TOTAL QUALITY SERVICE AND SERVICE INNOVATION IN DIGITAL ENVIRONMENT*

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Abstract

The paper aims to explore the relationship between total quality service practices and service innovation in digital environments. Although the relevance assumed by services with respect to the product-logic, few contributions discuss total quality service, by resorting to total quality management practices product specific. In addition, the relationship between service innovation and total quality service practices is neglected.

We adopt a detailed in-depth case study of Healthware, an integrated healthcare service company fueled by innovation. Particularly, we explore the adoption of total quality service practices and their relationship with service innovation with evidence in the digital environment.

Results show that total quality of service practices are strictly related to service innovation. Furthermore, being our case study representative of a digital environment we notice that some of the total quality management practices are well integrated into routines, while other practices should be more emphasized.

However, the paper presents some limitations concerning the single case study approach with secondary data that despite goes deepen some aspects, is not exhaustive to explore entirely our research question.

The theoretical and managerial implications may be derived from the paper. The study invites in fact scholars to explore total quality in the digital era and service managers to learn from best practices.

The paper is a first attempt to discuss the relationship between total quality service and service innovation; furthermore, it explores these dynamics in an unexplored environment, i.e. the digital environment

Keywords

artificial intelligence; service innovation; total quality service

1. Introduction

The literature on total quality management (henceforth TQM) is particularly extensive, rich in empirical studies and critical discussion on TQM dimensions or their impact on performance or innovation. TQM is indeed an approach to continuously improve the quality of organizations (Kanji and Asher 1993) involving the management, employees, clients and business process (Ross, 1993). The TQM approach has primarily focused on manufacturing companies (Mahmood, Qadeer and Ahmed, 2014; Singh and Ahuja, 2014). However, this literature tends to embrace many discussions that also englobe topics not related to the manufacturing or product logic, such as that of service (Arasli, 2012; Talib, Rahman and Qureshi, 2013; Psomas and Jaca, 2016). Although some scholars argue that dimensions of manufacturing quality management should naturally apply to service organizations, the other scholars state that services differ from manufacturing goods in terms of service intangibility, the simultaneity of production, delivery and consumption, perishability, variability of expectations of the customers and the participatory role of the customers in the service delivery (Sureshchandar, Rajendran and Anantharaman, 2001). Thus, the complex implementation issues surrounding the total quality service (TQS) require a separate discussion. While the scope of TQS is similar to TQM - provision of superior value to their customer in an effort to increase revenues (Miguel, Heras-Saizarbitoria and Tarí, 2016; Jyoti, Kour and Sharma, 2017) - the implementation of total quality practices in service environments could be different.

This study is in fact, focused on the TQS literature, filling a double gap. Firstly, the paper aims to identify key TQS practices to ensure successful implementation in the service industry. According to Jyoti, Kour and Sharma (2017), Miguel, Heras-Saizarbitoria and Tarì (2016) and Bouranta et al., (2019), there is a lack of sufficient research in this field compared with the manufacturing sector. Secondly, we explore the relationship between total quality service practices and service innovation. Service innovation is often associated with the TQM literature (Hoang, Igel and Laosirihongthong, 2006), neglecting the peculiarity of service in exploring the relationship between innovation and quality.

Innovation and quality are considered key strategic factors in achieving business success; therefore, it is relevant for the service industry to know if the relationship between TQM and innovation, i.e. whether the firm's TQM practices support or hinder it in developing innovations.

The following research questions were explored: i) which TQS practices ensure a successful implementation in the service industry? ii) how does TQS, considered as a set of practices, affect service innovation in service organizations?

We adopt a detailed in-depth case study of Healthware, an integrated healthcare service company fueled by innovation. Notably, we explore the adoption of total quality service practices and their relationship with service innovation.

Results show that TQS practices are strictly related to service innovation. Furthermore, being our case study representative of a digital environment, we notice that some of the total

quality management practices are well integrated into routines, while other practices should be more emphasized.

The paper is a first attempt to discuss the relationship between total quality service and service innovation; furthermore, it explores these dynamics in an unexplored environment, i.e., the digital environment.

