

2000 AAIR CONFERENCE

SYDNEY AUSTRALIA

4TH – 6TH DECEMBER 2000

ACTIVITY BASED COSTING IN AN AUSTRALIAN UNIVERSITY: A
PILOT OF SOCIAL AND BEHAVIOURAL SCIENCES

Professor Ken Heskin
Deputy Vice-Chancellor
Swinburne Sarawak Institute of Technology
Kuching
SARAWAK

Dr Raj Sharma
Associate Director
Resource Planning and Analysis
Swinburne University of Technology
Hawthorn Victoria 3122
AUSTRALIA

ABSTRACT

~~The Department of Education, Training and Youth Affairs have has recently commissioned KPMG Consulting Proprietary Limited to undertake a review of costs of teaching and research training in Higher Education. In 1998, DETYA commissioned a study by Ernst & Young to develop costing methodology that methodology that advocated the use of Activity Based Costing was advocated. Accordingly the costing of Australian Higher Education has become a national issue. This study applies principles of Activity Based Costing to the discipline of Social and Behavioural Sciences undertaken as part of a pilot study within an Australian uUniversity. It presents analysis of cost data using three cost objects including Teaching and Learning, Research and Professional and Community Service. It concludes by proposing future enhancements to the methodology as well as considering possible future implications of the findings of the study.~~

1. INTRODUCTION

The basic aim of this study is to pilot the development of Activity Based Costing Methodology within the School of Social and Behavioural Sciences at a uUniversity of Technology. The project was undertaken during 1999. It is the purpose of this paper to report on the 1999 pilot project.

Taking into account the mission of the University, it was considered necessary for the study to initially focus on the following cost objects:

- * Research
- * Teaching
- * Professional and Community Service.

The project focused on direct costs only. Further, the latest available financial figures, namely, 1998 expenditure data were used. The study adopted cash rather than accrual accounting as the basis for the study. Accrual accounting tends to increase complexity of the exercise, for example, requiring depreciation of equipment and the like.

2. PROCESSES FOLLOWED

The following processes were adopted for the project:

The Project Director held preliminary discussions with the Teaching and Research Cost Centre ~~which~~ that had agreed to participate in the project.

An ABC cost methodology was then drafted (see below).

This methodology underwent preliminary testing with an internal university expert.

The methodology was then discussed with the Steering committee for the project.

The pilot was then implemented at the uUniversity of Ttechnology within the case study academic organisation unit.

3. ACTIVITY BASED COSTING METHODOLOGY ADOPTED

3.1 Rationale

Ernst and Young in the DETYA-funded study came up with a number of factors to justify Activity Based Costing and management in Australian Universities as follows:

- * The current state of cost management in most uuniversities is not adequate to support the needs of the enterprise and its changing landscape.
- * Traditionally in Australian uuniversities, the financial managers have focused on meeting the external reporting and basic management accounting requirements.
- * Effective use of cost management is essential in Australian uuniversities since “if you can’t measure it, you can’t manage it”.
- * Cost management allows institutions to understand how they create, maintain or destroy value by their decisions and actions.
- * Cost management is a business tool that allows university managers to obtain information and feedback necessary to meet the goals and track progress towards the achievement of the strategic agenda.
- * The costing information is required in the uuniversities for purposes of financial reporting and strategic requirements; understanding the cost of activities, products, services and customers; and providing feedback and insight to management on what causes costs.

According to the Ernst & Young study, Activity Based Costing provides the following information:

- * Which activities are performed in the institutions;
- * What resources they consume; and
- * For what purpose those activities are performed.

It is suggested that with this sort of information, university managers can make their decisions about what, how and for whom they provide services or products and at what price.

3.2 ABC Methodology

ABC focuses on the costs of activities. In other words, costs are traced from activities to cost object based on cost object consumption of activities.

