Qual Quant (2017) 51:1939–1953
DOI 10.1007/s11135-016-0414-2

Background factors to innovation performance: results of an empirical study using fsQCA methodology

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Published online: 27 September 2016

Abstract On the one hand, we have analyzed the relationships between four key constructs: entrepreneurial orientation, online social networks, organizational learning capability and innovation performance. On the other hand, we have observed the importance of correctly using and justifying the calibration in fsQCA given that the obtained results may differ. We developed an empirical study with 209 four-star and five-star Spanish hotels. Using the fsQCA methodology, the results show that in order to obtain innovative results, hotels should combine Entrepreneurial Orientation and online Social Networks along with organizational learning capability.

Keywords Social networks · Firm performance · Measurement scale · Hotel · FSQCA

1 Introduction

The phenomenon of social networks has grown exponentially over the last few years, gaining in popularity and converting the Web into an enormous virtual community. New technologies such as the iPad, geolocation, tablets, smartphones, TV with internet access,

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tactile technology, streaming services, etc. incorporate applications so that the user can interact with their favorite social networks.

Large firms are gradually becoming a part of social networks not only as a channel for electronic business, but also for exploiting social networks as a space where they can interrelate with consumers, get to know their opinions, needs, and demands (Lee et al. 2011, p. 95). Consumer behavior has changed and is currently based more on the opinions of other users, despite the absence of real-life knowledge of the opinion-providers, than on the information provided by the seller (Jiménez-Zarco et al. 2011, p. 343). This tendency, tied to the creation of distinctive learning competencies, is related to the results in innovation of organizations (Aljuwaiber 2016; Anand and Walsh 2016).

This two study is two-fold. On the one hand, we study the casual configurations that drive hotels to produce innovative results. On the other hand, we will take two different paths to create constructs from the survey data and N Large to work with fsQCA.

To this end, we structured the article as follows: we begin with a literature review, identifying the different propositions we attempt to contrast. We then go on to design the empirical research, defining the method used for the creation of the scales and we finally describe the results obtained from the research and its practical implications.

2 Literature review

Social networks have become a tool that allows for the management of contacts, both on an internal and an external level. Internally, the use of social networks can improve management as well as the process of dissemination of knowledge within the firm. Externally, it facilitates interaction with clients and allows the firm to better understand their purchasing requirements. This type of tool enables the establishment of relationships among network users that share interests or objectives, which can then lead to the integration of an organization into collaboration environments (Anand and Walsh 2016; Sparks and Browning 2011; Raban and Rafaeli 2007; Herring and Wright 2004).

The reasons that lead firms to be present in a social network are varied, and it is sometimes the case that firms are simply "keeping up with the times" by forming a part of the social network, without thinking through the array of possible strategies this medium can provide. Some firms use social media by uploading a Facebook profile without any specific strategy at all. For example, while doing consultancy in a telecommunications firm in the USA, we found that they had created several Facebook profiles, each with different content. If a user accessed the firm's information via one of the profiles, they would not find the same information as if they had looked at the profile accessing the account just via the company name. As a result, valuable information was in different places and, potentially, motivation to return to the site was lost (item 2 of the social network scale included herein was created to identify this practice). No clear strategy was apparent in the profile design, nor was there a community manager who could adapt the content to the particular needs of users.

Clear strategies for inclusion in a social network might include opening up a new sales channel (applications are now appearing on Facebook that allow the sale of products online with security protocol), or simply redirecting traffic to the corporate web page (Aljuwaiber 2016; Jiménez-Zarco et al. 2011; Ruiz-Molina et al. 2011; Pedersen and Mcafee 2007; Bloom and Kerbel 2006; Finin et al. 2005). Firms appear in popular social networks listed as SMEs, but they do not sell directly through their profiles, nor do they redirect traffic to

the corporate web page (no link appears to the main website), there is no indexing of keywords to improve positioning and the content is static.

One information systems consultant gave us an example of one restaurant owner who observed that a competitor had written highly critical reviews about his restaurant by giving unfounded information about exorbitant prices on a social network devoted to restaurants and places to eat out. The restaurant had to publish its price lists on the website to demonstrate that the criticism was indeed false, but this example shows the importance of the new context where the opinions of anonymous clients have taken on an unprecedented significance.

The previous example clearly demonstrates that it is necessary to implement systems of control on the input of information into social networks, and it is often the users themselves who identify possible irregularities by contrasting what appears online with personal experience. Currently, this situation can occur and indeed it does, although it could be argued that the reader considers the opinion of the whole rather than that of one individual. Even so, an effort should be made to eliminate fraudulent behavior by using control mechanisms for the information that appears on websites. For example, on hotels.com, a website devoted to hotel reservations, customers can only publish an opinion on a particular hotel if they have at least previously made a reservation there.

In association with the concept of social networks, many firms incorporate blogs as a part of their internal and external communication channels (Anand and Walsh 2016; Boyd and Ellison 2008; Raban and Rafaeli 2007; Herring and Wright 2004; Nardi et al. 2004). Herring and Wright (2004, p. 4) define the blog as a frequently modified website whose data is introduced chronologically. The content and formats of blogs are rich and diverse; they can be akin to a personal diary, a place for leaving messages, a center to coordinate cooperation, a place for press releases, or as a means for the blogger to maintain contact with followers (Bloom and Kerbel 2006, p. 3; Akehurst 2009, p. 54).

