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Analysing the conceptual evolution of qualitative marketing research through science mapping analysis

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Abstract This article examines the conceptual evolution of qualitative research in the field of marketing from 1956 to 2011, identifying the main themes and applications for which it has been used and the trends for the future. Science mapping analysis was employed, using co-word networks in a longitudinal framework. Science mapping analysis differs from other tools in that it includes the use of bibliometric indicators. The great number of studies published makes it possible to undertake a conceptual analysis of how qualitative marketing research has evolved. To show the conceptual evolution of qualitative marketing research, four study periods were chosen. The results made it possible to identify eight thematic areas that employ qualitative research in the field of marketing: *Consumer behaviour*, *Supply chain management*, *Dynamic capabilities*, *Methodology*, *Media*, *Business to business marketing*, *International Marketing* and *Customer Satisfaction*.

Keywords Qualitative research · Marketing research · Bibliometric analysis · Science mapping analysis

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Introduction

Qualitative research (QR) is useful for analysing and understanding interpersonal relationships, particularly psychological and behavioural experiences and variables such as opinions, perceptions, motivations and attitudes (Ereaut et al. 2002; Belk 2006). These variables are of interest in the field of marketing. Moreover, the flexible and eminently inductive nature of QR is particularly suitable for seeking explanations for marketing phenomena. Gummesson (2002, 2005) highlighted the usefulness of qualitative methods for the development of marketing theory. However, they have clearly been used less than quantitative methods (Alam 2005).

While the quantitative aspect remains predominant in marketing research, greater awareness of the qualitative approach has been shown in recent years, as may be seen in the evolution of the bibliography. Also, particular thematic areas can be found where qualitative documents are becoming increasingly frequent. Equally, a greater variety of qualitative studies is appearing and the methods employed are described in greater detail.

In this new situation for qualitative marketing research (QMR), thought needs to be given to the following questions: how the QMR knowledge base has been formed, which are its scientific knowledge strengths, which topics could constitute the knowledge base of the QMR discipline in the future, and to what extent is QR playing an important part in the development of this discipline of marketing.

Answering these questions demands sophisticated methods that make it possible to uncover the unknown knowledge on a specific subject and analyse it in depth. For this purpose, science mapping analysis (Börner et al. 2003; Cobo et al. 2011b) provides a powerful bibliometric method (Morris and Van Der Veer 2008) that makes it possible to discover the social, intellectual and conceptual aspects of a scientific field. It focuses on monitoring a scientific field and delimiting research areas to determine its conceptual structure and scientific evolution (Noyons et al. 1999b; Cobo et al. 2011b).

In the field of marketing, there are studies that have used bibliometric techniques to analyse the evolution of specific journals (Franceschini and Maisano 2012) or areas of knowledge, such as international marketing (Samiee and Chabowski 2012), corporate branding (Fetscherin and Usunier 2012), service marketing (Kunz and Hogreve 2011), sustainability research in marketing (Chabowski et al. 2011), environmental marketing and management (Leonidou and Leonidou 2011), anti-consumption and consumer resistance (Galvagno 2011), market orientation (Goldman and Grinstein 2010), Peter Drucker's academic influence in marketing (Uslay et al. 2009), cross-cultural advertising (Okazaki and Mueller 2007) and consumer behaviour (Hoffman and Holbrook 1993; Muñoz-Leiva et al. 2012).

However, there would appear to be no bibliometric studies of the evolution of QMR. Hanson and Grimmer (2007) show the importance of QR in this field: 15.31 % of the documents published in the *Journal of Marketing*, *European Journal of Marketing* and *Journal of Services Marketing* between 1993 and 2002 used some type of qualitative method. In fact, almost half of these documents were pure QR studies. Their increasing growth suggests the advisability of completing the period analysed by examining publications from recent years. Equally, the greater number of studies published makes it possible to undertake a conceptual analysis of how QMR has evolved.

The present study aims to analyse the evolution of QMR between 1956 and 2011. Specifically, it aims to identify the main themes and applications for which QMR has been employed and detect future trends in the use of these methods. To this end, a bibliometric approach based on science mapping analysis (Cobo et al. 2011a) was used to analyse the

scientific documents published in the specialist marketing research journals included in the Business category of the ISI Web of Science.

This article is organised as follows: "Qualitative research: the depth of this form of research" section provides a brief introduction to qualitative research. "Science mapping analysis" section summarizes Science mapping analysis. "Methodology and software tool" section describes the methodology and the software tool used in this study. " Conceptual structure of QR in the field of marketing" section gives the results obtained in the conceptual evolution analysis. "Discussion" section contains a global discussion of the results. Finally, in "Conclusions and limitations" section, some conclusions are drawn.

Qualitative research: the depth of this form of research

Qualitative research possesses certain unique features that make it very useful for finding answers to particular research problems. Its inductive and holistic nature, its open, flexible, sensitive and humanistic character and its intensive orientation, focused on the context in which it is carried out, are among the most important features noted in the bibliography, which highlights its use for understanding phenomena, uncovering links among concepts and behaviours, and generating and refining theory (Guba and Lincoln 1994; Patton 2002).

In comparison with quantitative methods, qualitative research gives the data depth, breadth and a richness of interpretation and makes it possible to contextualise the phenomenon by contributing unique details and experiences (Belk 2006).

Although qualitative and quantitative methods have historically been viewed as mutually exclusive, a methodological rapprochement is currently being suggested, so that the choice of method would not be purely a matter for the researchers' paradigmatic preferences but would depend on the research aim or problem (Denzin and Lincoln 1994; Creswell 2007). Moreover, Allwood (2012) points out that setting the two approaches in opposition to each other is a simplistic way of thinking that makes it more difficult to understand the philosophical and methodological questions involved in the research. Consequently, mixed method approaches make it possible to employ both, simultaneously or sequentially, and may be considered an appropriate alternative (Lincoln and Guba 2000; Sale et al. 2002; Bryman 2006; Mertens 2005; Creswell 2007; Lawal 2009).

One characteristic aspect of qualitative research is the great variety of theoretical, methodological and technical perspectives and of information-gathering tools it employs. Indeed, qualitative research has been described as an umbrella term for a range of research methods with differing epistemological assumptions (Petty et al. 2012). This has given rise to a complex methodological panorama that offers a diversity of qualitative design options, making it difficult to form a uniform approach to qualitative methods (Morse and Richards 2002; Allwood 2012) that may serve as an overall reference framework. For the purposes of simplicity and pragmatism, it is useful to draw a distinction between methodologies and methods.

Methodologies are procedural models or patterns that comprise the skills, assumptions and practices employed by researchers when designing the research. Methods refer to the techniques used to collect and analyse the information (Denzin and Lincoln 1994; Creswell 2007).

Prominent among the traditional qualitative research methodologies are phenomenology (Van Manen 1990; Moustakis 1994), ethnography (Hammersley and Atkinson 1983;

Campbell and Gregor 2004), grounded theory (Glaser and Strauss 1967; Strauss and Corbin 1990), participant observation (Spradley 1980), action research (Reason 1994), narrative research (Elliott 2005) and case studies (Stake 1995; Yin 2009).

In the field of marketing, the most important methodologies are 1) ethnography in consumer behaviour research (Desai 2002; Stebbins 1997; Pettigrew 2000) 2) grounded theory in the case of areas that go beyond consumer studies, such as relational marketing, advertising or sales situations (Goulding 2005); 3) narrative research as an innovative way to obtain information on processes, relationships, positions, products and consumers (Patterson 2005); and 4) case studies to generate theories in service marketing, industrial marketing and relationship marketing (Gummesson 2005).

A brief explanation of the main information-gathering tools commonly used can be found in a variety of qualitative textbooks including Robson (2011). Specialist works on the different techniques are also available. Some of the qualitative methods and distinguished references that may be mentioned are in-depth interviews (Chrzanowska 2002), focus groups (Krueger and Casey 2000; Fern 2001), observation techniques, projective techniques and other group dynamics such as brainstorming (Furnham 2000), the Delphi method (Landeta 2006) and the nominal technique (Langford 1994; Rietzschel et al. 2006).

In the marketing sphere, in-depth interviews and focus groups are considered very useful tools (Gummesson 2005; Hanson and Grimmer 2007) because of the contribution they make to acquiring information for business decision-making.

Science mapping analysis

Bibliometrics is an important tool for assessing and analysing the academic research conducted in different countries, universities, research centres, research groups and journals. It provides objective criteria to evaluate research developed by scientists, and therefore, it is increasingly valued as a tool for assessing scholarly quality and productivity (Moed et al. 1995). Bibliometrics contributes to the progress of science in many different ways (Martínez-Sánchez et al. 2014): allowing assessing progress made, identifying the most reliable sources of scientific publication, laying the academic foundation for the evaluation of new developments, identifying major scientific actors, developing bibliometric indices to assess academic output, etc.

In bibliometrics, there are two main methods for exploring a research field: performance analysis and science mapping (Noyons et al. 1999a; Van Raan 2005). While performance analysis aims to evaluate the citation impact of the scientific production of different scientific actors, science mapping aims to display the conceptual, social or intellectual structure of scientific research and its evolution and dynamical aspects.

Science mapping or bibliometric mapping is a spatial representation of how disciplines, fields, specialities, and documents or authors are related to one another (Small 1999). It has been widely used to show and uncover the hidden key elements (documents, authors, institutions, topics, etc.) in different research fields (Cartes-Velásquez and Manterola-Delgado 2014; Cobo et al. 2012a, 2014; Gao-Yong et al. 2012; Huang and Chang 2014; López-Herrera et al. 2012; Peters and van Raan 1993; Porter and Youtie 2009; Tang and Shapira 2011; Eck and Waltman 2007). The general workflow in a science mapping analysis has a number of different steps (Börner et al. 2003; Cobo et al. 2011b): data retrieval, preprocessing, network extraction, normalization, mapping, analysis and visu-

alization. At the end of this process the analyst has to interpret and obtain conclusions from the results.

There are several possible on-line bibliographic databases to retrieve data. The most important ones are the ISI Web of Science (ISIWoS), Scopus, and Google Scholar. These databases do not cover the scientific fields and journals in the same way and have their respective advantages and limitations, which are somewhat discipline dependent (Bar-Ilan 2010; Falagas et al. 2008).

Usually, science mapping analysis cannot be applied directly to the data retrieved from the bibliographic sources because they could contains errors. Thus, to improve the quality of the data, a preprocessing step needs to be applied. Different preprocessing methods can be applied, among which it is worth mentioning those that detect duplicate and misspelled items, time slicing, and data reduction.

Once the data has been preprocessed a network is built using a unit of analysis, such as journals, documents, cited references, authors, author's affiliation, and descriptive terms or words (Börner et al. 2003). Usually, words are the most common. The words can be selected from the title, abstract, author's keywords or body of the documents, or from combinations of them. Furthermore, we can selected the indexing terms provided by the bibliographic data sources (e.g. ISI Keywords Plus) as words to analyse. Several relations among the units of analysis can be established, such as co-occurrence, coupling or direct linkage. A co-occurrence relation is established between two units (authors, terms or references) when they appear together in a set of documents, that is, when they co-occur throughout the corpus. A coupling relation is established between the documents when they have a set of units in common. A direct linkage establishes a relation between documents and references, particularly a citation relation. In addition, different aspects of a research field can be analysed depending on the selected units of analysis. For example, using words, a co-word analysis can be performed to obtain the conceptual structure of a discipline and the main topics researched in that knowledge field.

When the network of relationships between the selected units of analysis has been built, a normalization process is needed to correct the data for differences in the number of occurrences of units of analysis (Van Eck and Waltman 2009). In Bibliometrics, the normalization process is carried out by using a similarity measure (Van Eck and Waltman 2009), such as *Salton's cosine*, *Jaccard's index*, or *equivalence index* (Cobo et al. 2012b).

Once the normalization process of the network is completed, different techniques could be applied to build science maps, such as principal component analysis or clustering algorithms (Börner et al. 2003).

