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## **Management Accounting in the Australian Printing Industry: A Survey**

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### **Abstract**

**Purpose** – This paper examines the management accounting methods being used to allocate overheads in the printing industry in Australia.

**Design/methodology/approach** – A survey was conducted of 50 randomly selected printing firms. The response rate of 36% whilst acceptable meant that only a small sample of responses was collected.

**Results/findings** – The responses highlighted the decline in the adoption and application of activity-based costing. Absorption (full) costing was the predominant method used by the respondents with a number of these firms having reverted from using activity-based costing. The reasons given for not using activity-based costing were that it was too difficult, too time consuming, and costly. In addition the firms using activity-based costing indicated that they were confident in the allocation method they were less satisfied and had a lower understanding of the method than the firms using absorption costing.

**Originality/value** – The paper provides support for prior research that had reported a global decline in the adoption and use of activity-based costing. Further, the findings provide greater insight into the reasons for the decline identifying issues for the direction of future research.

**Keywords:** Printing industry; activity-based costing; overhead allocation methods.

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## Introduction

The printing industry in Australia, and indeed globally, has been impacted by the development of new technology that dramatically changed the production processes and the advent of online ordering which not just opened the industry to the prospects of a global customer market but also competition from international firms (Romano, 2004). In the midst of all of this upheaval Australian printing firms have also had to grapple with finding the right blend of management accounting processes to enable competitive costing with an adequate balance of profit.

The Printing Industry Association of Australia reported (2015) that the industry as a whole had an annual turnover in excess of \$32 billion and had annual exports in excess of \$1.5 billion. However, the Printing industry's revenue has declined in a short period of time due to declining demand caused by businesses having reduced use of stationery by increasingly trading online (IBIS, 2018). Another factor that has had a direct impact on the reduced need for stationery items is the technological advancements in laser printers and their subsequent reduced costs of purchasing or leasing as well as operating costs. Subsequently, the industry revenue is expected to decline dramatically, and printing firms arguably need to focus on the use of new technology and approaches to better manage costs.

Globalisation was identified as being a significant factor contributing to the growth of the printing industry in Hong Kong culminating in it becoming a major export industry (Goldstein, 1989). Research of the printing industry in America (Cosart, Carlisle & Houdeshell, 1990) and Australia (Frenkel, 1990) identified that the introduction of high speed presses, in-line finishing and robotics had led to the adoption of new techniques such as total quality management (TQM), statistical process control (SPC), just-in-time (JIT), and activity-based costing (ABC).

Of the four techniques mentioned above activity-based costing is arguably the most pertinent approach to allocate costs in the printing industry as it operates on a job cost basis where every order is unique. The underpinning construct for this argument pertains to the differences that exists between process costing and job costing. Process costing tends to involve a continuous production line, there may be more than one product and therefore more than one production line, however, each product is identical in its manufacture and output<sup>1</sup>, subsequently use of resources are easier to identify and allocation of overheads is generally consistent with machine hours, direct materials or direct labour. In the case of a job costing operation each job varies in its complexity and use of machine hours, direct materials or direct labour. In the Australian Printing Industry the machine hours are still a relevant component in allocating overheads especially since the technological advancements in the printing machinery has provided greater flexibility and accuracy in recording of time used for production. Raw materials on the other hand will vary according to the varying nature of the actual paper, cardboard, plastic its size and its thickness, these of course will have different costs associated with the variations however they need not be a good indicator of allocation of overheads.

## Literature Review

Cosart, Carlisle and Houdeshell (1990) examined the printing industry in America and found that traditional cost accounting systems were effectively still being used. They identified that management within the printing firms were not able to track overhead costs

<sup>1</sup> For example, a 600ml bottle of soft drink is identical to the next 600ml bottle that comes of that production line. Where a different product is made perhaps one that is sugar free then the 600ml bottle of sugar free soft drink will be identical to the next bottle of sugar free soft drink that come off that production line.

in an appropriate manner. Chenhall (1991) was critical of traditional cost accounting systems that focus on financial information rather than costs attributable to production.

In respect of the approach to pricing of products based on accounting costs Hilton, Swiergiga and Turner (1988) found that absorption costing was used by an overwhelming majority of American firms. They highlighted the fact that this was providing management with information that was inconsistent with making good decisions when it came to pricing of products. However, Tibbits (1970) had argued in favour of the use of absorption costing for firms in which job costing was the primary method of production. The argument being that this provided a better indication of overhead costs when management needed to examine price levels.

