

IFAC

Public Sector

Committee

September 2000

Study 12

# Perspectives on Cost Accounting for Government

International Public Sector Study

Issued by the  
International  
Federation of  
Accountants



**International Federation of Accountants**

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Information about the International Federation of Accountants and copies of this Study can be found at its internet site, <http://www.ifac.org>

The approved text of this Study is that published in the English language.

ISBN 1-887-464-60-3

## PREFACE

The objective of the Public Sector Committee (PSC) of the International Federation of Accountants (IFAC) is to develop programs aimed at improving public sector financial management and accountability. To that end, the IFAC PSC issues Standards, Guidelines, Studies and Occasional Papers. Studies are undertaken by the Committee to provide information that contributes to public sector financial reporting, accounting or auditing knowledge, and to stimulate discussion.

The objectives of government are determined by the political process, and cost accounting is one of a number of tools that may be used to achieve those objectives. Although in some situations cost accounting may not be as central to achieving a particular government's objectives as it is generally for private sector entities, it nevertheless almost always provides important information to help improve the functions of government.

This Study is intended to aid government financial officers and other government accountants in their efforts to develop and implement cost accounting. It provides governmental perspectives on cost accounting not available elsewhere, but it is not an in-depth exposition of the subject of cost accounting. Government accountants who do not have basic knowledge of cost accounting can acquire it from existing literature or training programs, and they can bring into their organizations consultants or others who have experience with cost accounting.

Cost accounting is one aspect of financial management and management control, and should be used by program managers and others as a managerial tool in day-to-day operating activities and by senior managers in their supervisory and evaluative roles. Although this Study will be informative for non-accountant managers, they may find it beneficial to also refer to other literature with a managerial perspective, such as the publications of IFAC's Financial and Management Accounting Committee (FMAC), including *Management Accounting Concepts* (1998) which provides useful background, and *Management Control of Projects* (1991) and *The Capital Expenditure Decision* (1989), which deal with the cost accounting aspects of particular managerial issues and decisions.

Cost accounting for governments is continuously evolving. Since this Study was first released for comment in December 1998 there has been considerable progress in implementing cost accounting, new approaches and techniques have been developed and other countries not cited in the Study have prepared descriptions of their approaches, e.g. Spain's Contabilidad Analítica Normalizada para Organismos Autónomos (C.A.N.O.A.) project. This Study has been revised for comments received where revisions were deemed essential for reader understanding.

In-depth studies are needed on how cost accounting can contribute to decisions and issues that are peculiarly governmental, such as decisions to privatize government-owned enterprises and issues relating to government performance measurement and program evaluation. These special governmental decisions and issues are beyond the scope of this Study.

Chapter 1 describes the scope, need and purpose of this Study.

Chapter 2 of this Study describes the governmental uses of cost accounting, the extent of its use and recent growth, and the prospects for future growth. This Chapter gives readers a perspective to consider their own situation in comparison with the potential uses of cost accounting and with the progress being made in other countries. It suggests that progressive implementation of cost accounting may be appropriate in a number of situations.

Chapter 3 explains the cost concepts that are relevant to various different management objectives. It also explains the fundamental processes that should be used in the cost accounting exercise. Alternative ways to develop cost information are mentioned. This Chapter provides a theoretical grounding on cost accounting issues with which governments will need to deal. Practical aspects and more specifics are provided in following chapters.

Chapter 4 discusses accounting standards issues where the resolution may affect the values used in the cost accounting exercise. The Chapter uses the International Accounting Standards Committee (IASC) private sector standards for inventories and other property as a baseline for discussing those issues. This Chapter provides government standard setters and policymakers with a cost accounting perspective that might be considered in making choices among accounting standards.

Chapter 5 shows how the concepts and processes discussed in Chapter 3 might be applied in designing and implementing a cost accounting system. The various kinds of requirements for a system are discussed. Issues related to integrating cost accounting with other information systems are explained and the basic types of systems are reviewed. Finally, available types of cost accounting software are discussed, as are some of the relevant features of modern computer equipment.

Chapter 6 relates cost reports to systems requirements and illustrates a variety of cost reports based on different ideas of management needs. Reports recommended for use in the United States by the U.S. General Accounting Office and those in use in Malaysia and New Zealand are described and illustrations are provided. Generalizations are drawn about how regular management cost reports should be designed. The Chapter also discusses how systems requirements can satisfy special information needs.

Chapter 7 discusses the major issues of importance to senior management. It points out that senior management should be involved in their resolution in order to ensure the successful implementation of cost accounting in government. It goes on to outline various approaches that might be taken in resolving those issues.

The Appendix is provided to define the technical terms used in this Study. This is a necessary reference because some countries attach different meanings to these terms.

The Bibliography lists only the government-related literature used in the preparation of this Study. There is a wealth of additional literature dealing with cost accounting which is not cited, that cover its function in commercial-type activities. Other literature covers more fully the integration of cost accounting with the broader, related issues of management accounting and control, system applications and technology infrastructure. The IFAC FMAC and Information Technology Committee may be able to assist those readers of this Study who wish to obtain additional literature on these subjects.

# Perspectives on Cost Accounting for Governments

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# CHAPTER 1: INTRODUCTION

## SCOPE OF THIS STUDY

- .001 In the past, cost accounting was viewed as a method of accounting that used various techniques to assign costs to particular cost objectives, e.g., the cost to perform an activity, produce a product or render a service. Under that view, cost accounting served to implement the accrual basis of accounting, which determined the values that cost accounting then assigned to cost objectives. Cost accounting was viewed as a relatively simple mechanical process and was almost always the sole domain of the accountant. Today, not only have the techniques improved, but cost accounting itself is viewed as more of a management exercise where accountants play important, but no longer dominant, roles.
- .002 Cost accounting is now viewed as an activity that provides information on costs and related data to satisfy a variety of management needs for decision-relevant information. It is concerned with how cost information is used in the management process and with the values generated by the financial accounting system to the extent that they may affect the quality of cost information.
- .003 Cost accounting also encompasses the design of information systems that may be needed to generate a great variety of cost-related information. It is also concerned with the design of cost reports tailored to management needs and preferences. Because of its significance to efficient and effective management and to communications with those outside the entity, senior government management now has an important role in the development and implementation of cost accounting.
- .004 This contemporary view of cost accounting has been adopted as the basis for this Study. However, the Study's scope is limited to governmental perspectives. Other published sources on cost accounting in the private sector provide useful information and guidance that can be applied to cost accounting in connection with the commercial activities of government. Other sources also provide information about the integration of cost accounting with the broader issues of financial management and information technology. Complete coverage of these broader issues is beyond the scope of this Study.

## NEED FOR THIS STUDY

- .005 Although great similarities exist between the public and private sectors, a number of governmental cost accounting issues have not yet been dealt with comprehensively in existing literature. One study of value that covers some of these aspects is published by the International Monetary Fund, titled *Effective Government Accounting* (1995).
- .006 The need to overcome this gap in the literature and provide governmental perspectives is accentuated by today's pressures on governments to deal with shrinking budgets and meet demands for improved services. Governments must cut costs wisely and take cost-related steps to improve services. To do that they need applicable reference material on cost accounting. Furthermore, governments do not yet make full use of cost accounting in those government agencies which provide goods and services to the public without charge. As a result, many government managers have little understanding of how to use cost accounting to improve their operations. This accentuates the need for good reference material.
- .007 Even though cost accounting is today more of a management than an accounting exercise, the PSC believes that government financial officers and accountants have important leadership roles to play. They can provide much of the stimulus and knowledge needed to develop and implement cost accounting. They can provide "hands on" help to those in operating management who must participate in development and implementation if this management tool is to be used, and they can help to integrate the work of technical people, such as information systems experts. In addition, they can counsel senior management who must be involved in the resolution of basic issues concerning how cost accounting will be used and developed.

.008 Financial officers and accountants are more likely than others in government to have a basic knowledge of cost accounting and how it can be used. If they lack sufficient knowledge, they are likely to know how to acquire it for themselves and their organizations. This Study aims to provide a governmental perspective to stimulate putting that knowledge to work and to be a resource for financial officers and accountants in helping others in their organizations to learn more about cost accounting in government.

#### **PURPOSE OF THIS STUDY**

.009 The basic purpose of this Study is to equip financial officers and accountants with a tool they can use in furthering cost accounting in their countries. This Study provides:

- a description of how cost accounting can be used to assist governmental management processes;
- information about what is happening in various countries and how cost accounting might be adopted progressively and used in other than full accrual environments;
- an understanding of the various cost concepts that can be used to satisfy government information objectives and the related cost accounting processes;
- a discussion of the accrual accounting issues whose resolution may affect the values used in determining full costs;
- guidance on how to develop cost accounting systems, raising major issues that will need resolution;
- a discussion of various options for the design of cost reports for government managers;
- encouragement to involve senior managers in basic cost accounting issues, with suggestions on how that might be done.



## CHAPTER 2: THE USES OF COST ACCOUNTING IN GOVERNMENT

- .010 In addition to its historical function of determining values in the financial accounting process for inventories or other types of property, cost accounting has a number of primarily management functions, including:
- budgeting;
  - cost control and reduction;
  - setting prices and fees;
  - performance measurement;
  - program evaluations; and
  - a variety of economic choice decisions.
- .011 When cost accounting is used in the commercial activities of governments, its applications in financial accounting and management functions need not be materially different than those in the private sector.

### BUDGETING

- .012 Budgeting as a planning and control mechanism has a prominent and important role in government. Among the reasons for this is the visibility of the result and the need to allocate resources to a large number of individually important activities whose objectives are complex and often non-profit oriented.
- .013 Budgets may be formulated and carried out on a cash basis or on an accrual basis. Where they are on an accrual basis, e.g., in New Zealand, the costs of government programs incurred in the past can be readily used as a basis for preparing budget estimates of future costs. Where they are on a cash basis, e.g., in the United States, using cost information in budget preparation requires crosswalks between the accrual basis used for cost accounting and the cash basis used to prepare the budget.
- .014 When accrual-based budgets are adopted, incurred costs can be easily compared with budgets for control purposes. If flexible budgets are used, as they may be in the case of “for profit” government business enterprises, e.g., in Australia, then fixed and variable costs must be determined for budgeting and related control.

### COST CONTROL AND REDUCTION

- .015 As in the private sector, cost information can be used in cost control and reduction. For example, with appropriate cost information, managers can:
- compare costs with known or assumed benefits of activities, identify value-added and non-value-added activities, and make decisions to reduce resources devoted to activities that are not cost-effective;
  - compare cost changes over time, identify their causes and take any appropriate action, e.g., take steps to improve efficiency;
  - identify and reduce excess capacity costs; and
  - compare costs with similar “benchmark” activities, find the causes for cost differences, and take any appropriate action, e.g., revise and improve business processes.
- .016 But governments do not usually have profitability and return on investment objectives for their governmental activities. They lack these economic incentives to manage costs. Government managers must take the initiative to analyze cost behavior and then, after careful consideration of all the consequences, take appropriate action. Unless initiative is taken by government managers to analyze cost behavior, inefficiencies may emerge, continue, and grow for a long time before the need for action becomes obvious.

## SETTING PRICES, FEES AND INTER-UNIT REIMBURSEMENTS

- .017 Cost is an important element of the decision-making process for setting prices and user fees for government-provided goods and services. Information about costs is relevant even when goods and services are provided at less than cost as a result of government policy decisions, or when prices and user fees are set on the basis of market prices. Cost is also frequently the basis for transfer pricing between government units. A number of governments have specific cost-related requirements for pricing.
- .018 When governments are engaged in commercial type activities, private sector concepts of pricing may be relevant and, as a result, market prices may be a more determining factor than cost recovery. For example, in the United States, unless otherwise specified by law, regulations require that prices charged to the public for government goods and services be based on market prices or the full costs incurred by the government. Nevertheless, determining costs remains important in these circumstances.
- .019 Canada has an initiative for cost recovery with respect to certain government goods and services provided to external users. This initiative is to give departments the impetus to maximize cost recovery where appropriate and to change attitudes and processes to meet higher cost-recovery expectations. Canada suggests that full cost is a good starting point for determining user fees.
- .020 New Zealand has expanded the concept of pricing services to all activities of the government, whether sold, transferred between government units or distributed free to the general public. All outputs are costed and the costs of those distributed free to the public represent the prices Ministers pay departments and agencies for the production of goods and services.
- .021 The United Kingdom encourages charging for services supplied between departments unless it is clear that the likely benefits would not justify the cost. The expected benefit from internal charging for support services is improvement in the “value for money” from exercising greater cost discipline upon the suppliers of services and their internal customers.

## PERFORMANCE MEASUREMENT

- .022 Some governments, such as the United States, are showing increasing interest in performance measures. Other governments, such as the United Kingdom, have established systems for reporting this information. Performance measurement includes both financial and non-financial measures and is generally more effective when these measures are interrelated. But cost itself can be a measure of financial performance.
- .023 When cost is combined with an effectiveness measure, it can show cost-effectiveness. Thus, the service efforts and accomplishments of an entity can be evaluated with the following measures:
- Measures of service efforts — these are resource costs and other measures of the inputs used to provide the services.
  - Measures of accomplishments — these are outputs (the services provided) and outcomes (the effects of those services).
  - Measures that relate efforts to accomplishments — these are, for example, the cost per unit of the various outputs of the entity.
- .024 Performance measurement can be viewed as the government equivalent of private sector profitability measurements. However, selecting appropriate measurements is quite difficult and requires the exercise of judgment. While outcomes may be far more difficult to define and measure than either outputs or inputs, outcomes of government programs and activities provide the ultimate measurement of their success. Measuring outcomes is difficult because the effects may be difficult to determine and those that can be observed often represent a blend of effects from government outputs, other interventions (e.g., regulations) and non-government factors.

- .025 While it is possible to allocate input costs to outputs, it is very much more difficult, if not impossible, to allocate the cost of outputs to outcomes in a rational way. For example, it is possible to calculate the cost of an output like surgical intervention, but it is not clear how this cost could be assigned to the different outcomes which should result, such as improved quality of life, enhanced longevity, reduced cost of medication. In some cases, the outcome might also not be known for a considerable period of time.

### **PROGRAM EVALUATIONS**

- .026 The cost of government programs, when combined with appropriate performance measurements and reported publicly, can help the public and legislators to evaluate the programs.
- .027 Whether or not reported publicly, the cost of programs is a factor in making policy decisions related to program authorization, modification and discontinuation. Many countries use information on program costs as a basis for cost-benefit considerations. For example, Canada fosters the use of cost-benefit analysis by individual departments to improve the efficient allocation of resources among competing government programs.
- .028 When considering costs in program evaluation, some consideration should be given to any collateral costs of the programs, as well as the government's own incurred costs. National governments may use laws and regulations to require local governments, private sector businesses and other non-governmental entities to take specific actions to further government programs. These actions often result in both pecuniary and non-pecuniary costs to these entities. Also, the programs themselves may have unforeseen costs to the non-government sector which are not reflected in the outcomes or other performance measurements of those programs. Or governments may use "tax expenditures", e.g., reductions in the tax base or the tax itself, to induce taxpayers to take actions to further program objectives. Although difficult to measure, governments should be aware of the possible magnitude of any such collateral costs and give them consideration in program evaluations.

### **ECONOMIC CHOICE DECISIONS**

- .029 Making choices among alternative actions, such as whether to do a project internally or contract it out, requires cost comparisons between alternatives. Privatization decisions may involve comparing the incremental net cost or profit of continuing a government activity with the economic and other benefits of placing it in private hands. Cost studies of various types can help to decide whether to accept or reject a proposal for a government capital project, to continue or drop a government product or service, or to contract with a private sector vendor.