Science mapping analysis methods allow the data to yield useful knowledge (Cobo et al. 2011b). For example, a network analysis (Cook and Holder 2006) make it possible to perform a statistical study in order to show different measures of the relationship or overlapping of the different detected clusters, while a temporal or longitudinal analysis (Garfield 1994) aims to show the conceptual, intellectual or social evolution of a research field, discovering patterns, trends, seasonality and outliers.

Visualization techniques are used to represent both science maps and the results of the different analyses applied. The visualization technique employed is very important in order to achieve a good understanding and better interpretation of the output. For example, the networks resulting from the mapping step can be represented with thematic networks; the clusters detected in a network can be categorized using a strategic diagram; the evolution of detected clusters in successive time periods (temporal or

longitudinal analysis) can be represented by means of thematic areas. Furthermore, visualization can be improved using the results of a performance analysis, which allows us to add a third dimension to the visualized elements. For example, a strategic diagram could show spheres of a volume proportional to the citations achieved by the documents of cluster.

Finally, when the science mapping analysis is completed, the analysts have to interpret the results and maps using their experience and knowledge. In the interpretation step, the analyst looks to discover and extract useful knowledge that could be used to make decisions.

Methodology and software tool

SciMAT (Science Mapping Analysis software Tool) was presented in Cobo et al. (2012b) as a powerful science mapping software tool that integrates the majority of the advantages of available science mapping software tools (Cobo et al. 2011b). SciMAT was designed according to the workflow shown in "Science mapping analysis" section and also using the science mapping analysis approach presented in Cobo et al. (2011a). SciMAT can be freely downloaded, modified and redistributed according to the terms of the GPLv3 license. The executable file, user-guide and source code can be downloaded via the following website (http://sci2s.ugr.es/scimat).

Cobo et al. (2011a) defined a bibliometric approach that combines both performance analysis tools and science mapping tools to analyse a research field and detect and visualize its conceptual subdomains (particular topics/themes or general thematic areas) and its thematic evolution. It is based on a co-word analysis (Callon et al. 1983) and the h-index (Hirsch 2005).

The construction of maps using co-word analysis in a longitudinal framework provides information on the themes or topics of a research field and make it possible to analyse and track the evolution of a research field throughout consecutive periods of time (Garfield 1994). Additionally, the h-index is used to measure the impact of the different identified themes and thematic areas.

This approach establishes four stages to analyse a research field in a longitudinal framework:

1. *Detection of the research themes*. This phase summarizes the first five steps of the workflow of science mapping analysis presented in "Science mapping analysis" section. In each period of time studied the corresponding research themes are detected by applying a co-word analysis (Callon et al. 1983) to raw data for all the published documents in the research field, followed by a clustering of keywords to topics/themes using the simple centres algorithm (Coulter et al. 1998). Formally, the methodological foundation of co-word analysis is based on the idea that the co-occurrence of keywords describes the content of the documents in a corpus (Callon et al. 1991). These co-occurrence of keywords can be used to build co-word networks (Callon et al. 1983) and these networks can be associated with research themes using clustering tools. The co-occurrence frequency of two keywords is extracted from the corpus by counting the number of documents in which the two keywords appear together. Once the co-word network is built, each arc/edge will

have as its weight the co-occurrence value of the linked terms. Next, the weight of each edge is transformed in order to normalize it (extract the similarity relations between terms) using their keyword and co-occurrence frequencies (Van Eck and Waltman 2009). The similarity between the keywords is assessed using the equivalence index (Callon et al. 1991): $e_{ij} = c_{ij}^2/c_i c_j$, where c_{ij} is the number of documents in which two keywords i and j co-occur and c_i and c_j represent the number of documents in which each one appears. Note that when two keywords always appear together, the equivalence index equals unity; while it is zero when they are never associated. At the end of this phase, the keywords are clustered into topics/themes by the simple centre algorithm (Coulter et al. 1998). The clustering process locates keyword networks that are strongly linked to each other and that correspond to centres of interest or to research problems that are the subject of significant interest among researchers.

2. *Visualizing research themes and thematic network*. In this phase the detected themes are visualized by means of two different visualization instruments: strategic diagram (Cahlik 2000; He 1999; Ozel 2012; Zong et al. 2013) and thematic network. Each theme can be characterized by two measures (Callon et al. 1991): *centrality* and *density*. Centrality measures the degree of interaction of a network with other networks and can be defined as $c = 10 * \sum e_{kh}$, with k a keyword that belongs to the theme and h a keyword that belongs to other themes. Centrality measures the strength of external ties to other themes. This value can be taken as a measure of the importance of a theme in the development of the entire research field analysed. The density measures the internal strength of the network and can be defined as $d = 100(\sum e_{ij}/w)$, where i and j are keywords belonging to the theme and w the number of keywords in the theme. Density measures the strength of internal ties among all the keywords that describe the research theme. This value can be understood as a measure of the theme's development. Once the centrality and density rankings have been calculated, the themes can be laid out in a strategic diagram. Given both measurements, a research field can be visualised as a set of research themes, mapped in a two-dimensional strategic diagram (Fig. 1a) and classified into four groups:

   (a) Themes in the upper-right quadrant are both well developed and important for the structuring of a research field. They are known as the *motor-themes* of the speciality, given that they present strong centrality and high density.
   (b) Themes in the upper-left quadrant have well-developed internal ties but unimportant external ties and so are of only marginal importance for the field. These themes are very *specialized and peripheral*.
   (c) Themes in the lower-left quadrant are both weakly developed and marginal. The themes in this quadrant have low density and low centrality and mainly represent either *emerging or disappearing* themes.
   (d) Themes in the lower-right quadrant are important for a research field but are not developed. This quadrant contains *transversal and general*, basic themes.

Note that the addition of a third dimension can enrich the strategic diagrams as this will allow for the representation of further informative data (Cobo et al. 2011a). So, for example, the themes could be represented using spheres with volume proportional to

another alternative measure, such as the number of documents associated with the theme or the total number of citations achieved.

3. *Discovery of thematic areas*. In this phase, the evolution of the research themes over a set of periods of time is first detected and then analysed to identify the main general areas of evolution in the research filed, their origins and their interrelationships. Their evolution over the whole period is then measured as the overlapping of clusters from two consecutive periods. For this purpose, the inclusion index (Sternitzke and Bergmann 2009) is used to detect conceptual nexuses between research themes in different periods and, in this way, to identify the thematic areas in a research field. A thematic area is defined as a set of themes that have evolved over several periods of time. It is worth noting that interrelationships between research themes could indicate that a particular research theme belongs to a unique thematic area or to more than one thematic area. It could also be that a particular research theme cannot be associated with any of the thematic areas identified and therefore could be interpreted as the origin of a new thematic area in the research field. For example, Fig. 1b shows a bibliometric map of thematic evolution over two time periods. The solid lines (lines 1 and 2) mean that the linked themes share the same name: either the themes are labelled with the same keywords, or the label of one theme is part of the other theme (name of theme $\in \{\text{thematic nexuses}\}$). A dotted line (line 3) means that the themes share elements that are not the names of the themes (name of theme $\notin \{\text{thematic nexuses}\}$). The thickness of the lines is proportional to the inclusion index and the volume of the spheres is proportional to the number of published documents associated with each theme. Hence, two different thematic areas can be observed, shaded in different colours, while $ThemeD^1$ is discontinued, and $ThemeD^2$ is considered a new theme. As each theme is associated with a set of documents each thematic area could also have an associated collection of documents, obtained by combining the documents associated with its set of themes.
4. *Performance analysis*. In this phase, the relative contribution of research themes and thematic areas to the whole research field is measured (quantitatively and qualitatively) and used to establish the most prominent, most productive and highest-impact subfields. This performance analysis is developed as a complement to the analysis step of the science mapping workflow shown in "Science mapping analysis" section. Some of the bibliometric indicators to use are: number of published documents, number of citations, and different types of h-index (Alonso et al. 2009; Malesios and Psarakis 2014; Martínez et al. 2014; Hirsch 2005)

Conceptual structure of QR in the field of marketing

This section describes how the science mapping approach shown above was used to perform a thorough analysis of the qualitative marketing research (QMR) field.

Identification of the QMR corpus cannot be addressed by means of a subject category, set of journals or terms. Since there are no journals that only focus on QMR, and the documents are published in marketing journals, suitable research documents have to be selected from that main marketing corpus. A good way to select only QMR-related

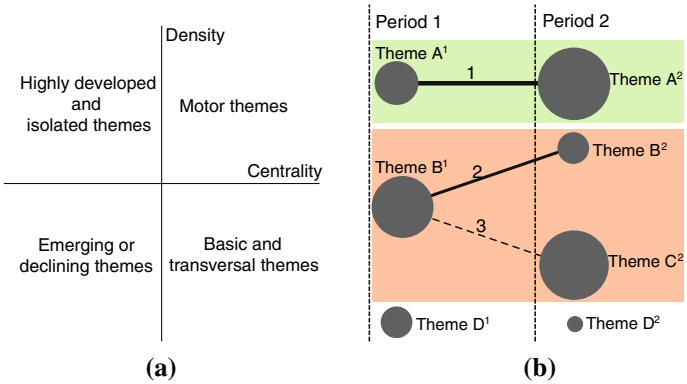

Fig. 1 Strategic diagram and thematic evolution. **a** The strategic diagram. **b** Thematic evolution

documents is to filter them by the methodology employed. Thus, the corpus to be analysed was defined in two steps. Firstly, documents in the ISI Subject Category of "Business" were selected and confined to those published in forty marketing-related journals. Secondly, a thorough review of papers published in top marketing journals was carried out in order to identify the most important keywords related to qualitative research methodology which would make it possible to retrieve the documents specific to this research field. After a review process by a set of experts in the field, 28 keywords related to the main qualitative methodologies and methods were selected to delimit QMR.

Filtering by the selected journals and terms, the raw data were collected from the ISIWoS using Query 1 below. This bibliographic database provides access to current and retrospective information on the most prestigious, high impact research journals in the world, and therefore, it presents the most complete retrospective quality coverage of all scientific disciplines. A database with this property is appropriate for developing a rigorous science mapping analysis of QMR with a longitudinal perspective

This query retrieved a total of 2,143 documents from 1956 to 2011. The corpus was further restricted to articles, letters, notes and reviews. Citations of these documents were also used in this study; they were counted up to 21st May 2012.

