



# How CEOs use management information systems for strategy implementation in hospitals

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## Abstract

Institutional and market changes seem to force hospitals across the Western world to revitalize their corporate strategies towards more cost efficiency on the one hand, and more flexibility towards customer demands on the other hand. Hospitals, however, apparently differ in the extent to which they are able to implement such strategies effectively. This paper explores whether these different levels of effectiveness depend on how hospitals' top managers' use of the available management information systems (MIS). Based on data obtained from the 218 CEOs of public hospitals in Spain, we analyze how CEOs' professional and educational backgrounds affect their use of MIS, and how the use of the MIS subsequently supports or inhibits the implementation of these strategic goals. The results indicate that CEOs with a predominant clinical background focus more on non-financial information for decision-making and prefer an interactive style of using MIS, which together support flexibility strategies. CEOs with a predominant administrative background seem more effective in establishing cost-reduction strategies, through their larger inclination to emphasize financial information in combination with a diagnostic use of the MIS. Implications for the strategic management of hospitals are outlined.

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## 1. Introduction

The medical industry across the Western world is currently involved in processes of serious strategic and managerial reorientation [1,2]. These processes originate in a number of different structural and demographic developments, such as the progressive ageing of the Western population, the impact of new pathologies and technologies, autonomous increases

in health care demands by citizens, and the need to repair supposed inefficiencies in the design and running of national health care systems [3–6]. In several countries, such as Spain, formal legislation requires regional health care authorities to encourage hospitals to become flexible organizations that are more receptive to the demands from the public, and to offer these higher quality services at lower cost [7,8,9]. Although these strategic goals and policies are not mutually exclusive by definition, the strategic management literature suggests that the organizational requirements for the effective implementation of qual-

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ity strategies and cost-reduction strategies may differ strongly [10,11,12]. This explains why hospitals pressed towards both cost reduction and flexibility enhancement may often perform better on one strategic dimension than the other [1,4,10,13]. In this paper we analyze the impact on strategic performance of hospitals of a combination of two such types of organizational requirements, which are the characteristics of the hospital's CEO and of the hospital's management information system (MIS). Based on the upper echelon theory of organizations, which recognizes the impact of managers' backgrounds on their subsequent choices and behavior [14,15], we develop a model that explains hospital's pursuit of strategic objectives by the way in which CEOs with different educational and professional backgrounds use the hospital's MIS differently [14,15]. In particular, we expect systematic differences between hospital CEOs with an administrative and with a clinical background in their use of the MIS, which subsequently affects the hospital's strategic focus. For the aim of this paper, we define a MIS broadly as the information system that provides management with information about financial and operational aspects of hospital management. Typical information elements contained in a hospital MIS relate to financial data on operational budgets, cost information per patient, per activity or treatment, and non-financial data on such diverse issues as number of treatments, bed occupancy, staff absenteeism and discharge rate [16,17]. Although it is obvious that any MIS plays an important role in day-to-day hospital management [18,19,20], we investigate the strategic role of MIS use here, which is increasingly acknowledged in the contemporary strategic management literature [1,4,5,10–13]. This literature in particular suggests that quality enhancement and cost reduction may require quite a different use of MIS by hospital management [20,21]. In sum therefore, we will contrast the clinical versus administrative background of CEOs, explore whether CEO background reflects in their use of the hospital's MIS, and how this use of MIS explains the subsequent pursuit of strategic policies by the hospital.

## **2. Theory and research objectives**

As CEOs are ultimately responsible for strategy implementation, they can and will influence the deter-

mination and implementation of organizational strategy [15,22]. CEOs may do so consciously, choosing courses of action that are rational and optimal, but, as research has demonstrated, also less consciously using heuristics and 'standard' patterns of thinking. The upper echelon theory in particular predicts that CEO background plays an important role in determining the behavior and choices of the CEO, and the organization overall [22,23]. Research on managerial decision-making shows that CEOs' decisions are determined and biased by patterns of knowledge formed by previous experience and training. These patterns and the associated heuristics enable them to make decisions and take actions without consuming much time and cognitive resources [14,22,23]. The upper echelon perspective in particular asserts that for hospitals the 'clinical' or 'administrative' orientations of hospital CEOs may be a good predictor of subsequent choices and behaviors [23,24,25]. Clinical managers have a dominant background in medicine or nursing, which are areas that are strongly related to the core operational processes in the hospital. Administrative managers, instead, are defined as those who have a dominant background in areas such as law or business that are general to a larger range of organizations. Research confirms that these different backgrounds cause different behaviours, and different outcomes for the organization overall [25,26,27]. As clinicians have typically been educated and trained in the technical core activities of the organization, they are knowledgeable about applying medicine and providing care in hospital [15,26,27]. Moreover, they are socialized into giving priority to the needs of individual patients regarding care, the allocation of resources and the provision of (emotional) support [26,27]. While clinicians may be committed to the hospital, they are often expected to give higher priority to the interests of patients. This supports the belief held by some that clinicians do not make good managers, since management requires watching over the interests of the collective organization rather than the individual patient [25,26,27]. In contrast, administrators have been educated and have experience in general management and business administration [25,26]. They are more likely to stress the needs of the organization, rather than the individual [25,26], and rely more on formal and hierarchical forms of management [27]. In times of strategic pressure, these skills seem particularly valuable. Research confirms the prevalence and relevance

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