Three types of blogs exist: filters, personal diaries, and notebooks. Filters contain external information on the owner of the blog, while a personal diary refers to his or her internal world for expressing ideas or work-related concepts and the notebook type can contain both of these forms of information. Regarding the gender of blog creators, men tend to create more of the filter type whereas as women prevail in personal diary blogs (Pedersen and Mcafee 2007, p. 17).

The expansion of blogs has occurred simultaneously in two different directions: the development of platforms for communities and the incorporation of the use of blogs within the traditional infrastructures of organizations. Nelson (2006) maintains that blog users can create different types of blogs for various purposes: developing a topic for discussion; promotion as an expert in a particular field; increasing visibility in the business world or as an introduction to social networking. Blog users are motivated by the desire to express themselves and be linked with others often without any economic stimulus, although in other cases, income can be obtained, for example, by advertisements in AdWords.

Nardi et al. (2004, p. 43) suggest five different types of motivation for blog users: documenting their lives, providing comment and opinion, expressing their emotions, articulating their ideas and participating in forums and communities. Blogs offer information relating to the use and performance of products and are beginning to constitute an important complement in terms of social and consumer behavior (Anand and Walsh 2016; Wellman et al. 1996, p. 216; Brown et al. 2007, p. 7). Currently, new professions are emerging which revolve around the idea of an efficient manager of social networks. A patent example is the figure of the Community Manager or Social Media Manager, who is the professional charged with managing, building, and moderating communities within a

framework on the Internet. Fulfilling such a function requires an effective use of new communication channels through social tools.

A concept that has spread with the boom of social networks is that of virtual communities, which are made up of websites that organize and share certain content such as videos, photos, music, and information via forums and mailing lists. According to Kuo-Ming Chu (2009, p. 283), at least 10 million Internet users participate in at least one of the 50,000 online communities available on the Internet. Rheingold (1993, p. 17) defines an online community as a group of social relations enabled by a technology based on the Internet, in which the users communicate with one another and build personal relations.

However, although the popularity of virtual communities is apparent, no consensus exists on its concept, roles, and implications. For Raban and Rafaeli (2007, p. 2372), online communities are self-organized systems of informal learning that allow members to interact and learn from one another via their devotion to and participation in joint activities and discussions. These activities promote collaboration among members and foster information sharing. Taylor-Greene et al. (1997, p. 102) believe that collaborative behavior exists in virtual communities, which manifests itself via voluntary acts to help one another without the expectation of any reward in return.

Several authors relate online communities to communities of practice (Lin and Lee 2006, p. 481; Sparks and Browning 2011, p. 1314), in the sense that the latter develop their routines and formal and informal rules. Communities of practice also develop practices as a result of learning, with participation as the basic mechanism for these communities. Hall and Graham (2004, p. 239) suggest that the size of the group is an important factor that influences the nature of the charitable behavior often found in online communities. In accordance with theories of social learning, the bigger the community becomes, the greater the intensity of charitable behavior among its members (Hutchins 1990, p. 6; Bandura 1991, p. 252; Pickering and King 1992, p. 358; Ruiz-Molina et al. 2011, p. 3).

Subramani and Peddibhotla (2004, p. 3) propose the idea that the diversity that exists among members of an online community contributes significantly to its results. However, for Daft (1998, p. 6), a high degree of diversity in community members can have negative effects in their interaction. Although these are conflicting viewpoints, Kuo-Ming Chu (2009, p. 282) states that professional diversity, in terms of knowledge among members, can have a positive effect on the behavioral tendency of the community, but an extremely wide range of opinions might have a negative effect.

Finholt and Sproull (1990, p. 46) identify another type of online community member when they indicate that there are a significant number of spectators who silently pore over information generated by other members. The slang term used to describe these silent spectators is "lurkers"; users whose degree of actual involvement is low or negligible. Zhang and Storck (2001, p. 3) describe this type of user as peripheral members. This type of user is able to create new ideas that can become innovations.

Taking into account the theoretical relationship between the online social networks and innovation we now develop Proposition 1.

Proposition 1 *The presence of Online Social Networks in organizations leads to Innovation Performance.*

Entrepreneurial orientation has been analyzed from many perspectives. Cadogan and Diamantopoulos (1995) lay emphasis on two perspectives: behavioral and philosophical. From the behavioral point of view, activities that the entrepreneurs develop are market

orientation. The philosophical perspective takes into account activities that can affect in firm performance in a long period of time.

A literature review describes some theoretical models that include entrepreneurial orientation. Along these lines, Kohli and Jaworski (1990) show that upper-management factors have an incidence in entrepreneurial orientation, as well as having a positive effect on some business operations. In fact, to improve this theoretical model it is necessary to introduce mediating and moderating variables as online social networks.

In this regard, the entrepreneur should promote the participation of their employees in social networks, where according to Dunne et al. (2010, p. 49), aspects such as friendship and identity management are the most significant attributes. According to Hansen et al. (2005, p. 781), social networks are subsets of informal relations established within groups. Each subgroup formed within the firm contributes to the business decision-making process and affects each of its stages, including the search for knowledge and costs associated with the different available channels.