The raw data was downloaded from ISIWoS as plain text and entered into SciMAT to build the knowledge base for the science mapping analysis. Thus, it contains the bibliographic information stored by ISIWoS for each research document. For instance: title, abstract, keywords (both author keywords and ISI keywords plus), source, issue, number, pages, doi, citations count, authors, affiliations, references, etc. To improve the data quality, a de-duplicating process was applied (the author's keywords and the ISI keywords plus were used as unit of analysis). Words representing the same concept were grouped. Because some documents did not contain any keywords, descriptive keywords, matching title words with keywords present in the knowledge base, were added manually for the sake of completeness. Furthermore, some meaningless keywords in this context, such as stop words or words with a very broad and general meaning, e.g. "*Qualitative methods*", were removed. A total number of 3,827 keywords was used in this study.

```
TS=("action learning" OR "action research" OR "anthropological stud*" OR
    "case analys?s" OR "case research" OR "case stud*" OR
    "conversation analys?s" OR "discourse analys?s" OR "ethnography" OR
    "ethnomethodology" OR "focus group*" OR "grounded theor*" OR
    "hermeneutic" OR "interpretive interactionism" OR "interview*" OR
    "narrative inquiry" OR "netnography"  OR  "networked narratives" OR
    "participant observation" OR "participatory action*" OR
    "phenomenography" OR "phenomenology" OR "qualitative method*" OR
    "qualitative research" OR "qualitative stud*" OR "semiology" OR
    "semiotics" OR "symbolic interactionism") AND
SO=("Industrial Marketing Management" OR
    "Supply Chain Management an International Journal" OR
    "Public Relations Review" OR
    "European Journal of Marketing" OR
    "Advances in Consumer Research" OR
    "Journal of Product Innovation Management" OR
    "Journal of Business Industrial Marketing" OR
    "International Journal of Consumer Studies" OR
    "International Journal of Market Research" OR
    "Journal of Consumer Research" OR
    "Journal of Advertising Research" OR
    "Journal of the Market Research Society" OR
    "Psychology Marketing" OR
    "International Marketing Review" OR
    "Journal of Marketing" OR
    "Journal of Marketing Research" OR
    "Journal of Consumer Affairs" OR
    "Journal of Advertising" OR
    "Journal of the Academy of Marketing Science" OR
    "Journal of Services Marketing" OR
    "Journal of International Marketing" OR
    "Journal of Retailing" OR
    "Journal of Public Policy Marketing" OR
    "International Journal of Research in Marketing" OR
    "Journal of Macromarketing" OR
    "International Journal of Electronic Commerce" OR
    "International Journal of Advertising" OR
    "Journal of Service Research" OR
    "Marketing Theory" OR
    "Journal of Business to Business Marketing" OR
    "Electronic Commerce Research and Applications" OR
    "Marketing Science" OR "Electronic Commerce Research" OR
    "Journal of Interactive Marketing" OR
    "Revue Francaise du Marketing" OR
    "Journal of Electronic Commerce Research" OR
    "Advances in Services Marketing and Management" OR
    "Journal of Consumer Policy" OR
    "Journal of Consumer Psychology" OR
    "Marketing Letters")
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Query 1: ISIWoS query

Next, using the SciMAT period manager, four consecutive periods of times were established. To avoid data smoothness, the best option would have been to choose one-year periods. However, it was found that not enough data were generated in the span of a single year to obtain good results from science mapping analysis. For this reason, the entire time period (1956–2011) was subdivided into periods of more than 1 year. Additionally, although it is common to use periods covering the same time span, the decision was taken to have the first period span forty-one years (1956–1996) because of the low numbers of

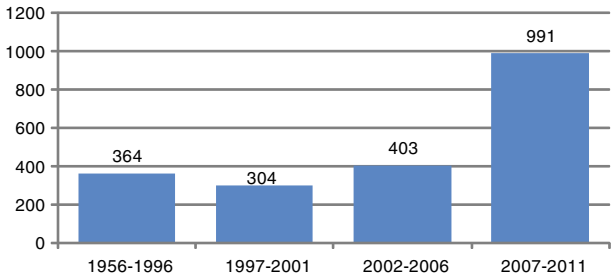

Fig. 2 Distribution of documents by period

researchers and publications in the early years (see Fig. 2). This achieved a first period of a reasonable size when compared with the subsequent periods, which was necessary for a good science mapping analysis and to detect the main research themes. Therefore, the data are divided into four consecutive periods of time: 1956–1996, 1997–2001, 2002–2006 and 2007–2011, with 524, 620, 1,080 and 3,004 keywords respectively.

The following sections show the results of the present study are shown: the conceptual structure and research themes detected in the four periods and the thematic evolution of QMR.

Visualization of conceptual clusters

In order to analyse the most-highlighted themes in the QMR field for each period of time, a strategic diagram is provided. In each diagram the sphere size is proportional to the number of documents associated with each research theme, with the corresponding number of citations in brackets.

First period (1956–1996) According to the strategic diagram presented in Fig. 3, during this period QMR was focused on seven research themes, with the following four themes as most important (motor themes plus basic themes): *Interview, Consumer, Case-study* and *Effectiveness*. The performance measures of the period's themes are given in Table 1: number of documents, citations of those documents, and h-index of the documents. According to the performance measures, *Interviews* and *Consumers* are the themes with the largest number of documents, and *Consumer* the theme with the highest number of citations and h-index. Moreover, three themes could be considered highly cited: *Interview*, *Case-study* and *Commitment*.

Interview and *Case-study* bear the name of these qualitative techniques as the keywords to define their thematic areas. Methodological contributions figured prominently during this period, attempting to conceptualise the qualitative methods and ensure their rigour and their suitability for marketing research themes. For instance, Interview centred on studying key aspects related to design and planning (uses, types of interview, cost), data analysis and the quality or rigour of these techniques. This methodological precision can probably be explained by the strong influence of quantitative methods in marketing research, leading to a certain need for methodological justification to endow qualitative studies with the required perception of rigour. At the same time, this was also related to the researchers' lack of training in qualitative methods. For its part, *Case-study* covered a group of documents that focus on practical, consumer-related marketing applications, strategic

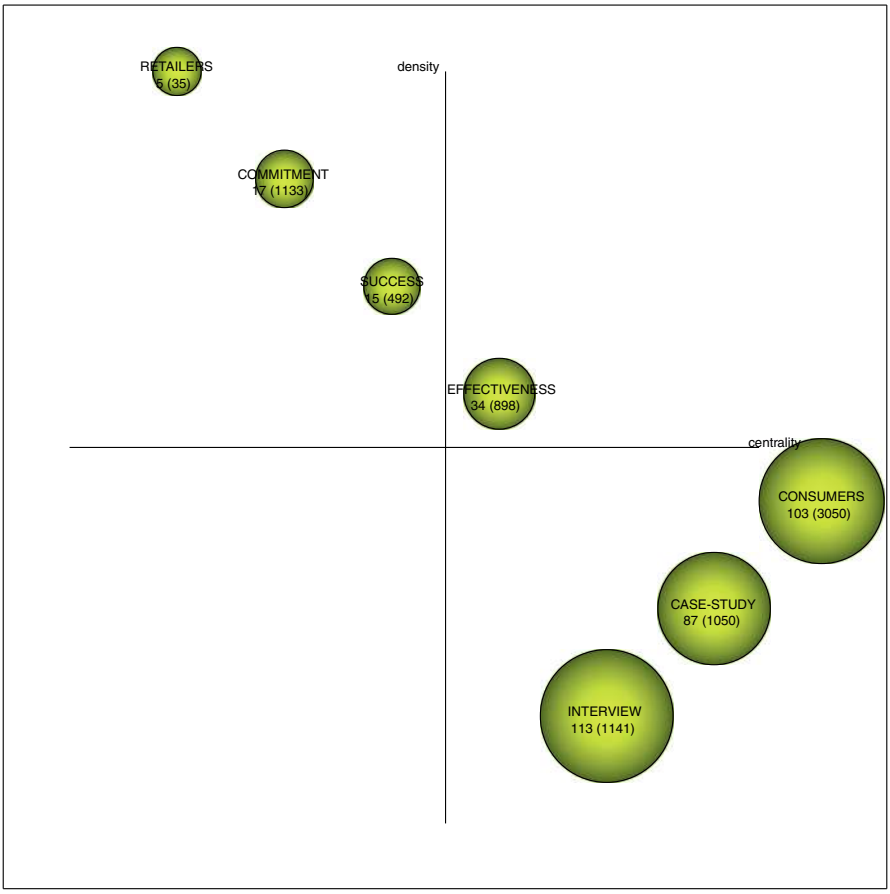

Fig. 3 Strategic diagram for the 1956–1996 period

Table 1 Performance of the themes in the 1956–1996 period

Name	Number of documents	Number of citations	h-index
Interview	113	1,141	16
Consumers	103	3,050	28
Case-study	87	1,050	16
Effectiveness	34	898	13
Commitment	17	1,133	11
Success	15	492	8
Retailers	5	35	3

decision-making (internationalisation, innovation) and some management applications (new product development, pricing and distribution).

Consumer could be considered the most important research theme in this period. It obtained the best h-index and citations count and one of the largest set of documents. Its

importance is hardly surprising, given the central role of consumers at the heart of marketing. During this period, qualitative methods were used to study consumers from perspectives such as semiotics and phenomenology, focusing on aspects related to the consumer's behaviour and purchasing experience. Consequently, qualitative methods seem to have specialised strongly in themes concerned with understanding the consumer, in a general sense.

The motor theme *Effectiveness* linked QMR to studies of the effectiveness of public relations, advertising and product development. However, its position was weak as regards the number of documents involved and its relations with the other themes of the period.

