The Perceived Usefulness and Use of Performance Information in the Australian Public Sector

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Abstract

This paper presents the survey results of the opinions of public sector managers in Australia regarding the usefulness and actual use of performance information for their decision making. It examines the role of financial and non-financial information including efficiency, effectiveness, service standard, output and outcome measures in program evaluation, resource allocation, improving efficiency and quality of service delivery. Most types of information were regarded as having some degrees of usefulness and have been used to some extent for particular decisions. Nevertheless, lower mean scores were observed for the actual use of outcome and service standard information than for its perceived usefulness.

Keywords: Performance information; public sector; information usefulness

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Introduction

Information relating to the performance of organisations is important to both internal and external stakeholders. This paper examines the perceived usefulness of selected performance information by public sector managers and the extent to which such information have been used in their decision making. Recent Australian public sector reform has focused on improving the performance of public sector entities within the theme of public accountability (Management Advisory Board, Management Improvement Advisory Committee (MAB-MIAC), 1993a, 1993b; National Commission of Audit, 1996). The importance of performance information has been recognised by federal and state governments, and successive governments have placed emphasis on the provision of a greater array of performance-related information by public sector entities under their jurisdictions.

During the past two decades, major reforms in the public sector encompassed the use of business accrual accounting and budgeting, greater emphasis on outcomes and outputs, involvement of private sector in the provision of public services and public sector governance (MAB-MIAC, 1992; Olson, Guthrie and Humphrey, 1998; Barrett, 2004). Performance measurement and accountability is a central part of these reforms. The underpinning reform philosophy of managerialism, private sector efficiency and greater devolution has diverted the focus of public sector performance from accountability for process to accountability for results. Financial and non-financial performance indicators are developed with a focus on results, outputs and outcomes. This changing focus is reflected in the Australian National Audit Office's (ANAO, 2002, p.2) comments on the role of performance information:

> *A major imperative during the past decade has been to establish a more responsive public service able to provide less costly, better directed and higher quality services to citizens. The APS must now be able to demonstrate that it can deliver government services as efficiently and effectively as the private and/or non-profit sectors. This is reflected in the increasing emphasis being placed on the contestability of services; the outsourcing of functions that can be undertaken more efficiently by the private sector; and ensuring an orientation more towards outcomes, rather than processes, as well as continuous improvement to achieve required results. Robust performance information ….. is now*

> *required to measure progress related to government outcomes and provide enhanced accountability for agency performance.*

Performance information, as a basis for assessment of agency performance, has been continuously recognised as critical to accountability (MAB-MIAC, 1993a; ANAO, 1996, 2002). The ANAO (2002, p.3) suggests that "performance information promotes external accountability" and it enables agencies to provide relevant information to "explain its resourcing and proposed performance in relation to outcomes and outputs". Enhancing accountability thus requires appropriate performance information to monitor program performance, facilitate resource allocation, improving the efficiency and quality of service delivery. In this respect, the Australian governments believe the use of performance information, particularly outputs and outcomes, would enhance public accountability and provide a means to improve corporate governance, management decision making and performance (Commonwealth Department of Finance and Administration, 2000).

While there is a renewed focus on the important role of performance information, there have also been a number of concerns regarding their use which may hinder public accountability. MAB-MAIC (1993a) expresses concerns about the limited use of performance information for internal management decisions, the misuse and misinterpretation of performance information, and the unclear connection between performance information and decision making. More recently, government agencies have been found to report more on activities rather than outcomes and achievements (Audit Office of New South Wales (NSW), 2000), and weaknesses have been identified in the effectiveness measures of outcomes (ANAO, 2001). The inappropriate and limited use of performance information makes public accountability questionable. Various researchers also raise concerns regarding difficulties in the actual development and implementation of indicators (Guthrie, 1994; Guthrie and Parker, 1998; O'Faircheallaigh et al., 2000; Spigelman, 2001; Walker, 2001, 2002) and the extent of their use (Kluvers, 1998; Rivenbark and Kelly, 2000). In the light of such criticisms, it is the main thrust of this paper to examine the extent to which performance information facilitates decision making and assessment of performance and therefore enhances public accountability.

Prior research has examined problems relating to the use and implementation of performance information in Australia (e.g. Guthrie,

1994; Guthrie and Parker, 1998; O'Faircheallaigh et al., 2000; Spigelman, 2001; Walker, 2001, 2002) and other countries (e.g. Christensen and Yoshimi, 2001; Forsythe, 2001; Schick, 2001; Modell, 2001, 2004; Bogt, 2004). These studies are mainly theoretical analysis of the emerging issues or are based on small scale case-studies. Other research has employed survey instruments to investigate the use and problems of performance information (GASB, 1997; Kluvers, 1998; Rivenbark and Kelly, 2000; Bogt, 2004). Nevertheless, these studies focus on either overseas contexts or local government practices. This paper fills the literature gap by examining empirically the perceived usefulness and the actual use of performance information by Australian governments at federal and state levels, using a questionnaire survey. The use of a questionnaire survey enables the canvassing of a more comprehensive view of public sector management. The research reported in this paper is part of a broader program of research that addresses issues of the perceived usefulness and the extent of use of organisational performance indicators, and the link between these organisational indicators and individual performance measures at senior management level in Australian Public sector entities. In this paper, however, the focus is on the following issues only:

1. What organisational performance information is considered useful by senior public sector managers in their decision making?

2. To what extent has performance information been used by public sector management in their decision making?

The following sections provide a review of the literature on issues relating to the usefulness of different types of performance information and their use in the public sector. This is followed by analysis of a survey of senior public sector managers relating to the usefulness of performance information to aspects of their decision making.

