






# The Relationship of Continuous Improvement Practice with Service Operations Competitiveness in Healthcare

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**Abstract.** Although it is reasonable to admit that higher maturity in the continuous improvement practice may generate greater contributions to service operations competitiveness, there is little or hardly any discussion aiming to understand this relationship. Therefore, this paper proposes, in an explanatory form, a reflection on this research field by investigating the relationship between the continuous improvement maturity level and the stages of the service operations competitiveness, relating the abilities of each continuous improvement maturity level to the aspects inherent to each service operations competitiveness stage. The findings of this study are innovative in the research field as this research offers the proposal of a theoretical model that seeks to identify the relationship between the service operations competitiveness and its continuous improvement maturity level.

**Keywords:** Continuous improvement · Service operations competitiveness · Health care service operations · Hospital service operations

## 1 Introduction

This research aims to study of the relationship between the continuous improvement maturity levels and the stages of service operations competitiveness, using as a reference for this research the four-stage service operations competitiveness model [1] and the continuous improvement maturity level framework [2]. One may consider that the aspects inherent to each level of the continuous improvement maturity model associate with different evolutionary stages of the four-stage service operations competitiveness model. Nevertheless, the dimensions that characterize the evolution stages of service operations competitiveness model show no relation to the process improvement practices, which seems to be a gap in the current studies.

Finally, the reason for choosing the four-stage service operations competitiveness model and the continuous improvement maturity framework, is because both classical models remain being explored as a proved reference in recent operations and service operations management studies [3–6].

## 2 Theoretical Reference

The usage of management practices to improve efficiency and quality in the healthcare area is still recent [7]. Current healthcare organizations are increasingly more dynamic and complex systems, and they are becoming even more focused on improving the quality of patient care and complying with local and global regulations [8], thus making it necessary to review their process under the perspective of continuous improvement [9].

In this context, the use of self-evaluation models is vital to achieve a continuous improvement culture [10] and when considering the long-term benefits, the use of self-evaluation models looks as the right way to achieve a continuous improvement culture and to provide quality service in the healthcare sector [11].

### 2.1 Continuous Improvement Maturity Level

The continuous improvement efforts emerge as an answer to a context of great market dynamism where the performance of a business relates to company's ability to manage its continuous improvement process and operations [2]. Although it is a simple concept, implement continuous improvement capabilities is hard and even more challenge to maintain it, since constant learning and adaptation are necessary [12]. Far from being a single binary characteristic such as having it or not having it, the behavior and practices show it is possible to identify an evolutionary pattern in continuous improvement development [2].

The research on practices and capabilities of continuous improvement in organizations resulted in a model with different levels of maturity of continuous improvement, where the progress between different levels represents a learning process for the organization [2, 13]. In this model, each stage represents the maturity level of organizations and ranges from level zero where no continuous improvement activity is available to level five where organizations show full capability in continuous improvement. Model like this enables a learning organization process in a way that for each stage in the model it expects to observe behavior and attitudes that translate in behavioral patterns associated with each level of maturity, also known as routines, which are part of the organizational culture and are the organizational skills of the company [2].

Finally, although some authors suggest working with a three-levels continuous improvement maturity model to assess business from public sector, this model still uses the five-level of continuous improvement maturity framework, reinforcing the view that continuous improvement is an evolutionary process [4].

### 2.2 Service Operations Competitiveness

The functional role of an operation works neutrally or as a business strategy support or even as something that propels the business strategy [14]. This model was the precursor to the four-stage service operations competitiveness model [2] where the development of this strategic capacity results from a systematic progression, from a basic role to a more complex and important one, through a continuous series of operations capabilities

[5]. The four-stage service operations competitiveness model reached classic status in literature and is the basis for several studies in the operational strategy field, and it is still present in the most diverse studies about manufacturing and service operations management [14–17].