### **HOW WIDELY IS COST ACCOUNTING USED?**

- .030 The extent to which cost accounting is used within governments varies from country to country. Usage frequently depends upon the objectives of the various types of government organizations. State-owned enterprises organized for profit generally employ some form of cost accounting. Public utilities are an example of this type of organization. Non-profit revolving funds, whose objective is to maintain capital through sales of goods and services, rather than through appropriations, frequently employ cost accounting. Internal inventory and service funds which provide goods and services to general fund organizations are examples of this type of organization.
- .031 By comparison, relatively infrequent use of cost accounting systems is found in governmental organizations that provide goods and services to the general public without charge. Of those governmental organizations that have not utilized cost accounting, the requirement for some form of performance evaluation or the recognized need to promote management efficiency and effectiveness often results in the adoption of cost accounting. In countries where these factors are important, there is generally more widespread use of cost accounting within government. Well-managed governments are turning to cost accounting as an essential component of the management of their activities.

- .032 Some reasons still cited for not using cost accounting include the following:
- All citizens are served by the government without charge and the goods and services provided are essentially governmental functions.
  - Many costs cannot be reliably calculated, e.g., natural resources.
  - Criteria for meaningful performance evaluation are lacking even if costs are known.
  - Government programs and projects are politically driven and cost is irrelevant or secondary.
  - Government budgets are on a cash basis and control of budgetary funds, not costs, is the only or primary interest of legislators.
- .033 While these arguments continue to be made, a number of countries are moving to more widespread adoption of cost accounting. This move has been motivated by the need to deal with increasing debt levels and shrinking budgets and by related public criticism of government management. This increasing use of cost accounting is sometimes combined with the adoption of improvements in accrual accounting and the adoption of cost-based budgeting. For example, in Taiwan, the development of cost accounting was linked to better mid-term and long-term budget planning.
- .034 In Malaysia, cost accounting is an essential part of its “value for money” concept of government management. The “value for money” concept has been in use for some time in the United Kingdom, but recent steps to adopt cost-based budgeting will likely improve its cost accounting systems.
- .035 In Canada, fiscal pressures resulted in an emphasis on “stretching the tax dollar” and led to the issuance of guides on how to deliver services and to “make or buy” in a more economical or efficient manner. Cost accounting on a full-cost basis is recognized by Canada as essential to these initiatives.
- .036 In New Zealand, fiscal exigencies led to the adoption of full accrual accounting as the basis for government financial management and also to related initiatives for the development of cost accounting as a management tool. These related initiatives were the adoption of cost recovery or charging policies where goods and services are provided to identified consumers, and the corollary requirement to determine the cost of all government outputs in order to facilitate management control and accountability.
- .037 Although improvements in cost accounting have come about as a result of recognition by government managers that improvements in customary accounting and management practices were needed, many times these improvements are led by new laws adopted by the legislature and new policies adopted by the top management of government. The United States is a case in point. Until recently, cost accounting has been limited in use by United States general fund organizations. Despite the fact that the United States continues to budget largely on a cash basis, cost accounting is now beginning to be implemented across the government. This is the result of several pieces of legislation and related actions by the executive branch of government starting with the passage of the United States Chief Financial Officers (CFO) Act in 1990.
- .038 In 1995, the United States published the Statement of Federal Financial Accounting Standards (SFFAS) No. 4, *Managerial Cost Accounting Concepts and Standards for the Federal Government*, as recommended by the Federal Accounting Standards Advisory Board. This requires federal entities to accumulate full cost information. The reporting of full costs is required in the SFFAS No. 7, *Accounting for Revenue and Other Financial Sources*.
- .039 The Federal Financial Management Improvement Act of 1996 added the force of law to these accounting standards and also to any systems requirements established by the U.S. Joint Financial Management Improvement Program (JFMIP). JFMIP issued cost accounting systems requirements for U.S. government organizations in February 1997.

#### **POSSIBLE CAUSES OF INCREASED USE OF COST ACCOUNTING**

- .040 Adoption of accrual accounting as the basis for budgeting and management information, following the examples of New Zealand, the United Kingdom and Australia, will obviously trigger increased use of cost

accounting and the development of supporting systems. Short of that, recognition of its need in “right sizing”, eliminating inefficiencies and privatization will also spur increased use and related systems development. Managers of government programs, if they are informed of the managerial advantages, will likely provide impetus for increased use. Program managers can improve operational performance from three perspectives — quality/productivity, cycle time, and cost. If cost is brought into the managerial decision-making processes along with these other measures in a balanced fashion, then better decisions can be made.

- .041 Because government decision-making is subject to a number of political pressures, how reported performance measures are viewed by users of those measures will affect the pace at which cost accounting is adopted. Relating costs and the outputs of government programs is not in principle more difficult than costing products or services in the private sector. This step alone has provided legislators and government officials with decision-relevant information. It has also provided the general public with information about the efficiency of government. However, measuring the outcomes of government programs and establishing the linkage with all costs is significantly more difficult than measuring the government’s incurred cost of outputs. While a number of governments are trying to do this, there is still much to be learned. If and when governments succeed in measuring outcomes satisfactorily, cost accounting will become even more important than it is today.

### **PROGRESSIVE IMPLEMENTATION OF COST ACCOUNTING**

- .042 Some countries may wish to move relatively quickly to implement an approach to cost accounting which meets all their known needs for cost information. But other countries may wish to move more slowly toward obtaining cost information that satisfies their needs, and they may define their initial needs modestly.

- .043 Implementation of cost accounting can be done on a step-by-step basis. The following describes some of the many different situations that may be faced by governments, and some of the possible steps governments might wish to consider in moving progressively to implement cost accounting.

- Governments on the cash basis of accounting can develop useful cash basis information and, at the same time, learn about the processes of cost accounting by using those processes to obtain information about expenditures that their cash basis records do not ordinarily provide. For example, the cost accounting processes described in Chapter 3 can be used to calculate amounts spent indirectly on behalf of the beneficiaries of particular government programs.
- Governments on the cash basis may also develop approximate cost information through cost studies based on the expenditure information in their records and estimates of the effects of asset recognition and consumption. This approach is more likely to be satisfactory when inventories are not significant. Cost studies of this sort may also help cash basis governments learn about the nature and extent of their need for full cost information.
- Governments on the cash basis may also implement a stand-alone cost system while retaining, at least temporarily, a cash basis for financial accounting. Such stand-alone systems assign cost data drawn from operating systems and other reliable sources to cost objectives.
- Governments on a modified accrual basis for financial accounting may find that a stand-alone cost accounting system is relatively easy to implement if they have asset registers that can be used to compute depreciation.
- Governments on a full accrual basis of financial accounting should be able to develop useful managerial cost information through cost analysis of information in accounting records. In a few cases, these governments may decide that their need for regular, periodic cost information is not extensive and, therefore, that no cost system is required. In other cases, these governments may decide to use cost analysis for a period of time while they evaluate the kind of system they want to implement.

- Governments whose accrual accounting financial systems do not reflect all possible elements of full cost, e.g., interest on capital employed, may develop cost systems based on full costs and reconcile the results with the financial accounting records. Alternatively, they may develop a cost system based only on the cost data in their financial accounting records and either try to deal with unrecognized costs in some other fashion or add the missing full-cost elements to their cost system later.
- No matter what the basis of financial accounting, countries that implement a cost system may choose to satisfy a set of limited cost information needs initially and expand the system later as they gain knowledge of their exact requirements and the likely costs of gathering the additional data required for a more comprehensive system. For example, a government might choose to implement a basic cost accounting system for all of its operating units so as to obtain needed government-wide information in a relatively short period of time. After that was accomplished, it might then encourage its individual units to expand and modify the basic government-wide system to satisfy their special needs and circumstances.

.044 Whether to move quickly or progressively to implement cost accounting obviously depends on the particular circumstances of the government.

## CONCLUSION

.045 Cost accounting has a number of important uses in the efficient and effective management of government. It is a valuable tool for the management of general fund organizations as well as for commercial type activities. But the measurement difficulties associated with some of its applications should be recognized. The use of cost accounting is likely to become even more widespread than it is today as more successes are reported and the use of accrual accounting spreads. In appraising how to improve the quality of available information, governments should consider the advantages of using cost accounting for management purposes in addition to the advantages of accrual accounting for financial reporting. There are a number of approaches that governments in different circumstances can adopt to move progressively to implement cost accounting.

## CHAPTER 3: BASIC COST CONCEPTS AND PROCESSES

- .046 Simply put, cost represents the value of resources that have been, or must be, used or sacrificed to attain a particular cost objective. A government's cost objectives are a function of its information objectives and to measure their values a government must define the cost concepts to be used. A government must also apply the processes of cost accounting so that those values are measured with desired accuracy. Because accrual accounting measures periodic values more precisely than cash accounting, cost accounting is normally done in an accrual accounting environment. But, as discussed in Chapter 2, governments on a cash basis of financial accounting can also do cost accounting, make cost studies, or use the processes of cost accounting to measure the achievement of cash objectives.

### COST CONCEPTS SHOULD REFLECT INFORMATION OBJECTIVES

- .047 The objectives of the cost accounting exercise determine the cost concepts used. The full-cost concept, for example, is appropriate for many of the management objectives discussed below, as well as for the determination of values for inventory and other property in balance sheets prepared under accrual accounting standards. But the other cost concepts mentioned below are appropriate for some of the other management objectives discussed. Still other cost concepts may be appropriate for specific types of management decisions.
- .048 It should be noted that the costs which should be considered in many types of management decisions are not the recorded costs, but rather the expected future costs that will differ among the possible alternative courses of action. Much of the data for estimating these relevant costs may be found in a well-constructed full-cost database.

### Full Cost

- .049 As will be discussed in Chapter 4, the definition of what constitutes full cost can be affected by financial accounting standards and there may be differences among countries on the definition of full cost. Exclusion of certain cost elements from the definition of full cost may adversely affect the utility of full-cost information. While the selection of an appropriate concept is critical, so is the precise definition of the concept. This is particularly true of the full-cost concept.
- .050 Full costs can be the basis for budgeting, as in New Zealand and the United Kingdom. The PSC's Occasional Paper 1, *Implementing Accrual Accounting in Government: The New Zealand Experience*, describes how adopting full accrual accounting as part of its major reform of public sector management shifted New Zealand's method of budgeting appropriations from expenditures for inputs to costs of outputs. This, in turn, required the development of management cost accounting information on a full-cost basis.
- .051 When used in budget planning, the basic cost information used in the cost accounting exercise is normally derived from the full accrual accounting system. The full-cost information on past outputs is then adjusted for such things as cost trends which are expected to continue, changes in programs, and anticipated inflation to determine budget requests.
- .052 If the objective of cost accounting is to provide a basis of cost recovery, then the full costs of outputs is the needed information. Both Canada and the United States have policies, albeit with specific exceptions, which require that full costs be the basis for user fees for government services and for the sale or use of government property or resources. Canada's policies are expressed in the Treasury Board User Fee Policy. U.S. policies are expressed in OMB Circular A-25 on User Charges.
- .053 Normally, full costs are used in cost control and cost reduction, but frequently in combination with marginal cost information.

### **Controllable Costs**

- .054 Full costs are generally used in connection with performance measurement and program evaluation. However, this is often with the proviso that program managers' performance is evaluated based only on those costs for which they can be held accountable. Canada's position is that full costs should be measured, but this measurement should always provide for separate identification of costs incurred by other responsibility centers.

### **Marginal Costs**

- .055 Full costs do not always provide the information needed by management. Marginal costing is one of several other cost concepts that serve different management needs.
- .056 A marginal costing concept focuses on variable costs or how the costs of outputs or activities will change if a specific level of activity increases or decreases. For example, this concept may be useful if level-of-service decisions are to be made, excess capacity costs are to be identified, or the costs of extraordinary non-recurring activities are to be billed. It is often useful when providing analysis of cost behavior to provide marginal cost per unit data, i.e., to analyze the effect of variable costs (in total or by element) in terms of their effect on the unit cost of production.
- .057 How marginal costs are defined depends on the situation. For example, the relevance of non-cash fixed costs such as depreciation depends primarily on whether the analysis is being performed to determine funding implications or to portray the economic impact of alternatives. Non-cash costs might not be considered in the former case but would normally be considered in the latter.

### **Differential and Incremental Costs**

- .058 If the need is to evaluate the cost differentials between alternatives such as in "make or buy" decisions, then all costs that are common to the options being considered are normally ignored. The relevant costs in a make or buy decision are those that would change depending on which option is selected.
- .059 This differential costing concept is closely related to an incremental costing concept used in privatization decisions whereby the costs which are avoided and those that are incurred by a change in activities undertaken are measured by cost accounting. This change in costs is then compared with the potential proceeds from the sale. Consideration may also be given to additional "proceeds" represented by the potential future taxes which a buyer might pay. The differential costing concept can also be used to determine the benefit from eliminating what appear to be non-value-added costs or the cost detriment of retaining unused or "excess capacity." Other types of cost/benefit decisions may be made using the differential costing concept.

### **Opportunity Costs**

- .060 Opportunity costing is based on the value of what must be given up to obtain a result. Under this concept, unrecoverable "sunk" costs such as depreciation are ignored and cash values are employed. Investment decisions are normally made using an opportunity cost concept. This concept is appropriate when considering replacing or upgrading equipment or property. Opportunity costing essentially compares the present value of the cash costs of making the investment with the risk-adjusted present value of the anticipated net cash benefits to be obtained. Anticipated reductions in costs as a result of making the investment provide some of the data used in estimating net cash benefits.

### **Contract Costs**

- .061 When special purpose cost information is required based on the provisions of particular agreements with others, such as cost reimbursement contracts or pricing formulas based on cost, the values considered in cost accounting are derived from the provisions of the contracts or formulas. For example, costs which are recognized by the U.S. government in contracting with suppliers are determined by cost accounting



regulations set by the U.S. Government's Cost Accounting Standards Board, and these regulations are included in supplier contracts.

## **PROCESSES FOR DEFINING COST OBJECTS, CLASSIFYING COSTS, AND ASSIGNING COSTS TO COST OBJECTS**

.062 The quality and accuracy of cost information is also affected by how the processes of cost accounting are applied. Great care should be taken in defining the particular cost objects to be valued, in classifying the relevant costs, and in choosing and applying the assignment methods to the classified costs.

### **Defining Cost Objects**

.063 A cost object (also referred to as a cost objective) is an item whose cost is to be measured. For reporting cost information to those outside the reporting entity, the relevant cost objects may be types of inventory or other property accounts. They may also be government programs, or the outputs of various goods and services provided by each of the programs, or benefits paid within the programs. While these cost objects are also relevant to management, additional cost objects may be identified to meet other management information needs such as the costs of activities within programs or the costs of long-term projects. Management cost objects may also include the costs of the various departments or cost centers involved in programs and projects. Such objects may also include costs of outputs by geographic region or by customer type. What the cost objects are, and which should be satisfied by the cost system, requires consideration of the:

- various objectives of cost accounting;
- decisions to be aided by cost information; and
- frequency of the desired information and the cost to provide it.

.064 The definition of cost objects is the shared responsibility of program and department managers and financial officers. Program and department managers have knowledge of the programs and outputs and need their own information about programs, projects, customers, etc. Financial officers should define the cost objects necessary to satisfy these needs and the cost information objectives and needs of senior management.

### **Classifying Costs**

.065 Like the choice of cost objects, the choices made to classify costs should depend on the various objectives of cost accounting. Classifying costs facilitates the assignment to cost objects. Classifications distinguish types of cost. These are some of the cost classifications which are likely to be needed to assign costs systematically:

- fixed vs. variable;
- direct vs. indirect;
- production vs. non-production; and
- controllable vs. non-controllable.

.066 As discussed earlier, it may be useful to determine marginal costs. To do this, costs must be classified as fixed or variable. This can be done by observing the relationship between the behavior of specific costs and changes in production volume.

.067 In order to facilitate assignment of appropriate amounts of costs to cost objects, costs should normally be classified in even more detail than just fixed and variable. These classifications may be based on what factors drive the costs, i.e., cause them to increase or decrease. "Cost drivers" may be determined by observation or by careful analysis of the various activities undertaken in the production process.