Finally, *Commitment* stood out among the peripheral themes because of its number of citations and h-index. This theme essentially focused on the sphere of business relationships (e.g. power or exchange).

Second period (1997–2001) The research pivots on eight themes. In this period, according to the strategic diagram shown in Fig. 4, four major themes can be identified (motor plus basic themes): *Firms*, *Behaviour*, *Case-study* and *Interview*. Regarding the

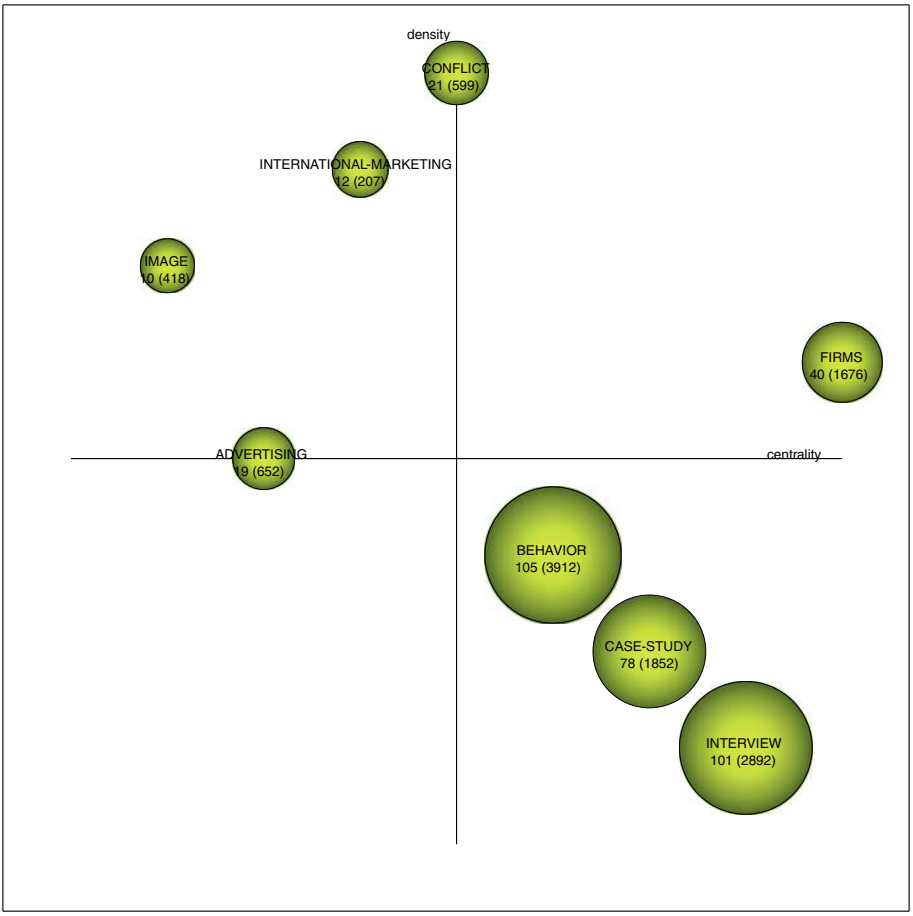

Fig. 4 Strategic diagram for the 1997–2001 period

performance measures shown in Table 2, two themes stand out for the citation and h-index: a) *Behaviour* which presents the best scores and b) *Interview*. Also, *Case-study* and *Firms* get and adequate citations count.

Case-study and *Interview* remained basic themes, with a very similar number of documents to the previous period. However, the bibliometric indicators show that *Interview* had acquired greater importance as a qualitative tool (Table 2). Both themes centred more on practical marketing applications than on technical aspects of the tool (i.e. the focus for *Interview* in the previous period). A certain specialisation of the two techniques also began to be reflected. *Interview* shown a strong association with consumer behaviour studies (satisfaction, perception, experiences and motives), while *Case-study* focused more on research related to business decision-making and business-to-business relations.

During these years the basic theme *Consumers* became *Behaviour* and the QMR focused on interpreting, understanding and explaining consumer behaviour.

Other noticeable characteristics of the period are that *Effectiveness* disappeared as a motor theme and *Advertising* made its appearance. In other words, QMR no longer centred on the effectiveness of communication but approached it from a more specific angle: advertising. Also, *Firms* became a motor theme at this time, as QMR was used to study the dynamic capabilities of companies and R&D&I began to gain in importance. In this new context, *Conflict* stands out as a new motor theme, focusing on the analysis and management of conflict in the supply chain.

Lastly, the peripheral themes investigated topics such as marketing strategy in international markets and product image.

Third period (2002–2006) In this period there is a greater diversification of the topics to which QMR was applied. This constituted a major change in marketing research methodology, as QMR evolved from a specialist method for very specific applications and topics to one that could be used for a wide variety of research problems and situations. According to the strategic diagram shown in Fig. 5, six major themes can be identified (motor plus basic themes): *Dynamic-capabilities*, *Trust*, *Consumers*, *Internet*, *Supply-chain-management* and *Case-study*. According to the performance measures shown in Table 3, the motor themes *Consumers* and *Dynamic-capabilities* got the best impact scores. Also, the themes *Internet* and *Trust*, with a smaller number of documents, got a high h-index.

Consumers came back as a motor theme, leading on from *Behaviour* in the preceding period, and continued to be the theme with the highest number of citations in this period. It presented the same plurality of aspects as in previous periods, although cultural studies and the ethnographic approach became more prominent.

Table 2 Performance of the themes in the 1997–2001 period

Name	Number of documents	Number of citations	h-index
Behaviour	105	3,912	34
Interview	101	2,892	28
Case-study	78	1,852	26
Firms	40	1,676	23
Conflict	21	599	11
Advertising	19	652	9
International-Marketing	12	207	5
Image	10	418	8

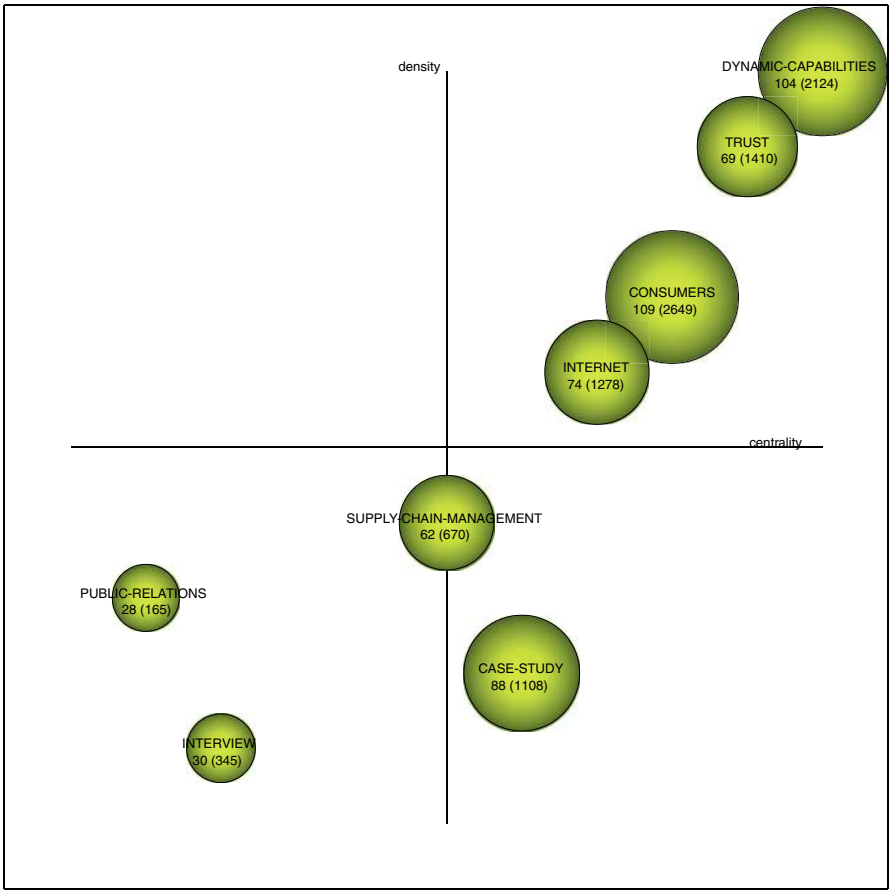

Fig. 5 Strategic diagram for the 2002–2006 period

Table 3 Performance of the themes in the 2002–2006 period

Name	Number of documents	Number of citations	h-index
Consumers	109	2,649	27
Dynamic-capabilities	104	2,124	27
Case-study	88	1,108	19
Internet	74	1,278	21
Trust	69	1,410	21
Supply-chain-management	62	670	14
Interview	30	345	8
Public-Relations	28	165	6

The motor theme *Firms* became *Dynamic-capabilities* and carried much weight, as shown by the number of citations (Table 3). Innovation and management of competitive advantages were topics of particular interest.

The theme *Trust* shows adequate bibliometric indicator levels. This theme covered a group of studies that divide into two well-differentiated topic areas arising from the big boost to relationship marketing and relations of trust within supply chains, on the one hand, and the trust of the end consumer, on the other.

The last motor theme for this period was *Internet*, as QMR is appropriate for a wide variety of topics such as e-commerce, online research methods, etc.

The basic theme of *Case-study*, despite containing a slightly higher number of documents than in the preceding period, was less closely related to the other themes of this period. *Interview* had considerably lower bibliometric indicator values and was positioned as a theme that was very close to disappearing.

Lastly, QMR became a consolidated method for studying *Supply-chain-management* during this period.

Fourth period (2007–2011) The research carried out in this period is distributed in thirteen themes. According to the strategic diagram shown in Fig. 6, six major themes can be identified: *Customer-satisfaction*, *Trust*, *Dynamic-capabilities*, *Consumer*, *Innovation*

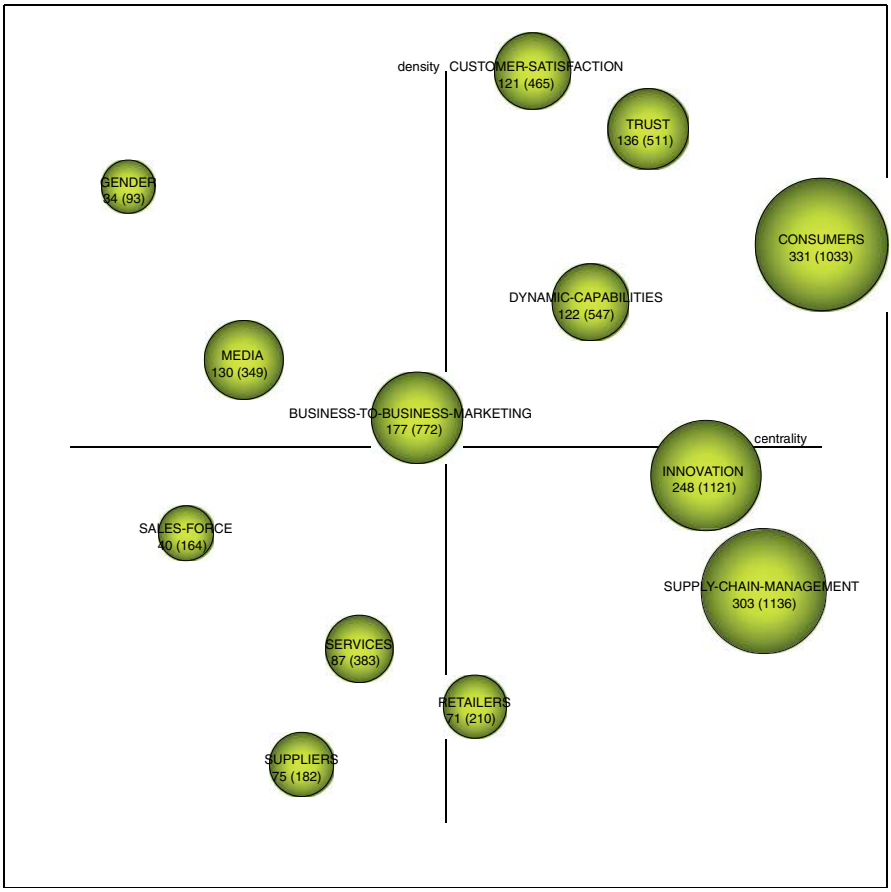

Fig. 6 Strategic diagram for the 2007–2011 period

Table 4 Performance of the themes in the 2007–2011 period

Name	Number of documents	Number of citations	h-index
Consumers	331	1,033	14
Supply-chain-management	303	1,136	15
Innovation	248	1,121	15
Business-to-business-marketing	177	772	14
Trust	136	511	11
Media	130	349	10
Dynamic-capabilities	122	547	11
Customer-satisfaction	121	465	12
Services	87	383	10
Suppliers	75	182	7
Retailers	71	210	9
Sales-Force	40	164	8
Gender	34	93	6

and *Supply-chain-management*. With respect to the performance measures (Table 4) the themes *Consumer*, *Supply-chain-management* and *Innovations* got the best impact rates.

The motor themes, *Consumers*, *Dynamic-capabilities* and *Trust* were stronger, as the number of documents focusing on these themes had increased, and *Customer-satisfaction* made its appearance as a new motor theme, analysing aspects such as loyalty, quality of service and the consumers' intentions, perceptions and expectations.

Supply-chain-management strengthened as a basic or transversal theme and was the second most central theme during this period. Within this theme, three important topics developed: management of supply chain integration processes, studies of power and cooperation in supply chain management, and e-commerce, the latter two through case studies.

In line with this theme, *Suppliers* and *Retailers* appeared as themes in their own right but with little weight in the bibliometric indicators. In the case of *Suppliers* the main application was in the area of supplier-customer relations, while for *Retailers* it was international decision-making.

The highly central position of *Innovation* made it one of the largest transversal themes for this period. Within this theme, QMR was used to study decision-making in product development, R&D&I and knowledge management.

Lastly, two developing themes were detected, although set apart from the rest: *Business-to-business-marketing* and *Media*. The former studied different aspects such as relationships between businesses and within the distribution channel, organisational behaviour, creating value for the customers, perceived value and key account management. This theme got a high h-index score, although its number of documents was relatively low. In the *Media* theme, QMR was used particularly for studying communication and was applied to different media.

