Abstract

During the 1990s, the nature of general and financial management practices within the public sectors of many jurisdictions underwent significant change. The Australian state of Victoria represents an example of a jurisdiction in which the extent of change was particularly large. In the context of that state’s adoption of an output based budgeting and management framework, the development and reporting of performance indicator data became a matter of increased significance in sustaining continuous improvement. This paper reports the results of a study of performance data reported within the Victorian public sector, and highlights problems indicated by high degrees of turnover in inventories of reported indicators over time.

Key Words

New Public Financial Management, Accrual Output Based Budgeting, Performance Indicators
Output Based Budgeting & the Management of Performance

Introduction

During the 1980s and 1990s, the fiscal, structural, management and financial management architecture of the public sector in Australia experienced considerable change (see, Jones, Guthrie, Steane 2001a, b). In Victoria, Australia’s second most populous state, the pace and degree of change was of a particularly high order.

In the context of this change, one area of pointed transformation has been the changing technologies by which funding, reporting and monitoring for the budget dependent sector are achieved. A recent aspect of this process of reform has been a changing central budgetary regime, and within this a shift towards the presentation of public sector budgeting information on an 'output' basis. This transition began in the mid-1990s and continues to date (Carlin & Guthrie, 2003).

Recent international comparative studies of public sector financial management reforms (Olson et. al. 1998, Guthrie et. al. 1999) have found a wide diversity of practice in adoption of New Public Financial Management (NFPM) oriented changes, even across multiple international jurisdictions regarded as active reformers. A significant additional finding from this body of literature is the material role of accounting and other financial management techniques in the implementation of management-oriented change in government. However, it is interesting to note the degree to which some prior international studies have tended to lack detailed analysis of the practical application of such techniques. The approach taken in this paper, reliant on detailed investigation of actual budget sector disclosures, contrasts with the broader approach taken by some earlier contributors to this body of literature.

Importantly, irrespective of suggestions that NFPM is not a uniform, global movement, some common elements do seem to exist at the “super-technical” level. These may be best understood as the outcome of a ‘reforming spirit’, intent on instilling private sector
financial awareness (e.g., about financial position, accrual accounting, debt or surplus management, capital investment strategy) into public sector decision making. Jones, et al (2001), argue that there is no "single answer" and "off-the-shelf" global NPFM solution to cure poor financial management practice despite the official (Guthrie and Carlin 2000) advocacy in favour of this view from certain change agents, notably in central financial agencies. These studies tend to suggest that there is a considerable risk of the formation of a lacuna between what is promised in relation to the implementation of these techniques, and what is actually delivered, or capable of being delivered. It is this tension between the rhetoric associated with certain technical aspects of NPFM reform, and the underlying reality, which in large part motivates this study. In order to investigate this potential void, this paper reports on an analysis of disclosures of performance indicators, concentrating on the role and effectiveness of performance information disclosures, as part of the overall new public financial management framework.

As indicated, public budgeting in Australia has undergone significant change over the past decade. This change has been manifested in several ways, the most important of which has been the implementation of some form of accrual output based budgeting (AOBB) (Guthrie and Carlin 2000, Carlin and Guthrie 2001; 2003). The shift towards output based budgeting has also been closely associated with the employment of accrual methods in public sector budgeting as a replacement for cash based accounting models. A central part of the new budgeting regime has also been the presentation of non-financial performance information. These changes have been justified by their champions on the grounds that they will promote greater efficiency, transparency and accountability by governments (Guthrie et al 1999). Yet to accept such claims at face value is to ignore the political and rhetorical aspect of public sector budgeting (Wildavsky 1974, 1992, Jones 1997). Just as the adoption of accrual accounting by public sector agencies has been critiqued as the reflection of a rhetorical rather than technically neutral process (Guthrie, 1998), changes in budgeting processes can be analysed critically. Indeed, it has been suggested that predictions of output budgeting’s successes have not been matched in reality, again hinting at a strong rhetorical aspect to public sector budgeting changes in Australia (Guthrie and Carlin 2000).
Because recent research has identified gaps between the claimed nature and the actual practices of central public sector budgeting, this paper is based on a detailed examination of a set of budget papers to identify and examine the use of performance information within the context of an operational AOBB management system. The key objective of this analysis is to provide insights into the degree to which the production of performance information, as a key element of the AOBB management system, has assisted in the achievement of improved public sector financial management outcomes.

Background to the Changing Face of Performance Disclosures in Victoria

The public sector of Victoria was once described as constituting the largest and most comprehensive use of state power outside the Soviet Union (Eggleston, 1932). To a remarkable degree, this legacy survived both the depression and post war periods, such that by the conclusion of the 1980s, the Victorian public sector was still very large by then contemporary standards. This state of affairs was to change decisively during the 1990s, such that at the conclusion of that decade, the surviving remnants of the Victorian public sector would bear almost no resemblance to the institution which had existed a few short years before. The catalyst to this dramatic change was the election in October 1992 of a Liberal – National Party coalition government led by Jeff Kennett to govern the State of Victoria. Seven years later, the Kennett era would end, at least in name, in a landslide of similar proportions to that which originally delivered it into being (Hughes &

