

QUALITY MANAGEMENT IN THE HEALTHCARE INDUSTRY – A CONCEPTUAL ANALYSIS

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Abstract: *Quality management has evolved in business for already a century. It was a continuous development; new concepts have emerged and have been used without giving up on previously developed constructs. For example, Shewhart has used the PDCA cycle under an initial form in 1939, but it is still widely used as a core construct of the ISO 9000 quality management family of standards. The question we address within this article is how quality management has been adopted within the healthcare industry, probably one of the most reticent industries when it comes to adopting new technologies and solutions. In order to answer this question, we firstly review the quality management concepts developed within the healthcare industry. Secondly, we detail a framework for the adoption of quality management initiatives (QMIs) in other industries, as a reference for managers working in the healthcare industry to guide their actions. In the third part, a review of the most relevant quality management initiatives within the healthcare industry are presented. The fourth part is a presentation of the most common issues related to process management in the healthcare industry, one of the most important areas related to quality management these days. The fifth part concludes with some advices for healthcare industry managers who are to further adopt quality management in their organizations.*

Keywords: *quality management; healthcare industry; process management; quality management initiative.*

JEL Classification: *L15; M10.*

1. The development of quality management concepts within the healthcare industry

Healthcare quality management research and practice have evolved somehow in parallel with other business quality management. The quality management practices and concepts promoted in industry by Shewart, Deming, Juran, Crosby, Garvin, and others, are rarely mentioned in healthcare quality management papers, as the ones provided by Donabedian (Donabedian, 1966, 1988). Quality in industry has been defined in many ways, by referring to Parasuraman's meeting or exceeding customer

satisfaction, Crosby's "conformance to requirements", Demings' continuous improvement never ending cycle, Feigenbaum's value, Peters and Waterman excellence, Juran's fitness for use (Mosadeghrad, 2013; Zabada, Rivers and Munchus, 1998). Quality management is usually defined as "an approach to achieving and sustaining high quality output" (Flynn, Schroeder and Sakakibara, 1994), the process realized within organizations for attaining the quality goal, whichever is established from the above mentioned.

In healthcare, quality definitions have considered the existence of multiple stakeholders who have different interests and value different outcomes. Patients value their health and the degree of recovery, tiers payer consider cost containment, while medical practitioners value job satisfaction and other perceptions related to their activity (Zabada, Rivers and Munchus, 1998). (Donabedian, 1988) details the levels at which quality could be assessed in healthcare: the first one is related to the performance of practitioners, which itself can be detailed as technical and interpersonal performance, the second refers to the amenities or the desirable attributes in which healthcare is provided, the third level is concerned on the involvement of the patient and of his family, since healthcare is by nature a service and customer involvement is important, the fourth level being related to the quality received at the level of the community, this being related to the contributions in time of multiple healthcare service providers. The quality at these levels can be assessed by considering three areas (Donabedian, 1966, 1988): structure (including material resources, human resources, and organizational structure), process (patients' and practitioners interaction), and outcome (the effect of care on the health of patients and communities).

2. Quality management initiatives in other industries

Quality management is so diverse, and still evolving. The existing literature concerning QMIs in different businesses can be divided in two different types of contributions: the first ones are related to simple categorizations, and they refer to different practices implemented in SMEs, while the second are quality management maturity models (QMMM) built with the purpose to be used by practitioners in their self-assessment activities. This review is valuable for healthcare managers to understand the evolution of quality management practices in other industries.

There are many papers concerning SMEs which analyse and categorize their QMIs practices. While analysing the impact of quality management initiatives on Australian SMEs performance, (O'Neill, Sohal and Teng, 2016) use a classification of QMIs which considers three categories: formal quality programs developed in-house (extended and visible for the whole organization), informal quality systems (rather minor organizational improvements), and quality management systems driven by external agencies (the use of consulting companies in implementing such programs).

