. Structure of accrual-based financial accounting according to the historical cost accounting model



#### 4.3.2 Asset recognition and the matching method adapted to public sector specificities

The logic of historical cost accounting points to the accounting method of matching expenditures to the accounting periods in which they accrue, resulting in the simultaneous recognition of expenses (expired expenditures) and assets (unexpired expenditures).

Regarding business accounting, matching means that, for a given period, expenses are paid and expected cash expenditures are incurred in earning the revenues for that period (Dichev, 2017, p. 626). While keeping this flow-based logic in mind, matching should be adapted to public sector specificities.

First, public sector entities do not purport to generate income from expenditures. They incur expenses by providing useful public service(s) to citizens through time and circumstances. Therefore, the first required adaptation is to reverse the matching method by allocating revenues to expenses (and not vice versa).

This reserve matching mechanism includes matching received conditional contributions (such as subsidies, grants and donations earmarked to finance only specific expenditures) to the period(s) in which the eligible expenditures are realised. This may be the case for local governments receiving conditional grants from central governments, or for central governments receiving conditional grants from international donors. Consequently, if those subsidies, grants and donations are given as advance payments, these advance payments will be recognised as revenues when the matching eligible expenditures are realised.

In fact, revenues and expenses do not belong to the same economic process where the public sector is concerned. Revenues mainly come from taxation, while expenses depend on public service provision. Generally speaking, taxation flows and expenditure flows do not directly match each other. Therefore, the second required adaptation is to match both expenditures and revenues to the

period of reference, rather than with each other. Both revenues and expenses are recognised as soon as they are accrued, since both belong to the accounting period of reference. The matching method is then based upon the period of reference for both expenses and revenues. We call this matching to time period, another specificity of public sector accounting. For instance, if the subsidies, grants and donations of the example above were given without conditions, they may be recognised as revenues in the period in which they were received.

Concerning assets, their recognition follows the accrued expenditure which paid for that resource (acquisition cost of the asset). The accrued amount lasts as an asset as long as the underlying resource maintains future benefit potential and remains under control by the reporting entity.

The straight-line allocation method is often used as a standard depreciation allocation method. This simple method tries to approximate the expected decline of service potential of the asset during its life (the variety of existing methods is explained by Hendriksen 1982, 387-396).

#### **4.3.3 Derecognition of an asset in public sector accounting**

Derecognition of a public sector asset points to the peculiar moment at which the accounting entity disposes of that asset by selling or derecognising it in some other way. At that moment, the liquidation net revenue may be netted against the outstanding book value, reflecting the profit or loss earned through asset disposal.

This liquidation method is consistent with the realisation principle which recognises revenues only when they accrue in a transaction that has occurred with an independent third party. This principle has been recently criticised for the private sector (Biondi 2011; Biondi, et al., 2012). Nowadays, business sector accounting standards include holding gains and losses that may be recognised in financial statements – including the income statement – for some asset categories. However, in the case of the public sector, holding gains and holding losses do not provide useful information for the most important users (citizens and their political representatives), because assets are mainly kept for public service provision to them. Indeed, for the sake of financial reporting, it is preferable to account for realised transactions that have cash, cash-equivalent and budget effects, disregarding holding gains and losses which are not realised through an occurred transaction. Public sector entities are not accountable for net worth management but for using resources to provide public goods and services to citizens. Therefore, holding gains and losses are neither relevant to, nor consistent with, their accountability.

#### **4.3.4 Matters of asset measurement in public sector accounting**

As long as an asset is accrued and recognised in the balance sheet, its contribution to the current cost of public service may be determined in various ways. Depreciation is one of the most important means of allocating costs to accounting periods. It implies allocating asset acquisition cost to those accounting periods during which the asset is used. According to Figure 2, expenditures to pay for one asset are split into two parts: one (expired) part belonging to the accounting period as an expense; the other (unexpired) part belonging to future periods when the asset is used.

However, as mentioned before in this section, the public sector matching method differs from that of the business sector. The latter builds upon a profit motive, which leads to matching expenses against accrued commercial revenues. In the case of the public sector, non-commercial transactions constitute the vast majority of governmental transactions. For these transactions (such as transfers to enterprises and households and tax revenues), one cannot find a causal relationship between expenditures and revenues, in contrast to in the business sector (Christiaens & Rommel, 2008; Monsen, 2008; Monsen & Nasi 1998). When services are delivered through non-commercial transactions to citizens, it is not possible to match expenditures and earned revenues from sales. But it is still possible to match expenses to the current use of resources which have provided service benefits during the period of reference. Contributions gathered to pay for these expenses may then be matched directly to the latter (reverse matching) or to the period in which they accrue (matching to the period).

