Quality management as a driver of innovation in the service industry

Abstract This study identifies the combination of factors that lead to quality management reinforcing innovation capability as an organization's strength. The results from 133 Spanish service organizations show that competitive strategy, manager's motivation to adopt quality management, and customer orientation are key factors that explain the presence of innovation capability as a firm's strength. As some pioneering research points out, the impact of quality management on innovation depends mainly on managers' interpretation of this management philosophy. When quality management focuses on discovering new customer needs and even new markets, it contributes to strengthen the organization's innovation capability.

Keywords:

Quality Management; Service-Dominant Logic; Demand-Side Strategy; Value Innovation; Innovation Capability.

1 Introduction

Research in service management is "balkanized in different academic disciplines" (Chesbrough and Spohrer 2006 p. 39). A review of the most relevant contributions to service research reveals a constellation of topics interfacing the fields of marketing, operations, quality management, human resource management, and more recently, innovation management, technology management, and business strategy. Thus, the challenge is to create a common agenda designed to advance through an eclectic research program that jointly considers contributions from the academic disciplines that to date have influenced the service management literature.

In the last decade, service dominant logic (SDL) has emerged as a paradigm that allows for an integrative view of service management that is independent from the dominant production perspective (Vargo and Lusch 2004a; 2008a). One of the most important contributions of SDL is its understanding of value and value creation as relational and mainly dependent on exploratory innovation (Madhok and Marques 2013).

This view radically changes the understanding of traditional services management concepts. For instance, Customer-Contact (Chase 1978; 1981) is one of the most significant contributions to conceptualizing, describing, and analyzing service customer-firm interactions. The traditional view, rooted in operations management, deals with the variability and uncertainty that customer-contact introduces in the service delivery process, whereas from the SDL perspective, customer-contact becomes a privileged opportunity to sense and seize new and untapped customer needs, resulting in the creation of innovative value propositions.

In a similar vein, SDL provides an opportunity to reconsider the role and the contribution of quality management (QM) to service innovation. To date, as Volberda et al. (2013) stress, the relationship between QM and exploratory innovation remains unmapped, but it seems a promising vein of research. In fact, academic contributions in this field are very recent (Lee 2015).

With the intention to contribute to a better understanding of the relationship between QM and innovation capability in the field of service organizations, this research identifies the necessary conditions for QM principles and practices to improve the strength of a firm's innovation capability. In addition, the study identifies which conditions are present when applying QM leads to the absence of a robust innovation capability. The hypothesis is that QM's effect on innovation capability depends on the manager's motivation to adopt QM and on the firm's competitive strategy. When management interprets QM from a SDL perspective, QM deployment contributes to innovation capability enhancement.

In order to achieve the proposed research goal, this study presents a synthetic relationship between QM principles and the basic axioms that sustain the Austrian School conceptualization of innovation, which are compatible with basic axioms proposed by SDL –from the marketing field– and other complementary axioms like demand-side strategy –from the strategy field. Next, the study discusses the role of manager's motivations and of the competitive strategy as regards QM adoption in developing and strengthening a firm's innovation capability. Finally, a sample of 133 service firms is analyzed. Due to the exploratory nature of this research and the relevance of considering equifinal alternatives and non-reverse causation, the fsQCA method is adopted.

2 Conceptual Framework

2.1 QM as an antecedent of innovation

Quality Management (QM) can be defined as a management philosophy that leads the organization to achieve customer satisfaction through continuous improvement of processes, products, and services. This effort requires the commitment of all stakeholders, who in return, satisfy their legitimate needs (Dean and Bowen, 1994). QM is composed of a systemic set of management principles that are enacted through practices and tools.

Regarding the relationship between QM and innovation, there is no consensus on whether QM helps to create an organizational culture that fosters and supports innovation or, on the contrary, it inhibits innovation activities and is a barrier to the development of an innovative culture.

On the one hand, authors like Prajogo and Shoal (2001; 2003; 2004; 2006) and Hoang et al. (2006) argue that QM emphasizes a focus on customer's needs and preferences, and that this knowledge is the first step in the process that leads to firm's innovation efforts. On the other hand, Hoang et al. (2010) and Slater and Narver (1998) argue that QM, as a management philosophy, leads organizations to being concerned only with incremental improvements in their current products and services for their current markets, rather than creating new value propositions for underserved or totally new markets. An intermediate and conciliatory position is that of Pereira (2004). According to him, QM fosters continuous and incremental improvement. On the other hand, innovation capability involves discontinuous and disruptive discovery, but also continuous improvement of processes, product, and services, thus facilitating innovation.

This study draws on Martínez-Costa and Martínez-Lorente's view (2008). The authors argue that the counterproductive relationship between QM and innovation is due to a myopic and limited interpretation of QM. Since some organizations misunderstand this management philosophy, its application may have a negative effect on innovation processes. In order to gain understanding of the conceptual relationship between QM and innovation capability, the next paragraphs present a summary of the relationships established between different QM principles and innovation.

The consideration of QM as a source of knowledge creation is not a new issue (Rose and Ito 1996). QM principles and practices such as continuous improvement and customer orientation enable knowledge creation, which fosters product and process innovation, and greater customer satisfaction (Camisón, Boronat, Villar and Puig 2009). Continuous improvement, enacted through the generalized use of analytical tools throughout the organization, contributes to building a shared vision and a knowledge base, which is continuously renewed (Choo, Linderman and Schroeder 2007; Perdomo-Ortiz et al. 2009; Prajogo and Shoal, 2004). Likewise, QM fosters inductive learning through experimentation (Martínez-Costa and Jiménez-Jiménez 2008; Ruíz-Moreno et al. 2005) —what the QM literature calls 'learning by doing.' The most important thing is that learning occurs at all levels of the organization and is related to regular activities and processes.