Performance Information in the Australian Public Sector

Developing information on public sector performance has been an integral part of Australian public sector reform (MAB-MIAC, 1993a). In particular, the ANAO (1996) recognised performance information as a tool for program management, performance improvement and accountability. Performance information is considered important as a basis for program evaluation and resource allocation and in improving

the efficiency and quality of service delivery (Shand, 1990; National Commission of Audit, 1996). Recent reform has shifted performance focus from merely spending the appropriation by parliament to the quality of outputs and outcomes produced (Bartos, 1995; Elvins, 1995).

Performance information is defined by the ANAO (1996, p.3) as "evidence about performance that is collected and used systematically". It has been recognised that a balanced set of performance information is useful to measure both financial and non-financial performance (ANAO, 2002). However, recent financial accounting and reporting reform in the Australian public sector casts doubt on the usefulness of commercial-oriented financial statements as a tool for measuring government financial performance (Barton, 2003). The financial results of surplus and deficit, and the revenue concept deriving from the commercial-based business principles may not reflect the financial reality of government agencies and thus the relevance of these statements as a financial performance measure is questionable. Cost information, on the other hand, is arguably more relevant in reflecting government agencies' obligation to control cost (ANAO, 2002; Barton, 2003).

As the nature of government operation is not profit-driven, the focus of performance information is largely on non-financial information. To be useful, performance information should include a set of qualitative and quantitative information (ANAO, 1996, 2002; Steering Committee for the Review of Commonwealth/State Service Provision (SCRCSSP), 2000). Relevant concepts include effectiveness, efficiency, inputs, outputs, outcomes, quality, and accessibility, and the relationship among these aspects of performance. The effectiveness of an entity is measured by the degree to which the entity's objectives are achieved. These objectives could be expressed in terms of outputs or outcomes (Micallef et al., 1994). Outcomes are the expected impact or consequences of government activities (ANAO, 2002), and represent service results which can range from immediate results to long-term impacts in the community. Long-term outcomes are difficult to assess due to the time dimension and the fact that the outcomes could be attributed to multiple activities. Immediate outcomes tend to be more specific and easier to assess. The usual assessment is through measures of satisfaction.

Outcome measures provide an indication of the agency's goals and form a basis for the development of output measures. Outputs are actual goods and services delivered by government agencies to generate the desired outcomes. Development of appropriate output measures that

contribute to the expected outcomes is therefore considered essential to agency accountability (ANAO, 1996, 2002). Outputs can be expressed in terms of quantity (number of units produced) and quality. While it is difficult to define quality, various suggestions have been made by government (ANAO, 1996, 2000; SCRCSSP, 2000). In particular, ANAO (2002, p.21) suggests that:

> *Quality relates to the characteristics of most interest to stakeholders and, in particular, Parliament. Quality indicators should relate to tangible objective criteria such as timeliness, coverage, accuracy and conformity to specifications. Less tangible criteria such as client satisfaction, peer review and public perception can also be used.*

Efficiency describes the relationship between the resource costs of an activity and the outputs produced. It includes measures such as cost of service provision and productivity indicators (ANAO, 1996). Accessibility of services can be measured in terms of customers' waiting periods for the service, affordability of the services or physical accessibility (SCRCSSP, 2000). It appears that accessibility of services can be included within the broad definition of output quality.

In addition, explanatory information providing a narrative analysis of performance is also considered useful for accountability. It improves quality of performance information as well as assisting the formulation of appropriate performance indicators (Audit Office of NSW, 2000a; Commonwealth Department of the Prime Minister and Cabinet, 2001; ANAO, 2002). Useful explanatory information includes discussion of factors influencing performance and comparison of performance overtime.

As part of the ongoing reform, the Commonwealth government has recently implemented the output and outcome framework for Commonwealth government departments (Commonwealth Department of Finance and Administration, 2000; Commonwealth Department of the Prime Minister and Cabinet, 2001). Other state governments have also provided guidelines on key outputs, outcomes and other performance information (for example, Victoria Department of Treasury and Finance, 1997; Queensland Treasury, 2002, 2003; Tasmania Department of Treasury and Finance, 1997). Whether the ongoing efforts by various governments are able to achieve the expected benefits will depend on the effective use of performance information by public sector management (ANAO, 2001).

The Use of Performance Information in the Public Sector

Prior studies recognised the importance of performance information, and argued for the types of information relevant for assessing performance and managerial decision making (Guthrie, 1994; Micallef, et al., 1994; Christensen and Yoshimi, 2001; Carlin and Guthrie, 2001; Walker, 2001, 2002). Others investigated the use of performance information in the public sector (e.g. GASB, 1997; Kluvers, 1998; Rivenbark and Kelly, 2000).

A notable survey was conducted in the United States (GASB-NAPA, 1997) regarding the use of performance measures for management decision making by state and local governments. They found a moderate extent of use, with 47% of the respondents stating they had used performance indicators in some way. However, only about 25% indicated they used output and outcome measures for decision making related to strategic planning, resource allocation and program management. Another study (GASB, n.d.) found US state and local governments still used input measures. They were continuing to develop outcome measures. However, most of the respondents agreed that implementation of performance measures had improved efficiency and effectiveness of their government programs. Their survey results highlighted the general consensus on the usefulness of performance measures, but there were still certain deficiencies in their development and the extent of their use.

