Business Intelligence is No ‘Free Lunch’: What We Already Know About Cost Allocation – and What We Should Find Out

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ABSTRACT
Cost allocations for business intelligence (BI) costs create cost awareness, enhance cost transparency, and support the management of BI systems. Although BI cost allocation is highly relevant in practice, the field is widely uncharted in current scholarly research. In this article, the state of the art in scientific literature is analyzed. The review is comprised of three iterations. It shows that certain general approaches for information systems cost allocation are suitable candidates if being combined and tailored to BI systems. Based on synthesis, an agenda is derived for future research into cost allocation for BI systems.

KEYWORDS
BI Management, Business Intelligence, Cost Accounting, IS Governance, Literature Review

INTRODUCTION
Along with the pervasion of transactional information systems (IS) in organizations, business intelligence (BI) technologies have developed which turn the vast amount of data into decision support information for management. Today, Business Intelligence (BI) is widely understood as an umbrella term for “technologies, applications and processes for gathering, storing, accessing and analyzing data to help its users make better decisions” (Wixom & Watson, 2010, p. 14). By supporting and improving the decision-making process in organizations, BI systems are widely considered to be a prerequisite for organizational success (Wixom & Watson, 2010).

While general information technology expenses only rose by 0.4% in 2013 (Gartner Inc., 2014b), expenses for BI grew by 8% in 2013 (Gartner Inc., 2014a) even in times of cost pressure, declining budgets in administrative departments, and reduced overall IT budgets (Gartner Inc., 2014b). Along with the big data and analytics hype, BI expenses grew even faster in recent years and may be expected to constitute one of biggest components of corporate IT budgets soon. One reason for growing expenses for BI is the exponentially growing amount of data, which inevitably leads to increasing...
costs for storing and analyzing that data. As a consequence, there is a high need within organizations to transparently present and justify BI expenses. While information provided through BI services increasingly become integral components of products and services or are even becoming products/services by themselves, BI costs are treated differently. Due to the missing capability of transparently analyzing and presenting those costs, they often are added as an overhead surcharge to the direct costs in the product calculation (Negash, 2004), or they are even ignored entirely. It is, therefore, difficult to create cost transparency and cost awareness, to uncover inefficiencies, and to generate desired steering effects for the management of BI resources that are used by other units (Olson & Ives, 1982; Verner, Toraskar, & Brown, 1996). A cost allocation for BI is supposed to enhance transparency for this growing portion of overhead costs. Like cost allocations in general, also BI cost allocations aim at creating cost transparency and cost awareness, uncovering inefficiencies in the use of resources, and creating desired control effects for the management of the resources whose costs are allocated to other units (Klesse, 2007).

Cost accounting is a sub-discipline of management accounting and deals with the correct allocation of overhead costs to those organizational units that directly contribute to the production of goods or services (Rao, 2007). Cost accounting and cost allocation (CA) have been addressed by management research for a long time (e.g., Clark, 1923; Cooper & Kaplan, 1988; Shillinglaw, 1989) in the dominant context of the manufacturing industry, where overhead costs have to be allocated to produced goods. IS have more infrastructure characteristics (creating potentials, shared resources) than manufacturing (creating non-sharable outputs from input goods). As a consequence, according to Deloitte (2011), the maturity level of IS CA in practice is still low. Stefanov et al. (2012) confirm that IS CAs are “still poorly understood” and that there is a lack of successful CAs in practice. Publications crossing the line between IS and management accounting exist (e.g., Rom & Rohde, 2007), but do not consider the particularities of BI.

Owing to BI’s particular characteristics, BI seems to be of special interest to cost accounting. First, the output of BI is data converted into information that is difficult to price, because neither the production costs nor the value of the obtained information can be calculated in a straightforward way. Second, the benefit of a BI system lies in the purposeful use of the system’s output rather than in the BI system use itself (Benbasat & Zmud, 2003). Third, BI investments and operation create a high monolithic cost block (Bischoff, Aier, & Winter, 2014) that remains unmanageable if not allocated to the causer. Fourth, for IS often pay-per-use CAs (Ross, Vitale, & Beath, 1999) are implemented that restrict the use of resources, which is not desirable for BI: A BI CA shall not distract from BI system use, but promote BI system use to the best of its capabilities to reach beneficial business decisions. Several publications particularly call for research on cost issues of BI (Arnott & Pervan, 2008; Clark Jr, Jones, & Armstrong, 2007; Schieder & Gluchowski, 2011). Therefore, in this paper, we aim to delineate the field and to analyze prior research on CA of BI systems. Consequently, this paper addresses the following research questions (RQ):

1. What are the existing methods for cost allocation of BI systems?
2. What are the fields for future research regarding BI cost allocations?

The state of the art in scientific literature regarding BI cost allocations reveals that on one hand there is a high need for proper cost management, cost transparency, and cost-value considerations in the domain of BI. On the other hand, no research-based publications deal with the topic of BI CAs in a comprehensive way. Therefore, our paper establishes an understanding of CA methods applicable for BI systems by critically reflecting prior research in this field. We identify research gaps and propose opportunities for future research. This paper is organized as follows: section two presents the conceptual foundations important for deriving the search terms. Section three introduces the research method. Sections four and five present the iterative literature review and the synthesis of the results, respectively. In section six, we summarize the findings and discuss our results.
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