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1 With a resounding majority.
2 This government replaced a Labor Party government led by Joan Kirner, which in turn had followed another Labor Party government led by John Cain. In all, the Labor Party held power in Victoria for over a decade prior to the election of the Kennett government. John Cain belonged to the “independent” faction within the Victorian branch of the Australian Labor Party, and was generally left leaning, while Joan Kirner was a member of the Socialist Left faction. Thus the election of Kennett, a “radical conservative”, marked a substantial watershed in Victorian politics.
3 Victoria is the second most populous jurisdiction in Australia. Like most other Australian jurisdictions, it has a bicameral parliament. The government elected in October 1992 enjoyed a substantial majority in both houses.
O’Neill, 2001). Though the Liberal and National parties from which the Kennett government was formed are normally labelled Australia’s “conservative” political parties, in practice, the conflation of the terms “Kennett” and “conservative” is better viewed as oxymoronic.

At the heart of the new government’s agenda was the reversal of what it characterised as the disastrous financial policies of the previous administration (English & Guthrie, 2001). Two days after having been elected to office, Premier Kennett held a press conference in which he suggested that the financial position faced by Victoria was parlous, the deficit widening at an alarming rate, and state debt out of control (Hayward, 1999). Almost immediately afterwards, a Commission of Audit was appointed to “investigate and report upon the condition of Victorian State public finances; to comment generally upon the causes of the present condition; to recommend policies, management reforms and other measures to improve efficiency, effectiveness and the State’s financial position; and to recommend measures to safeguard against future recurrence of policies and practices likely to have adverse effects on the State” (Commission Charter and Terms of Reference, VCA 1, 1993a, Appendix A).

Within a month⁴, the Kennett government brought down its first economic statement, in which it cut $500m from budget outlays and introduced revenue measures designed to add a net $611 million to state revenues (Victorian Government, 1992). Incremental changes to revenue measures⁵ over the coming months added an additional $261 million to revenue. By April 1993, a second economic statement had been released by the government, which announced that recurrent outlays for all departments (excluding police) would be further cut by a total of $730 million over the next two years (Victorian Government, 1993).

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⁴ The government was sworn in on October 6, 1992. Its first economic statement was brought down on October 28 1992.
⁵ Including new charges and levies, and increases in the rates at which pre-existing taxes were levied.
By the conclusion of 1993, 37,000 public servants and 8000 teachers had been made redundant\(^6\) (Hayward, 1999), a trend that would continue so that by 1995, a total of 50,000 positions had been cut from the Victorian budget sector\(^7\) (Brady, 1995). While the impact of these reductions in scale of operation were felt throughout the entire community of Victoria, the impact was particularly strong in regional and rural communities. By 1999, 176 country schools, 12 country hospitals and five regional rail lines had been closed. Further, all 2,000 state run nursing homes had been sold to private sector operators (Hughes & O’Neill, 2001).

In addition to slashing expenditure and services, the Kennett government initiated an extensive contracting out (outsourcing) program. So wide reaching was this program that it was said to be governed by the “Yellow Pages” principle. That is, any activity carried out by a government entity which could be sourced from a supplier able to be located in the Yellow Pages telephone directory should be subject to competitively neutral market testing and contracting out (Kemp, 1997). This ultimately led to the outsourcing of services including garbage collection, maintenance of parks and roads, child healthcare, issue of planning permits, libraries, information technology services, personnel and payroll management functions. Even the audit of public sector entities was not off limits, a matter which has been cause for significant disquiet (English, 2003).

These initiatives were complemented by a privatisation program unprecedented in scale\(^8\), which by the end of the decade would have yielded the Victorian Government total proceeds of approximately $31.2 billion (Walker & Walker, 2000). Indeed, so large was

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\(^6\) This equated to approximately 20\% of the budget sector workforce as at the inception of the Kennett government. In addition, 35,000 employees of government business enterprises lost their jobs over the same short period.

\(^7\) To facilitate this rapid downsizing of the government workforce, large redundancy payments were made. The government borrowed approximately $2 billion in its first two years in office in order to finance these payouts.

\(^8\) Among the businesses sold were gas and electricity utilities, metropolitan and country bus, rail and tram services, state forests, off course betting facilities, insurance businesses, a ticketing business and an aluminium smelter.
Victoria’s privatisation program during the 1990s that it dwarfed the programs of all other jurisdictions bar the Commonwealth of Australia⁹ (Walker & Walker, 2000).

Thus the Victorian public sector may be characterized as having been shifted, within the space of a decade, from a role of central importance to the Victorian economy to the occupation of a more peripheral position. While far more global attention has been paid to the efforts of nation states such as the U.K and in particular New Zealand (Pollitt, 2002), the transition undertaken within Victoria during the 1990s has been equally if not more far reaching than that experienced in other more widely acknowledged “radical reformer” jurisdictions. Thus while Victoria was not unique in pursuing the types of reforms described above, what was different in the Victorian case was the depth and speed with which the Victorian government pursued the transformation of the public sector (English 2003, Shamshullah 1999). Many of the reforms were borrowed or emulated from previous New Zealand public sector experiments and are largely indistinguishable from the New Zealand model, which has been operating since 1988/9 (Pallot 1998, b).