Customer orientation, the first QM principle, encourages scanning and identifying users' needs (Linderman et al., 2004; Prajogo and Sohal, 2001). Costumer focus guides the organization to look for information about consumer needs (Fuentes et al. 2006; Perdomo-Ortiz et al. 2009). QM principles promote cooperative relations with customers, which result in continued and trustful relationships. QM stimulates customer loyalty and satisfaction (Black and Porter 1996; Powell 1995; Rao-Tummala and Tang 1996) and promotes the

consideration of value from the customer's side, which requires a deep understanding of customers' needs. Similarly, suppliers are as important as customers because considering the entire supply chain enables a long-term relationship that facilitates cooperation and knowledge exchange (Ruiz-Moreno et al. 2005; Tarí, Molina, and Castejón 2007; Mas-Tur and Soriano 2014). As a consequence of such organizational openness, QM enables the acquisition and assimilation of external knowledge in order to create more value for customers and consumers (Arumugam et al. 2013; Martínez-Costa and Jiménez-Jiménez 2008; Molina et al. 2007; Ruiz-Moreno et al. 2005).

According to Moreno-Luzón et al. (2000), QM implementation contributes to the development of an extensive and close internal network. Molina et al. (2004) confirm that ISO standards improve knowledge transferability, while QM enables internal knowledge transfer. Practices like process management and teamwork allow for mutual learning and knowledge sharing, which trigger and promote innovation (Fuentes et al. 2006; Prajogo and Shoal 2004). Likewise, QM promotes the development of multiple communication channels linking the organization to its environment (Fernández-Pérez and Gutiérrez-Gutiérrez 2013; Mas-Verdu, Ribeiro Soriano and Roig Dobon 2010). As Moreno-Luzón et al. (2000) show, when this network is decentralized throughout all departments and hierarchical levels, the capability of the organization to sense and seize new opportunities to improve products and processes is enhanced.

The body of literature suggests that QM invigorates learning and innovation. However, this learning is mainly focused on improving the effectiveness and efficiency of the established strategy and its current processes (Birkinshaw et al. 2008; Walker et al., 2008). As Volberda et al. (2013 p. 11) underline, little research is devoted to analyzing how QM contributes to exploratory innovation.

In this regard, given that QM is developed in the field of operations, its major gurus are mainly engineers (Camisón, Cruz, and González 2006). Along the last decade of the twentieth century, most of the research in the managerial field analyzed QM from the Resource-Based View, which provides an inside-out focus. However, a customer-side view, with an outside-in focus, is lacking (McGrath 2010). The next paragraph shows that using a customer-side view that includes service dominant logic and other complementary theories like demand-side strategy allows for a better understanding of how QM fosters exploratory innovation.

2.2 Customer-side view: Service dominant logic, demand-side strategy, and the underlying Austrian school thinking.

In recent years, different theoretical propositions have adopted a customer-side view. In marketing, service dominant logic (SDL) is probably the most influential theoretical framework published in the last decade in the field of service management. In their seminal paper, Vargo and Lusch (2004b) stablish a new logic to understand the service economy. They contrast the Neoclassical Economic School and the traditional Marketing Management School with what they call 'Marketing as a Social and Economic Process.' In fact, their main propositions are implicitly aligned with the basic principles of the Austrian Economic School. This renewed focus proposed by SDL is not an isolated theoretical phenomenon. In the field of management, demand-side strategy emerges as a theoretical corpus that complements and reinforces SDL, explicitly invoking its direct connection with the Austrian School axioms.

The Austrian School is basically an action-oriented approach based on a set of basic principles that provide a sound rationale to SDL and DSS propositions. The next paragraphs summarize the main principles that constitute this view:

Deep customer knowledge becomes paramount (Hax 2010; Kim and Mauborgne 2005; 2017 Madhok and Marques 2013). The firm continuously seeks present and potential customer needs. This behavior is what Kim and Mauborgne (2005) label as "visual exploration" and Hax (2010) terms "customer segmentation." Consumer knowledge plays a key role in entrepreneurial discovery (Priem et al. 2012). The challenge is that such needs are not only heterogeneous but also dynamic –markets are in a constant state of flux (Jacobson 1992; Kirzner 1997; Schumpeter 1942)– and sometimes latent (Priem et al. 2102; Priem et al. 2017).

Focus on Value Innovation. This axiom is based both on demand-side strategy (Priem, 2007) and on theoretical propositions that came from service-dominant logic (Lusch and Vargo 2006; Vargo and Lusch 2004a; 2004b; 2006; 2008a; 2008b). Firms can only articulate value propositions because "value is always uniquely and phenomenologically determined by the beneficiary" (Vargo and Lusch 2004a). Value depends on how consumers use the product or service in a specific context (Priem et al. 2017). A value proposition is innovative when it creates disproportionate value at a low cost (Kim and Mauborgne, 2005). Value innovation is a conjunction of creativity, customer understanding, and technology (Ibid.) and is the result of an entrepreneurial strategic process (Ireland, Hitt and Sirmon 2003; Parellada, Soriano, and Huarng 2011).

Opportunities should be created and quickly captured. Opportunities can be created by interpreting environmental cues and enacting an entrepreneurial vision (Priem et al. 2012). This corresponds to what Kirzner (1997) calls entrepreneurial judgement. That is, the way

managers interpret cues, recognize opportunities, and even imagine new value propositions (Priem et al. 2012). From this view, restrictions on firm behavior are due to the absence of entrepreneurial knowledge. That is, innovation depends on a cognitive construction of existing data and market elements in a fundamental new way (Kim and Mauborgne 2005). Thus, mature businesses exist only in the minds of mature managers (Baden-Fuller et al. 1994) or, similarly, "commodities only exist in the mind of the inept" (Hax 2010 p. 11). Then the challenge is designing new value propositions that lead to the creation of new markets (Kim and Mauborgne 2005). In order to capture and capitalize transient opportunities, timing and organizational flexibility are critical success factors (Madhok and Marques, 2013). The latter is especially important for industries characterized by regimes of weak appropriability, where protections against imitation are ineffective (Visnjic et al., 2016).

Align the whole system of activities, including those carried out by customers, suppliers, and complementors (Hax 2010; Kim and Mauborgne 2005; Priem and Swink, 2012). Creating innovative value propositions requires changes in the entire value system and in the way constituents create, deliver, and capture value (Zott and Amit, 2010). Thus, suppliers and complementors become partners in the value creation process, and the firm must choose to engage in activities that constitute the cornerstones of the entire system (Zott et al. 2011).