An analysis concerning Iranian hotels quality management practices (Mardani et al., 2016) groups QMIs in four different categories, related to: people (leadership,

employee involvement, employee fulfilment, employee empowerment, and customer focus), organization (process management, organizational trust, organizational culture, team working, strategic planning and continuous improvement), environment (market focus, external cooperation, social and environmental responsibility, communication, and suppliers), and technological (quality assurance, ISO 9001, benchmarking, housekeeping and quality function deployment). Technological practices were ranked as the most important category, while quality assurance was recognized as the most important out of all practices.

For QMMMs, there are fewer papers exploring this subject. Maturity models are recognized for their capacity to offer a predictable journey for organizations which target different objectives (Pullen, 2007), by providing a set of characteristics related to the different stages similar organizations have also performed. They are useful for both strategic planning, and operational implementation as long they can be viewed as alternative future paths of an organization concerning different aspects. When it comes to QMMMs, they tend to be developed as successors of previous models defined by quality management gurus, as Crosby or Garvin, few models being developed and validated by the use of empirical research.

In the search for a self-assessment tool for SMEs, (Sturkenboom, Van Der Wiele and Brown, 2001) have used the model previously described by Garvin, which considers five levels: capacity (no concern on quality, but on resource availability), activity (activities are managed by procedures and rules), process (the activities related to a product are all considered together, defects are observed all over the process - quality control stage equivalent in Garvin terminology), system (the focus is no longer only on the process, but on the prevention and customer focus – quality assurance), and the organization (quality management practices throughout the organization – strategic quality management). This model is also an evolutionary one, establishing that QMIs are related to how widely they are implemented across companies. Their maturity model is built to analyze the adoption of each of the main three principles of quality management: customer focus, participation and teamwork, and continuous improvement.

One analysis among UK manufacturing SMEs (Kumar and Antony, 2008) reveals that quality management initiatives have a natural evolution from non-existing quality management methodology, to quality management being the responsibility of production departments, then ISO certification associated practices, and more complex practices such as Six-Sigma. The main reasons for not passing to the more evolved stages is the lack of knowledge and resources. However, the main drivers of adopting QMIs are increased profitability, better quality, and lower costs expectancies.

By considering the two main alternative approaches for adopting quality management in organizations, ISO 9000 certification and TQM introduction, (Prajogo and Brown, 2006) define multiple quality adoption typologies: minimalist approach is the one chosen by companies when interested only in obtaining ISO certification without the introduction of TQM practices, converts is the approach when companies which are forced by external forces to obtain ISO certification

discover the benefits of quality management, committed are the companies which see ISO as a mean for improving business processes and they have not external determinants for ISO certification, simultaneous are companies which implement both TQM and ISO in order to maximize the tangible benefits related to ISO and the more general approach regarding the organization which TQM brings, and first are the companies which implement TQM before ISO and are later forced to adopt ISO certification due to customers' demands. In their empirical analysis concerning this adoption, they conclude that only companies which are long-term committed in implementing TQM programs really adopt adequate quality management practices and obtain visible improved performance.

In an analysis regarding the evolution of Lean Six Sigma (LSS) implementation in manufacturing-based SMEs in the UK, (Thomas et al., 2014) identify three categories of approaches: category A doesn't implement LSS though some general business process improvement measures such as product cost down are in place, category B refers to companies which have implemented LSS or Six Sigma practices in some form, with practices as value stream mapping or SIPOC diagrams in place, but with few LSS practitioners in place, and category C - in this category companies have implemented advanced LSS programs, with statistical analysis undertaken, but also with trained practitioners in place. Their analysis reveals that there is a natural trend for companies to advance into their LSS development. However, the belonging to a specific category is related to multiple aspects: activity field, strength of supply chain relationships, or size. It was observed that A category companies were primarily design oriented companies or companies operating in niche markets, category B companies are companies aware of the benefits related to LSS implementation but lacking the resources for adequate implementation, while category C companies are more profitable companies, part of larger supply chains, which have both the knowledge and the resources for extended LSS adoption. Few changes have been observed in time from one category to another, and these were observed especially for companies from B category to C category.