Regarding assets, this service provision matching basis results in allocating depreciation costs according to the use of those assets in public service provision processes during the period. But, especially when this matching basis is too complex and subjective, asset service provision may be conventionally split over its expected lifetime. The related asset expenditure is then split over the periods of reference for this expected useful life. The latter period-based matching method allocates depreciation costs according to a sequence of accounting periods in which the resource is expected to keep delivering its service production potential. As a result of the period-based matching procedure, accrued revenues based on non-commercial transactions (such as tax revenues and grants accrued for current activities) will be matched against current expenses, both belonging to the period represented by the income statement.

According to this approach, both asset measurement and its depreciation are based upon historical acquisition expenditures for the underlying resource, rather than on current replacement costs. This is consistent with a historical cost accounting model, which mainly refers to expenditures incurred to acquire that resource. Depreciation charges are then determined from capitalised historical costs, excluding either re-measured replacement costs or reference to current values. This exclusion is justified by the overarching purpose of accountability regarding the use of resources, implying the need to minimise recourse to subjective valuations. Certainly, for management accounting purposes, replacement costs may be used, but this would imply disconnecting the managerial accounts from the financial accounting figures.

Concerning asset measurement, the IPSAS (2019) appears to favour replacement cost as an alternative to current operational value for asset measurement. In fact, both seem to tend to increase the current resource needs (that is, current expenses, which are supposed to be covered by current revenues) by the reporting entity, which is not going to renew those resources now and does not intend to do it soon. When renewal occurs, the entity may have recourse to other sources than operational flows and related reserves, typically debt issuance. Therefore, the use of replacement cost or current operational value violates the intergenerational equity between current and future taxpayers. These accounting measurements would put an excess burden on the shoulders of current taxpayers, since the entity may have recourse to other external sources of funding in the case of future renewal (if any).

According to the IPSAS, an asset's outstanding amount is generally submitted to impairment tests. Concerning public sector assets, an impairment write-down may be required when a permanent

impairment occurs, undermining the asset's future economic benefits and service potential which constitute the basis for its multi-period depreciation procedure. In this case, our approach would allow only impairment when a permanent loss occurs. In contrast, the IPSAS standards require regular revaluations, their frequency depending upon the nature of the asset and changes in its current value (IPSAS 17; IPSAS 21).

Moreover, accounting for an asset at historical cost ignores further changes in the purchasing power of money. Some assets may be subject to rising prices and market value accretion, while other assets may experience decreasing prices and market value reduction over time. But current values are not relevant under a historical cost model. Accordingly, depreciations are determined on the basis of historical acquisition costs and do not purport to set aside funds for asset replacement. Therefore, the determination of current period expenses is based upon the historical costs of deployed resources and does not consider changes in the purchasing power of money. If the entity decides to acquire those resources again in the future, it may have recourse to internal or external funding for this acquisition. It should be remembered here that the historical cost accounting model does not aim to make the reporting entity accountable for the value of its current net financial wealth on behalf of its alleged owners. As a matter of fact and principle, PSEs do not have shareholders, and they are primarily accountable to taxpaying citizens and their political representatives for the use of resources to provide public goods and services over time.

In the public sector, assets are not held to generate cash flows by future liquidation on the market. There is therefore no reason to refer to current market values, unless the sale of an asset is likely to occur imminently (Bond & Dent, 1998). In a nutshell, historical costs without revaluation provide a more reliable, less subjective and less discretionary measurement basis than the ever-fluctuating current values of assets (either fair value or replacement cost).

#### **4.3.5 Disadvantages of current value accounting for public sector assets**

This section has explained why a historical cost accounting model has to be adapted to public sector entities and then preferred as a reference for their accrual-based financial statements.