2. Theoretical background

2.1 Total quality service

The quality of service has been an important field of study in the marketing and organization domains for decades. The concept of quality is, in fact, related to customer satisfaction or to organizational practices that contribute to providing a qualitative offering. More precisely, evidence on quality of service appears at the beginning of '90 facing the following issues: the customer perceptions of service quality (Parasuraman, Zeithaml and Berry, 1985); the role of the personnel and human resource management function (Berry, 1999); the operational, organizational and human resources factors for improving service (Waldman and Gopalakrishnan, 1996); the concept of service culture (Schneider and Bowen, 1995); service encounters, critical incidents, and recovery (Keaveney, 1995; Chandon, Leo, Philippe, 1997). These critical issues were independently and differently addressed by scholars, sometimes integrating these in the TQM literature. A group of scholars in fact adopt TQM practices indistinctly for product and services discussing on total quality practices in service industries such as hospitality (Sila and Ebrahimpour, 2004; Daghfous and Barkhi, 2009); banking (Vazzana, Elfrink, and Bachmann, 2000; Helms, Williams and Nixon, 2001); healthcare (Duggirala, Rajendran and Anantharaman, 2008; Rahman & Siddiqui, 2006) and so on.

Only later, Sureshchandar, Rajendran and Anantharaman (2001) felt the need to provide an all-encompassing holistic model of TQS (from the management perspective). Authors define the TQS as a socio-technical approach composed of practices useful for revolutionary and effective management in service organizations. To define the TQS they inevitably draw to TQM theories. Particularly authors address all the facets of TQM in service organizations (such as human and non-human aspects of service production and delivery, service design and operations, aesthetics of the physical environment, information technology, industrial relations, corporate citizenship behavior). They accept that TQM philosophy can also be applied to services. However, They stress that studies done in manufacturing cannot be applied directly to the service sector due to specific characteristics of services that call for some judicious organizing principles. The services management warrants a different system by which services can be produced and marketed instead of the production and marketing of manufacturing goods. For this purpose, Sureshchandar, Rajendran and Anantharaman (2001) conducted a literature review on quality management deriving 12 critical dimensions of TQS. They classify TQM practices in three groups that we resume in three categories:

- editable;
- both suitable;

- unique for services.

Editable practices concern dimensions of TQM that can be effectively used in service organizations, but with modifications: top management commitment and visionary leadership, human resource management, design and management of processes, information and analysis, benchmarking, continuous improvement, employee satisfaction, and customer focus. Both suitable practices concern key elements for TQM and TQS, such as union intervention and social responsibility. Unique for services are servicescapes and service culture.

The focus on TQS practices has revealed useful not only for scholars that have paid more attention to quality practice in service organizations but also for scholars that have considered adopting TQS in sectors influenced by services. For instance, while Duggirala, Rajendran and Anantharaman (2008) adopted TQS to measure patient satisfaction, Jyoti, Kour and Sharma (2017) investigated TQS in the automobile service sector. In the automotive sector, service quality practices ensure the vehicles produced are rightly delivered or that the vehicles company provides an excellent after-sale service. In other terms, TQS practices are employed to pay more attention to customer satisfaction activating a feedback loop that leads to the product/service improvement until the performance.

2.2 Total quality and service innovation

The link between TQM and innovation has been discussed by several researchers that have provided contrasting opinions on the topic. No evidence concerns specifically TQS and innovation or TQS and service innovation. We, in fact, draw the TQM literature to interpret the link in the service organizations. Discussion on the relationship between TQM practices and innovation was due to a change of perspective in managerial studies, where innovation replaces quality as a strategic factor in achieving business success (Hoang, Igel and Laosirihongthong, 2006). Thus, researchers in order to comprehend how to reach the competitive position and improve business performance investigate the relationship. Although the relationship between TQM and innovation appears intuitively positive, a group of scholars disagrees.

One stream of literature provides encouraging proof on the supporting role of TQM practices toward innovation. Some evidence shows TQM helps to create an environment and culture that supports innovation. Other evidence is that TQM practices enhance the combination among multifunctional activities. Innovation in fact results from the combination of different functional areas, such as research and development, process development, design, marketing, organizational restructuring, resource management, and employee development (Szeto, 2000). Furthermore, TQM supports companies in exploring and finding ways to serve customer needs and expectations at their best. This creates the impetus for companies to be innovative in developing and launching new products or services to match the customer's needs through the speed to market (Flynn, 1994), and the level of innovation in organizations (Baldwin and Johnson, 1996).

The second stream of literature provides conflicting theoretical arguments about the relationship between TQM and innovation, assuming that i.e. TQM practices hinder firms in

developing innovations or not produce any effect. For instance, Atuahene-Gima (1996) argue that the TQM leads to the quality of products, not to the innovation of product; or Singh and Ahuja (2004) not find sufficient statistical evidence to show a relationship; or Prajogo and Sohal, 2001 find more disadvantages for innovation than support (Prajogo and Sohal, 2001).