Other studies (Kluvers, 1998; Rivenbark and Kelly, 2000) found limited use of performance indicators in local governments. Where performance information was used, it was primarily for resource allocation and improvement of productivity. Rivenbark and Kelly (2000) indicated it could be costly to develop indicators. Kluvers (1998) suggested the limited use could be due to managerial attitudes and reluctance during the implementation process. This view can be supported by other studies (Luder, 1992; Modell, 2001) which argued that management characteristics, attitudes and the level of their response could influence the outcomes of the public sector reforms. The recent public sector reform in Australia has put pressure on public sector management to be responsible and accountable given their greater level of managerial autonomy in decision making. It is likely that managerial perception of the usefulness of particular performance information could affect the extent of the use of such information for their decision making.

Further, various researchers (Guthrie, 1994; O'Faircheallaigh et al., 2000; Spigelman, 2001; Walker, 2001, 2002) have noted problems in identifying appropriate indicators, measuring impacts and dealing with the multiple objectives confronting governments. Outcomes measures could be difficult to specify particularly when the expected impact on community is often influenced by external environment outside the control of the managers (Walker, 2001). The use of output measures could also be problematic when quantity of output can be applied only to homogeneous service while the nature of most public services is largely heterogeneous. Quantity of output is often criticized as not measuring the key focus of service quality in the public sector. On the other hand, measures of service quality could be vague and difficult to obtain. Given the difficulties encountered, agencies tend to use those measures which are easy to compile rather than the most appropriate measures (Guthrie, 1994; O'Faircheallaigh et al., 2000; Spigelman, 2001; Walker, 2001, 2002), or create new indicators to replace old indicators frequently, making it difficult to compare performance over time (Carlin and Guthrie, 2001).

Research Method

Sample

The public sector at federal, state and territory levels is organised in a portfolio structure. At the federal level the most senior level of manager is the Portfolio Secretary. Within some portfolios there are large and significant agencies, which report directly to the Portfolio Minister. Examples of these are the Australian Taxation Office, the Australian Federal Police and the Australian Consumer and Competition Commission. In addition, there are large 'independent' government entities, such as the Australian Broadcasting Commission, which while nominally linked to a portfolio have boards appointed by the Minister or through other mechanism. At federal level there are between thirty and thirty-five 'material agencies' that account for 99% of government expenditure. The number and composition of the group of material agencies varies from time to time, as expenditure varies. Similar structures exist at state level.

In consultation with a former senior government official in Australia, federal, state and territory departments and agencies that meet the following criteria are identified. Firstly, the organisation needs to be

classified as a government department or agency; secondly, if it is an agency, it must provide services directly to the general public; thirdly, the agency relies on government funding for their operation; and fourthly, the agency's mailing address can be obtained from the websites. A total of 100 departments and agencies were identified including 78 departments and 22 agencies. This represents a population sample of the largest and most significant government entities at federal, state and territory levels.

A questionnaire survey was sent to the most senior manager of these organisations, for example the Portfolio Secretary. The phrasing of the request to participate meant that the most senior person responsible for organisational performance was the target. This meant that in some cases a person such as a Deputy Secretary, Chief Financial Officer or Chief Operating Officer was the respondent. As such the sample is of members of the senior management team of the largest and most significant government entities at federal, state and territory levels.

Table 1
Profile of Respondents

Jurisdictions	**No.**	**%**	**Years of experience as public sector manager**	**No.**	**%**	**Current position**	**No.**	**%**
Federal	14	34	Less than 1 year	0	0	Departmental secretary	5	13
ACT	1	3	1-3 years	2	5	Deputy secretary	4	10
NSW	7	17	3-5 years	3	8	Chief executive officer	6	15
NT	3	7	5-10 years	9	23	Chief financial officer	4	10
QLD	9	22	10-15 years	4	10	General manager	4	10
TAS	5	12	Over 15 years	21	54	Divisional manager	14	35
VIC	2	5				Other: (Policy advisor/ analyst)	3	7
Total	41	100	Total	39*	100	Total	40*	100

* Total numbers not equal to 41 due to a missing response for a particular question.

Questionnaires were sent to the senior managers in December 2002 with a follow-up mailing in January 2003. Forty-one (41) completed questionnaires were received from the respondents (34 departments, 7 agencies), representing a response rate of 41 per cent. A profile of respondents appears in Table 1. The profile of the respondents indicated they possessed the experience and knowledge necessary to understand and assess the performance information of their organisations. This provides an indication of the validity of survey responses. This response rate compares favorably with response rates in similar studies of senior managers in the public sector (Taylor and Rosair, 2000; GASB, n.d.).

Survey Instrument

The questionnaire seeks the opinions of public sector managers on the usefulness and use of 19 items of performance information under four decision situations. The 19 items comprise financial and non-financial information, including information about efficiency, standard of services, effectiveness, outputs and outcomes, and narrative analysis of performance (See Table 2, Column 1). The list of items represent information recommended in government documents and relevant literature (Micallef et al., 1994; ANAO, 1996; 2002; SCRCSSP, 2000; Commonwealth Department of Finance and Administration, 2001; Commonwealth Department of Prime Minister and Cabinet, 2001). Table 2 provides a summary of the selected items of information, the major issues relating to such information, and the relevant literature sources.