The main characteristic of the output-management model promoted in Victoria between 1992-99 was the separation of the funder, purchaser and provider roles. The implementation of this model required a number of designated steps, which were supported by well-documented Victorian Department of Treasury and Finance (VDTF) manuals (VDTF 1997 a,b,c). Key elements of this recent reform program have been the adoption of methodologies such as accrual budgetary accounting, together with outcome and output based budgeting and management systems, alternative asset valuation practices and procedures as well as systems designed to capture the full cost of capital deployed in relation to the production of particular outputs.

Central to the output management process from a financial management perspective was the conceptualisation of linkages between funding, reporting and monitoring of defined

⁹ In global terms, the dimensions of Australia’s privatisation efforts were second only to the UK in dollar terms, and second only to New Zealand in terms of percentage of GDP (Walker & Walker, 2000).
outputs to government strategic priorities and outcomes (VDTF 1997b, p. 42). In the current Victorian public administration model, portfolio Ministers and departmental secretaries act as agents for the government. It is they who purchase the specified services and “manage the purchase relationship in the most efficient and effective manner to meet government outcomes” (VDTF 1997a, p11). The Government, via the Budget Papers, specifies the broad outputs, and responsible Ministers and their secretaries purchase these.

Providers of these services can be either internal or external to the public sector, hence the idea of ‘contestability’. Contestability theorists argue that the potential entrance of new market participants represents the single most effective means of stimulating improvements to efficiency (Bailey, 1981), though critics point to the accountability difficulties raised by such a process, particularly in relation to the implementation of effective checks and balances on participant profitability and quality of service delivery (Lapsley, 1993).

Some early evaluations of the application of AOBB systems in Victoria are now emerging, one key identified concern being the high degree of flux in the structural characteristics of AOBB systems in place, with deleterious consequences for both the quality of management information and external accountability (Carlin, 2003a). In a similar vein, at least one Parliamentary Committee (VPAEC 1998) has expressed some concern that the current reform direction is ignoring public accountability. This is a theme that the VPAEC (1997, p.7) has been expressing for some time:

“Accountability is a contract between two parties. In the case of government, the contract is between the public and the government: the public gives government responsibility to govern and manage public resources, and the government is accountable to the public through the Parliament for its performance. It is a concept fundamental to our democratic system. It clearly establishes the right of the people both to know what government intends to do, and how well it has met its goals.”
That this concern has been raised, despite the growing quantity of financial, non-financial and performance related disclosures provided by a variety of communications mechanisms, speaks volumes. In particular, it raises questions about the quality of disclosures being provided - quality, rather than quantity, being the dominant hallmark of effective accountability processes.

**Performance Indicators and Budget Papers**

The radical changes to public financial management techniques and institutions discussed above also brought about significant changes to the format and content of financial and non financial information reporting. A central feature of the official position relating to public financial management has been that departmental performance and accountability ought to be viewed in output terms (as expressed in accrual financial statements and performance indicators) rather than in input terms. This shift has in turn privileged the role of accounting, which has moved from a subordinate service role to a dominate, agenda-setting role (Parker and Guthrie 1993). In particular, these ‘new’ accounting technologies are said to offer the possibility of according greater decision-making authority and flexibility to managers, while also helping to ensure that management action is in accordance with the broader social and economic objectives of government (VDTF 1997a,b,c).

Vitally, advocates of these new public financial management techniques argue that they are causally related to subsequent public sector performance improvement. Meaningful performance improvement, it is argued, stems from the adoption of a reflexive output / outcome based approach to management and budgeting, an approach which by its very nature necessitates the production of increased volumes of performance based data. This data is in turn responded to by managers in a circular process of continuous improvement, leading to efficiency and effectiveness improvements (MAB, 1997).

Consequently, a central feature of the official rhetoric relating to this transformation has been that output performance indicators hold the key to the provision of greater
government accountability and better decision making about resource allocation, planning and management practices. Associated with this aspect of the rhetorical NPFM campaign has been a growing emphasis on the production and dissemination of a growing inventory of non-financial and other performance related metrics and information in fora traditionally reserved for narrower, highly financially focused content.

One such forum is the annual budget paper series published in jurisdictions such as Victoria (and most jurisdictions with broadly similar governmental and governance arrangements). Indeed, annual budget papers are generally regarded as a primary vehicle by which budget dependent agencies can communicate accountability information to the parliament and by which they can be held to account in the following year of operations. This accountability process incorporates financial and non-financial as well as performance information.

If a narrow conception of accountability, in which information is disclosed only in order to report (Normanton 1971) is rejected, then it follows that a part of the role of accountability disclosures is also to explain (Patton 1992). There seems little reason to believe that the narrow view substantially guides the theoretical underpinnings of accountability regulatory regimes in Australia (MAB 1993). Rather, if a decision usefulness perspective is applied, the inclusion of data and information surplus to basic financial disclosures can be seen to be of great significance to interested stakeholders. Indeed, it may be that the value of financial disclosures is lessened in the absence of supporting non-financial disclosures (Barton 1999).