According to Boyd and Ellison (2008, p. 214), social networks allow users to build a public or semi-public profile through a limited system, to create a list of contacts with other users and have a cross-over of lists of contacts of other users within the system. Social networks provide a user-friendly context generated by the users themselves, in which they extol values such as collaboration and cooperation; aspects that are necessary for creating an effective learning environment. Social networks are based on the premise of relations with members who are already present in the social network or of attracting other members with the same interests (Boyd and Ellison 2008, p. 216). Finin et al. (2005, p. 421) define social networks as an "explicit representation of a relationship between individuals and groups in a community".

Firms today must be aware of the power of opinion that such informal networks wield over their products and are often careful to contrast that the information given out about their products is correct (Anand and Walsh 2016; Sparks and Browning 2011; Boyd and Ellison 2008; Raban and Rafaeli 2007; Herring and Wright 2004; Nardi et al. 2004). Accordingly, companies that are capable of creating social networks, both internal and external, are able to generate knowledge that improves the capabilities of innovation of enterprises.

Based on the above theoretical arguments we can define the second proposition as follows:

Proposition 2 *High levels of Entrepreneurial Orientation in organizations leads to obtaining Innovation Performance.*

Firms have to consider that the opinions of consumers concerning the different products or services that are manufactured by the company, can be regarded as an effective way of organizational learning. In this sense, the intangible nature of the abilities and knowledge of the personnel that works with the online social networks can been considered more prone to becoming a possible source of competitive advantage than the information technology infrastructure (Dunne et al. 2010; Boyd and Ellison 2008; Hansen et al. 2005; Hall and Graham 2004).

Knowledge that the organizations have about the customer continues to grow as long as the online social networks manage to maintain relations with their existing members, as well as attracting new customers that have similar ideas (Kuo-Ming Chu 2009; Raban and Rafaeli 2007; Bloom and Kerbel 2006; Finin et al. 2005; Hansen et al. 2005; Rheingold 1993; Finholt and Sproull 1990). In this respect, it is necessary to develop procedures that provide incentives for users to share information. This information has to be disseminated

through all the levels of the firm in order to create collective knowledge. Some users are 'influencers' and can create ways of thinking that could condition the rest of users. In this sense, the firm has to able to create an environment where all the users can express their ideas and opinions. These ideas and opinions must be translated into the development of radical innovations or process improvement or incremental innovations.

Firms that continually seek innovations are more likely to develop and exploit unique information systems that create competitive advantages over competitors. In this sense, online social networks have an important role, as they can obtain tacit and explicit knowledge from the customers, and it can be used to create new products or services in the firms. This strategy is not expensive for the firms since many free tools facilitate the contact between the company and the customers. In this process, the key activity is to obtain knowledge from the data (Aljuwaiber 2016; Lee et al. 2011; Jiménez-Zarco et al. 2011; Ruiz-Molina et al. 2011; Pedersen and Mcafee 2007; Finin et al. 2005).

This theoretical reasoning allows us to state that an innovative information system strategy has a direct effect on firm performance. There are firms that are not well positioned to develop an innovation information system strategy, instead, they can benefit from adopting a conservative information system strategy (Anand and Walsh 2016; Sparks and Browning 2011; Boyd and Ellison 2008; Raban and Rafaeli 2007; Herring and Wright 2004; Nardi et al. 2004). However, this strategy has no positive effect in creating and holding a competitive advantage.

Proposition 3 *High levels of Organizational Learning Capability in organizations leads to Innovation Performance.*

3 Methodology

fsQCA is proving to be an increasingly emerging methodology in the social sciences. Proof of this is the wide variety of studies that are using this methodology (Dul 2016; Woodside et al. 2015; Lomberg and Baldauf 2014; Crilly et al. 2012; Fiss 2011). According to Ragin (2008), fsQCA tries to explain the relationship between the conditions and the outcome in terms of necessity and sufficiency. A broad theoretical development is done in the studies of Ragin (2008) and Schneider and Wagemann (2012).

3.1 Data and sample

We developed a questionnaire and sent to the managers of four-star and five-star Spanish hospitality firms. Top managers have a holistic view and are able to answer all the questions. The period used to obtain information from the questionnaires was between January and June 2015. Online social networks play a major role in the tourism industry. We obtained 209 valid questionnaires; this is sample error of 6.442 percent for a confidence level of 95 percent.

Qualitative comparative analysis (QCA), for the most part, has been used with N small. However, as Woodside (2012) indicates, there is no mathematical limitation that prevents this methodology to be used with N large. Consequently, in this study we will apply fsQCA through 209 cases.

3.2 Variable definition

3.2.1 Entrepreneurial orientation

We used the Covin and Slevin (1989) measurement scale, as it is one of the most used measurement tools in entrepreneurship (Escribá-Esteve et al. 2008). The scale is composed of 8 items and has been utilized like a Likert-type scale with a range of seven points.

3.2.2 Organizational learning capability

To measure this construct, we have used the scale proposed by Chiva and Alegre (2009). It is a Likert-type scale with a range of 7 points with 14 items.

