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Strategic Management – State of the Art

A Bibliometric Analysis of Strategic Management Research conducted between 2008 and 2017

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Statutory declaration

I hereby declare that the thesis submitted is my own unaided work, that I have not used other than the sources indicated, and that all direct and indirect sources are acknowledged as references. This printed thesis is identical with the electronic version submitted.

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Executive summary

The strategic management discipline has vigorously grown since its foundation several decades ago (Durand et al., 2017; Ketchen et al., 2008; Nerur et al., 2008). Within half a century it has undergone “a considerable growth in the diversity of topics as well as in the variety of research methods applied” (Hoskisson et al., 1999, p. 418). From the outset, however, strategic management has been an interdisciplinary field (Schendel, 1994). In the recent past, several scholars have expressed concerns that the field has become fragmented (Durand et al., 2017; Hambrick, 2004; Ketchen et al., 2008), whereas others (Arora et al., 2016; Nag et al., 2007) consider this pattern as a sign of the domain’s richness.

Assuming that keywords describe articles’ contents (Callon et al. 1991) and that citations of bibliographic references in academic journals are an indication of their influence (Ramos-Rodriguez & Ruiz-Navarro, 2004; Tahai & Meyer, 1999), this work delineates the structure of strategic management research and the discipline’s key conceptual elements and intellectual foundations in the past decade (2008-2017). Moreover, the most influential contributions of strategic management research conducted within this time period are outlined. To better understand the field’s nature, the evolution of its structure over time and the historical development of past decade’s key conceptual elements and intellectual foundations are traced.

To accomplish these intents, a bibliometric mapping analysis of articles published between 2008 and 2017 in the ten most prestigious academic journals in the field of management and strategy – as evidenced by the *Social Sciences Citation Index* – is applied. The methods employed are keyword co-occurrence, citation and co-citation analysis. For the purpose of this analysis, the bibliographic mapping software VOSviewer is utilized, which is a software tool for the construction and visualization of bibliometric networks (Eck & Waltman, 2010).

The results obtained from the assessment of the discipline’s structure and its key conceptual elements and intellectual foundations in the period 2008-2017 by means of keyword co-occurrence and co-citation analysis indicate that concepts such as *performance*, *competitive advantage*, *competition*, *strategy*, *firm*, *market*, *industry*, *innovation*, *resource-based theory*, *dynamic capabilities*, *knowledge*, *absorptive capacity*, *alliances*, *decision-making*, *strategic change*, *governance* and *entrepreneurship*, made up the nucleus of past decade’s strategic management research and that the field overall comprises a large variety of research areas. In that regard, the discipline’s multidisciplinary intellectual structure, which ranges from economics through sociology up to psychology is made evident. The comparison of past decade’s structure with that of the two preceding decades indicates that the field has continuously increased over time, but that this increase has recently slowed down. The assessment of the historical development of past decade’s key conceptual elements and intellectual foundations reveals several interesting facts:

the resource-based view solidified its position as the leading school in strategic management. The significance of dynamic capabilities, knowledge, innovation, absorptive capacity and managerial decision-making has further increased within the recent ten years. The fact that the field has increasingly relied on quantitative methods to explore phenomena, is highlighted as well. Despite the presence of a large variety of research streams in the strategic management domain, it appears that in the recent past, the field has begun to consolidate itself.

Finally, by assessing the citations the relevant articles published between 2008 and 2017 received in *Web of Science* until the date the bibliographic dataset was obtained, the key role of American universities and scholars is revealed. This analysis also evidences that besides the prominence of concepts such as innovation, resource-based view and dynamic capabilities, *corporate social responsibility* and *institutional theory* have been of prominence as well in past decade's strategic management literature.

This research explores the structure of the strategic management discipline of the recent ten years and its historical development. It is one of the first works that evaluates the field's structure by means of a combination of bibliometric techniques, which complement each other (Rip & Courtial, 1984), including keyword co-occurrence analysis, which has not been applied to the strategic management discipline yet.

Overall, this thesis shall provide a comprehensive and objective overview about the state of the art in strategic management research conducted in the past decade by utilizing a large sample of bibliographic data from prestigious management journals.

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1. Introduction

The purpose of this work is to delineate the current state of strategic management, a discipline that is rather young and that has considerably grown since its foundation (e.g. Durand et al., 2017; Ketchen et al., 2008; Nerur et al., 2008). In order to provide understanding for the results presented in this research, the discipline's evolution shall be outlined.

In their seminal review article, Hoskisson et al. (1999) characterize the development of strategic management over time as the swings of a pendulum and in doing so, divide the discipline's evolution into three phases. They argue that at its very beginning, the discipline rather focused on firms' internal structures, then shifted its focus to industry structure in the early 1980s, and finally again drew attention to organizations' internal characteristics beginning with the mid 1980s.

Chandler (1962), Ansoff (1965) and Andrews (1971) are commonly viewed as key foundational works on strategic management (e.g Rumelt et al., 1994). These works focus on internal firm characteristics (Herrmann, 2005; Hoskisson et al., 1999) and can thus be considered as proponents of the first phase (Hoskisson et. al, 1999). Chandler (1962) was also the one who introduced the term *strategy* to the management literature. In his seminal book *Strategy and Structure: Chapters in the History of the Industrial Enterprise*, Chandler (1962, p. 13) defined *strategy* as "the determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals." Referring to Rumelt et al. (1991, p. 7) strategy was viewed as "a collection of related, reinforcing, resource-allocating decisions and implementing actions" in that period.

Beginning with the 1980s the discipline shifted its attention towards industry structure (Hoskisson, 1999), whereby Porter's (1980, 1985) seminal works on industrial organization economics played a key role. Hoskisson et al. (1999, p. 425) in that regard argue that the impact of "industrial organizational (IO) economics, on strategy research was substantial, and in terms of methodology, strategy research also became much more "scientific"". At the same time, the establishment of the *Strategic Management Journal* and the *Strategic Management Society* in 1980 and 1981 respectively, further contributed to strategic management's recognition as an academic discipline (e.g. Durand et al., 2017; Nerur et al., 2008; Nerur et al. 2016).

With the emergence of organizational economics, specifically transaction cost economics (Williamson, 1975, 1985) and agency theory (Jensen & Meckling, 1976), strategic management research began to shift its attention from the industry level back to firms' internal structures (Hoskisson 1999). With the introduction of the resource-based view of the firm in the mid 1980s, the focus on internal firm resources ultimately rose to new prominence (Hoskisson et al., 1999). The much-cited works of Wernerfelt (1984) and Barney (1991) are commonly supposed to be the foundation for this school of thought. In contrast to industrial organization economics, which

considers firms' industry positions and differentiation strategies as the determinants of competitive advantage (Porter, 1980, 1985), resource-based theory views firms' strategic resources as source of competitive advantage (Barney, 1991). In that regard, Teece et al. (1997, p. 513) hold that the resource-based view "focuses on the rents accruing to the owners of scarce firm-specific resources rather than the economic profits from product market positioning."

In addition to the above-mentioned resource-based view, a large body of various other research areas has emerged in the strategic management domain in the past decades. In their review article, which was published in a special issue in the wake of the field's growing scope and diversity in the *Strategic Management Journal*, Durand et al. (2017) name the following topics: organizational capabilities, inter-firm cooperation, knowledge, innovation, organizational learning, behavioral strategy, institutional theory, and corporate social responsibility.

To objectively assess the structure as well as the evolution of the strategic management domain, several bibliometric studies have been conducted. By applying a document co-citation analysis, Ramos-Rodriguez & Ruiz-Navarro (2004), outline the works that most strongly influenced strategic management research conducted between 1980 and 2000. They identify industrial organization, research on diversification strategies, transaction cost and agency theory, resource based view, evolutionary theory, research on environmental conditions, literature from the very beginning of strategic management, competitive and cooperative strategies, behavioral theory, research on corporate patterns, and organizational theory as the intellectual foundations of research conducted in this 20-year period. With their author co-citation analysis that evaluates the same time period, Nerur et al. (2008) aim to provide an overview of the intellectual and conceptual structure as well as the evolution of the strategic management discipline. They determine topics such as organizational theory, industrial organization, decision-making, agency theory, institutional economics, diversification strategies, firms' environments and resource-based theory as the phenomena researched between 1980 and 2000. Furrer et al. (2008) conduct a multiple correspondence analysis to assess the structure as well as the evolution of the strategic management domain from 1980 to 2005. They identify research concerning diversification, restructuring and corporate-level strategies, contributions addressing financial models, articles on transaction cost and agency theory, literature on competitive strategies and competitive advantage, literature on the concept of strategy as fit, as well as contributions addressing top management as the key research streams in that period. In a quite recent study, White et al. (2016) employ a combination of text mining and bibliometric analysis in order to provide an overview of international strategic management research published between 2000 and 2013. They recognize institutional theory, the resource-based view of the firm, organizational learning, social network theory, the knowledge-based view, internationalization theory, OLI theory, transaction cost economics, cultural norms, and research on political aspects of multinational enterprises as key conceptual elements in international strategic management research.

The results of these works unambiguously reveal the fact that there is a large variety of research streams in the strategic management discipline.

Recently, there has been a broad discussion among scholars about whether the field's diversity is a cause for concern or delight. Hambrick (2004), Nerur et al. (2008), Ketchen et al. (2008) and Durand et al. (2017) highlight a pattern of fragmentation in the field. Ketchen et al. (2008, p. 646) argue that the discipline has become "quite broad and diverse". Hambrick (2004, p. 93) harshly criticizes the "wild proliferation of theories" and the "wide array of phenomena that researchers seek to explain through various theoretical lenses". In their author co-citation analysis, Nerur et al. (2008, p. 331) detect fragmentation "arising from exogenous theoretical influences and endogenous theoretical developments". In their proposal for integration within strategic management research, Durand et al. (2017) address the concern that the discipline's increasing breadth creates fragmentation regarding theory, phenomena researched as well as scholarly community, which in turn might threaten "the field's capacity for cohesive knowledge accretion" (p. 8). In that context, Durand et al. (2017, p. 6) argue that due to the field's multidisciplinarity, "the boundaries that distinguish strategic management from management as a whole have become increasingly difficult to discern". Nerur et al. (2016) come to the same conclusion, but also highlight "the growing influence the field has developed within management journals and beyond" (p. 1082).

Other scholars consider the field's diversity as a sign of the domain's richness. Arora et al. (2016, p. 9) argue that "the core power of strategy research lies in its willingness to tackle complex real problems, using a wide range of theory, data, and methods." Nag et al. (2007) consider the commonly asserted disparity of the strategic management discipline as its strength and acknowledge that the field's "amorphous boundaries and inherent pluralism act as a common ground for scholars to thrive as a community, without being constrained by a dominant theoretical or methodological strait-jacket" (p. 952).

Apparently, the discipline of strategic management has significantly expanded since its recognition as an academic discipline and has experienced a rapid growth in the variety of topics researched (Hoskisson et al., 1999). In view of the above, it appears reasonable to objectively evaluate the recent developments in the domain of strategic management and to provide an overview of its current structure. Moreover, since Hoskisson et al.'s (1990) seminal review paper has already been published almost two decades ago, it shall be of particular interest to assess in which direction the pendulum has recently swung.

1.1. Objective and research issue

This thesis is intended to contribute to the body of strategic management knowledge by providing an objective and comprehensive overview of the state of the art in strategic management

research. Assuming that keywords describe the contents of articles (Callon et al. 1991), and that citations of bibliographic references in academic journals are an accurate measure of influence (Ramos-Rodriguez & Ruiz-Navarro, 2004), this work aims to depict both the structure and the salient conceptual elements of past decade's strategic management research, and their historical development by means of bibliometric techniques.

By applying such techniques, keywords, references, and *Web of Science* citations of journal articles published in the field of strategic management between 2008 and 2017 will be evaluated in order to outline the concepts, authors, articles, journals and research organizations that made up the structure of the discipline in the past ten years. By means of bibliographic maps and lists the significances of the individual concepts, authors, articles and journals will be visualized.

The few existing bibliometric studies of the strategic management field (Furrer et al., 2008; Keupp et al, 2012; Nerur et al., 2008; Ramos-Rodriguez & Ruiz-Navarro, 2004; Ronda-Pupo & Guerras-Martín, 2012; White et al., 2016) naturally do not discuss research done within the relevant timeframe as they were published earlier. This study thus should add value to the strategic management discipline in that it is the first work that systematically evaluates research that was conducted within the past ten years in a holistically orientated manner by applying three bibliometric techniques – keyword co-occurrence analysis, citation analysis, and co-citation analysis, which complement each other (Rip & Courtial, 1984). Taking into consideration the rapid expansion of scientific contributions in the strategy field in the recent ten years (the total number of articles published in the *Strategic Management Journal* between 2008 and 2017 is approximately 50 per cent larger than in the decade before), an analysis of the state of the art in strategic management research shall be of particular interest. The central questions of this work thus are formulated as follows:

(1) *What are the major research fields in the past decade and how did they develop?*
(2) *Which are the most influential contributions and who are the most influential authors of strategic management research published between 2008 and 2017?*
(3) *What are the intellectual foundations of past decade's strategic management research and how did they develop?*

1.2. Structure of the thesis

The first section of this thesis was an introduction to the topic, which also included the thesis' research objective and the derived research questions. The remainder of this work is structured as follows. In the second section the methodology of this study will be outlined in detail and the subsequent section will explain how the results of this thesis were determined. Next, the results of

the bibliometric analyses will be delineated and finally, the main findings and the works' limitations will be summarized and discussed.

2. Methodology

Due to the fact that the purpose of this work is to assess the state of the art of a whole discipline, namely that of strategic management, the application of a systematic method appears to be appropriate in order to obtain a comprehensive overview of both the field's key research areas and its intellectual foundations as well as their historical development. It therefore was decided to apply bibliometric mapping techniques, which allow to give a comprehensive and objective overview of a discipline's structure (e.g. Baumgartner & Pieters, 2003; Brown & Gardner, 1985; Culnan, 1987; Peters & Raan, 1993a, 1993b; Raan & Tijssen, 1993; Ramos-Rodriguez & Ruiz-Navarro, 2004).

2.1. Bibliometric analysis

Bibliometric analysis is a form of secondary study and aims to assess the output and the impact of academic research. Bibliometrics is a quantitative approach of analyzing scientific literature that employs various techniques (Börner et al., 2003; Ding et al., 2001). Drawing on Raan (1997, p. 205), bibliometrics "aims at the advancement of knowledge on the development of science and technology". Bibliometrics can both supplement and validate key-informant's subjective assessments and is able to correct for subjective biases (Nerur et al., 2008). A decisive advantage of bibliographic visualizations according to Raan & Tijssen (1993), is the more comprehensive and objective overview compared to key-informant's subjective statements, and the reduction to the essential features of a discipline. It thus strives to display the "big picture" by aiming to outline the structure of scientific fields, and is capable of identifying both key research areas and schools of thought, and the associations between both.

Raan & Tijssen (1993) divide bibliometric analysis into one- and two-dimensional techniques: The one-dimensional technique is a simple listing of bibliographic items that is ordered by items' occurrences and is thus based on direct countings. The two-dimensional technique in turn assesses the co-occurrences of bibliographic items and thus the relations between these items. Within bibliometrics, the focus lies on the latter technique and thus the construction of bibliometric maps (e.g. Eck & Waltman, 2007a, 2010, 2014; Eck et al., 2010; Nerur et al., 2008; Raan & Tijssen, 1993; Ramos-Rodriguez & Ruiz-Navarro, 2004; Ronda-Pupo & Guerras-Martin, 2012;

White & Griffith, 1981; White & Mccain, 1998), which allow to visualize the structure of a specific discipline.

This work focuses on bibliometric mapping. One-dimensional techniques, however, will be applied as well. Specifically the bibliometric techniques of co-citation analysis, keyword co-occurrence analysis and citation analysis will be employed and thus shall be explained in the following.

2.1.1. Applied techniques

For the purpose of this thesis, it was decided to apply co-word analysis, citation analysis, and co-citation analysis. All thee techniques have been used in strategic management research in order to assess the field's structure (Furrer et al., 2008; Keupp & Gassmann, 2009; Nerur et al., 2008; Ramos-Rodriguez & Ruiz-Navarro, 2004; Ronda-Pupo & Guerras-Martin, 2012).

To date, this study seems to be the first one, that applies these three techniques together, which complement each other (Rip & Courtial, 1984). This approach allows to display the field's structure in terms of conceptual elements (Peters & Raan, 1993a, 1993b), the discipline's most influential recent contributions (Furrer et al., 2008) as well as the discipline's intellectual structure (Culnan, 1987; Nerur et al., 2008; Ramos-Rodriguez & Ruiz-Navarro, 2004; White & Griffith, 1981). The application of such combination shall provide a holistic overview of current strategic management research.

2.1.1.1. Co-citation mapping analysis

Co-citation analysis already has a relatively long history and was introduced in the 1970s by Small (1973). Co-citation analysis can be used to infer the intellectual structure of a field (Nerur et al., 2008; Ramos-Rodriguez & Ruiz-Navarro, 2004). It refers to the frequency by which two works are cited by other works. Such two documents are thus considered as co-cited documents. The same pattern also applies for authors or publications (journals or books). That is, co-citation analysis examines documents' references. Specifically, it sums the cited references of every document included in a bibliographic dataset and assesses how often two references co-occur in the documents' reference lists. The more often two references co-occur the stronger they are co-cited and the more closely they are associated (Small, 1973). Figure 1 displays the functionality of co-citation analysis.

The building of maps based on co-citation data has become a common practice in bibliometric research (e.g. Culnan, 1987; Eck & Waltman, 2010; Eck et al, 2010; Mccain, 1990; Nerur et al., 2008; Ramos-Rodriguez & Ruiz-Navarro, 2004; White & Mccain, 1998). Documents that are frequently co-cited together are considered to be associated and thus cluster together (McCain, 1984; White & Griffith, 1981).

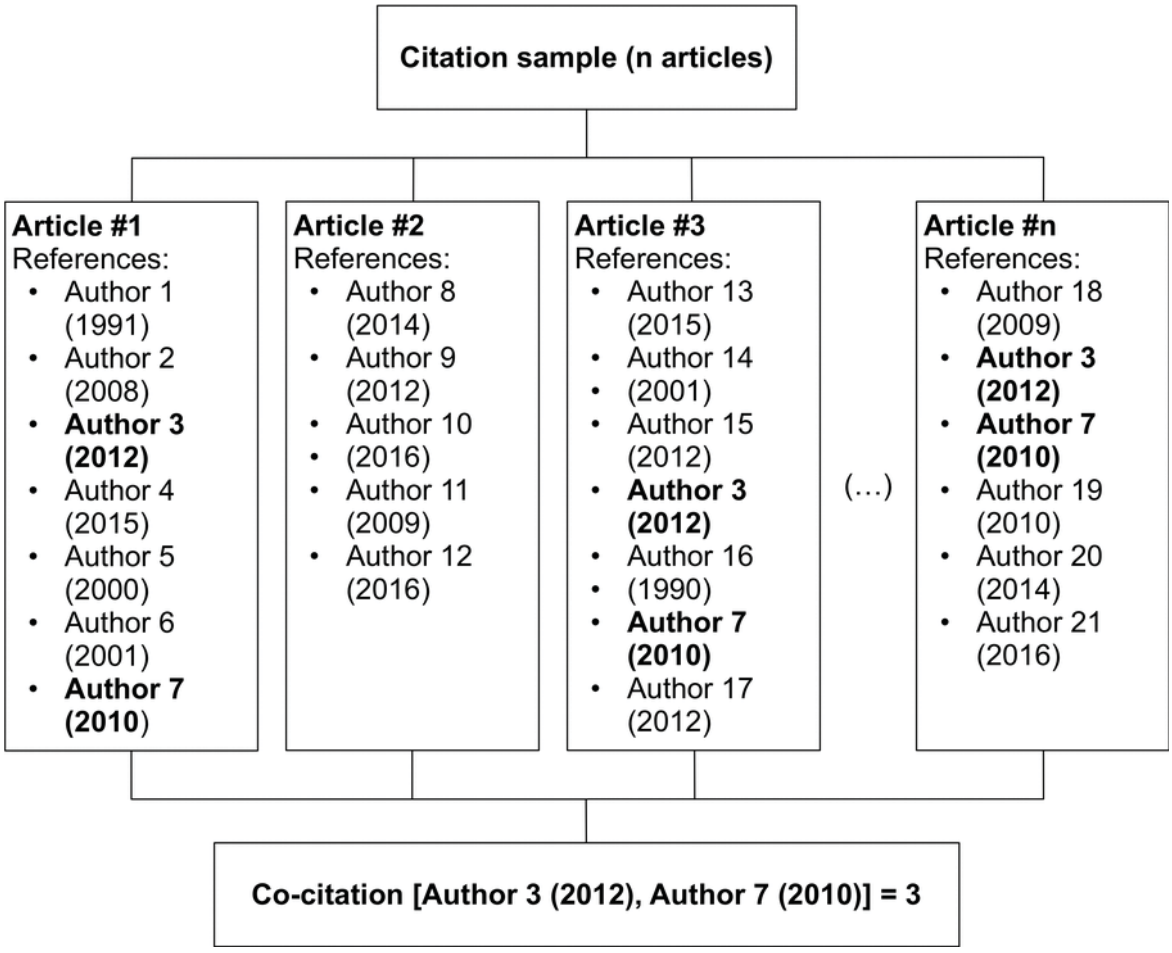

Figure 1: Example of co-citation count (Ramos-Rodriguez & Ruiz-Navarro, 2004)

Co-citation analysis has been applied to assess the structure of various academic disciplines such as information science (White & Mccain, 1998), management information systems (Culnan, 1986, 1987), international management (Acedo & Casillas, 2005), marketing (Baumgartner & Pieters, 2003) as well as strategic management (Nerur et al., 2008; Ramos-Rodriguez & Ruiz-Navarro, 2004). It is commonly considered to be an objective measure of documents', authors' or journals' influence that is less susceptible to biases than subjective approaches (Baumgartner & Pieters, 2003; Brown & Gardner, 1985).