Table 2
Summary of the Types of Performance Information for Various Management Decisions

Selected Information Items	Major issues	Literature
- Operating surplus/deficit - Costs - Revenue	- Reform focuses on business concepts of financial information - Costs are arguably to be more relevant	ANAO, 2002; Barton, 2003
- Productivity indicators	- Requires identification of inputs and outputs	ANAO, 1996; Audit Office of NSW, 2000a;

Selected Information Items	Major issues	Literature
	- Can be expressed in financial and non-financial terms	SCRCSSP, 2000
- Customer satisfaction - Response to customer complaints - Timeliness of service - Reliability of service - Accessibility of service	- Necessary to improve quality of services - Enable informed judgment on performance of service delivery - Usually based on customers' expectation and stakeholder interests	ANAO, 1996, 2002; SCRCSSP, 2000
- Quantity of outputs - Achievement of social objectives - Actual performance against targets - Contribution to outcomes - Actual outcomes compared to intended outcomes - Performance in relation to outputs	- Reform puts greater focus on achievement of objectives, outputs and outcome - Focus on progress towards targets and outcomes - Outputs can be measured in terms of quantity and quality	Micallef et al., 1994; ANAO, 1996, 2002; Victoria Treasury, 1997; Audit Office of NSW, 2000a; SCRCSSP, 2000; Commonwealth Department of Finance and Administration, 2001; Commonwealth Department of Prime Minister and Cabinet, 2001; Queensland Treasury, 2003
- Factors, events or trends influencing performance - Comparison of performance over time - Narrative analysis of financial performance - Narrative analysis of non-financial performance	- Explanatory information is useful for accountability - Improve quality of performance information	Audit Office of NSW, 2000a; Commonwealth Department of Prime Minister and Cabinet, 2001; ANAO, 2002

The selected information items are not necessarily mutually exclusive, and are potentially inter-related when used by managers for decision making. The items are selected with the intention to capture

management's views on both the broad concepts of information as well as specific items which are often subject to ongoing debates in the literature. For example, the item "performance in relation to outputs" captures perception on the overall output measure. On the other hand, outputs can be expressed in terms of quality and quantity. Selected items of service quality information and quantity of outputs are listed separately to capture management's view on these specific items. It is possible that management can agree on the general benefit of output information, but disagree on specific measures of output. While both "actual performance against targets" and "actual outcomes compared to intended outcomes" are effectiveness indicators, the former is in broader sense and generally quantifiable, the latter is more specifically focused on outcome only. Similarly, "narrative analysis of financial information" and "narrative analysis of non-financial performance" cover a broader scope, while "factors, events or trends influencing performance" and "comparison of performance overtime" are more specific aspects of narrative analysis. It is possible that managers will use narrative analysis of information together with other performance measures in their decision making.

The four decision situations involve the use of such information in:

– facilitating program evaluation;

– determining resource allocation;

– improving efficiency of service delivery, and

– improving quality of service delivery.

These management decisions were identified in both government documents and literature (Shand, 1990; Bartos, 1995; Elvins, 1995; ANAO, 1996; National Commission of Audit, 1996; Kluvers, 1998). Using a five-point Likert scale, respondents were asked to rate the usefulness of the 19 items of information under each of the four decision situations (0 = totally useless, 4 = extremely useful). They were then asked to rate the extent to which the information has been used in each of the situations (0 = never used, 4 = frequently used). An extract of the questionnaire relevant to this paper is provided in Appendix 1.

Analysis of Results

Exploratory factor analysis is used to identify sets of information which influence the responses under each of the decision situations. A Varimax rotation was used. The results for the Bartlett's test of sphericity, Kaiser-Meyer-Olkin test and Cronbach's alpha coefficient test support the suitability and reliability of data for factor analysis. Factors with an eigenvalue greater than 1 were selected for analysis. In interpreting the solution, items with factor loadings less than 0.5 were excluded.[1]

Performance Information for Facilitating Program Evaluation

The results of the perceived usefulness and actual extent of use of information by public sector managers for facilitating program evaluation were provided in Table 3. With respect to perceived usefulness of information, the 19 items yield five factors, which can be interpreted as outcomes, standard of services, comparison of output quantity, financial

[1] To control for potential differences in opinions between different levels of management, responses of the participants are separated into two groups, top management and other levels of management. Top management includes department secretary, deputy secretary and chief executive officer who provide headship and top level leadership to the government entities. Other levels of management consist of the remainder of the respondents. Non-parametric Mann-Whitney rank tests are conducted to examine any differences in responses between these two groups. No significant differences are found except for the perceived usefulness of revenue information for improving service quality (mean scores for top management 2.83, other management 1.91, p=0.037), the actual use of operating results information for improving service efficiency (mean scores for top management 3.27, other management 2.57, p=0.046), and for improving service quality (mean scores for top management 3.18, other management 2.26, p=0.038). The differences are consistent with the suggestion that top management may have greater use of reported aggregated financial information than lower level management (Langfield-Smith, Thorne and Hilton, 2006). Top management in the public sector could have greater concerns about financial viability when considering the efficiency and quality of service delivery. Due to the small number of significant results (3 out of 152), the discussion in the paper focuses on the sample as a single group.

performance, and narrative analysis of performance. Outcome information was considered the most useful for facilitating program evaluation. The other four types of information were also perceived as useful to a certain extent. Such information covers aspects of different areas of financial and non-financial performance, and appears to be consistent with the view of having a balanced set of performance information.