Concerning public sector entities, which are tax-financed and debt-funded, a current value accounting model would have several disadvantages and incur material costs of application. These costs and disadvantages include:

- Costs of searching market prices or market-like values for assets which are not expected to generate incomes, either directly or indirectly;
- Material costs of measuring and re-measuring all the accounting elements accounted for at current values estimated by appraisers, increasing the cost of accounting beyond benefit;
- Affording the hazard to encourage governmental decision-making in a way that goes against social welfare. For instance, if a government assesses a forest by reference to its selling value to the wood and paper industries, this may compromise or undermine its meanings connected to preserving biodiversity, assuring ecological sustainability and offering enriching experiences to the public;
- Affording the hazard to make financial statements too difficult for citizens and their political representatives to read and understand, shifting social control towards accounting and financial experts;

- Affording the hazard of providing a false and untrue representation of the PSE's results if non-realised revenues and non-incurred expenses are included by recognising holding gains and losses on assets and liabilities accounted for at current values.

Next, Section 5 applies this historical cost model adapted to public sector specificities to some illustrative examples of asset categories.

## Section 5 - Illustrative examples of some asset categories

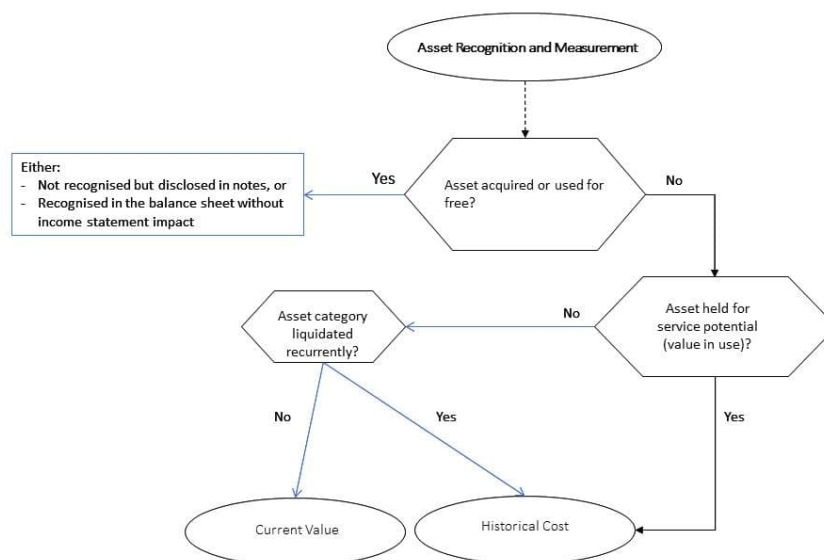
This section applies our theoretical framework based upon historical cost accounting to some asset categories, providing guidance to preparers and users.

### 5.1 Visual guideline for applying our conceptual framework

Preparers of accrual-based financial statements need guidance on the most appropriate accounting model to apply consistently over asset categories. According to our theoretical analysis, the most appropriate model is the historical cost model, generally speaking. In exceptional cases and circumstances, the current value accounting model may be applied if measurement is both reliable and more informative for the most important users, citizens and their political representatives.

This section provides guidance on applying our conceptual frame of reference to some illustrative examples of asset categories, according to the flowchart in Figure 3.

Figure 3. Visual guideline for applying our theoretical framework to some asset categories for the sake of recognition and measurement in accrual-based financial statements



This application guidance illustrates our theoretical approach and its implications for public sector asset recognition and measurement. According to Figure 3, the first question to be raised concerns

the acquisition cost. If a non-financial asset was acquired or has been used for free, its cost cannot be recognised, since the entity is not expected to recover it through its revenues. At the same time, the underlying resource is useful and requires accountability and control. This resource may be non-financial or financial.

Non-financial assets acquired or used for free may be either disclosed in the notes or recognised in the balance sheet as an asset at an estimated value, accompanied by a reserve in equity without an income statement impact for depreciation; in the latter case, it may be submitted to impairment test if its value in use is deemed to be permanently impaired. Income statement impact is excluded since the resource was acquired for free, without incurring expenditures to be recovered for its use. This reporting method is especially informative for limited lifetime resources, which the entity may be required to renew against payment in the future.

When cash or cash equivalents are acquired for free (such as donations or bequests), they may be passed through the income statement at the time of donation (matched to the period of accrual), or attached to the related asset through a reserve in equity.

According to Figure 3, the second question to be raised concerns the use of the asset. The underlying resources under the asset category may be employed for their service potential or liquidated recurrently.

If the underlying resources were acquired against payment and are held and used for their service potential in public service provision, asset recognition and measurement follow the historical cost model.