2.1.1.2. Keyword co-occurrence mapping analysis

Co-word analysis, based on keywords from a set of documents, aims to depict a discipline's research fields as well as the relations between these fields (Peters & Raan, 1993a). The main idea behind co-word analysis, or more precisely keyword co-occurrence analysis, which is applied here, is the idea that articles' keywords describe the contents of the articles contained in a bibliographic dataset (Callon et al, 1991). Thus "each research field can be characterized by a list of the most important keywords" (Börner et al., 2003, p. 185). Keyword co-occurrence analysis' functionality is similar to that of co-citation analysis. Two keywords "co-occur if they are used together in the description of a single document" (Callon et al, 1991, p. 161). The functionality of keyword co-occurrence analysis is depicted in Figure 2.

Due to its purpose of visualizing disciplines' structures, keyword co-occurrence analysis relies on bibliographic maps (e.g Callon et al., 1991; Ding et al., 2001; Peters & Raan, 1993a, 1993b; Ronda-Pupo & Guerras-Martin, 2012). Similar to co-citation analysis, keywords that frequently co-occur are considered to be related and thus tend to be close to each other when visualized in a bibliometric map.

Keyword co-occurrence analysis serves as a complement of co-citation analysis (Rip & Courtial, 1984), that helps to overcome some shortcomings of the co-citation technique (Callon et al.1983). In contrast to the latter, keyword co-occurrence analysis outlines a discipline's current structure, and thus corrects for co-citation analysis' retrospective bias (Healey et al. 1986). Moreover, co-word analysis is not dependent on documents' references or on citation indexes. Keyword co-occurrence analysis can be performed in fields "where citing is irregular or absent" (Rip & Courtial, 1984, p. 382), and in research domains "where no citation-index is available" (Raan & Tijssen, 1993, p. 177). It thus visualizes a discipline's structure "directly from the interactions of key terms instead of from the interactions of citations" (Coulter et al., 1998, p. 1207).

Similar to co-citation analysis, co-word analysis has been used by scholars to reveal patterns and trends in different domains, for instance, in chemical engineering (Peters & Raan, 1993a, 1993b), biotechnology (Rip & Courtial, 1984), software engineering (Coulter et al., 1998), but also in strategic management research by analyzing the evolution of the strategy concept (Ronda-Pupo & Guerras-Martin, 2012).

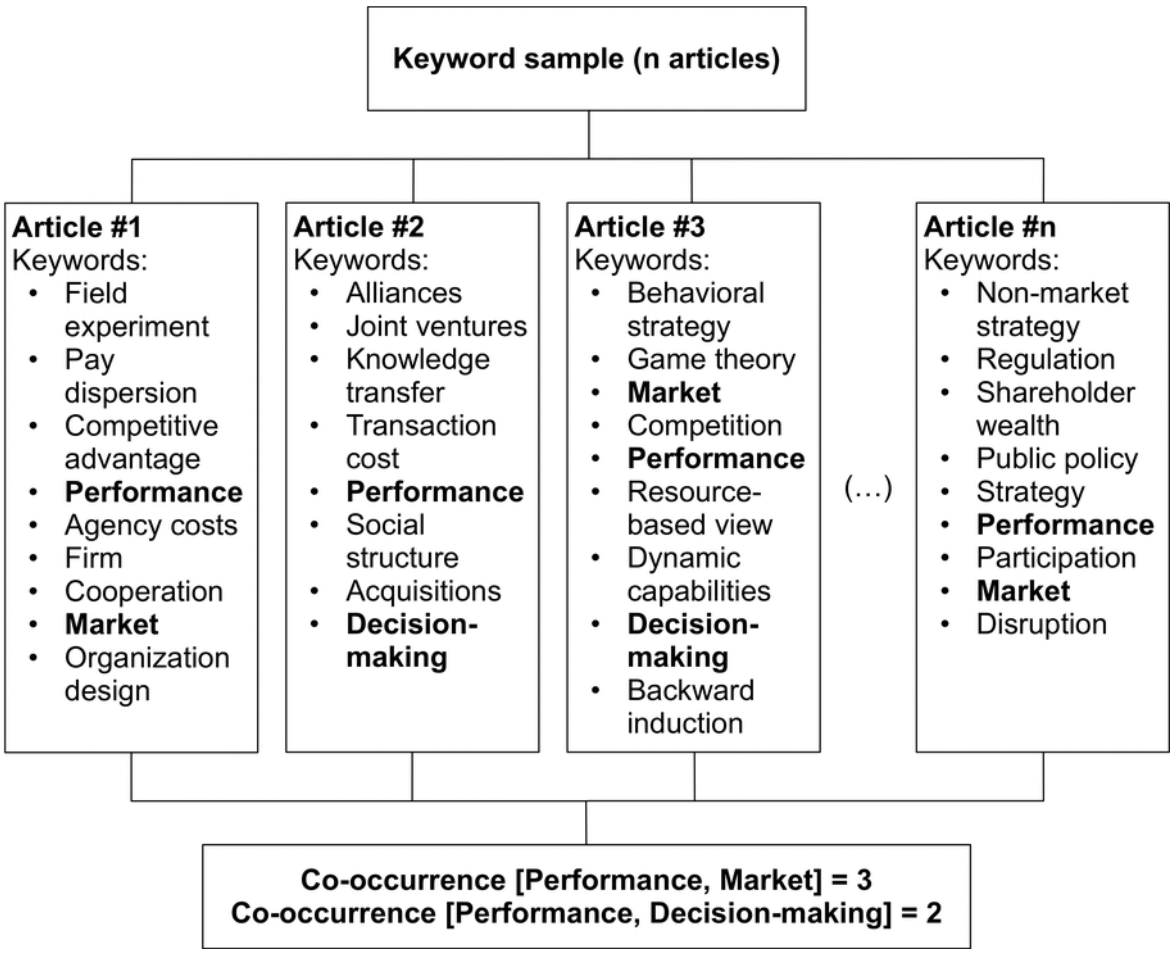

Figure 2: Example of keyword co-occurrence counts

2.1.1.3. Citation analysis

In contrast to co-citation analysis as applied by previous works on strategic management (Nerur et al., 2008; Ramos-Rodriguez & Ruiz-Navarro, 2004) as also applied in this work, a second type of citation analysis is employed here, which refers to the summation of citation counts an article, its author, or the university it originates from, had received between the publication date and the date the bibliographic dataset was downloaded. In this work, this technique is referred to as *citation analysis*. It is similar to that applied by Furrer et al. (2008), who determined the most influential papers and authors in strategic management research for the period 1980-2005.

2.1.2. Steps in a bibliometric mapping analysis

As the main focus of this study lies on the visualization of bibliometric maps, namely on the construction of keyword co-occurrence and co-citation maps, the general process of constructing

such maps shall be explained. Referring to Börner et al. (2003) and Eck & Waltman (2007a), the process of building a map can be divided into the following six steps: 1. extraction of raw data, 2. definition of unit of analysis, 3. selection of relevant information from the raw data, 4. calculation of similarities between units, 5. positioning of units based on similarities, and 6. visualization of the map. This process shall briefly be described.

The first step is to extract raw data. In this step one has to keep in mind that the quality of a bibliometric map is dependent on the quality of the gathered data (Börner et al., 2003).

In the second step of a bibliometric analysis, the unit of analysis has to be defined (Eck & Waltman, 2007a). Common units of analysis are journals, documents, authors or words (Börner et. al., 2003).

In the third step, relevant information is extracted from the data previously collected (Eck & Waltman, 2007a). The relevant information can consist of the number of times authors are cited together in a document, the co-word frequencies within a document, the number of documents that are co-authored or the number of times authors cite each other.

In the fourth step, a calculation of similarities based on co-occurrence frequencies of items is performed (Eck & Waltman, 2007a). There are several approaches for normalizing co-occurrence frequencies. Among these, the cosine measure and the Jaccard index are popular (e.g. Börner et al., 2003; Eck & Waltman, 2007a, 2010; Eck et al., 2010). Recently, several works concluded that a probabilistic measure called association strength is a more appropriate measure for normalizing co-occurrence frequencies (Eck & Waltman, 2007a, 2009; Eck et al., 2010).

In the fifth step, based on the calculation of similarities, the items are placed in a map (Eck & Waltman, 2007a). There are several techniques that can be used to display multidimensional data in a two-dimensional space. Usually, these techniques position related items close to one another, or even group similar items into clusters (e.g. Börner et al., 2003; Eck & Waltman, 2010; McCain, 1984; White & Griffith, 1981; White & Mccain, 1998). To do so, numerous studies applied the method of multidimensional scaling (Eck & Waltman, 2007a), which according to Eck & Waltman (2007) and Eck et al. (2010) does not always provide satisfactory results. Therefore, they propose a method similar to multidimensional scaling termed visualization of similarities (VOS).

The final step is the depiction of a map that results from the fifth step (Eck et al., 2007). The resultant bibliometric maps then serve as a basis for the subsequent reporting and interpretation.

2.2. VOSviewer

For the construction of the bibliographic maps, this work uses the bibliographic mapping software tool VOSviewer, developed by Nees Jan van Eck and Ludo Waltman, which is a tool that enables both the construction and visualization of bibliometric networks (Eck & Waltman, 2010).

VOS, which is an abbreviation for *visualization of similarities,* is a rather new bibliographic mapping technique (Eck & Waltman, 2007a, 2007b). VOSviewer's functionality and the process of the creation of a bibliometric map shall subsequently be described. The following subsections will be closely inspired by van Eck's and Waltman's scientific work relating to the description of their program.

In contrast to other bibliographic mapping programs VOSviewer focuses on "the graphical representation of bibliometric maps" (Eck & Waltman, 2010, p. 536). Eck & Waltman (2018, p. 3) describe VOSviewer's functionality as follows:

"*Creating maps based on network data.* A map can be created based on a network that is already available, but it is also possible to first construct a network. VOSviewer can be used to construct networks of scientific publications, scientific journals, researchers, research organizations, countries, keywords, or terms. Items in these networks can be connected by co-authorship, co-occurrence, citation, bibliographic coupling, or co-citation links. To construct a network, data from Web of Science, Scopus, PubMed, RIS, or Crossref JSON files can be used. *Visualizing and exploring maps.* VOSviewer provides three visualizations of a map: The network visualization, the overlay visualization, and the density visualization."

2.2.1. Types of visualizations

VOS viewer offers three possibilities to visualize bibliometric networks: network visualization, overlay visualization and density visualization. For the purpose of this thesis, only network visualization is applied, as according to Eck & Waltman (2010, p. 528), this type of visualization is "particularly useful for a detailed examination of a map". That is why it shall only be elaborated on this way of displaying a map.

The stronger an item contributes to structure the field examined, the bigger the size of its label and the bigger its circle. The distances between two items are indicators of their relatedness. The strongest links between items are furthermore represented by lines. Items that frequently co-occur together tend to lie closer together than items that do not. The colors of the map, which are automatically assigned, display different clusters of items that frequently co-occur together.

2.2.2. VOS mapping technique versus multidimensional scaling

The VOS mapping technique presents an alternative to the popular method of multidimensional scaling (MDS) (Eck & Waltman, 2010). The aims of MDS and VOS are the identical: both techniques strive "to locate items in a low-dimensional space in such a way that the distance between any two items reflects the similarity or relatedness of the items as accurately as possible"

(Eck et al., 2010, p. 2407). The main difference between both techniques as explained by Eck et al. (2010) is, that unlike MDS, VOS gives different weights to item pairs depending on their similarity. This, according to Eck et al. (2010), does not result in circular maps in which key items are placed in the mid and minor items on the edges of a map, as it is done in MDS. In that regard, Eck et al. (2010) argue that compared to maps that apply the MDS approach, maps produced by using the VOS mapping technique better represent the underlying dataset.

2.2.3. Construction of a map

With reference to Eck & Waltman (2010), the actual process of the creation of a bibliometric map starts after the first three steps of a bibliometric mapping analysis (extraction of raw data, definition of unit of analysis and selection of the relevant information from the raw data) have been completed: the prerequisite for the construction of a bibliometric map is thus a co-occurrence matrix based on which a similarity matrix by using the association strength is obtained. Next, based on the obtained similarity matrix, a bibliometric map is calculated by means of the VOS mapping technique. Finally, translation, rotation and reflection of the map take place. The subsequent description of this process is closely inspired by Eck & Waltman (2010).

2.2.3.1. Step 1: similarity matrix

"The VOS mapping technique requires a similarity matrix as input. A similarity matrix can be obtained from a co-occurrence matrix by normalizing the latter matrix […] Using the association strength, the similarity s_{ij} between two items i and j is calculated as:

$$s_{ij} = \frac{c_{ij}}{w_i w_j}, \qquad (1)$$

where c_{ij} denotes the number of co-occurrences of items i and j and where w_i and w_j denote either the total number of occurrences of items i and j or the total number of co-occurrences of these items." (Eck & Waltman, 2010, p. 531).

2.2.3.2. Step 2: VOS mapping technique

In this step, based on the construction of the similarity matrix, a map is built (Eck & Waltman, 2010). n connotes "the number of items to be mapped. The VOS mapping technique constructs a two-dimensional map in which the items $1,\ldots,n$ are located in such a way that the distance

between any pair of items i and j reflects their similarity s_{ij} as accurately as possible". (Eck & Waltman, 2010, p. 531) "Items that have a high similarity should be located close to each other, while items that have a low similarity should be located far from each other. The idea of the VOS mapping technique is to minimize a weighted sum of the squared Euclidean distances between all pairs of items. The higher the similarity between two items, the higher the weight of their squared distance in the summation. To avoid trivial maps in which all items have the same location, the constraint is imposed that the average distance between two items must be equal to 1. In mathematical notation, the objective function to be minimized is given by

$$V(\boldsymbol{x_1}, \ldots, \boldsymbol{x_n}) = \sum_{i<j} s_{ij} \|\boldsymbol{x_i} - \boldsymbol{x_j}\|^2, \quad (2)$$

where the vector $\boldsymbol{x_i} = (x_{i1}, x_{i2})$ denotes the location of item i in a two-dimensional map and where $\|\bullet\|$ denotes denotes the Euclidean norm. Minimization of the objective function is performed subject to the constraint

$$\frac{2}{n(n-1)} \sum_{i<j} \|\boldsymbol{x_i} - \boldsymbol{x_j}\| = 1. \quad (3)$$

The constrained optimization problem of minimizing (2) subject to (3) is solved numerically in two steps. The constrained optimization problem is first converted into an unconstrained optimization problem. The latter problem is then solved using a so-called majorization algorithm. [...] To increase the likelihood of finding a globally optimal solution, the majorization algorithm can be run multiple times, each time using a different randomly generated initial solution." (Eck & Waltman, 2010, pp. 531f)

2.2.3.3. Step 3: translation, rotation and reflection

"The optimization problem discussed in Step 2 does not have a unique globally optimal solution. This is because, if a solution is globally optimal, any translation, rotation, or reflection of the solution is also globally optimal. [...] It is of course important that VOSviewer produces consistent results. The same co-occurrence matrix should therefore always yield the same map (ignoring differences caused by local optima). To accomplish this, it is necessary to transform the solution obtained for the optimization problem discussed in Step 2. VOSviewer applies the following three transformations to the solution: *Translation:* The solution is translated so that it becomes centered at the origin. *Rotation:* The solution is rotated so that the variance on the horizontal dimension is maximized. This transformation is known as principal component analysis. *Reflection:* If the median

of $x_{11}, \ldots, x_{n1}$ is larger than 0, the solution is reflected in the vertical axis. If the median of $x_{12}, \ldots, x_{n2}$ is larger than 0, the solution is reflected in the horizontal axis." (Eck & Waltman, 2010, p. 532)

3. Determination of research results

Now that this research's methodology has been explained, in this section the process of the determination of research results and the building of the bibliometric maps shall be elucidated. The basis for this analysis are the ten management journals that received the most *Web of Science* citations in the past years. With the exception of *Strategic Management Journal* from which all articles published in the last decade were extracted, the relevant articles published in the other nine journals were identified by means of keyword searches. The bibliographic data of the extracted 2,987 articles was then imported to VOSviewer to create bibliometric maps which were then analyzed.

3.1. Extraction of relevant articles

The top-ten most frequently cited academic journals in 2016 in the category *Management* tracked by the *Social Sciences Citation Index (SSCI)* are utilized in this work. These journals and in turn the bibliographic records for the analysis were obtained via *Web of Science*.

3.1.1. Selected journals

There exist few bibliometric studies that have analyzed the structure and the evolution of the strategic management domain (Furrer et al., 2008; Keupp et al., 2012; Nerur et al., 2008; Ramos-Rodriguez & Ruiz-Navarro, 2004; Ronda-Pupo & Guerras-Martin, 2012; White et al., 2016). These studies employed different approaches regarding the selection of journals and articles to analyze. The unifying feature of these works, however, is that at first it was chosen which journals to consider and only then which articles to include in the subsequent analysis.

In their document co-citation analysis, Ramos-Rodriguez & Ruiz-Navarro (2004) selected all articles published in the *Strategic Management Journal* from 1980 to 2000. Nerur et al. (2008) build up on Ramos-Rodriguez & Ruiz-Navarro (2004) by considering only the most cited authors who published in the *Strategic Management Journal* between 1980 and 2000. From *Web of Science*,

they then obtained a file for each of the most cited authors containing cited references, which allowed them to retrieve not just articles published in the *Strategic Management Journal* but all the articles listed in the above mentioned indexes in a given period that cite at least one work of the respective author. In their analysis of the evolution strategic management research. Furrer et al. (2008) chose the *Strategic Management Journal*, *Academy of Management Journal*, *Academy of Management Review* and *Administrative Science Quarterly* for their bibliometric analysis. In their study, they selected every article published between 1980 and 2005 in the *Strategic Management Journal*, "because of its specific focus on strategic management" (Furrer et al., 2008, p. 5). For the other three journals, due to their broader scope, Furrer et al. selected only those papers which explicitly addressed strategic management by investigating the titles and abstracts of these papers. For their co-word analysis study about the evolution of strategic management, Ronda-Pupo & Guerras-Martín (2012) selected 91 definitions of the term *strategy* formulated between 1962 and 2008, from journals and books in the area of strategy and management. In their review about the strategic management of innovation, Keupp et al. (2012) also utilize the four journals chosen by Furrer et al. (2008) and additionally add *Journal of Management*, *Organization Science* and *Management Science*. They therefore collected all issues of these journals from 1992 to 2010 and then filtered out the relevant articles by applying keyword searches within the dataset and then by reading through the titles and abstracts of the remaining articles.