Conceptual evolution

SciMAT was employed to analyse the themes detected in each period of time by considering their keywords and evolution over time. In this way, the thematic areas where the

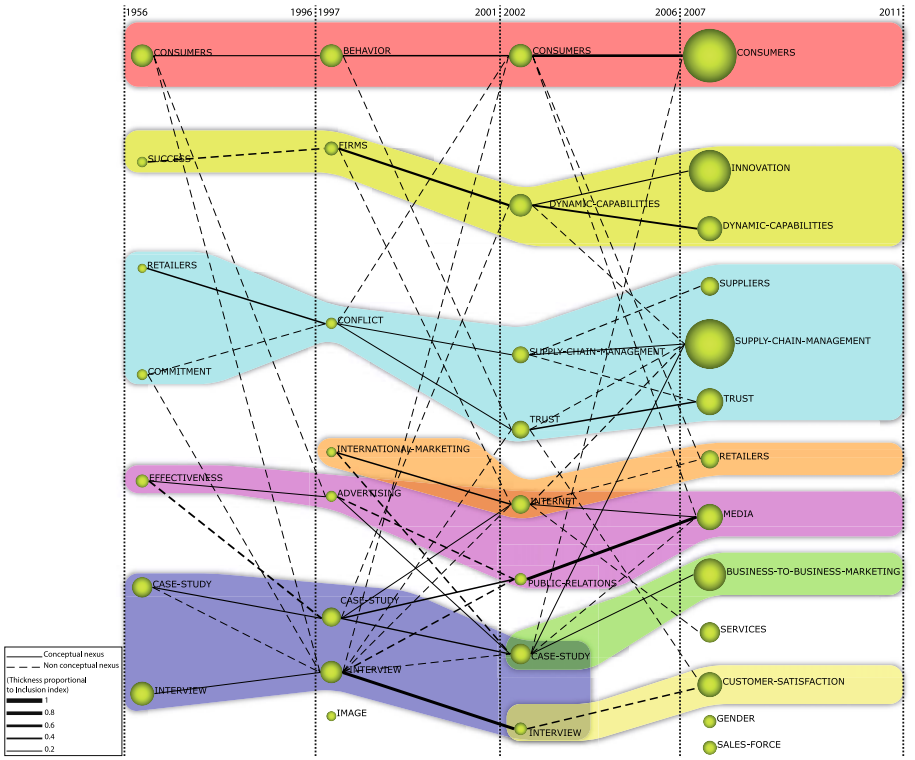

Fig. 7 Thematic evolution of the QMR field (1956–2011)

research conducted in the QMR discipline concentrated were identified. Eight thematic areas were detected: *Consumer-behaviour*, *Dynamic-capabilities*, *Supply-chain-management*, *International-marketing*, *Media*, *Methodology*, *Business-to-business-marketing* and *Customer-satisfaction*. They are shown in the thematic evolution map given in Fig. 7. As mentioned above, the solid lines indicate a thematic nexus, in other words, both the linked themes share the same name, or the name of one theme is part of the other. A dotted line means that the linked themes share keywords that are not the names of the themes. The thickness of the line is proportional to the inclusion index and the volume of the spheres is proportional to the number of published documents in each theme. The different colour shadings group together the themes which belong to the same thematic area. The themes that do not belong to any thematic area do not have any colour shading.

Structural analysis of the evolution of the QMR According to Fig. 7, the research conducted through QMR presents great cohesion due to the fact that the majority of the themes detected are grouped under a thematic area and come from a theme that had appeared in the previous period. Furthermore, there are no gaps in the evolution of the majority of thematic areas. Four thematic areas were present in QMR over the four periods studied: *Consumer-behaviour*, *Dynamic-capabilities*, *Supply-chain-management* and *Media*.

The main results for the composition and structural evolution of each of the thematic areas are:

- *Consumer-behaviour* began as a basic theme and became a motor theme from the period onwards (second period). It remained stable over the four periods. Different periods focused on different aspects of the theme, but the interrelation between the terms became stronger during the last period.
- The *Dynamic-capabilities* thematic area began as a peripheral theme called *Success* and evolved into the motor themes *Firms* and *Dynamic-capabilities*. In the last period, a split in *Dynamic-capabilities* gave rise to *Innovation* as a basic theme. Over the periods analysed, QMR was used to study marketing management and decision-making related with the dynamic capabilities of the company. Within this framework, innovation was a recurring term in all the periods but acquired greater weight in the last period, which explains why it became an independent theme in this area.
- The thematic area of *Supply-chain-management* arose in the first period with *Retailers* and *Commitment* and moved towards *Conflict* in the second period, when it became a motor theme, then evolved into *Supply-chain-management* as a basic theme and *Trust* as a motor theme. Both became stronger during the last period, when *Suppliers* also made its appearance. This thematic area covers studies of relationship management in the supply chain and the topics have included conflict resolution, power and trust between businesses and cooperation strategies.
- *International-Marketing* appeared as an isolated theme in the second period. It is not a very well defined area in terms of thematic coherence and probably arose as a result of major changes in the market situation (globalisation, emerging markets and new technologies). Its evolution was influenced in the third period by the development of *Internet*, which is shared with the *Media* thematic area.
- The *Methodology* area carried great weight in the first and second periods, with *Interview* and *Case-study* as basic themes. These were the stages that saw the greatest development of qualitative methodology and of its possibilities in the field of marketing. This theme lost strength in the third period and disappeared in the last (the fourth), as qualitative studies concentrated more on the content of the research (*Business-to-business-marketing* and *Customer-satisfaction*) than on its methodology, so the number of methodological contributions fell.
- In the fourth period, the themes *Customer-satisfaction* and *Business-to-business-marketing* were positioned as a motor theme and a peripheral theme respectively. Both presented a high degree of internal cohesion.

Table 5 Performance of the thematic areas

Thematic area	Number of documents	Number of citations	h-index
Consumer behaviour	648	10,644	52
Supply chain management	559	5,091	28
Dynamic capabilities	470	5,699	38
Methodology	453	7,649	46
Media	280	3,335	30
Business to business marketing	265	1,880	22
International marketing	157	1,695	23
Customer satisfaction	151	810	14

Performance analysis of the evolution of the QMR field Regarding the performance measures shown in Table 5, one area stands out over the rest in terms of citation and h-index: *Consumer-behaviour* (10,664 citations and h-index=52). Furthermore, this thematic area presents a rising trend because its theme gets one of the best impact score in the last period. There is a second group of thematic areas which present good performance indicators: *Dynamic-capabilities*, *Supply-chain-management*, *Business-to-business* and *Customer-satisfaction*. Among them, *Supply-chain-management* and *Dynamic-capabilities* stand out. In contrast, *International-marketing* and *Media* present a low impact rates. We should point out the case of the thematic area *Methodology*, although it gets a good impact scores, the QMR community presents a decreasing interest on it in the last years.

Discussion

The study of the evolution of QMR research themes discovered that the QMR field has focused on eight main thematic areas: *Consumer-behaviour*, *Dynamic-capabilities*, *Supply-chain-management*, *International-marketing*, *Media*, *Methodology*, *Business-to-business-marketing* and *Customer-satisfaction*. Combining the strategic diagrams, evolution map, performance indicators and the presence of these areas in all the periods studied, three thematic areas were considered core areas of the QMR research field: *Consumer-behaviour*, *Dynamic-capabilities* and *Supply-chain-management*.

By analysing the thematic areas in detail through their keywords and associated documents, it is possible to discover the different topics covered in each period and how they evolve. The keywords or terms related with each thematic area over the different periods of time are shown in Figs. 8, 9, 10, 11, 12, 13, 14, 15.

The thematic area of *Consumer-behaviour* (Fig. 8) appeared in the first period, covering topics that were mainly related to consumer experiences and consumer behaviour, particularly in the case of women consumers. In the second period, the focus of the thematic area shifted to understanding the consumers behaviour processes and also to analysing and interpreting their inquiries, although some studies focused on the sociology of consumption and the relationship between buyer and seller. In the third period, some advances in understanding the consumers, their choices, and their desires were made by analysing their mental models, and several documents related to customer value strategies or focused on insight into consumers in on-line marketing. In the last period, this thematic area focused not only on consumer behaviour but also on consumption patterns, the emotional nature of consumer decision making and characteristics of the customer in unplanned purchases. Moreover, studies of customer value strategies focused on consumer loyalty, which gained great importance. Therefore, a funnel effect can be seen in this thematic area of consumer analysis: it began by studying the consumption behaviour in general term and at the end of the period under study it was considering more specific topics, such as the buying process and the encouragements affecting it, and other issues related to creating value for the customer and consumer loyalty.