The debate therefore, is not as to whether financial disclosures ought to be accompanied by non-financial disclosures, including those relating to performance indicators, but rather the content, nature and quality of those non-financial disclosures. Empirical studies have highlighted the demand from report users for qualitative and quantitative non-financial information to accompany financial disclosures (Van Daniker and Kwiatkowski 1986). Of key contextual importance, however, is the recognition that whereas the
structure, form and content of financial disclosures is regulated according to a relatively prescriptive model (Micallef 1997), no such prescription generally exists in relation to non-financial disclosures. These therefore tend to show considerable diversity (Hyndman and Anderson 1995). Ideally however, in the context of the public sector, performance indicators should assist users of reports in understanding the inputs, outputs, outcomes and policies relating to a particular period of time (Stewart 1984).

Annual reports issued by public sector agencies have been the focus of considerable attention and research (Cameron and Guthrie 1993, Guthrie 1993, McCrae and Aiken 1994). This reflects the assumed importance of agency annual reports as a component of the overall accountability framework (JCPA 1989, VPAEC 1999a). Increasingly, however, the suggestion has arisen in the literature that public sector agency reports are not as widely used or sought after as is conventionally assumed to be the case (Gaffney 1986, Engstrom 1988, Hay 1994, Mack et al 2001). On the other hand, Budget papers are produced with a clear constituency in mind (Carlin and Guthrie 2001, Guthrie and Carlin 2000), a phenomenon which has continued over an extended period.

Thus it is also appropriate that studies of public accountability processes draw upon budget papers and related documentation as an important source of primary evidence. Wanna, et al, (2000, p.1) state that “Budgets are indispensable to executive government; and accountable budgetary processes are a key mechanism of stable, democratic societies.” Although the delivery of accountability to parliament has been the key role performed by budget papers, the format of those budget papers has changed significantly in Australia since the mid 1990s. This wave of change was brought about by the introduction of accrual and output based forms of budgeting in Australian jurisdictions.

Previous studies have challenged the introduction of accrual accounting generally, (Guthrie 1998) and specifically as it relates to the budget process (Carlin and Guthrie, 2001, Guthrie and Carlin 2000). In attempting to evaluate the various public management initiatives now being implemented across Australia, New Zealand and the globe, in most cases it is too soon to answer the questions "what works, what doesn't, to what extent, in
which contexts, and why? (Jones et al 2001). However, in relatively mature examples of NPFM-oriented reform (e.g., several Australian states and New Zealand), adjustments and considerable steering is evident.

It can be said that any significant experimentation with new forms of performance indicators will lead to discontinuities and issues of monitoring. If this is so, it must be asked: When does a system settle down? How long does one have to wait to get it right? Can this aspect of NPFM ever be seen to be able to deliver the claimed benefits? These are all difficult questions to answer. In the Victorian case, is a decade of performance information enough for practice to be ‘settled’?

Other jurisdictions are experiencing similar disjunction and problems with these practices. The Victorian experience is therefore instructive, as Victoria has been considered to be a leader in the adoption of Accrual output based budgets and output based management in Australia. Carlin and Guthrie (2001) examined recent efforts in the Australian and New Zealand public sectors to implement accrual output-based budgeting. While agreeing with the need for public sector accounting reform, the authors used two detailed case studies – that of Queensland and New Zealand - to show that the current reforms have not yet achieved the results expected due to weaknesses in implementation. The gap between rhetoric and reality is apparent, for example, in that de facto there is little real difference in reporting between cash-based and accrual budgets in these two cases, leading these authors to question the degree to which management practices can change if reporting for decision making is unaltered. It is posited here that such a rhetoric – reality gap may also be a systemic feature of the manner in which performance based information is reported in annual budget paper series.

This is a factor of significance, since alongside the change to accrual output based budgeting came calls for the inclusion of greater quantities of performance related information. The function of this information is “officially” to better assist users in determining whether or not claimed efficiencies relating to management improvement programs had been achieved, and to allow more accurate gauging of the efficiency and
effectiveness of publicly funded endeavours (VPAEC 2000, VPAEC 2001). This has culminated in a situation where, in contemporary budget papers, the quantity of non-financial and performance indicator disclosures outweighs the quantity of financial disclosures. For instance, an indication of this trend is presented in Table 1 below, which documents the growth in the relative level of disclosure of performance indicator data, compared to disclosures of traditional financial data in Victorian budget estimates papers from 1998/99 to 2001/02.

### Table 1 – Performance Indicator to Financial Information Ratio, Victorian Budget Estimates, 1998/99 vs 2001/02

<table>
<thead>
<tr>
<th>Department</th>
<th>Performance Indicator To Financial Information Page Ratio 2001 / 02</th>
<th>Performance Indicator To Financial Information Page Ratio 1998/99</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>3.33:1</td>
<td>2:1</td>
</tr>
<tr>
<td>Human Services</td>
<td>5.66:1</td>
<td>2.11:1</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>4.57:1</td>
<td>2:1</td>
</tr>
<tr>
<td>Justice</td>
<td>5:1</td>
<td>2.87:1</td>
</tr>
<tr>
<td>Natural Resources and Environment</td>
<td>5.66:1</td>
<td>3.66:1</td>
</tr>
<tr>
<td>Premier and Cabinet</td>
<td>2.5:1</td>
<td>2.25:1</td>
</tr>
<tr>
<td>State and Regional Development</td>
<td>3.71:1</td>
<td>3:1</td>
</tr>
</tbody>
</table>

The simple fact that a range of performance indicator data has been disclosed in Budget papers does not mean that the disclosures have resulted in an enhanced comprehension capability on the part of budget paper users. Given the primary parliamentary accountability role fulfilled by the production of annual Budget paper series (VPAEC 1999), an important research question centers around the degree to which the inclusion of this performance indicator data can be seen as enhancing the quality of accountability discharged as a result of the publication of Budget papers. In this paper, the preferred methodological approach to achieving this task is to concentrate on the primary source.

