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Healthcare quality innovation and performance through process orientation: Evidence from general hospitals in Switzerland

Anne Cleven, Tobias Mettler *, Peter Rohner, Robert Winter

Institute of Information Management, University of St. Gallen, Switzerland

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ABSTRACT

As a primary factor of technological innovation, process orientation contributes significantly to an organization's overall productivity and quality improvement. While this proposition has been confirmed for profit-oriented organizations of various industries, little research exists that validates the same statement in the healthcare sector. This paper proposes and evaluates a theoretical model that investigates the effect of process orientation on hospitals' competitiveness and performance. The concept of the balanced scorecard is applied to comprehensively cover all facets that constitute healthcare quality innovation. A set of hypotheses is proposed conceptualizing the direct and indirect effects of process orientation on hospitals' performance (identified as patient satisfaction and financial performance) through an increase of integral competitiveness (identified as workforce conditions, operational performance and clinical quality). The model is empirically tested by means of a questionnaire-based survey among clinical and administrative management of hospitals in Switzerland. 145 complete questionnaires from 129 hospitals are analyzed. Statistical results affirm that process orientation significantly enhances hospital performance. Workforce conditions and clinical quality prove to have a significant positive effect on patient satisfaction, whereas the hypothesized positive effect of operational efficiency on patient satisfaction is not supported. Moreover, results attest the positive effect of workforce conditions and operational efficiency on financial performance, while rejecting the effect of clinical quality on financial performance.

1. Introduction

With hospitals increasingly being pushed into competitive market structures, hospital management has been vigorously searching for managerial solutions to streamline their operations in order to reduce cost and yet to maintain a high quality of care (Bragato and Jacobs, 2003; Pai and Huang, 2011). Hospitals pursue both transparency and comparability of both costs and quality of inpatient care (Donahue and Zeckhauser, 2011). Process orientation might be one solution for hospitals to achieve the two goals, though there are a few empirical researches available on performance-related benefits of process orientation in hospitals (Vera and Kuntz, 2007; Yarmohammadian et al., 2014). In this regard, our research confirms that the adoption of process orientation has a positive impact on the internal performance of a hospital (Hung, 2006; Kohlbacher, 2010; Skrinjar et al., 2008). Furthermore, our findings imply that a positional advantage of the hospital may emerge through which it may be able to attract more capable and motivated personnel (Cleven et al., 2014).

Finance or logistics, process orientation is recognized as an organizational capability that is related to continuous quality improvement and performance increases (Mettler and Rohner, 2009a; Zairi, 1997). In the healthcare sector, process orientation has been introduced in various models (Axelsson et al., 2014; Cleven et al., 2014; Leggat et al., 2015). Our research is uniquely designed to connect process orientation in hospitals with their performance: qualitative performance and financial performance. The measuring of hospital performance, in contrast, has long been subject to intense research (Fottler, 1987; Griffith et al., 2002; Marley et al., 2004; Mettler and Rohner, 2009b). Among many approaches to measure performance, the Balanced Scorecard (BSC) has become common practice for measuring and guiding hospital performance (Albertsen and Lueg, 2014; Chang et al., 2008; Mutale et al., 2014; Walker and Dunn, 2006; Wu and Chen, 2014). Hence, our study builds upon the concept of BSC and develops a set of hypotheses about how process orientation affects hospital performance. Particularly, we designed to test if the link between the workforce conditions and clinical quality has an effect on patient satisfaction and operational efficiency.

Given the specific context of the Swiss healthcare sector, which is impaired by a case-based remuneration scheme through which hospitals have to finance their running costs and long-term infrastructure investments, a purpose of this study is to perceive process orientation also as an important antecedent of financial performance. We therefore

* Corresponding author at: Institute of Information Management, University of St. Gallen, Unterer Graben 21, CH-9000 St. Gallen, Switzerland.
E-mail address: tobias.mettler@unisg.ch (T. Mettler).

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also tested the relationships among process orientation and overall outcomes of hospital performance.

In what follows we will describe a set of hypotheses about how process orientation affects important outcomes of hospital performance. We then present evidence from a field study that we designed to test these hypotheses. The results show that workforce conditions and clinical quality prove to have a significant positive effect on patient satisfaction, whereas the hypothesized positive effect of operational efficiency on patient satisfaction is not supported. Our study findings also show a positive effect of workforce conditions and operational efficiency on financial performance, while we could not find a significant relation between clinical quality and financial performance.

2. Conceptual background and prior research

2.1. Process orientation in hospitals

Hospitals have traditionally been structured along clinical departments and specialized functional units. Process orientation in contrast aims at a cross-functional, customer-oriented paradigm of organizational thinking and working (McCormack, 2001; Skrinjar et al., 2008). The introduction of process orientation frequently results in both, technological and organizational process innovations. Accordingly, researchers have often investigated the effects of process orientation on organizational performance (Kohlbacher, 2010). These studies have shown that process orientation supports cost reductions; improvement of customer satisfaction, quality and productivity; and a decrease in cycle times.