The thematic area of *Dynamic-capabilities* (Fig. 9) mainly focused on the innovation process from its beginning, studying different cases of firm success and failure (the aspect that accounts for the origin of this thematic area), or analysing how innovative firms avoid a mid-life crisis. In the next period the focus moved on to innovation in product development, innovation management and the dynamic capabilities of R&D&I. In the third period the number of topics covered rose. For instance, the development of new services

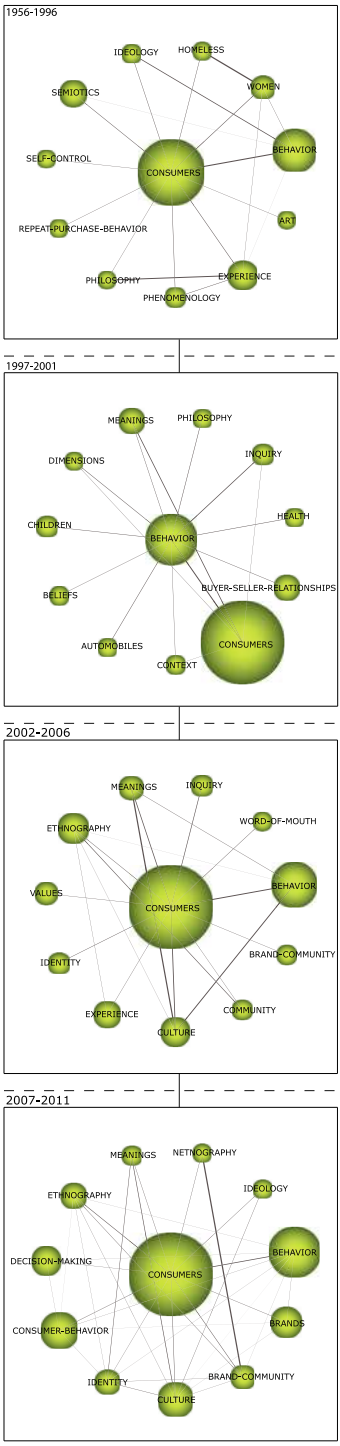

Fig. 8 The consumer-behavior thematic area

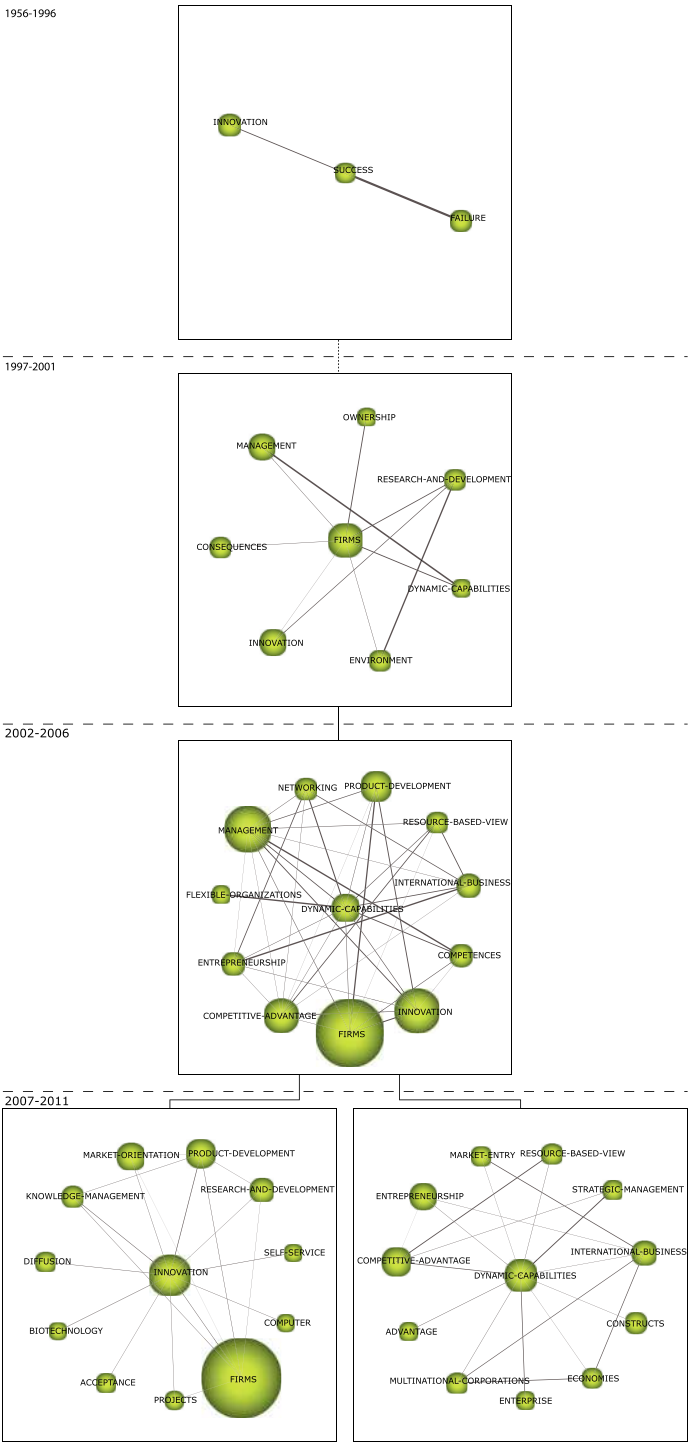

Fig. 9 The dynamic-capabilities thematic area

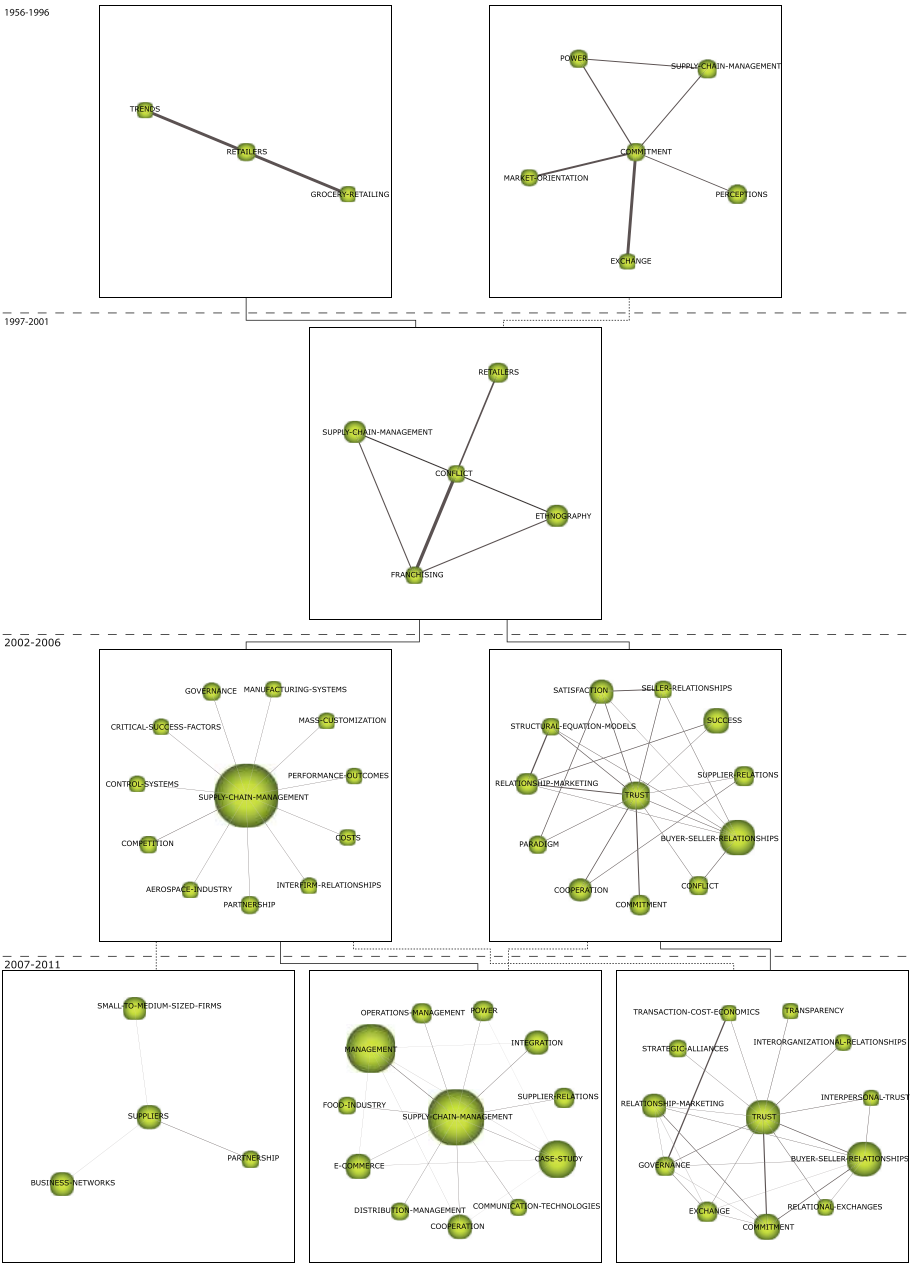

Fig. 10 The supply-chain-management thematic area

that are timely and responsive to user needs, or partner selection in the early stages of collaboration in developing a new product. Moreover, some studies explored the process of radical new product development or compared radical innovation and incremental innovation. It should be mentioned that the term "competitive advantage" gained importance in

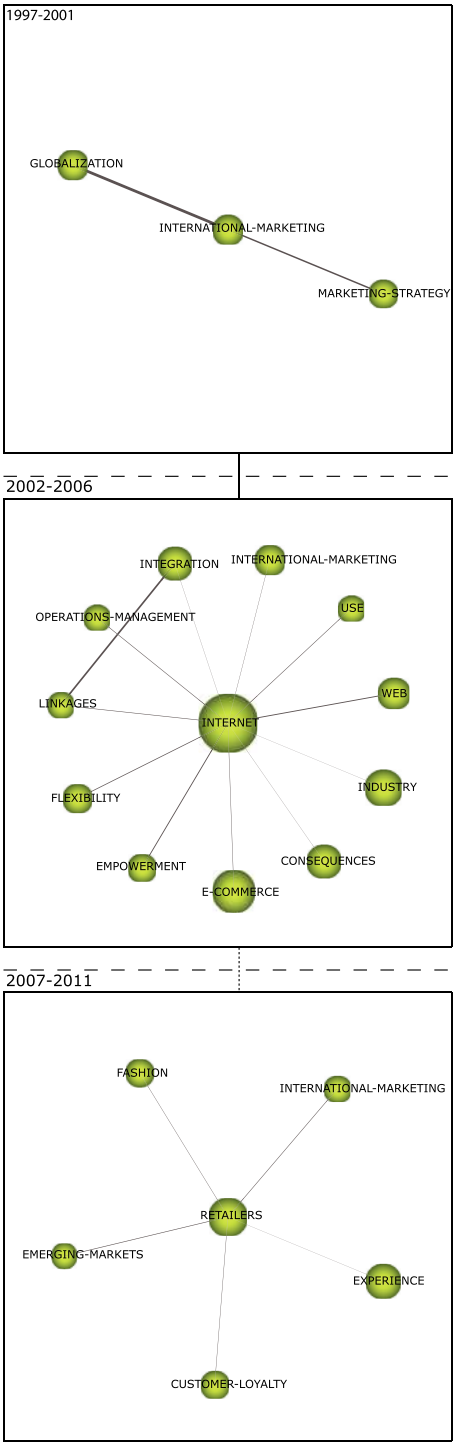

Fig. 11 The international-marketing thematic area

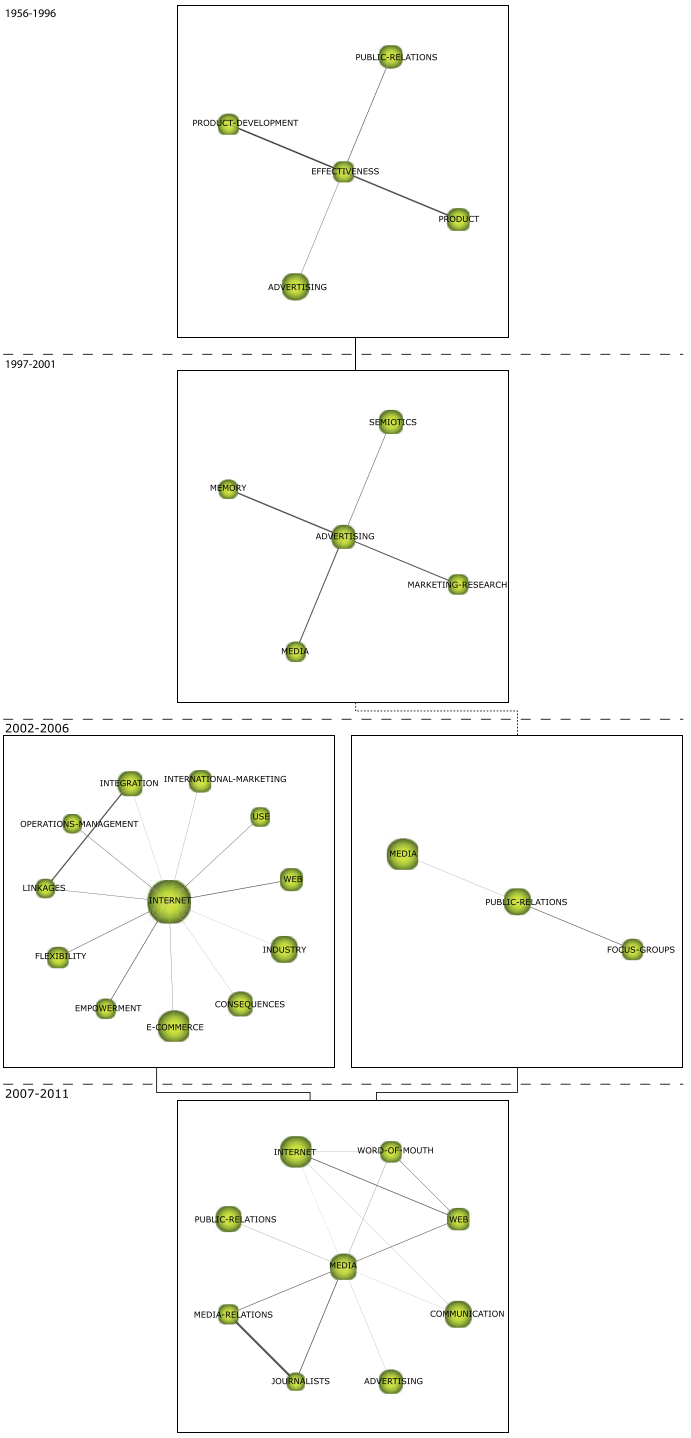

Fig. 12 The media thematic area

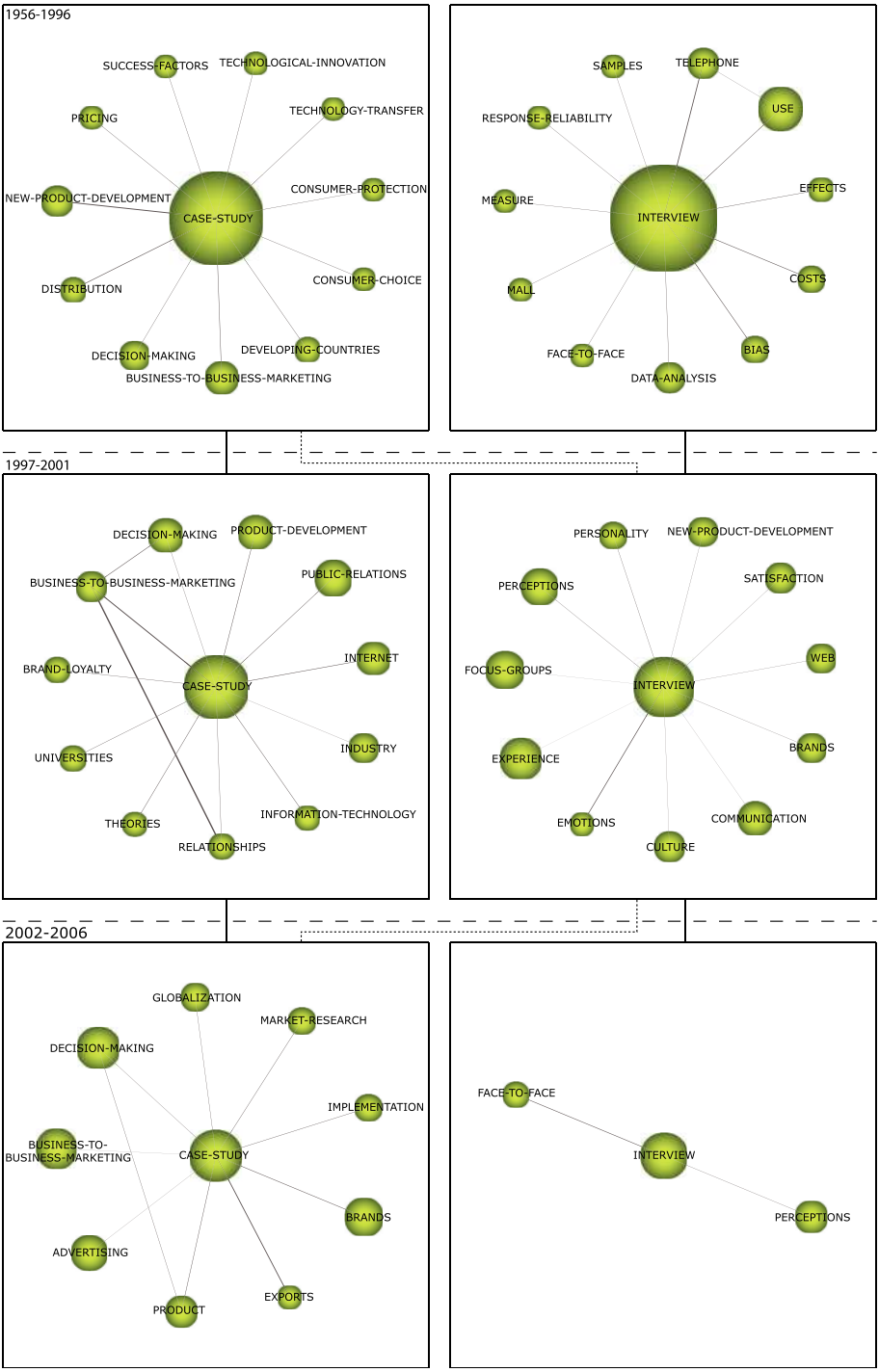

Fig. 13 The methodology thematic area

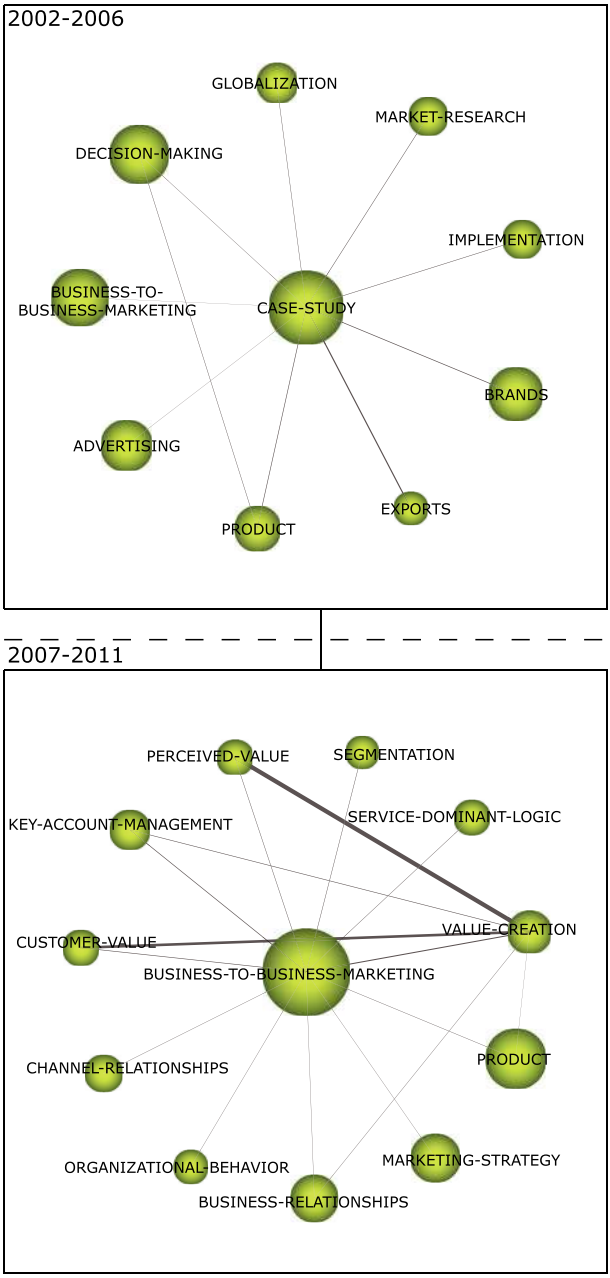

Fig. 14 The business-to-business-marketing thematic area

those years. Finally, in the last period the focus turned to industrial marketing, product development through case methods and product innovation in strategic alliances. Also, the number of studies regarding entrepreneurship and knowledge based industry increased, with special focus on small and medium sized science and technology based firms, and on academic entrepreneurship such as university spin-offs. Overall, the evolution of this

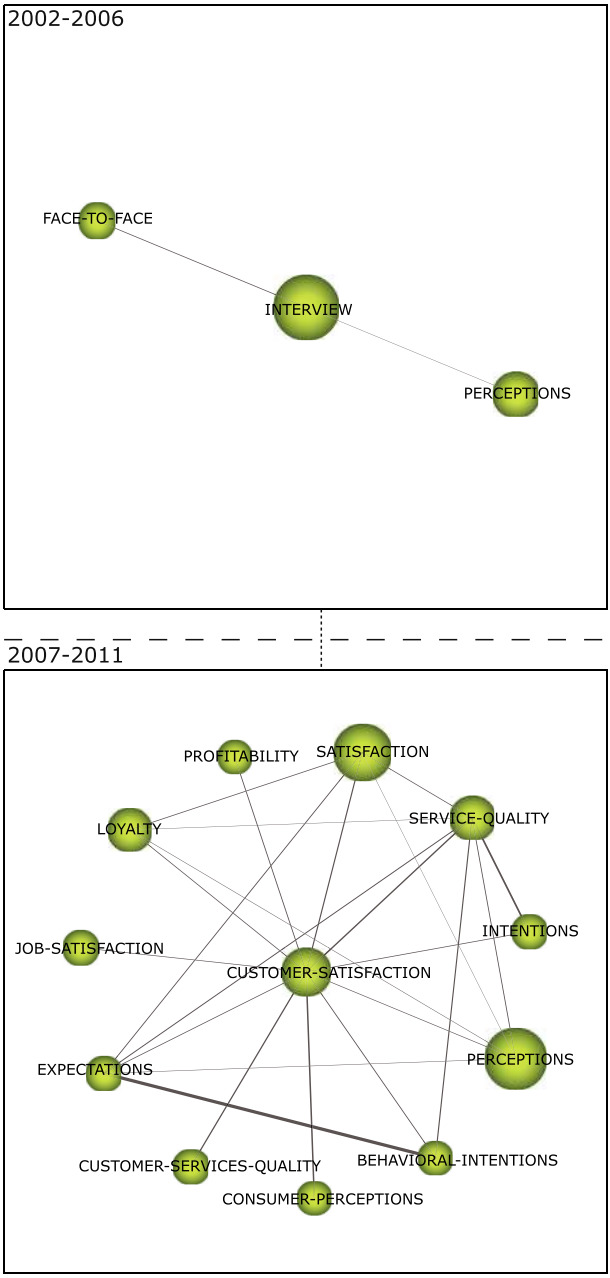

Fig. 15 The customer-satisfaction thematic area

thematic area shows the use of QMR to study the dynamic capabilities of businesses, like competitive advantages in order to respond to a continuously changing market.

The thematic area of *Supply-chain-management* (Fig. 10) started by analysing different aspects of retailers, such as their credible commitments, market orientation and consumer satisfaction. In the second period the focus moved on to conflict management at different

levels in the supply chain, with special emphasis on franchising conflict resolution and the control and coordination of an international franchising network. In the third period the topics covered grew to include different aspects of the supply chain and its managements. In those years the emphasis was mainly on inter–firm relationships, including value creation in the business relationship, the quality of the relationship (commitment, satisfaction and trust) or partner selection. The market oriented supply chain and strategic success in supply chains were also covered. Finally, in the last period, the thematic area focused on three issues: a) supply chain collaboration with special focus on strategic business networks and inter–firm trust; b) buyer-seller relationships and customer satisfaction in the supply chain; c) the use of information technology to enhance supply chain performance and to implement supply chain integration projects. It should be noted that many of these studies are confined to the agrifood supply chain. To sum up, QMR has been used to study the relationships in the supply chain, focusing on variables such as commitment, trust and satisfaction, with the purpose of managing these relationships and achieving market orientation.

The thematic area of *International-marketing* (Fig. 11) started in the second period, covering globalization-related topics such as international marketing strategy and brand positioning around the world. In the next period the thematic area mainly focused on the benefits of the Internet in international marketing and how firms use the Internet for this purpose. Finally, in the last period the focus moved on to the retailers, analysing their internationalization and their opportunities in new countries, in emerging markets such as China, Russia or Brazil, for example. Some studies were also conducted on fashion retailers in an international context. Therefore, the contribution of QMR in this thematic area has focused on international marketing strategy, the benefits of the Internet for attending to these markets and identification of new business opportunities.

The thematic area of *Media* (Fig. 12) focused on the different tools of communication throughout the period under study. In its early days it covered topics related with the effectiveness of advertising. In the next period, the thematic area shows an early emphasis on advertising topics such as visual persuasion, audience behaviours and reactions, and also brand positioning. In the third period there was a great interest in topics related with on-line advertising, as well as studies related to mobile marketing. Finally, in the last period, the thematic area was devoted to topics concerning the effectiveness of word-to-mouth in on-line communities and advertising through different media platforms (e.g. mobile devices or airports). This thematic area shows the applications of QMR evolving into marketing communication. QMR was initially employed to study the effectiveness of advertisements, then later to delve into aspects related to creativity and message design for the different communication tools.

The thematic area of *Methodology* (Fig. 13) was very important in the first period. It can be divided into two subtopics or subareas: case-study and interview.

In the early years the interview subarea was devoted to interview techniques and types (telephone, face to face, etc.) and also to the reliability of responses, quality and interviewer bias. In the second period it focused on discovering the personality of the consumer or revealing the consumers' views on different issues concerning companies. Furthermore, there was an emerging interest in discovering customer satisfaction factors and analysing quality dimensions. Finally, in the third period, customer perception and satisfaction acquired great importance. In fact, these topics are the basis for the *Customer-satisfaction* research area that emerged in the next period. Thus, the application of QMR highlighted value creation and the study of expectations and behavioural intention in order to increase customer loyalty and the market orientation of businesses.

The other subarea, case study, focuses on related topics where that technique has been used, such as technological innovation and industry and product development. However, unlike for interviews, in this subarea there were no studies that focused on improving the methodology. It should be pointed out that the case-study subarea was always related to the business to business field. In fact, a new thematic area emerged from this topic in the fourth period, as mentioned above.

The thematic areas of *Business-to-business-marketing* (Fig. 14) and *Customer-satisfaction* (Fig. 15) emerged with great strength in the last period, as a consequence of the evolution and current interests in the area of marketing.

The methodologies and techniques applied in the different thematic areas are shown in Table 6, according to the distinction between methodology and method proposed in "Qualitative research: the depth of this form of research" section.