3.2.3 Online social networks

In order to create the scale, we based our ideas on the methodological work of Churchill (1979, p. 68) and DeVellis (1991, p. 44). The main problem in developing items arises from the lack of previous research. To identify the attributes, firstly, a broad sample of items was generated to capture the greatest possible number configuring all the dimensions of the domain of the construct (Churchill 1979, p. 63). Using the Delphi technique and a pre-test questionnaire, we then selected only the attributes that were relevant.

Our panel of experts was made up of 21 people from different backgrounds: we chose industrial experts from company managers and specialists in the industry, from business associations or institutions related to the sector. The academic experts consulted were professors who are known for their research into social networks. The plurality in the panel of experts avoids bias in the information.

Respondents indicated the extent of their agreement on a seven-point Likert scale. After two rounds of questioning, the items with the lowest level of agreement were removed and the suggestions for improving the measurement scales received from the experts were incorporated. The measuring instrument was pre-tested twice, the first time using 20 firms, with the collaboration of the general management. Doubts, interpretation difficulties, and suggested improvements were assessed and, when appropriate, incorporated into the questionnaire. Before arriving at the final format, a second pre-test was performed three weeks before mailing the final version. The final scale is made up of eight items. Six items, from the initial 14, were eliminated after filtering using the Delphi method.

Table 1 shows the list of items of the measurement scale.

3.2.4 Innovation performance

We used the measurement scale provided by OECD Oslo Manual (OECD-EUROSTAT 1997). This scale provides some drivers for innovation studies, thereby achieving a greater homogeneity among innovation studies. We have used a Likert-type scale with a range of seven points which is also composed of eight items.

Table 1 List of items of the online social networks measurement scale

Item	Description
OSN1	The firm is profiled on the main social networks
OSN2	There is a single, unified strategy when creating profiles so that the image of the firm remains the same
OSN3	Actions carried out in terms of social networks are determined by the firm's business strategy
OSN4	Personnel are hired to identify processes related to social networks
OSN5	The firm has a community manager to stimulate interaction with users
OSN6	There are cross-referenced marketing systems that encourage the user to interact with the social networks that the firm is involved with
OSN7	Promotion policies exist for the firm's products and services on social networks
OSN8	There are incentives for complying with the objectives related to the development of social networks

4 Results

4.1 Reliability analysis

Table 2 shows the reliability analysis performed through Cronbach's Alpha. In this case, all constructs generated exceeded the value of 0.9 (Nunnally 1978) for what we considered as valid.

4.2 Construct creation

For the realization of the constructs, we chose two different paths in order to analyze which results are best suited to work with fsQCA. As indicated above, the items were measured using the 7 point Likert scales. We gave a positive value to all items, i.e., 1 (strongly disagree) indicates the lowest value and 7 the highest value (strongly agree). We proceeded to group the three conditions and the outcome in two different ways. First, we used the average value (procedure 1) to create the construct value. For example, for the entrepreneurial orientation (EO) construct that consists of eight items where responses are 5; 6; 7; 5; 6; 7; 5; 6, we imputed a value of 5.875.

Second, we used the multiplication of the items (procedure 2) to calculate the specific value of each factor. Thus, following the example above, it was assigned a value of 1,323,000.

Table 2 Internal reliability

	Cronbach's alpha	No items
EO—Entrepreneurial orientation	0.936	8
SN—Online social networks	0.929	8
OLC—Organizational learning capability	0.965	14
IP—Innovation performance	0.940	8

4.3 Calibration

After generating constructs, a calibration of the conditions and the outcome has to be performed (Ragin 2008; Schneider and Wagemann 2012). Just as in the previous section, there have been two types of calibrations in accord with how the constructs were created.

The calibration of the constructs generated using the midpoint was performed using the direct method proposed by Ragin (2008). The cut-off points can be seen in Table 3, and to establish them we followed Feurer et al. (2016). The result of the calibration of the three conditions (EO, SN, and OLC) and the outcome (IP) can be analyzed in the attached graphs (Fig. 1).

On the other hand, for calibration of the second set of conditions (multiplication) we chose to set cut-off points based on percentiles (Dul 2016; Beynon et al. 2016). Particularly, in this study, we have established the 90 percentile as the point of full inclusion of the group, the 50 percentile (or median) as the cut-off or maximum ambiguity, and the 10 percentile as the 'completely out' point. The cut-offs for each of the conditions and the outcome can be seen in Table 4.

Figure 2 shows the values of the different construct calibrations.

4.4 Necessity and sufficiency

As noted above, fsQCA analyzes the relationship between the conditions and the outcome in terms of necessity and sufficiency. In this paper, we have analyzed only those causal configurations that lead to the presence of the outcome. In Table 5, we show the results of the analysis of necessity and sufficiency using the two calibration procedures described above. The software used to conduct this study is the fsQCA 2.5 (Ragin and Davey 2014).

Table 5 shows the relationships of necessity of the three conditions (EO, SN and OLC) and the outcome (IP). A condition is considered necessary when the value of the consistency is higher than 0.9 (Schneider et al. 2010). First, after analyzing the values obtained with procedure 1, it is observed how the presence of the three conditions (entrepreneurial orientation, online social networks and organizational learning capability) is necessary to achieve innovation performance.