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10 The ratios within the tables are calculated on the basis of page counts.
data (Broadbent and Guthrie 1992) within the budget papers (Shaoul 1997, Edwards and Shaoul 1996), rather than undertaking analysis of (in this case limited) secondary sources on the matter.

Empirical Investigation of Performance Indicator Disclosures in Budget Papers

Table 1 (above) outlined the changing ratio of disclosure between non-financial performance indicators and traditional financial data. An alternative means of capturing the increase in volume in performance indicator data disclosures is to examine the absolute number of performance indicators disclosed by Departments. Table 2 (Departmental Performance Indicator Counts in Budget Papers) shows this data, and demonstrates that in the case of most departments, there has been significant growth in the quantity of performance indicator disclosure since 1999. The overall growth in performance indicator disclosure over the three year period studied was 33.1%.

<table>
<thead>
<tr>
<th>Department</th>
<th>1998/99</th>
<th>1999/00</th>
<th>2000/01</th>
<th>2001/02</th>
<th>% Change 98/99–01/02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>138</td>
<td>131</td>
<td>176</td>
<td>165</td>
<td>19.6%</td>
</tr>
<tr>
<td>Human Services</td>
<td>150</td>
<td>143</td>
<td>206</td>
<td>258</td>
<td>72.0%</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>136</td>
<td>158</td>
<td>265</td>
<td>282</td>
<td>107.4%</td>
</tr>
<tr>
<td>Justice</td>
<td>204</td>
<td>184</td>
<td>207</td>
<td>227</td>
<td>11.3%</td>
</tr>
<tr>
<td>Natural Resources and Environment</td>
<td>273</td>
<td>268</td>
<td>256</td>
<td>282</td>
<td>3.3%</td>
</tr>
<tr>
<td>Premier and Cabinet</td>
<td>155</td>
<td>150</td>
<td>192</td>
<td>131</td>
<td>-15.5%</td>
</tr>
<tr>
<td>State and Regional</td>
<td>184</td>
<td>225</td>
<td>254</td>
<td>280</td>
<td>52.2%</td>
</tr>
</tbody>
</table>
Growth rates varied from this average in individual departments, the highest rate of
growth being experienced in the Department of Infrastructure, whose performance
indicator count appears to have increased by 107% over the four year data horizon. Over
the same period of time, the Department of the Premier and Cabinet actually reduced the
number of performance indicators reported on in its budget paper series. This data
suggests a prima facie commitment to disclosure quality enhancement by means of
increased performance indicator disclosure.

While on the one hand an overall increase in the volume of disclosure may appear to be a
positive phenomenon, this view of the data is partial, since it does not take into account
the effect of deletions and additions to the set of output groups. Thus, in the extreme, it is
possible that from one period to the next, the same total number of performance
indicators might exist, but simultaneously that no single performance indicator in
existence in the second period existed during the first period. Therefore, in order to gain
deeper insights into the question of stability, it is necessary to examine the structural
properties of the data from two further dimensions. The first of these is “survival”, which
measures the degree to which performance indicators are persistently reported through
time. The second is “novelty” which measures the degree to which the inventory of

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It is necessary to address the question of “survival” with great care. From time to time, new forms of
terminology are introduced to describe what is in point of fact a pre-existing “object”. Therefore, during the
conduct of this study, “survival” was not defined in a strict sense. That is, objects under scrutiny were
coded as having survived even if there were moderate changes in official descriptions of the objects over
time. Only where it was clear that an object had been cleanly deleted was a coding of “non survived”
generated. Methodologically this was an important control, since to take a literal approach to coding
survival versus non-survival would incur the risk of underestimating survival rates and thus jeopardising
the strength of any conclusions reached on the basis of the data analysis.
performance indicators observed as at a particular point in time has been infused with new components when compared against some benchmark time referent\textsuperscript{12}.

It is possible to measure “survival” on a cumulative and period on period basis. In the former, survival is tracked by identifying the performance indicators used in some year subsequent to a base year (in the case of this research 1998/99) which existed in the base year, this surviving number then being expressed as a proportion of the total set of performance indicators in existence in the base period. This measure is useful for identifying directional trends in time series data, and in expressing total excursion from base point. However, it is of less assistance in explicitly identifying individual periods during which unusually high (or low) degrees of change have taken place. For this reason it is also necessary to have regard to period-to-period (non cumulative) survival, in which the same basic calculation as for cumulative survival is performed, but the look-back period is limited to one year.

Since attrition is not the only cause of changes in performance indicator inventories, in order to develop a more complete perspective on structural change it is also necessary to have regard to the degree to which new output groups are added over time. This aspect of structural change is labelled “novelty”. As with “survival”, “novelty” is calculable both on a cumulative basis and on a period-on-period basis. The former calculation proceeds as follows. First, a base period is specified (in this case 1998/99) and the performance indicators existing at that time catalogued and inspected. Then, for any subsequent chosen period, the performance indicators existing as at that subsequent point in time are inspected and categorised according to whether they were in existence in the base period or not. Finally, the number of performance indicators observed to exist in the subsequent period which had also existed in the base period is expressed as a proportion of the total number of performance indicators in use in the subsequent period.