In this study, the ten most frequently cited journals in 2016 listed in the category *Management* in the *Social Sciences Citation Index (SSCI)* are utilized. As evidenced from the *SSCI,* these journals consistently have made up the nucleus of management research within the recent years. Moreover, the majority of these journals already ranked at the very top in the *SSCI* index two decades ago. The selection of these ten journals is thus considered as appropriate.

The seven journals utilized by Keupp et al. (2012) are thus complemented by the *Journal of Applied Psychology* (which has, in terms of total citations, ranked first in the category *Management*), *Research Policy* and *MIS Quarterly*. This work thus covers the following journals: *Journal of Applied Psychology (JAP)*, *Academy of Management Journal (AMJ)*, *Academy of Management Review (AMR)*, *Strategic Management Journal (SMJ)*, *Management Science (MS)*, *Research Policy (RP)*, *Organization Science (OS)*, *Journal of Management (JOM)*, *Administrative Science Quarterly (ASQ)* and *MIS Quarterly (MIS)*. Table 1 shows the top-ten most frequently cited journals in the category *Management* in 2016 tracked by the *Social Sciences Citation Index* utilized in this work.

Similar to Ramos-Rodriguez & Ruiz-Navarro (2004) and Furrer et al. (2008) every article published in the *Strategic Management Journal* between 2008 and 2017 is selected for the purpose of this study, which is due to its specific focus on strategic management. Similar to Furrer et al. (2008), for the other nine journals, whose focus is wider than strategic management, only those articles published between 2008 and 2017 that are explicitly on strategic management topics

are considered. That is why, consistent with Keupp et al. (2012) it was decided to perform keyword searches within all articles of these nine journals. Only those articles which contained the term *strateg** in title, abstract or keywords were retained. This approach shall ensure that the focus is put on the strategic management domain on the one hand, and that the perspective on the field does not become constricted, on the other hand.

Table 1:
The top-10 most cited management journals in 2016

Rank	Journal title	Total citations
1	Journal of Applied Psychology	31146
2	Academy of Management Journal	30777
3	Academy of Management Review	27906
4	Strategic Management Journal	27588
5	Management Science	26642
6	Research Policy	17032
7	Organization Science	16459
8	Journal of Management	16268
9	Administrative Science Quarterly	15273
10	MIS Quarterly	14561

3.1.2. Selected articles

The bibliographic data of the articles published by the ten journals between 2008 and 2017 was obtained from *Web of Science Core Collection* on August 28th, 2018. The search query by which the dataset was obtained looks as follows:

SO=("Strategic Management Journal") AND PY=(2008-2017) OR (SO=("Academy of Management Journal") OR SO=("Academy of Management Review") OR SO=("Journal of Management") OR SO=("Journal of Applied Psychology") OR SO=("Management Science") OR SO=("Organization Science") OR SO=("Administrative Science Quarterly") OR SO=("Research Policy") OR SO=("MIS Quarterly")) AND TS=(strateg) AND PY=(2008-2017).*

For every article the full bibliographic record (author, title, source, abstract and cited references) was downloaded in a tab-delimited file format. Only research articles and review articles were considered, while editorials were not. It was also refrained from including proceedings papers since they are not as heavily refereed as journal articles.

In total, 2,987 articles were identified. Table 2 shows the number of articles per journal and year. *Strategic Management Journal* by far published the most articles in the period 2008 to 2017. Its articles account for about 33% of the articles contained in the dataset. Moreover, regarding the total number of articles published per year, it can be inferred that the number of articles related to strategic management has grown by 50 per cent within the recent ten years. This pattern can be also be observed in Figure 3.

Table 2:
Number of articles published per journal and year

Year	JAP	AMJ	AMR	SMJ	MS	RP	OS	JOM	ASQ	MIS	Total
2008	6	27	14	70	44	30	22	17	4	6	240
2009	16	16	5	69	55	43	33	15	4	10	266
2010	3	21	7	74	43	31	37	16	5	8	245
2011	10	19	9	73	45	26	43	27	6	11	269
2012	6	19	7	78	44	39	33	29	3	14	272
2013	5	26	13	89	52	34	39	31	3	21	313
2014	9	18	6	122	48	42	42	23	4	9	323
2015	6	27	11	121	41	38	31	29	4	11	319
2016	12	31	11	153	48	42	40	29	7	7	380
2017	12	34	6	139	55	28	26	40	5	15	360
Total	85	238	89	988	475	353	346	256	45	112	2987

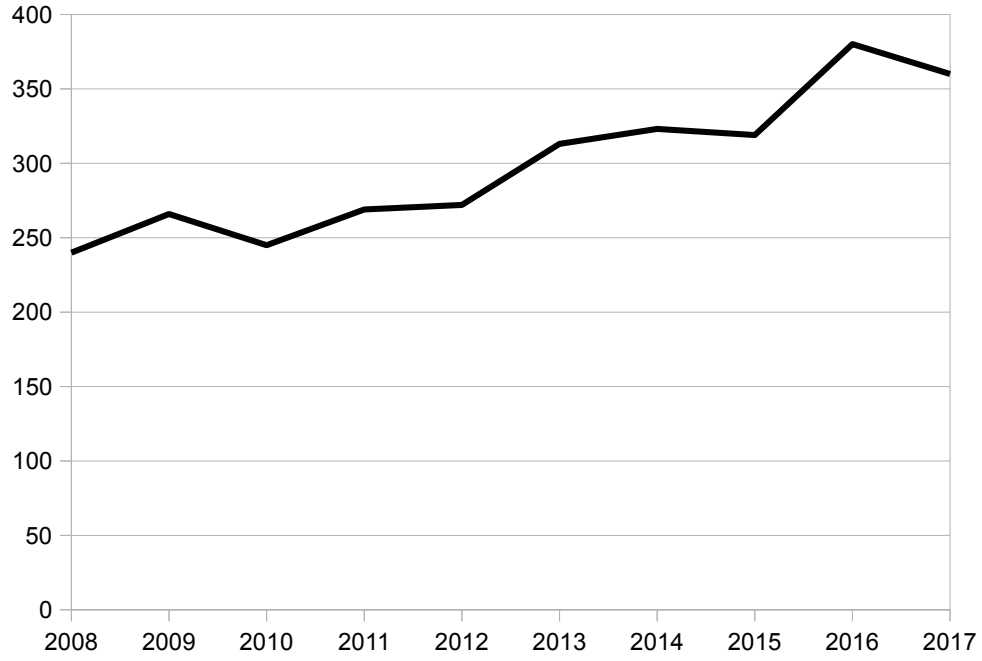

Figure 3: Number of strategic management articles published per year

3.2. Selection of type and item to analyze and selection of the relevant information

Next, it was decided which item of the gathered bibliometric records to analyze and which information from the respective items to select. It was decided to analyze words via keyword co-occurrence analysis, articles, sources, authors, organizations and countries via citation analysis and cited articles, authors and sources by means of co-citation analysis.

3.2.1. Analysis of words via keyword co-occurrence analysis to determine the structure and the salient concepts of past decade's strategic management research

To map the structure and the salient topics of research conducted within the past decade it was firstly chosen to analyze words, more precisely keywords, by applying keyword co-occurrence analysis. Therefore, the downloaded *Web of Science* files were imported to VOSviewer to extract the co-occurrence frequencies of every two keywords from the articles' keywords.

Among other custom weight attributes it could be determined if to analyze only author keywords, which are provided by an article's author or *KeyWords Plus*, which are extracted by *Clarivate Analytics* (which hosts *Web of Science*) from the titles of bibliographic references of the respective articles and thus supply additional search terms to author keywords (Garfield, 1990), or to utilize both types of keywords. Bearing in mind that according to Garfield (1990, p. 296), *KeyWords Plus* "go into far more detail, describing the articles' contents with greater depth and variety", and that articles published by journals like *Academy of Management Journal* or *Academy of Management Review* are not equipped with author keywords, it was chosen to utilize both author keywords and KeywordsPlus for the construction of the keyword co-occurrence map. If a particular keyword appeared in both author keywords and *KeyWords Plus*, VOSviewer counted the keyword only once. The procedure applied here, is in line with Volberda et al. (2010) who analyze the concept of absorptive capacity by means of a keyword co-occurrence analysis: they also used articles' author keywords and *KeyWords Plus* as a basis for their analysis.

It was decided to only incorporate those keywords in the analysis that appeared at least 50 times within the dataset's articles keywords, which shall ensure sufficient readability and interpretability of the keyword map. In doing so, the potential of "noise" (Peters & Raan, 1993a), which refers to the disturbance of the map's interpretability by minor concepts, and of redundancy (Peters & Raan, 1993a) that emerges form setting low thresholds, which in turn results in highly settled maps with several redundant terms, should be counteracted.

Finally, in order to outline the discipline's evolution within the past three decades as well as the historical development of past decade's key conceptual elements, two further keyword co-occurrence analyses for the periods 1988-1997 and 1998-2007 have been performed.

3.2.2. Analysis of cited documents, authors and sources via co-citation analysis to determine the intellectual foundations of past decade's strategic management research

Secondly, it was decided to examine the references of the dataset's articles. More precisely, the articles, authors and sources cited by the articles contained in the dataset were analyzed. This was done by means of co-citation analysis. Therefore, the *Web of Science* files were imported to VOSviewer again in order to extract the co-citation frequencies of every two documents, authors and sources from the dataset's articles reference lists.

To ensure both sufficient clarity of the co-citation maps and to avoid the potential of noise, it was decided to only incorporate bibliographic references that are cited at least 50 times, authors that are cited at least 100 times and sources that are cited at least 200 times by the articles contained in the dataset.

For the purpose of outlining the historical development of past decade's key intellectual foundations, two further co-citation analyses for the periods 1988-1997 and 1998-2007 have been performed.

3.2.3. Determination of the major topics and articles within the key-concepts recognized by the keyword co-occurrence analysis, and identification of the dataset's most influential articles, authors, and universities

In order to identify last decade's most influential contributions within the salient conceptual elements identified by keyword co-occurrence analysis, citation analyses were applied. Another citation analysis was performed in order to obtain the most influential articles within the 2,987 articles included in the dataset. To recapitulate: like in co-citation analysis, it was relied upon summed citation counts. However, in contrast to co-citation analysis, which examines the references of the dataset's articles, citation analysis, as applied in this context, refers to the citations an article included in the dataset received in *Web of Science* until the date the dataset was downloaded.

Specifically, it was relied on citations per year. That is, the total citation counts of each paper were divided by the number of years the respective paper existed at that date. This shall correct for

the fact that later published papers have less time to create an impact among a field (an article published in 2014 has less time to receive citations than an article published in 2008). This procedure is in line with Furrer et al. (2008). Citation analyses were also performed in order to identify the past decade's most influential authors and research institutions (in terms of absolute citations) that contributed to the 2,987 articles included in the dataset for the period 2008-2017.

3.3. Calculation of similarities, positioning of items and visualization

For both the keyword co-occurrence maps and the co-citation maps, VOSviewer then calculated the similarities between objects. Subsequently, the program calculated the positions of the items based on the similarities calculated before and finally displayed two-dimensional bibliographic maps.

3.4. Data cleaning and calculation of the final maps

The resultant item lists (that list the occurrence frequencies of the map's items) obtained were then cleaned by the application of VOSviewer thesaurus files. Thesaurus files were applied to merge different variants of keywords or cited references (e.g. author names or names of organizations) (Eck & Waltman, 2018). Moreover, they were applied to ignore general keywords (e.g *empirical analysis* or *model*) (Eck & Waltman, 2018). Thesaurus files have to be constructed in Microsoft Excel and then saved as a tab-delimited text file so that they can be imported to VOSviewer.

In this bibliometric mapping analysis, VOSviewer thesaurus files have been used to merge different variants of journal titles, reference titles, author names, organization names and keywords.

Since in the analysis of keywords, the minimum threshold of keywords to be considered was set at 50, only keywords that occurred at least 50 times could be considered in the data cleaning process that was performed after the initial keyword map had been created. This threshold was chosen in order to ensure sufficient clarity of the keyword map and to counteract VOSviewer's tendency to label only the few top significant items in dense and heavily interconnected networks. The thresholds set for co-citation analysis were 50 for cited documents, 100 for cited authors, and 200 for cited sources. These thresholds have proved to ensure sufficient readability and interpretability.

Naturally, the data cleaning process could only be performed for those items that fulfilled the respective thresholds. Items that were below the respective thresholds were ignored in the data-cleaning process, which should not have caused serious problems: To check for this, the whole procedure was performed with smaller thresholds as well (i.e. 5, 10, 20). However, the rankings of the key items in the maps did not significantly change.

After having incorporated the thesaurus files into VOSviewer, the maps were computed again. The resultant new maps serve as the basis for the subsequent evaluation and discussion. For the sake of clarity, only the 500 strongest links between items are shown in both the keyword co-occurrence maps and the co-citation maps.

4. Research results and analysis

As previously highlighted, apparently, no bibliometric study that focuses on the assessment of strategic management research conducted in the past ten years has been published yet. This study thus takes this dearth into account, providing an overview of research conducted between 2008 and 2017.

This section is divided into three parts. First, by means of a keyword mapping analysis the frequencies of the keywords that were assigned to the 2,987 identified articles published between 2008 and 2017 are determined. The keywords that have been applied most frequently in strategic management research of the last ten years are considered as key conceptual elements. These key concepts are subsequently discussed by building on the most influential articles addressing the respective key elements. Furthermore, the interrelationships between the concepts are outlined. Additionally, the evolution of the discipline as well as the historical development of past decade's key conceptual elements will be discussed. Additionally, past decade's most influential articles – in terms of citations they received in *Web of Science* – among those 2,987 contributions identified, will be presented and discussed. Within this context, the most influential authors and universities will be delineated as well. Via co-citation analysis, the references of the identified articles will be evaluated. Specifically, the focus will be put on documents most frequently cited by the 2,987 articles, which thus can be considered as the intellectual foundations of past decade's strategic management research (e.g. Nerur et al., 2008; Ramos-Rodriguez & Ruiz-Navarro, 2004). In that regard, concepts which most heavily impacted past decade's strategic management research, and the historical development of these concepts will be discussed as well. The results obtained in these analyses shall complement as well as validate each other.

4.1. The structure and the key conceptual elements of past decade's strategic management research

By mapping the keywords that were applied in strategic management research in the past ten years, the structure and the salient concepts of the last decade will be determined. First, the resultant keyword co-occurrence map and the most frequently applied concepts shall be outlined. Second, by means of keyword searches for the identified concepts within the dataset's most influential articles (in terms of *Web of Science* citations they received), the respective conceptual elements shall be discussed in detail. The interrelationships between these concepts will be taken into account as well. Finally, the evolution of the discipline's structure and the historical development of the identified concepts will be outlined.

4.1.1. The structure of the keyword co-occurrence map

The keyword co-occurrence map in Figure 4 displays the structure of the strategic management domain in the period 2008-2017 in terms of the dataset's articles author keywords and *KeyWords Plus*. Keywords have to occur at least 50 times in order to be considered. Table 3 presents the top-50 concepts of the past decade.

The stronger an item contributes to structure the field, that is, the more often a keyword is found in articles' abstracts, the bigger the size of its label and the bigger its circle. The distances between two items are indicators of their relatedness. The strongest links between items are furthermore represented by lines. The colors of the map, which are automatically assigned, display different clusters of keywords that frequently co-occur together.

The keyword map presented in Figure 4 consists of six clusters. It can be inferred that there is a moderate agreement between the keyword map's structure and the clustering obtained (Eck & Waltman, 2010). There is some overlapping of clusters in some areas of the map, implying a high level of interconnectedness between the clusters. The map displays the 68 keywords that fulfilled the threshold of having at least 50 occurrences, and the 500 strongest co-occurrence linkages between these items. Terms which are not exclusively related to strategic management, and which were thus not considered as vital for the analysis, such as *model*, *perspective*, or *impact*, were excluded.

The top area comprises terms such as *strategy*, *industry*, *market* and *competition*. This area is mainly made up by cluster 1. The right hand-side of the map, which is primarily taken up by cluster 3, features terms such as *performance*, *management*, *governance* and *decision-making*. The lower area of the keyword map, which is dominated by cluster 2 contains keywords such as *competitive*

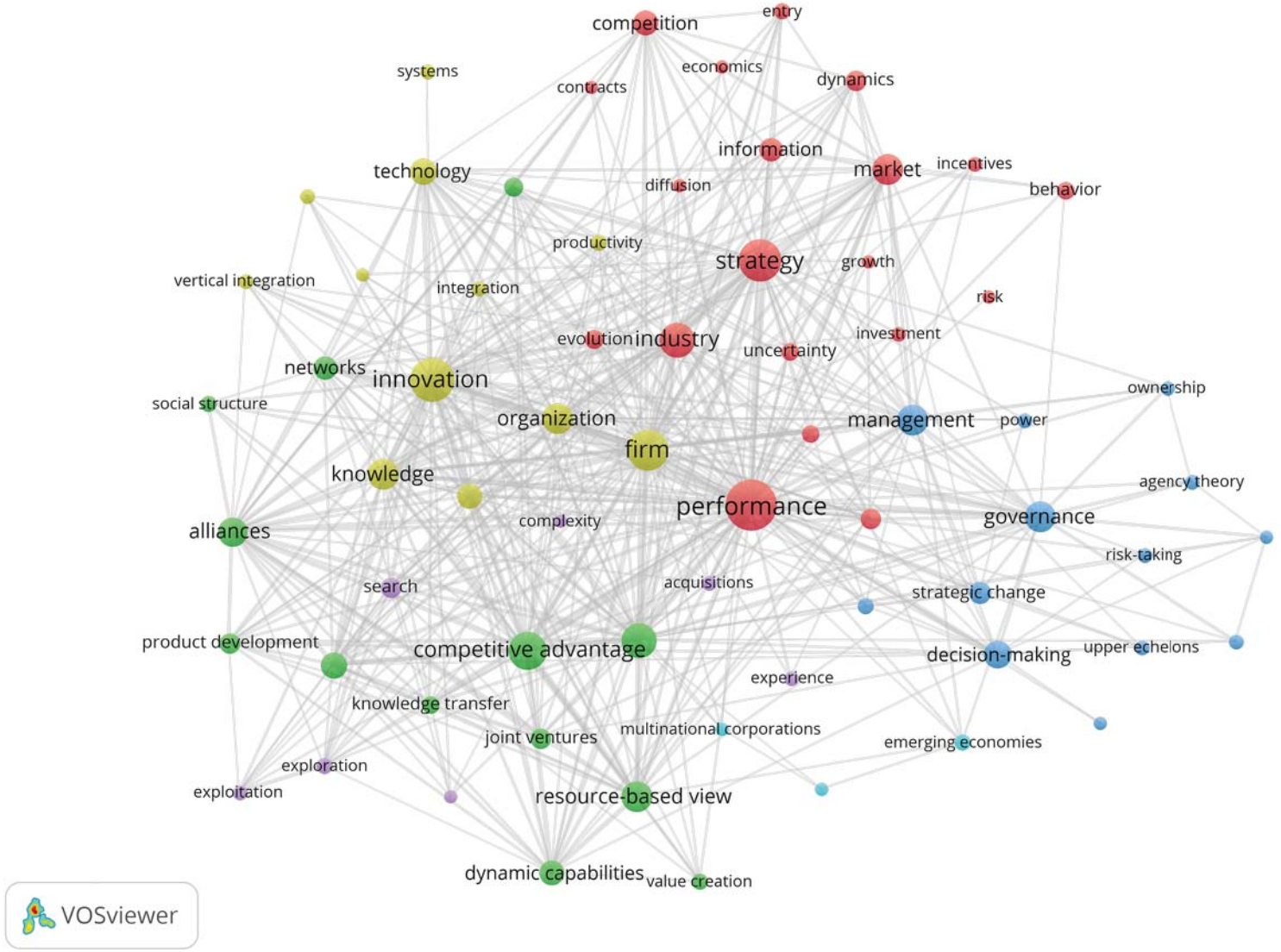

Figure 4: The keywords (concepts) used to index articles published in strategic management research in the period 2008-2017 and their interconnectedness (threshold to be included in the map is 50 occurrences). Cluster 1=red, cluster 2=green, cluster 3=blue, cluster 4=yellow, cluster 5=violet, cluster 6=turquoise.