Secondly, after analyzing procedure 2, we observe that no condition is necessary to produce the outcome (IP). However, the consistency values are superior to 0.84 reflecting the importance of the presence of these three conditions for innovation results in hotels.

Table 3 Calibration

	Completely in (95 %)	Point of maximum ambiguity (50 %)	Completely out (5 %)	Maximum	Minimum
EO—Entrepreneurial Orientation	5	3	2	6.50	2.00
SN—Online social networks	5	3	2	6.25	2.13
OLC—Organizational learning capability	5	3	2	6.43	2.43
IP—Innovation performance	5	3	2	6.13	2.50

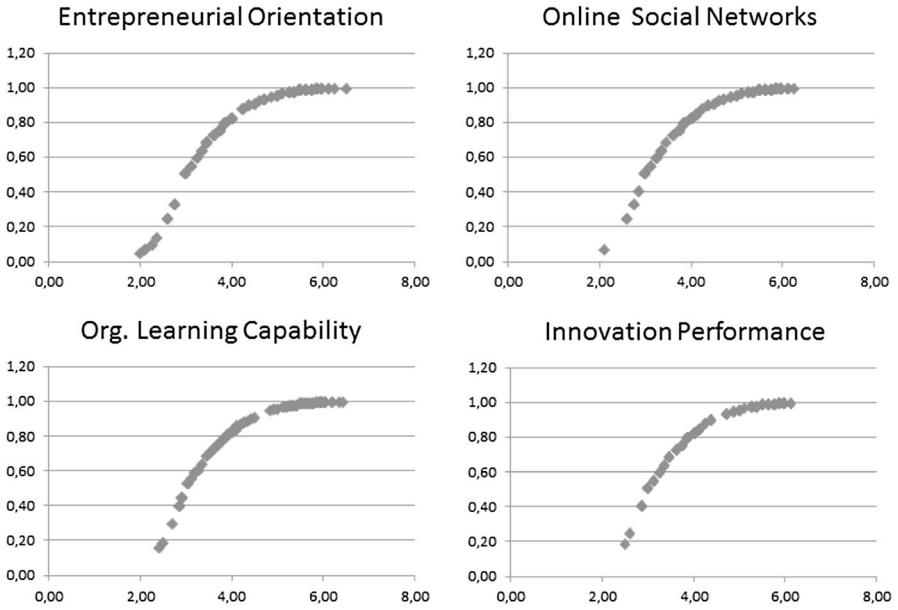

Fig. 1 Calibration of the conditions and the outcome

Table 4 Cut-off points for the calibration

	Completely in (95 %)	Point of maximum ambiguity (50 %)	Completely out (5 %)	Maximum	Minimum
EO—Entrepreneurial orientation	1.134.000	102.400	6.771,6	3.025.260	144
SN—Online social networks	1.360.800	114.688	9.6768	2.222.640	288
OLC—Organizational learning capability	60.011.280.000	335.544.320	4.478.976	1,8678E+11	82.944
IP—Innovation performance	1.323.000	81.920	6.6048	1.852.200	1152

Below, are the truth tables for the two procedures. The truth table is the central element to work with QCA. The process consists in transforming the diffused scores in a truth table to later minimize the configurations and obtain more parsimonious configurations (Legewie 2013). Specifically, in this study, the truth table has eight possible configurations (2^3).

As you can see, Tables 6 and 7 show great differences. First, Table 6 shows how the last two configurations do not present cases. While in Table 7 (procedure 2), these same configurations present 1 and 7 cases, respectively.

Secondly, the setting (EO*SN*OLC) in Table 6 presents 180 cases while there are 94 in Table 7. Finally, the configuration (~EO*~SN*~OLC) in the truth table obtained through procedure 1 (Table 6), there are four results, while in the truth table obtained

