



Using Time-Driven Activity-Based Costing to Identify Best Practices in Academic Libraries



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ABSTRACT

In the current competitive and dynamic environment, libraries must remain agile and flexible, as well as open to new ideas and ways of working. Based on a comparative case study of two academic libraries in Belgium, this research study investigates the opportunities of using Time-Driven Activity-Based Costing (TDABC) to benchmark library processes. To this end, two major research questions are addressed: 1) Can TDABC be used to enhance process benchmarking in libraries? 2) Do results at activity level provide additional insights compared to macro results in a process benchmarking? We first start by describing the TDABC implementation. Then, we discuss and compare the workflow of 10 library processes covering the four principal library functions: acquisition, cataloging, circulation and document delivery. Next, based on the benchmarking exercise, we report and discuss potential processes and performance improvements that can be realized from using library time and costs information, in particular concerning the two libraries analyzed. We conclude this article by discussing the advantages of using TDABC as a tool to enhance process benchmarking in libraries.

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INTRODUCTION

Over the last decades, libraries have been in a process of constant change. Emerging digital services, the high cost of information and continuing budget constraints have heightened the libraries' need to improve their efficiency and their urgency to deliver "high-quality services at lower costs" (ACRL Research Planning and Review Committee, 2010; Blixrud, 2003). In addition, due to rapid technological advances and the astonishing e-content revolution, library users have changed their information-seeking behavior; the growing presence of e-books and the proliferation of tablets and mobile devices have transformed the manner how information is disseminated and consumed. Furthermore, e-services like remote access to digital information make it less visible what libraries do for their users such as students, academics and scholars.

This evolution induces libraries to become more innovative in providing, justifying, and evaluating the efficiency and effectiveness of their services and collections. Libraries, more than ever, must evolve

and continue to demonstrate their relevance to the academic management, who faces difficulties understanding new roles, cost, and value of libraries (ACRL Research Planning and Review Committee, 2012, 2013). To cope with these difficulties, libraries have increased their focus on assessment of outcomes over inputs and placed emphasis in demonstrating that these results are having an impact on academic libraries and parent institutions. However, because of limited funding, library administrators are assessing the best ways to allocate their resources, how to redefine themselves, and to re-engineer their budget strategies.

Among the approaches that can help libraries to improve their performance, benchmarking is considered as one of the most effective (Maire, Bronet, & Pillet, 2005). Benchmarking can be very useful to libraries that are looking for more efficient ways to deliver their services (Henczel, 2002).

THEORETICAL BACKGROUND AND RESEARCH QUESTIONS

BENCHMARKING

Benchmarking is the process of identifying, sharing and using local services, knowledge and practices, and then comparing against known best practices or the best in the field to determine and prioritize the areas that require improvement (Maire, 2002; Tardugno, DiPasquale, & Matthews, 2000). This comparison can be executed internally when performances between institutional units are considered, or externally

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when different institutions' data are benchmarked. According to Gibb, Buchanan, and Shah (2006), benchmarking can be applied in three main areas: performance, strategic and processes. *Performance benchmarking* relates to the comparison of outcomes or performance metrics among organizations, such as elements of price, speed, and reliability. *Strategic benchmarking* is focused on the understanding of tactical issues, on how successful enterprises are, and on the characteristics that contribute to or inhibit their success. Finally, *process benchmarking* uses process performance information to identify efficiency and effectiveness of processes and their corresponding workflows.

In particular, in the library sector, process benchmarking is used to compare the daily activities operations of libraries, and to determine existing differences and opportunities. This benchmarking helps librarians to measure process workflows, as well as to ensure that libraries and their staff remain on the cutting edge of their profession. Process benchmarking is also useful to improve efficiency, effectiveness, and competitiveness of libraries (Nicholas, 2010). In fact, libraries, in many developed countries, share statistical data regarding their processes and services on a regular basis because the strategic information gathered is used to demonstrate to top management that their performance is good or better than similar libraries. Conversely, this information is used when libraries require a higher level of support from their mother institutions to perform as well as others (Henczel, 2006).

Benchmarking studies, in general, utilize traditional metrics based on transactional aggregates (Anderson, 2006), such as library staff available, number of renewals, and waiting time. However, Anderson (2006) indicates that the difficulty with these high-level metrics is that they often fail to identify the true problem. Therefore, the combination of benchmarking analyses with an internal understanding of performance drivers may allow for even greater efficiency and more accurate results.

TIME-DRIVEN ACTIVITY-BASED COSTING

Academic libraries produce and gather a vast amount of statistics about their collection and services; however, service and process costs are rarely calculated as a performance measure. This is due to their unaccustomedness to perform formal costing analysis to their services and processes (Saunders, 2003); in which, traditional costing systems have been their most widely used technique. In a traditional costing system, direct costs such as direct labor and materials, are directly attributed to the services. On the contrary, indirect costs such as marketing, depreciation, training, and electricity are typically allocated to each service using a single or a few volume-based cost drivers (e.g., direct labor, service hours, or units of output). Traditional costing systems are adequate when indirect expenses are low, and service variety is limited (Ellis-Newman & Robinson, 1998). However, in environments with a broad range of services, such as libraries, indirect costs have increasingly become more important than direct costs.