- .068 A basic classification that is almost always made is that of direct costs and indirect costs. The relationship between the cost and the cost object determines whether a cost is direct or not. Those that have a directly traceable relationship with the cost object are direct costs. Costs of this type include some payroll costs, materials used, etc.
- .069 For many costs, it will not be possible to establish a direct tracing to cost objects. These indirect costs are common to more than one cost object. However, common costs may still be assigned to cost objects on the basis of what factors drive them, i.e., their cause and effect. Such costs are assigned to cost objects based on the extent to which they are caused by, and contribute to, the cost object.
- .070 Cause and effect is difficult or costly to determine in some cases. Administrative costs are an example of costs where there is a general but non-specific relationship to outputs or some other types of cost objects. Separating these costs from other indirect costs facilitates allocating them to cost objects on a more general but still appropriate basis.
- .071 Costs should also be classified according to whether or not they contribute to the cost object. For example, those that do not relate to outputs are non-production costs, such as abnormal costs of various kinds or certain types of administrative costs (such as the cost of high-level officials) that are so remotely related to production that they are considered non-assignable to outputs.
- .072 Other types of classification decisions, like those suggested by the previous discussion of cost concepts, may be necessary to accomplish management objectives. Some of these, which relate to departmental cost objects like controllable costs and uncontrollable costs, may be reflected in the cost-accounting system. A number of cost classifications are needed to make a cost system operative. These other classifications are mentioned in Chapter 5.
- .073 Other management cost accounting objectives which require information about incremental costs, sunk costs, and opportunity costs also require cost classification. These may be aided by the classifications included in the cost-accounting system, but they are ordinarily done by analysis or study rather than being a product of the cost-accounting system.
- .074 The responsibility for cost classification is primarily that of financial management, but classifications should be in accord with the cost concepts adopted by senior management. Program managers should assist in identifying needed classifications and the related cost drivers for those classifications. Both senior management, and department and program managers should be consulted by financial officers when classification alternatives may be critical to satisfying information objectives.

### **Assigning Costs**

- .075 Assigning costs is the final step of an interrelated cost accounting process. Choices of cost objects and cost classifications affect how costs are assigned to objects. Cost classifications are a function of cost objects chosen but are also affected by the cost of information gathering and cost assignment practicality.
- .076 A well-designed cost-assignment process helps ensure that cost objects are properly specified and that the costs of all of the resources consumed by the cost objects are accurately assigned to them.
- .077 In general, the cost-assignment process can be summarized by the equation  $C = R \times Q$ , *where:*
- **C** represents the cost of the resource consumed;
  - **R** equals the per unit cost of resource consumption; and
  - **Q** represents the quantity of that resource consumed.

The task is, therefore, to assign costs to objects on the basis of resource consumption.

- .078 There are various methods of assigning costs to objects. The choice is determined by whether the cost can be assigned, the amount of information available, and the cost of the method itself. The cost-assignment method selected will affect the accuracy of cost information.
- .079 The cost assignment in terms of outputs being the cost object will be discussed, but the procedures are also generally applicable to other types of cost objects. Specific outputs produced should be identified and, if practicable, measured in units. The costs of resources that directly or indirectly contribute to the production of outputs should be assigned to outputs through costing methodologies or cost-finding techniques. The assignment of production cost should be performed using the following methods listed in the order of preference wherever feasible and economically practicable:
- tracing direct costs to outputs;
  - assigning indirect costs on a cause-and-effect basis; or
  - allocating any remaining indirect costs on a reasonable and consistent basis.
- .080 There are many methods of direct tracing. They involve using quantities of resources consumed and the actual unit cost of the resource.
- .081 They make use of:
- Time recording systems — Where each individual's time is charged to particular outputs.
  - Activity review — Such as time and motion studies, activity analysis and time sampling.
  - Inventory records and other resource management records — Charging outputs for withdrawn inventory or usage of computers, telephones, etc.
  - Output accounting records — Costs assigned to output codes in the general ledger as incurred.
- .082 Estimates and judgment, while less accurate, may sometimes be used.
- .083 Assigning costs on a cause-and-effect basis will often require two or more stages. Indirect costs incurred outside a production department usually need to be assigned to production departments before they may be assigned to the outputs of those departments. For example, the number of purchase orders issued by the purchasing department for each production department might be used to assign the costs of the purchasing department. The production departments can then directly trace the total of their own costs and the assigned costs of the purchasing department to their own outputs. When inventories are involved, the department responsible for storing and disbursing inventories produced can trace the costs of the inventory disbursed to outputs when shipped. It can assign its own costs to outputs on the basis of the number or value of the items of various kinds shipped.
- .084 A third stage is used where accuracy and cost considerations dictate assigning indirect costs of departments which support the production departments to all benefiting departments, including other supporting departments, before assigning them to production departments. This can be complex when reciprocal assignments attempt to capture all interaction between departments. For example, the head count of all other departments can be used as the basis for assigning the costs of the personnel department. Personnel department costs would then be assigned to the purchasing department, and the purchasing department might also assign costs to the personnel department depending on the reciprocal formulas decided upon. Assigning costs can become even more complex and possibly unmanageable if a variety of bases are used. For example, personnel costs may be assigned to some departments on the basis of their head counts and to others on the basis of the number of new hires provided to the departments by the personnel department. Complexities in how the multiple stage process is used and in the selection of more specific cost drivers, while possibly improving accuracy of the cost result, can also result in managers not understanding the significance of the cost information and how to use it.

- .085 When costs cannot reasonably be assigned on a cause-and-effect basis, they are allocated on some general basis like the total of directly traced and cause-and-effect assigned costs, or on direct production hours. Allocation bases of this sort were widely used in the past to allocate all indirect costs. The separation of indirect costs into those which can be assigned on a cause-and-effect basis and those which must be allocated, has improved the cost accounting process. Inaccuracies, which can also occur if direct tracing or assigning costs do not properly reflect the equation, are more likely when allocating costs on a general basis.
- .086 Financial management has the principal responsibility for determining cost assignments. Choices among assignment methods, like the choices of cost objects and cost classifications, will be affected by the ability to develop needed cost information. If cost systems are employed, choices among assignment alternatives will be affected by the degree of integration of cost and other information systems.

### **ALTERNATIVE WAYS TO DEVELOP COST INFORMATION**

- .087 As mentioned in the previous Chapter, cost information may be obtained by using cost systems of varying degrees of complexity, by cost analysis of information in the general accounting system, or by special cost studies based on relevant data gathered or developed for the special purpose of each study.
- .088 Cost systems are described in Chapter 5. A system is indicated when cost information is needed on a regular basis for financial reporting as well as for management reports. It is even more advisable if the operations of government are complex and diverse and management wants to use cost accounting in the several ways described in Chapter 2.
- .089 Cost analysis of information in the general accounting system can substitute for a system when the requirements for cost information do not include regular reporting, the requirements for detail and precision are less demanding, and cost information is not a fundamental component of the management process. To accomplish this successfully, general ledger accounts and especially the object class expense accounts should provide sufficient data.
- .090 Cost studies are often prepared in connection with privatization or investment decisions. They are generally made in conjunction with a cost system, or start with a cost analysis of general accounting information. They may draw upon information in the budget or in management information systems. Cost studies may also be based almost entirely on cost sampling. For example, “should-take” costs may be developed by various kinds of operations analysis such as that used to set standard costs.
- .091 No matter whether the cost information is developed systematically, by special analysis, or through cost studies, the basic processes of defining costs, classifying costs, and assigning costs to objects should normally be employed.

### **USEFUL REFERENCES**

- .092 Canada’s *Guide to the Costing of Outputs in the Government of Canada* (1989) together with its follow-on guide, *Stretching the Tax Dollar: A Guide to Costing Service Delivery for Service Standards* (1995), present practical step-by-step descriptions of the costing process and how to implement it. The Canadian approach is notable in its explanation of how to bring into consideration any costs that are not recognized in the financial accounting system. Its approach is different from some other countries in its designation of the activities within programs as cost objects to accumulate costs prior to their assignment to outputs.
- .093 New Zealand’s *Improving Output Costing: Guidelines and Examples* (1994) is also a useful reference. It is particularly valuable for its conceptual development of the cost-assignment process and for its systems orientation.
- .094 The previously mentioned U.S. *Managerial Cost Accounting Concepts and Standards for the Federal Government* sets specific requirements for the cost accounting processes to be used for financial reporting

and cost management by all federal government entities. It provides the rationale for the concepts and standards chosen.

## CONCLUSION

.095 The cost concepts used in the cost accounting exercise depend upon the objectives of the exercise. Full cost will satisfy several important objectives. Selected components of full cost will satisfy others or provide some of the needed data. The processes used in the cost accounting exercise to implement the cost concepts will determine whether and to what degree the objectives will be achieved. The choices of concepts and processes are interrelated and important judgments must be made by top management and by operating and financial management. These choices are also related to financial accounting choices discussed in Chapter 4 and affect the systems design and reporting choices discussed in Chapters 5 and 6. Chapter 5 elaborates on senior management's role in making these choices.



## CHAPTER 4: COST ACCOUNTING AND FINANCIAL ACCOUNTING

- .096 Because it is normally efficient to use the same database for both cost accounting and financial accounting, consideration should be given to the impact on cost accounting when government financial accounting standards are set or adopted.
- .097 While there are benefits from modeling government financial accounting standards on those of the private sector, sometimes these financial accounting standards may be inconsistent with cost accounting objectives. This Chapter discusses some of the possible inconsistencies by reference to the private sector standards at the international level developed by the International Accounting Standards Committee (IASC).

### INFORMATION CONSISTENCY AND INCONSISTENCY

- .098 The value of the resources used or sacrificed in relation to any particular cost objective is usually derived from the financial accounting system for two basic reasons:
- the greater understandability of cost data which is consistent with financial accounting data; and
  - the cost efficiency of generating the cost data based on or integrated with an existing system of accounting.
- .099 When cost information is reported outside the particular governmental entity, it is generally provided on a basis consistent with financial accounting. This is the case, for example, in New Zealand, where departments provide information about the costs of their outputs in their annual financial statements.
- .100 Inconsistencies between the values generated by the financial accounting system and those used in cost accounting can be appropriate. For example, in modified accrual systems of some jurisdictions of Canada, depreciation of property, plant, and equipment is added to cost systems that are otherwise based on information in the financial accounting systems.
- .101 A full accrual environment also may have inconsistencies. This may be deliberate if the government has different objectives for its cost accounting than it does for its financial reporting. It also may result from failure to coordinate the setting of standards for financial reporting with cost accounting concepts or from failure to give full consideration to alternatives by those in government who adopt particular accounting standards and cost concepts.

### NEED FOR RECONCILIATIONS

- .102 Where there are inconsistencies between the values generated by the financial accounting system and the cost accounting system, a reconciliation should be provided. In the private sector, the need for reconciliations has been recognized by the IASC in its standard IAS 14, *Reporting Financial Information by Segment*, when segment operating results are computed differently than entity-wide results. The United States government has adopted the concept of reconciliation whenever governmental cost information is reported on different bases. Without reconciliations there are greater possibilities of confusion and misunderstanding and of loss of credibility for the cost information presented.

### FINANCIAL ACCOUNTING STANDARDS

- .103 Financial accounting standards govern the flow of costs into the operating statement. Although the discussion of IASC standards that follows is in terms of property, plant and equipment (PP&E), inventory and costs related to these assets, other standards also affect the flow of costs.
- .104 Under IASC accounting standards, how values for inventory and PP&E are determined can be briefly summarized as follows:

- (a) The general basis for the initial valuation of these assets is the historical cost that was incurred by the entity to bring:
    - (i) inventories to their present location and condition; and
    - (ii) PP&E to working condition for their intended use.
  - (b) Specific types of costs are excluded from these valuations. Administrative and selling costs, development and preproduction costs, and storage costs are excluded unless they are directly attributable to inventories or PP&E. Abnormal amounts of wasted material and labor and excess capacity costs are also excluded, as are borrowing costs related to these assets except under a permitted alternative where borrowing costs related to the construction of PP&E may be included.
  - (c) Costs resulting from related party transactions are reflected in inventories and PP&E on the basis of the prices assigned to the transactions.
  - (d) Historical costs for inventories are reduced to net realizable value and for PP&E are reduced for depreciation and to reflect any lower recoverable value for those assets.
  - (e) Under an IASC allowed alternative, PP&E may be revalued regularly to fair value.
- .105 IASC standards do not deal comprehensively with the costs of deferred maintenance, the capital costs of holding inventory and PP&E, or the values of natural resources.

#### **QUESTIONS ABOUT THE APPLICABILITY OF FINANCIAL ACCOUNTING STANDARDS**

- .106 The particular circumstances of governmental entities raise questions about whether financial accounting standards for governments should reflect cost accounting considerations. Governments have types of assets and responsibilities which are different from those in the private sector. Concepts of capital maintenance and performance measurement may differ from the private sector. Governments may wish to emphasize the determination of operating costs rather than balance sheet values.
- .107 Some of the major questions about the applicability of financial accounting standards for inventory, PP&E and related costs are discussed below.

#### **Fair Value**

*Why use historical cost rather than fair value?*

- .108 Countries that wish to use current economic costs for pricing purposes and whose budgeting and funding arrangements are designed to maintain physical capital may find fair value accounting for PP&E (and possibly inventory) a compelling concept. New Zealand entities in the public sector depreciate their PP&E on the basis of fair values re-established every three years, at a minimum, where the entity has elected to depart from historic cost. Many Australian public sector entities adopt a deprival value<sup>1</sup> methodology for the valuation of their non-current assets. At present, public sector bodies in the United Kingdom are required to record tangible assets at their net current cost of replacement. The United States considered fair value accounting but rejected the idea for various reasons, including its emphasis on the maintenance of dollar capital.

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<sup>1</sup> “Under the deprival value approach, assets are valued at an amount that represents the entire loss, both direct and indirect, that might be expected to be incurred by an entity if that entity were deprived of the service potential or future economic benefits of the assets at the reporting date. Thus the value to the entity in most cases will be measured as the replacement cost of the services or benefits currently embodied in the asset, given that deprival value will normally represent the cost avoided as a result of controlling the asset and that the replacement cost represents the amount of cash necessary to obtain an identical or equivalent asset.” (*Guidelines on Accounting Policy for Valuation of Assets of Government Trading Enterprises Using Current Valuation Methods*, issued by the Steering Committee on National Performance Monitoring of Government Trading Enterprises (Australia), October 1994).



## Net Realizable and Recoverable Values

*Why reduce historical incurred costs for lower net realizable or recoverable values?*

- .109 It might be argued that recognizing losses for these factors prior to sale, retirement, or other disposition of inventory or PP&E fails to recognize some unique factors of the government environment. Governments may price goods and services on the basis of full costs. Also, governments may maintain extraordinary levels of certain inventories and PP&E to meet their responsibilities to citizens. Where these factors are operative, it might be argued that cost fluctuations due to the application of financial accounting rules are not relevant to performance measurement in government. The United States does not have a lower of cost or market rule for such inventories. Nor does it recognize lower recoverable values for general PP&E. Only when inventories are specifically identified as excess, obsolete or unserviceable does the United States recognize lower net realizable values. Most other countries have not made exceptions to the applicability of rules for recognizing lower net realizable or recoverable values.

## Deferred Maintenance

*Why not include deferred maintenance in recognized costs?*

- .110 Deferred maintenance of PP&E is an economic cost for both the private sector and the government. However, because there is not a liability that meets present recognition and measurement criteria, deferred maintenance is not generally recognized in either sector. Because of the political environment, including a preference for funding new programs and the lack of visibility of some government infrastructure, deferred maintenance can be a greater problem for government.
- .111 Several measurement methods (including condition assessment surveys and life cycle forecasts) are available, but none is generally accepted as a sufficient measurement basis for the purposes of financial accounting. When a generally accepted method of measurement and related maintenance standards, such as a definition of “acceptable condition”, are developed, United States standard setters plan to consider requiring the recognition of deferred maintenance costs.
- .112 An alternative treatment to deferred maintenance for the recognition of costs associated with the physical assets, including infrastructure assets, is the use of an appropriate depreciation methodology. The practice of reporting the periodic loss of service potential as a period expense — depreciation — is widely accepted for the purposes of financial accounting. The purpose of depreciation is to allocate the cost of a physical asset over a period so that accurate measurements of expenses are achieved. Depreciation is then the allocation of that cost as the service potential of physical assets are consumed.
- .113 The following chart illustrates the kind of cost information that might be made available by an entity whose PP&E is experiencing material amounts of deferred maintenance. Deferred maintenance information is only relevant when the service potential of the related asset may need to be restored, e.g., information about clearly unneeded assets should not be provided.