Taking into account the differences between the two concepts, it is noticeable that the greater part of the existing research techniques and current qualitative methodologies have been used in the *Consumer-behaviour* thematic area, which points to the in-depth analysis that has been carried out in this area, using different methodological approaches. With reference to *Supply-chain-management*, the methodological strategies applied have been Action Research, Discourse Analysis and Grounded Theory. These were used in order to go deeper into questions of process, which require an analysis phase, stages of experience over time and aspects related to the interaction between the different agents. The *Dynamic-capabilities* thematic area has also used other approaches such as Ethnography, Netnography, Hermeneutics and Narrative Inquiry. These approaches aim to examine questions related to the comprehension of experiences and cultural practices, taking their context into account. In *International-marketing*, the use of Ethnography stand out. It has also been applied in Media, along with Discourse Analysis and Grounded Theory. These approaches are considered useful for discovering behavioural patterns of a cultural and social nature, as well as culturally codified meaning in advertising and marketing communication. Finally, the *Methodology*, *Business-to-business-marketing* and *Customer-satisfaction* thematic areas share methodological strategies such as Ethnography and Grounded Theory. These approaches have been much used to explore the social and cultural context related to the behaviour of individual and organizational consumers. In the case of *Business-to-business-marketing*, methodologies such as Action Research and Action learning have been prominent, with the aim of providing updates or solutions in the business to business field.

The qualitative techniques used in the different thematic areas were Interview, Focus group, Case study and Participant observation. The use of the latter in *Consumer-behaviour*, *Supply-chain-management*, *Dynamic-capabilities* and *Methodology* has been pointed out; this is where aspects related to individual or business behaviour have been studied or have required examination of process or people.

Finally, some remarks must be made regarding document overlap between the different thematic areas shown in Table 7:

1. The thematic areas of *Supply-chain-management* and *Dynamic-capabilities* share 28 % of the documents (the majority from the third period). These documents studied inter-firm relationships and value creation, but the former focuses on relationship management in the chain and the latter on product development in strategic alliances. Also, these two areas share 18 and 17 % respectively with *Business-to-business-marketing* on similar topics.
2. *International-marketing* and Media share 24 % of the documents (the majority from the third period). The uses of Internet was the focus of these overlapping documents,

Table 6 Methodology and methods overview

	Consumer-behaviour	Supply-chain-management	Dynamic-capabilities	International-marketing	Media	Methodology	Business-to-business-marketing	Customer-satisfaction
Action learning							x	
Action research	x	x	x				x	
Conversation analysis	x							
Discourse analysis	x	x	x		x			
Ethnography	x		x	x	x	x		x
Ethnomethodology	x							
Grounded theory	x	x	x		x	x	x	x
Hermeneutic	x		x			x	x	
Narrative inquiry			x					
Netnography	x		x					x
Participatory action	x							
Phenomenology	x							
Semiology	x							
Semiotics	x				x	x		
Symbolic interactionism	x				x			
Case study	x	x	x	x	x	x	x	x
Focus group	x	x	x	x	x	x	x	x
Interview	x	x	x	x	x	x	x	x
Participant observation	x	x	x			x		

Table 7 Document overlapping between thematic areas

	Consumer-behaviour (%)	Supply-chain-management (%)	Dynamic-capabilities (%)	International-Marketing (%)	Media (%)	Methodology (%)	Business-to-business-marketing (%)	Customer-satisfaction (%)
Consumer-behaviour	–	9	11	6	9	11	9	8
Supply-chain-management	9	–	28	8	7	7	18	5
Dynamic-capabilities	11	28	–	7	8	4	17	8
International-Marketing	6	8	7	–	24	4	6	5
Media	9	7	8	24	–	7	6	6
Methodology	11	7	4	4	7	–	14	5
Business-to-business-marketing	9	18	17	6	6	14	–	8
Customer-satisfaction	8	5	8	5	6	5	8	–

but with some differences from the marketing point of view. The former was related with international marketing strategy on the Internet and the latter with on-line advertising.

3. *Business-to-business-marketing* shares 14 % of its documents with *Methodology*, which makes sense as the first emerged from the second in the third period.

Regarding the documents overlapping, some clarifications should be done. Documents are assigned to each theme using a union document mapper function (Cobo et al. 2012b), which returns the algebraic union of the set of documents associated with the keywords of theme. Thus, since keywords associated with a document could belong to different themes, a document could be associated with several themes. Moreover, since thematic areas could share some themes, they could also share some documents.

Conclusions and limitations

This article reports on a science mapping analysis study to examine the conceptual structure of QR in the field of marketing over the 1956–2011 period, in order to discover the main themes and applications for which QR methods have been used and to identify future trends.

To analyse the conceptual evolution of QMR, the study period was divided into four periods of time on the basis of two criteria: the development of QR methods in the field of marketing, and a similar volume of documents by period and number of years. The four periods were 1956–1996, 1997–2001, 2002–2006 and 2007–2011. The documents studied were those published in the specialist marketing research journals included in the "Business" category of the ISI Web of Science.

Regarding the four questions addressed in the "Introduction" section, analysis of the results led to the detection of eight thematic areas that form the QMR knowledge base: 1) *Consumer-behaviour*, which focuses on studying the factors related to the consumers' experiences and purchasing behaviour; 2) *Supply-chain-management*, which centres on managing the relationships between the different members of the supply chain; 3) *Dynamic-capabilities*, which analyses themes connected with managing competitive advantage, knowledge and R&D&I; 4) *Methodology*, which concentrates on the methodological aspects and practical application of interviews and case studies; 5) *Media*, which focuses on studying the efficiency of advertising and different communication tools; 6) *Business-to-business-marketing*, applied to the context of industrial marketing; 7) *International-marketing*, which focuses on identifying and understanding cultural differences and similarities in international markets and on decision-making about entering new markets; and 8) *Customer-satisfaction*, which revolves around consumer satisfaction and quality of service. These thematic areas are in agreement with the general guidelines suggested by Imms and Ereaut (2002) for the evolution of QMR.

The topics that could form the knowledge base of the QMR research field in the future are related to two thematic areas: *Business-to-business-marketing* and *Customer-satisfaction*. The *Business-to-business-marketing* area focuses on identifying new market opportunities, caused by the changing environment, and models or guidelines to manage stakeholder relationships. The *Customer-satisfaction* area emphasizes consumer studies with the aim of developing long-term relationships and value co-creation strategies. Based

on the breakdown by themes, their structural evolution and the bibliometric indicators, the main conclusions reached were as follows:

- The largest thematic area using QMR and the one that has contributed the most to its development is *Consumer-behaviour*. Compared to the other areas, it accounts for the largest volume of documents, which has risen over the periods analysed, for the greatest number of citations and for the highest h-index.