The main approaches to foster process orientation in hospitals are patient-focused care (Hurst, 1996), clinical pathways (Bragato and Jacobs, 2003), and the application of quality management approaches like Lean and Six Sigma (Fischman, 2010) but also–from a technological perspective–the implementation of workflow systems and health care analytics (Mettler and Vimarlund, 2009). A series of three research projects empirically tests the causal relationships of the Malcolm Baldrige National Quality Award (MBNQA), a U.S. award promoting quality awareness (Goldstein and Schweikhart, 2002; Marley et al., 2004; Meyer and Collier, 2001). As shown by Meyer and Collier (2001), a significant effect of process management on patient satisfaction was found. The hypothesized effect of process management on organizational performance, however, is not supported. Vera and Kuntz (2007) make use of the data envelopment method to validate their proposition that a process-based hospital organization (defined through the constructs process optimization, clinical pathways, multi-disciplinary teamwork, activity-based costing, profit centers, and performance-based pay) has a positive effect on efficiency. The authors find a significant linear relationship between process-oriented organizational design and hospital efficiency.

All in all, as has likewise been stated by Vera and Kuntz (2007), empirical quantitative research on process orientation in hospitals is fairly scarce and does thus far not reflect the increased practitioner interest.

2.2. Hospital performance measurement

From a management perspective *performance* is frequently perceived as valued contribution to reach the *goals* of an organization. Contributions to performance can be made by individuals or groups of employees as well as by external groups. Using this perspective, Spangenberg (1994) defined *performance management* as a sequence of activities for (i) planning the value creation, (ii) taking action to control value creation, (iii) measurement of value contribution, and finally (iv) rewarding the value contribution.

But what is *performance* in the context of healthcare? As the *goals* of healthcare organizations often are not clearly defined and the *value* of healthcare service delivery is difficult to allocate, performance management literature tends to use the three E's - *economy, efficiency*, and *effectiveness* - to define performance for the non-for-profit context (Carter et al., 1995; Flynn, 1997; Rouse, 1999). Performance therefore has to be perceived as a multidimensional phenomenon, where the financial, respectively value perspective (economy) is only one dimension of the whole. It is also necessary to consider patient-related aspects (effectiveness) and procedural and knowledge-related aspects (efficiency). According to this, potential areas where performance in healthcare can be measured are:

- Healthcare financial strength (economy): revenue optimization, productivity improvement, streamlining claims processing, waste and cost control, activity-based costing.
- Healthcare operations and technology (economy): quality and technology management and measurement, collaboration opportunities, agility improvement, working capital and asset management.
- Healthcare people development (efficiency): provider experience measurement, provider loyalty and the voice of the provider analysis, learning and growth measures, innovation, knowledge, culture and intangible value analytics.
- Patient service and satisfaction (effectiveness): including patient experience, engagement, delight, loyalty and relationship measurement, as well as the most important of all – measuring and tracking the voice of the patient.
- Healthcare marketing (effectiveness): measuring and developing the growing importance of healthcare branding, reputation and trust management, patient/customer segmentation, patient profitability and patient lifetime value.

Performance management in hospitals is not only aiming at the systematic generation and control of the organization's economic value but also at the optimization of the efficiency and effectiveness of service delivery. Therefore performance management, like other management approaches, only can be implemented successfully, if strategic planning is closely linked to operational execution and controlling (Melchert et al., 2004). This interdependency between strategy and operations is illustrated in Fig. 1.

The BSC concept inherently makes use of strategic and operational considerations. It is a multidimensional framework for measuring and managing organizational performance on the basis of both financial and non-financial indicators (Kaplan and Norton, 1992). A plenitude of qualitative (Gumbus et al., 2003; Kershaw and Kershaw, 2001) and some quantitative research (Chan and Seaman, 2009; Lovaglio, 2011; Yang and Tung, 2006) on the use of the BSC in the healthcare sector has been carried out. An analysis of the current literature frequently presents process orientation as an antecedent of hospital performance although the causal relationship of the BSC in the hospital sector is quite ambiguous and partly fragmentary. In the subsequent sections we develop a research model and then present evidence from a field

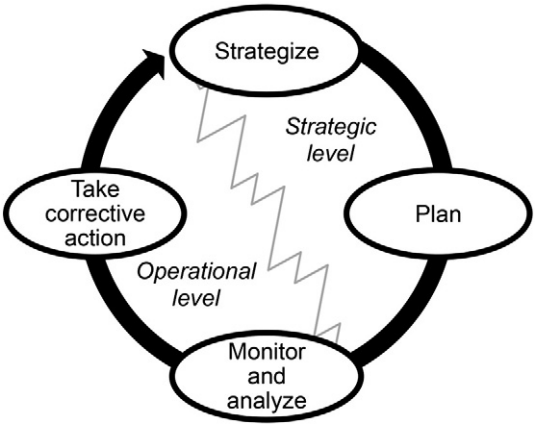

Fig. 1. Performance management life cycle (Mettler and Rohner, 2009b).