**Figure 4.1**

CATEGORY	METHOD	ASSET CONDITION (See Note 1)	COST TO RETURN TO ACCEPTABLE CONDITION (See Note 2)	CRITICAL	NON-CRITICAL
Buildings	Condition Assessment Survey	4	\$100,000 – 125,000	\$75,000	\$25,000 – 50,000
Communications Eqp/Systems	Condition Assessment Survey	4.5	\$10,000 – 15,000	\$2,000	\$8,000 – 13,000
Laboratory Equipment	Condition Assessment Survey	5	\$500,000 – 550,000	\$300,000	\$200,000 – 250,000
Heating & Air Cond. Eqp	Condition Assessment Survey	5	\$40,000 – 42,000	\$5,000	\$35,000 – 37,000

Note 1: Condition Rating Scale:

Excellent	1
Good	2
Fair	3
Poor	4
Very Poor	5

Note 2: Acceptable condition is “fair” or 3.

### Related Party Transactions

*Rather than basing costs on prices charged in transactions among government departments (related parties), why not recognize the full costs incurred?*

- .116 The costs of goods and services may include the costs of input from contributing related parties as well as the costs of the entity that actually delivers or provides the goods or services to the public. Because measuring the cost of outputs is frequently an objective of financial reporting, it may be appropriate for governments to require that prices for inter-entity transactions be based on full cost. This is required in Australia and is the practice in New Zealand. Where this is not required, it may be appropriate in government accounting to replace transaction prices, when they are different or when no price is charged, with the full costs actually incurred. To do so, the entity that receives the goods or services must determine the costs incurred by the supplying entity and make accounting entries to impute the full cost and recognize the related financing source. This is done in the United States.

### Excluding Certain Costs

*Why not use comprehensive cost accounting standards to determine the cost of the cost objects of inventory and PP&E rather than applying accounting standards that specifically exclude certain types of costs?*

- .117 Financial accounting standards specifically exclude certain costs that might not be excluded if the classification and assignment rules discussed in Chapter 3 were incorporated in financial accounting. For example, borrowing costs, which under an IASC permitted alternative could be included in PP&E, would be included under the cause-and-effect assignment rule. Other costs such as the indirect costs of administration, storage and development are specifically excluded under IASC standards, to prevent possible overstatements of inventories and PP&E. But these might be included in inventories and PP&E under some circumstances if cost accounting standards were the basis for financial accounting. Excluding indirect but assignable costs, although appropriate under IASC standards for financial

accounting, may sometimes result in understating the full costs of outputs when inventories are sold or transferred.

### **Interest on Capital Employed**

*Should interest on the capital employed in holding inventories and PP&E be recognized as a cost?*

- .118 In addition to the costs of storing inventories and maintaining PP&E, holding these assets also consumes capital. The question that arises is, should the cost of funds invested by an entity in its inventories and fixed assets, where such capital is not represented by interest-bearing debt of the entity, be recognized as an element of cost?
- .119 In the private sector, companies have used the cost of capital as a benchmark to determine performance of their operating units. For example, General Electric in the United States subtracts the cost of capital invested by an operating unit from the unit's net earnings to derive the residual income of the unit. The unit is considered profitable if its residual income is positive. However, external financial reports of private sector companies only recognize interest on debt as an expense; the cost of the capital derived from stockholders' equity is not recognized. Government-wide reports would normally follow the same approach and only recognize interest on outstanding government debt. But, the published reports of a government's operating units could recognize the full cost of the capital invested in PP&E, inventories and possibly receivables. That cost might be calculated on the basis of the government's borrowing rate or the private sector cost of capital, or on some other basis. The cost might be billed to the government entity by the central government or imputed and recognized as a non-cash element of cost. Financial accounting standards, if applied to government, would likely recognize any cost of capital billed. However, as mentioned earlier, there are no financial accounting standards for imputing unbilled costs, whether they be the cost of capital or other types of costs such as the unreimbursed (rent free) services of buildings.
- .120 In New Zealand, each government department receives appropriations for the full cost of producing its outputs, including that element of cost levied by the government as a capital charge. These appropriations are accounted for as revenue by the departments. Twice each year, each department calculates and pays a capital charge to the government. The appropriation does not specify how much is to be incurred in respect of each type of expense, so a department can reduce its capital charge by reducing its capital, without its appropriation being reduced. This provides each department with an incentive to manage its capital assets carefully and not to retain assets that are not generating value.
- .121 In the United Kingdom, the recognition of a capital charge is accepted as an important feature of implementing resource accounting and budgeting. Each department, as a cost in its operating cost statement, will report the capital charge. A purpose of imposing the capital charge is to enable department managers to evaluate the cost of using capital and current resources on an equivalent basis. The United Kingdom government believes that the capital charge will encourage the efficient utilization of capital by creating incentives to dispose of unwanted or uneconomic assets and will also improve decision-making with respect to the acquisition of new capital assets.
- .122 In the United States, where the question is under study, standard setters published an *Invitation for Views: Accounting for the Cost of Capital by Federal Entities* (1996). This publication surveys practices in the private and public sectors and deals with the usefulness of capital cost information, what assets might be included in the capital base and how they might be valued, alternatives for capital cost rates, and the accounting and reporting procedures necessary for the implementation of this concept.
- .123 Interest on capital employed is one of the major economic costs of many government activities. Excluding these costs from the financial statements of the component entities of the national government may result in misleading performance information and wasteful use of resources.

## Weapons Systems and Heritage Assets

*Are there specific governmental costs to acquire assets that could be recognized as a period expense?*

- .124 With two major exceptions (weapons systems and heritage assets), the United States requires the full costs of production, as determined under its various financial and cost accounting standards, to be capitalized in inventories and PP&E. For example, even excess capacity costs are currently considered to be part of the full cost of production. As such, they are included in inventories and the cost of related programs. Other countries might treat excess capacity as a non-production cost and as a period expense to be excluded from output costs. There probably would be agreement among many countries that most other non-production costs, e.g., non-pension post-employment benefits are period expenses. But on what basis could production costs be treated as period expenses?
- .125 U.S. standard setters believe that the costs related to the acquisition of weapons systems and most heritage assets should be treated as period expenses. Their reasons include the belief that the consumption of service potential of these types of assets cannot be reliably measured through depreciation because they have an indeterminate or unpredictable useful life. Further, they believe these assets provide a unique good or service for which there is not necessarily a periodic output against which to match costs. Furthermore, the United Nations' System of National Accounts expenses outlays for military assets.
- .126 Other countries on the accrual basis of accounting do not follow the same practice with respect to weapons systems and heritage assets. Their statement of financial position reflects the acquisition costs of the assets when incurred (or their value) and they recognize depreciation (or loss due to destruction) as the measure of the consumption of service potential.

## Natural Resources

*Should stocks of natural resources owned by the government be valued and the values sold or otherwise removed be reported as a cost?*

- .127 Many governments own or control a major portion of the natural resources in their countries. For example, the U.S. government controls much of the related natural resources on the 29 percent of the land of the country owned by the government. In most cases, these assets were acquired at little or no historic cost.
- .128 In the United States, there is little accounting at present for these assets and their use. This is also true for many other countries. Currently, there are no IASC financial accounting standards for natural resources.
- .129 From an economic standpoint, the stock of these assets can be a major portion of a government's wealth and the values sold or removed can have a major effect on whether the country is better off or worse off based on the activities of government. A World Bank publication, *Monitoring Environmental Progress (MEP): A Report on Work in Progress*, points out that one major portion of national wealth is natural capital and that depletion of natural resources, without offsetting increases in produced capital and human capital, can result in dire consequences to a country's economy.
- .130 The values of natural resources, especially hard rock minerals, oil, natural gas and similar non-regenerative resources, are hard to determine. But unless the values of the natural resources consumed can be accounted for in some fashion, the costs of many governments will be substantially understated.

## CONCLUSION

- .131 There are a number of potential differences between financial accounting standards and cost accounting concepts. Issues concerning the applicability of financial accounting standards to cost accounting are considered by the PSC when developing International Public Sector Accounting

Standards and by those in government who adopt accounting standards. These considerations can have significant effects on reported operating results. If different concepts are adopted for cost accounting, then reconciliations will be required if there is to be understandability and acceptance of the cost-related data presented in cost and performance reports. Even with reconciliations, significant inconsistencies may cause confusion and loss of credibility of the information presented. Also, if they are dealt with differently, there will be some difficulties in developing efficient and effective cost systems needed for financial and cost accounting. It seems clear that financial accounting standards and cost accounting concepts should be addressed concurrently and differences should be minimized.



## CHAPTER 5: SYSTEMS REQUIREMENTS

- .132 In designing a cost system, the overall objective is to use the concepts and processes of cost accounting systematically to satisfy management information objectives. To do so, systems requirements need to be established for:
- Information — What types of data are needed for the system to operate?
  - Functions — How will the data be used to produce the cost information desired?
  - Integration — How will the cost system fit into the overall information system?
  - Security — How will the system be protected from failures of availability, confidentiality and integrity?
- .133 Once systems requirements are established, it should be possible to choose the system type best suited to meeting those requirements, and make appropriate hardware and software selections.
- .134 Designing and installing a managerial cost accounting system can be challenging because:
- Information and functional requirements can be complex if the system is to satisfy a variety of managerial needs as well as support financial accounting applications.
  - To be efficient, the cost accounting system should exchange information with many existing managerial systems as well as most accounting systems, rather than be a stand-alone system.
- .135 Cost objects, classification schemes, and assignment methods will need to be coordinated and set in detail. Operating and program data, such as units of output, will need to be integrated with accounting data. The need to make comparisons of costs incurred with budgets or plans adds complexity to the systems design.
- .136 If the cost system is integrated with other systems, interfaces with other systems will need to be defined. To the extent that the cost system is not integrated with existing systems, other sources for the required data will need to be developed.
- .137 Experience in New Zealand suggests that any initial failure of management to specify the government's requirements in the detail required to develop systems will result in costly redesign.

### INFORMATION REQUIREMENTS

- .138 Both financial and non-financial information needs will have to be defined and the sources of the data identified. Common cost objects will be needed to pull together the flows of other accounting and operating information from different systems and organize that information by organization and program. For example, cost objects might be identified by both organization and by program in descending level of detail as follows:

#### Organizational Units

Reporting entity

Organizational responsibility segment

Organizational responsibility center

Departmental center

#### Programs

Program responsibility segment

Sub-program responsibility center

Project number

Project phase

Contract identification number

- .139 Additional cost objects would normally include the particular products and services produced by organizational responsibility centers and program responsibility segments. If cost information is needed for

budgeting, and accounting is on an accrual basis and budgeting is on a cash basis, then budget accounts may need to be added as cost objects. Activities should be added as cost objects if additional program detail is needed below the sub-program responsibility center or if activity based costing (ABC) is to be implemented as an integral part of the cost system.

- .140 A cost classification scheme will need to be developed to support the cost objects chosen. In addition to the basic cost classifications mentioned in Chapter 3, i.e., fixed vs. variable, controllable vs. non-controllable, etc., costs might also be classified as follows:
- general ledger accounts;
  - additional object class accounts (or cost elements) to provide the lower level of detail needed for cost assignment;
  - cost incurred by other entities for this entity's programs; or
  - reporting period.
- .141 Because of the likely need to be able to relate revenue received from the sale of government goods and services to costs, revenue codes would normally be included in the cost classification scheme. Normally, costs would also be classified by budget account for funds control. Further, cost classifications might be established to provide data for cost analysis, such as the geographic location or groups of people receiving government goods, services, or benefits.
- .142 The cost objects and cost classifications just discussed and the cost assignment methods to be discussed provide the structures needed to provide actual cost information. But a cost system also needs to accumulate physical unit data and comparative data of various kinds in both monetary and physical units. Examples of such data are:
- actual and planned units of output, such as the number of particular goods or services produced or provided;
  - input units, such as hours spent;
  - estimated or planned costs; or
  - actual, estimated and planned revenue for goods and services sold.
- .143 The system needs to provide accumulators for this type of data generated by other systems and transferred to the cost accounting system or introduced directly into the cost accounting system. To make needed calculations and comparisons, the other data will need to be accumulated by the time periods, e.g., month, year, comparable to the monetary cost data.
- .144 Multiple cost objects and cost classifications can be accommodated in a single system because of the sorting, accumulation, and calculating capacities of the modern computer. Data gathering to feed computer programs can be expensive, however, and these operating costs of the system should be identified and included in the cost/benefit tradeoffs considered before deciding to invest in a new or upgraded cost system.

## FUNCTIONAL REQUIREMENTS

- .145 How the system will manipulate the data and information just described will need to be defined. The system's functional requirements will determine various processes the system will perform including, for example:
- maintaining certain data in the system, storing other data in other systems, drawing data from other systems, and transferring data to other systems, etc.;
  - summarizing classified costs for assignment purposes and calculating costs assignable to various cost objects under assignment rules stored as formulas in the system;
  - associating certain revenues with cost objects under other rules stored in the system;
  - calculating unit costs; and



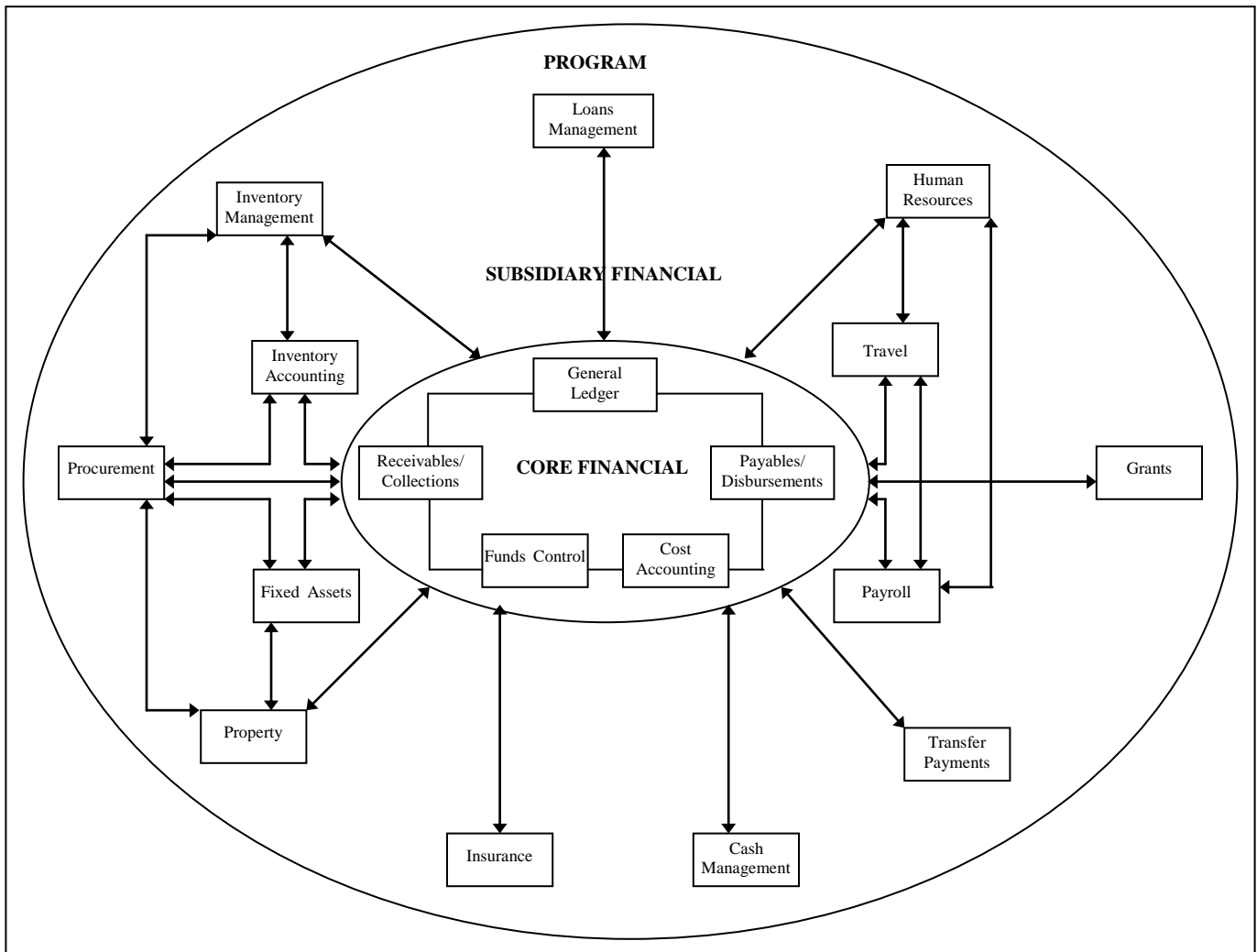
- preparing reports and providing access to supporting or other data in the system.