\textsuperscript{12} It was necessary to take similar precautions with respect to the coding of “novelty” as it was in respect to the coding of “survival”.

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Cumulative novelty rates measure the total degree of change between a selected year and the base year, but do not explicitly pinpoint individual periods of heightened change, hence the calculation of period-to-period (non cumulative) novelty rates by determining the proportion of a given year’s performance indicators which are new compared against the set of output groups which existed in the immediately previous period.

Data pertaining to novelty provides incremental insights over and above the insights provided by reference to survival alone. This is because novelty is not the mere reciprocal of survival. That is, it is not possible to infer the novelty rate on the basis of the observed survival rate, and vice versa, because whereas the denominator in calculations of survival rates is always the number of performance indicators which existed in the base year, the denominator in novelty rate calculations is always the total number of performance indicators in some specified subsequent period. As a result, measured survival and novelty rates are such that they are bounded by zero and one hundred percent.

The final analytical tool used for the purposes of measuring the degree of structural variation in disclosures is the calculation of a composite change score. This unites information pertaining to both its underlying dimensions, namely survival and novelty, and indicates the highest degree of overall change when both dimensions are moving in tandem. Thus, a disclosure structure will be judged to be undergoing a greater overall degree of change when low survival rates are combined with high novelty rates than, for example, when both low survival and novelty rates are jointly observed.

Calculation of the composite change index proceeds as follows. First, period-to-period survival and novelty rates are produced. Next, since it is necessary to measure change directly, the reciprocal of each observed survival rate is calculated. This is summed

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13 This is a useful numerical property from the point of view of interpretability. If, rather than measuring novelty rates in the manner specified above, the calculation’s denominator was base year output groups, then were sufficiently large numbers of new output groups to be introduced in a particular period, novelty rates could exceed 100%, a result less amenable to interpretation (due to being unbounded at the upper end) than the bounded rates produced under the current calculative configuration.

14 The survival rate infers the degree of change, but is not itself a change vector. However, the reciprocal of survival, which might be dubbed the “death” rate does provide a direct measure of change. It is the literal mathematical reciprocal of the survival rate.
with the novelty rate\textsuperscript{15}, producing a raw score whose maximum theoretical value is two hundred, and whose minimum theoretical value is zero. For ease of analysis, this is then divided by two, retaining the even weighting attributable to each underlying change dimension, but producing a final composite change score bounded by zero and one hundred. A score of zero for a particular period indicates that the structure observed in the test period is exactly the same as in the previous (comparison) period, while a score of one hundred represents complete period-to-period change.

This paper reports the results of a detailed analysis of the survival and novelty rates for performance indicator data produced by two Victorian government departments, education and health, between 1998/99 and 2001/02. The initial period for which data was gathered for the purposes of this study was selected to coincide with the adoption of a new structure for budget management and reporting by the Victorian government during that year (Carlin, 2003a; 2003b). The choice of target agencies for analysis was dictated by their materiality relative to other core government agencies\textsuperscript{16}. In order to conduct the analysis, it was necessary to inspect and analyse the 1367 performance indicators reported by the two agencies in aggregate, between 1998/99 and 2001/02\textsuperscript{17}.

The results of the analysis are presented in a series of three tables set out below. Tables 3 and 4 provide data on cumulative and non cumulative survival and novelty rates respectively, within the Victorian Department of Education and the Victorian Department of Human Services. The data reveals a striking degree of turnover in the inventory of performance measures reported by the two agencies the subject of analysis. In the Department of Education, less than a tenth of the indicators reported on in 1998/99 were

\textsuperscript{15} Which does represent a direct change measure.

\textsuperscript{16} According to Victorian Budget Paper 3, 2002, these two departments represent 60% of the total budgeted recurrent expenditure. They therefore represent the most material component of budgeted expenditure.

\textsuperscript{17} This results in the conclusions drawn from the analysis being based on inferences derived from a sample. However, given that in aggregate, the eight Victorian core government departments reported 6488 performance indicators between 1998/99 and 2001/02, it was impractical to conduct detailed analysis on each reported indicator. The sampling rate achieved as a result of analysis of all Education and Human Services indicators was 21% of the aggregate number of indicators reported by all departments across the four year analysis period.
still reported three years later, while in the Department of Human Services, the corresponding level of cumulative survival sat at around one third.