However, in many studies emerges that certain practices have a major impact on innovation. Results discussed by Hoang, Igel and Laosirihongthong (2006) demonstrate the relevance of three practices, namely leadership and people management, process and strategic management, and open organization showed a positive relationship with innovation.

Nevertheless, how is service innovation measured?

Service innovation is the creation of new service systems and new value propositions (IfM and IBM, 2008) influenced by characteristics of services such as inseparability, heterogeneity and perishability (Jaw et al., 2010). It refers to incremental or radical improvements in terms of technology innovation, business model innovation and social-organizational innovations and demand innovation (Kim, Kumar, and Kumar, 2012; IfM and IBM, 2008). Differently from Kim, Kumar, and Kumar (2012), Chong and Zhou (2014) suggest distinguishing service innovation from service process innovation and service product innovation points of view, where the former includes the improvement and introduction of new practices in service provisioning, and the latter involves the improvement and creation of new services itself. Concretely to measure service innovation organization should consider the number of new services that the firm had developed and commercialized over the last three years, and the share of the current annual turnover that sales of these innovative products and services had generated (Hoang, Igel and Laosirihongthong, 2006). In order to assess the level of newness, a re-adaptation of the scale (from 1 to 5) developed by Johannessen et al. (2001) could be used:

1. Entirely new service.
2. Use of new technology.
3. New functional solution for an existing service or additional service based on an existing service.
4. New method for creating or delivering service (i.e. business model).
5. Entering a new market.
6. New ways of organizing

3. Methodology

The company studied is a global integrated digital health organization that has led the transformation of healthcare by offering a range of strategic consulting, communications, technology and innovation services and expertise to companies striving to improve patient outcomes and transform business outcomes in the life sciences, medical device and health insurance industries.

Founded in Italy in 1997, Healthware Group comprises several vertical brands, including marketing and communications agency Healthware International, media consultancy Healthware Engage, innovation consultancy Healthware Labs and virtual events specialist SWM. Healthware Group is also the co-host of the world's leading digital health conference

Frontiers Health and runs Healthware Ventures, the company's investment arm that supports digital health startups with a focus on digital therapies and telemedicine. Together with its joint venture partner, Intouch Group, Healthware has a combined team of more than 1,300 communicators, connectors and future health builders and 15 offices in Europe, the U.S. and Asia.

This company, which stands at the intersection of digital transformation and digital health, was already born with a digital and continuous-improvement vocation and has scaled rapidly to be present in many different markets with exponential success.

We chose this company because, for us, it can represent a starting point to explore relationships that have been neglected until now. Through the methodology of the case study, we want to investigate what is the relationship between total quality service practices and service innovation in digital environments.

We decided to use the case study methodology because there was a need for an in-depth investigation of the phenomenon (Feagin, Orum, and Sjoberg, 1991). Case studies are an essential research tool in the field of management (Mariotto et al 2014).

The type of research question we posed warrants an exploratory study (Yin, 1994), and the answer to our RQ forms the foundation for a discussion of a concrete problem and is momentum for developing a theory on a given topic (Eisenhardt and Graebner, 2007; Eisenhardt, 1989).

Our choice of the single case study over the multiple case study stems from the fact that we intend to richly describe the existence of a phenomenon.

Our case study is based on secondary data; in fact, we collected information through documentation, archival documents, newspaper articles, audio and video material of events in which the connection between the use of quality practices with the innovative performance of the company emerged.

4. Results & Discussion

Our findings are classified according to the TQS practices theorized by Sureshchandar, Rajendran and Anantharaman (2001). What we wanted to explore is the relationship between the TQS practices and innovation in a digital environment. However, the analysis of secondary data limits the exploration of some practices such as: union intervention, social responsibility and servicescapes. Despite this, what emerged is that a combination of best practices and innovation -that can substitute quality in certain areas- is the way companies can reach business success.