- During the initial periods, the lack of knowledge about QR techniques explains why the *Methodology* thematic area focused on describing, developing, innovating and improving QR tools. Currently, the greater spread and use of qualitative studies has shifted the focus of this thematic area from purely methodological aspects related to interview, focus group, case study and participant observation, to specific applications.
- In recent years, QMR has begun to be used in areas of knowledge that had hitherto been studied from an essentially quantitative angle (*Supply-chain-management* or *Dynamic-capabilities*), as a complementary research tool in exploratory studies and/or in the interpretation of results.

The role played by QR in the development of the whole marketing discipline may be analysed from a quantitative perspective and related to its usefulness. This highlights the increasing importance of QR in marketing studies, as shown by the number of articles published. As shown in Fig. 16, the documents related to marketing and also to QMR have increased over the years. Furthermore, on analysing the evolution of the documents in relative terms it can be seen that the variation in QMR documents is greater than the variation in marketing documents (145.90 vs. 55.90 %), which highlights the increased importance of the QMR field. Regarding the usefulness of QMR, it has been used to study: 1) cases of an exploratory nature in which the researcher is looking for ideas or hypotheses for his/her research, for instance to discover new uses of products, or new products and services, or to identify needs and expectations of consumers and businesses; 2) cases of a clinical nature to discover underlying causes of human behaviour, such as studies to discover purchase motivations; 3) cases of an experimental nature, to study behaviour in everyday experiences, for instance to discover how consumers think and behave in product purchase and use situations.

Even though quantitative research continues to be the predominant methodological paradigm, qualitative research has important strengths for the development of scientific knowledge that have made it an important complement in marketing research: the ability to

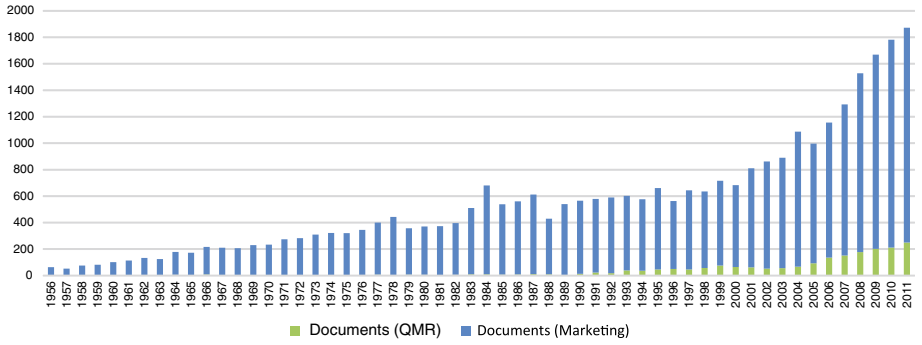

Fig. 16 Distribution of QMR documents versus whole marketing documents

generate and induce ideas and theoretical models, explain quantitative results and/or guide the quantitative research. In general, the growing trend suggests that QMR training could be very valuable for new researchers, whether to enrich their quantitative studies or as an alternative method which is particularly useful in specific thematic areas. Moreover, the general classification of QMR applications in marketing may help researchers to discover their particular usefulness for certain topics.

Since the h-index (Hirsch 2005) was actively used in this study to analyse the science maps, some points should be clarified. As it is shown in Fig. 2 and also in Fig. 16, the production increases during the whole period, and consequently, it may increases within the subperiods. Thus, the speed of production may influence the h-index. Moreover, SciMAT calculates the h-index as if evaluating scientists, i.e., it uses the number of publications and citations per publication, but working with the publications associated with each theme and thematic area. However, the h-index is not interpreted as an indicator of productivity but as a measure of the immediate community's interest in the research conducted on the research theme or thematic area, and also as a measurement of the quality of the research carried out in the theme or thematic area.

Consequently, a theme with a high h-index means that the research conducted on the subject is of quality and reflects high interest among the scientific community. This is the case of the Consumer and Behaviour themes in the first and second period respectively. Furthermore, the results can be used to identify the emerging themes in a scientific discipline (Banks 2006). In the last period studied, both the *Supply-chain-management* and *Innovation* themes presented the highest h-index and could be considered emerging topics in QMR. Moreover, *Business-to-business-marketing* and *Customer-satisfaction* could also be considered emerging topics, since they appeared in the last period and obtained a high citation count and h-index. Obviously, low h-index values do not always mean that the research undertaken was of low quality, since they depend on the citation pattern in a scientific field and the size of the community working in the field. Thus, a theme with a low h-index could indicate interest among a small community of researchers rather than low-quality research. This is the case of the *Suppliers* and *Gender* themes in the fourth period.

In the case of thematic areas, the h-index provides a way to discover whether the research on the area presents an upwards or downwards trend (Martínez-Sánchez et al. 2014). Analysing the evolution of the h-index for the themes that composes a thematic area through all the periods of time makes it possible to detect whether the interest in the scientific community has increased or decreased. For instance, the scientific community's interest in *Consumer-behaviour*, *Dynamic-capabilities*, *Supply-chain-management*, *Business-to-business* and *Customer-satisfaction* has risen, while the interest in *International-marketing*, *Media* and *Methodology* has fallen.

Finally, some limitations to this study should be pointed out. We chose the corpus for analysis from databases of widely acknowledged international prestige in the scientific community, namely ISIWoS and JCR, both produced by Thomson Reuters. A great debate is taking place on the coverage of ISIWoS in comparison to Scopus and Google Scholar and on their usefulness for analysing social science disciplines (Bar-Ilan 2010; Falagas et al. 2008). We decided to use ISIWoS because it presents the best retrospective coverage since 1900 (Harzing and van der Wal 2008) and provides quality data for this study. Nevertheless, a different database choice would probably produce different results.

Another methodological limitation is related to the choice of information sources to describe the QMR field, since we only used documents published in the most important journals indexed in the Business category of JCR. As a result, this study is missing the earliest research, published before marketing journals were indexed in the JCR. Also

missing is QMR published primarily outside marketing journals (in interdisciplinary or other disciplinary journals) or in marketing journals that are not indexed in JCR/ISIWoS, and QMR dissertations whose findings have not been published in marketing journals indexed in JCR/ISIWoS. Similarly, it has left out research published in books, which is also a normal way to publish important findings in the QMR field.

A further methodological bias was introduced in the co-words analysis. Many papers published in the early period lacked keywords, probably because it was not a common publication rule at the time. We have found similar behaviour in other disciplines, e.g., computer science (Cobo et al. 2011a) and Intelligent Transportation Systems (Cobo et al. 2014). Therefore, we had to search manually for the keywords that best described the content of those papers. The themes and thematic areas detected are based on the keywords provided by authors and the indexing terms given by ISIWoS (Keywords PLUS). It is possible that some QMR-related topics may not have appeared because the authors did not incorporate descriptive terms related to them or because their frequencies were too low. With respect to the use of SciMAT, we used our experience to configure it appropriately and set the best parameters to avoid the appearance of strategic diagrams which would be too complex to analyse. However, it is clear that other configurations could result in more complex diagrams.

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