When the resources are held for liquidation purposes, the subsequent question concerns the timing of the liquidation process. If those resources are regularly and recurrently submitted to liquidation (as temporary cash investments for treasury management), preparers do not need to apply a current value accounting model, which is more complex, subjective and exposed to pro-cyclical effects. The liquidation value will be recognised in a timely manner when the regular and recurrent liquidation occurs over time.

But, when liquidation is occasional and expected to occur within the next period, current value accounting is more informative for the main users, provided that the asset's current value measurement is reliable and cost-efficient.

## 5.2 Accounting for some asset categories

Most of the problems associated with the task of recognition and measurement are related to the nature and type of resources being represented. Widespread valuation methods based on economic principles of market price-fixing and discounting are not appropriate for most public sector assets (Bond & Dent, 1998, p. 374). The latter are acquired to be primarily used in current operations, whereas their disposal on the market remains occasional and infrequent. Therefore, their primary purpose is to provide value in use either to the PSE or to the beneficiaries of public services.

Barton (2005, pp. 149–150) classifies public sector assets into two categories: (i) assets used for providing public and social welfare services, and (ii) social and environmental assets held in trust. The first category brings economic benefits and service potentials that benefit citizens. These assets – such as land, buildings, schools, kindergartens, hospitals and healthcare equipment – may be

liquidated only in exceptional circumstances. The second category includes assets that have to be conserved and maintained by a government for the benefit of current and future generations; therefore, they cannot be liquidated. Both categories generated benefit flows to citizens, rather than to the governmental entity (Barton, 2005, p. 149).

In a similar vein, Pallot (1992, pp. 47–48) introduces the concept of common or public property, which includes, for instance, public libraries, public parks and public highways. In particular, heritage and natural assets – such as national parks and historic monuments – are public properties that are not available for sale and disposal.

Table 2 summarises the application of our approach to some illustrative asset categories.

Table 2. Some asset categories and related preferred measurement criteria according to our approach

Asset category	Recommended recognition and measurement method
Operational assets held in view to provide public service for citizens:	
- Property, plant and equipment	Recognised at historical cost
- Intangible assets	Recognised at historical cost
Military assets	Recognised at historical cost (equalling expenses to expenditure), or just disclosed in the notes
Heritage and natural assets	Not recognised but disclosed in the notes
Investments of temporary cash reserves intended to generate financial surplus	Recognised at historical cost with check and disclosure of recurrent realisation
Non-financial assets acquired or used for free; Non-financial assets received for free but with restrictions	Either just disclosed in the notes or recognised in the balance sheet without income statement impact
Assets expected to be liquidated or disposed of within the next period	Recognised at current value (by liquidation)
Land lots that are non-current assets: a) with a reliable historical cost (acquired by the PSE with a price) b) with no acquiring price and historical cost available	a) Recognised in the balance sheet with the historical cost b) Not recognised but disclosed in the notes Observe, both a) and b): If expected to be liquidated or disposed of within the next period, recognised at current value by liquidation.

Military assets are collective goods, as are heritage assets (Christiaens, Rommel, Barton, & Everaert, 2012). They are best measured at historical cost. Current value assessment would imply recognising surplus when market prices go up, encouraging governments to produce and sell arms as a business-like activity. Furthermore, there are sensitive defence secrets involved in military assets that may speak for recognising related expenditures as direct expenses in the income statement, without a balance sheet recognition which would imply some transparent explanation over the depreciation

schedule and their useful life and use. A separate report may provide further information on the acquisition, maintenance and use of these assets, at least for internal use.

Heritage and natural assets are public properties that have no meaningful market prices because they embed non-financial meanings for current and future generations (Stanton & Stanton, 1998; Burritt & Cummings, 2002; Hooper, Kearins, & Green, 2005; Woon, Chatterjee, & Cordely, 2019, Carnegie et. al., 2022). Our approach does not provide reasons to seek historical acquisition costs in historical archives dating back decades, centuries or millennia. Nor would a third-party appraisal reveal their 'value'. For instance, a potential buyer at market conditions would only consider the financial value of the forest timber which can be extracted from a natural reserve, neglecting a broader set of benefits to be preserved on behalf of current and future generations.