Strategy as a fair process. The strategic process requires organizational engagement and open dialog throughout the organization leading to consensus (Hax 2010 p.12). That is, agreement, at least between key executives and everybody's buy-in. Transparency is also important for two reasons: Everyone involved in the new value proposition should understand it and the underlying assumptions behind it; and everyone should understand his or her new role (Kim and Mauborgne 2005).

Leadership should guide the searching process. Given that the entrepreneurial-strategic process is full of uncertainty and complications, it requires the vision and guidance of a manager that behaves like a leader and concentrates his or her efforts on the people and activities that provide a disproportionate contribution to value creation (Kim and Mauborgne, 2005, p.151).

Experimentation and exploration are necessary organizational attitudes. As Alvarez and Barney (2007 p. 15) state, "rarely will entrepreneurs be able to see 'the end from the beginning.'" Thus, intuitive thinking (Kim and Mauborge, 2005, p.67), experimentation by trial and error, and proper assessment and measurement tools to quantify value created for customers and other constituents (Dobón and Soriano, 2008; Hax, 2010; Madohk and Marques, 2013) are drivers of discovery and learning.

These principles sustain an alternative way of carrying out innovation and value creation. The traditional way is based on possessing the proper resource base (knowledge and finance), tight process control (financial risk control), and a top-down elitist focus, where a few (engineers and scientists) create innovations based on the cutting edge of technological knowledge. Alternatively, according to the customer-side view —service-dominant logic and demand-side strategy—, resources are secondary, what is important is sensing and creating new opportunities. The consumer is the key, not only new customers but also underserved consumers. Customer interaction becomes a cornerstone and, as a consequence, the innovation process requires bottom-up-bottom participation. Finally, the process is flexible and recursive, based on intuition, trial and error, and learning by doing.

2.3 QM as an Innovation enabler

This section presents the correspondence between the theoretical frameworks of QM and the costumer-side view (Table 1).

Table 1

As Table 1 shows, correspondences are numerous and relevant. QM principles provide a sound basis for SDL and DSS enactment. QM traditionally focuses on operational excellence and deliberate planning, assumptions that underlie Business Excellence Models. However, these similarities indicate that QM could unleash entrepreneurial strategic processes oriented to creating and capturing new market opportunities. Departing from the previous considerations, this study presents the following hypotheses:

H.1a. The presence of customer orientation is associated with the presence of innovation capability as a firm's strength.

H.1b. The absence of customer orientation is associated with the absence of innovation capability as a firm's strength.

H.2a. The presence of leadership and management commitment is associated with the presence of innovation capability as a firm's strength.

H.2b. The absence of leadership and management commitment is associated with the absence of innovation capability as a firm's strength.

H.2a. The presence of leadership and management commitment is associated with the presence of innovation capability as a firm's strength.

H.2b. The absence of leadership and management commitment is associated with the absence of innovation capability as a firm's strength.

H.3a. The presence of HR active participation and commitment is associated with the presence of innovation capability as a firm's strength.

H.3b. The absence of HR active participation and commitment is associated with the absence of innovation capability as a firm's strength.

H.4a. The presence of continuous improvement is associated with the presence of innovation capability as a firm's strength.

H.4b. The absence of continuous improvement is associated with the absence of innovation capability as a firm's strength.

H.5a. The presence of cooperation along the supply chain is associated with the presence of innovation capability as a firm's strength.

H.5b. The absence of cooperation along the supply chain is associated with the absence of innovation capability as a firm's strength.

2.3 QM, competitive strategy and manager's teleological intention

Regarding the relationship between different competitive strategy typologies and QM implementation and outputs, previous research relies on the traditional taxonomy provided by Miles and Snow (1978), namely "defender," "analyzer," "prospector," and "reactor." Prospector organizations have high decentralization, little task specialization, few levels of management, and high interdependence among people and work units. They also focus on developing new services that fit fast-changing customer needs, desires, and expectations. Their processes are flexible to let them quickly introduce new services. Analyzer organizations have some features of both prospector and defender organizations. They strive for efficiency in their technical processes to keep costs low and they develop new services to maintain a competitive edge in changing markets. In the field of services, Academy reports a positive association between prospector and analyzer strategic types and the degree of QM implementation (Lee et al., 2002; Wardhani et al., 2009). Similarly, the literature stablishes

a positive relationship between the reactor type and QM implementation. However, in this case, the intention of QM deployment is mainly efficiency improvement in order to keep the competitive pace of the industry. Nevertheless, the strategy-QM relationship is not so direct and clear. According to Carman et al. (1996), the prospector strategy is related to organizations with hierarchical culture and low formalization, which impede QM implementation.

These assumptions suggest that QM deployment could be directed to different purposes that range from pure efficiency and cost reduction to sensing new customer needs and exploring innovative service propositions. As Martínez-Costa and Martínez-Lorente (2008) point out, the way management interprets QM has a lot to do with the results of its implementation. Therefore, manager's motivations, and not only strategy, should be taken into account to understand QM innovation outputs. Following Schniederjans and Schniederjans (2015), this study considers managers' teleological intention to implement QM; that is, which consequences are expected and the probability, desirability and importance of each consequence for the stakeholder.

The above considerations lead to the following hypotheses:

H.6a. The presence of prospector strategies and QM is associated with the presence of innovation as a firm's strength.

H.6b. The absence of prospector strategies and QM is associated with the absence of innovation as a firm's strength.

H.7a. The presence of managers' motivation to create new services to underserved customers and QM is associated with the presence of innovation as a firm's strength.

H.7b. The absence of managers' motivation to create new services to underserved customers and QM is associated with the absence of innovation as a firm's strength.

3 Empirical analysis

3.1 Method: fuzzy set Quality Comparative Analysis (fsQCA)

Qualitative Comparative Analysis (QCA) is a method developed originally by Ragin (1987, 2000, 2008) that is used to analyze complex causality, mainly in Social Science. QCA has been applied to a wide range of fields because it includes both qualitative and quantitative aspects and provides highly comprehensive answers to complex problems.