Table 3
Information for Facilitating Program Evaluation

Panel A: Perceived Usefulness	**Mean**	**Panel B: Actual Use**	**Mean**
Outcomes	3.13	Outputs and outcomes	3.05
Comparison of output quantity	2.92	Standard of services	2.77
Narrative analysis of performance	2.85	Basic financial and non-financial information	2.74
Standard of services	2.82	Operating results and revenue	2.70
Financial performance	2.80	Achievement of social objectives	2.50

Panel C: Factor Analysis Statistics			
Perceived Usefulness	**Factor score**	**Actual Use**	**Factor score**
Factor 1: Outcomes		**Factor 1: Basic financial and non-financial information**	
Achievement of social objectives	0.770	Costs	0.694
Actual performance against targets	0.779	Productivity indicators	0.557
Contribution to outcomes	0.742	Response to customer complaints	0.563
Actual outcomes compared to intended outcomes	0.821	Comparison of performance over time	0.654
		Narrative analysis of financial performance	0.759
Factor 2: Standard of services		Narrative analysis of non-financial performance	0.831
Customer satisfaction	0.831		
Response to customer complaints	0.590	**Factor 2: Standard of services**	
Timeliness of service	0.682	Customer satisfaction	0.645
Reliability of service	0.791	Timeliness of service	0.677
Accessibility of service	0.740	Reliability of service	0.894
		Accessibility of service	0.781
Factor 3: Comparison of output quantity		Factors, events or trends influencing performance	0.816
Productivity indicators	0.509		
Quantity of outputs	0.676	**Factor 3: Outputs and outcomes**	

Comparison of performance over time	0.852
Factor 4: Financial performance	
Operating surplus/deficit	0.778
Costs	0.641
Revenue	0.832
Performance in relation to outputs	0.543
Factor 5: Narrative analysis of performance	
Factors, events or trends influencing performance	0.596
Narrative analysis of financial performance	0.862
Narrative analysis of non-financial performance	0.903
Percentage of variance:	
Factor 1: 17.5%	
Factor 2: 17.3%	
Factor 3: 13.9%	
Factor 4: 13.0%	
Factor 5: 12.6%	
Bartlett's test of sphericity: approx. chi-square 374.4, sig 0.000	
Kaiser-Meyer-Olkin measure of sampling adequacy: 0.709	
Cronbach's alpha coefficient: 0.901	

Quantity of outputs	0.840
Actual performance against targets	0.695
Contribution to outcomes	0.649
Actual outcomes compared to intended outcomes	0.777
Performance in relation to outputs	0.598
Factor 4: Operating results and revenue	
Operating surplus/deficit	0.783
Revenue	0.771
Factor 5: Achievement of social objectives	
Achievement of social objectives	0.827
Percentage of variance:	
Factor 1: 20.1%	
Factor 2: 17.5%	
Factor 3: 16.9%	
Factor 4: 13.8%	
Factor 5: 9.2%	
Bartlett's test of sphericity: approx. chi-square 474.0, sig 0.000	
Kaiser-Meyer-Olkin measure of sampling adequacy: 0.619	
Cronbach's alpha coefficient: 0.917	

In regard to actual use of information, again five significant factors are generated. These are defined as basic financial and non-financial information, standard of services, outputs and outcomes, operating results and revenue, and achievement of social objectives. Among these, the more frequently used information was outputs and outcomes, followed by standard of service. The category of basic financial and non-financial information included a set of selected financial and non-financial information such as costs, response to customer complaints, comparison and narrative analysis of performance. The grouping of operating results and revenue as a separate factor from cost information suggested that operating results and revenue might not have the same level of usage as cost information. Managers appear to place different emphasis on their responsibility for cost control as compared to

operating results and revenue.[2] The results highlighted that managers were likely to use a balanced set of information to evaluate program performance. The extent of use of such information was mostly consistent with their perceived usefulness, though with relatively lower mean scores than for perceived usefulness.

Performance Information for Determining Resource Allocation

Table 4 presents the results of the perceived usefulness and actual extent of use of information for determining resource allocation. Five factors influencing the responses of perceived usefulness are identified as outcome and output quality, financial and output quantity, service reliability, outcome achievement, and overall narrative analysis of performance. Financial and output quantity was perceived as the most useful information for resource allocation. The second important type of information was the overall narrative analysis of performance. It appears that service quality information was not given much emphasis than other types of information for resource allocation.

Responses on the extent of actual use of information also give rise to five factors: outputs and outcomes, service reliability, customer services, overall narrative analysis of performance, and financial performance. Consistent with the perceived usefulness, financial information was being emphasised in determining resource allocation, while service quality was used to a less extent in practice.

[2] The emphasis on different types of information could be related to the level of management responsibilities which forms the basis for performance measurement (Beischel and Smith, 1991).

Table 4
Information for Determining Resource Allocation

Panel A: Perceived usefulness	**Mean**
Financial and output quantity	3.02
Overall narrative analysis of performance	2.76
Outcome achievement	2.69
Outcome and output quality	2.48
Service reliability	2.35

Panel B: Actual use	**Mean**
Financial performance	3.26
Outputs and outcomes	2.84
Overall narrative analysis of performance	2.76
Service reliability	2.24
Customer services	2.24

Panel C: Factor Analysis Statistics

Perceived Usefulness	**Factor score**
Factor 1: Outcome and output quality	
Productivity indicators	0.803
Customer satisfaction	0.695
Response to customer complaints	0.607
Actual outcomes compared to intended outcomes	0.722
Performance in relation to outputs	0.536
Comparison of performance over time	0.829
Factor 2: Financial and output quantity	
Operating surplus/deficit	0.764
Costs	0.857
Revenue	0.802
Quantity of outputs	0.540
Actual performance against targets	0.579
Factor 3: Service reliability	
Timeliness of service	0.796
Reliability of service	0.880
Accessibility of service	0.736
Factor 4: Outcome achievement	
Achievement of social objectives	0.694
Contribution to outcomes	0.795
Factors, events or trends influencing	0.556