Therefore, our approach recommends not recognising but disclosing heritage and natural assets in the notes. The burden to protect and maintain these assets may be seen more as a liability than an asset. However, the accountability need for collective historical sites and natural resources must be acknowledged. These assets should be preserved for future generations through a systematic and responsible approach. However, balance sheet recognition as assets – at a supposedly reliable and meaningful monetary amount – is not a necessary condition for fulfilling this preservation task. Instead, capitalisation of expenditures devoted to their maintenance may facilitate expenditure-sharing across generations of taxpayers. These expenditures might be considered as a sort of intangible asset attached to heritage and natural assets intended to assure their continued existence over time.

PSE entities manage land lots on behalf of citizens. When lots are sold for industrial and real estate development, they may generate material revenues for the PSE. It seems relevant to disclose the current value of those land lots if it can be assessed reliably in the notes, because this provides relevant prospective information that may be included in the budget income estimates. However, their inclusion in the year-end balance sheet at current value instead of a historical cost value (if available) would afford the hazard of treating the PSE's land management as if it were a real estate business unit maximising revenues over the allotment design and sale. This accounting incentive may mislead public sector management, which should consider financial and non-financial dimensions for social welfare over the long term.

Concerning financial assets, PSEs often invest temporary cash reserves into securities and other financial instruments for financial return. This asset category deserves transparent accountability to ensure the protection of taxpayer money against financial losses and risks. A current value evaluation might be useful if active markets are available to provide reliable pricing. But pro-cyclical effects may undermine the meaning of such current value measurement, further mixing non-realised holding gains and losses with accrued tax revenues and incurred expenses. Therefore, as long as those financial holdings are regularly and recurrently realised for financial return, our approach recommends recognising and measuring them at historical cost. Holding gains and losses may be disclosed in the notes (if reliably measured) and will be recognised as soon as they are realised on the market. In contrast, when liquidation is occasional and expected within the next period, current value estimation is preferable. Furthermore, risk exposure and financial investment strategies deserve specific disclosure in the notes.

## Section 6 - Summary and concluding remarks

Our theoretical comparative analysis disentangles and sets in opposition the historical cost and current value accounting models. It shows that the historical cost accounting model – taking revenue and expenditure as the basis of accounting – is preferable for public sector entities. This model defines assets on the basis of accrued expenditures whose benefit potential lasts beyond the current accounting period (see Figure 3 for a visual summary). Drawing upon this main finding, we addressed several theoretical matters concerning asset definition, recognition and measurement, and developed application guidelines providing guidance to preparers and users. Illustrative examples were provided to show how to account for relevant asset categories according to our approach.

Our analysis builds upon the old-fashioned historical cost accounting model which has been the main convention of accounting for centuries. “Once a convention is in place [...], there is little advantage to tinkering with it unless there is some drastic change in the economy that renders the convention substantively inefficient as a general practice” (Biondi, et al., 2012, p. 129). This remark may be applied to conventions which have been generally accepted for public sector accounting in the past. These conventions cope with public sector specificities, including needs for information and accountability. A relevant question can be raised as to whether something has so drastically changed these days requiring that this received public sector accounting approach has be disbanded and drift towards one based upon current values. Neither the development of active global financial markets nor the financialisation and assetization patterns driven by financial investors’ interests have fundamentally changed public sector specificities and related needs for information and accountability (Zhang and Andrew 2022, Birch and Muniesa 2020).

According to our analysis, the historical cost accounting model is still the most appropriate accounting system, since it consistently accounts for tax-financed and debt-funded PSEs, providing a true and fair view of their operations over time. Accordingly, historical cost accounting methods of recognition and measurement are generally suitable for most asset categories.

Furthermore, the whole performance of PSEs cannot be fairly represented by financial figures alone. Their representation requires a combination of financial and non-financial reporting, the latter indicating both the quality of provided public services and the capability of a PSE to satisfy social welfare needs through a sustainable mix of tax revenue and debt issuance.

From this perspective, reporting on the whole performance of PSEs requires a comprehensive set of documents and reports that provide information on past-based financial statements (income statement, cash flow statement, balance sheet and accompanying notes), annual and multi-annual cash-based budgets, including out-turn reports of those budgets, as well as non-financial reports concerning activity and sustainability.

Therefore, accounting for the financial performance of PSEs requires being consistent with cash-based budgets, as well as non-financial information concerning activity and sustainability. This consistency is assured by accrual-based financial information organised according to a historical cost accounting model. This model is best-suited to fulfil the information and accountability needs which represent its fundamental overarching purpose.

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