QCA can be used to explain complex phenomena through the identification of conditions or configurations of conditions that are sufficient or necessary for the phenomenon to take place. The conditions are variables that may take binary values (0, 1) or multiple values between 0 and 1. The early versions of QCA –csQCA and mvQCA– did not allow for the use of variables based on degrees. The possibility to use the latter type was a great advantage given that in Social Science few variables can be measured in binary values. Conversely, most phenomena take a range of values from low to high. The first version of QCA that allowed for this level of specification of the variables –or conditions in QCA terms– is the fuzzy sets version (fsQCA).

FsQCA (Ragin, 2008) requires the calibration of the conditions (variables) into values between 0 and 1. The main calibration method is called direct calibration and is the one suggested by Ragin. This method consists in using three calibration points –0.05, 0.5, and 0.95–, which indicate the degree of membership of a condition to the set. The 0.5 value indicates the point of maximum ambiguity. The alternative method of calibration implies a higher involvement of the researchers, who will be in charge of assigning a value within the 0-1 range to the data available. This procedure entails more work because the researchers

need to use their knowledge of the case and available sources to successfully calibrate the data.

Using a truth table, fsQCA allows for the identification of all possible combinations of conditions in relation to the outcome under study. The minimization of the truth table using Boolean logic eliminates irrelevant combinations reducing complexity. Afterwards, using consistency and coverage thresholds, the researchers identify the configurations or conditions that are sufficient or necessary for the outcome of interest. Consistency refers to the degree to which a condition belongs to a configuration and to the outcome. A low level of consistency is not acceptable. The common consistency threshold value is set at 0.75 or 0.8. In contrast, a low coverage –the measure that indicates the number of cases a configuration explains can be low because even if the configuration only explains a few cases, it might still hold value for the analysis in context. A condition or configuration is sufficient when the outcome takes place every time the condition is present. In contrast, a condition is necessary when it appears in all instances of the outcome. Sufficient conditions are rare and do not rule out other combinations. That is, a sufficient condition may explain the outcome by itself, but the same outcome may be explained by other configurations of conditions. This principle is known as equifinality (Ragin, 2000).

In contrast to previous techniques, such as regression, fsQCA allows for the analysis of asymmetric relationships. Another of the advantages of fsQCA is that it measures the combined effect of multiple variables on an outcome instead of focusing on the individual effect of each of the variables on its own. Furthermore, the results provided by traditional regression methods have been proved insufficient as regards predictive validity (Woodside 2013; 2016). Regarding its applicability, research shows that the number of research articles using fsQCA has been growing exponentially since its development (Berger, 2016), which

favors the identification of solutions for any disadvantages emerging in applying fsQCA to new research areas.

Even though QCA can be applied to large n, the procedure and specifications of the method need to be addressed differently in these situations because of the lesser detail the authors can obtain about each case under analysis (Greckhamer, Misangyi and Fiss, 2013). Cooper and Glaesser (2015) examine the robustness of fsQCA findings for large n and conclude that the results of a standard application of fsQCA are acceptable and stand the possible variations in calibration or changes in the threshold during the minimization process.

3.2 Sample and calibration

For the development of this study, a sample of 133 medium Spanish service companies belonging to the hospitality industry were used. Although fsQCA was originally oriented towards the analysis for small or medium samples, Woodside (2012) indicates that there are no limits for its application to a large sample. The scales used to measure the different conditions considered in this research are taken from previous studies on the topic. On the one hand, the scale and items in Camisón et al. (2009) measure QM. On the other hand, innovation capabilities are measured following Camisón and Villar-López (2014) and Camisón (2005).

Data collection was carried out through an online questionnaire administered from the limesurvey2.62.2 platform between January and March 2016 to a sample of 1258 companies. A team member provided technical support and the clarifications required by the participating companies. The study was addressed to the CEO of the company or, if applicable, a member of the senior management team to as per the CEO's indications. The response rate obtained is due to the favorable perception of the managers, as it is an assisted

process with direct feedback guaranteed to the participants. Table 2 shows the definitions for each condition and the outcome used for this study.

Table 2

According to Ragin and Fiss (2016), after the relevant causal conditions are identified, the calibration process requires conceptualizing the causal conditions and the outcome as assemblies and allocating membership scores.

Thus, the study uses Ragin's (2008) direct calibration:

For the outcome of innovation capability –*fs_innv*– and the condition of manager's motivation –*fs_motiv*– three cut-off points were established on the 90, 50th, and 10th percentiles (Misangyi and Acharya 2014; Palacios-Marqués et al. 2016).

In addition, for the conditions customer orientation –*fs_cust*– and people orientation –*fs_hr*– the cut off points were 5, 3, and 1.

Equally, for the conditions for continuous improvement and experimentation –*fs_experim*– and leadership –*fs_lea*– the cut-off points were 6, 3, and 1 (Feurer et al. 2016).

Regarding strategy condition –*Fs_str*–, full membership (1) was assigned to companies that have an innovative strategy based on the concept of "being the first." The point of maximum ambiguity (0.5) referred to those companies that do not have a clearly defined product-market orientation. Finally, full non-membership (0) was established for those companies that have a "follower" innovative strategy.

Finally, cooperation with the entire supply chain –*fs_coop*– was calibrated as 1 for those companies that have cooperation with customers in terms of quality and 0 for those companies that do not cooperate.

3.3 Analysis of necessary conditions

Necessary conditions are especially important in the field of business and management because the outcome (innovation) cannot occur without their presence (Dul 2016). In other words, a necessary condition must always be present for the outcome to take place (Fiss, 2007; Schneider and Eggert, 2014) Thus, Table 3 presents an analysis of necessary conditions using the fsQCA 3.0 software (Ragin and Sean 2016).

Table 3

In order for the condition to be deemed necessary, the consistency must not exceed 0.9. (Schneider et al. 2010). As illustrated in the table, there is no value that exceeds the 0.9 threshold and, as a result, it can be argued that there are no necessary conditions that independently produce the presence of the outcome innovation capability as a firm's strength.

Thus, there are no necessary conditions to produce the presence or the absence of innovation capability as a firm's strength. Therefore, the outcome will require a combination of conditions.

3. 4 Analysis of sufficient conditions

A sufficient condition implies that a condition or combination of conditions can reach the outcome by itself. On the contrary, a necessary condition must always be present for the outcome to take place (Fiss, 2007; Schneider and Eggert, 2014).