Moschidis considers the maturity model previously identified by Crosby in 1980 – the Quality Management Maturity Grid (QMMG) and presents the next phases which could be used by managers while implementing quality management initiatives in their organizations (Moschidis, Chatzipetrou and Tsiotras, 2018), with details concerning quality costs awareness: uncertainty (no knowledge regarding quality management – usually associated to disorganized management team), awakening (quality management initiatives are related to quality testing and inspection, no long-range solutions are seriously considered, quality costs initiatives are developed), enlightenment (organization team members recognize the problems and themselves as causes of the problem, they are involved in solving the problems and also preventing it in the future), wisdom (problems are handled effectively and changes are permanent, quality costs initiatives are widely implemented), and certainty (quality management has become part of the organization, all practices are translated in all departments).

One of the most recent analyses on quality management practices adoption for SMEs (Yang, 2018) considers a five-stages framework which explains SMEs approaches: product quality (product related quality control and process inspection practices), process quality (process standardization practices), system quality (quality management system such as ISO practices), total quality (much emphasis is given to customer focus and a quality culture across the organization), and business quality (quality becomes a matter of business strategy, being related to strategic management, human resource management, or business performance). It is observed that SMEs are mainly positioned as the first stage considering their QMIs, this being related especially to their low capabilities.

3. Healthcare quality management initiatives in other industries

The implementation of quality management initiatives from other industries in the healthcare industry is a great challenge since the context is different. For example, the introduction of Total Quality Management (TQM) has been affected by the existence of the physicians' subcultures and the reduced role of management in healthcare organizations. Physicians tend to be oriented on performing the procedure in the right way, diminishing the importance of customers, management, and the role of the organizational system. This product focus should be replaced with market-in focus, where customer satisfaction should be the target. Secondly, the heroism and human factors involved in health-care decision making affects the prediction and standardization of processes, which is mandatory in TQM initiatives (Zabada, Rivers and Munchus, 1998).

The implementation of different quality management initiatives in healthcare organizations has been analysed in different papers as recently quality has surpassed in importance the costs of the service in this area (Ferlie and Shortell, 2001). We have identified different levels for approaching QMIs in healthcare. While initially QMIs were observed in healthcare by considering a more general approach (Ferlie and Shortell, 2001), lately the field diversified and more narrow research areas have emerged.

The adoption of quality management models such as the Malcolm Baldrige Quality Award (MBQA) criteria, the European Foundation Quality Management (EFQM) Excellence model (Excellence award models) and the Chronic Care Model, has been an important approach especially for hospitals, as it can be observed in (Minkman, Ahaus and Huijsman, 2007). Each model considers that healthcare organizations should improve different enabler categories in order to obtain better performance. In these cases, the effort and QMIs are rather extensive and they affect the whole system, the results of these interventions being rather limited (Minkman, Ahaus and Huijsman, 2007).

The adoption of specific quality management methodologies in healthcare has been more widely analysed in literature. TQM is probably the best-known quality methodology in other industries, the implementation of this methodology in healthcare being analysed in different papers. While initial papers present the

difficulties in adopting TQM in healthcare organizations (Zabada, Rivers and Munchus, 1998), a more recent review concerning its adoption in healthcare organizations (Talib, Rahman and Azam, 2011) confirms that several TQM practices have been adopted by healthcare organizations as top-management commitment, teamwork and participation, process management, or customer focus. Another quality management methodology, which was proven successful in industry, and has been adopted by healthcare organizations, is Six Sigma. One paper which has analysed the initial use of Six Sigma in healthcare (Taner, Sezen and Antony, 2007) concludes that it can lead to good results which can refer to different outcomes as costs, satisfaction, and resource utilization. More recently, reviews make comparisons concerning the adoption of different methodologies. One paper which analyses the use and the effectiveness of quality management methodologies in surgical healthcare (Nicolay et al., 2012) concludes that the most used ones are: continuous quality improvement (nine studies identified in the review), Six Sigma (six), TQM (five), Plan-Do-Study-Act or Plan-Do-Check-Act (five), statistical process or quality control (five), Lean (four) and Lean Six Sigma (one). Another paper (Henrique and Godinho Filho, 2020) performs a detailed analysis of Lean and Six Sigma research in healthcare, two of the most preeminent continuous improvement techniques from healthcare. They observe that though Six Sigma, which is a more detailed and consistent continuous improvement enhancement, has been reported earlier in literature, lean techniques have been more often found in literature (74,63%), in comparison to Lean Six Sigma (22%), and Six Sigma (18,15%). They also perform a more detailed analysis to observe which other operations management techniques have been used in the healthcare industry, VSM (visual stream mapping), Standardization of Work and Visual Management being the most used techniques.

