Service-Oriented Cost Allocation for Business Intelligence and Analytics: Helping Service Consumers to Increase Business Value

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ABSTRACT
Quantifying and designing the cost pool generated by Business Intelligence and Analytics (BI&A) would improve cost transparency and invoicing processes, allowing a fairer, more exact allocation of costs to service consumers. Yet there is still no method for determining BI&A costs to provide a base for allocation purposes. While literature describes several methods for BI&A cost estimation on an ROI or resource-consumption level, none of these methods considers an overall approach for BI&A. To tackle this problem, the authors propose a service-oriented cost allocation model which calculates BI&A applications based on defined services, enabling a cost transfer to service consumers. This new approach specifies steps towards deriving a usable pricing scheme for an entire BI&A service portfolio – both for allocation purposes as well as improving cost evaluation of BI&A projects. Moreover, it increases customer understanding and cost awareness. Based on this approach, the authors introduce a BI&A value creation cycle which helps customers to use BI&A services cost-effectively.

KEYWORDS

INTRODUCTION
In the information age, it is becoming increasingly important for companies to recognize and harness the potential of internal and external data. To successfully compete on the market, information for decision-making processes must be provided at the right time and in a suitable form. In general, this is the task of Business Intelligence and Analytics (BI&A). Chen et al. (2012) define BI&A as “the techniques, technologies, systems, practices, methodologies, and applications that analyze critical Business data to help an enterprise better understand its business and market and make timely decisions”. The principal purpose of BI&A is to use past experience to support decision making. The majority of organizations have an internal department for BI&A, in most cases structured as a BI Competency Center (BICC) (Miller et al., 2006), which provides this information through a
company-specific BI&A architecture and organization. Today the benefits of BI&A are undisputed and it has reached most organizations. To achieve more flexibility and scalability, organizations are now looking for new sources of potential e.g. from reducing costs or increasing speed of implementation. Just these kinds of improvement are promised by BI in the cloud or BI as a service (Kazeli, 2014).

With our research in this paper, our aim is to find responses to the following two challenges: firstly, due to rising costs, a more complex architecture (Horakh et al., 2008), and new technology and methods (Chen et al., 2012), strong justification of the case for BI&A must be delivered to management, especially during difficult points in the economic cycle (Gibson et al., 2004; Lönnqvist & Pirttimäki, 2006); secondly, with the increased use and availability of BI&A in organizations (Chen et al., 2012; Dinter, 2011; Kaisler et al., 2013), it is getting even harder for users to decide which service to use for their specific requirements vis-à-vis functionality, benefits, implementation, and future costs. These two challenges demand a more differentiated level of cost transparency.

While there are some frameworks for summing up the total cost for BI&A technology landscapes (Lönnqvist & Pirttimäki, 2006; Wu, 2000) and some approaches which propose an estimation of costs based on resource consumption (Brandl et al., 2007; Klesse, 2008), a detailed, holistic BI&A cost allocation approach is missing. More specifically, there is no description of the steps required of the BI&A function in a company in order to create a practicable pricing scheme with a view to allocating costs to BI&A customers, nor are there blueprints for the structure of such a scheme.

According to a recent study by the market research organization Dynamic Markets, 72 per cent of the companies surveyed are not able to identify their BI&A reporting costs (Frisch, 2012). Moreover, allocating those costs to the level of individual BI&A applications (Gansor et al., 2010; Moss & Atre, 2003) remains a challenging task. This difficulty arises because BI&A applications are complex due to both their development process and interdependencies; another issue is the individual nature of a company’s BI&A product portfolio, with customer requirements in continuous flux. However, in order to allocate costs in a fair way, the total BI&A cost must be broken down so as to make the individual BI&A activities visible and to determine costs at the BI&A activity level (e.g., user support, operating costs for a report). In a BI&A context, this becomes complex because of predominantly fixed and indirect costs (Gansor et al., 2010; Klesse, 2008), which makes cost allocation necessary. Viewed from an IT perspective, (Berghout & Remenyi, 2005; van Maanen & Berghout, 2002) point out that IT costs must be allocated in order to improve cost transparency and that this is a challenging task beset by problems which remain unresolved (Berghout & Remenyi, 2005) (e.g. overhead allocation problems, accounting conventions).

It is the aim of this paper to increase BI&A cost transparency by applying an appropriate cost accounting system driven by a BI&A controlling instrument. This kind of BI&A cost accounting system will be available as a managerial instrument for collecting information about value streams in order to plan, control and monitor all tasks in the BI&A organization (Hamel et al., 2010). With an appropriate cost accounting system, cost transparency will increase, helping managers take decisions (Moss & Atre, 2003). It will also become possible to calculate costs for both individual BI&A artefacts and entire BI&A projects. Moreover, when charged with BI&A costs, customers within a company may also become sensitized to the importance of making economical use of BI&A. With improved knowledge about the BI&A scope of service and related costs, customers are able to decide how to use BI&A with reference to functionality, benefits, implementation, and future costs. Furthermore, an improvement in cost controlling could bring about a more efficient and effective use of BI&A resource project planning. Aside from the possibility of enabling make-or-buy decisions and cost benchmarks, improved cost transparency will represent a step forward towards a profitability analysis.
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