Specifically, this study will analyze two models. The first model comprises the causal configurations that are sufficient to reach the outcome (model 1), that is, patterns leading companies to dispose of a strong innovation capability. On the other hand, model 2 examines which configurations lead to companies not having a strong innovation capability.

Model 1: fs_innv = f(fs_lea, fs_hr, fs_experim, fs_coop, fs_cust, fs_motiv, fs_str)

Model 2: ~ fs_innv = f(fs_lea, fs_hr, fs_experim, fs_coop, fs_cust, fs_motiv, fs_str)

One of the main characteristics of comparative qualitative analysis is that the result or outcome can be achieved through different paths or causal configurations –equifinality– (Ragin, 2000). In this line, Table 4 and 5 show four configurations that determine the presence and absence of innovation capability as a firm's strength.

The results are presented following the notation used by Ragin and Fiss (2008) and Fiss (2011), where large circles indicate core conditions and small circles indicate peripheral conditions. In addition, black circles indicate presence and white circles the absence of a condition. As stated by Fiss (2011 p. 403):

> "core conditions are those that are part of both parsimonious and intermediate solutions, and peripheral conditions are those that are eliminated in the parsimonious solution and thus only appear in the intermediate solution. Accordingly, this approach defines causal coreness in terms of the strength of the evidence relative to the outcome, not connectedness to other configurational elements."

Table 4

The results of the analysis of the model 1 (presence of strong innovation capability) are both adequate and suitable as the overall solution consistency is greater than 0.75 (Fiss 2011). More specifically, it reveals the presence of three core conditions: people orientation, prospector strategy, and customer orientation. Those results support Kim and Mauborgne's (2017) proposition for an organization capable of creating new value for underserved customers, which requires managerial perspective and "humanness," understood as building people's competence and confidence.

Table 5

On the other hand, the results of model 2 (Table 5) reveal the absence of four core conditions such as the adoption of a conservative strategy –'analyzer', 'reactor', 'defender'–

; the lack of people orientation; the absence of customer orientation, and the absence of cooperation with the entire supply chain. These results are coherent with customer-side view propositions –service-dominant logic and demand-side strategy. The development and enhancement of a firm's innovative capabilities is damaged when one or more of this four elements are absent.

4 Conclusions

The relationship between QM and value innovation is the object of recent scholarly research, especially QM's role in fostering the development of new products and services for underserved markets, that is, exploratory innovation (Volverda et al. 2013). However, research on this subject matter is still sparse (Lee, 2015). Thus, this research analyzes the combination of circumstances –conditions– that lead to associating the presence of a QM system with the presence of innovation capability as one of the distinctive strengths of firms in the field of services.

As has been shown, QM and the customer-side view –service-dominant logic and demand-side strategy– share a set of principles and axioms. Both theoretical frameworks are customer-oriented and action-oriented. Both have an exploratory nature and require the commitment and participation of operant resources (Lusch and Vargo 2014): customers, organization members, and suppliers. Similarly, QM is mainly an operational set of managerial practices that can be directed toward different ends, depending on managerial intention. Therefore, firm's strategy and managers' motivations should be considered when implementing QM.

In order to answer the research questions proposed, the study analyzes a sample of 133 Spanish service firms. Due to the exploratory nature of the research and given the relevance of equifinality and the potential non-reverse causation, the chosen method is fsQCA. The survey analyzes three main issues: first, the combination of QM principles and practices applied; second, firms' competitive strategy (following Miles and Snow's 1978 taxonomy); third, manager's motivation to implement QM, which can range from serving customer formal requirements or keeping the competitive pace of the industry to creating new and better services or developing new markets.

The results show no necessary conditions for the presence or absence of innovation capability as a competitive strength. QM output depends not only on the level of implementation, but also on the aim pursued by the firm. These results support Martínez-Costa and Martínez-Lorente's (2008) idea that the relationship between QM and innovation depends on managers' interpretation of this management philosophy.

Regarding the combinations of conditions that lead to innovation capability as competitive strength, the results show four alternative recipes. This combination of conditions comprises customer orientation, people orientation, and the presence of prospector strategy, or alternatively, the presence of manager's motivation to create new services for underserved markets. That is, new value creation requires deep customer knowledge and the managerial intention to articulate this new knowledge into new value propositions.

Conversely, innovation capability as a competitive strength is absent when both prospector strategy and manager's motivation to create new services for underserved markets, as well as customer orientation are absent. Again, the relationship between QM and innovation capability depends on managers' intentions and their interpretation of QM as a management philosophy. As a general conclusion, QM, as a systemic set of managerial

principles and practices, could be applied to different purposes depending on managerial motivations to implement QM and on the strategy followed by the firm.

Finally, this research has some limitations. First, the data gathered are cross sectional and no causality relationships could be stated. Second, the sample is limited to medium-sized Spanish service firms from the hospitality industry. Future research should analyze global samples belonging to different service industries with homogenous features in terms of customer-contact and customization level. In addition, future research could also focus on how to use QM principles and practices to create new value propositions that lead to service innovation. Similarly, managers should consider ways to refocus some of their QM efforts on the exploration of underserved customer needs in order to create new services or markets.

Bibliography

Alvarez S, Barney J (2007) Discovery and creation: Alternative theories of entrepreneurial action. Strategic Entrepreneurship Journal 26(November): 11–26.

Arumugam V, Wei Chang H, Ooi K B, Teh P L (2009) Self-assessment of TQM practices: a case analysis. The TQM Journal, 21(1): 46–58.

Berger, E. S. (2016). Is Qualitative Comparative Analysis an Emerging Method?—Structured Literature Review and Bibliometric Analysis of QCA Applications in Business and Management Research. In *Complexity in Entrepreneurship, Innovation and Technology Research* (pp. 287-308). Springer International Publishing.

Black S A, Porter L J (1996) Identification of the critical factors of TQM. Decision sciences 27(1): 1–21.

Birkinshaw J, Hamel G, Mol M J (2008) Management innovation. Academy of management Review 33(4): 825–845.

Camisón C (2005) On how to measure managerial and organizational capabilities: Multi-item models for measuring distinctive competences. Management Research: Journal of the Iberoamerican Academy of Management 3(1): 27–48.