Other papers deal with the adoption of specific quality management tools in the healthcare industry. Materla et al. (2019) conclude that the simple Kano model is very hard to be used in healthcare since there are many variations regarding customer needs and preferences concerning different types of care provided by healthcare providers. The use of SERVQUAL in healthcare services for assessing their quality has been also tested, revealing the importance of promptness of response received by patients, cleanliness and hygiene, and empathy of doctors and employees, as main areas of quality perceived by patients (Crisan, Covaliu and Chis, 2021; Tripathi and Siddiqui, 2018).

An interesting approach is the collaborative implementation of quality improvements, one approach which is probably linked to the low competition which exists between healthcare organizations in comparison to the one which exists between industry competitors. Though these collaborative interventions are not standardized, they mainly suppose the existence of multidisciplinary team approaches for quality improvement, the use of knowledge from other organizations which have previously developed new methods or models, the use of data-based decision making, or helpful collaborative processes (Nadeem et al., 2013).

As it could be observed in this short literature analysis, it is obvious that quality management research and practice in healthcare have evolved from initial wider approaches and the adoption of different quality management practices from industry, to more specific methodologies and their adoption for healthcare services. All these interventions, though previously used in other industries, need to be carefully adapted, the consideration of the multiple constraints specific to the healthcare systems being recommended. A specific focus of healthcare quality management is customer orientation, this area being well documented in literature. This is linked to the importance of customers in evaluating the quality of medical services (Materla, Cudney and Antony, 2019), the measurement of quality itself being rather made by the use of patients satisfaction (Duggirala, Rajendran and Anantharaman, 2008). However, the traditional approach of identifying a single constraint, as customer satisfaction, and resolving it, can result in sub-optimal behaviour regarding other constraints, such as resource utilization (Rich and Piercy, 2013).

The results of quality management adoption in healthcare are still debated. Though these quality management practices have been proven to affect healthcare organization performance (Duggirala, Rajendran and Anantharaman, 2008), medical professionals are not necessarily well trained or even the right persons for launching such quality management initiatives (Esain et al., 2012), and the adoption itself has failed in many organizations (Jackson, 2001). Contextual factors such as leadership, organizational culture, data infrastructure and information systems, experience in QMI implementation (Crisan, Covaliu and Chis, 2021; Kaplan et al., 2010), but also human resources involvement and their knowledge (Leggat et al., 2015), are recognized as important factors affecting the success of quality management implementation in healthcare. The lack of a systemic approach and the dominance of rather narrow interventions in implementing these organizational improvements has been regarded as a source of the lack of success of quality management interventions in healthcare (Crisan, Covaliu and Chis, 2021; Rich and Piercy, 2013).

4. Alternatives for process management and improvement in the healthcare industry

Process management is one specific approach included within the wider quality management efforts. A process is a group of coordinated activities carried out in a technical and organizational environment in order to achieve a certain goal. They can be established and identified at different levels of detail - there can be a generic process, just as it can identify several processes (which can be called subprocesses) (Combi, Pozzi and Veltri, 2017). Process representation is important for better resource allocation, service improvement, and standardization of daily procedures. Process management involves all the methods and tools used to model, manage, analyze and improve business processes (Combi, Pozzi and Veltri, 2017; Ferreira et al., 2018). There are conventions on process representation, using these conventions

will make the process diagram. Representation aims to represent causality, temporality, documentation, process control and their analysis (Combi, Pozzi and Veltri, 2017). The most widely used convention used for processes is the one proposed by the Object Management Group, namely BPMN (Business Process Model and Notation). In the medical field, there is research to create forms that can only be used for this purpose (Combi, Pozzi and Veltri, 2017).