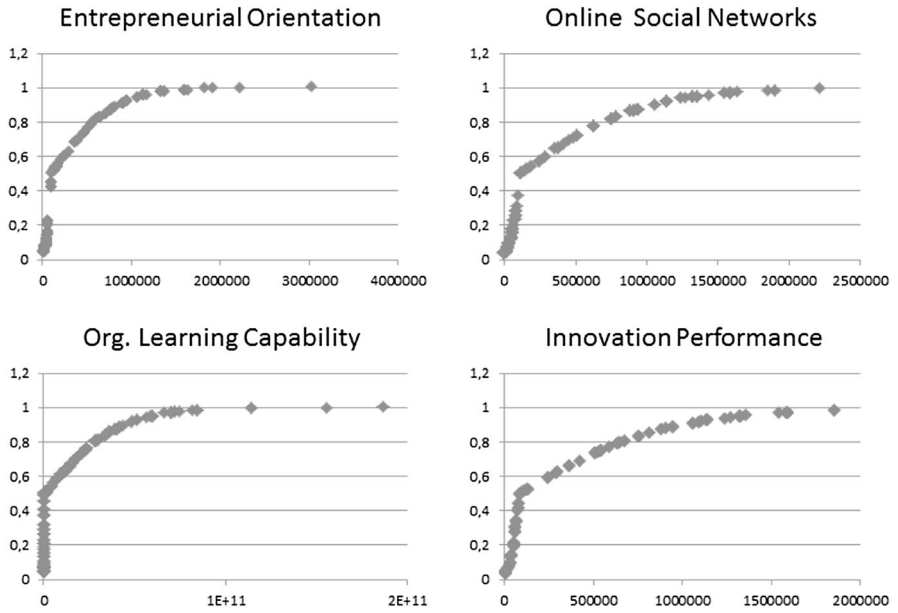

Fig. 2 Calibration of the conditions and the outcome

Table 5 Analysis of necessity

Conditions tested	Procedure 1		Procedure 2	
	Consistency	Coverage	Consistency	Coverage
EO	0.949403	0.968036	0.849638	0.894206
~EO	0.197765	0.887416	0.365679	0.348871
SN	0.972274	0.964533	0.865919	0.915039
~SN	0.183078	0.936072	0.360662	0.342829
OLC	0.970999	0.976052	0.859053	0.912554
~OLC	0.191747	0.918400	0.408822	0.386789

through procedure 2 (Table 7), there are 87 cases. These differences can be manifested as important if we analyze the absence of the outcome (~IP).

Below, the coding of the truth table is performed. Following Ragin (2008), the configurations with consistencies above 0.75 can be considered present. As shown in Table 6, all consistencies exceed the threshold of 0.75 and therefore should be considered in the minimization process. Another factor to consider the determination of the truth table is the number of cases present in each configuration. Thus, considering procedure 1, a solution could not be obtained since all the configurations lead to the outcome.

On the other hand, concerning procedure 2, a consistency cut-off of 0.9 has been considered. Although, considering the size of the sample size (209), we eliminated the configurations 2, 3, and 4. After the minimization process, the result obtained is shown in Table 8. Table 8 shows the sufficiency analysis, more concretely the intermediate solution.

Table 6 Truth table procedure 1

EO	SN	OLC	Number	Raw consist.	PRI consist.	SYM consist
1	1	1	180	0.988257	0.985770	0.995078
0	0	1	1	0.986559	0.808253	0.819716
0	1	1	3	0.985057	0.911620	0.924210
0	1	0	1	0.971358	0.716167	0.716164
0	0	0	4	0.968706	0.608465	0.670812
1	1	0	2	0.968654	0.770038	0.770038
1	0	1	0			
1	0	0	0			

Table 7 Truth table procedure 2

EO	SN	OLC	Number	Raw consist.	PRI consist.	SYM consist
1	1	1	94	0.972431	0.960353	0.983992
1	1	0	1	0.954805	0.824030	0.824031
0	1	1	2	0.947208	0.791357	0.791440
1	0	1	1	0.928813	0.680012	0.680012
0	1	0	6	0.884230	0.405431	0.405430
1	0	0	7	0.846034	0.280656	0.281243
0	0	1	6	0.800479	0.222757	0.222757
0	0	0	87	0.340965	0.016456	0.017820

Table 8 Analysis of sufficiency

	Raw coverage	Unique coverage	Consistency
OLC*SN*EO	0.758928	0.758928	0.972431
Solution coverage: 0.758928			
Solution consistency: 0.972431			

Intermediate solution

Regarding the analysis of the results and in order to obtain innovative results, this table shows how the hotels should change Entrepreneurial Orientation and Online Social Networks along with Organizational Learning Capability.

5 Conclusions, limitations and future lines of research

Firms have a variety of disruptive technologies at their disposal, such as social networks, blogs, wikis, etc. which they still do not know how to use properly. It is necessary to begin to exploit these technologies after a rigorous strategic analysis revealing the objectives that each firm wishes to obtain.

Social networks can be considered as a web 2.0 tool, and they place the emphasis on the user. The user is not merely conceived as a recipient of content, but also as an agent who is capable of creating it. A transition is occurring from the concept of the Internet in which the user's importance is relative to the degree to which they are able to consume resources to a situation which seeks the massive participation of users and a platform that actively fosters such participation.

In today's business world, it is essential for firms to be present in social networks. Just a few years ago, visits to websites came almost entirely from search engines (Google, Yahoo, etc.), while the most recent figures reveal that for Spanish hotels, 30 % of visits are the result of the presence of hotel company profiles in social networks. (www.cehat.com, Spanish Confederation of Hotels and Tourist Accommodation). Consumers increasingly use electronic means to make reservations, and it is, therefore, logical that firms that are not well positioned on the Internet are doomed to failure and currently, any positioning strategy must include the development of social networks.

Recent trends in the sector are moving towards smaller hotels located in emblematic refurbished buildings (mansions, large houses, etc.) with an increasing offer of complementary services regarding technology, leisure, sport, health, beauty, cuisine, all of which are designed to generate greater differentiation and a sense of exclusivity. Social networks are where hotel clients find a channel for their experiences through which they can both receive and disseminate knowledge.

Concerning the degree of introduction into social networks in the hotel sector, we can state that the main objective is that of developing promotion service policies offered by the hotel. The profile of the firm is carefully orchestrated to provide users with a homogenous image of the services it offers, with a connection between the profile and the corporate website, which implies creating organic traffic through social networks.