Activity Based Costing requires the assignment of costs from resources to activities and then from activities to cost objects using “cost drivers”. A cost driver is an activity that causes costs to occur. The Ernst & Young study suggests that the major activities cost pools in the uuniversity include the following:

- * Infrastructure
- * Administrative Support
- * Student Support

- * Teaching and Research.

This pilot project principally focused on Teaching and Research.

The cost objects are the purpose of costing and include products, services, customers, etc. As previously stated, taking the mission oriented approach, one can delineate teaching and learning, research and community service as the major cost objects for this pilot study. Other cost objects, which we may wish to consider in a future phase, could include the following:

- * Type of student (full time, part time, undergraduate, postgraduate, local, overseas etc.); some of these dimensions (eg, UG/PG) were considered in this report.
- * Cost of individual programs or subjects.
- * Different approaches to Teaching and Learning including traditional lecture, tutorial and practicum on the one hand and various distance education methodologies on the other.

In implementing ABC in a uUniversity, Ernst & Young have advocated the application of the KISS principle whereby judgements will need to be made about the level of detail collected and used in the ABC cost model but not letting the model become too complex to maintain and use on an ongoing basis. As previously stated, the pilot ABC has been scoped to keep the exercise simple, minimise the cost of data collections etc. If required, at a future date further complexities can be introduced in the uUniversity's ABC model.

The following processes were adopted in the application of Activity-Based Costing to the University for the pilot project:

Individual members of academic staff were required to estimate on a proforma the percentage breakdown of their time during the previous year (1998) between the three cost driver activities, Teaching, Research and Professional and Community Service such that the total of all three amounted to 100%. These terms were defined on the proforma to ensure a common basis for responses. For example, Teaching was defined as including all forms of research supervision as well as classroom teaching and associated administration. Academic staff were further required to estimate the percentage breakdown of their time on Professional and Community Service (PCS) between intra-University PCS and external PCS. More detailed breakdowns of individual staff teaching time (eg undergraduate, postgraduate coursework, postgraduate supervision etc) were provided by Heads of Department ~~utilizing~~utilising workload spreadsheet figures so that a broad pattern of individual time usage was obtained for each member of staff. These data could be used for internal purposes to examine differential patterns of time usage between, for example, staff in different disciplines. Most non-academic staff time was deemed to fall within the Professional and Community Service category.

Utilising these estimated 1998 time-usage data in conjunction with 1998 budget data, it was then possible to calculate the relative costs associated with the three cost ~~drivers~~objects. For the purposes of this pilot study, all salary and non-salary costs were amalgamated into one bottom-line cost figure, which was used as the ~~denominator~~numerator for computing unit costs and the like.

4. LITERATURE REVIEW

Coy and Goh (1995) advocate the use of Activity Based Costing within a University environment, particularly the method of allocating the overhead costs. They are critical of allocating overheads on a single basis such as the use of student numbers. The costing which results from such broad-based

approach is often misleading since they fail to capture the cause and effect relationships. They suggest that the ABC approach identifies which activities are associated with which faculties and how those activities are linked to the generation of revenue and consumption of resources. Coy and Goh (1995) indicate that ABC helps focus institutions' attention on improving activities, which will have the biggest impact on course costs.

Gibbon et al. (1996) researched into the benefits of Activity Based Costing and Management in both manufacturing and service organisations. They rank the benefits in order of importance as follows:

- Understanding activities and cost;
- Cost savings;
- Enhancing financial responsibilities;
- Improved communications;
- Improving the profile of the accounting function;
- Useful documentation;
- Relevant decision support information;
- Prioritising improvement efforts;
- Catalyst for change;—and
- Waste reduction.