Camisón Zornoza C, Boronat Navarro M, Villar López A, Puig Denia A (2009) Sistemas de gestión de la calidad y desempeño: importancia de las prácticas de gestión del conocimiento y de I+ D. Revista Europea de Economía y Dirección de Empresas, 18(1): 123-134

Camisón C, Cruz S, González T (2006) *Gestión de la calidad: conceptos, enfoques, modelos y sistemas.* Pearson Educación, Madrid.

Camisón C, Villar-López A (2014) Organizational innovation as an enabler of technological innovation capabilities and firm performance. Journal of business research 67(1): 2891–2902.

Carman J M, Shortell S M, Foster R W, Hughes E F, Boerstler H, O'brien J L, O'connor E J (1996) Keys for successful implementation of total quality management in hospitals. Health Care Management Review 21(1): 48–60.

Chase R B (1978) Where does the custoc54r689tyuqmer fit in a service operation? Harvard Business Review 56(6): 137–142.

Chase R B (1981) The customer contact approach to services: Theoretical bases and practical extensions. Operations Research 29(4): 698–706.

Chesbrough H, Spohrer J (2006) A research manifesto for services science. Communications of the ACM 49(7): 35–40.

Choo A S, Linderman K W, Schroeder R G (2007) Method and context perspectives on learning and knowledge creation in quality management. Journal of Operations Management 25(4): 918–931.

Cooper B, Glaesser J (2015) Exploring the robustness of set theoretic findings from a large n fsQCA: An illustration from the sociology of education. International Journal of Social Research Methodology 19(4): 445–459.

Dean J W, Bowen D E (1994) Management theory and total quality: Improving research and practice through theory development. Academy of management review 19(3): 392–418.

Dobón S R, Soriano D R (2008) Exploring alternative approaches in service industries: the role of entrepreneurship. The Service Industries Journal, 28(7): 877–882.

Dul J (2016) Identifying single necessary conditions with NCA and fsQCA. Journal of Business Research 69(4): 1516–1523.

Fernández-Pérez V F, Gutiérrez Gutiérrez L (2013) External managerial networks, strategic flexibility and organisational learning: A comparative study among non-QM, ISO and TQM firms. Total Quality Management and Business Excellence 24(3–4): 243–258.

Feurer S, Baumbach E,and Woodside A G (2016) Applying configurational theory to build a typology of ethnocentric consumers. International Marketing Review 33(3): 351–375.

Fiss P C (2007) A set-theoretic approach to organizational configurations. The Academy of Management Review 32: 1180–1198.

Fiss P C (2011) Building better causal theories: A fuzzy set approach to typologies in organization research. Academy of Management Journal 54(2): 393–420.

Fuentes M M F, Montes F J L, Fernández L. M. M (2006) Total quality management, strategic orientation and organizational performance: The case of Spanish companies. Total Quality Management and Business Excellence 17(3): 303–323.

Greckhamer T, Misangyi V F, Fiss P C (2013) The two QCAs: From a small-N to a large-N set-theoretic approach. In: Fiss P, Cambré B, Marx A (eds.) Configurational theory and methods in organization-al research, pp. 49 –76 (Vol. 38). Research in the Sociology of Organizations series. Bingley, UK: EmeraldGroup Publishing Ltd.

Hax A (2010) The Delta Model. Reinventing Your Business Strategy. New York: Springer

Hoang D T, Igel B, Laosirihongthong T (2006) The impact of total quality management on innovation: Findings from a developing country. International journal of quality and reliability management 23(9): 1092–1117.

Hoang D T, Igel B, Laosirihongthong T (2010) Total quality management (TQM) strategy and organisational characteristics: Evidence from a recent WTO member. Total quality management 21(9): 931–951.

Ireland R D, Hitt M A, Sirmon D G (2003) A model of strategic entrepreneurship: The construct and its dimensions. Journal of Management 29(6): 963–989.

Jacobson R (1992) The 'Austrian' school of strategy. Academy of Management Review 17(4): 782–807.

Kim W C, Mauborgne R (2005) Blue ocean strategy. Boston: Harvard Business School Press.

Kim W C, Mauborgne R (2017) Blue Ocean Shift. London: MacMillan

Kirzner I M, (1997) Entrepreneurial discovery and the competitive market process: An Austrian approach. Journal of Economic Literature 35(1): 60–85.

Lee S C K, Kang H Y, Cho W, Chae Y M (2002) Assessing the factors influencing continuous quality improvement implementation: experience in Korean hospitals. International Journal for Quality in Health care 14: 383–91.

Lee S M (2015) The Age of Quality Innovation. International Journal of Quality Innovation, 1(1) DOI: 10.1186/s40887-015-0002-x

Linderman K, Schroeder R G, Zaheer S, Liedtke C, Choo A S (2004) Integrating quality management practices with knowledge creation processes. Journal of operations management 22(6): 589–607.

Lusch R F, Vargo S L (2006) The service-dominant logic of marketing: reactions, reflections, and refinements. Marketing Theory 6(3): 281–288.

Madhok A, Marques R (2013) Competing on Action: Business Models and the Competitiveness of Emerging Market Enterprises. Disposable at SSRN: http://ssrn.com/abstract=2376337 or http://dx.doi.org/10.2139/ssrn.2376337

Martínez-Costa M, Jimenez-Jimenez D (2008) Are companies that implement TQM better learning organisations? An empirical study. Total Quality Management 19(11): 1101–1115.

Martínez-Costa M, Martínez-Lorente A R (2008) Does quality management foster or hinder innovation? An empirical study of Spanish companies. Total Quality Management, 19(3): 209–221.

Mas-Tur A, Soriano D R (2014) The level of innovation among young innovative companies: the impacts of knowledge-intensive services use, firm characteristics and the entrepreneur attributes. Service Business 8(1): 51–63.

Mas-Verdu F, Ribeiro Soriano D, Roig Dobon S (2010) Regional development and innovation: the role of services. The Service Industries Journal 30(5): 633–641.

McGrath R G (2010) Business models: A discovery driven approach. Long range planning 43(2) 247–261.

Miles R H, Snow C C (1978) Organizational Strategy, Structure and Processes. McGraw-Hill, New York.

