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Managerial accounting for safety management. The case of a Spanish construction company

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ABSTRACT

Managerial accounting can play an important role in supporting safety management in enterprises, by systematically providing appropriate reports to support the decision-making process in the area of risk prevention, benefiting both internal and external stakeholders.

In this paper, we first examine the weaknesses of current managerial accounting systems as regards the provision of systematic information on the cost of measures to ensure health and safety in the workplace. We then propose a model of management accounting to calculate, analyse and control these costs, with particular reference to construction companies. Finally, we implement a case study in a Spanish construction company, focusing on two construction projects carried out in 2008 in Andalusia (Spain). This study reveals that health and safety costs are substantial and remain invisible to the company to a very large degree (more than 90%), because the items that make up this cost are dispersed within other accounting entries, thus remaining unidentified on the income statement. Accordingly, construction companies need to implement a management accounting system to get appropriate information about safety costs, to guide their decisions in safety management.

1. Introduction

Rates of work-related injuries in the construction sector are much higher than in many other areas, as has been documented in various studies and reports (Agilés-Bosch et al., 2014; Chi and Han, 2013; Fung et al., 2010; Manu et al., 2013; Martinez Aires et al., 2010; Montero et al., 2009) and so companies in this field are exposed to the high costs associated with such accidents. These costs are diverse in nature, and include human costs (which are not directly quantifiable) and financial, for the companies in the industry and for society as a whole (sick leave, medical treatment, etc.) (Abudayyeh et al., 2006; Dorman, 1997). In parallel, other costs are associated with delays in project implementation times, damage to the company's reputation or the loss of market share (Gosselin, 2005; Jallon et al. 2011a,b).

According to Rikhardsson (2005), managerial or management accounting is called upon to play an active role in project evaluation, strategic planning and relationships with stakeholders, thus extending the impact and scope of the methods and techniques applied in this field. One such case is that of the management of safety risk in the workplace, where managerial accounting can provide valuable information for decision-making by internal users and for managing relationships with stakeholders.

As stated by Tappura et al. (2015), the management accounting approach is an essential factor in managerial decision-making to safety work, especially to provide information for organisation, when they make investment in safety.

As observed by Bhimani (2009:2), the relationship between management accounting and risk management has been addressed to a minimal extent in the academic literature. However, "the potential of risk concepts to be made managerially actionable rests on their capacity to be interpreted in technical, analytical and calculable terms", and . . ."enterprises seek not only to adopt risk controls but also to make the deployment of such controls transparent and visible to engender greater organisational legitimacy". Berry et al. (2009) raise relation between management control and risk management as an emerging theme in management control research. In this sense, Esmaeili and Hallowell (2012) propose new research areas that may enhance safety performance, as integration of safety data into building information models and utilising leading indicators of safety performance, among others (Hallowell et al., 2013; Hassanein and Hanna, 2008; Ikpe et al.,

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2012; Ku and Mills, 2010). In addition, research into the cost effectiveness of safety practices would help practitioners to build strong programs with limited budgets (Hinze et al., 2013).

According to Cullen et al. (2013), taking a management accounting practice perspective, researches can innovate and lead the way to practitioners. Such research is important in terms of both theoretical contribution and practical relevance.

Zou et al. (2014:325) have observed that there may be a gap between the knowledge generated by researchers and the practical needs in the construction industry, about safety. These authors have advocated the greater use of mixed methods research design to integrate the realms of theory and practice to improve the relationships between researchers and practitioners in construction safety. "By adopting this approach, it is expected that research findings will become more relevant and useful to construction industry and practitioners, while at the same time contributing to the advancement of conceptual understanding and theory development".

From this perspective, our paper seeks to provide an illustration of management accounting practice and its importance to improve safety risk management systems in companies. As suggested by Cullen et al. (2013), this paper is raised as an interventionist research, undertaken by interdisciplinary research teams (management accountants and engineers, as researchers, and risk prevention managers, as practitioners of construction companies).