Before illustrating in detail the TQS practices explored, the innovation level of Healthware is demonstrated by:

- new functional solution for an existing service or additional service based on an existing service in the healthcare industry

- new method for creating or delivering service in the healthcare industry
- new ways of organizing in healthcare industry

4. 1 Top management commitment and visionary leadership

The commitment and long-term vision for the development of the Healthware organization are certainly one of the critical success factors of the company. What we have found from the study of the documents is that the company has always been guided, since the beginning, by a well-defined vision and, as stated by the CEO and founder Roberto Ascione, on the basis of a well-constructed and clear vision rests a leadership that makes the management not only highly flexible and ready for new challenges but also a driver of change. The company, which was born digital, already has in its mission a mixture of elements that blend two different industries and believe that it is precisely in the intersection between different branches and between different skills and competencies that change and consequently innovation is nested.

The leadership style adopted is that of Transformational Leadership. This theory goes beyond the transactional leadership style (which focuses on supervision, organization and group performance) and emphasizes that people work more effectively if they have a sense of mission. This type of leadership characteristic is that there is a collective purpose, a vision that encompasses the aspirations of all. The manager who has a vision and is committed to achieving it can empower others and motivate performance beyond expectations. This style is typical of healthcare professionals as Al-Sawai (2013) points out. And in this regard, many awards attest to the spread of these values within the company. Roberto Ascione has been awarded with important titles over time, such as Decade's Best Industry Leader by Health 2.0 Conference - 10 Year Global Retrospective Award in 2016, nominated Transformational Leader at The 2017 PM360 ELITE Awards and named among the 100 Most Inspiring People by PharmaVOICE in 2017.

As evidence that the group strongly believes in these pillars, the company is committed to promoting women's leadership in healthcare through a partnership with the Healthcare Businesswomen's Association Europe (HBA EU).

The abundant evidence suggests that women are more likely to be transformational leaders, that a critical mass of women in leadership roles positively influences organizational excellence and profitability.

Healthware's practice guidelines address these principal points:

- Be part of and capitalize on industry transformation
- Build a solid and diverse career foundation
- Strengthen leadership capabilities
- Create opportunities and manage change

What emerged is that a strong link between commitment and innovation and thus competitive advantage can be traced.

4.2 Human resource management & Service culture

What comes out most often from documents and interviews is that people working at Healthware are selected more on people's soft skills than on technical skills - which are clearly fundamental to the company's goals. Healthware's teams are multidisciplinary, and the

company pushes for a continuous exchange between talented teams of global digital innovators -this is another source of success, the breaking down of the cultural distance- that in turn dialogue with life-science professionals, aiming at a common goal.

Roberto Ascione states that the whole history of healthware is based on "anomalies". Starting from the fact that it was born from the idea of a person with a bizarre path - according to most people - to the fact that the growth path of the company occurred against the traditional strategies. And even the selection of people within the company occurs based on an anomaly. And even the selection of people within the company occurs based on an anomaly.

Roberto, during a TedTalk affirmed: *"We started by looking for people who were as they needed to be i.e. structured for exactly what they needed to do, and we had several failures. Then we realized that we had to look for aptitudes and not look at what was not normal in the paths. So we found economists who are passionate about design, people who have studied philosophy or anthropology but want to do economics, and so on. This has created a team that may not be perfect but, I assure you, is one of the best in the world".*

He continues: *"Technical skills, the things that people know how to do, are essentially increasingly a non-durable asset, subject to continual change and evolution. If that doesn't happen, they can become obsolete. I've prioritized everything else...."*

From these statements, it is clear that the goal is to create belonging; empowerment should represent a state of mind or attitude shared by all members of the organization instead of a set of rigid rules, policies, procedures or practices.

Healthware also likes to hire students from local universities on a part-time basis while the students are completing their thesis. The deserving ones end up getting hired. In addition, there is a monthly meeting where employees get together during which roles are explained in detail, best practices are shared, and success stories are told.

We can equate this way of doing things to a best practice aimed solely at quality. Quality, in this case, creates empowerment and makes the environment stimulating. This creates a fertile ground for innovation.

4.3 Technical system

The design of the service offering at Healthware is built on an integrated system of competencies. The different divisions into which the company is divided work individually but at the same time in synergy to ensure that the end customer has the best possible solution.

Theorizing is very easy, but what makes the difference is extracting practices that enable the execution of the best solutions aimed at innovation. Ascione says it's about generating proof of concepts, trying to extract lessons from that and understanding how that can actually be operationalized and scaled.