Misangyi V F, Acharya A G (2014) Substitutes or complements? A configurational examination of corporate governance mechanisms. Academy of Management Journal, 57(6): 1681–1705.

Molina L M, Lloréns Montes F J, Del Mar Fuentes Fuentes M (2004) TQM and ISO 9000 effects on knowledge transferability and knowledge transfers. Total Quality Management and Business Excellence 15(7): 1001–1015.

Molina L M, Lloréns-Montes J, Ruiz-Moreno A (2007) Relationship between quality management practices and knowledge transfer. Journal of Operations Management, 25(3): 682–701.

Moreno-Luzón M D, Peris-Bonet F J, González-Cruz T F (2000) Gestión de la calidad y diseño de organizaciones Teoría y estudio de casos. Prentice-Hall, Madrid.

Palacios-Marqués D, Roig-Dobón S, Comeig I (2016) Background factors to innovation performance: results of an empirical study using fsQCA methodology. *Quality and Quantity* 1–15.

Parellada F S, Soriano D R, Huarng K H (2011) An overview of the service industries' future (priorities: linking past and future). The Service Industries Journal 31(1): 1–6.

Perdomo-Ortiz J, Gonzalez-Benito J, Galende J (2009) An analysis of the relationship between total quality management-based human resource management practices and innovation. The International Journal of Human Resource Management 20(5): 1191–1218.

Pereira Z L (2004) Qualidade e Inovação, FCT/Universidade Nova de Lisboa Caparica, Portugal.

Powell T C (1995) Total quality management as competitive advantage: a review and empirical study. Strategic management journal 16(1): 15–37.

Prajogo D I, Sohal A S (2001) TQM and innovation: a literature review and research framework. Technovation 21(9): 539–558.

Prajogo D I, Sohal A S (2003) The relationship between TQM practices, quality performance, and innovation performance: An empirical examination. International journal of quality and reliability management 20(8): 901–918.

Prajogo D I, Sohal A S (2004) The multidimensionality of TQM practices in determining quality and innovation performance—an empirical examination. Technovation, 24(6): 443–453.

Prajogo D I, Sohal A S (2006) The integration of TQM and technology/R&D management in determining quality and innovation performance. Omega 34(3): 296–312.

Priem R L (2007) A consumer perspective on value. Academy of Management Review 23 (1): 219–235.

Priem R L, Li S, Carr J C (2012) Insights and new directions from demand-side approaches to technology innovation, entrepreneurship, and strategic management research. Journal of management 38(1): 346–374.

Priem R L, Swink M (2012) A demand-side perspective on supply chain management. Journal of Supply Chain Management 48(2): 7–13.

Priem R L, Wenzel M, Koch J (2017) Demand-side strategy and business models: Putting value creation for consumers center stage. Long Range Planning.

Ragin C (1987) The Comparative Method. Moving Beyond Qualitative and Quantitative Strategies. Berkeley/Los Angeles/London: University of California Press.

Ragin C (2000) Fuzzy-Set Social Science. Chicago: University of Chicago Press

Ragin C (2008) Redesigning social inquiry: Fuzzy sets and beyond. Chicago: University of Chicago Press.

Ragin C C, Fiss P C (2008) Net effects analysis versus configurational analysis: An empirical demonstration. Redesigning social inquiry: Fuzzy sets and beyond, 190–212.

Ragin C C, Fiss P C (2016) Intersectional Inequality: Race, Class, Test Scores, and Poverty. University of Chicago Press.

Ragin C C, Sean D (2016) Fuzzy-Set/Qualitative Comparative Analysis 3.0. Irvine, California: Department of Sociology, University of California.

Rao-Tummala V M, Tang C L (1996) Strategic quality management, Malcolm Baldrige and European quality awards and ISO 9000 certification: Core concepts and comparative analysis. International Journal of Quality and Reliability Management, 13(4): 8–38.

Roig-Tierno N, Gonzalez-Cruz T F, Llopis-Martínez J (2017) An overview of qualitative comparative analysis: A bibliometric analysis. Journal of Innovation and Knowledge 2(1): 15–23.

Rose E L, Ito K (1996) Knowledge Creation Though the Internal Information Market: An Integration of Total Quality Management. Quality Management Journal 3: 87–102.

Ruiz-Moreno A, García Morales V, Lloréns Montes F J (2005). Learning during the quality management process: antecedents and effects in service firms. Industrial Management and Data Systems 105(8): 1001–1021.

Schneider M R, Eggert A (2014) Embracing complex causality with the QCA method: An invitation. Journal of Business Market Management, 7(1): 312–328.

Schneider M R, Schulze-Bentrop C, Paunescu M (2010) Mapping the institutional capital of high-tech firms: A fuzzy-set analysis of capitalist variety and export performance. Journal of International Business Studies 41(2): 246–266.

Schniederjans D, Schniederjans M (2015) Quality management and innovation: New insights on a structural contingency framework. International Journal of Quality Innovation, 1(2) DOI 10.1186/s40887-015-0004-8

Schumpeter J (1942) Capitalism, socialism, and democracy. Harper and Row: New York.

Slater S F, Narver J C (1998) Customer-led and market-oriented: Let's not confuse the two. Strategic management journal: 1001–1006.

Tarí J J, Molina, J F, Castejon, J L (2007) The relationship between quality management practices and their effects on quality outcomes. European journal of operational research 183(2): 483–501.

Vargo S L, Lusch R F (2004 a) Evolving to a New Dominant Logic for Marketing. Journal of Marketing 68 (January): 1–17.

Vargo S L, Lusch R F (2004b) The Four Services Marketing Myths: Remnants from a Manufacturing Model. Journal of Service Research 6(May): 324–335.

Vargo S L, Lusch R F (2006) Service-Dominant Logic: What it is, what it is not, what it might be. In: Lusch R F, Vargo S L (ed.) The service-dominant logic of marketing: dialog, debate, and directions. M.E. Sharpe, Armonk, New York, pp. 43-56

Vargo S L, Lusch R F (2008a) From goods to service(s): divergences and convergences of logics. Industrial Marketing Management 37(3): 254–259.