Table 3:
The concepts in the period 2008-2017

Rank	Keyword	Occurrences	Cluster
1	performance	703	1
2	innovation	518	4
3	strategy	505	1
4	firm	456	4
5	competitive advantage	389	2
6	research and development	353	2
7	industry	333	1
8	management	276	3
9	knowledge	268	4
10	market	268	1
11	resource-based view	262	2
12	governance	261	3
13	organization	260	4
14	alliances	244	2
15	decision-making	211	3
16	absorptive capacity	193	2
17	technology	191	4
18	dynamic capabilities	183	2
19	competition	181	1
20	capabilities	169	4
21	networks	159	2
22	information	158	1
23	strategic change	129	3
24	joint ventures	124	2
25	entrepreneurship	122	1
26	search	117	5
27	dynamics	116	1
28	product development	116	2
29	cooperation	107	2
30	evolution	98	1
31	behavior	92	1
32	knowledge transfer	92	2
33	diversification	91	1
34	uncertainty	86	1
35	organizational change	82	3
36	exploration	80	5
37	productivity	80	4
38	social structure	78	2
39	emerging economies	75	6
40	value creation	71	2
41	entry	70	1
42	upper echelons	68	3
43	power	66	3
44	experience	64	5
45	integration	64	4
46	risk-taking	64	3
47	agency theory	63	3
48	acquisitions	62	5
49	investment	62	1
50	ownership	62	3

advantage, *resource-based view* and *dynamic capabilities.* The left-hand side, which is primarily taken up by clusters 2 and 4, features terms such as *innovation*, *knowledge*, *absorptive capacity* and *alliances*.

It was decided to consider those of the 68 mapped keywords that occurred at least 100 times within the dataset's articles as past decade's key conceptual elements and thus to further discuss them in a broader context in the following.

4.1.2. The most influential articles within the identified key conceptual elements

In this section the key conceptual elements obtained through the keyword co-occurrence map for the period 2008 to 2017 (Figure 4) and the corresponding keyword list (Table 3) will be discussed in a broader context. Moreover, the interrelationships between these key concepts will be assessed.

As it is impossible to set up a discussion based on all articles contained in the dataset, it was decided that by building on the results of the keyword co-occurrence map, the central arguments of the dataset's most influential articles in the respective concepts or research fields in terms of citations per year they received in *Web of Science*, are going to be discussed. Despite the fact that, with reference to Ramos-Rodriguez & Ruiz-Navarro (2004), earlier published works have a higher possibility of being cited and that thus, according to them, "influence is a construct that depends on the passing of time" (p. 987), it was decided to adjust for articles' ages, since an up-to-date picture of the strategy domain shall be presented here.

Having obtained the key concepts in strategic management research conducted in the recent ten years from the keyword co-occurrence map in Figure 4, the relevant concepts were each separately added to the aforementioned search query in order to obtain the leading journal articles (in terms of absolute *Web of Science* citations they received) for the subsequent discussion. These queries were performed on August 28th, 2018, the same day the bibliographic data for the bibliographic maps was downloaded. Having retrieved the respective article lists and the total citations these articles received until August 28th, 2018, the citation counts of each paper were divided by the number of years the respective paper had existed at that date (Furrer et al., 2008). This procedure shall correct for the fact that later published papers have less time to create an impact among a field.

Only research articles and review articles were considered, while proceedings papers or editorial papers were ignored. The most influential papers in the respective research areas were identified as those with citation scores per year greater than or equal to 15. The titles, abstracts

and keywords of each contribution that fulfilled the respective threshold were read through in order to decide if to keep or to discard the respective article.

It is apparent that in a multidisciplinary research area such as strategic management, sometimes the same article was obtained by several search queries (i.e. in both the queries for resource-based theory and dynamic capabilities). That is why in such circumstances it was intuitively decided to which topic to allocate the respective article.

4.1.2.1. Performance & competitive advantage

As can easily be inferred from Figure 4 as well as from the Top-50 keywords list in Table 3, the term *performance* played a key role in research conducted in the past decade. *Performance* has 703 occurrences and ranks first, underlining the concept's central role in strategic management literature of the past decade. This dominance is anything but surprising: with reference to Drucker (1986, p. 33), a firm "exists for the sake of economic performance". Referring to Grant (2016, p. 20), "the purpose of strategy is to achieve superior performance". Wheelen & Hunger (2012, p. 15), argue that "the practice of strategic management is justified in terms of its ability to improve an organization's performance".

In the above visualization the term *competitive advantage* (389 occurrences) ranks fifth. In Porter's (1985) seminal book *Competitive Advantage: Creating and Sustaining Superior Performance* not only the term *performance* appears in the title but also the term *competitive advantage* indicating a relationship between these two concepts. According to Porter (1985, p. 3), "competitive advantage grows fundamentally out of value a firm is able to create for its buyers that exceeds the firm's cost of creating it." Barney (1991, p. 102), contends that a firm has "sustained competitive advantage when it is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors and when these other firms are unable to duplicate the benefits of this strategy."

In the above keyword co-occurrence map (Figure 4) *performance* is located in the center indicating its important role in strategic management. *Competitive advantage* is to be found in the lower left area of the map. The link strength between *performance* and *competitive advantage* is 104, which means that these two keywords co-occur 104 times among articles' keywords (author keywords and *KeyWords Plus*). This indicates a strong association.

The concepts of performance and competitive advantage are not going to be discussed in the context of the central arguments of the most influential articles published between 2008 and 2017 as both these keywords are rather general and can be considered, as argued above, as the "overall concepts" in the field and thus can be applied to articles in probably every existant research area within the strategic management discipline.

4.1.2.2. Strategy, firm, industry, market, management, organization, competition, capabilities, information, search, and dynamics

The keywords s*trategy, firm, industry, market, management, organization, competition, capabilities*, *information*, *search,* and *dynamics* which all rank prominently in the keyword co-occurrence map in Figure 4, can be considered as rather general as well and are – similar to performance and competitive advantage – naturally applied to various research streams in the strategy field and thus appear in many contexts within the dataset. That is why these concepts are not going to be elaborated on either.

Most of these concepts are located in the upper half of the map. Several of these elements lie rather close together (i.e. firm, strategy, industry, market) indicating that they are highly related to each other. This is also highlighted by the thickness of the lines between some of these items, which indicates strong linkages (Eck & Waltman, 2018). The term *strategy* (505 occurrences) ranks particularly high. *Firm* (456 occurrences), *industry* (333 occurrences), *management* (276 occurrences), *market* (268 occurrences), *organization* (260 occurrences), *competition* (181 occurrences), *capabilities* (169 occurrences), *information* (158 occurrences), *search* (117 occurrences) and *dynamics* (116 occurrences) apparently have played major roles in past decade's strategic management literature as well. Most of these terms can be considered as the fundamental descriptors of the field – those that already made up the discipline several decades ago, as will be shown in this work.

4.1.2.3. Innovation, research and development, knowledge, absorptive capacity, technology, and product development

Innovation, a term that was firstly introduced by Joseph Schumpeter in 1912, which appears in the left area of the map, apparently has been a key topic in strategic management literature of the past decade.

In this study, the term *innovation* appears 518 times. Concepts such as *research and development* (353 occurrences), *knowledge* (268 occurrences), *absorptive capacity* (193 occurrences, *technology* (191 occurrences), and *product* development (116 occurrences), which center around *innovation*, obviously have been much discussed topics in the past decade as well.

The keyword co-occurrence map (Figure 4) implies that all these concepts have strong linkages to *innovation*, which indicates that they often co-occur with *innovation* among articles' keywords and thus appear to be highly related to this concept. For example, by explicitly searching for *"absorptive capacity*"* within the articles' titles, abstracts and keywords published in the ten chosen journals between 2008 and 2017, it was found that four of the five relevant articles that addressed

absorptive capacity also dealt with *innovation*. Much the similar applied for *research and development, knowledge*, *technology*, and *product development.* For these reasons, it was decided to discuss these concepts in the context of *innovation* to the extent they are addressed within the relevant innovation-articles.

Thus, the search query to obtain articles related to innovation, published between 2008 and 2017, that was performed on August 28th, 2018 (the same day that the whole bibliographic dataset was downloaded from *Web of Science*), looks as follows:

SO=("Strategic Management Journal") AND TS=(innovat) AND PY=(2008-2017) OR (SO=("Academy of Management Journal") OR SO=("Academy of Management Review") OR SO=("Journal of Management") OR SO=("Journal of Applied Psychology") OR SO=("Management Science") OR SO=("Organization Science") OR SO=("Administrative Science Quarterly") OR SO=("Research Policy") OR SO=("MIS Quarterly")) AND TS=(strateg*) AND TS=(innovat*) AND PY=(2008-2017)*.

35 relevant and highly cited articles that fulfilled the threshold of being cited at least 15 times per year and which explicitly focused on innovation were identified and are listed in Table 4. These articles can be placed in the following categories: *alliance networks in the context of innovation* – 6 articles (Adner & Kapoor, 2010; Davis & Eisenhardt, 2011; Gilsing et al., 2008; Gnyawali & Park, 2011; Hess & Rothaermel, 2011; Phelps, 2010), *environmental innovation and sustainability transitions* – 6 articles (Berrone et al., 2013; Coenen et al., 2012; De Marchi, 2012; Markard et al., 2012; Rogge & Reichardt, 2016; Weber & Rohracher, 2012), *open innovation* – 4 articles (Almirall & Casadesus-Masanell, 2010; Berchicci, 2013; Felin & Zenger, 2014; Laursen & Salter, 2014), *absorptive capacity* – 4 articles (Fabrizio, 2009; Lewin, et al. 2011; Tsai, 2009; Zhou & Wu, 2010), *organizational ambidexterity* – 3 articles (Andriopoulos & Lewis, 2009; Raisch & Birkinshaw, 2008; Rothaermel & Alexandre, 2009), *business model innovation* – 3 articles (Bohnsack et al., 2014; Casadesus-Masanell & Zhu, 2013; Zott et al., 2011), *knowledge* – 2 articles (Phelps et al., 2012; Zhou & Li, 2012), *search breadth and innovation success* – 1 article (Leiponen & Helfat, 2010), *young firms' innovation search in a technology cluster* – 1 article (Zhang & Li, 2010), *relatedness and invention in high technology mergers and acquisitions* – 1 article (Makri et al., 2010), *innovation's and differentiation's moderating effects on the association between corporate social performance and firm performance* – 1 article (Hull & Rothenberg, 2008), *innovation in SMEs* – 1 article (Terziovski, 2010), *paradoxes in hybrid organizations* – 1 article (Jay, 2013), and *female representation in top management and firm performance* – 1 article (Dezső & Ross, 2012). In the subsequent paragraphs, the central arguments of these articles shall be presented.

Table 4:
The most influential articles addressing innovation

Rank	Study	Topic	Citations	Citations per year
1	Zott, Amit & Massa (2011)	Review of business model innovation literature	746	93,3
2	Markard, Raven & Truffer (2012)	Review of sustainability transitions literature	522	74,6
3	Raisch & Birkinshaw (2008)	Review of organizational ambidexty literature	636	57,8
4	Adner & Kapoor (2010)	Value creation and innovation challenges in firms‘ ecosystems	380	42,2
5	Andriopoulos & Lewis (2009)	Exploitation-exploration tensions and organizational ambidexterity	398	39,8
6	Leiponen & Helfat (2010)	Search breadth and innovation success	348	38,7
7	Coenen, Benneworth & Truffer (2012)	A spatial perspective on sustainability transitions	263	37,6
8	Phelps, Heidl & Wadhwa (2012)	Review of knowledge networks literature	237	33,9
9	Jay (2013)	Paradoxes in hybrid organizations	185	30,8
10	Phelps (2010)	Alliance networks and exploratory innovation	253	28,1
11	Zhou & Wu (2010)	Technological capability in product innovation	253	28,1
12	De Marchi (2012)	Environmental innovation and R&D cooperation	190	27,1
13	Laursen & Salter (2014)	Firm openness and appropriability strategies	135	27,0
14	Zhou & Li (2012)	Knowledge and radical innovation	177	25,3
15	Gnyawali & Park (2011)	Cooperation and technological innovation	199	24,9
16	Rothaermel & Alexandre (2009)	Ambidexterity in technology sourcing and firm performance	248	24,8
17	Gilsing, Nooteboom, Vanhaverbeke, Duysters & van den Oord (2008)	Alliance networks and innovation	267	24,3
18	Zhang & Li (2010)	New ventures‘ innovation search in a technology cluster	211	23,4
19	Makri, Hitt & Lane (2010)	Relatedness and invention in high technology M&As	203	22,6
20	Hull & Rothenberg (2008)	Innovation‘s and differentiation‘s impact on the corporate social performance-firm performance relationship	238	21,6
21	Dezső & Ross (2012)	Female representation in top management and firm performance	150	21,4
22	Lewin, Massini & Peeters (2011)	A routine-based model of absorptive capacity	168	21,0
23	Terziovski (2010)	Innovation in SMEs	186	20,7
24	Berchicci (2013)	R&D capacity‘s impact on the R&D configuration-innovative performance relationship	124	20,7
25	Rogge & Reichardt (2016)	Policiy mixes and sustainability transitions	61	20,3
26	Weber & Rohracher (2012)	Innovation policies for transformative change towards sustainability	137	19,6
27	Casadesus-Masanell & Zhu (2013)	Sponsor-based business model innovation	114	19,0
28	Fabrizio (2009)	Absorptive capacity and search for innovation	184	18,4
29	Bohnsack, Pinkse & Kolk (2014)	Business models for sustainable technologies	90	18,0

30	Almirall & Casadesus-Masanell (2010)	Open versus closed innovation	156	17,3
31	Tsai (2009)	Absorptive capacity‘s impact on collaboration-product innovation relationships	171	17,1
32	Berrone, Fosfuri, Gelabert & Gomez-Mejia (2013)	Institutional pressures and environmental innovation	97	16,2
33	Felin & Zenger (2014)	Open versus closed innovation	79	15,8
34	Davis & Eisenhardt (2011)	Technology collaboration and innovation	122	15,3
35	Hess & Rothaermel (2011)	Substitutive and complementary value chain activities, and innovation	121	15,1

Articles on cooperation/alliances in the context of innovation

Gilsing et al. (2008) examine how firms' embeddedness in alliance networks impact novelty creation as well its absorption and find that successful exploration requires a balance between these activities. Phelps (2010) investigates the impact of a firm's alliance network structures on its innovation activities and finds that a firm's exploratory innovation is positively affected by the technological diversity of its alliance network partners and that network density positively moderates the focal association.

Adner & Kapoor (2010) explore how innovation challenges affect technology leaders' decisions of introducing new innovations. They find that depending on their position within an ecosystem, challenges in the external firm-environment can either increase or decrease a firm's competitive advantage from technology leadership. Gnyawali & Park (2011) investigate the question of why large firms engage in co-opetition and find that these firms do so in order to handle both technological challenges and opportunities. They further find that co-opetition between large enterprises positively affects the whole industry with regard to both innovation and competition. Davis & Eisenhardt (2011) investigate why some alliances generate innovations and others not, and determine several key mechanisms that shall foster innovation in alliances: "marshalling complementary capabilities from partners, conducting deep and broad search for innovations with a common technological trajectory, and mobilizing diverse participants from the boundary-spanning network linking both organizations" (p. 161). Hess & Rothaermel (2011) address the question of when combinations of value chain activities are substitutes or complements. They find evidence for resource combinations that focus on the same value chain tasks being substitutes because of knowledge superfluity and for resource combinations that link different value chain activities being complements due to knowledge integration.

Articles on environmental innovation/sustainability transitions

De Marchi (2012) assesses how firms' R&D cooperation strategies affect their inclination to engage in environmental innovations and evidences that firms engaging in environmental

innovation are more likely than other innovative firms to cooperate for innovation with external partners. Berrone et al. (2013) find that institutional pressures pertaining environmental issues positively spur companies' environmental innovation, especially in firms with high deficiency gaps.

Markard et al. (2012) aim to assess the intellectual structure of the field of sustainability transitions, which they define as "long-term, multi-dimensional, and fundamental transformation processes through which established socio-technical systems shift to more sustainable modes of production and consumption" (p. 965). Coenen et al. (2012) highlight the lack of spatial dimensions in existing sustainability transitions research and thus aim "to unpick and make explicit sustainability transition geographies from the vantage point of economic geography" (p. 969). Weber & Rohracher (2012) provide guidelines for a broader approach to innovation policy, which shall facilitate transformative changes towards sustainability. Rogge & Reichardt (2016) highlight the role of policies in redirecting and accelerating technological change towards sustainability transitions and thus outline a concept for the assessment of policy mixes.

Articles on open innovation

By studying the moderating effect of firm R&D capacity on the R&D configuration-innovation performance relationship, Berchicci (2013) finds an inverse U-relationship between these factors emphasizing that this effect is stronger for firms with higher R&D capacity. Laursen & Salter (2014) address the paradox of openness which they argue arises due to the fact that "the creation of innovations often requires openness, but the commercialization of innovations requires protection" (p. 867) and report that high attention to appropriability could result in decreased efforts to attract knowledge from external firms in formal innovation collaborations.

Almirall & Casadesus-Masanell (2010) offer a model that aims to resolve the trade-off between the benefits arising form the discovery and the costs arising from divergence of partners in open innovation relationships. Felin & Zenger (2014) provide a framework that shall enable decision-makers to decide which governance forms regarding closed or open innovation to adopt in terms of problem solving and innovation.

Articles on absorptive capacity

Tsai (2009) identifies absorptive capacity as a moderator of the relationships between different types of collaborators at different degrees of product innovation. By investigating the role of firms' absorptive capacity generation and innovation search process, Fabrizio (2009) finds that both investments in internal basic research and collaborations with universities positively affect the pace and quality of innovation outcomes and that this effect is most pronounced if both research activities are applied together. Zhou & Wu (2010) evidence that technological capability has an increasingly positive effect on exploitative innovation but that its impact on explorative innovation declines after a certain point and that strategic flexibility bolsters the positive association between

technological capability and exploration. Lewin et al. (2011) aim to operationalize the absorptive capacity concept by providing a routine-based model of absorptive capacity.

Articles on organizational ambidexterity

Referring to organizational ambidexterity, Andriopoulos & Lewis (2009) suggest a framework for managing exploitation-exploration tensions and present three nested paradoxes of innovation: strategic intent, customer orientation, and personal drivers. Rothaermel & Alexandre (2009) find an inverted U-shaped relationship between a firm's technology sourcing mix of known and new technologies and firm performance, and that absorptive capacity positively moderates the focal relationship. Raisch & Birkinshaw (2008) aim to advance and unite the ambidexterity concept by assessing the various research streams in the organizational ambidexterity literature.

Articles on business model innovation

Referring to sponsor-based business model innovation, Casadesus-Masanell & Zhu (2013) propose a formal model of business model innovation, by focusing on the strategic interactions between incumbent firms and innovative entrants. Bohnsack et al. (2014) find that incumbents and entrepreneurial firms tackle business model innovation differently in that incumbents are more cognitively constrained by path-dependencies than new entrants. In their much cited review article about business model innovation, Zott et al. (2011) highlight the field's disparity and lack of consensus in the relevant literature.

Articles addressing knowledge

Phelps et al. (2012) construct a framework in order to systematically review and assess empirical research about knowledge networks. Zhou & Li (2012) assess the effects of the interaction of knowledge breadth and depth with external market knowledge acquisition and internal knowledge sharing on radical innovation. They find that the "effects of knowledge breadth and depth are contingent on market knowledge acquisition and knowledge sharing in opposite ways." (p.1090).

Other topics addressed by articles in the area of innovation

Leiponen & Helfat (2010) examine the impact of breadth in both innovation objectives and knowledge sources on innovation. Their study evidences that greater breadth of innovation objectives and knowledge sources is related to successful innovation. Zhang & Li (2010) investigate the effect of new ventures' relations to service intermediaries and their product innovation activity in the context of a technology cluster and find that relationships with service intermediaries positively affect new ventures' product innovation activity.

Terziovski (2010) identifies innovation drivers and their performance implications in manufacturing SMEs and finds innovation strategy and formal structure to be positively related to performance of SMEs operating in the manufacturing sector. Dezső & Ross (2012) find that female representation in top management results in higher performance, which however, only applies if an innovation strategy is emphasized. Hull & Rothenberg (2008) find that corporate social performance increases financial performance and that both innovation and differentiation positively moderate this relationship.

By developing a model of relatedness and invention performance of high-technology M&As, Makri et al. (2010, p. 620), find that "firms acquiring others with complementary science and technology knowledge can produce higher quality and more novel inventions."