Overall, the four-stage service operations competitiveness model comprises the relationship between the four evolutionary stages proposed by the researchers - service provision (stage 1), professionalization (stage 2), competitive differential (stage 3) and delivery of world class service (stage 4) - with six dimensions related to service operations capabilities - quality of service, back office, customer, use of new technologies, workforce and management [1]. In this model, the practices that serve as a reference to assess the situation of the company and to understand the opportunity to move to a more advanced stage are available at the intersection between of each competitiveness stage with each operations capability.

If in the past research period, the penetration of service operations studies in the most important Operations Management Journals was low [3], in the recent research period, work characterize the context of operations strategy to competitive priorities [18, 19]. More recently, managing the fit between competitive and operations strategy reveal to be of interest of both strategic and operations management researchers as it discuss a way of testing the perceived level of strategic fit between the current competitiveness and operations strategy of a business using classical work [1, 5, 14].

### 2.3 Proposed Theoretical Framework

The theoretical model used in this study refers to the context of the theoretical research conducted by reviewing the main literature related to the field of service operations competitiveness and continuous improvement. This model shows main variables found in the four-stage service operations competitiveness model [1] and the variables found in the continuous improvement maturity model [2]. The way of reading this theoretical model is from the top to the bottom. First, companies are somewhere between the evolution stages of service operations and these competitiveness stages are results of different organizational capacity. These capabilities are in the center of the theoretical model of Fig. 1 and they connect the four-stages of service operations competitiveness model [1] with the continuous improvement maturity model [2].

The continuous improvement maturity framework comprises five levels of maturity where companies with continuous improvement practice classify its maturity level according to different behaviors and practices [2]. The proposed theoretical model shows three main groups of capabilities (a) purpose, (b) process and (c) people that interconnect among themselves and work to improve the continuous improvement maturity in an existing organization [20]. Organizations can use models like these which give a list of the behavior and practices [1] and [2] to analyze its service operations competitiveness and its continuous improvement maturity level respectively. Figure 1 summarizes the main constructs that work as the reference to the theoretical model proposed in this study. Based on this theoretical model, one can look for elements to verify the relationships between stages of service operations competitiveness and continuous improvement maturity level. The constructs both as regards the theoretical model of competitiveness in service operations and the model of