Vargo S L, Lusch R F (2008b) Service-Dominant Logic: Continuing the Evolution. Journal of the Academy of Marketing Science 36 (Spring): 1–10.

Visnjic I, Wiengarten F, Neely A (2016) Only the brave: Product innovation, service business model innovation, and their impact on performance. Journal of Product Innovation Management 33(1): 36–52.

Volverda H W, Van Den Bosch, F A J, Heij C (2013) Management Innovation: Management as Fertile Ground for Innovation. European Management Review 10: 1–15.

Walker H, Di Sisto L, McBain D (2008) Drivers and barriers to environmental supply chain management practices: Lessons from the public and private sectors. Journal of purchasing and supply management 14(1): 69–85.

Wardhani V, Utarini A, van Dijk J P, Post D, Groothoff J W (2009) Determinants of quality management systems implementation in hospitals. Health policy 89(3): 239–251.

Woodside A (2013) Moving beyond multiple regression analysis to algorithms: Calling for adoption of a paradigm shift from symmetric to asymmetric thinking in data analysis and crafting theory. Journal of Business Research, 66(4): 463–472, http://dx.doi.org/10.1016/j.jbusres.2012.12.021.

Woodside A (2016) The good practices manifesto: Overcoming bad practices pervasive in current research in business. Journal of Business Research, 69(2): 365–381.

Woodside A G (2012) Proposing a new logic for data analysis in marketing and consumer behavior: Case study research of large-N survey data for estimating algorithms that accurately profile X (extremely high-use) consumers. Journal of Global Scholars of Marketing Science 22(4): 277–289.

Zott, C, Amit R (2010) Business model design: an activity system perspective. Long range planning 43(2): 216–226.

Zott C, Amit R, Massa L (2011) The Business Model: Recent Developments and Future Research. Journal of Management 37(4): 1019–1042.

Table 1. Customer-side view and quality management correspondences

Customer-Side View[1]	**Quality management**[2]	**Degree of Matching**
Consumer orientation	Customer orientation	**Very High.** Both are demand-side / Customer-Oriented.
Focus on innovation value	Strategic Orientation to value creation	**Low**. QM fosters traditional deliberated strategic planning, whereas SDL/DSS/AS advocates inductive processes where the strategy is shaped by interaction-exploration-action.
Opportunities are created		**Null**. QM focuses on operational excellence and incremental value creation.
The extended enterprise is considered	Development of Alliances and External Cooperation	**High**. Both advocate considering the entire supply chain, whereas SDL/DSS/AS highlights network effects.
Strategy as a fair and open process	Teamwork and Internal Cooperation	**High**. Both require the entire organization's engagement, but task focus may differ.
Leadership guides searching processes	Visionary leadership	**High.** Both highlight the need for a leader who leads the way and protects from fear.
Metrics and experimentation	Managing by Facts	**Very High.** Both foster experimentation and learning from facts.

(1) Under this umbrella, we consider Service-Dominant Logic (SDL) as well as demand-side strategy (DSS) and the Austrian School principles.

(2) The literature presents a wide variety of lists of quality management principles. Those presented in Table 1 come from a synthesis of some of the most cited (Dale 1997; Powell 1996; Camisón et al. 2006)

Table 2. Description outcomes and conditions

Outcomes	
fs_innv	Level of process and service innovation; Knowledge of last technological innovations; Proximity to the industry's cutting edge
~fs_innv	
Conditions	
fs_str	Prospector = 1; Not product-market orientation = 0.5; Others = 0
fs_motiv	Creating innovative services; Finding out underserved customer needs; Finding out new customer pools= 1; Others = 0
fs_cust	Customer Orientation and associated practices
fs_coop	Cooperation with the entire supply chain and associated practices
fs_experim	Continuous improvement and experimentation and associated practices
fs_hr	Active and empowered participation of HR and associated practices
fs_lea	Top management commitment and leadership and associated practices

Note: The symbol(~) indicates the absence of condition.

Table 3. Analysis of necessary conditions. Outcome variable: fs_innv and ~fs_innv

	fs_innv		~fs_innv	
Conditions tested:	Consistency	Coverage	Consistency	Coverage
fs_str	0.5300	0.5411	0.3827	0.4945
~fs_str	0.5049	0.3926	0.6449	0.6346
fs_motiv	0.6809	0.6129	0.5390	0.6140
~fs_motiv	0.5711	0.4947	0.6602	0.7236
fs_cust	0.4900	0.6351	0.3797	0.6228
~fs_cust	0.7090	0.4746	0.7775	0.6586
fs_coop	0.3892	0.4760	0.3385	0.5240
~fs_coop	0.6108	0.4218	0.6615	0.5781
fs_experim	0.6051	0.5886	0.5121	0.6303
~fs_experim	0.6199	0.5010	0.6657	0.6809
fs_hr	0.5514	0.5583	0.4942	0.6334
~fs_hr	0.6379	0.4991	0.6553	0.6489
fs_lea	0.5440	0.6202	0.4229	0.6101
~fs_lea	0.6580	0.4740	0.7367	0.6715

Note: The symbol (~) indicates the absence of condition.

Table 4. Analysis of sufficient conditions. Presence

	Solution			
	1	**2**	**3**	**4**
fs_lea				•
fs_hr	●	•	•	•
fs_experim			○	•
fs_coop		○		○
fs_cust		●	●	●
fs_motiv	○	•	•	
fs_str	●			
Consistency	0.76	0.77	0.84	0.79
Raw Coverage	0.17	0.11	0.18	0.11
Unique Coverage	0.09	0.01	0.07	0.02

Overall Solution Consistency	0.76
Overall Solution Coverage	0.33

Table 5. Analysis of sufficient conditions. Absence

	Solution			
	1	**2**	**3**	**4**
fs_lea			○	○
fs_hr		○	●	●
fs_experim			○	○
fs_coop		◯		○
fs_cust	●		◯	◯
fs_motiv	◯	◯		○
fs_str	◯	◯	○	
Consistency	0.84	0.81	0.86	0.90
Raw Coverage	0.15	0.24	0.17	0.12
Unique Coverage	0.05	0.15	0.06	0.04
Overall Solution Consistency		0.83		
Overall Solution Coverage		0.44		