In this sense, taking into account the above considerations, this paper describes the background to the management of health and safety costs in the workplace, highlighting the difficulties faced and the reluctance of companies to include these items systematically in their accounts. We then propose an accounting model for the calculation, analysis and control of safety costs in companies, which could be incorporated into their information systems, with particular reference to construction companies. This model is the outcome of the research study of a sample of 40 construction sites in Andalusia (Spain), at different stages of progress, in 2008. Finally, we present a case study in a Spanish construction company concerning two of these construction projects that were taking place when the data were compiled.

2. Background

Workplace accidents (including incidents and minor accidents) can have severe financial consequences for companies (Feng et al., 2015; Hinze and Appelgate, 1991), as well as impacting on society and on the workers concerned.

Investment in health and safety is usually made in response to a specific motivation. According to Heinrich (1930), employers have two reasons for seeking to prevent accidents: firstly, a moral and legal obligation related to accident insurance; and secondly, contractual obligations with their employees. In the same vein, Brody et al. (1990) identify three motivations for investing in health and safety measures: a voluntary motivation, aimed at improving work procedures; a motivation related to Social Security incentives, such as insurance premium discounts available to companies presenting low rates of workplace accidents; and a coercive motivation, related to penalties imposed under labour law and regulations.

Other authors, however, believe that the most important motivation for companies to invest in health and safety is that of the high cost of accidents (Laufer, 1987; Levitt and Parker, 1976; Simmonds and Grimaldi, 1963). In contrast, Dorman (2000) argues that construction companies meet the costs of health and safety measures not only to improve working conditions and to reduce accident rates, but also to avoid sanctions, to obtain social benefits, to enhance the corporate image and for the sake of other future benefits.

In any case, the above authors all concur that health and safety costs do exist and that they are substantial. However, they also agree that such costs are not so onerous for financial motivations to be considered the sole reason for a company deciding to invest in health and safety.

Various authors have highlighted the lack of consensus as to how the costs of health and safety should be addressed in company accounts. Reasons for this include the difficulty encountered in expressing employees' health in money terms (Andreoni, 1986), the limitation of dealing with normal market economy mechanisms, the question of safety and health as a public good (Bailey et al., 1995) and the widespread underestimation of these costs by companies (Brody et al., 1990).

Other possible causes of this shortcoming in business management are the extra workload perceived, the reluctance to change established accounting methods or the limited importance granted to health and safety departments within companies (Jallon et al. 2011a,b). According to Gosselin (2005), the calculation methods proposed by researchers for assessing the indirect costs of health and safety measures in the workplace are neither universal nor generalizable.

These considerations lead us to conclude that there is little interest among companies in identifying the costs concerning health and safety at work. This belief is confirmed by the results obtained in Spain by the National Survey on the Management of Health and Safety at Work (INSHT, 2009) in relation to companies in the construction sector.

The above conclusion is corroborated by empirical research based on questionnaires concerning 40 construction sites in Andalusia between 2007 and 2008, addressed to various companies in this sector. Our analysis makes it clear that safety costs are not calculated, and therefore are not controlled, by these companies.

From this perspective, construction firms would be more likely to invest in improving their workplace health and safety systems if they had an information system based on a model for the calculation, analysis and control of safety costs, and which highlighted the benefits to be derived from investing in safety, as recommended by the National Institute for Health and Safety at Work (INSHT, 1999).

In order to manage safety costs, it is necessary to take into account the activities that influence them. However, under standard accounting practice in construction companies, the items that comprise these costs are not identified. Most of the concepts involved are included in different accounting items, and the impact of each one on the income statement remains unknown (Aaltonen et al., 1996; Argilés-Bosch et al., 2014; Oxenburgh and Marlow, 2005; Riel and Imbeau, 1996; Rikhardsson, 2004).

Managerial accounting, as an information system for management, can play a vital role in this respect, by systematically providing appropriate reports to support the decision-making process in the area of health and safety at work. These data are valuable not only for those responsible for safety management in the company, but also for managing relations with diverse stakeholders, such as the company's employees and public institutions in the field of health and safety.

Awareness of the nature and dimension of safety costs is of great importance for risk management within companies.

3. Methodology

3.1. Designing a model for managing safety costs in construction projects: HSC_PEI2012

In order to design a model for managing safety costs, it is first necessary to define the categories of safety cost that constitute