While the information requirements concerning cost allocation and pricing decision in the printing industry are addressed by broad guidelines of various printing industry associations, there is no clear standard. What seems to have occurred is that cost allocation has varied according to the interpretation of management.

Activity-based costing was heralded as providing the most appropriate approach to allocate overhead costs to determine an adequate product cost (Cooper & Kaplan, 1988; Sharma & Ratnatunga, 1997). Bellis-Jones and Hand (1989) suggested that having a better understanding of the causes of overhead costs can also lead to finding ways to reduce those costs. Drury (1989) argued that the activity-based cost approach placed greater emphasis on identifying the causes of costs overcoming the faults inherent in the traditional costing systems. Research by Jeans and Morrow (1989) examined the factors that lead firms to introduce activity-based costing and found that whilst overhead costs had increased direct labour costs had reduced and firms were attempting to deal with the complex nature of overhead costs especially where technological advancements had impacted on production processes and markets had become more competitive.

Since the heady days of the 1990's activity-based costing has lost a lot of its attraction and Byrne, Stower and Tory (2000) reported that the adoption and continued application of activity-based costing was in decline in Australia. The reason for this seemed to be linked to the complexity and time required to implement and maintain the activity-based analysis (Byren, 2011). Innes, Mitchell and Sinclair (2000) reported a decline in the implementation levels of activity-based costing of large firms in the UK. Another major cause of the decline in activity-based costing implementation and continued use was considered to be linked to the loss of top management support (Cokins, 1999). The situation is similar in Japan where the popularity of activity-based costing has declined due to doubts about it being a useful costing system for Japanese businesses that have developed their own costing systems with which they are more familiar and find to be more useful (Ozawa & De Zoysa, 2013). The failure of activity-based costing was examined by Malmi (1997) and in general the reasons were found to be mostly of a structural nature which could not be overcome by improving implementation based strategies.

## Method

A survey was conducted of 50 randomly selected printing firms from New South Wales, Queensland, and Victoria. The questions asked pertaining to the management accounting system and specifically the cost accounting technique used for allocation of overheads.

There were 18 responses received which is a 36% response rate. As Nachmias and Nachmias (1977) indicated that a response rate within the range of 20% to 40% should be

satisfactory this level is therefore considered acceptable. A nonresponse bias could not be tested as there was no early late responses.

The answers to the questions were subjected to evaluation based upon the type of response required.

## Results

The responses came from the following geographical areas; 83.5% New South Wales, 11.0% Queensland, and 5.5% Victoria. The first four questions were aimed at obtaining information regarding the integration and use of computer systems for the flow of financial and management accounting data and the responses are detailed in Table 1.

**Table 1:**  
*Computer application*

<b>Question</b>	<b>Yes</b>	<b>No</b>
Is a Computerised Accounting Package used?	18 (100%)	0
Is the Computer used to determine costs for estimating production pricing?	11 (61.1%)	7 (38.9%)
Is the Computer used to allocate actual costs to production?	11 (61.1%)	7 (38.9%)
Is the Computer linked to Machinery to track and record the flow of production jobs through the firm?	9 (50%)	9 (50%)

While computer technology has clearly been employed for the purpose of maintaining accounting records the wider applications of the technology available has not been adopted. This is of concern since it indicates that the potential for monitoring costs and evaluating variances may not be fully appreciated by management, or at least the facility that computer technology provides has not been fully utilised.

The next two questions relate to the relative costs of production and to the extent to which they represent a percentage of the overall costs. For the purpose of reporting these values the figures presented are the averages from the responses and are provided in Table 2 and the basis of allocation in Table 3.

**Table 2:**  
*Production Costs*

<b>Question</b>	<b>Direct labour</b>	<b>Direct materials</b>	<b>Overheads</b>
What percentage of your firm's production costs are related to the following?	32.4%	34.8%	32.8%

**Table 3:**  
*Allocation of Overhead Costs*

<b>Question</b>	<b>Direct labour hours/cost</b>	<b>Direct materials cost</b>	<b>Machine hours / costs</b>
What basis does your firm use to allocate overhead costs to determine the cost of production?	8 (44.4%)	1 (5.6%)	9 (50.0%)

It is interesting to note that the issue of direct labour is somewhat of a complex issue since new technology has generally led to a decline in the number staff required and the specialised knowledge required to operate the new technology has to some extent placed a premium on the cost of the new staff. Conversely, while the new technology may have reduced operating times it has come at a higher price both in acquisition and in maintenance of associated consumables. The high level of overhead costs as a percentage of total costs (Table 2) is an indication of several factors firstly the increase in use of machinery and the second factor is the new computerised technology has increased the demand for electricity the cost of which has escalated. The resulting balance in favour of the use of machine hours / costs to derive the overhead costs allocation method is taken as an indicator of the growing importance of the machinery to the production process.