Jay (2013) proposes a model of navigating paradoxes of performing in hybrid organizations, which "generate ambiguity about whether certain organizational outcomes represent success or failure" (p. 137).

Recapitulation

Based on the presentation of the 35 most influential innovation-related articles' central arguments, several main concepts that appear to be highly relevant within the field of innovation, could be identified. Apparently, various much cited articles published in the past decade revolve around the innovation potentials of firm alliance networks and firm openness, which might explain why in the above keyword co-occurrence map *innovation*, *research and development* and *absorptive capacity* have strong linkages to *alliances*. This finding is in line with Chesbrough (2003a, 2003b) who argues that firms increasingly engage in harnessing external knowledge while reducing their investments in internal R&D. Laursen & Salter (2006, p. 132), by considering that the "role of networks, communities, and linkages has come to the fore in investigations of innovative performance", come to a similar conclusion. Second, environmental innovation and sustainability transitions, which are defined as "long-term, multi-dimensional, and fundamental transformation processes through which established socio-technical systems shift to more sustainable modes of production and consumption" (Markard et al., 2012, p. 956), apparently have been key issues in research addressing innovation as well. Another topic which seems to be essential in innovation literature of the relevant period is business model innovation, which according to Zott et al. (2011) is a rather new but rapidly increasing research filed. Interestingly, the paper by Zott et al. is the paper that received the most *Web of Science* citations among the articles that address innovation published between 2008 and 2017. The concepts of absorptive capacity and organizational ambidexterity apparently have been highly discussed in strategic management literature as well. From both the above keyword co-occurrence map and the 35 identified innovation-related articles that were identified by means of the keyword map's results, it becomes evident that within the field of innovation, research on alliances, sustainability transitions, business

model innovation, open innovation, absorptive capacity, knowledge and organizational ambidexterity appear to be highly influential. Finally, not only from the keyword co-occurrence map in Figure 4 but also from the articles examined, one can further conclude that *innovation* and *performance* are strongly interconnected.

4.1.2.4. Alliances, joint ventures, networks, and cooperation

The term *alliances*, which appears on the left-hand side of the keyword co-occurrence map in Figure 4, obviously has played a major role in past decades' strategic management literature. In the above keyword map the term *alliances* occurs 244 times. The terms *networks*, *joint ventures* and *cooperation* appear 159, 124 and 107 times respectively. According to the keyword map, these concepts are strongly interrelated. They often co-occur in articles' keywords and are obviously often used as synonyms, which is why it was decided to solely add *"alliance*"* to the already known search query.

Seven major articles that fulfilled the respective thresholds and that do not explicitly address issues in the area of innovation were extracted and are listed in Table 5. The obtained articles address the following topics: *alliance portfolio management* – 2 articles (Ozcan & Eisenhardt, 2009; Wassmer, 2010), *alliance governance and inter-firm contracting* – 2 articles (Faems et al., 2008; Hoetker & Mellewigt, 2009), *factors leading to alliance formation* – 1 article (Rothaermel & Boeker, 2008), *alliance ambidexterity* – 1 article (Tiwana, 2008), and *alliance management capability* – 1 article (Schreiner et al., 2009). In what follows, the central findings of these articles are presented.

Table 5:
The most influential articles addressing alliances

Rank	Article	Topic	Citations	Citations per year
1	Ozcan & Eisenhardt (2009)	Firm's creation of high-performing alliance portfolios	260	26,0
2	Wassmer (2010)	Review of alliance portfolio literature	182	20,2
3	Faems, Janssens, Madhok & Van Looy (2008)	Structural and relational aspects in alliance governance	202	18,4
4	Tiwana (2008)	Bridging ties and strong ties in alliance ambidexterity	198	18,0
5	Schreiner, Kale & Corsten (2009)	Alliance management capapbility	172	17,2
6	Hoetker & Mellewigt (2009)	Alliance governance mechanisms and asset types	165	16,5
7	Rothaermel & Boeker (2008)	Complementarities, similarities, and alliance formation	173	15,7

Articles addressing alliance portfolio management

Ozcan & Eisenhardt (2009) find that managers who envisage their firms' alliance portfolios in the context of the whole industry, are more prone to originate high-performing portfolios and based on their findings construct a theoretical framework that shall explain how firms create high-performing portfolios. By highlighting diversity in alliance portfolio research, Wassmer (2010) reviews alliance portfolio research and divides the field into three major areas, namely "emergence, configuration, and management of alliance portfolios" (p. 166).

Articles on alliance governance

Hoetker & Mellewigt (2009) suggest that the optimal combination of formal and relational governance mechanisms in alliances is dependent on the asset type involved. They argue that property-based assets better fit to formal mechanisms, that knowledge-based assets fit best to the application of relational governance mechanisms and that mismatches could impair alliance performance. By investigating the links between structural and relational elements in alliance governance, Faems et al. (2008) propose an integrative perspective on alliance governance and show that both elements are naturally connected and interact with each other within and between transactions.

Articles addressing other topics in the area of alliances

Rothaermel & Boeker (2008) find that the effects of complementarities and similarities on alliance formation between incumbent technology firms and new technology ventures are dependent on certain properties of the new technology firm.

By empirically examining the concept of alliance ambidexterity, Tiwana (2008) finds evidence for a positive association between strong ties and knowledge integration and further evidences "that strong ties complement bridging ties and that their influence on alliance ambidexterity is fully mediated by knowledge integration" (p. 267).

Schreiner et al. (2009), by characterizing alliance management capability "as a multidimensional construct that comprises coordination, communication, and bonding skills" (p. 1408), propose a conceptualization of alliance management capability.

4.1.2.5. Resource-based theory

The resource-based view which was coined by the works of Wernerfelt (1984), Barney (1991) and Peteraf (1993) was highly relevant in the past decade of strategic management research as can be inferred from the above keyword co-occurrence map (262 occurrences). Referring to the keyword map (Figure 4), the term *resource-based view* has strong linkages to *performance* and to *competitive advantage* indicating a strong interconnectedness between these

concepts. This result is in line with the findings of the aforementioned scholars. Barney (1991, p. 103) argues “that the search for sources of sustained competitive advantage must focus on firm resource heterogeneity and immobility.” Peteraf (1993) takes the same line by arguing that “efficient firms can sustain this type of competitive advantage only if their resources cannot be expanded freely or imitated by other firms” (p. 181). Considering the proximity of the keywords *resource-based view* and *competitive advantage* in the keyword co-occurrence map as well as the explanations of the above-mentioned scholars, it can be inferred that there is a positive relationship between the strategic resources of companies and competitive advantage.

The search query to obtain articles in the area of resource-based theory, published between 2008 and 2017, looked as follows:

SO=("Strategic Management Journal") AND (TS=(“resource-based”) OR TS=(RBV) OR TS=(RBT)) AND PY=(2008-2017) OR (SO=("Academy of Management Journal") OR SO=("Academy of Management Review") OR SO=("Journal of Management") OR SO=("Journal of Applied Psychology") OR SO=("Management Science") OR SO=("Organization Science") OR SO=("Administrative Science Quarterly") OR SO=("Research Policy") OR SO=("MIS Quarterly")) AND TS=(strateg) AND (TS=(“resource-based”) OR TS=(RBV) OR TS=(RBT)) AND PY=(2008-2017)*.

Ten articles in the field of resource-based theory that fulfilled the respective thresholds, have been reviewed and are listed in Table 6. The articles extracted address the following topics: *call for advancement of resource-based theory* – 3 articles (Kraaijenbrink, 2010; McWilliams & Siegel, 2011; Sirmon et al., 2011), *empirical testing of the resource-based view* – 2 articles (Crook et al., 2008; Newbert, 2008), *human resources* – 2 articles (Crook et al., 2011; Nyberg et al., 2014), *the relationship between countries’ institutional development and market entry strategies* – 1 article (Meyer et al, 2009), *the role of market orientation and marketing capabilities in explaining firm performance* – 1 article (Morgan et al., 2009) and *the impact of firms’ relations with non-financial stakeholders on financial performance* – 1 article (Choi & Wang, 2009). The key findings of these articles are subsequently presented.

Empirical examination of resource-based theory

Two influential research articles that empirically test resource-based theory were published in the recent ten years (Crook et al., 2008; Newbert, 2008). In particular, these studies address and empirically test the relationship between the above-mentioned concepts, resources, competitive advantage and performance. Newbert (2008) finds empirical evidence of positive relationships

Table 6:
The most influential articles addressing resource-based theory

Rank	Article	Topic	Citations	Citations per year
1	Meyer, Estrin, Bhaumik & Peng (2009)	Countries‘ institutional development and market entry strategies	539	53,9
2	Morgan, Vorhies & Mason (2009)	Market orientation‘s and marketing capabilities‘ contribution to firm performance	339	33,9
3	Kraaijenbrink, Spender & Groen (2010)	Review of principal critiques of resource-based theory	304	33,8
4	Sirmon, Hitt, Ireland & Gilbert (2011)	Conceptualization of a resource orchestration framework	256	32,0
5	Crook, Todd, Combs, Woehr & Ketchen (2011)	Human capital and firm performance	216	27,0
6	McWilliams & Siegel (2011)	Resource-based theory and the strategic value of corporate social responsibility	163	20,4
7	Nyberg, Moliterno, Hale & Lepak (2014)	Review of resource-based perspectives on unit-level human capital	99	19,8
8	Crook, Ketchen, Combs & Todd (2008)	Resource-performance relationship	216	19,6
9	Newbert (2008)	Empirical investigation of resource-based theory	215	19,6
10	Choi & Wang (2009)	Stakeholder relations and financial performance	159	15,9

between valuable and rare resources and capabilities, and competitive advantage. He further finds a positive association between competitive advantage and performance, and the former only to be a mediator of the relationship between rareness and performance, but not of the relationship between value and performance. By finding a significantly positive relationship between firms' possession of strategic resources and performance, Crook et al. (2008) validate the propositions of resource-based theory.

Articles that call for advancement of resource-based theory

Kraaijenbrink et al. (2010) assess the eight key critiques regarding resource based theory and argue that the critiques which concern the indeterminate nature of resource and value, and problems with the theory's narrow explanation of competitive advantage cannot be ignored. In that regard, Kraaijenbrink et al. (2010, p. 350) argue that "the common theme underlying these critiques is that the RBV has clung to an inappropriately narrow neoclassical economic rationality and has thereby diminished its opportunities for making further progress", and suggest that the resource-based view shall be modified in a way that it becomes an "inherently dynamic and subjectivist framework". By connecting resource-based theory, corporate social responsibility and economic models of private provision of public goods, McWilliams & Siegel, (2011) aim to extend resource-based theory to help measure the strategic value of engaging in corporate social responsibility. In that regard, McWilliams & Siegel refer to Kraaijenbrink et al's. (2010) critique addressing the

indeterminate nature of a resource's value and thus by analyzing two separate concepts of value, namely the value to consumers and the value to the firm for which they introduce hedonic pricing and contingent valuation, suggest a more specific elucidation of resource value.

By citing the above-mentioned Crook et al. (2008) as well as the aforementioned Kraaijenbrink et al. (2010) study, which both identify a lack of research on the role of managerial actions within resource-based theory, Sirmon et al. (2011) argue that the role of managers is the most underdeveloped element in resource-based theory. Thus, Sirmon et al. (2011) develop a framework that integrates the asset orchestration framework proposed by Helfat et al. (2007) and the resource management framework developed by Sirmon et al. (2007) which they call resource orchestration, with the aim to increase understanding "of how managers' actions to manage a firm's resource portfolio across the breadth, life cycle, and depth of the firm enhances our knowledge of how firms develop the resource-based competitive advantages that allow them to successfully compete against their rivals" (p. 1409).

Human resources

Human resources apparently has played an important role in the academic discourse about resource-based theory in the past decade as well. Crook et al. (2011) find a strong relationship between human capital and performance. By reviewing strategy and strategic human resources literature that employed resource-based theory in assessing the relationship between unit-level human capital resources and unit performance, Nyberg et al. (2014) find that a multidimensional typology of the unit-level human capital resource has developed. By building on their review, they present a theoretical integration of current and future unit-level human capital resources research.

Articles related to resource-based theory that address other topics

Meyer, et al. (2009), by integrating the institution-based view with the resource-based view, examine how market-supporting institutions impact business strategies by investigating the entry strategies of foreign investors entering emerging economies to find out that institutions directly affect entry strategies and that this association is moderated by investors' needs for different types of local resources.

Morgan et al. (2009) investigate the effect of possession of market orientation and marketing capabilities on firm performance and find that these assets have a complementary nature and contribute to firm performance.

By assessing the impact of a firm's relations with its stakeholders on financial performance, Choi & Wang (2009) find that good stakeholder relations both help high performing firms to sustain high profits and poorly performing firms to recover more quickly from weak performance.

4.1.2.6. Dynamic capabilities

Dynamic capabilities (183 occurrences), described as “the firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments” (Teece et al., 1997, p. 516), or “the capacity of an organization to purposefully create, extend, or modify its resource base” (Helfat et al., 2007, p. 1), apparently has been a much discussed topic in strategic management literature as well. Referring to the keyword co-occurrence map in Figure 4, the items *dynamic capabilities*, *resource-based view* and *competitive advantage* are strongly interlinked. This result is in line with research conducted in this area. Viewed in this light, the dynamic capabilities framework builds on resource-based theory (Eisenhardt & Martin, 2000; Morgan et al., 2009; Teece et al., 1997).

The query to obtain relevant articles was performed analogously to the above described ones. The added keyword was *“dynamic capabilit*”*. Twelve highly cited articles fulfilled the respective thresholds. The articles are listed in Table 7. They address the following topics: *conceptual issues with regard to the dynamic capabilites framework* – 6 articles (Barreto, 2010; Danneels, 2011; Drnevich & Kriauciunas, 2011; Helfat & Winter, 2011; Hodgkinson & Healey, 2011; Peteraf et al. 2013), e*mpirical examination of the dynamic capabilities framework* – 2 articles (Danneels, 2008; Schilke, 2014), *managerial capabilities* – 2 articles (Augier & Teece, 2009; Helfat & Peteraf, 2015), *the role of dynamic political management capabilities in explaining effective political strategies* – 1 article (Oliver & Holzinger, 2008) and *microfoundations of performance in dynamic environments* – 1 article (Eisenhardt et al., 2010). The findings of these papers are outlined in the following.

Articles addressing conceptual issues

Peteraf et al. (2013) criticize that the two seminal papers on dynamic capabilities by Teece et al. (1997) and Eisenhardt & Martin (2000) represent contradictory positions and argue that the dynamic capability field “is being socially constructed on the basis of two separate arenas of knowledge and that underlying structural impediments have impeded healthy dialog across the disparate domains” (p. 1406). In that regard Peteraf et al. provide guidance on how to integrate the two views. In his much cited review article, Barreto (2010) assesses the different research streams of dynamic capabilities, highlights the field’s fragmentation and consequently, calls for consolidation of the field.

Helfat & Winter (2011) address the distinction between dynamic and operational or ordinary capabilities and claim that there are no clear boundaries between these capabilities because of the fact that both dynamic and operational capabilites promote different degrees of change. Drnevich & Kriauciunas (2011) find that environmental dynamism negatively moderates the impact of ordinary capabilities and positively moderates the impact of dynamic capabilities on relative firm

performance and that capability heterogeneity positively moderates the contribution of dynamic capabilities to relative firm performance.

Table 7:
The most influential articles addressing dynamic capabilities

Rank	Article	Topic	Citations	Citations per year
1	Barreto (2010)	Review of dynamic capabilites literature	352	39,1
2	Helfat & Peteraf (2015)	Managerial cognitive capabilities	145	36,3
3	Helfat & Winter (2011)	Dynamic and operational capabilities	236	29,5
4	Schilke (2014)	Environmental dynamism‘s impact on the dynamic capabilites-competitive advantage relationship	126	25,2
5	Danneels (2008)	Exploration of new markets and technologies	221	20,1
6	Eisenhardt, Furr & Bingham (2010)	Microfoundations of performance in dynamic environments	179	19,9
7	Oliver & Holzinger (2008)	Dynamic political management capabilities and political strategies	214	19,5
8	Hodgkinson & Healey (2011)	Psychological foundations of dynamic capabilities	150	18,8
9	Drnevich & Kriauciunas (2011)	Ordinary and dynamic capabilities‘ contribution to firm performance	137	17,1
10	Peteraf, Di Stefano & Verona (2013)	Contradictory positions of dynamic capabilites‘ core elements	102	17,0
11	Augier & Teece (2009)	Dynamic capabilities and the role of managers	168	16,8
12	Danneels (2011)	Empirical confrontation of dynamic cababilites theory	124	15,5

By building on Teece’s (2007) explication of the dynamic capabilities framework, Hodgkinson & Healey (2011) criticize that dynamic capabilities research relies upon a cold cognition logic that ignores emotional aspects for strategic adaptation.

Danneels (2011) aims to advance the dynamic capabilities framework by providing a case study that shall give insights into firms’ resource alteration processes and identifies resource cognition as a lacking ingredient in the framework.

Empirical examination of the dynamic capabilites framework

Schilke (2014), by examining how varying environmental dynamism affects the dynamic capabilities-competitive advantage relationship, finds that the effect of dynamic capabilities on competitive advantage is strongest when environmental dynamism is moderate, and lower when environmental dynamism is low or high. Danneels (2008) focuses on marketing and R&D second order competencies which he characterizes “as forms of explorative organizational learning” (p. 536), and empirically assesses the effects of several organizational characteristics on these competencies.

Articles addressing managerial capabilities

Augier & Teece (2009) discuss developments in dynamic capabilities theory and highlight the role of managers within this paradigm "in both identifying and capturing new strategic opportunities, in orchestrating the necessary complementarities and other organizational assets, and in inventing business models and new organizational forms" (p. 410). Helfat & Peteraf (2015) introduce the concept of managerial cognitive capability which, they argue, underlines the fact that capabilities entail the capacity to perform both physical and mental tasks and in that respect, highlight the importance of mental activities for managers confronted with the need to develop and implement strategic change.

Other topics addressed within dynamic capabilities research

Oliver & Holzinger (2008) explain the effective strategic political management of the environment by means of a dynamic capabilities framework and argue that the success of political strategies is dependent on firms' dynamic capabilities.

Eisenhardt et al. (2010) aim to explain the microfoundations of performance in dynamic environments by highlighting the centrality of the tension between efficiency and flexibility as determinants of high performance.

4.1.2.7. Governance

As outlined in the above keyword co-occurrence map, the concept of governance has been a topic of interest as well. Governance occurs 261 times in the keyword co-occurrence map of the past decade. Its item is located in the right area of the keyword co-occurrence map in Figure 4, that addresses topics dealing with top management.

Table 8:
The most influential articles addressing governance

Rank	Article	Topic	Citations	Citations per year
1	Misangyi & Acharya (2014)	Examination of corporate governance mechanisms	91	18,2
2	Gulati & Nickerson (2008)	Interorganizational trust, governance choice and exchange performance	193	17,6
3	Walls, Berrone & Phan (2012)	Corporate governance and environmental performance	115	16,4
4	Goo, Kishore, Rao & Nam (2009)	Service level agreements and relational governance in information technology outsourcing relationships	154	15,4

To obtain papers that address topics relating to governance, the keyword *governance* was added to the aforementioned search query. In the following paragraphs, the central arguments of the most influential articles addressing governance that have not been discussed in other contexts yet, are going to be outlined. Four articles that fulfilled the respective thresholds have been extracted and are listed in Table 8. The following subjects are addressed:

Gulati & Nickerson (2008) assess whether preexisting interorganizational trust complements or substitutes formal governance and find a substitution effect. That is, high levels of interorganizational trust negatively impact formal governance. Besides, Gulati & Nickerson find a complementary relationship between trust and performance. Goo et al. (2009), examine how service level agreements affect relational governance in information technology outsourcing relationships. They find that the former positively influences the latter and further find evidence of complementarity between relational governance and formal contracts.

Misangyi & Acharya (2014) study the interplay between corporate governance mechanisms. They find that the combination of CEO incentives and monitoring as well as the combination of internal and external monitoring contribute to high profits.

By highlighting patterns of fragmentation in empirical research addressing the link between corporate governance and environmental performance, Walls et al. (2012) investigate the relationship between ownership, boards, and management and the interaction between these three domains in an effort to construct a theory of the corporate governance-environmental performance relationship.