In the UK, the government commissioned a report on transparent costing of Higher Education with multiple objectives including accountability for public funds (transparency), calculation of indirect costs for contract pricing and information for internal management. The transparency review has advocated the general adoption of Activity Based Costing methods at all universities and the provision of 5 total cost figures to the government including teaching (public funds), teaching (non-public funds), research (public funds), research (non-public funds) and other. The transparency review report (1999) advocated a number of principles in the application of Activity Based Costing including materiality (focusing attention on important costs), costing should be fair and reasonably stated, there should be flexibility in choice (eg, Universities can go further than the minimum required by the transparency review), Universities should use their chosen methods consistently over time and the costing should be auditable.

In Australia, DETYA funded Ernst & Young to develop and demonstrate an Activity Based Costing Methodology for use in Australian Higher Education Institutions and a report was released in 1998. This has recently been followed up by another DETYA commissioned study by KPMG with view to reviewing the relative funding model and in particular costing research training in Australian Higher Education. KPMG advocated two main approaches to costing including top-down (Activity Based) costing and bottom-up cost estimation. They suggest that top-down costing, using the ABC method involves the allocation of all cost to activities and departments and drivers. They proposed top-down costing as an approach for obtaining Institutional, Subject, Discipline but not course costing or obtaining cost information about types of students and teaching methods. For the latter they suggest bottom-up costing, which involves drawing up the cost of a set of programs of courses on a zero base [bursting-budgeting](#) approach. Therefore they suggest that bottom-up costing approach be used to compute the cost of level of program, teaching mode, industry placement, efficient and effective university practises, disadvantaged students and specialist institutions.

**5. 1998 COSTS OF SCHOOL OF SOCIAL AND BEHAVIOURAL SCIENCES:
RESULTS FROM PILOT STUDY**

Application of the abovementioned cost methodology yielded the following 1998 percentage costs of the School of Social and Behavioural Sciences (including an associated Institute of Social Research):

Cost Object	Percentage Expenditure
Teaching	50.1%
Research	26.3%
Professional and Community Service	23.6%
TOTAL	100%

The Teaching costs of the School are segmented as follows:

Program Level	Percentage Expenditure
Undergraduate	59.9%
Honours	4.4%
Postgraduate Teaching	21.0%
Postgraduate Coursework Program Project	7.7%
Postgraduate Research	7.0%
Total Undergraduate (including Honours)	64.4%
Total Postgraduate	35.6%

The following comments and observations are made on the above data:

- Sixty percent of the Teaching and Learning costs relate to undergraduate programs and this reflects the high proportion of undergraduate student load in the School.
- The research quantum for this School (26.3%) is greater than the University's Academic Organisational Unit average (19%) but below that of the Research Institutes (81%); this partially reflects the inclusion of the Institute of Social Research figures within the total expenditure.
- It is interesting to note that nearly a quarter of the School's expenditure related to professional and community service. It is further noted that of the professional and community service expenditure, 65% related to internal activities (most of the Administrative Staff costs fell into this category).
- The School of Social and Behavioural Sciences is heavily involved in postgraduate teaching and research supervision, at 35.6% of costs.

Direct unit cost analysis for the School yielded the following results:

<u>ITEM</u>	<u>UNIT COST</u>
Teaching (UG) per EFTSU	\$2,941
Teaching (PG) per EFTSU	\$3,529
Teaching (Total) per EFTSU	\$3,126
Research per EFT Academic	\$33,926
Public & Community Service per EFT academic	\$30,513

The postgraduate unit cost is only 20% greater than that applicable to undergraduate programs in the School/Institute. The cost per EFT academic staff in relation to Public and Community Service is only 10% less than the unit cost for Research; this again emphasises the very significant nature of Public and Community Service programs within the School/Institute, although somewhat accentuated by inclusion of administrative costs.

6. SUGGESTIONS FOR ISSUES TO BE ADDRESSED IN FUTURE STUDIES

As previously indicated, this study constitutes the “first quick” approach to ABC. It is important that future studies introduce enhancement and refinements, as far as practicable, as follows:

- 6.1 Standardise the treatment of support salaries with full cost absorption.
- 6.2 As per 6.1 but for non-salary items.
- 6.3 Consider whether "lumpy" expenditure eg, on Equipment should be included.
- 6.4 In the context of the 2000 DETYA costing project, examination of unit cost for IBL may be important.
- 6.5 Cost absorption of indirect costs must be factored into the next study; the agreed cost drivers agreed within the University should, as far as possible ~~should~~ be applied.