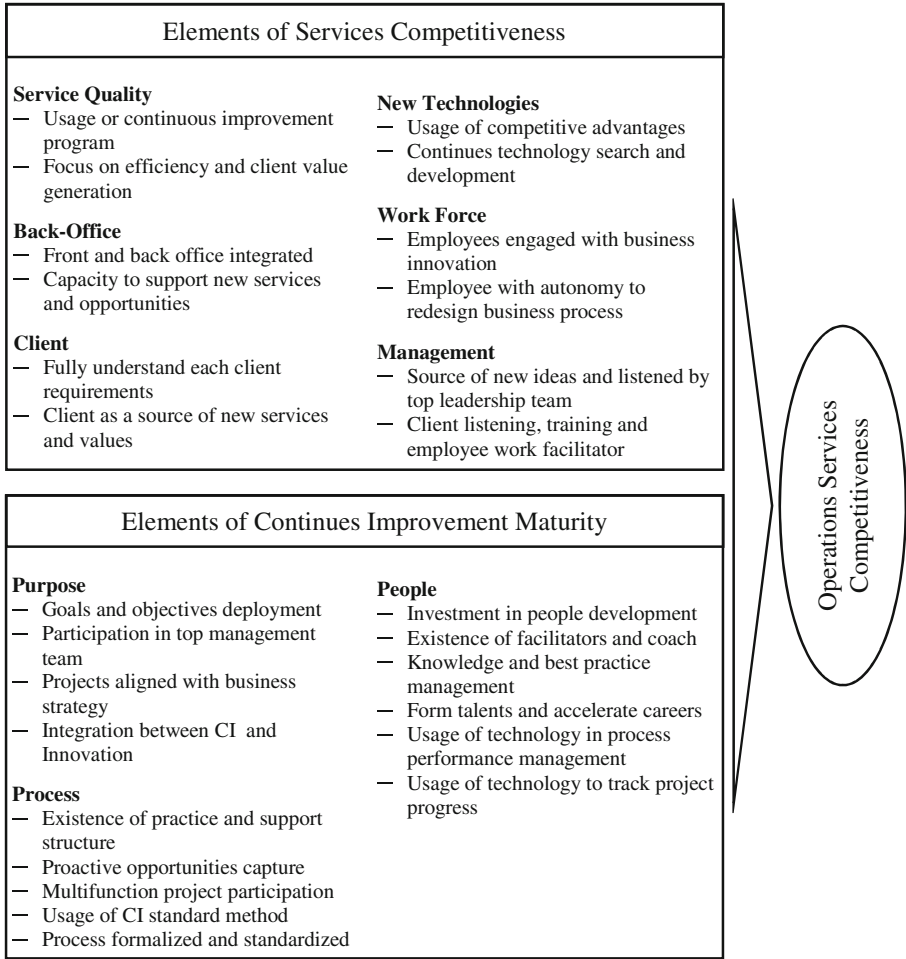


Fig. 1. Theoretical model – constructs.

maturity in continuous improvement [1, 2, 20] work as a guideline during the field research to look for evidence of behaviors and practices in the three cases used in this study.

### 3 Methodology

The execution of this study considered three research phases. First, a theoretical research carries out through a literature review focused on the following aspects (i) a reference model of the four evolutionary stages of the service operations, (ii) practice of continuous improvement in service operations, (iii) skills and maturity levels of continuous improvement.

In the second phase, based on the results of the systematic review of the first phase, a model with clear constructs guides a field study by the case study method to identify the relationship between levels of continuous improvement maturity and the service operations competitiveness. As a research instrument for the interview and data collection, a field research protocol based on the results of the bibliographic review contains the main variables to analyze the maturity in continuous improvement and to identify the stages of competitiveness in service operations. A pilot with five senior professional with experience in operations management and continuous improvement management in companies of diverse segments ensures the main variables considered in the proposed theoretical framework are adherent and capture the main characteristics related to organizations in different levels of maturity in continuous improvement and different stages of competitiveness in service operations in an organization.

Finally, during the third phase of this research, the collection of the data relies on different sources of information such as executive interview, company websites and internal documents. Thus, reliable evidence of behavior and practices [21] work to explain existing level of continuous improvement practice and current stage of service operations competitiveness in the three hospitals used on this study case.

In addition, the selection of companies for this study was considering they have continuous improvement practice structured either through specific approaches or programs or through quality systems as well they were finalist for the national quality award or at least they had certifications through credible quality systems. Thus, the selection of interviews participants considers the capacity to answer questions about both the practice of continuous improvement and the dimensions of the model's competitiveness as well to provide the data requested during the company study.

Regarding the research method used in this research, this study has characteristics of exploratory field research and uses a qualitative approach. This work uses a multiple case study to explore the application of the theoretical model proposed in a group of hospital care companies to identify the level of maturity in the practice of continuous improvement and its competitive stage in a target group [22]. The criteria of having a certificate of quality seemed to be adequate to identify company candidates, considering that the structuring of the continuous improvement practice is a compulsory requirement to get quality certification in hospital sector. Therefore, 246 hospitals were available in the database of hospitals accredited by ONA (National Accreditation Organization), where among them, hospitals with accreditation by ONA belonging to the category "Accredited with Excellency", which includes 95 hospitals.

## 4 Results

When comparing the specialized literature and the theoretical model proposed in this study with the results observed in the three hospitals analyzed in this research, it allows the following discussion. As first observation, not all companies are on the same continuous improvement maturity level, and they are not on the same service operations competitiveness stage. Only Company B in level 5—full capacity of continuous improvement and stage 4—world-class service delivery. Company A is on level 3—goal-oriented continuous improvement and stage 3—competitive differential achieved and,

last, Company C is on level 1—pre-continuous improvement and stage 2—professionalization. Although only one company is on the highest continuous improvement level and on the most advanced operations competitiveness stage, all other companies show practices in different maturity levels and development in these two knowledge areas.