4.1.2.8. Decision-making

Similar to *governance*, the concept *decision-making* appears in the right area of the keyword co-occurrence map, which includes concepts related to management. *Decision-making* seems to have played a non-negligible role as well. The keyword *decision making* appears 162 times within the dataset's articles.

Table 9:
The most influential articles addressing decision-making

Rank	Article	Topic	Citations	Citations per year
1	Powell, Lovallo & Fox (2011)	Definition of behavioral strategy	178	22,3
2	Hahn, Preuss, Pinkse & Figge (2014)	Cognitive frames in corporate sustainability	96	19,2
3	Kennedy & Fiss (2009)	Economic and social considerations in adoption decisions	167	16,7

The query to obtain relevant articles was performed analogously to the above described ones. The added keyword was *"decision-mak*"*. Three articles that explicitly address *decision-making* in their titles, abstracts or keywords and that fulfilled the threshold of having at least 15 annual citations, were identified and are listed in Table 9. These three papers discuss the following issues:

By investigating the interaction between economic and social factors in organizational adoption decisions, Kennedy & Fiss, (2009, p. 898), show "that both early and later adopters are affected by logics of efficiency and legitimacy, because they complement rather than conflict with each other."

Hahn et al. (2014) propose a cognitive framing perspective on corporate sustainability and in doing so, aim to promote theorizing regarding managers' decision-making on corporate sustainability issues.

Powell et al. (2011) assess behavioral strategy literature and propose a framework that shall unify the concept. They classify research into three categories which they term reductionist, pluralist, and contextualist schools.

4.1.2.9. Strategic change

Similar to *governance* and *decision-making*, *strategic change* is located in the right area of the keyword co-occurrence map (Figure 4) as well. It occurs 129 times within past decade's strategic management articles.

In order to obtain papers that deal with *strategic change*, the keyword *"strategic change*"* was added to the query. Two articles that explicitly deal with strategic change that fulfilled the respective thresholds were identified and are listed in Table 10. They deal with the following themes.

Table 10:
The most influential articles addressing strategic change

Rank	Article	Topic	Citations	Citations per year
1	Haynes & Hillman (2010)	Board capital's and CEO power's contribution to strategic change	142	15,8
2	Sonenshein (2010)	Managers' and employees' narratives, and strategic change implementation	135	15,0

Haynes & Hillman (2010) find that board capital breadth, which refers to directors' experiences and extra-industry ties, fosters and board capital depth, which refers to directors' embeddedness in the industry the respective firm operates in, hampers strategic change, and that the presence of CEO power weakens the impact of board capital breadth on strategic change.

In a field study of a retailer implementing strategic change, Sonenshein (2010) constructs theory about "how managers interwave narratives to implement strategic change, and how employees

embellish these interwoven narratives to make sense of the change and to narrate their response to it" (p.505).

4.1.2.10. Entrepreneurship

Entrepreneurship also appears to be a non-negligible topic in strategic management literature of the relevant period – the term occurs 122 times in the dataset. It is located in the right area of the keyword co-occurrence map in Figure 4.

Table 11:
The most influential articles addressing entrepreneurship

Rank	Article	Topic	Citations	Citations per year
1	Stam & Elfring (2008)	Intra- and extraindustry social capital's impact on the entrepreneurial orientation-new venture performance relationship	339	30,8
2	Santos & Eisenhardt (2009)	Entrepreneurs' boundary shaping and construction of new markets	288	28,8
3	Tracey, Phillips & Jarvis (2011)	Bridging institutional entrepreneurship	227	28,4
4	Ács, Autio & Szerb (2014)	National systems of entrepreneurship	131	26,2
5	Hmieleski & Baron (2009)	Entrepreneurs' optimism and new venture performance	259	25,9
6	Bercovitz & Feldman (2008)	Organizational change and social learning	267	24,3
7	Short, Ketchen, Shook & Ireland (2010)	Review of the opportunity concept in entrepreneurship literature	208	23,1
8	Keupp & Gassmann (2009)	Review of international entrepreneurship literature	218	21,8
9	Katila, Rosenberger & Eisenhardt (2008)	Entrepreneurs' choices of entering corporate investment relationships	210	19,1
10	Klotz, Hmieleski, Bradley & Busenitz (2014)	Review of new venture teams literature	87	17,4
11	Terjesen, Hessels & Li (2016)	Review of comparative international entrepreneurship	46	15,3

The main arguments of the dataset's most influential articles that address *entrepreneurship* are discussed in the following. By adding *entrepreneur** to the search query, eleven major articles that fulfilled the respective thresholds were extracted. These articles are listed in Table 11. They address the following topics: *international entrepreneurship* – 2 articles (Keupp & Gassmann, 2009; Terjesen et al., 2016), *the association between entrepreneurial orientation and new venture performance* – 1 article (Stam & Elfring, 2008), *new venture teams* – 1 article (Klotz et al., 2014), *entrepreneurs' optimism and new venture performance* – 1 article (Hmieleski & Baron, 2009), *entrepreneurs' organizational boundary-shaping processes and construction of new markets* – 1 article (Santos & Eisenhardt, 2009), *institutional entrepreneurship* – 1 article (Tracey et al., 2011),

entrepreneurs' choices of entering investment relationships – 1 article (Katila et al., 2008), *national systems of entrepreneurship* – 1 article (Ács et al., 2014), *organizational change and social learning* – 1 article (Bercovitz & Feldman, 2008), and *the opportunity concept in entrepreneurship research* – 1 article (Short et al. 2010). The central arguments of these eleven papers are outlined in the subsequent paragraphs.

Articles addressing international entrepreneurship

Keupp & Gassmann (2009) review the international entrepreneurship field and detect "theoretical inconsistencies, conflicting predictions, and knowledge gaps" (p.621), which they consider as impediments for the domain's advancement, and call for consolidation. Terjesen et al. (2016) review research on comparative international entrepreneurship and attest a high level of heterogeneity, fragmentation, and knowledge gaps in content, theory, and methodology within the field.

Articles addressing other issues within entrepreneurship

Stam & Elfring (2008) find that both high network centrality and a large number of ties strengthens the association between entrepreneurial orientation and new venture performance, and that for ventures with few ties, centrality impairs the focal relationship. Hmieleski & Baron (2009) evidence a negative association between entrepreneurial optimism and new venture performance that is more pronounced for experienced entrepreneurs, and in dynamic environments.

By reviewing research on new venture teams, Klotz et al. (2014, p. 250) argue that the field shall develop an understanding of "why some NVTs *(note: New Venture Teams)* but not others, achieve the success that they seek".

Santos & Eisenhardt (2009) present a model of how successful entrepreneurs shape their organizational boundaries applying the processes of claiming, demarcating, and controlling a market.

Tracey et al. (2011), by building on institutional entrepreneurship, aim to provide understanding of "how institutional entrepreneurs draw on elements of multiple existing logics to build a new organizational form with its own distinct logic" (p. 75), which they term bridging institutional entrepreneurship.

Katila et al. (2008) assess the question of when entrepreneurs enter partnerships with high risks of misappropriation. Katila et al. evidence that entrepreneurs do so if they require resources solely provided by established firms and when they are able to effectively protect their property.

By investigating organizational change at the individual level, Bercovitz & Feldman (2008, p. 70) find "that the decision to participate in strategic initiatives is influenced by both social learning prior

to an individual joining the organization, and subsequently, by the individual's exposure to relevant peer behaviors within the organizational subunit."

Ács et al. (2014) introduce a concept of National Systems of Entrepreneurship, which they define as "the dynamic, institutionally embedded interaction between entrepreneurial attitudes, ability, and aspirations, by individuals, which drives the allocation of resources through the creation and operation of new ventures" (p. 479). Building on this concept, Ács et al. (2014) present a method that allows interactions between components within the system, provides contextual grounding for entrepreneurial processes, and helps to identify bottleneck factors that might inhibit performance.

Short et al. (2010) review research addressing the opportunity concept in entrepreneurship literature and point out that existing insights into the concept of opportunity could be enriched by research in other areas.

4.1.2.11. The historical development of past decade's key-conceptual elements and the evolution of the discipline's structure

In order to trace the development of past decade's key conceptual elements discussed above, their rankings in the past decade are compared to those of the two preceding periods (1988-1997 and 1998-2007). Therefore, two further keyword analyses were performed for these periods. To ensure comparability, the same ten journals and thus the same search queries – with the exception of the different time frames – were utilized. As for the keyword analysis for the past decade, the inclusion threshold was set to 50 for both periods.

Table 12 shows the historical development of past decade's top-50 keywords. It only lists concepts that appeared at least 50 times in the datasets for each period. As evidenced in Table 12, the questions of how to obtain sustainable competitive advantage and how to acquire superior performance, unsurprisingly have played key roles in the past three decades. Table 12 further indicates that the concepts *strategy*, *firm*, *industry*, *management*, *organization*, *competition*, and *information* have already been of interest to strategic management research in the preceding two decades. Research on *capabilities*, however, obviously did not play a role in the 1988-1997 period: The basis for research on capabilities was only laid by Teece et al. (1997). The concepts *market*, *search* and *dynamics* apparently were not of importance in this period either.

The comparison of the three decades further suggests that *innovation* has always played a key role in strategic management research, but it can be concluded that its significance slightly increased over time. *Absorptive capacity* obviously was not an issue in the 1988-1997 period: Cohen's and Levinthal's (1990) seminal paper on absorptive capacity was only introduced in 1990.

Table 12:
The historical development of past decade's key conceptual elements

	2008-2017		1998-2007		1988-1997	
	Rank	Occurrences	Rank	Occurrences	Rank	Occurrences
performance	1	703	1	555	1	280
innovation	2	518	4	384	6	108
strategy	3	505	2	448	2	268
firm	4	456	3	425	3	168
competitive advantage	5	389	5	311	8	83
research and development	6	353	17	115	–	–
industry	7	333	6	281	7	106
management	8	276	8	245	4	143
knowledge	9	268	11	191	–	–
market	10	268	13	157	–	–
resource-based view	11	262	10	197	–	–
governance	12	261	25	82	5	112
organization	13	260	7	272	–	–
alliances	14	244	9	201	–	–
decision-making	15	211	34	60	–	–
absorptive capacity	16	193	26	83	–	–
technology	17	191	12	159	13	51
dynamic capabilities	18	183	27	76	–	–
competition	19	181	16	122	12	51
capabilities	20	169	14	146	–	–
networks	21	159	19	101	–	–
information	22	158	22	85	11	52
strategic change	23	129	36	55	–	–
joint ventures	24	124	21	86	–	–
entrepreneurship	25	122	–	–	–	–
search	26	117	–	–	–	–
dynamics	27	116	32	66	–	–
product development	28	116	28	76	–	–
cooperation	29	107	26	78	–	–
evolution	30	98	23	84	–	–
behavior	31	92	20	87	9	60
knowledge transfer	32	92	–	–	–	–
diversification	33	91	18	113	10	60
uncertainty	34	86	31	67	–	–
organizational change	35	82	30	71	–	–
exploration	36	80	–	–	–	–
productivity	37	80	–	–	–	–
social structure	38	78	–	–	–	–
emerging economies	39	75	–	–	–	–
value creation	40	71	–	–	–	–
entry	41	70	33	62	–	–
upper echelons	42	68	–	–	–	–
power	43	66	35	56	–	–
experience	44	64	–	–	–	–
integration	45	64	37	54	–	–
risk-taking	46	64	–	–	–	–
agency theory	47	63	–	–	–	–
acquisitions	48	62	–	–	–	–
investment	49	62	39	50	–	–
ownership	50	62	–	–	–	–

From the next period on, its significance considerably rose and further increased in the past decade (2008-2017). Naturally, *knowledge* was not found to be of importance either in the 1988-1997 period. Probably induced by the works on absorptive capacity (Cohen & Levinthal, 1990), organizational learning (Cohen & Levinthal, 1989; Levinthal & March, 1993; Levitt & March, 1988; March, 1991) as well as the works on firm knowledge (Grant, 1996; Kogut & Zander, 1992), *knowledge* attained prominence in the second period (1997-2008). Similarly, *research and development*, and *product development* only became important conceptual elements in strategic management research in that period. *Technology* apparently has played an important role in strategic management research in all three decades.

The results of the keyword analyses of the three evaluated periods further suggest that beginning with the period 1998-2007 the concepts of *alliances*, *joint ventures*, *networks*, and *cooperation* moved to the fore.

Referring to the historical development of the *resource-based view*, it apparently was not of key interest in the period 1988-1997, but from then on, its significance drastically increased and resource-based theory thus established itself as a key element within the discipline. *Dynamic capabilities*, similar to *capabilities*, apparently did not play a role until the 1998-2007 period. From then on, however, it made a big leap, and established itself as one of the key concepts of strategic management research in the past decade.

The comparison of the three keyword analyses (1988-1997, 1998-2007, 2008-2017) also reveals that *governance* was not of interest to scholars until the second period and from then on however, made a big leap forwards. The comparison further reveals that *decision-making* only began to play an important role in the past decade (2008-2017). The same applies for *strategic change*. *Entrepreneurship* apparently, only became a key research area within the past decade as well.

Overall, the strategic management discipline apparently has experienced enormous growth over time as revealed by the three keyword co-occurrence analyses (1988-1997, 1998-2007, 2008-2017) presented in the following. (The keyword analyses for the periods 1988-1997 and 1998-2007 are not evaluated in detail here, since the focus of this work lies on the past decade.) For the period 1988-1997, 1,347 articles have been identified. The corresponding keyword map assessing this period contains 13 elements (Figure 5). 2,102 articles have been identified for the period 1998-2007. The corresponding keyword map comprises 39 elements (Figure 6). That assessing the period 2008-2017, which has also been presented above (Figure 4), contains 68 keywords obtained from 2,987 articles (Figure 7).

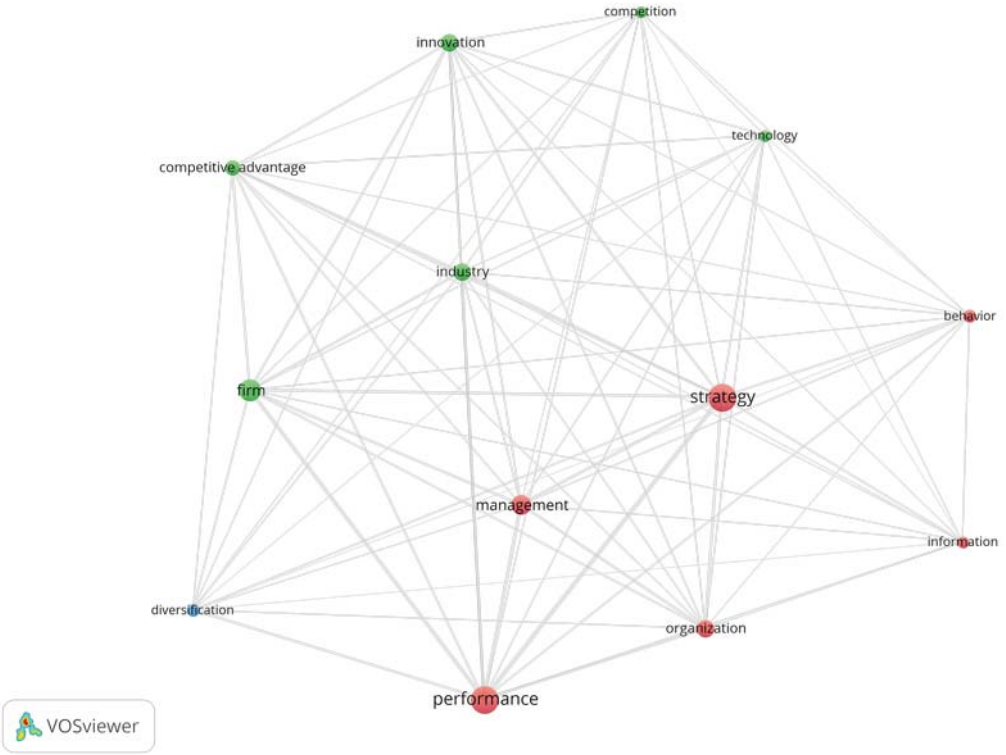

Figure 5: The discipline's structure in the period 1988-1997

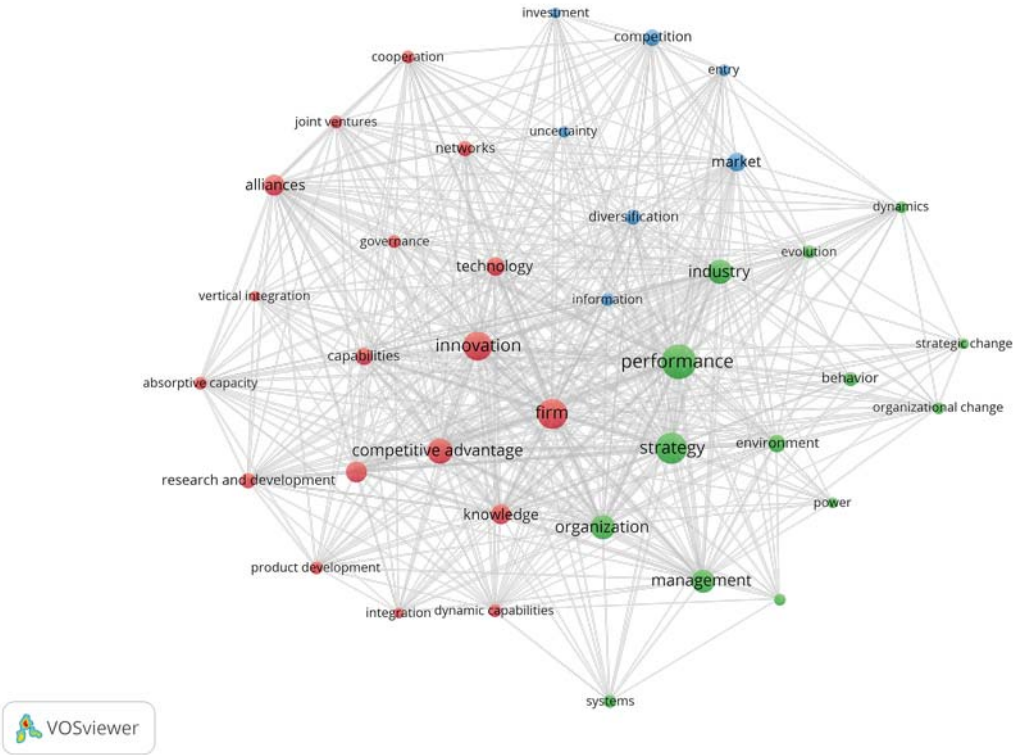

Figure 6: The discipline's structure in the period 1998-2007

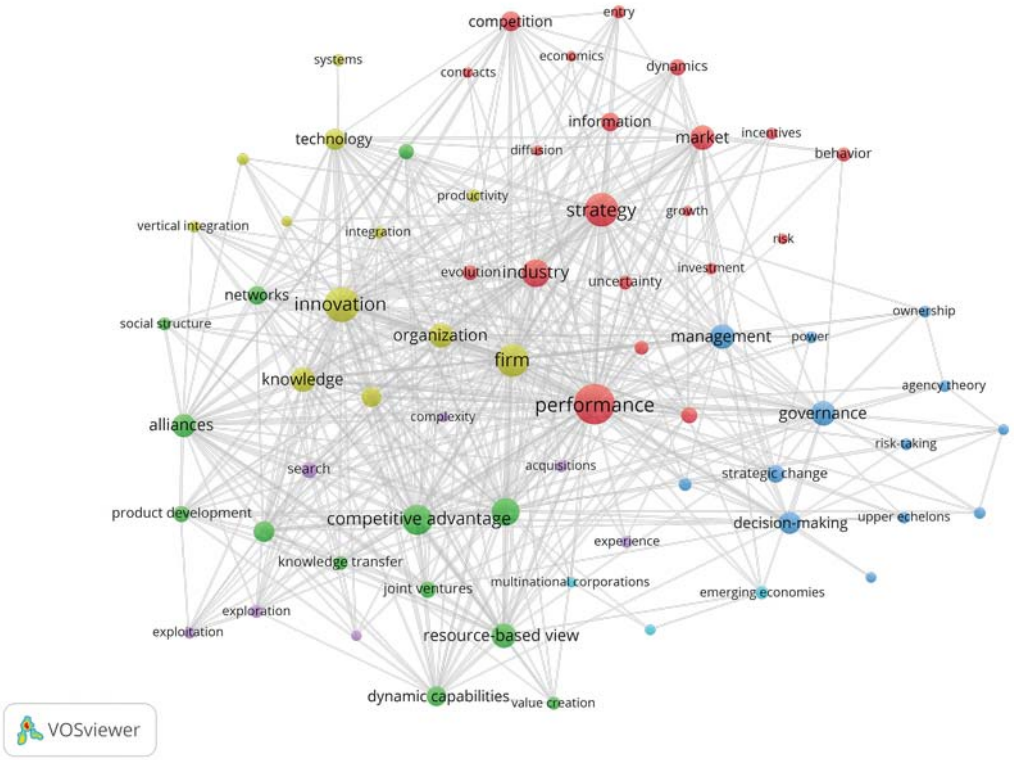

Figure 7: The discipline's structure in the period 2008-2017

Thus, the field has considerably increased over time and with it the topics researched. The increase from the period 1988-1997 to 1998-2007, however, was considerably larger than that from the period 1998-2007 to 2008-2017. In line with this result, the top-50 conceptual elements of the past decade (2008-2017) differ only slightly from those of the preceding decade (1998-2007) as can be inferred from Table 12. 34 of the past decade's top-50 concepts had already ranked top-50 in the period 1998-2007. In summary, these results could imply that the strategic management discipline has consolidated within the past decade.