The greater the information and reporting requirements, the greater the complexity of the functional requirements.

## INTEGRATION WITH OTHER SYSTEMS

- .146 The number of systems with which a cost accounting system could interact varies greatly from country to country depending on how the government is organized, and other factors. The following chart used by the U.S. General Accounting Office illustrates the possible complexity of that interaction.

Figure 5.1



- .147 Virtually all of the program systems on the outer ring shown in figure 5.1 can provide non-financial information on units of inputs and outputs needed by the cost system in the core. For example, units produced might be maintained in the Inventory Management System or the data needed to make cost allocations, such as head count information, might be maintained in the Human Resources System. All the subsidiary financial systems in the middle ring provide even more detailed data to the cost accounting system than they do to the general ledger system. Also, the cost accounting system provides necessary cost information to make other systems functional, i.e., the inventory and PP&E systems.

- .148 Because of the numerous data exchanges between systems that should occur to achieve efficiency and control, the flow of information between the cost accounting system and other systems needs to be carefully defined so that appropriate interfaces between systems can be built into the cost accounting software.
- .149 Thus far in this discussion, it has been assumed that the values used in cost accounting are the same as those generated by the general accounting system. Where this is not the case, separate feeder systems will need to be developed to provide the cost data appropriate for the particular cost concept chosen for the cost system.
- .150 There are a number of important management issues and cost/benefit questions raised by systems integration, and these are discussed in Chapter 7.

## **TYPES OF SYSTEMS**

- .151 Most government units need a process costing system, a job order costing system or both. In some circumstances they may need a hybrid system that incorporates both job order and process costing features.
- .152 Process costing accumulates costs by individual processing sub-organizations and then finally by outputs of the organization. The output of a sub-organization either becomes the input of the next sub-organization in the production flow or becomes a part of the end product output. Normally, each sub-organization reports its costs, the completed units, and the work-in-process volume for each reporting period. When completed units are transferred from a sub-organization to the next sub-organization, the costs of those units are also transferred and are eventually incorporated in the cost of the organization's end product.
- .153 In government, process costing would normally be used by programs that involve repetitive processes to deliver similar goods or services. An example is making entitlement benefit payments to citizens. This involves a series of consecutive and repetitive processes of reviewing applications to establish eligibility, computing the amounts of benefits, and issuing checks.
- .154 Job order costing accumulates and assigns costs to discrete projects or jobs. Resources consumed are identified with a job code rather than a process. This method is appropriate for operations that produce special order products or perform projects and assignments that differ in duration, complexity or input requirements. In government, job-order costing may be used in connection with the production of major weapons systems or for legal cases, research projects or repair work.
- .155 Some governments may wish to set information requirements at the activity level, an even lower level than processes or jobs. The concept of ABC is that activities consume resources, although activities may sometimes be congruent with processes, if processes are defined narrowly. ABC can be used in conjunction with job-order costing or process costing to enhance the accuracy of these costing methods.
- .156 The fundamental concept of ABC is that costs should be assigned to outputs through each of the various activities that the organization performs. Implementation of ABC requires four major steps:
1. Identify activities performed in an organization to produce outputs.
  2. Assign or map resources to the activities.
  3. Identify outputs for which the activities are performed.
  4. Assign activity costs to the outputs.
- .157 An advantage of ABC is that it minimizes distortions in product costing that result from arbitrary allocations of indirect cost. By tracing cost through activities, more accurate service or product costs are provided. ABC also helps evaluate the efficiency and cost-effectiveness of activities, especially if activities are ranked according to the value they add to the organization or its outputs.

- .158 For example, where highly detailed and very accurate cost information is needed in connection with process improvement efforts to determine the costs of non-value-added activities, ABC can provide it. However, costs of data accumulation for ABC are higher than conventional systems. For that reason and despite its advantages, activity based costing may be limited to occasional use by some governments. An endorsement of ABC for government use appears in the article “Beyond Product Costing”, in *Articles of Merit – Competition* (IFAC, 1997).
- .159 Many governments will also want to have the capability to do standard cost accounting in conjunction with the other costing methods discussed above. Standard costing is particularly appropriate for operations that produce services or products on a consistently repetitive basis, i.e., some process costing systems. As work is being done, actual costs incurred are compared with the predetermined standard costs of cost objects. The predetermined standard or “should-take” costs are set by cost analysis.
- .160 Industrial engineers may assist in determining “should-take” rates and units for the standards. Variances from standard costs, as determined by the system, are then analyzed to determine the reasons for them and the possible corrective actions that should be taken.
- .161 In the example given in paragraph .153 for entitlement benefit payments, large negative variances in the labor costs incurred in one of the processes, which were caused by less than standard unit production, would normally suggest management action to improve process effectiveness. In another situation, standard costs could help to manage the purchasing function by identifying material price variations. Standard costing can encourage improvements in efficiency and can help managers formulate budgets, control costs and measure performance.
- .162 Adding standard costing capability would add significantly to the requirements of the systems. Information added would be the standard rates and standard units needed to compare the standard costs with actual costs. Functionality added would be processing capability, such as associating standards with actual costs and units, calculating variances of various types, and exchanging standards-related data with the inventory system.

## **COST ACCOUNTING SOFTWARE**

- .163 Cost accounting systems are common in the private sector. As a consequence, many off-the-shelf software systems have been developed by specialized software companies. They are commonly purchased by businesses of all sizes, including many large companies. Many of these companies have chosen to give up some relatively minor functionality rather than to try to develop their own systems or make extensive source code changes to customize the available off-the-shelf software. They do this to reduce design and installation costs, speed up the installation process, avoid problems and failures, and be able to rely on software suppliers for the systems updates that typically follow technical improvements in computer equipment.
- .164 Fortunately, there are many similarities between the cost accounting requirements of government and the private sector and software suppliers are beginning to serve the government market. Also, other systems that should be integrated with the cost system are frequently similar to those in the private sector and some available off-the-shelf software provides relatively easy integration with other systems. Various types of software configurations are available, such as:
- stand-alone cost accounting software;
  - financial accounting system software with built-in cost accounting capability; and
  - comprehensive information systems software with built-in cost accounting capability.
- .165 Cost accounting software is available with activity-based costing capability. But, in addition to such software with full systems capability, desktop ABC systems are also available to make off-line special cost studies.

- .166 The choice of one configuration or another depends on many factors, including the capabilities of other existing systems software that interface with the cost system and the technical features of the computer equipment used with the software. In addition to the configurations mentioned above, there is also specialized off-the-shelf software that purports to have the capacity to overlay most existing systems and draw cost data from them for cost assignment processing by this special software.

### **TECHNICAL FEATURES OF COMPUTER EQUIPMENT**

- .167 Access to cost information can be facilitated by the technical features of the equipment operating systems that control the software. Three examples of technical features that have a great bearing on the success of a cost system are:
- ease of use that might be provided through a graphical user interface, e.g., Windows;
  - flexibility in how information can be accessed and viewed, for instance information provided by “drill down” reporting and queries through the use of relational databases; and
  - access to information when and where it is needed regardless of where in the government it resides through networking and client/server architecture.

### **CONCLUSION**

- .168 Governments, if they have a variety of management information needs, will usually find that cost accounting systems are preferable to reliance on cost analysis for cost information. Carefully setting detailed systems requirements that fit both management and financial reporting needs will avoid the high costs of redesign. Information requirements will normally need to encompass physical unit, planning and revenue data as well as cost data. Functional requirements will normally need to encompass a large variety of cost objects and classifications as well as be capable of accommodating different types of management reports. Implementing a cost system also raises the issue of systems integration, which has important management and cost implications. Selecting off-the-shelf software that has the capacity to satisfy most systems requirements and using it in conjunction with appropriate hardware may be preferable to trying to write software or attempting to upgrade existing software and equipment. The installation of cost systems, whether upgrading existing software or hardware, or purchasing new software or hardware, should be justified using a cost/benefit model.

## CHAPTER 6: COST REPORTS

- .169 The culmination of a managerial cost accounting system is the information it makes available to those who run the operations of government entities and make decisions about the future. The regular and periodic reports generated by the system should provide most of the information needed to trigger management action to control and reduce costs and to help management plan and budget. These reports should also provide cost-related information needed in accountability reports to higher levels of government management, legislative bodies and the general public. In addition to financial statements, these regular accountability reports may include reports on performance measurement and program evaluation.

### SYSTEMS REQUIREMENTS FOR REGULAR PERIODIC COST REPORTS

- .170 The cost system's functionality needs to include a report generator. Off-the-shelf software normally has built-in capacity to generate a variety of reports needed by management or to satisfy financial reporting requirements. But this capacity differs from one piece of software to another. Also, to use the capacity, the needed data must be put into the system and the rules for capturing, distributing, and calculating the information must be there.
- .171 Management may not know what cost information they need. In establishing systems requirements, the users of cost information should be questioned about the information they might need. One of the ways to do that is to show users model cost reports of various types that reflect the tentative systems requirements. Another way is to involve them in reviewing the requirements before they are used for systems design and the acquisition of software and hardware.
- .172 Off-the-shelf software normally has the ability to query the system and draw off special reports. How much of the information in the system should be displayed in regular periodic reports and how much should be left to be drawn upon by inquiry depends upon management's need for information. For example, regular periodic reports may not be needed to facilitate setting prices or making inter-unit cost reimbursements. Also, resolving the question of what goes into the regular periodic reports and how much detail is provided is also a matter of judging how much information management will be able to assimilate on a regular basis.
- .173 In addition to being sure that management's known needs are well served, those responsible for setting systems requirements should consider providing the capacity for possible future needs or for expansion. For example, cost information by budget account may not be currently needed because the budget is on a cash basis. Or, management may be uncertain about whether activity-based cost information will be required on a regular basis. The cost of having additional capacity available may not be prohibitive considering the possible high cost of having to upgrade an existing system later.

### TYPES OF REGULAR PERIODIC COST REPORTS

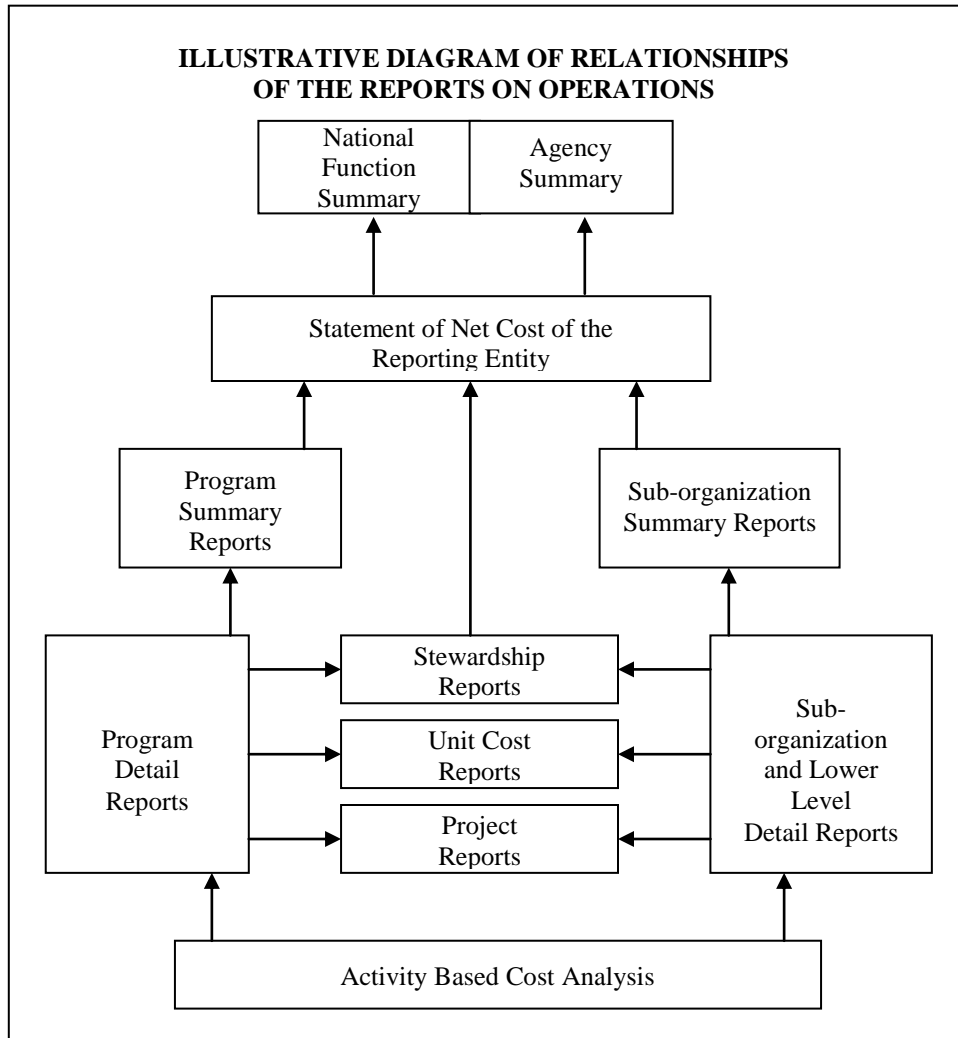
- .174 There are a variety of approaches to reporting. The approach selected will be affected by the degree of autonomy provided to the individual units of government as well as management's perceived need for different types of information and different levels of detail. Examples of three different approaches follow.

#### Standardized Reporting, Hierarchically Linked

- .175 The United States General Accounting Office (GAO) has long advocated a set of regular reports for the United States government that would be similar to those of some major corporations. This proposal was included in a comprehensive report, entitled *Managing the Cost of Government, Building an Effective Financial Management Structure* (GAO, 1985). An updated version of that proposal is described below.
- .176 The GAO proposal is for a reporting structure of hierarchically linked reports, as illustrated in Figure 6.1, that allows users to drill down from the published operating statement of the government agency, i.e., the

Statement of Net Cost, and other required external reports of cost information, through various levels of detail that should also support many internal management needs for regular periodic information. This results in a consistent view of basic cost information which should assist communication within the various management levels of the government, and between the management and the Congress and the general public.

**Figure 6.1**



- .177 The reporting hierarchy shown above does not include budget reports in recognition of the fact that the United States' budget is largely a cash basis document and related funds control is exercised through other systems. Activity-based cost reports were not proposed as a part of the regular set of reports in recognition of the high operating costs of systems that support such reports. Instead, activity-based cost analysis would be used when required by circumstances.
- .178 The Consolidated Financial Statements of the United States show the gross and net costs of the 18 functions of the United States government in its principal operating report, the Consolidated Statement of Net Cost, which follows in Figure 6.2.

