

# Quality management as a driver of innovation in the service industry

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**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 the 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

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## 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 (DSS)—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 the view of Martínez-Costa and Martínez-Lorente (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 Zornoza et al. 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 et al. 2007; Perdomo-Ortiz

et al. 2009; Prajogo and Shoal 2004). Likewise, QM fosters inductive learning through experimentation (Martínez-Costa and Jiménez-Jiménez 2008; Ruiz-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). Customer 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 et al. 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. 2009; 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 et al. 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 et al. 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 DSS 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) establish 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, DSS 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. 2012; Priem et al. 2017).

### 2.2.1 Focus on value innovation

This axiom is based both on DSS (Priem 2007) and on theoretical propositions that came from SDL (Lusch and Vargo 2006; Vargo and Lusch 2004a, b, 2006, 2008a, b). 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 et al. 2003; Parellada et al. 2011).

### 2.2.2 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).

### 2.2.3 *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; everyone should understand his or her new role (Kim and Mauborgne 2005).

### 2.2.4 *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).

### 2.2.5 *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 Mauborgne 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; Madhok 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—SDL and DSS—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 customer-side view (Table 1).

As shown in Table 1, 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:

**Table 1** Customer-side view and quality management correspondences

Customer-side view <sup>a</sup>	Quality management <sup>b</sup>	Degree of matching
Consumer orientation	Customer orientation	<i>Very high</i> Both are demand-side/customer-oriented
Focus on innovation value	Strategic orientation to value creation	<i>Low</i> 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		<i>Null</i> QM focuses on operational excellence and incremental value creation
The extended enterprise is considered	Development of alliances and external cooperation	<i>High</i> 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	<i>High</i> Both require the entire organization's engagement, but task focus may differ
Leadership guides searching processes	Visionary leadership	<i>High</i> Both highlight the need for a leader who leads the way and protects from fear
Metrics and experimentation	Managing by facts	<i>Very high</i> Both foster experimentation and learning from facts

<sup>a</sup>Under this umbrella, we consider service-dominant logic (SDL) as well as demand-side strategy (DSS) and the Austrian School principles

<sup>b</sup>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 and Lascelles 1997; Powell 1995; Camisón et al. 2006)

**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.

## **2.4 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 establishes 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. Afterward, 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 et al. 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 was used. Although fsQCA was originally oriented toward 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 Zornoza 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 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.

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—

**Table 2** Description outcomes and conditions

Outcomes	
<i>fs_innv</i>	Level of process and service innovation; knowledge of last technological innovations; proximity to the industry's cutting edge
$\sim fs\_innv$	
Conditions	
<i>fs_str</i>	Prospector = 1; not product–market orientation = 0.5; others = 0
<i>fs_motiv</i>	Creating innovative services; finding out underserved customer needs; finding out new customer pools = 1; others = 0
<i>fs_cust</i>	Customer orientation and associated practices
<i>fs_coop</i>	Cooperation with the entire supply chain and associated practices
<i>fs_experim</i>	Continuous improvement and experimentation and associated practices
<i>fs_hr</i>	Active and empowered participation of HR and associated practices
<i>fs_lea</i>	Top management commitment and leadership and associated practices

Note The symbol ( $\sim$ ) indicates the absence of condition

*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

**Table 3** Analysis of necessary conditions

Conditions tested	<i>fs_innv</i>		$\sim fs\_innv$	
	Consistency	Coverage	Consistency	Coverage
<i>fs_str</i>	0.5300	0.5411	0.3827	0.4945
$\sim fs\_str$	0.5049	0.3926	0.6449	0.6346
<i>fs_motiv</i>	0.6809	0.6129	0.5390	0.6140
$\sim fs\_motiv$	0.5711	0.4947	0.6602	0.7236
<i>fs_cust</i>	0.4900	0.6351	0.3797	0.6228
$\sim fs\_cust$	0.7090	0.4746	0.7775	0.6586
<i>fs_coop</i>	0.3892	0.4760	0.3385	0.5240
$\sim fs\_coop$	0.6108	0.4218	0.6615	0.5781
<i>fs_experim</i>	0.6051	0.5886	0.5121	0.6303
$\sim fs\_experim$	0.6199	0.5010	0.6657	0.6809
<i>fs_hr</i>	0.5514	0.5583	0.4942	0.6334
$\sim fs\_hr$	0.6379	0.4991	0.6553	0.6489
<i>fs_lea</i>	0.5440	0.6202	0.4229	0.6101
$\sim fs\_lea$	0.6580	0.4740	0.7367	0.6715

Outcome variables: *fs\_innv* and  $\sim fs\_innv$

Note The symbol ( $\sim$ ) indicates the absence of condition

presents an analysis of necessary conditions using the fsQCA 3.0 software (Ragin and Sean 2016).

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.

$$\begin{aligned} \text{Model 1} \quad & fs\_innv = f(fs\_lea, fs\_hr, fs\_experim, fs\_coop, fs\_cust, fs\_motiv, fs\_str) \\ \text{Model 2} \quad & \sim fs\_innv = f(fs\_lea, fs\_hr, fs\_experim, fs\_coop, fs\_cust, fs\_motiv, \\ & fs\_str) \end{aligned}$$

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, Tables 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 the 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.

The results of the analysis of 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

**Table 4** Analysis of sufficient conditions: presence

	Solution			
	1	2	3	4
<i>fs_lea</i>				•
<i>fs_hr</i>	●	•	•	•
<i>fs_experim</i>			○	•
<i>fs_coop</i>		○		○
<i>fs_cust</i>		●	●	●
<i>fs_motiv</i>	○	•	•	
<i>fs_str</i>	●			
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			

creating new value for underserved customers, which requires managerial perspective and “humanness,” understood as building people’s competence and confidence.

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—SDL and DSS. The development and enhancement of a firm’s innovative capabilities is damaged when one or more of these four elements are absent.

**Table 5** Analysis of sufficient conditions: absence

	Solution			
	1	2	3	4
<i>fs_lea</i>			○	○
<i>fs_hr</i>		○	●	●
<i>fs_experim</i>			○	○
<i>fs_coop</i>		○		○
<i>fs_cust</i>	●		○	○
<i>fs_motiv</i>	○	○		○
<i>fs_str</i>	○	○	○	
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			

## 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 (Volberda 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—SDL and DSS—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.



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