Among the practices that hotel managers need to improve if they wish to integrate social networking effectively into their strategic planning is that of linking specific activities they carry out on social networks with concrete objectives in strategic business planning. Social networks can create new business models for the hotel derived from the traffic they generate. In this sense, it is necessary to develop attractive, dynamic content which engenders loyalty among users, via the use of blogs, content syndication, etc.

Social networks are a doorway to a variety of strategies for firms and allow for the development of both incremental and radical innovation. The image or brand name can be enhanced, and the firm's catalog of products can also improve by introducing incremental innovations, while some firms use social networks to create new products, thus introducing radical innovations. When technology no longer implies a bottleneck in the relationship with the user, this social paradigm allows the firm to establish new communication channels with the potential market, develop personalized, relational marketing campaigns, create new products/services according to the needs of clients, introduce new distribution channels, and create new business models through the sale of advertising, etc. The success of a social network is always linked to its attention to user requirements. Many social network projects have failed when they base their primary objective on the use of technology. Once the firm has its ICT strategy clear, it must establish the most effective way of entering the world of social networks. The fact that a firm is present in social networks is not a dichotomous variable; there is truly a degree to which the firm utilizes this type of tool, which is why a Likert-type scale is required.

In respect to the use of the methodology, fsQCA has proven to be a useful methodology to analyze the configurations that allow hotels to produce (IP). Nevertheless, it is necessary

to carry out a proper justification of the calibrations, indicating the cut-off points when working with survey data since the obtained results may show to be very different.

Future research might consider using this measuring scale to analyze whether firms that introduce social networking into their business practices obtain higher organizational performance levels, determining the mediating variables that intervene in this relation. In addition, further research needs to continue looking into how the fsQCA methodology should be applied to survey data and to the adjusting parameters used in fsQCA.

References

Aljuwaiber, A.: Communities of practice as an initiative for knowledge sharing in business organizations. A literature review. J Knowl Manag **20**(4), 722–736 (2016)

Akehurst, G.: User generated content: the use of blogs for tourism organisations and tourism consumers. Serv Bus **3**(1), 51–61 (2009)

Anand, A., Walsh, I.: Should knowledge be shared generously? Tracing insights from past to present and describing a model. J Knowl Manag **20**(4), 691–704 (2016)

Bandura, A.: Social cognitive theory of self-regulation. Organ Behav Human Decis Process **50**(2), 248–287 (1991)

Beynon, M.J., Jones, P., Pickernell, D.: Country-based comparison analysis using fsQCA investigating entrepreneurial attitudes and activity. J Bus Res **69**(4), 1271–1276 (2016)

Bloom, J.D., Kerbel, M.: Campaign blogs in 2004 and beyond: The care, feeding and harvesting of online communities of supporters. Paper presentation at the 2006 Annual Meeting of the American Political Science Association (2006)

Boyd, D., Ellison, N.: Social networking sites: definition, history, and scholarship. J Computer Com **13**(1), 210–230 (2008)

Brown, J., Broderick, A.J., Lee, N.: Word of mouth communication within online communities: conceptualizing the online social network. J Interact Mark **21**(3), 2–20 (2007)

Cadogan, J., Diamantopoulos, A.: Narver and Slater, Kohli and Jaworski and the market orientation construct: integration and internationalization. J Strateg Mark **3**(1), 41–60 (1995)

Covin, J.G., Slevin, D.P.: Strategic management of small firms in hostile and benign environments. Strat Manag J **10**, 75–87 (1989)

Crilly, D., Zollo, M., Hansen, M.T.: Faking it or muddling through? Understanding decoupling in response to stakeholder pressures. Acad Manag J **55**(6), 1429–1448 (2012)

Chiva, R., Alegre, J.: Organizational learning capability and job satisfaction: an empirical assessment in the ceramic tile industry. Br. J Manag **20**(3), 323–340 (2009)

Chu, K.-M.: A study of members' helping behaviors in online community. Internet Res **19**(3), 279–292 (2009)

Churchill, G.A.: A paradigm for developing better measures of marketing constructs. J Mark Res **16**(1), 64–73 (1979)

Daft, R.L.: Organization theory and design. South-Western College Publishing, Cincinnati (1998)

DeVellis, R.F.: Scale development: theory and applications. Sage Publications, Newbury Park (1991)

Dul, J.: Identifying single necessary conditions with NCA and fsQCA. J Bus Res **69**(4), 1516–1523 (2016)

Dunne, A., Lawlor, M.A., Rowley, J.: Young people's use of online social networking sites—a uses and gratifications perspective. J Res Interact Mark **4**(1), 46–58 (2010)

Escribá-Esteve, A., Sánchez-Peinado, E., Sánchez-Peinado, M.L.: Moderating influences of the firm's strategic orientation-performance relationship. Int Small Bus J **26**(4), 463–489 (2008)

Feurer, S., Baumbach, E., Woodside, A.G.: Applying configurational theory to build a typology of ethnocentric consumers. Int Mark Rev **33**(3), 351–375 (2016)

Finholt, T., Sproull, L.: Electronic groups at work. Organ Sci **1**(1), 41–64 (1990)

Finin, T., Ding, L., Zhou, L., Joshi, A.: Social networking on the semantic web. Learn Organ **12**(5), 418–430 (2005)