The services offered by Healthware are based on customer centricity, through Healthware International that deals with the core service of designing a transformative healthcare experience that engages, simplifies and empowers people's lives, alongside there is Healthware Engage that puts in place targeted digital marketing, and media strategies with a data and results-oriented approach, Healthware Labs manages co-creation processes in which old problems are studied in an innovative way through open innovation that brings together supply and demand in a lean process aimed at exploiting the networks of each actor involved in the process. Healthware therapeutics is specialized in digital therapeutic R&D that pushes on the

side of digital technologies by providing a platform and specialized skills to further increase the potential for innovation; Healthware Ventures allows a funding program for startups that can then be included in the same processes of innovation of service delivery. Furthermore, Healthware Life Hub, an accelerator and space for co-working and co-creation aimed at fostering networking and to continuously germinate new ideas. All this, with a view to optimization and the battle against waste. Ascione, in fact, states:
"*There is a need for few but solid certainties. Efficient processes, automation/self-certification of as many procedures as possible and an economic fabric that takes on its responsibilities, or rather injects industrial and financial energy into new companies, with greater courage and intensity*."

4.4 Information and analysis system

Effective quality management relies on the appropriate dissemination of general information. This information dissemination within Healthware is supported by specialized information systems in several areas.

In a TQS environment, people need to communicate across organizational levels, functions, product lines, and locations to solve current problems, avoid new ones, and implement change. This has always been the case as the company is run as a global virtual company based in Salerno, Italy. The staff in each division are trained to manage projects for clients spread across the globe using a combination of tools and processes. All of the company's employees are connected in a global network through the use of virtual meeting tools, mobile devices and centralized documents. Through a web-based tool, the company can share project data not only internally but also with clients. Employees share goals, calendars, tasks and responsibilities, and project news. The company also uses a centralized workflow management system through which employees define changes to applications and content.

4.5 Continuous improvement

Continuous improvement in services, is a pilgrimage rather than a panacea (Milakovich, 1995). There is a definable task with a traditional beginning, middle and end; but a continuous journey that throws up more and more opportunities for improvement. The company's code of ethics clearly states the intention of continuous improvement. The continuous improvement of the company's performance, always inspired by the highest quality criteria, is one of the primary objectives of Healthware, which has also obtained the Quality Management System Certification in accordance with ISO 9001:2008.

4.6 Customer focus

In addition to what we have already said in the previous sections about the customer-centricity promoted by the company, we reiterate that customers are also part of the collaboration process. Users are responsible for maintaining and updating the system in a continuous co-design, where human aspects are emphasized rather than technological elements. In addition, Healthware group has promoted the newnormal.health initiative in response to the Covid-19 pandemic as a new normal perspective.

The site covers many key areas such as customer engagement, digital health, digital transformation, trends and perspectives on future industry scenarios and more.

The customer that Healthware addresses and whose needs it seeks to best intercept is twofold: healthcare companies that implement innovative solutions thanks to healthware's capabilities and patients for whom the services offered are custom-designed. And this is not limited only to the offer of service, but also to new business models, new production and commercial processes, new ways of communication able to increase efficiency and offer an attention to the patient and the person that is difficult to find in past experiences.

5. Conclusion

The paper explores the relationship between total quality service and innovation in a digital environment. Evidence from the case study shows that i) service innovation requires TQS practices that are customer focus and contribute in build a common and shared effort to gain customer satisfaction; ii)) a digitalized environment implies and comprehends some of the total quality practices that are intended already as routine for the organization.

What emerged is in fact that visionary leadership and top management commitment are a prerequisite to encourage employees in the realization of innovation and to diffuse service innovation among potential customers. Very often service innovators act in traditional industries that need to be guided toward innovation. This requires leadership and commitment.

Human resources and service cultures may be enclosed in a single practice. Furthermore, with the spread of digitalization, more attention may be dedicated to human resource management and the dissemination of the service culture; technical systems are integrated into the organization and information and analysis are a pre-requisite of digital service innovation. Concerning the customer focus, the term "Customer" appears obsolete in the service organization since service innovation enlarges the focus to the group of stakeholders.

The paper presents some limitations concerning the single case study approach with secondary data and the industry. In fact, despite the single case goes deepens some aspects, is not exhaustive to explore entirely our research question. While the specialization of Healthware in the healthcare industry may neglect other discussions on TQS and innovation.

The theoretical and managerial implications may be derived from the paper. The study invites in fact scholars to explore total quality in the digital era and service managers to learn from best practices.

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* Professor Francesco Schiavone developed the Introduction and the Conclusions of the article. Maria Cristina Pietronudo dealt with the Theoretical Background, Annamaria Sabetta with the Methodology; together, they elaborated the section on results and discussion.