

Effect of Information Service Competence and Contextual Factors on the Effectiveness of Strategic Information Systems Planning in Hospitals

Shin-Yuan Hung, Department of Information Management, National Chung Cheng University, Chia-Yi, Taiwan

Wei-Min Huang, Department of Information Management, National Chung Cheng University, Chia-Yi, Taiwan

David C. Yen, School of Economics and Business, SUNY at Oneonta, Oneonta, NY, USA

She-I Chang, Department of Accounting and Information Technology, National Chung Cheng University, Chia-Yi, Taiwan

Chien-Cheng Lu, Department of Information Management, National Chung Cheng University, Chia-Yi, Taiwan

ABSTRACT

Many hospitals in Taiwan have started to encounter new and fierce competition as a result of the enactment of the National Health Insurance Policy in 1995. Hospitals should strive to use information technology (IT) strategically to improve their competitive advantage and meet the dynamic challenges in this competitive environment. This study adopts the Technology-Organization-Environment framework to understand the effects of contextual factors (e.g., environmental uncertainty and information intensity) and information service competence on the effectiveness of strategic information systems planning (SISP) to improve hospital management efficiency. A field survey was conducted using questionnaires distributed to accredited hospitals that serve patients from different regions/districts and with academic teaching qualifications/capabilities. These hospitals represent approximately a quarter of all hospitals in Taiwan. The findings show that the environmental unpredictability and business competence of IS executives are negatively related to the two SISP constructs: IT participation in the hospital planning and alignment of the IT plan with the comprehensive hospital plan. In addition, the findings demonstrate that information intensity has a significantly positive relation to both aforementioned SISP constructs. Finally, both constructs justify the significant positive correlations with the use of IT in increasing competitive advantages and improving the satisfaction of customers and end users. This research intends to guide the healthcare industry in raising competitive advantages to improve the operational efficiency of hospital management in today's highly digitalized environment.

KEYWORDS

Environment Uncertainty, Information Intensity, Information System Competence, Strategic Information Systems Planning, Technology-Organization-Environment Framework

DOI: 10.4018/JGIM.2016010102

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1. INTRODUCTION

Information technology (IT) and increasing Internet usage has made the exchange and sharing of information and knowledge more convenient and timely. Moreover, the advent of the knowledge-based economy has made knowledge rather than traditional production elements the most important resource for businesses (Drucker, 1993). American firms allocate approximately 50 percent of their capital investment to IT (Morris et al., 2002) because IT serves as a key tool in acquiring, disseminating, and utilizing knowledge in such a competitive environment. Information systems (IS) planning must be incorporated into the strategic planning function of the businesses and implemented in the entire organization to realize its business objectives and improve competitive advantages through IT. For this reason, strategic IS planning (SISP) is important at the information management level in various industries.

The healthcare industry needs to apply SISP because healthcare organizations have faced a continuous challenge to reduce overhead costs while maintaining quality care amidst increasing demand for data exchange, information sharing, and better quality reporting. Technologies advance every day; thus, the IT adopted in hospitals has either reached the end of its useful life or is a candidate for contract renewal (Hitachi Consulting, 2001). Moreover, the medical treatment and healthcare policy of a government plays a decisive role in influencing the business operation of the medical sector. For example, US healthcare providers were required to use electronic health records and follow strict data coding standards, which forced them to increase their IT budgets (Terry, 2012). According to Anderson (2005), the UK spent more money on health IT than any other country in Europe, with approximately €2.4 billion out of €8 billion in total in the EU. In addition, the global healthcare budget system in Taiwan places some restrictions on the annual growth of medical expenses, creating more uncertainties and thus establishing a highly competitive environment for the capital-, labor-, and knowledge-intensive medical industry. Thus, hospitals must spend additional time and extra effort to properly utilize the available resources, actively minimize growing expenditure, and aggressively improve performance. From this perspective, many studies have shown that introducing IT can help reduce operating costs, improve performance, and facilitate the differentiation of products and services toward a strengthened competitive advantage (Neo, 1988; Clemons, 1991; Clemons and Row, 1991; Silva and Hirschheim, 2007; Zubovic et al., 2014).

Furthermore, the level of information service in an enterprise hierarchy is an important indicator of IT application utilization. A higher level in the organizational hierarchy for the IT function/department within a hospital can certainly increase the recognized importance of information service level and, hence, make its strategic role more critical. As such, information service competence is a key factor in terms of the strategic role of IS in the healthcare industry and has an immediate influence on the success or failure of strategic objectives using IT. Premkumar and King (1994) and Vitale, Ives and Beath (1986) suggested that organizational performance can be improved if fitness can be kept within the operating strategy, environment, and IS, in accordance with the concept of Technology-Organization-Environment framework. In addition, environmental uncertainty and information intensity are two external factors that affect the role of IT in improving the competitive advantages of enterprises (Johnston and Carrico, 1988; Wilkin1 and Cerpa 2012). Kearns and Lederer (2004) also found that companies with higher information intensity pay closer attention to IT applications in environments with greater uncertainty. Consequently, senior management tends to implement SISP formally in these environments (Chen et al., 2010).

Previous studies have seldom focused on the influence of information service competence on SISP and its actual performance in a manner unique to the healthcare industry (Clemons, 1991; Clemons and Row, 1991; Kearns and Lederer, 2004; Chi et al., 2005; Chen et al., 2010). None of

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