Actual Use	**Factor score**
Factor 1: Outputs and outcomes	
Quantity of outputs	0.832
Actual performance against targets	0.878
Contribution to outcomes	0.721
Actual outcomes compared to intended outcomes	0.808
Performance in relation to outputs	0.650
Comparison of performance over time	0.544
Factor 2: Service reliability	
Timeliness of service	0.717
Reliability of service	0.744
Accessibility of service	0.794
Factors, events or trends influencing performance	0.726
Factor 3: Customer services	
Productivity indicators	0.529
Customer satisfaction	0.650
Response to customer complaints	0.679
Achievement of social objectives	0.768
Factor 4: Overall narrative analysis of performance	
Narrative analysis of financial performance	0.856
Narrative analysis of non-financial performance	0.838

performance			
Factor 5: Overall narrative analysis of performance		**Factor 5: Financial performance**	
Narrative analysis of financial performance	0.855	Operating surplus/deficit	0.856
Narrative analysis of non-financial performance	0.518	Costs	0.569
		Revenue	0.845
Percentage of variance: Factor 1: 21.5% Factor 2: 16.7% Factor 3: 16.0% Factor 4: 15.3% Factor 5: 8.8%		Percentage of variance: Factor 1: 21.9% Factor 2: 17.7% Factor 3: 15.4% Factor 4: 11.9% Factor 5: 11.6%	
Bartlett's test of sphericity: approx. chi-square 471.1, sig 0.000 Kaiser-Meyer-Olkin measure of sampling adequacy: 0.738 Cronbach's alpha coefficient: 0.921		Bartlett's test of sphericity: approx. chi-square 463.5, sig 0.000 Kaiser-Meyer-Olkin measure of sampling adequacy: 0.755 Cronbach's alpha coefficient: 0.930	

Performance Information for Improving Efficiency of Service Delivery

The results of the perceived usefulness and actual use of information for improving efficiency of service delivery are presented in Table 5. The five factors generated for perceived usefulness are labeled as outcomes and outputs, narrative analysis of customer services, service reliability and quantity of outputs, financial performance, and achievement of social objectives. Outcomes and outputs were perceived as the most useful type of information for improving efficiency of service delivery. This includes comparing actual performance against set expectation, and comparing performance over time. However, financial information was not highly rated as useful for judging efficiency, nor was achievement of social objectives.[3]

[3] Kaplan and Norton (2001) identified cost and social objectives as important perspectives within a public sector balanced scorecard framework, but the achievement of these perspectives depends on the internal and learning

Table 5
Information for Improving Efficiency of Service Delivery

Panel A: Perceived usefulness	**Mean**
Outcomes and outputs	2.90
Service reliability and quantity of outputs	2.80
Narrative analysis of customer services	2.67
Financial performance	2.66
Achievement of social objectives	2.46

Panel B: Actual use	**Mean**
Outcomes and outputs	2.82
Financial performance	2.80
Service reliability	2.66
Narrative analysis of customer services	2.59

Panel C: Factor Analysis Statistics

Perceived Usefulness	**Factor score**
Factor 1: Outcomes and outputs	
Productivity indicators	0.661
Actual performance against targets	0.697
Contribution to outcomes	0.871
Actual outcomes compared to intended outcomes	0.769
Performance in relation to outputs	0.660
Comparison of performance over time	0.635
Factor 2: Narrative analysis of customer services	
Customer satisfaction	0.632
Response to customer complaints	0.723
Factors, events or trends influencing performance	0.653
Narrative analysis of financial performance	0.765
Narrative analysis of non-financial performance	0.856

Actual Use	**Factor score**
Factor 1: Outcomes and outputs	
Quantity of outputs	0.657
Achievement of social objectives	0.560
Actual performance against targets	0.721
Contribution to outcomes	0.860
Actual outcomes compared to intended outcomes	0.842
Performance in relation to outputs	0.807
Comparison of performance over time	0.651
Factor 2: Narrative analysis of customer services	
Productivity indicators	0.534
Customer satisfaction	0.741
Response to customer complaints	0.750
Accessibility of service	0.543
Factors, events or trends influencing performance	0.769

processes. These comments may provide some reflections on the lower usefulness rating for financial and social objectives information.

Factor 3: Service reliability	
Timeliness of service	0.771
Reliability of service	0.868
Accessibility of service	0.640
Quantity of outputs	0.765
Factor 4: Financial performance	
Operating surplus/deficit	0.887
Costs	0.835
Revenue	0.810
Factor 5: Achievement of social objectives	
Achievement of social objectives	0.888
Percentage of variance:	
Factor 1: 20.8%	
Factor 2: 19.0%	
Factor 3: 17.6%	
Factor 4: 15.5%	
Factor 5: 10.3%	
Bartlett's test of sphericity: approx. chi-square 595.7, sig 0.000	
Kaiser-Meyer-Olkin measure of sampling adequacy: 0.592	
Cronbach's alpha coefficient: 0.941	

Narrative analysis of financial performance	0.661
Narrative analysis of non-financial performance	0.899
Factor 3: Financial performance	
Operating surplus/deficit	0.809
Costs	0.753
Revenue	0.885
Factor 4: Service Reliability	
Timeliness of service	0.664
Reliability of service	0.590
Percentage of variance:	
Factor 1: 26.8%	
Factor 2: 26.7%	
Factor 3: 16.5%	
Factor 4: 8.6%	
Bartlett's test of sphericity: approx. chi-square 588.3, sig 0.000	
Kaiser-Meyer-Olkin measure of sampling adequacy: 0.758	
Cronbach's alpha coefficient: 0.949	

On the other hand, factor analysis for the responses of actual use generates only four factors but with similar groupings as perceived usefulness. The four types of information are analysed as outcomes and outputs, narrative analysis of customer services, financial performance, and service reliability. Achievement of social objectives falls into the outcomes and outputs group rather than as a single item. The mean scores of the four types of information highlighted that outcomes and outputs information was more frequently used, consistent with its perceived usefulness. Financial information was also frequently used despite its relatively lower ranking for perceived usefulness.