As a second point of discussion, considering the theoretical model presented in Fig. 1, the continuous improvement maturity level of each company can have an influence on its competitiveness stage. The elements listed below not only contribute directly to the maturity level of a continuous improvement program, but also can have an influence on the competitiveness level on which the service operation can work [2, 20]:

- Direction and aim of the continuous improvement program;
- The balance between continuous improvement and innovation;
- The changing culture in a company;
- The structure how workers engage involved in continuous improvement programs;
- The standardization and formalization of processes;
- The use of a standard improved method;
- The technology support;
- Training and development of people.

Company B was as the company with higher maturity on continuous improvement practices and higher stage of competitiveness, thus Company B is a reference to the purpose of its improvement program, its continuous improvement process that exists in the company and the level of involvement of people around the program. Company A was the second company with higher maturity on continuous improvement practice and higher stage of competitiveness stage, with main elements that seems to lack, so this company may have a higher maturity level in its continuous improvement program. The elements that enable the company to evolve from stage 3—competitive differential to stage 4—world-class service delivery are integration between continuous improvement and innovation, proactive capturing of improvement opportunities, talent development and career progress. Finally, Company C, it was the company with the lowest maturity on continuous improvement practice and lowest competitiveness stage. When we observe the main elements of the existing practices in Company C, it is at the beginning of an evolutionary journey of its continuous improvement program, using basic elements such as routine management, formalization and standardization of the processes, monitoring of the goals and indicators, and capturing of continuous improvement ideas and suggestions. In addition, Company C has a continuous improvement structure under development and does not use a standard improvement method, thus not having made great efforts in developing and training continuous improvement coaches and facilitators.

## 5 Conclusions

This study offers, as a contribution, the proposal of a theoretical model that seeks to identify the relationship between the service operations competitiveness of a company and its continuous improvement maturity level. Nevertheless, the company is on the highest service operations competitiveness stage and highest continuous improvement maturity level does not suggest that a company is on a lower continuous improvement maturity level must be on the lowest competitiveness stage. This observation happens with Company C, which, although it is starting its journey in developing continuous improvement practice, this company is on competitiveness stage 2 (professionalization). This observation suggests that the continuous improvement dimension can be (i) a new service operations capability in the four-stage competitiveness model or eventually (ii) a catalyst that contributes as a development means between other capabilities of this same model, which contributes to the evolution throughout different service operations competitiveness stage [1].

The results showed here are innovative in the research field as it studies the relationship between the continuous improvement maturity levels and the evolutionary stages of the hospital service operations competition, suggesting a positive relationship between the continuous improvement capacities and its reflection on the service operations competitiveness stages. In addition, they also bring a clear implication, first in the research area, as it adds further discussion and contribution to a body of knowledge in the service operations management research area by suggesting opportunity to review and integrate the classical models of four-stage service operations competitiveness and continuous improvement maturity framework [1, 2]. Second in practice terms, as this research bridge the gap between practice observation in companies that implements continuous improvement programs and is looking to become more competitive once the theoretical framework discussed here can help companies evaluate their current capabilities to evolve to a much higher stage of service operations competitiveness. And finally, as third implication is the impact in the society, although this study limits to three companies in hospital sector it could expand to further industries including government where theoretical framework proposed here could advance advanced while helping justify to organizations where make sense to invest efforts if they are looking to improve their service competitiveness.

Finally, this study has as a limitation the fact it considered only three companies as part of the case study and it limits hospital service sector as the area of observation, thus pointing to an opportunity to conduct a more extensive study to understand the variables associated with the theoretical model proposed here. The conduction of future studies would give the opportunity to analyze in detail how each variable of the theoretical model relates to each other both for service operations competitiveness and for continuous improvement maturity frameworks.

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