4.1.2.12. Resumé

In this section, based on the initially identified most prominent concepts in strategic management research of the past decade, the topics of the most influential contributions within these concepts have been discussed. Moreover, the historical development of past decade's key elements as well as the evolution of the discipline's structure have been assessed.

The concepts which occurred at least 100 times in past decade's strategic management articles' keywords (author keywords and *KeyWords Plus*) were considered as highly prominent. These concepts are: *performance*, *innovation*, *strategy*, *firm*, *competitive advantage*, *research and*

development, *industry*, *management*, *knowledge*, *market*, *resource-based view*, *governance*, *organization*, *alliances*, *decision-making*, *absorptive capacity*, *technology*, *dynamic capabilities*, *competition*, *capabilities*, *networks*, *information*, *strategic change*, *joint ventures*, *entrepreneurship*, *search*, *dynamics*, *product development* and *cooperation*. Besides, a wide range of other minor concepts has been addressed in strategic management literature in the recent ten years as can be inferred from the keyword co-occurrence map evidenced in Figure 4. However, it was refrained from further discussing those concepts, as it would have gone beyond the scope of this work. Such topics are for instance *behavior* (position 31, 92 occurrences), *diversification* (position 33, 91 occurrences), *organizational change* (position 35, 82 occurrences), *emerging economies* (position 39, 75 occurrences), *upper echelons* (position 42, 68 occurrences), *agency theory* (position 47, 63 occurrences), *acquisitions* (position 48, 62 occurrences), *information technology* (position 52, 61 occurrences), *top management teams* (position 58, 57 occurrences), *multinational corporations* (position 62, 54 occurrences) and *organizational learning* (position 65, 52 occurrences). It thus becomes evident that there is a wide thematic variety of concepts within strategic management research.

The most influential articles of the period (2008-2017) and thereby topics within the respective key concepts were identified by adding the respective keywords (i.e. *innovation*) to the search query that was performed in order to obtain the whole bibliographic dataset for that period. Only those articles that fulfilled the threshold of at least 15 citations per year and explicitly addressed the relevant concept (i.e. *innovation*) were retained. Due to their broad nature, no searches were applied for concepts such as *performance*, *competitive advantage*, *strategy*, *firm* and *industry*. The approach applied in the above section is unique in so far as it combines an analysis of keyword co-occurrences and an analysis of average citations the datasets' articles received. This procedure shall not only provide a comprehensive overview of key research areas of a discipline as keyword co-occurrence analysis does (Callon et al., 1991; Peters & Raan, 1993a, 1993b), but also an accurate and unbiased picture of the salient topics within a certain concept or research field.

The key topics of the past decade's most influential research articles in the area of *innovation* revolve around innovation potentials of firm alliance networks, environmental innovation and sustainability transitions, open innovation, absorptive capacity, organizational ambidexterity, and business-model innovation. Leading research in the area of *alliances* that does not address topics related to innovation, discusses the management of alliance portfolios as well as alliance governance. Influential literature dealing with the *resource-based view* focuses on the empirical examination of the latter as well as on the role of human capital when attempting to explain competitive advantage. In addition, calls for advancement of resource-based theory have obviously received attention. The academic discussion addressing *dynamic capabilities* appears to have revolved around conceptual issues, managerial capabilities, and the framework's empirical examination. Conceptual issues obviously also played a key role in past decade's research on

entrepreneurship. Overall, the topics addressed in entrepreneurship literature appear to be quite diverse. Due to the fact that for the concepts *governance*, *decision-making* and *strategic change*, only two to four relevant articles could be identified, no thematic conclusions can be drawn for these areas.

Interestingly, there are several review articles among the most influential ones identified within the key research areas of the past decade's strategic management research, whose purpose, in general, is to organize diverse knowledge (Denyer & Tranfield, 2009; Tranfield et al. 2003). The prominence of review articles within these major research domains could thus be considered as a sign of topical disparity and fragmentation within these fields. Several review articles among the identified ones explicitly highlight such patterns. Works within the field of innovation that do so are Zott et al. (2011), which reviews business model innovation literature, and Phelps et al. (2012), which assesses literature on firm knowledge. In the field of alliance research, Wassmer (2010) detects such patterns for alliance portfolio research. Barreto (2010) highlights patterns of fragmentation in dynamic capabilities research. Within the field of entrepreneurship, Keupp & Gassmann (2009) and Terjesen et al. (2016) highlight fragmentation in international entrepreneurship literature.

A striking observation to emerge from the analysis is the fact that within several identified concepts, articles that address conceptual problems within the respective fields are among the most influential ones. This is especially true for theoretical constructs, such as the dynamic capabilities approach as well as the resource-based view.

It is interesting to note that articles of the last decade that fulfilled the citation threshold of 15 citations per year addressing *innovation*, *resource-based theory* and *dynamic capabilities* received significantly higher relative citation scores (citations per year) than the top-articles in the area of *entrepreneurship*, *decision-making* and *governance*. This implies that research on *innovation*, *resource-based theory* and *dynamic capabilities* conducted within the past decade was of particular influence. This observation matches with the results of the keyword co-occurrence analysis of the past decade (Figure 4 and Table 3).

Overall, it could be observed that the strategic management discipline has considerably increased over time, but that this increase recently has drastically slowed down, which could be a sign of consolidation within the field.

4.2. Past decade's most influential articles, authors and organizations

The purpose of this section is to give an overview of seminal articles relating to strategic management published between 2008 and 2017 and their authors as well as the universities these

papers originate from. First, the most influential journal articles relating to strategic management published in the initially identified top-10 management and strategy journals, published between 2008 and 2017 will be presented and discussed. Subsequently, the most influential authors as well as the most influential universities will be outlined.

4.2.1. The most influential articles

Articles are considered as influential if they received high relative citation scores (citations per year) in *Web of Science* until August 28th, 2018, the date the dataset was downloaded. Just as in the previous section, relative citation scores were used because of the fact that a paper that was published, for instance, in 2014 had less time to create an impact in the field compared to a paper published in 2009 (Furrer et al., 2008). Table 13 lists the top-50 articles out of the 2,987 identified articles which generated the largest number of relative citations.

The article by Venkatesh et al. (2012) that studies the acceptance and use of technology in a consumer context is by far the most influential paper, followed by the review of business model innovation literature by Zott et al. (2011) and the review paper of corporate social responsibility literature by Aguinis & Glavas (2012). The top-five articles are completed by the review article of sustainability transitions literature by Markard et al. (2012) and the review paper of signaling theory literature by Connelly et al. (2011). Interestingly, six of the ten most cited articles are review articles. As argued above, this could indicate that a research field suffers from fragmentation.

16 of the top-50 articles identified here were discussed within the scope of the determination of the key conceptual elements in the previous section. All of these 16 articles either address innovation, or resource-based theory, or dynamic capabilities, providing support for the keyword co-occurrence analysis' findings. There are, however, numerous highly influential papers that deal with concepts that were only addressed by comparably few articles, and were thus not considered in the keyword co-occurrence map. Corporate social responsibility, for instance, which is addressed by a number of highly significant articles, as can be inferred from the list provided in Table 13, only played a minor role in the keyword co-occurrence analysis. Much the same applies to institutional theory, signaling theory, or team effectiveness. This highlights the fact that the previous section's presentation of the most influential articles (in terms of *Web of Science* citations they received), addressing the key conceptual elements identified by the keyword co-occurrence analysis does not reveal any information about these articles' significance relative to other contributions contained in the bibliographic dataset.

Table 13:
The articles of past decade's strategic management research that received the most citations per year

Rank	Article	Topic	Citations	Citations per year
1	Venkatesh, Thong & Xu (2012)	Consumers' acceptance and use of technology	970	138,6
2	Zott, Amit & Massa (2011)*	Review of business model innovation literature	746	93,3
3	Aguinis & Glavas (2012)	Review of corporate social responsibility literature	626	89,4
4	Markard, Raven & Truffer (2012)*	Review of sustainability transitions literature	522	74,6
5	Connelly, Certo, Ireland & Reutzel (2011)	Review of signalling theory literature	532	66,5
6	Fiss (2011)	Causal relationships in typologies	514	64,3
7	Mathieu, Maynard, Rapp & Gilson (2008)	Review of team effectiveness literature	700	63,6
8	Smith & Lewis (2011)	Conceptualization of paradox theory	497	62,1
9	Raisch & Birkinshaw (2008)*	Review of organizational ambidexterity literature	636	57,8
10	Meyer, Estrin, Bhaumik & Peng (2009)*	Countries' institutional development and market entry strategies	539	53,9
11	Pache & Santos (2013)	Hybrid organizations‘ management of competing institutional logics	312	52,0
12	Pache & Santos (2010)	Organizational responses to conflicting institutional demands	403	44,8
13	Gibbert, Ruigrok & Wicki (2008)	Review of methodological sophistication of case study research	484	44,0
14	Godfrey, Merrill & Hansen (2009)	Corporate social responsibility and shareholder value	440	44,0
15	Surroca, Tribó & Waddock (2010)	Intangible resources‘ effect on the corporate responsibility-financial performance relationship	389	43,2
16	Hillman, Withers & Collins (2009)	Review of resource dependency theory literature	426	42,6
17	Adner & Kapoor (2010)*	Value creation and innovation challenges in firms‘ ecosystems	380	42,2
18	Cheng, Ioannou & Serafeim (2014)	Corporate social responsibility and access to finance	211	42,2
19	Feldman & Orlikowski (2011)	Description of practice theory	333	41,6
20	Halbesleben, Neveu, Paustian-Underdahl & Westman (2014)	Review of conservation of resources theory literature	207	41,4
21	de Wit, Greer & Jehn (2012)	Assessment of intragroup conflict research	288	41,1
22	Kostova, Roth & Dacin (2008)	Critique of institutional theory in the context of multinational corporations	449	40,8
23	Ployhart & Vandenberg (2010)	Guidline on longitutinal research	364	40,4
24	Andriopoulos & Lewis (2009)*	Exploitation-exploration tensions and organizational ambidexterity	398	39,8
25	Barreto (2010)*	Review of dynamic capabilites literature	352	39,1
26	Leiponen & Helfat (2010)*	Search breadth and innovation success	348	38,7
27	Kehoe & Wright (2013)	High performance human resource paractices and employees‘ attitudes and behaviors	228	38,0
28	Chen & Xie (2008)	Online consumer reviews and consumers‘ purchase decisions	415	37,7
29	Coenen, Benneworth & Truffer (2012)*	A spatial perspective on sustainability transitions	263	37,6

30	Volberda, Foss & Lyles (2010)	Documentation of the absorptive capacity field	337	37,4
31	Basu & Palazzo (2008)	Corporate social responsibility and sensemaking	410	37,3
32	Helfat & Peteraf (2015)*	Managerial cognitive capabilities	145	36,3
33	Zott & Amit (2008)	Product market strategy‘s and business model choice‘s impacts on firm performance	395	35,9
34	Ployhart & Moliterno (2011)	Conceptualization of the human capital resource	281	35,1
35	Parker, Bindl & Strauss (2010)	Conceptualization of a proactive motivation model	310	34,4
36	Morgan, Vorhies & Mason (2009)*	Market orientation‘s and marketing capabilities‘ contribution to firm performance	339	33,9
37	Phelps, Heidl & Wadhwa (2012)*	Review of knowledge networks literature	237	33,9
38	Kraaijenbrink, Spender & Groen (2010)*	Review of principal critiques of resource-based theory	304	33,8
39	Hülsheger, Alberts, Feinholdt & Lang (2013)	Mindfulness‘ role in emotion regulation, emotional exhaustion, and job satisfaction	193	32,2
40	Pierce & Aguinis (2013)	The too-much-of-a-good-thing effect in management	193	32,2
41	Sirmon, Hitt, Ireland & Gilbert (2011)*	Conceptualization of a resource orchestration framework	256	32,0
42	Bharadwaj, El Sawy, Pavlou & Venkatraman (2013)	Description of digital business strategy	189	31,5
43	Richard, Devinney, Yip & Johnson (2009)	Review of organizational performance literature	311	31,1
44	Jay (2013)*	Paradoxes in hybrid organizations	185	30,8
45	Stam & Elfring (2008)*	Intra- and extraindustry social capital‘s impact on the entrepreneurial orientation-new venture performance relationship	339	30,8
46	Lichtenthaler (2009)	Complementary learning processes‘ effect on innovation and performance under different environmental conditions	308	30,8
47	Bitektine (2011)	Conceptualization of a social judgements theory	245	30,6
48	Ansari, Fiss & Zajac (2010)	Practice variation during diffusion processes	269	29,9
49	Mair, Martí & Ventresca (2012)	Market-building and institutional voids	207	29,6
50	DeChurch & Mesmer-Magnus (2010)	Assessment of team cognition research	266	29,6

*) Articles discussed within the most salient concepts.

4.2.2. The most influential authors

In order to determine the most influential authors of the last decade, this work relies on author citations. It contrasts with Furrer et al. (2006), who apply author appearances as a measure to determine the strategic management field’s structure. This thesis thus alludes to Bergh et al.

(2006), who suggest that authors who want to publish highly influential articles should strive for fewer articles but ones more likely to gain high citation counts.

Table 14 presents a list of the 50 most frequently cited authors that contributed to the 2,987 papers identified for the period 2008-2017. The top-five authors who received the most absolute *Web of Science* citations until August 28th 2018, the date the dataset was downloaded, are Kathleen M. Eisenhardt (Stanford University) with 1,679 citations, Michael A. Hitt (Texas A&M University), with 1,323 citations, Kevin Z. Zhou (University of Hong Kong) with 1,239 citations, David J. Ketchen (Auburn University) with 1,214 citations and R. Duane Ireland (Texas A&M University) with 1,177 citations. That is, four of the top-5 most influential authors work at a North American university and one works at an Asian university. Of the 50 most influential authors, 34 are employed at organizations located in North America, ten at European organizations, four at Asian organizations, and one is employed at an Australian organization. Thus, the key role of North American universities and research institutions is clearly evident.

4.2.3. The most influential organizations

North America's, and especially the United States' role in strategic management research becomes particularly obvious when assessing the *Web of Science* citations the universities involved in the development of the 2,987 identified papers received. An overview of the 50 most influential universities is provided in Table 15.

The five universities that received the most citations are all located in the United States. With 6,747 citations, the University of Pennsylvania holds a commanding lead. It is followed by Harvard University (4,920 citations), Texas A&M University (4,092 citations), Arizona State University (3,788 citations) and Stanford University (3,497 citations). Only two among the top-ten most influential universities are from outside the United States, namely INSEAD and London Business School. A similar picture emerges when the whole list in Table 15 is considered. 38 universities are located in North America, eight universities in Europe, and four universities in Asia.

It shall finally be noted that if a paper is authored by two or more authors who are from the same university, the citations the paper received were only counted once for universities being the unit of analysis.

Table 14:
The authors involved in past decade's strategic management research that received the most citations

Rank	Author	Citations
1	Eisenhardt, KM	1679
2	Hitt, MA	1323
3	Zhou, KZ	1239
4	Ketchen, DJ	1214
5	Ireland, RD	1177
6	Amit, R	1158
7	Venkatesh, V	1143
8	Zott, C	1141
9	Birkinshaw, J	1032
10	Santos, F	1029
11	Kaplan, S	1018
12	Helfat, CE	1016
13	Peng, MW	1004
14	Xu, X	988
15	Aguinis, H	986
16	Ployhart, RE	976
17	Feldman, MS	974
18	Thong, JYL	970
19	Fiss, PC	968
20	Mathieu, J	963
21	Hambrick, DC	936
22	Lewis, MW	895
23	Sirmon, DG	882
24	Connelly, BL	846
25	Truffer, B	840
26	Toffel, MW	805
27	Puranam, P	780
28	Poppo, L	762
29	Zhang, Y	761
30	Massa, L	746
31	Agarwal, R	738
32	Gulati, R	725
33	Pache, AC	715
34	Certo, ST	707
35	Raisch, S	707
36	Rothaermel, FT	707
37	Gilson, L	700
38	Maynard, MT	700
39	Rapp, T	700
40	Bingham, CB	665
41	Reutzel, CR	636
42	Meyer, KE	629
43	Glavas, A	626
44	Li, JJ	593
45	Mitchell, W	586
46	Volberda, HW	585
47	Markard, J	577
48	Smith, WK	571
49	Parker, SK	565
50	Dacin, MT	563

Table 15:
The organizations involved in past decade's strategic management research that received the most citations

Rank	Organization	Citations
1	University of Pennsylvania	6747
2	Harvard University	4920
3	Texas A&M University	4092
4	Arizona State University	3788
5	Stanford University	3497
6	Indiana University	3401
7	INSEAD	3383
8	Pennsylvania State University	3011
9	London Business School	2991
10	University of Illinois	2944
11	Hong Kong University of Science and Technology	2849
12	University of Maryland	2841
13	University of North Carolina	2680
14	University of Michigan	2612
15	University of South Carolina	2462
16	University of Texas at Dallas	2447
17	University of Southern California	2416
18	Erasmus University Rotterdam	2407
19	Northwestern University	2285
20	University of Minnesota	2258
21	Duke University	2223
22	University of Texas at Austin	2219
23	Georgia Institute of Technology	2198
24	Bocconi University	2128
25	Rice University	2120
26	University of Georgia	2112
27	Auburn University	2077
28	Massachusetts Institute of Technology	2061
29	Michigan State University	2012
30	University of St. Gallen	2009
31	Cornell University	1976
32	New York University	1911
33	City University of Hong Kong	1900
34	University of Connecticut	1779
35	University of California, Irvine	1757
36	University of Hong Kong	1657
37	Washington University in St. Louis	1622
38	York University	1614
39	Ohio State University	1531
40	University of Toronto	1525
41	Dartmouth College	1473
42	Hong Kong Polytechnic University	1471
43	Purdue University	1413
44	Georgia State University	1357
45	IESE Business School	1353
46	Tilburg University	1337
47	University of Arkansas	1328
48	University of Kansas	1324
49	University of Oxford	1317
50	University of Wisconsin	1313

4.3. The intellectual structure of strategic management research conducted between 2008 and 2017

By means of co-citation mapping analysis, an overview of the intellectual foundations of past decade's strategic management research shall be provided (Nerur et al., 2008; Ramos-Rodriguez & Ruiz-Navarro, 2004). Specifically, works (documents), authors and journals that impacted the field will be outlined. It is to be noted that co-citation analysis relies on absolute citation counts.

Regarding the sizes of the labels, the distances and the lines between the items, and the clustering of the items in the following co-citation maps, the same applies as for the previously described keyword co-occurrence map: The stronger an item contributes to structure the field, that is, the more often a document, an author, or a journal is found in articles' bibliographies, the bigger the size of the item's label and the bigger the item's circle. The distances between two items are indicators of their relatedness. The strongest links between items are furthermore represented by lines. The colors of the maps, which are automatically assigned, display different clusters of items (documents, authors, or journals) that were frequently co-cited.