Figure 6.2

<b>United States Government Consolidated Statement of Net Cost for the Year Ended September 30, 1999</b>			
(In billions of dollars)	<b>Gross cost</b>	<b>Earned revenue</b>	<b>Net cost</b>
<b>National defense</b> .....	451.2	38.0	413.2
<b>Human Resources:</b>			
Education, training, employment and social services .....	57.9	1.4	56.5
Health .....	140.6	0.7	139.9
Medicare .....	207.0	21.7	185.3
Income security.....	188.0	6.2	181.8
Social Security.....	387.7	-	387.7
Veterans benefits and services (Note 11)	(43.2)	2.7	(45.9)
<b>Total human resources</b> .....	<u>938.0</u>	<u>32.7</u>	<u>905.3</u>
<b>Physical Resources:</b>			
Energy .....	12.9	12.4	0.5
Natural resources and environment .....	27.1	2.9	24.2
Commerce and housing credit.....	89.2	73.9	15.3
Transportation.....	44.1	1.1	43.0
Community and regional development.....	14.9	2.8	12.1
<b>Total physical resources</b> .....	<u>188.2</u>	<u>93.1</u>	<u>95.10</u>
<b>Interest</b>	<u>230.1</u>	-	<u>230.1</u>
<b>Other Functions:</b>			
International affairs .....	29.6	9.6	20.0
General science, space, and technology .	17.5	0.1	17.4
Agriculture.....	27.2	2.4	24.8
Administration of justice.....	31.2	1.6	29.6
General government.....	25.1	4.6	20.5
<b>Total other functions</b> .....	<u>130.6</u>	<u>18.3</u>	<u>112.3</u>
<b>Total</b> .....	<u><u>1,938.1</u></u>	<u><u>182.1</u></u>	<u><u>1,756.0</u></u>
The accompanying notes are an integral part of these financial statements.			

.179 The Statement of Net Cost, illustrated below in Figure 6.3 to show various types of reporting, is also the principal operating report of each reporting entity of the United States Government.

**Figure 6.3**

<b>ILLUSTRATIVE STATEMENT OF NET COST</b>					
<b>Fiscal Year 199X</b>					
(thousands)					
	Sub-organizations				
	A	B	C	D	Total
Program A:					
Public	\$0	\$28,000	\$0	\$0	\$28,000
Less earned revenues	0	5,000	0	0	5,000
Net program costs	0	23,000	0	0	23,000
Program B:					
Intragovernmental	25,000	0	0	0	25,000
Public	126,000	0	0	0	126,000
Total	151,000	0	0	0	151,000
Less earned revenues	61,000	0	0	0	61,000
Net program costs	90,000	0	0	0	90,000
Program C:					
Program costs, public	9,690	0	0	0	9,690
Program D:					
Intragovernmental	23,000	16,000	0	0	39,000
Public	322,000	89,000	0	0	411,000
Program costs	345,000	105,000	0	0	450,000
Program E:					
Output A:					
Public – Total production	72,000	0	0	0	72,000
Less earned revenues	69,500	0	0	0	69,500
Net cost of output A	2,500	0	0	0	2,500
Output B:					
Public – Total production	222,000	0	0	0	222,000
Non-production costs	44,000	0	0	0	44,000
Net program costs	268,500	0	0	0	268,500
Program F:					
Weapons systems	0	0	27,000	0	27,000
Other costs	0	0	4,000	0	4,000
Program costs	0	0	31,000	0	31,000
Program G:					
Program costs, public	0	0	0	206,000	206,000
Non-production costs not Assigned to programs	7,500	3,400	2,300	1,000	14,200
Deferred maintenance (note X)					
Less other earned revenues not attributable to programs	1,900	1,700	400	0	4,000
<b>NET COST OF OPERATIONS</b>	<b>\$718,790</b>	<b>\$129,700</b>	<b>\$32,900</b>	<b>\$207,000</b>	<b>\$1,088,390</b>



.180 Stewardship reports are also published, and provide the longer-term perspective on costs and outputs (or outcomes) needed to evaluate investment type programs, which are not reflected in operating balance sheets. Such investment programs include research and development and non-federal physical property as well as the investment in human capital. The stewardship report for human capital is illustrated in Figure 6.4. Stewardship reports are also used to establish safeguarding accountabilities for assets not reflected in operating balance sheets, such as heritage assets and weapons systems.

**Figure 6.4**

<b>HUMAN CAPITAL STEWARDSHIP INFORMATION PROGRAM C – SUBORGANIZATION A Transition Training Program for Former Navy Contractor Personnel Fiscal Year 199X</b>						
<u>Program Expenses (thousands):</u>						
	<u>199T</u>	<u>199U</u>	<u>199V</u>	<u>199W</u>	<u>199X</u>	<u>Total</u>
Sub-Program: Counseling						
Counseling Services	\$646	\$713	\$937	\$1,183	\$1,259	\$4,738
Sub-Program: Education						
Educational Services	786	2,381	3,860	5,621	7,053	19,701
Operation/Administration	574	960	1,027	1,164	1,378	5,103
Total	1,360	3,341	4,887	6,785	8,431	24,804
Total Program Costs	\$2,006	\$4,054	\$5,824	\$7,968	\$9,690	\$29,542
<u>Program Outputs and Unit Costs:</u>						
						<u>Yearly Average</u>
Sub-Program: Counseling						
Participants Counseled	310	415	592	784	823	585
Unit Cost	<u>\$2,084</u>	<u>\$1,718</u>	<u>\$1,583</u>	<u>\$1,509</u>	<u>\$1,530</u>	<u>\$1,685</u>
Sub-Program: Education						
Years of Education Delivered	162	486	787	1,147	1,432	803
Unit Cost	<u>\$8,395</u>	<u>\$6,874</u>	<u>\$6,210</u>	<u>\$5,915</u>	<u>\$5,888</u>	<u>\$6,656</u>

.181 The published reports illustrated in Figures 6.1 to 6.4 may be supplemented by reports prepared for internal use. These reports include unit cost and program reports, reports for the sub-organizations of the reporting entities, and project reports. All the internal use reports provide for comparisons with planned costs and outputs.

.182 Program reports are appropriate for all programs and together with unit cost reports are especially useful in controlling and evaluating short-term programs typically funded by annual budget appropriations. They also serve to pull together the program costs when more than one sub-organization participates in a program.

.183 When the management structure is not congruent with the program structure, organization reports focus on the cost responsibility of the various organizations that contribute to the programs. Organization reports show object class account breakdowns at the cost control level and identify controllable costs.

.184 A unit cost and a program report are illustrated in Figures 6.5 and 6.6, respectively.

**Figure 6.5**

<b>UNIT COST REPORT</b>			
PROGRAM E – OUTPUT A			
Fiscal Year 199X			
Units Delivered to the Public: 3,140,000 <sup>(a)</sup>			
	<u>Dollars</u> <u>(thousands)</u>	<u>Cost</u> <u>Drivers<sup>(b)</sup></u>	<u>Unit Costs</u>
<b>Production Costs:</b>			
<b>Directly Assigned Costs:</b>			
Inventory shipments	\$10,000		
Payroll	7,500		
Inter-entity costs	750		
Supplies and materials	<u>2,750</u>		
<b>Total Directly Assigned Costs</b>	<u>21,000</u>		\$6.69
<b>Distributed Costs:</b>			
Inventory management	11,000	2,900	
Human resources	13,000	1,755	
Procurement	9,000	4,250	
Other common costs (specify)	10,000	5,000	
Other assigned costs	7,000		
Depreciation	<u>1,000</u>		
<b>Total Distributed Costs</b>	<u>51,000</u>		\$16.24
<b>Total Production Costs</b>	<u>72,000</u>		\$22.93 *
<b>Revenue:</b>	<u>69,500</u>		\$22.13
<b>Net Cost of Output A</b>	<u><u>\$ 2,500</u></u>		\$0.80
*Trend: \$23.07 in 199V and \$22.99 in 199W.			
<sup>(a)</sup> Units delivered is the output measurement in this example.			
<sup>(b)</sup> Cost drivers are the basis for assigning cost. The figures shown are the amounts of the following cost drivers:			
Inventory management (# of orders delivered to the public)			
Human resources (# of employees)			
Procurement (# of obligations incurred)			

Figure 6.6

PROGRAM REPORT							
PROGRAM E - OUTPUT A							
Fiscal Year 199X							
(thousands)							
Planned for Year	Description	Current Quarter			Year to Date		
		Actual	Plan	Variance	Actual	Plan	Variance
<u>3,250</u>	<b>UNITS</b>	<u>780</u>	<u>815</u>	<u>(35)</u>	<u>3,140</u>	<u>3,250</u>	<u>(110)</u>
	<b>SUMMARY</b>						
\$72,120	Production Cost	\$18,001	\$18,028	(\$ 27)	\$72,000	\$72,120	(\$120)
<u>68,805</u>	Earned Revenue	<u>17,375</u>	<u>17,201</u>	<u>174</u>	<u>69,500</u>	<u>68,805</u>	<u>695</u>
<b><u>\$ 3,315</u></b>	<b>Net Cost</b>	<b><u>\$ 626</u></b>	<b><u>\$ 827</u></b>	<b><u>(\$201)</u></b>	<b><u>\$ 2,500</u></b>	<b><u>\$ 3,315</u></b>	<b><u>(\$815)</u></b>
	<b>COST FACTORS</b>						
	Directly Assigned:						
\$9,935	Inventory shipments	\$2,479	\$2,480	(\$1)	\$10,000	\$9,935	\$65
7,555	Payroll	1,882	1,890	(8)	7,500	7,555	(55)
750	Inter-entity costs	187	188	(1)	750	750	0
<u>2,800</u>	Supplies and materials	<u>703</u>	<u>700</u>	<u>3</u>	<u>2,750</u>	<u>2,800</u>	<u>(50)</u>
<b><u>21,040</u></b>		<b><u>5,251</u></b>	<b><u>5,258</u></b>	<b><u>(7)</u></b>	<b><u>21,000</u></b>	<b><u>21,040</u></b>	<b><u>(40)</u></b>
	Distributed:						
10,995	Inventory management	2,750	2,750	0	11,000	10,995	5
13,015	Human resources	3,247	3,250	(3)	13,000	13,015	(15)
8,970	Procurement	2,235	2,240	(5)	9,000	8,970	30
10,112	Other common costs	2,524	2,530	(6)	10,000	10,112	(112)
6,988	Other assigned costs	1,744	1,750	(6)	7,000	6,988	12
<u>1,000</u>	Depreciation	<u>250</u>	<u>250</u>	<u>0</u>	<u>1,000</u>	<u>1,000</u>	<u>0</u>
<b><u>51,080</u></b>		<b><u>12,750</u></b>	<b><u>12,770</u></b>	<b><u>(20)</u></b>	<b><u>51,000</u></b>	<b><u>51,080</u></b>	<b><u>(80)</u></b>
<b><u>\$72,120</u></b>	<b>Total Production Cost</b>	<b><u>\$18,001</u></b>	<b><u>\$18,028</u></b>	<b><u>(\$27)</u></b>	<b><u>\$72,000</u></b>	<b><u>\$72,120</u></b>	<b><u>(\$120)</u></b>

- .185 Project reports are needed for long-term capital projects, such as the construction of capital assets or the development of new weapons systems. This specialized reporting facilitates cost control, evaluation and funding over the multi-year life of such projects. A project report is illustrated in Figure 6.7.

**Figure 6.7**

<b>PROJECT REPORT</b>							
<b>WEAPONS SYSTEM 1</b>							
Status as of : (Date)							
(dollars in thousands)							
<b>Project Status:</b>					Over		Months
Project Phases:	Planned Cost (a)	Actual Cost	Estimated Cost To Complete	Total Cost to Complete (b)	(Under) Planned	Scheduled Completion	Over (Under)
Research and Development	\$16,000	\$20,000	\$0	\$20,000	\$4,000	8/95	+2
Testing and Evaluation	4,000	3,000	0	3,000	(1,000)	1/96	
Design	10,000	11,000	0	11,000	1,000	9/96	+1
Procurement	70,000	10,000	65,000	75,000	5,000	10/97	+2 (d)
Total:	\$100,000	\$44,000	\$65,000	\$109,000	\$9,000	(c)	
<b>Funding Status:</b>							
Appropriation #	Description	Date	Amount	Obligations (f)			
				Amount	Unobligated		
XXXXXXX	Research and Development (FY92)	10/91	\$20,000	\$20,000	\$0		
XXXXXXX	Research and Development & Testing and Evaluation (FY92 supplemental)	5/92	3,000	3,000	0		
XXXXXXX	Design and Procurement (FY95) (Prototype development)	10/94	10,000	10,000	0		
XXXXXXX	Design and Procurement (FY95 supplemental)	4/95	1,000	1,000	0		
XXXXXXX	Procurement (FY97)	10/96	70,000	35,000	35,000		
Totals			\$104,000	\$69,000	\$35,000		
Current Estimate to Complete			\$109,000 (b)				
Over/(Under)			\$5,000 (e)				
<p>(a) Original planned cost to complete the project.            (b) Current estimate of total cost to complete the project.            (c) Estimate to complete exceeds planned costs by \$9,000.            (d) Shows that the procurement phase is running two months over schedule.            (e) Shows additional budget authority needed to complete the project.            (f) Shows the status of obligations by appropriations.</p>							

- .186 The GAO idea for standardized management reports below the level of the published reports has not been adopted. Many people in the more than 100 United States government reporting units want the freedom to develop their own cost accounting systems and reports. They argue that the type of cost information needed by managers may differ among various types of organizations, programs and activities. For example, the cost information useful to managers of a health care program may differ from that which is useful to managers of a loan guarantee program. Information needs may also differ among managers of various functions. For example, the information needs of budgeting and planning managers may differ from those of program managers.
- .187 At present, information systems requirements for reporting units of the United States Government provide considerable flexibility, however they are not sufficiently detailed to ensure the capability to produce the illustrated management reports. The information in those management reports, because it backs up information in the published reports, should be available. It will be needed to respond to questions raised by higher levels of management, the Congress and the public.

#### **Standardized Reporting with Different Features and More Detail**

- .188 Malaysia, recognizing the importance of cost information for management, implemented a cost accounting system before converting its accounting system to the full accrual basis. This system can function as a stand-alone system, but it now draws its data from the budgetary system for expenditures and budget data, from an asset management system for depreciation and for data on usage of materials and supplies, and from a manpower management system for employee cost data. This system provides a series of standardized management cost reports.
- .189 Notably, this system has the facility for standard cost and variance analysis in addition to being able to make comparisons between actual cost and budget. Some of the regular reports produced by this system are more detailed than those proposed for use in the United States by GAO. For example, one report facilitates detailed variance analysis and another provides information on the cost of individual personnel working on a project.

.190 Malaysia's eight basic cost reports are listed in Figure 6.8.

**Figure 6.8**

<b>Report Number</b>	<b>Usage</b>
<b>M 01</b>	<b>Output Cost Summary</b> Prepare cost per unit information for each output of the Government Agency.
<b>M 02</b>	<b>Variance According to Output</b> Prepare comparison between actual cost and standard cost showing the variance between the two in total.
<b>M 03</b>	<b>Cost Variance According to Output</b> Facilitates user to make comparison between actual cost and standard cost and detail variance analysis.
<b>M 04</b>	<b>Cost Sheet (monthly)</b> Prepares component cost analysis by labor, materials, other direct cost and indirect cost for each output.
<b>M 05</b>	<b>Cost Comparison between Months</b> Prepare cost comparison information on a month to month basis.
<b>M 06</b>	<b>Budget Variance According to Expenditure</b> Allows user to make comparisons between actual cost and budget.
<b>M 07</b>	<b>Cost Sheet (cumulative)</b> Prepares cumulative and average cost for each output.
<b>M 08</b>	<b>Personnel Cost Contribution to Project Works</b> Gives information on individual personnel cost contribution towards a project or particular work if time sheet is prepared.