Information for Improving Quality of Service Delivery

Table 6 reports the results of the perceived usefulness and actual extent of use of information for improving quality of service delivery. Factor analysis of the responses for perceived usefulness results in four factors.

The item 'accessibility of service' does not load significantly on any factors and is excluded from analysis (Hair et al., 1998). The four factors are interpreted as financial and output quantity, outcomes, standard of services, and narrative analysis of non-financial performance. Among these, standard of services was perceived as the most useful types of information for improving quality of service delivery. Outcomes information was the second highly rated category. Financial and output quantity information was considered as less useful for this purpose.

Responses of actual use generates three factors but of similar grouping of information items. These are standard of services and analysis of performance, financial and output quantity, and outcomes. Outcomes information was mostly used among the three types of information. Although standard of services was perceived as the most useful information, the mean score for its actual use was lower than its perceived usefulness.

Table 6
Information for Improving Quality of Service Delivery

Panel A: Perceived usefulness	**Mean**	**Panel B: Actual use**	**Mean**
Standard of services	3.00	Outcomes	2.83
Outcomes	2.97	Standards of services and analysis of performance	2.74
Narrative analysis of non-financial performance	2.83	Financial and output quantity	2.71
Financial and output quantity	2.50		

Panel C: Factor Analysis Statistics			
Perceived Usefulness	**Factor score**	**Actual Use**	**Factor score**
Factor 1: Financial and output quantity		**Factor 1: Standard of services and analysis of performance**	
Operating surplus/deficit	0.867	Productivity indicators	0.658
Costs	0.854	Customer satisfaction	0.600
Revenue	0.835	Response to customer complaints	0.709
Productivity indicators	0.750	Timeliness of service	0.768
Quantity of outputs	0.610	Reliability of service	0.772
Performance in relation to outputs	0.650	Accessibility of service	0.612
Narrative analysis of financial performance	0.630	Factors, events or trends influencing performance	0.802
		Comparison of performance over time	0.516
Factor 2: Outcomes		Narrative analysis of non-financial performance	0.860
Achievement of social objectives	0.815		

Actual performance against targets	0.793	**Factor 2: Financial and output quantity**	
Contribution to outcomes	0.847	Operating surplus/deficit	0.723
Actual outcomes compared to intended outcomes	0.776	Costs	0.725
		Revenue	0.723
Factor 3: Standard of services		Quantity of outputs	0.697
Customer satisfaction	0.812	Actual outcomes compared to intended outcomes	0.730
Response to customer complaints	0.731	Performance in relation to outputs	0.764
Timeliness of service	0.716	Narrative analysis of financial performance	0.596
Reliability of service	0.678		
Comparison of performance over time	0.669	**Factor 3: Outcomes**	
		Achievement of social objectives	0.775
Factor 4: Narrative analysis of non-financial performance		Actual performance against targets	0.504
Factors, events or trends influencing performance	0.855	Contribution to outcomes	0.770
Narrative analysis of non-financial performance	0.723		
Percentage of variance:		Percentage of variance:	
Factor 1: 26.9%		Factor 1: 30.2%	
Factor 2: 20.0%		Factor 2: 26.7%	
Factor 3: 19.2%		Factor 3: 19.6%	
Factor 4: 12.9%			
Bartlett's test of sphericity: approx. chi-square 589.4, sig 0.000		Bartlett's test of sphericity: approx. chi-square 654.7, sig 0.000	
Kaiser-Meyer-Olkin measure of sampling adequacy: 0.659		Kaiser-Meyer-Olkin measure of sampling adequacy: 0.755	
Cronbach's alpha coefficient: 0.947		Cronbach's alpha coefficient: 0.962	

Discussion

While respondents agreed that all measures had a certain degree of usefulness, outcome and output information was perceived as very useful for most of the decision situations. Financial information was only perceived as very useful for resource allocation decision, and standard of services information was considered as most useful for improving quality of service delivery. The results highlight that management perception of the usefulness of selected information is largely consistent with the extent of their use of such information. The key concern lies in the relatively lower mean scores for actual use than for perceived useful

in most cases. This perhaps reflects prior researchers' concerns that although performance information is a valuable tool to managers, there are often difficulties associated with its design and implementation, and performance information is rarely used by government (Guthrie, 1994; Walker, 2001; Forsythe, 2001; Schick, 2001). Drawing on the results, some areas also deserve attention, including (1) outcome information, (2) financial information, (3) service standard, and (4) management attitudes. These are further discussed below.