Seeking to remedy these limitations, libraries started employing more advanced cost calculation techniques, such as activity-based costing (ABC). ABC is an alternative costing system promoted by Cooper and Kaplan (1988). Compared to traditional costing methods, ABC performs a more accurate and efficient treatment of indirect costs (Ellis-Newman & Robinson, 1998). ABC first accumulates indirect costs for each activity and then assigns the costs of the activities to the services causing that activity. In libraries, an activity is considered as an event or task undertaken for a specific purpose such as cataloging, loan processing, shelving, and acquisition orders (Ellis-Newman, 2003). An extensive stream of literature describes ABC as a system that provides interesting advantages to decision-making in libraries (Ching, Leung, Fidow, & Huang, 2008; Ellis-Newman, 2003; Ellis-Newman & Robinson, 1998; Gerdson, 2002; Goddard & Ooi, 1998; Heaney, 2004; Novak, Paulos, & Clair, 2011; Skilbeck & Connell, 2001). However, ABC has considerable limitations, for instance, a high degree of subjectivity involved in estimating library employees' proportion of time spent on each activity; the excessive time, resources and money for data collection; and the

difficulties to model multi-driver activities (Dalci, Tanis, & Kosan, 2010; Demeere, Stouthuysen, & Roodhooft, 2009; Everaert, Bruggeman, & De Creus, 2008; Everaert, Bruggeman, Sarens, Anderson, & Levant, 2008; Kaplan & Anderson, 2004, 2007a; Tse & Gong, 2009; Wegmann & Nozile, 2009).

In this study, we argue that Time-Driven Activity-Based Costing (TDABC) can be a useful tool to provide the internal understanding that benchmarking studies require. TDABC is a cost management technique developed by Kaplan and Anderson to overcome the difficulties presented by prior approaches (Kaplan & Anderson, 2007a; Siguenza-Guzman, Van den Abbeele, Vandewalle, Verhaaren, & Cattrysse, 2013). TDABC assigns resource costs directly to the cost objects using a fast and simple framework that only requires two parameters: 1) the cost per time unit of capacity and 2) an estimation of the time needed to perform an activity (Kaplan & Anderson, 2007b). For each activity, costing equations are calculated based on the time required to perform an activity. Such time estimates can be readily observed, validated, and then computed by time equations that are the sum of individual activity times (Kaplan & Anderson, 2007b). By using these equations, all possible combinations of activities can be modeled, for example, when different types of services do not necessarily require the same amount of time to be performed (e.g. original and copy cataloging). The literature on TDABC outlines the following advantages: the ease and speed of building accurate costing models; the possibility of using multiple drivers; the good estimation of resource consumption and capacity utilization; the versatility and modularity to maintain and build inexpensive costing models; and the possibility of using TDABC in a predictive manner (Siguenza-Guzman, Van den Abbeele, Vandewalle, Verhaaren and Cattrysse, 2013). Besides these advantages and benefits, combining TDABC with other tools allows libraries for even greater improvement opportunities and results. Siguenza-Guzman et al. (2013), for example, summarize five possible combinations: 1) simulation modeling to analyze how to optimize resources since information is entirely composed of real values; 2) benchmarking tools to provide a deeper understanding of root problems such as sources of inefficiency and poor performance; 3) complementary information systems, such as bar codes, RFID technology, and time sheets, to improve data accuracy and simplify data collection; 4) balanced scorecard to facilitate translating strategy into performance measures, and to provide actionable performance measures for the balanced scorecard; and 5) total quality management to help library managers to identify non-value added activities.

By combining benchmarking with TDABC models, libraries can improve their performance "learning from others", through the comparison of their processes, under Kaplan & Anderson's (2007b) premise that many processes are common across multiple institutions. Besides, this combination allows comparing time equations and costs within different library locations, such as departments and branches. Anderson (2006) analyzes this combination by illustrating how three companies in various sectors (distribution, banking, and retail) use time-driven benchmarking models. According to this author, TDABC does not replace traditional benchmarking methodologies; rather, it enhances them. In fact, unlike traditional benchmarking that only reports macro results, TDABC isolates process differences to uncover root causes. A case study by Everaert, Bruggeman and De Creus (2008) and Everaert, Bruggeman, Sarens, et al. (2008) in the logistic industry, shows how an internal benchmarking was positively performed in four warehouses to identify inefficiencies and synergy possibilities. Therefore, according to these previous studies, TDABC can improve benchmarking models by providing accurate and detailed information of sources of inefficiency and poor performance, as well as by helping to understand the impact that capacity utilization has on numbers.

In recent years, quite some research has been published on TDABC in libraries, but all these studies focus on specific library activities such as acquisition (Kont, 2014; Stouthuysen, Swiggers, Reheul, & Roodhooft, 2010), cataloging (Kont, 2013; Siguenza-Guzman, Van Den Abbeele, &

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