Fiss, P.C.: Building better causal theories: a fuzzy set approach to typologies in organization research. Acad Manag J **54**(2), 393–420 (2011)

Hall, H., Graham, D.: Creation and recreation: motivating collaboration to generate knowledge capital in online communities. J Info Manage **24**(4), 235–246 (2004)

Hansen, M.T., Mors, M.L., Lovas, B.: Knowledge sharing in organizations: multiple networks, multiple phases. Acad Manage J **48**(5), 776–793 (2005)
Herring, S.C., Wright, E.: Bridging the gap: a genre analysis of weblogs, paper presented at 37th Hawaii International Conference on System Sciences (2004)
Hutchins, E.: The technology of team navigation. In: Galegher, J.R., Kraut, R.E., Egido, L. (eds.) Intellectual teamwork: social and technological foundations of co-operative work. Psychology Press, Hove (1990)
Jiménez-Zarco, A.I., Martínez-Ruíz, M.P., Izquierdo-Yusta, A.: Key service innovation drivers in the tourism sector: empirical evidence and managerial implication. Serv Bus **5**(4), 339–360 (2011)
Kohli, A.K., Jaworski, B.: Market orientation: the construct, research propositions, and managerial implications. J Mark **54**(2), 1–18 (1990)
Lee, S., Kim, T., Noh, Y., Lee, B.: Success factors of platform leadership in web 2.0 service business. Serv Bus **4**(2), 89–103 (2011)
Legewie, N.: An introduction to applied data analysis with qualitative comparative analysis. Forum Qual Sozialforschung/Forum **14**, 3 (2013)
Lin, H.F., Lee, G.G.: Determinants of success for online communities: an empirical study. Behav Info Tech **25**(6), 479–488 (2006)
Lomberg, C., Baldauf, A.: The Ambivalent role of risk-taking orientation in uncertain environments. In: Academy of Management Proceedings (Vol. 2014, No. 1, p. 14934)
Nardi, B.A., Schiano, D.J., Gumbrecht, M., Swartz, L.: Why we blog. Com ACM **47**(12), 41–46 (2004)
Nelson, M.: The blog phenomenon and the book publishing industry. Publ Res Quart **22**(2), 3–26 (2006)
Nunnally, J.C.: Psychomtietric theory. McGraw-Hill, New York (1978)
OECD-EUROSTAT: The measurement of scientific and technological activities. Proposed guidelines for collecting and interpreting technological data. Oslo Manual, OECD, Paris (1997)
Pedersen, S., Mcafee, C.: Gender differences in British blogging. J Comput Commun **12**(4), 12–26 (2007)
Pickering, J.M., King, J.L.: Hardwiring weak ties: individual and institutional issues in computer mediated communication. Proceedings of CSCW **92**, 356–361 (1992)
Raban, D.R., Rafaeli, S.: Investigating ownership and the willingness to share information online. Computer Human Behav **23**(5), 2367–2382 (2007)
Ragin, C., Davey, S.: fs/QCA [Computer Programme], Version 2.5. University of California, Irvine (2014)
Ragin, C.C.: Redesigning social inquiry: fuzzy sets and beyond, vol. 240. University of Chicago Press, Chicago (2008)
Rheingold, H.: The Virtual community: homesteading on the electronic frontier. Addison-Wesley, Reading (1993)
Ruiz-Molina, M.E., Gil-Saura, I., Moliner-Velázquez, B.: Does technology make a difference? Evidence from Spanish hotels. Serv Bus **5**(1), 1–12 (2011)
Schneider, C.Q., Wagemann, C.: Set-theoretic methods for the social sciences: a guide to qualitative comparative analysis. Cambridge University Press, Cambridge (2012)
Schneider, M.R., Schulze-Bentrop, C., Paunescu, M.: Mapping the institutional capital of high-tech firms: a fuzzy-set analysis of capitalist variety and export performance. J Int Bus Stud **41**(2), 246–266 (2010)
Sparks, B., Browning, V.: The impact of online reviews on hotel booking intentions and perception of trust. Tour Manag **32**(6), 1310–1323 (2011)
Subramani, M.R., Peddibhotla, N.: Determinants of helping behaviors in online groups: a conceptual model. Paper presented at the Academy of Management Conference, New Orleans (2004)
Taylor-Greene, S., Brown, D., Nelson, L., Longton, J., Gassman, T., Cohen, J., Swartz, J., Horner, R., Sugai, G., Hall, S.: School-wide behavioral support: starting the year off right. J Behav Educ **7**(1), 99–112 (1997)
Wellman, B., Salaff, J., Dimitrova, D., Garton, L.: Computer networks as social networks: collaborative work, telework, and virtual community. Ann Rev Sociol **22**, 213–238 (1996)
Woodside, A.G.: 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. J Glob Sch Mark Sci **22**(4), 277–289 (2012)
Woodside, A.G., Prentice, C., Larsen, A.: Revisiting problem gamblers' harsh gaze on casino services: applying complexity theory to identify exceptional customers. Psychol Mark **32**(1), 65–77 (2015)
Zhang, W., Storck, J.: Peripheral members in online communities. Proceedings of the American Conference on Information Systems, Boson (2001)