The perceived usefulness of measuring outcome performance is consistent with Australian governments' expectations on measuring impacts to improve management decisions, and the reform focus on results (ANAO, 1996; Victoria Department of Treasury and Finance, 1997; Commonwealth Department of Finance and Administration, 2000; Queensland Treasury, 2002; 2003). Outcomes are regarded as particularly useful for program evaluation and assessment of service quality. However, the comparatively lower mean scores for actual use may suggest that outcome information has not widely been used as expected. This possibly reflects the implementation difficulties suggested by various researchers (Guthrie, 1994; O'Faircheallaigh et al., 2000; Spigelman, 2001; ANAO, 2001), such as difficulties in specifying and measuring outcomes, and the fact that social impact is often affected by external factors outside the control of managers (Walker, 2001). In fact, Pollitt and Bouckaert (2004, p.118) commented that "in practice, the availability of outcome measures, confidently linked to programme intervention, is the exception rather than the rule". In addition, a respondent also indicated that motivation and staff members' skill was a factor, and the other expressed concern on the lack of a benchmark for such a new development. The results are consistent with the US survey findings that output and outcome measures were seldom used for program management (GASB-NAPA, 1997).

If governments consider that focus on outcome is essential and the difficulties in developing outcome measure would impair the proper use of such information for management decisions, then governments should reassess how outcome information can be made more useful.

Financial information was perceived as highly useful and being frequently used for resource allocation. The greater reliance on financial information for resource allocation could reflect the emphasis of management on their organisations' financial viability as a result of the reform focus on management's financial control. However, the evidence

that financial information was not regarded as highly useful for the other three decision situations possibly supports other researchers' suspicion about the usefulness of commercial-oriented accounting information as a measure of government financial performance (e.g. Barton, 2003).

Information about standard of services was perceived as most useful for improving quality of service delivery. Its rating as higher than output quantity suggests management prefer information on output quality rather than quantity. However, the similar mean scores for both standard of services and output quantity information for the actual extent of use may highlight issues in developing appropriate standard of service information. For example, difficulties in compiling quality data may encourage management to adopt easily obtainable measures (Guthrie, 1994; O'Faircheallaigh et al., 2000; Spigelman, 2001; Walker, 2001, 2002).

The above analysis also provides insight into management attitudes that could have influence on which measures are used for decision making and how organisational performance is assessed (Luder, 1992; Kluvers, 1998; Rivenbark and Kelly, 2000). This can be a consequence of the reform ideology of "let the managers manage" and the increasing managerial autonomy in decision making. While further evidence is needed to support this argument, the influence of managerial choice can be illustrated by one respondent who indicated that bad performance was often not reported and that some indicators might not capture the long-term effect of implementing particular policies or programs. Such attitudes could have an influence on managers' perceived usefulness of different performance information, which in turn would affect how performance measurement is implemented.

Conclusion

This paper examines the attitudes of public sector managers on the usefulness and the actual use of performance information in their decision making. A key finding of this research is the differences in importance of performance information in relation to the type of management decision being made. On average, all types of information are seen as having some degree of usefulness for at least some forms of decision. Further, when reviewing information types that are highly useful to a particular decision, it is found that different decisions require different performance information. Managers are likely to use a

balanced set of information for program evaluation; financial information for resource allocation; output, outcome and financial information for assessing service efficiency; outcome and standard of services information for improving service quality.

While the results indicate public sector managers appreciate the usefulness of various types of financial and non-financial information in measuring their organisations' performance, some measures including outcome and standard of service still need to be improved. Given the reform focus on "less costly, better directed and higher quality services" and "measur[ing] progress related to government outcomes" (ANAO, 2002, p.2), further use of both qualitative and quantitative information should be encouraged. Consistent with the concerns raised in previous literature, continuous effort by governments is necessary to enhance accountability through appropriate use of performance information.

The results of the study are based on a small sample. Further insights could be obtained by expanding the survey to other jurisdictions. The list of information items is not all inclusive. It is possible that other information could be drawn upon from other frameworks. Further research into the barriers to the use of performance information and the way the usefulness of performance measures can be enhanced would provide a fuller understanding of the important issue of performance measurement in public sector entities. The use of a follow-up interview of the managers surveyed would also be valuable to obtain greater knowledge on management's concerns about such issues.

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Appendix 1
Extracts of the Questionnaire

Please indicate the usefulness of the information to your organisation in each of the following decision situations. (Please circle)

0 Totally useless 4 Extremely useful

	1	2	3	4
Decision Situations / Information Indicators	Facilitating program evaluation	Determining resource allocation	Improving efficiency of service delivery	Improving quality of service delivery
Operating surplus/deficit	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Costs	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Revenue	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Productivity Indicators	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Customer satisfaction	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Response to customer complaints	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Timeliness of service	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Reliability of service	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Accessibility of service	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Quantity of outputs	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Achievement of social objectives	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Actual performance against targets	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Contribution to outcomes	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Actual outcomes compared to intended outcomes	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Performance in relation to outputs	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Factors, events or trends influencing performance	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Comparison of performance over time	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Narrative analysis of financial performance	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Narrative analysis of non-financial performance	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4

Please indicate the extent to which the information has been used by your organisation in each of the following decision situations. (Please circle)

0 Never used 4 Frequently used

	1	2	3	4
Decision Situations / Information Indicators	Facilitating program evaluation	Determining resource allocation	Improving efficiency of service delivery	Improving quality of service delivery
Operating surplus/deficit	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Costs	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Revenue	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Productivity Indicators	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Customer satisfaction	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Response to customer complaints	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Timeliness of service	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Reliability of service	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Accessibility of service	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Quantity of outputs	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Achievement of social objectives	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Actual performance against targets	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Contribution to outcomes	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Actual outcomes compared to intended outcomes	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Performance in relation to outputs	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Factors, events or trends influencing performance	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Comparison of performance over time	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Narrative analysis of financial performance	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Narrative analysis of non-financial performance	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4