### **Individualized Cost Reports**

- .191 New Zealand manages its operations under a full accrual accounting and budgeting system. The financial reports of the various departments of government to higher levels of government reflect agreed-upon performance criteria, including cost of outputs, and compare actual performance against those criteria. But each department has freedom to operate as it wishes to achieve agreed-upon performance criteria, and accordingly, is able to adopt its own approach to financial management, its own financial information system and its own internal management cost reports.
- .192 A summary of "appropriated revenues" (budgets) and "expenses" (costs) for the Department of Social Welfare (of the Government of New Zealand) and the performance detail reported for two of the summarized outputs follows in Figures 6.9, 6.10 and 6.11.

Figure 6.9

<b>Statement of Departmental Expenditure and Appropriations</b> <i>For the Year Ended 30 June 1998</i>		
<i>Summary By Output Class</i> <i>(Figures are GST inclusive where applicable)</i>	<i>Actual Expenditure</i> <i>( '\$000s)</i>	<i>Appropriation Voted</i> <i>( '\$000s)</i>
<b>INCOME SUPPORT</b>		
Applications for Benefits, Grants and the Community Services Card	81,157	81,483
Review of Benefits	141,629	141,899
Payments of Benefits and Grants and Issue of Community Services Card	26,523	26,796
Reduction of Fraud and Abuse	25,246	25,309
Debt Collection	29,197	29,331
Benefit Awareness Services	5,252	5,377
War Pension Services	5,391	5,419
<b>Total Income Support</b>	<b>314,395</b>	<b>315,614</b>
<b>CYPFS</b>		
Public Awareness Services	4,801	4,287
Risk Identification and Management	52,082	52,338
Family Resolution Services	95,920	96,102
Residential and Caregiver Services	32,003	32,067
Adoption and Information Services	6,159	6,328
<b>Total Children, Young Persons and Their Families Service</b>	<b>190,965</b>	<b>191,122</b>
<b>NZCFA</b>		
Contracting for the Provision of Social Services	11,585	11,672
<b>Total New Zealand Community Funding Agency</b>	<b>11,585</b>	<b>11,672</b>
<b>SPA</b>		
Policy Advice	11,434	11,684
Senior Citizens Services	490	492
<b>Total Social Policy Agency</b>	<b>11,924</b>	<b>12,176</b>
<b>MSU</b>		
Ministerial Servicing and Support Services	3,716	3,718
<b>Total Ministerial Servicing Unit</b>	<b>3,716</b>	<b>3,718</b>
<b>Total</b>	<b>532,585</b>	<b>534,302</b>
<p><i>NOTE:</i>  <i>Output Class: War Pension Services is appropriated under Vote War Pensions; and Output Class: Senior Citizens Services is appropriated under Vote Senior Citizens. All other output classes are appropriated under Vote Social Welfare.</i></p> <p><i>The Statement of Accounting Policies and Notes to the Financial Statements form part of and should be read in conjunction with these Financial Statements.</i></p>		

Source: New Zealand Department of Social Welfare, Annual Report for the Year Ending 30 June 1998.

Figure 6.10

<b>Income Support</b>			
<b>Output Performance Statements</b>			
<i>For the Year Ended 30 June 1998</i>			
<b>Review of Benefits</b>			
This Output Class includes the review for both primary and supplementary benefits payable under the Social Security Act 1964 and the Transitional Provisions Act 1990. It also includes the conveyance of information relating to customer entitlements, rights, duties and obligations, as well as the identification to the customer of the dangers of welfare dependency and activities they can undertake to avoid dependency.			
<b>Financial Performance</b>			
<i>Actual</i> 30 June 97 \$'000		<i>Actual</i> 30 June 98 \$'000	<i>Budget</i> 30 June 98 \$'000
<b>REVENUE</b>			
105,325	Crown	124,697	124,697
1,174	Other	1,461	1,436
<b>106,499</b>	<b>Total Revenue</b>	<b>126,158</b>	<b>126,133</b>
<b>EXPENSES</b>			
59,038	Personnel	66,763	66,259
37,094	Operating	47,637	48,467
6,835	Depreciation	7,485	7,421
3,491	Capital Charge	3,974	3,986
<b>106,458</b>	<b>Total Expenses</b>	<b>125,859</b>	<b>126,133</b>
<b>41</b>	<b>NET OPERATING SURPLUS/(DEFICIT)</b>	<b>299</b>	<b>0</b>
<b>Service Performance</b>			
<i>Actual</i> 30 June 97		<i>Actual</i> 30 June 98	<i>Budget</i> 30 June 98
<b>QUANTITY</b>			
2,767,496	Reviews	2,962,087	2,714,000
<b>QUALITY</b>			
<i>Accuracy</i>			
86%	Of the primary reviews processed, the percentage that are 100% accurate will be not less than	88%	80%
<b>TIMELINESS</b>			
<i>Accessibility</i>			
7.5 hours	Services available for a minimum period on every departmental working day for	7.5 hours	7 hours
88%	Primary Reviews are processed on average within 5 working days	95%	70%

Source: New Zealand Department of Social Welfare, Annual Report for the Year Ending 30 June 1998.



Figure 6.11

<b>Income Support</b>			
<b>Output Performance Statements</b>			
<i>For the Year Ended 30 June 1998</i>			
<b>Reduction of Fraud and Abuse</b>			
This Output Class covers activities to reduce the level of benefit crime. Activities include investigations, information matching and initiatives to deter benefit crime.			
<b>Financial Performance</b>			
<i>Actual 30 June 97 \$'000</i>		<i>Actual 30 June 98 \$'000</i>	<i>Budget 30 June 98 \$'000</i>
<b>REVENUE</b>			
31,389	Crown	22,239	22,239
350	Other	262	258
<b>31,739</b>	<b>Total Revenue</b>	<b>22,501</b>	<b>22,497</b>
<b>EXPENSES</b>			
17,741	Personnel	11,613	11,335
10,882	Operating	9,012	9,352
2,037	Depreciation	1,100	1,099
1,040	Capital Charge	708	711
<b>31,700</b>	<b>Total Expenses</b>	<b>22,433</b>	<b>22,497</b>
<b>39</b>	<b>NET OPERATING SURPLUS/(DEFICIT)</b>	<b>68</b>	<b>0</b>
<b>Service Performance</b>			
<i>Actual 30 June 97</i>		<i>Actual 30 June 98</i>	<i>Budget 30 June 98</i>
<b>QUANTITY</b>			
33,043	Potential benefit crime cases investigated	49,060	40,000
46,625	The number of investigations conducted as a result of information matches with other agencies	56,815	50,000
26,242	The number of incorrectly paid benefits identified as a result of information matching	32,636	n/a
<b>QUALITY</b>			
\$2 for \$1	On average, all investigations will result in debt establishments in excess of \$2.5 for every \$1 spent	\$4.54	\$2.50 for \$1
100%	Percentage of investigation unit cases, where decisions are open to review, that will remain unchanged	100%	95%
74%	The percentage of investigations finalised within 60 working days of assignment	82%	80%

Source: New Zealand Department of Social Welfare. Annual Report for the Year Ending 30 June 1998.

- .193 Other departments and ministries provide similar summary output reports, but the set of cost reports may differ in content, format, and detail. For example, reports of the Ministry of the Environment do not provide the service performance data to the level of detail provided by the Department of Social Welfare, but they include more detailed cost information by cost center and object class.

### **GENERALIZATIONS ABOUT REGULAR MANAGEMENT COST REPORTS**

- .194 Some useful generalizations can be made about the content and design of regular management cost reports. Management cost reports should:
- provide costs of outputs;
  - be comprehensible to the level above operating management to whom operating management is responsible and be limited to what is considered essential management information;
  - in some way identify controllable costs for each organization involved in producing outputs;
  - provide sufficient detail to alert management to developing problems and, therefore, should compare actual costs with both plans or budgets, with standards, or with a combination of these, and compare actual costs with prior periods;
  - be consistent with or reconcilable with the basis of accounting used to prepare financial accounting reports; and
  - be relevant to budget planning and execution.

### **SPECIAL INFORMATION NEEDS**

- .195 The information and functional requirements of the system and the technical features of the computer equipment will determine the extent to which the system can respond to special inquiries. The system requirements should include capabilities not used for regular reports. For example, a labor distribution showing the payroll costs of a department might be requested if management wished to have detailed data in an effort to reduce the costs of that department shown to be high in the regular reports. In that case, the information would be in the system or stored outside the system, but whether it was easily accessible or not would depend on the functional capability of the system. To give another example, if the information requirements of the system include the option to “tag” data, then marginal cost reports for special projects or missions could be prepared even though the system did not regularly classify costs as fixed and variable. Also, if the processing requirements include the ability to accumulate costs at the activity level, then activity-based cost analysis could be done by the system should a problem or situation occur in a particular program, project or process, or if a particular organization or sub-organization should need the much more detailed information made possible by activity-based costing.

### **CONCLUSION**

- .196 Because modern systems can provide virtually all the cost information needed by management, governments have a wide variety of choices to make among reporting alternatives for internal management reports as well as for external reporting. Different governments and the different operating units of government do make different choices. However, there are certain basic generalizations about the proper content and design of regular reports that should be carefully considered.

## CHAPTER 7: SENIOR MANAGEMENT ISSUES

- .197 Cost accounting can be a major contributor to efficient and effective management and the communication of the results of government operations, but there are significant risks and costs associated with its implementation. Successful implementation depends upon whether senior management is sufficiently involved in answering these questions:
- What are the goals for cost accounting and what implementation strategies should be followed?
  - How will cost accounting be used in budgeting?
  - What managerial cost information is needed and what cost concepts should be adopted?
  - What cost information will be included in government-wide reporting and in the management reports of the individual operating units?
  - How will cost systems be integrated with other information systems and how will the systems of the operating units be integrated government-wide?

Senior management will normally need information and advice before it can deal with these issues.

- .198 This Chapter seeks to help governments define the issues for consideration, and suggests approaches to be used to gather needed information and advice for senior management. Who senior management is and what the specific parameters of the issues are, as well as which particular approaches should be used to gather needed information and advice, depend upon a number of factors. Among them is the way the government is organized, e.g., the degree of decentralization, its present state of affairs and its present information system, and the way the government is operated, e.g., its governance approach, its internal control structure, the extent of its use of the private sector economic model.
- .199 Because cost accounting is a management tool, the financial officers of the government and its individual operating units may not always be among the decision-makers. Whether they are or not, financial officers can bring knowledge of cost accounting and, therefore, should be key players in motivating senior management to define and address the issues. They can also help senior management choose and implement the approaches necessary to gather needed information and advice and assist in the periodic review of senior management's information needs. Active involvement with senior management will aid financial managers in discharging their responsibilities for defining cost objects, classifying costs and assigning them to cost objects. It will also be necessary for them to estimate the financial costs of implementing cost accounting.

### SETTING GOALS AND IMPLEMENTATION STRATEGIES

- .200 Many governments may not know what their ultimate goals are for cost accounting and some may not be ready to move quickly. As pointed out in Chapter 2, there are a variety of possible goals. In addition to the basis of financial accounting employed, other factors which will affect the goals and strategies to achieve them include receptivity of potential users of cost information, the extent and readiness of the other financial and operating systems, existing technical capacity and the availability of resources.
- .201 Depending upon the particular situation, it may be preferable for many governments to implement cost accounting progressively, rather than to try to set an ultimate goal and move quickly to accomplish it. An incremental approach enables a government to move forward while experimenting and learning, and to revise goals and strategies as indicated.
- .202 Implementation strategies should be set in the context of an overall plan for the development and use of information technology as suggested by the proposed IFAC Guideline on Information Technology *Managing Information Technology Planning for Business Impact*, (1998). Also, the funding and other resources for a new cost system should be justified by a business case that deals not only with anticipated costs and benefits, but also with risks, constraints and underlying assumptions. Establishing goals and strategies, and the overall plan and business case can best be accomplished after the other management issues posed in this Chapter are explored.

## **THE USE OF COST ACCOUNTING IN BUDGETING**

- .203 When instituting cost accounting, how it will be used in budgeting can only be resolved at the highest levels of government. Three examples illustrate this point.
- .204 Cost accounting can be integral to an accrual-based budget, as it is in New Zealand; be combined with funds control in a budgetary system that focuses on both cost and cash, as is proposed in the United Kingdom; or be almost totally separate from an essentially cash-basis budget as it is, and may continue to be, in the United States.
- .205 As noted earlier, in New Zealand cost accounting was a part of a total reformation of the way the New Zealand Government operates and, as a result, received full attention at the highest levels of government. It is now in place and operational.
- .206 The United Kingdom is in the process of implementing its version of resource accounting and budgeting. This is part of an evolutionary change in the way that government operates. The impetus for the budgetary change in the United Kingdom has come from the top levels of Treasury, but the change does not have the same push of fiscal crisis that motivated New Zealand. In the United Kingdom, emphasis is being given currently to the education and training of management in the management uses of cost accounting. United Kingdom efforts build upon some success in using cost accounting in “value for money” management. But whether cost accounting will become integral to the budgeting process remains to be seen. Parliament will have to be convinced of the budgetary advantages. For this reason, the changes are being phased in, with Parliament being given the opportunity to use the cost information provided for the annual grant of resources in 2001.
- .207 In the United States, except for a few specific instances where the disadvantages of the cash basis became painfully obvious and certain accruals were recognized in budgeting, there is no great interest in making a comprehensive change in the present cash-based budgeting system. No demand for change has been made by the United States Congress or by the top levels of the Administration. While there is interest in having some cost information to help formulate cash-based budgets, a systematic change in the way budgets are prepared is unlikely at present. An effort to provide such cost information is being led by the financial officers of the individual operating units of government. They must contend not only with cash and accrual differences in amounts, but also with budget account structures that are not built around government programs and outputs. Whether they can succeed even in this limited effort depends upon the response to the cost data provided by higher levels of management and the Congress.

## **DEFINING THE COST INFORMATION NEEDED AND THE COST CONCEPTS TO BE USED**

- .208 The answers to the two related questions of what cost information is needed and what cost concepts should be reflected in the information system will have a great impact on management’s ability to control and reduce costs, measure performance, set prices and perform other management functions.
- .209 Earlier Chapters illustrate that these two questions have a number of possible answers. How particular cost concepts should reflect different kinds of management information objectives were discussed in Chapter 3, alternative full cost concepts were mentioned in Chapter 4, and various information issues were discussed in Chapter 5.
- .210 The approaches adopted to define the parameters of these questions for senior management and provide the needed information and advice must include consideration of needed management information as well as needed cost information. Operating management must be involved. For example, performance measurement should integrate cost and other efficiency measures with a variety of effectiveness measures that are largely outside the realm of cost accounting.
- .211 The importance of senior management involvement was recently underscored in the United States by the decision to defer the required implementation of cost accounting standards for one year until fiscal year 1998. One of the reasons given for the need to postpone implementation was that the financial officers of

the various agencies and departments had not been successful in involving senior management in defining the cost information to be used in performance measurement.

## **REPORTING COST INFORMATION**

- .212 Chapter 6 illustrates a few of the many reporting alternatives available to governments.
- .213 Senior management of the government should make the final decision on what cost-related information should be included in the financial statements, budgetary proposals and government top management reports. A number of factors will affect the information to be included, including the degree of management decentralization, how much cost control top management wants to exercise, the extent of the legislature's involvement in overseeing government operations, and the public's interest in the cost of government programs and outputs.
- .214 A wide variety of questions will need to be considered, including whether performance measures will be included in the published financial statements, how cost information will be integrated with the budget if the budget is wholly or partly on a cash basis, what level of detail should be included in management reports, and what comparative information should be provided.
- .215 Ideally, decisions on government-wide reporting should precede, or be contemporaneous with, reporting decisions at the level of the individual operating unit. The logic is that any reporting requirements imposed by government senior management could then be expanded to take into account the particular types of operations being conducted.