Applying process management in the medical field is one of the biggest challenges, as medical treatments become more and more multidisciplinary, incorporating social elements and the daily life of patients. Given the complexity of medical processes, they are suitable for a process management approach (Combi, Pozzi and Veltri, 2017; Ferreira et al., 2018). In this context, of the complexity and often of the individuality of medical processes, it can be seen that process management must be incremental (Combi, Pozzi and Veltri, 2017). The results of business process management adoption in healthcare have been analyzed, these initiatives generating positive results at operational level in terms of patient satisfaction, increased employees' motivation, reduced length of hospitalization, but also increased adoption of organizational change practices, increased understanding the end-to-end process. Few studies have prove problems in adopting business process management practices (Ferreira et al., 2018).

The perspectives affected by process management are three: organizational perspective (resource perspective - agencies and their roles), procedural perspective (refers to the actual processes, information used, created, defined roles), and informational perspective (administrative and procedural information created with the development of processes - often organized by the entity-attribute type) (Combi, Pozzi and Veltri, 2017).

Medical processes have a high degree of unpredictability, so flexible computerization of processes is important. Moreover, the automation of medical processes has not been carried out to a particular level precisely because of the inability of information systems to ensure flexibility in use. For example, changing a standard treatment and implementing an alternative treatment should be relatively easy to do in a healthcare setting (Combi, Pozzi and Veltri, 2017). The flow management system helps the allocation and tracking of operations by both functions (people involved in the process) and the computer. Thus, it is established how and who performs each task, what is communicated automatically or what another operator has to do (computer or human). A flow management system ensures the monitoring of all flows in the system, can quantify the number of operations, their status (completed, in progress, not started), and can include measures to correct / unblock processes (launching emails, alerts, text messages). to different categories of users (Combi, Pozzi and Veltri, 2017). The implementation of the flow management system is done with the help of a flow coordination engine, which coordinates and connects several systems / individuals. It can connect several categories of software (modules such as CRM, ERP, KMS), respectively it can ensure the entry of data by people, respectively the management of information at the general level. The best-known reference framework for designing a flow

management system is the Workflow Reference Architecture, proposed by WfMC (Combi, Pozzi and Veltri, 2017).

A major challenge in medical systems is the extremely high variation and the existence of some cases that are not found in the anticipated model created from a computer point of view. From this point of view, it is recommended to have a support for the continuous adaptation of the processes, and this in accordance with the continuous needs and the new cases identified. The introduction, deletion or relocation of an activity in the process will thus have to be done by people who provide this type of support. The robustness of a medical information system will only be ensured if the exceptions can be treated appropriately (Combi, Pozzi and Veltri, 2017).

5. In conclusion

By considering the analyzed sources, more strategies are proposed for healthcare organizations to implement in the process management area. Regarding process management strategies, representation conventions should be established at organizational level. According to the previously established conventions, it is possible to proceed to establish the level of detail of the processes at organizational level, in the sense of representing the process diagrams. Strategies to deal with the evolution of processes, respectively the inaccuracy of medical processes in general, must be developed, in accordance with the recommendations of (Combi, Pozzi and Veltri, 2017), so that the entire medical act is under control, even if it does not have an extremely high level of standardization.

Concerning the adoption of quality management initiatives in the healthcare industry, managers should consider maturity models and other similar approaches already established in other industries. Maturity models are useful for establishing a pathway for improving the organizational quality management level, starting from a reduced use of quality management instruments and advancement to complex methodologies such as business process management, Six Sigma or ISO 9000.

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