Table 3 – Cumulative & Non Cumulative Survival Rates – Education & Human Services

<table>
<thead>
<tr>
<th></th>
<th>1998/99</th>
<th>1999/00</th>
<th>2000/01</th>
<th>2001/02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education – Cumulative</td>
<td>N/A</td>
<td>42.1%</td>
<td>23.6%</td>
<td>7.8%</td>
</tr>
<tr>
<td>Education – Non Cumulative</td>
<td>N/A</td>
<td>42.1%</td>
<td>64.2%</td>
<td>50.0%</td>
</tr>
<tr>
<td>Human Services – Cumulative</td>
<td>N/A</td>
<td>45.2%</td>
<td>41.1%</td>
<td>36.9%</td>
</tr>
<tr>
<td>Human Services – Non Cumulative</td>
<td>N/A</td>
<td>45.2%</td>
<td>74.4%</td>
<td>65.5%</td>
</tr>
</tbody>
</table>

The non cumulative survival rate data presented in Table 3 also demonstrates that the annual rate of indicator mortality continues at a high level, even several years after the implementation of the new reporting structure in 1998/99. This raises questions as to the degree to which the rate of observed change can be explained by suggestions of “bedding down” the system. The novelty rate data in Table 4 below reinforces these impressions.

Table 4 – Cumulative & Non Cumulative Novelty Rates – Education & Human Services

<table>
<thead>
<tr>
<th></th>
<th>1998/99</th>
<th>1999/00</th>
<th>2000/01</th>
<th>2001/02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education – Cumulative</td>
<td>N/A</td>
<td>56.0%</td>
<td>76.9%</td>
<td>91.2%</td>
</tr>
<tr>
<td>Education – Non</td>
<td>N/A</td>
<td>56.0%</td>
<td>34.2%</td>
<td>43.2%</td>
</tr>
</tbody>
</table>
By encapsulating the survival and novelty rate data into one composite change score, it is possible to track, on a period by period basis, the extent to which the composition of the entire departmental performance indicator inventory has changed. Although the degree of change suggested by this index appears lower at the conclusion of the time series than at the commencement, it nevertheless reveals that the degree of overall change in reported performance information sets has continued to change at a very high rate.

### Table 5 – Performance Indicator Composite Change Index Score

<table>
<thead>
<tr>
<th></th>
<th>1998/99</th>
<th>1999/00</th>
<th>2000/01</th>
<th>2001/02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>N/A</td>
<td>56.95</td>
<td>35.0</td>
<td>46.6</td>
</tr>
<tr>
<td>Human Services</td>
<td>N/A</td>
<td>49.2</td>
<td>28.9</td>
<td>35.1</td>
</tr>
<tr>
<td>Mean Score</td>
<td>N/A</td>
<td>53.1</td>
<td>31.9</td>
<td>40.8</td>
</tr>
</tbody>
</table>

For the Department of Education the data suggests a complete change in reported measures every two years, while for the Department of Human Services, the interval approximates three years. It is very difficult to reconcile such rapid turnover in performance indicator inventories with the nature and mission of the organisations studied, especially given the strategic programs managed by both these departments, and the long term nature of the targeted outcomes (for example in school completion and retention rates, literacy and numeracy levels, public health outcomes, levels of post-operative infection and so on). The quantitative analysis performed therefore suggests a
lack of quality in the performance data reported within the Victorian system, with potentially deleterious effects for the quality of management outcomes. As argued below however, there are alternative dimensions on which to judge the qualitative characteristics of performance disclosures.

The Quality of Performance Indicator Disclosures

There is no necessary nexus between the fact of disclosure and the quality of the information transmitted within the disclosure. The data reported in this paper suggests a growth in the quantity of performance related disclosures over the period studied, both in absolute and relative terms. However, this paper has raised concerns about the ability of that data to effectively articulate useful perspectives on agency performance, due to high turnover, high novelty and low survival rates\textsuperscript{18}.

From a quantitative analytical perspective, the measurement of change in numbers of reported indicators, survival and novelty rates captures a vital dimension of performance indicator quality. However, in order to be more comprehensive, a six component quality assessment methodology which rates quality in terms of six key factors is proposed\textsuperscript{19}. It is posited that performance indicator data captured and reported by agencies should be:

1. Correlative – The suite of indicators selected by an agency should correlate closely with its key operational imperatives and activities. Indicators whose content relates to matters which are largely peripheral or cosmetic should be excluded. If this dimension of quality is satisfied, then performance indicator disclosures assist the accountability process in two interrelated ways. First, the indicators, because they correlate closely with the underlying activities of the agency, provide an additional descriptive framework to assist report users in developing comprehension of the

\textsuperscript{18} On one view, the turnover in indicator inventories observed may be argued to reflect nothing more than a dynamic environment and the changing demands that this brings about. However, there is no evidence to substantiate this viewpoint.
scope and nature of the activities undertaken by the agency. Secondly, and
derivatively, they assist report users in assessing the effectiveness and efficiency of
the agency’s operations. A detailed review of reported performance indicators for a
sample of Victorian budget sector agencies suggests that a significant degree of
compliance with this quality dimension is currently being achieved.

2. Controllable – In order to facilitate meaningful analysis of the degree to which an
agency’s changing performance profile has been driven by endogenous rather than
exogenous factors, it is preferable that performance information published by
agencies relate to factors which are largely within their control. This dimension is far
less satisfactorily satisfied in the budget paper disclosures reviewed. This is
problematic in the sense that a significant objective of the provision of performance
disclosures is to facilitate improved performance and provide meaningful insight into
the degree to which the actions of incumbent managers could be related to the
outcomes generated during a period of time. Lack of controllability renders both the
accountability and performance objectives set out above void, and therefore
represents a serious concern.