## **SYSTEMS INTEGRATION**

- .216 If the performance of managers is to be measured by cost information, the cost data must be consistent with other management information derived from other management systems, i.e., staff levels, outputs produced or delivered, program accomplishments. Some kind of systems integration is generally needed at the individual operating unit level because stand-alone cost systems are costly to operate and problematic. How much integration to seek and how that integration should be accomplished requires consideration of the adequacy of the other systems and the needed interfaces between systems. This leads to questions of whether to use off-the-shelf systems and which of the various configurations to use. It also leads to questions of the competence of government personnel to implement systems changes and, therefore, of the extent of reliance to be placed on consultants.
- .217 Government-wide reporting requirements for cost dictate some uniform cost systems requirements for all the operating units of government and some systems integration across government. Uniform cost system requirements, because they are likely to lead to changes in many other systems, raise even broader integration questions. For example, if there are a large number of individual operating units, there are large potential cost savings from reducing the scope of the separate systems' design and development efforts of those operating units.
- .218 Questions of government-wide systems integration should be resolved before, or contemporaneously with, questions of systems integration at the individual operating unit level.

## **APPROACHES TO RESOLVING THESE ISSUES**

- .219 All of the questions discussed in this Chapter are related and the answers, of necessity, are related as well. Appointing study and planning groups to address these questions in a coordinated fashion at both the government-wide and at the individual operating unit level is the most logical approach. Ideally, these groups should include several program managers and operations personnel and perhaps other users of cost information, the chief financial officer and chief information systems officer or their deputies, cost accountants, and systems designers. These groups should be coordinated by someone with access to senior management. Some direct participation by senior management is desirable.

- .220 There are other approaches, discussed below, which may help to ensure that management has needed information and advice. The approaches may augment the work of study and planning groups appointed to deal with the issues in a coordinated fashion.

### **Educational Efforts**

- .221 Senior management needs to have a basic understanding of the potential value of cost accounting before it will be willing to charter appropriate study and planning groups. Senior management needs to see how cost accounting can help to improve the management of government. Program and other operating management personnel may also have little knowledge of the uses and benefits of cost accounting and how cost accounting may aid their decision-making. Legislators and others concerned with government budgets may also not understand what cost accounting can provide.
- .222 Lack of knowledge of a significant portion of the government management group must be overcome before cost accounting can be successfully implemented. The management users of cost accounting will pay the costs of implementation in money and effort, will see changes in the information they are accustomed to using, and will need to make changes in the way they operate. Therefore, financial officers who have the necessary knowledge and perspective should lead educational efforts that could involve discussions, seminars and demonstration projects. Management should be led to see the benefits they will gain from implementing cost accounting. This publication could be part of a broad educational effort to create a readiness for cost accounting in the minds of management.

### **Business Process Reengineering First**

- .223 An argument can be made that a new cost system should not be implemented until management has gone through a careful study and evaluation of its existing business processes using business process reengineering techniques and has made the indicated changes to those processes. If a new cost system is installed before the processes of government have been rationalized and made more efficient, the new cost system will need to be changed to fit the changes in work flows, data flows, cost objects, etc., brought about by new business processes. Further, if the cost system is installed before other systems and technology enhancements in response to the reengineering effort are determined, additional changes may be required. These cost system changes can be costly.
- .224 One of the results of reengineering first will be management exposure to the value of cost accounting. This is so because value-added cost analysis and activity-based cost studies are usually part of a reengineering effort. Because management must lead any reengineering effort, management “champions” for cost accounting may emerge.

### **Studies by Users or Experts**

- .225 Information and advice necessary to help senior management resolve particular issues can come from narrowly focused studies by users of cost information or by technical experts. Such studies can provide help to groups chartered to consider all the issues in a coordinated fashion. Or, these studies can be used without such broadly chartered groups. Such studies may also be helpful to build consensus, which may be necessary in decentralized governments. When studies of particular issues by users or experts are successful, sound goals and objectives or proposed standards can emerge that then can be endorsed or adopted by senior management.
- .226 For example, in the United States, where a successful user-needs study was done, implementing standards and concepts recommended by the Federal Accounting Standards Advisory Board (FASAB) has been well accepted. One of the key concepts coming out of this Study was that “financial reports should assist users in evaluating the service efforts, costs and accomplishments of the reporting entity.” This concept resulted in senior management deciding to include the costs of the various programs and functions of government in the published operating statements of the government and in each of its operating units. It also led FASAB to consider the cost accounting consequences of many of its recommended financial accounting standards and the acceptance of these standards recommendations by senior management.

- .227 Another study in the United States by the Joint Financial Management Improvement Program resulted in adopting a systems integration concept that was somewhat equivocal. This failure to endorse full systems integration led to the adoption of flexible systems requirements by senior management. This could prove to be problematic as cost systems are developed by each of over 100 agencies, departments and other reporting units of the U.S. government.
- .228 When users' or experts' "needs" studies are used, resulting goals and objectives or standards should be stated clearly. Because of the importance of these studies, they should be carefully reviewed by senior management before they are endorsed or adopted.

### **Planning at the Operating Unit Level**

- .229 There is much at stake for the senior management of each government unit responsible for implementing government-wide standards and expanding upon those as necessary. Senior management of each operating unit should have sufficient information and advice to decide the basic questions for that unit. One way to do this is for each unit to appoint a steering committee to guide the work of study groups appointed to deal with particular aspects of cost accounting. Because of the operational significance of cost accounting, it may be advisable to appoint a program manager or a higher level operations person as chair of the steering committee, rather than the principal financial officer of the unit.
- .230 The study groups will need to gather information on, for example, how existing systems actually function and exchange information, before recommending how to integrate a new cost system with existing systems.
- .231 With appropriate information, the study groups can make recommendations on other issues such as:
- adding data, systems capabilities and reporting structures not required by the central government;
  - upgrading versus replacing existing systems;
  - hardware and software alternatives, particularly off-the-shelf software of various kinds and scope; and
  - reliance on consultants for portions of the implementation work.
- .232 After this is done and the cost/benefit questions are given initial consideration, the steering committee may charter some form of pilot or model within a small segment of the operating unit. This may be appropriate before planning is completed and implementation is authorized by the senior management of the unit. A pilot may be necessary to resolve uncertainties, demonstrate the benefits of cost accounting and secure the funding for full-scale implementation. The importance of studying and planning before senior management decisions are made, and implementation of cost accounting begun, cannot be overstated.

### **Staff Training**

- .233 Critical to the successful implementation of any new system is staff training. Accounting staff may require training to operate new systems. Managers may require training to interpret new information and to take appropriate action. In order to ensure that the benefits of new systems are maximized it is important that staff are given adequate training.

### **Continuous Involvement**

- .234 Senior management will need to have some continuous involvement in the implementation of cost accounting. There are several issues in particular which require attention, as discussed below.

### **Implementation can be a Long Process**

- .235 It will take time to gather needed information and advice, to set goals and implementation strategies, and to carry out those strategies, especially if progressive implementation is chosen. Senior management will need to stay involved to help deal with the problems that arise, the unforeseen delays and the needed changes

that are part of the implementation of any new operating system and process. Senior management's continuing support is essential for ultimate success.

### **Support Activities**

- .236 Implementation can be an expensive exercise and sufficient funds must be made available for the various activities necessary to achieve successful implementation. One of the most important activities is staff training. The accounting staff will likely require training to operate the new systems and prepare the new reports. Management may require training to interpret the reports and take appropriate action.

### **Monitoring**

- .237 The accelerating pace of change in the public sector may require new information to deal with different conditions, new systems technology may provide new information capability and new cost concepts may call for different types of cost information. For example, the potential efficiencies of e-commerce are leading some governments to make major changes in their systems. Cost accounting and related processes should be changed periodically in response to new conditions, capabilities and concepts. It is critical that senior management monitors the quality and use of cost information and challenges government managers to improve it in response to change.

### **CONCLUSION**

- .238 Successful implementation of cost accounting requires senior management participation. Only senior management can set goals and implementation strategies, or answer questions of how cost accounting will be used, what information will be provided and included in reports, and what systems changes are most appropriate. Financial officers and various kinds and levels of operating management will need to be involved to ensure that senior management has the information and advice to make appropriate decisions. There are a variety of approaches that can be used to obtain the necessary level of senior management involvement. Once involved, senior management has a continuing role in implementation.



## APPENDIX: GLOSSARY OF TERMS

*Activity Based Costing (ABC):* A cost accounting method that measures the cost and performance of process-related activities and cost objects. It assigns cost to cost objects based on their use of activities, and recognizes the causal relationship of cost drivers to activities.

*Administrative Costs:* Indirect costs that are incurred in support of programs, outputs or other operating activities. They include costs of functions such as senior management, information systems, finance and accounting, which usually cannot be assigned on a cause and effect basis. Other support costs that may be assigned on that basis such as purchasing (procurement), personnel (human resources), insurance and property logistics, are sometimes also included in this term.

*Assigning Costs:* A process that identifies specific costs with programs, outputs, activities or other cost objects. There are three appropriate methods of cost assignment, listed here in order of preference:

- (a) directly tracing costs wherever economically feasible;
- (b) cause and effect when determinable; and
- (c) allocating costs on a reasonable and consistent basis.

*Avoidable Cost:* A cost associated with an activity that would not be incurred if the activity were not performed.

*Business Process Reengineering:* The radical redesign of processes (and the human and technical environment) to achieve improved results of operations.

*Classifying Costs:* A process of identifying costs by type, behavior, account, source, accounting period, etc., so that those costs may be properly assigned to cost objects.

*Common Cost:* The cost of resources employed jointly in the production of two or more outputs that cannot be directly traced to any one of those outputs.

*Contract Costs:* The costs of the goods and services used in complying with the provisions of an agreement between a buyer and a seller.

*Controllable Cost:* A cost that can be influenced by the action of the responsible manager. The term always refers to a specific manager since all costs are controllable by someone.

*Cost:* The monetary value of resources used or sacrificed or liabilities incurred to achieve an objective, such as acquiring or producing a good or performing an activity or service.

*Cost Analysis:* The development of cost information from cost records and other historical data sources, other than a cost accounting system.

*Cost/Benefit Analysis:* An analytical tool to systematically compare and evaluate the total costs and benefits (quantified to the extent possible) of alternatives.

*Cost Driver:* Any factor that causes a change in the cost of an activity or output resulting in the activity consuming fewer or greater amounts of resources.

*Cost Object (Cost Objective):* An activity, output or item whose cost is to be measured. In a broad sense, a cost object can be an asset account, organization, a function, a task, a product, a service or a customer.

*Cost Study:* The development of cost information independently of (or in conjunction with) cost and accounting systems using cost estimates or cost projections.

*Differential Cost:* The cost difference expected if one course of action is adopted instead of others.

*Direct Cost:* A cost that is specifically identified with a single cost object, or the cost of resources directly consumed by an activity. Direct costs are assigned to activities by direct tracing of units of resources consumed by individual activities.

*Excess Capacity:* Productive capacity in excess, on a relatively long-term basis, of that needed to supply the demand. It should be distinguished from “idle” capacity, which relates only to short-term imbalances in operational schedules.

*Expense:* Outflow or other using up of resources or incurring liabilities (or a combination of both), the benefits of which apply to an entity’s operations for the current accounting period but do not extend to future periods.

*Fair Value:* The amount for which an asset could be exchanged between knowledgeable, willing parties in an arm’s length transaction.

*Fixed Cost:* A cost that does not vary in the short term with the volume of activity. Also called Non-variable Cost.

*Flexible Budget:* One based on different levels of activity. It distinguishes between fixed and variable costs, thus allowing budgeting to be adjusted to the particular level of activities actually attained.

*Full Cost:* The sum of all costs required by a cost object, including the costs of activities performed by other entities, regardless of funding sources.

*Imputed Cost:* A cost properly attributed to a cost object even though no identifying transaction has occurred which would normally be recognized in the financial accounting records.

*Incremental Cost:* The increase or decrease in total costs that would result from a decision to increase or decrease output level, to add a service or task, or to change any portion of operations.

*Indirect Cost:* A cost that cannot be identified specifically with or traced to a given cost object in an economically feasible way.

*Inter-entity:* A term meaning between or among different reporting entities within a government. It commonly refers to activities or costs between two or more agencies, departments, ministries or bureaux of government.

*Job Order Costing:* A method of cost accounting that accumulates costs for individual jobs or lots. A job may be a service or a manufactured item, such as the repair of equipment or the treatment of a patient in a hospital.

*Marginal Cost:* The increase in total costs resulting from one additional unit of activity at any specific activity level.

*Opportunity Cost:* The value of the alternatives foregone by adopting a particular strategy or employing resources in a specific manner.

*Outcome:* The impacts on, or consequences for, the community, of the activities of government. Desired outcomes provide the rationale for government action and are the basis for decisions concerning outputs generated as part of the range of possible interventions (as explained in the *Purchase Agreement Guidelines*, The New Zealand Treasury, 1995).

*Output:* Any specific product or service generated from the consumption of resources.

*Performance Measurement:* A means of evaluating efficiency, effectiveness and results. A balanced performance measurement scorecard includes financial and non-financial measures focusing on quality, cycle time and cost.

*Process:* The organized method of converting inputs (people, equipment, methods, materials and environment) to outputs (products or services).

*Process Costing:* A method of cost accounting that first collects costs by processes and then allocates the total costs of each process equally to each unit of output flowing through it during an accounting period.

*Product:* Any discrete, traceable or measurable good or service provided to a customer.

*Production Cost:* All the costs reasonably related to bringing goods, services or benefits to consumers.

*Program:* Generally, an organized set of activities directed toward a common purpose or goal that a governmental entity undertakes or proposes to carry out its responsibilities.

*Project:* A specific, non-recurring cost object whose total cost is to be determined, such as a particular physical item of property, plant or equipment.

*Relevant Costs:* Those expected future costs that will differ among the alternatives considered in decision-making.

*Responsibility Center:* An organizational unit headed by a manager or a group of managers who are responsible for its activities.

*Responsibility Segment:* A significant organizational, operational, functional or process component that has the following characteristics:

- (a) its manager reports to the entity's top management;
- (b) it is responsible for carrying out a mission, performing a line of activities or services, or producing one or a group of products; and
- (c) for financial reporting and cost management purposes, its resources and results of operations can be clearly distinguished, physically and operationally, from those of other segments of the entity.

*Standard Costing:* A costing method that attaches costs to cost objects based on reasonable estimates or cost studies and by means of budgeted rates rather than according to actual costs incurred. Also the anticipated cost of producing a unit of output, or a predetermined cost to be assigned to products produced.

*Sunk Cost:* A past cost that is unavoidable because it cannot be changed, no matter what action is taken.

*Systems Integration:* A unified set of systems that provide effective and efficient interrelationships among software, hardware, personnel, procedures, controls and data. Specifics which define the extent of integration may include single entry for all data, common data definitions and database, ease of systems changes, seamless systems interfaces, real time access by all users, electronic transfers, interoperability and distributed processing.

*Systems Requirements:* (Cost Accounting Systems Requirements) All the definitions of data and information, processing functionality and integration with other systems needed to design and implement or purchase an EDP based cost accounting system.

*Tax Expenditures:* Estimates of the revenue foregone because of preferential provisions of the tax structure.

*Traceability:* The ability to assign a cost directly to a specific activity or cost object by identifying or observing specific resources consumed by the activity or cost object.

*Unit Cost:* The cost of a selected unit of a good or service. Examples include the monetary cost per ton, machine hour, labor hour or department hour.

*Value-added Activity:* An activity that is judged to contribute to customer value or satisfy an organizational need. The attribute "value-added" reflects a belief that the activity cannot be eliminated without reducing the quantity, responsiveness or quality of output required by a customer or organization.

*Variable Cost:* A cost that varies with changes in the level of an activity, when other factors are held constant. The cost of material handling to an activity, for example, varies according to the number of material deliveries and pickups to and from that activity.

*Variance:* The amount, rate, extent, or degree of change, or the divergence from a desired characteristic or state. Often used to measure and evaluate the differences between actual cost and standard cost.

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