7. CONCLUSIONS AND RECOMMENDATIONS

The Activity Based Costing Pilot Project has been a learning exercise for the University’s ABC Project Team. Much has been learned and a methodology developed for possible future implementation University wide. More importantly, as confirmed by an UK colleague (John Hart), the methodology adopted here is consistent with the UK developments. As indicated above, the researchers have a number of concerns arising from this pilot. The researchers believe that due to these concerns, the results have some limitations. Equally it is realised that the University cannot stand still but must meet the challenges posed by the recent activities of DETYA which require Australian Universities to be aware of the unit costs so that they can meaningfully engage in the exercise to revamp the RFM and the Research Funding Model. Accordingly, a number of recommendations are made as follows:

- (i) A more comprehensive cost study be undertaken in the future.
- (ii) That such a study includes examination of both direct and indirect costs.
- (iii) It is recognised that a full-blown ABC Project would need to be considered for the future and will require access to better tools. The researchers believe that serious consideration may need to be given to the acquisition of ABC Software. The continued use of spreadsheets will not be viable with a broader project covering more than one organisational unit.

In the current debate on the costs of Higher Education the Government and other associated bodies appear to have neglected the “Professional Community Service” mission of Australian Universities. This dimension has been given no airing in recent discussions on costs of institutions; rather the focus has been on research and teaching (including research training). This study has shown that the resources devoted to professional and community service (even we believe after correct for the inclusion of direct administrative costs) is quite significant. The Government will need to recognise that public institutions play an important role in the life of their community and that such activities need to be adequately funded by the taxpayer.

As indicated by Milano (2000) the ABC methodology was first developed for the manufacturing sector. Although it has undergone adaptations for the service industry sector, we believe that some caution needs to be exercised in its application to Higher Education. In particular, the segmentation of academic organisational unit costs into “Teaching” and “Research” may be a bit simplistic. Some academics feel that the two areas tend to overlap and indeed research informs teaching particularly at the postgraduate level. DETYA’s response to this by creating a new hybrid category of “research training” appears helpful in this regard but again may be regarded as somewhat simplistic. It is an area requiring further research in the future in order to fine-tune the application of ABC to higher education.

REFERENCES

~~JM Consulting Limited (1999) *Transparent approach to costing. A manual of guidance and implementation prepared for the UK joint costing and pricing steering group.*~~

Coy, D & Goh, G (1995) "Overhead Costs Allocations by Tertiary Education Institutions". *Journal of Institutional of Institutional Research in Australasia, Vol 4, No. 1, May 1995.*

[Ernst & Young \(1998\) Costing & Methodology for use in Australian Higher Education Institutions, a report commissioned by DETYA](#)

Gibbon, J, Johnston, K, Loughran, J and Robinson, J (1996) "An Innovative Alliance between Practitioners and Academics". *Management Accounting London, Vol 74, NO. 8, September 1996.*

~~J M Consulting Limited (1999) *Transparent approach to costing. A manual of guidance and implementation prepared for the UK joint costing and pricing steering group.*~~

[Kemp, DA \(1999\) Knowledge and Innovation: A policy statement on research and research training, Commonwealth of Australia, Canberra.](#)

[KPMG \(2000\) *Funding and Costing Models in Higher Education. Background Papers Prepared for DETYA.*](#)

[Milano, RJ \(2000\) "Activity Based Costing/Management for colleges and Universities". *Management Account Quarterly, Spring edition 2000.*](#)

~~KPMG (2000) *Funding and Costing Models in Higher Education. Background Papers Prepared for DETYA.*~~