3. Comprehensible – In order to be useful, report readers must be able to understand
reported indicators. A starting point is to ensure that a relevant unit of measure is
provided for each reported indicator. There were almost no observed exceptions to
this requirement in the Victorian budget papers reviewed. In addition to clear
specification of appropriate unit measures, performance indicators ought to be able to
be described succinctly and pointedly. Again, a detailed review suggests that this is
generally the case.

19 The six factor model proposed here is by no means the only example of its type in the literature. See by
way of example, Lapsley & Mitchell (1996).
4. Timely – In order to maximise usefulness, reported indicators should relate as closely as possible to the present. Unfortunately, this is a dimension that is systematically breached in budget paper reporting of performance data. In the 2001 / 02 Victorian budget papers, the latest year for which actual data is reported on any performance indicator is 1999. This means that data is largely out of date by the time that it is reported in the budget paper series, a phenomenon which arises from the production of budget estimates before the completion of the prior period, necessitating a two period delay for the disclosure of actual data.

5. Consistent – it is argued that consistency across time is a key dimension of quality in performance reporting. Since earlier sections of this paper have included detailed data on the degree to which a sample of agencies’ reported indicators satisfy this criterion (they did not), no further comment is made here other than to reinforce that this quality dimension has been systematically breached in Victorian budget paper disclosures.

6. Constrained – it is argued that the selection of a suite of performance indicators for reporting purposes must be the result of a disciplined, focused process. Reported indicators should be constrained to that set necessary to convey a clear and accurate picture of the operations of a reporting agency, rather than expanded to include measures of potentially little interest or use. An empirical review suggests, on the basis of an observed increase in the population of reported performance measures, that this quality dimension may not be receiving adequate attention at present.

A key difficulty which arises in the context of the reporting of performance information is the degree to which the reported indicator data has been subject to audit scrutiny. Despite the importance of this stratum of information within the context of the total information set provided by public sector agencies each year, performance information is generally not subject to systematic audit. This has been raised as a matter of concern by
review bodies in Victoria such as the Victorian Public Accounts and Estimates Committee (VPAEC) on several occasions (VPAEC 2000), and more widely throughout Australia (see for example the report of the 2001 conference of the Australasian Council of Public Accounts Committees (ACPAC 2001).

Most recently, one state Auditor General took the step of refusing to publish a range of key performance indicators for a government agency on the grounds that the agency’s data collection systems were so deeply flawed that to continue to publish a range of important indicators would be misleading (NSWAG, 2003). While this indicates both the importance of performance data within the context of modern public management and the impact that audit review can have on the reporting of performance related information, at the time of writing, it remains the case that audit review of performance information is sporadic rather than systematic. It is plausible therefore, that the usefulness of key agency performance disclosures is being reduced not only by reason of high turnover (as discussed in the review of empirical results above), but also because of the poor quality of the underlying data captured for the purpose of the production and disclosure of indicators. This is a matter of considerable policy relevance, which to date has been inadequately addressed.

**Summary and Conclusions**

The empirical review of performance indicator disclosure in recent Victorian budget papers over four budget cycles reveals considerable turmoil in indicator disclosure. This runs contrary to the goal of enhancing the quality of disclosures in budget papers, because users are often, by reason of high turnover, unable to observe time series results. Furthermore, when new indicators are added to budget papers, it will often be the case that no data relating to actual outcomes with respect to that indicator will be available for up to two years after the indicator is first reported. Given the low survival rates noted in the empirical analysis, this means that in many cases, no actual data is ever reported in respect of performance indicators. Instead, during the (often brief) period of their
survival, the only reported data is in the form of targets. An inability to compare actual outcomes with targeted outcomes is a fundamental flaw in any system of accountability. Likewise, the inability to construct consistent performance time series represents a serious weakness in the current budget accountability regime in Victoria.

These difficulties should be viewed in light of the technical characteristics of the reform process and model outlined above. Specifically, recall that a key claim made in relation to the operation of the accrual output based budgeting and management model is that it is a causal trigger for enhanced agency and sector performance. That causal link, however, rests on the structure provided by reflexive performance feedback generated with respect to the linkages between inputs, outputs and subsequent outcomes. The empirical analysis conducted within this paper suggests, however, that the information performance bridge necessary for the sustenance of the reflexive improvement process, discussed above, is consistently and systematically broken, as a result of performance disclosure inconsistency.

This paper has not speculated about the causes of the apparently high turnover, low survival and high novelty rates of performance indicator disclosures in Victoria over the period under consideration. A hypothesis proposed elsewhere in relation to annual report disclosures suggests that disclosure variability may be related to a desire on the part of report preparers to obfuscate (Courtis 1998). Explanations of variation in the budget papers examined tended to suggest that changes were based on a desire to improve the extant performance indicator inventory, to provide an enhanced view of the underlying operations, efficiency and effectiveness of Victorian government agencies. At present there appears no reason to prefer either explanation, and this may offer an opportunity for further research in the future. However, irrespective of the inability to reach conclusions as to the cause of the high performance indicator turnover observed, there is no difficulty in concluding that at least at present, the quality of disclosure has suffered as a result of the observed lack of disclosure stability, as well perhaps as a result of the lack of a systematic audit quality control framework in Australian jurisdictions. Resolving this problem represents a significant challenge for policy makers and practitioners.
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