The next set of questions were directly about the method of allocating overhead costs being used and any changes to the methods that were either planned or had occurred. The questions and the responses are addressed in Table 4.

**Table 4:**  
*Methods Used for the Allocation of Overhead Costs*

<b>Question</b>	<b>Methods</b>
Which of the following is the method you are using to allocate overhead costs when calculating /estimating quotes for production pricing?	Absorption costing (Full costing) = 12 (70.6%) Activity-based costs = 4 (23.5%) Variable costing = 1 (5.9%)

The low percentage of firms using activity-based costing was surprising however, there was an additional question which asked if they had previously used activity-based what reason did they have for discontinuing its use. This did reveal even more interesting details about the reasons for its decline, with five respondents that use absorption costing indicating they had previously used activity-based costing and had changed for the reasons indicated in Table 5.

**Table 5:**  
*Reasons for discontinuing use of Activity-based Costing*

<b>Question</b>	<b>Reasons</b>
If you had previously used activity-based coating - Which of the following best explain the reason for your not continuing to use activity-based costing?	Too time consuming = 4 Too costly = 3 Too difficult = 5

The responses were not mutually exclusive, so it appears that all three reasons are behind the decline although the difficulty of the system being the predominant cause. The next question asked just how confident and satisfied they were with the method they were using. For this the responses are divided into the three categories of cost allocation method in an attempt to provide a more comparative overview. This involved the use of a 6 point Likert Scale (Miller, 1956) using the following levels for confidence – 1 completely unconfident; 2 very unconfident; 3 unconfident; 4 confident; 5 very confident; 6 completely confident: for satisfaction – 1 completely dissatisfied; 2 very dissatisfied; 3 dissatisfied; 4 satisfied; 5 very satisfied; and 6 completely satisfied: and for understanding 1 completely not understood; 2 not well understood; 3 not understood; 4 understood; 5 well understood; 6 completely understood. The average responses are presented in Table 6.

**Table 6:**  
*Confidence and Satisfaction with Allocation Method*

<b>Question</b>	<b>Absorption (Full cost) n=12</b>	<b>Activity- based cost n=4</b>	<b>Variable cost n= 1</b>
How confident are you with the method you use to allocate overhead costs to the cost of production?	4.17	3.75	3.0
How satisfied are you with the method you use to allocate overhead costs to the cost of production?	4.67	4.75	4.0
How well do you understand the method you use to allocate overhead costs to the cost of production?	5.0	3.25	4.0

In view of there being only one respondent using variable cost the results for that are considered to be of limited value and are therefore not discussed. The averages for the absorption method do indicate that they are confident (4.17), very satisfied (4.67) and that it is well understood (5.0). By contrast the activity-based costing method has a low confidence level (3.75), which seems contradictory when compared to the respondents indicating that they are very satisfied with the method (4.74). However, when the level of confidence is then considered along with the response that the method is not well understood (3.25) it seems is a discrepancy and it is not clear why this anomaly has occurred. These results may well be pointing to a more complex set of issues that have led to the decline in the popularity of the activity-based costing method.

## Conclusion

The responses are clearly indicating that activity-based costing does not have the general appeal to firms and that the traditional approach of absorption costing is, at least within the sample of respondents, the preferred method. In view of the need to have an accurate method of calculating and otherwise determining the basis for allocating overheads to each and every job, for which activity-based costing is considered to be ideally suited, there needs to be consideration given to an alternative method.

Future research may well benefit from extending the line of questioning regarding the confidence, satisfaction and understanding of activity-based costing as a method for allocating overheads. There may also be a difference between the printing industry and industries that could be explored.

There are a number of limitations in this study that should be considered when seeking to generalise the results. Firstly, the small sample size introduces the possibility of a bias in the data. Secondly, the simplicity of the questionnaire was done to encourage prompt and honest responses however, it limits the data and did not allow for any opportunity to seek clarification.

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