4.3.1. The works that made up the intellectual structure of past decade's strategic management research and the historical development of these works' influence

This section points out the works that were cited by past decade's strategic management research as well as the historical development of these works' influence. The document co-citation map in Figure 8 displays these works. In order to be included in the map, works had to be cited at least 50 times. The map thus shows the pattern of the 275 references that fulfilled this threshold and the 500 strongest co-citation linkages between these items. The corresponding list shown in Table 16 provides an overview of the 50 works that were most frequently cited by the 2,987 articles identified for the past decade. Of these 50 most frequently cited contributions, 36 were published in journals and fourteen in books.

4.3.1.1. The structure of the document co-citation map

What becomes immediately evident when studying the co-citation map in Figure 8 and the corresponding list provided in Table 16 is the enormous influence of Nelson & Winter (1982), Barney (1991), Cyert & March (1963), Cohen & Levinthal (1990), and March (1991), which are the five works that were most frequently cited by the 2,987 articles contained in the dataset. These

works are rather placed in the center of the co-citation map and have strong linkages to other contributions throughout the map, indicating a boundary spanning role of these five contributions.

The map consists of five different clusters, each of which more or less represents works addressing a distinct sub-field. There is a relatively strong agreement between the map's structure and the clustering obtained (Eck & Waltman, 2010). However, there is some overlapping of clusters throughout the map, which might be a sign of interconnectedness between clusters.

The top of the co-citation map in Figure 8 is primarily taken up by cluster 4. This area is mainly occupied by the works of Barney (1991), Penrose (1959), Wernerfelt (1984), Peteraf (1993) and Dierickx & Cool (1989) that established the foundations for resource-based theory, which considers firms' resources as the source of competitive advantage (Barney, 1991) and by the contributions of Teece et al. (1997) and Eisenhardt & Martin (2000), which laid the basis for the dynamic capabilities approach. All mentioned contributions are highly cited: Barney's (1991) classic work *Firm Resources and Sustained Competitive Advantage* ranks second (367 citations), Teece et al's. (1997) highly cited conceptualization of the dynamic capabilities framework ranks sixth (259 citations), and Penrose's (1959) sixty year old work *The Theory of the Growth of the Firm*, which back then already had alluded to what is called resource-based theory, ranks eight (224 citations) among the 50 documents that were most frequently cited. Thus, both concepts, undoubtedly strongly impacted strategic management research conducted within the recent ten years. Nelson's & Winter's (1982) pioneering book *An Evolutionary Theory of Economic Change* is included in this cluster as well. With 398 citations, it is the work that heads the ranking of the top-50 most cited articles. The book's central tenet is that firm behavior is determined through routines and that the possession of certain routines may give an organization a competitive advantage over another, which would positively affect its position over time. The fact that this work is in the same area and even in the same cluster as works addressing resource-based theory and dynamic capabilities might be explained by the fact that "routines are an example of firm resources and capabilities" (Barney, 2001, p. 646).

The right side of the document co-citation map (Figure 8), which is made up by clusters 1 and 3, mainly features works relating to organizational theory as well as works on industrial organization and organizational economics. It comprises contributions such as Cyert's & March's (1963) *A Behavioral Theory of the Firm* or *Organizations* by March & Simon (1958), which coined behavioral theory, studying firm behavior and decision-making under bounded rationality. Both contributions lie close to each other and are strongly interlinked, implying that they are heavily co-cited. Especially the work of Cyert & March (1963) is of high prominence ranking third (357 citations) among the 50 works most frequently cited. Ocasio (1997), which links structure and cognition into an attention-based view of the firm, is closely related to both items as well, as can be inferred from the map below. The works by Meyer & Rowan (1977) and DiMaggio & Powell (1983), of which particularly

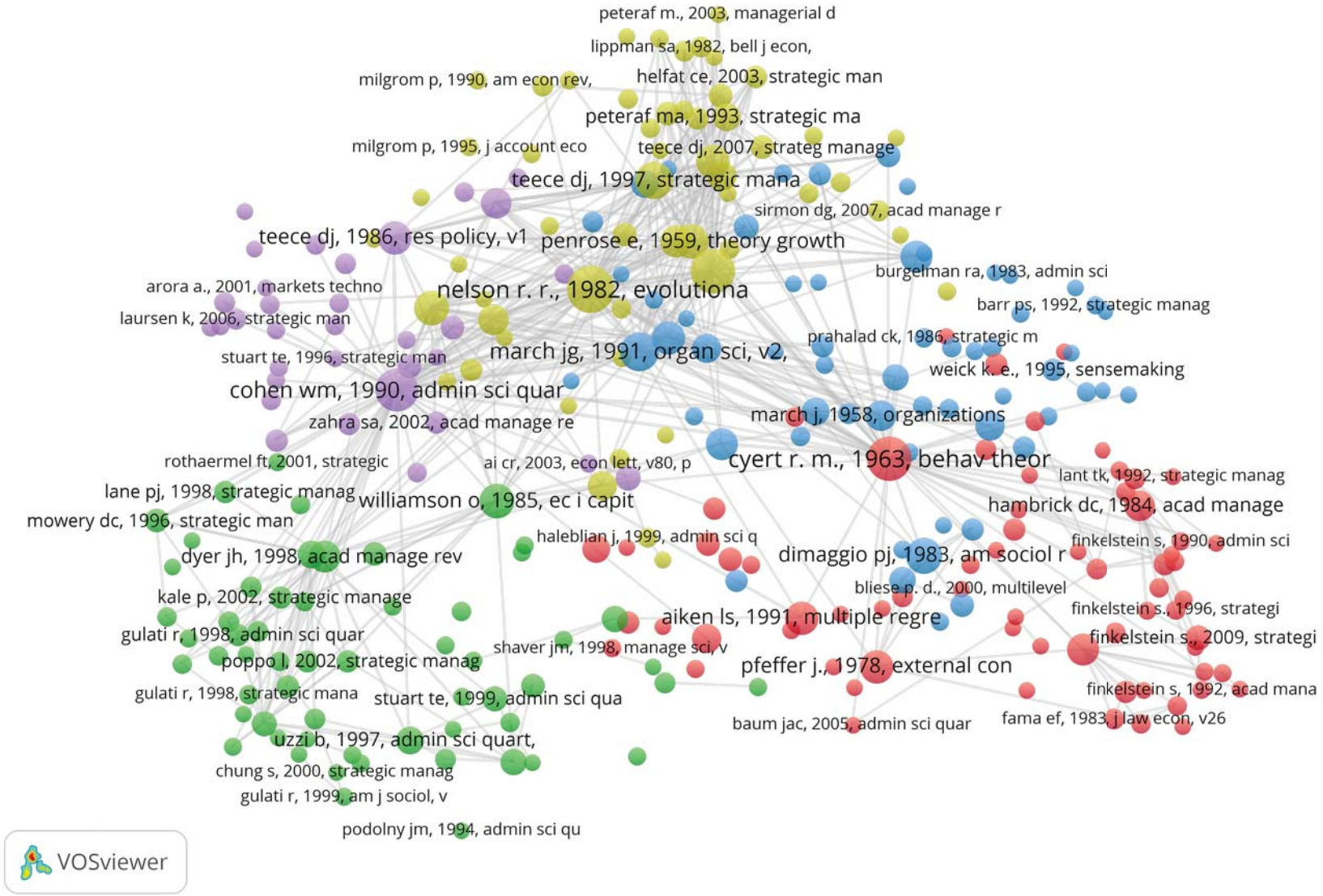

Figure 8: The most influential contributions for strategic management research conducted in the period 2008-2017 and their interconnectedness (threshold to be included in the map is 50 citations). Cluster 1=red, cluster 2=green, cluster 3=blue, cluster 4=yellow, cluster 5=violet.

Table 16:
The works that were most frequently cited by past decade's strategic management research

Rank	Cited reference*	Topic	Citations	Cluster
1	nelson r. r., 1982, evolutionary theory	Evolutionary theory	398	4
2	barney j, 1991, j manage, v17, p99	Resource-based view	367	4
3	cyert r. m., 1963, behav theory firm	Behavioral theory	357	1
4	cohen wm, 1990, admin sci quart, v35, p128	Absorptive capacity	347	5
5	march jg, 1991, organ sci, v2, p71	Exploration and exploitation in organizational learning	272	3
6	teece dj, 1997, strategic manage j, v18, p509	Dynamic capabilities	259	4
7	dimaggio pj, 1983, am sociol rev, v48, p147	Organizational isomorphism	238	3
8	penrose e, 1959, theory growth firm	Resource-based view	224	4
9	kogut b, 1992, organ sci, v3, p383	Creation and transfer of knowledge	218	4
10	williamson o, 1985, ec i capitalism	Transaction cost economics	215	2
11	pfeffer j., 1978, external control org	Resource dependence theory	212	1
12	aiken ls, 1991, multiple regression	Multiple regression analysis	208	1
13	teece dj, 1986, res policy, v15, p285	Distribution of profits from innovations	206	5
14	dierickx i, 1989, manage sci, v35, p1504	Asset stock accumulation and competitive advantage	205	4
15	levinthal da, 1993, strategic manage j, v14, p95	Organizational learning	204	3
16	thompson j. d., 1967, org action	Organizational behavior	197	3
17	porter m.e., 1980, competitive strategy	Industry competition	194	3
18	wernerfelt b, 1984, strategic manage j, v5, p171	Resource-based view	193	4
19	jensen mc, 1976, j financ econ, v3, p305	Agency theory	191	1
20	dyer jh, 1998, acad manage rev, v23, p660	Relational view	187	2
21	march j, 1958, organizations	Organizational behavior	181	3
22	hambrick dc, 1984, acad manage rev, v9, p193	Upper echelons theory	178	1
23	henderson rm, 1990, admin sci quart, v35, p9	Architectural innovation	172	5
24	grant rm, 1996, strategic manage j, v17, p109	Knowledge-based view	170	4
25	eisenhardt km, 2000, strategic manage j, v21, p1105	Dynamic capabilities	166	4
26	levitt b, 1988, annu rev sociol, v14, p319	Organizational learning	166	3
27	ocasio w, 1997, strategic manage j, v18, p187	Organizational behavior	166	3
28	williamson o. e., 1975, markets hierarchies	Transaction cost economics	163	4
29	heckman jj, 1979, econometrica, v47, p153	Sample selection bias	153	1

30	peteraf ma, 1993, strategic manage j, v14, p179	Resource-based view	149	4
31	eisenhardt km, 1989, acad manage rev, v14, p532	Theory building from case studies	145	3
32	powell ww, 1996, admin sci quart, v41, p116	Interorganizational relationships and innovation	145	2
33	tushman ml, 1986, admin sci quart, v31, p439	Technological change and organizational environments	141	3
34	uzzi b, 1997, admin sci quart, v42, p35	Embeddedness and organization networks	138	2
35	wooldridge jm., 2002, econometric anal cro	Cross section and panel data methods	138	1
36	meyer jw, 1977, am j sociol, v83, p340	Formal organizational structures and institutional environment	135	3
37	granovetter m, 1985, am j sociol, v91, p481	Embeddedness of economic behavior	130	2
38	podsakoff pm, 2003, j appl psychol, v88, p879	Method biases in behavioral research	129	2
39	hannan mt, 1984, am sociol rev, v49, p149	Structural inertia and organizational change	125	3
40	gulati r, 1995, acad manage j, v38, p85	Governance choice in interfirm alliances	122	2
41	hoetker g, 2007, strategic manage j, v28, p331	Logit and probit models in strategic management research	116	5
42	stuart te, 1999, admin sci quart, v44, p315	Interorganizational relationships and new ventures‘ performance	115	2
43	finkelstein s., 2009, strategic leadership	Strategic leadership	113	1
44	leonardbarton d, 1992, strategic manage j, v13, p111	Core capabilities and innovation	112	3
45	katila r, 2002, acad manage j, v45, p1183	Search behavior and new product introduction	109	5
46	levinthal da, 1997, manage sci, v43, p934	Organizational adaptation	108	4
47	suchman mc, 1995, acad manage rev, v20, p571	Organizational legitimacy	108	3
48	north d. c., 1990, i i change ec perfor	Institutions, institutional change and economies‘ performance	104	1
49	rosenkopf l, 2001, strategic manage j, v22, p287	Exploration and technological evolution	104	5
50	burt r.s., 1992, structural holes soc	Social structural theory of competition	103	2

*) Termed by the co-citation map in Figure 8.

the latter is highly influential (238 citations, seventh position among the top-50 most frequently cited documents), which both revived institutional theory, are two essential contributions in this area of the map. Both works were often co-cited as well. Other prominent works in this area are those of Thompson (1967) and Pfeffer & Salancik (1978), which emphasize environmental impact on strategy formulation and Hambrick & Mason (1984), which assesses the impact of top management on organizational outcomes.

Porter's (1980) pioneering work on industrial organization economics (194 citations) with its focus on firms' industry positions and diversification strategies as sources of competitive advantage, which was the prevailing paradigm in strategic management prior to the emergence of organizational economics and the subsequently emerging resource-based view (Hoskisson et al., 1999), is located in the right area of the document co-citation map as well. This area also features Jensen's & Meckling's (1976) seminal work on agency theory, which together with transaction cost economics makes up the organizational economics perspective (Hoskisson et al., 1999).

The center of the map is sparsely settled. Moreover, there is considerable overlapping of all five clusters in this part of the map. Several works addressing econometric issues are located in this area, such as Heckman (1979), Aiken & West (1991), Wooldridge (2002), Podsakoff et al. (2003) and Hoetker (2007). In the middle there are three strongly interlinked articles addressing organizational learning. This accumulation consists of March (1991), Levinthal & March (1993) and Levitt & March (1988). Among these contributions March (1991) is the most influential study: with 272 occurrences in the 2,987 articles' references it ranks fifth among the most cited works. Further influential contributions to be observed in this area are the two seminal works of Williamson (1975, 1985) on transaction cost economics.

The lower left area of the map is solely taken up by cluster 2. This cluster comprises contributions that revolve around relationships between market participants. It features the works of Granovetter (1985), Burt (1992) and Uzzi (1997) focusing on social relations as well as the contributions of Gulati (1995), Powell et al. (1996), Dyer & Singh (1998), and Stuart et al. (1999) relating to inter-firm cooperation.

The upper left area which comprises clusters 4 and 5, is taken up by works that relate to innovation and knowledge. These works are Teece (1986), Henderson & Clark (1990), Rosenkopf & Nerkar (2001), Katila & Ahuja (2002), Cohen & Levinthal (1990), Grant (1996) or Kogut & Zander (1992). Particularly the article by Cohen & Levinthal (1990) that coined the absorptive capacity concept attracts attention in the above document co-citation map: With 347 citations it ranks fourth among the most cited references.

4.3.1.2. The historical development of past decade's key intellectual foundations

In this section, the historical development of past decade's key intellectual foundations will be traced. Specifically, it will be assessed whether the top-50 most influential works for past decade's strategic management research had already served as key foundations for strategic management research conducted in the two preceding decades (1988-1997 and 1998-2007). Therefore, in addition to the documents cited by past decade's strategic management research, the documents cited by research conducted in the periods 1988-1997 and 1998-2007 were obtained (Table 17).

A noticeable result to emerge from the comparison provided in Table 17 is the decreased influence of industrial organization economics, represented by Porter (1980), on strategic management. Whereas Porter (1980) ranks first in the period 1988-1997 and fourth in the period 1998-2007 it only ranks 17th in the past decade (2008-2017). In that regard, it can further be inferred that in the 1990s, the discipline's focus began to shift from industry structure to internal firm structures (Hoskisson et al., 1999). Table 17 indicates that strategic management's attention is still lying on internal firm characteristics: resource-based theory that had already become a key intellectual foundation of strategic management research in the period 1998-2007 maintained its key position in the past decade, which is evidenced by Barney (1991) and Penrose (1959) in the list presented below (Table 17). In this context, the prominence of the dynamic capabilities framework as an important intellectual foundation for strategy research in the past two decades (1998-2007 and 2008-2017) is worth mentioning. Teece et al.'s (1997) pioneering work consistently ranked on top in these periods. The article of Eisenhardt & Martin (2000) considerably increased its position during that time, indicating that the popularity of the dynamic capabilities framework in strategic management research further increased in the past decade.

In addition, the emergence of the concept of firm knowledge in the period 1998-2007 and its establishment as a key intellectual basis of strategic management research in the past decade (2008-2017) can be inferred, as indicated by the works of Cohen & Levinthal (1990), Kogut & Zander (1992) and Grant (1996) (Table 17). A similar pattern can be obtained for organizational learning, which is evidenced by March (1991), Levinthal & March (1993) and Levitt & March (1988) and for innovation, which is evidenced by Teece (1986) and Henderson & Clark (1990).

Apparently, the influence of institutional theory, specifically of new institutionalism, represented by the works of DiMaggio & Powell (1983) and Meyer & Rowan (1977) has consistently increased within the past three decades. Especially DiMaggio & Powell (1983) appears to be a key foundation of past decade's strategic management literature.

Cyert & March (1963) and Nelson & Winter (1982) rank at the very top in all three periods examined, indicating the consistent significance of behavioral theory and evolutionary theory respectively in strategic management research.

An interesting result to be obtained is the important role of works on econometric issues, which apparently emerged only recently. These contributions seemingly have become an important intellectual basis for strategic management research conducted in the recent decade. Examples of such works are Aiken & West (1991), Heckman (1979), Wooldridge (2002), Podsakoff et al. (2003) and Hoetker (2007). This pattern might imply that strategic management as a research discipline has further shifted its focus from normative to empirical, quantitative research methods.

Table 17:
The historical development of the key intellectual foundations of past decade's strategic management research

	2008-2017		1998-2007		1988-1997	
	Rank	Citations	Rank	Citations	Rank	Citations
nelson r. r., 1982, evolutionary theory	1	398	2	349	7	179
barney j, 1991, j manage, v17, p99	2	367	1	401	16	106
cyert r. m., 1963, behav theory firm	3	357	8	222	10	157
cohen wm, 1990, admin sci quart, v35, p128	4	347	3	280	–	–
march jg, 1991, organ sci, v2, p71	5	272	13	188	–	–
teece dj, 1997, strategic manage j, v18, p509	6	259	6	235	–	–
dimaggio pj, 1983, am sociol rev, v48, p147	7	238	12	191	21	90
penrose e, 1959, theory growth firm	8	224	10	203	20	91
kogut b, 1992, organ sci, v3, p383	9	218	16	171	–	–
williamson o, 1985, ec i capitalism	10	215	15	187	11	133
pfeffer j., 1978, external control org	11	212	9	219	5	200
aiken ls, 1991, multiple regression	12	208	43	97	–	–
teece dj, 1986, res policy, v15, p285	13	206	19	143	67	51
dierickx i, 1989, manage sci, v35, p1504	14	205	7	229	36	73
levinthal da, 1993, strategic manage j, v14, p95	15	204	29	127	–	–
thompson j. d., 1967, org action	16	197	17	153	2	213
porter m.e., 1980, competitive strategy	17	194	4	266	1	378
wernerfelt b, 1984, strategic manage j, v5, p171	18	193	5	258	15	112
jensen mc, 1976, j financ econ, v3, p305	19	191	23	132	26	89
dyer jh, 1998, acad manage rev, v23, p660	20	187	26	128	–	–
march j, 1958, organizations	21	181	18	152	12	126
hambrick dc, 1984, acad manage rev, v9, p193	22	178	21	135	17	100
henderson rm, 1990, admin sci quart, v35, p9	23	172	28	127	–	–
grant rm, 1996, strategic manage j, v17, p109	24	170	48	92	–	–
eisenhardt km, 2000, strategic manage j, v21, p1105	25	166	63	76	–	–
levitt b, 1988, annu rev sociol, v14, p319	26	166	22	133	58	54
ocasio w, 1997, strategic manage j, v18, p187	27	166	–	–	–	–
williamson o. e., 1975, markets hierarchies	28	163	11	193	3	212
heckman jj, 1979, econometrica, v47, p153	29	153	–	–	–	–
peteraf ma, 1993, strategic manage j, v14, p179	30	149	14	187	–	–
eisenhardt km, 1989, acad manage rev, v14, p532	31	145	57	86	–	–
powell ww, 1996, admin sci quart, v41, p116	32	145	31	121	–	–
tushman ml, 1986, admin sci quart, v31, p439	33	141	34	117	33	77
uzzi b, 1997, admin sci quart, v42, p35	34	138	66	75	–	–
wooldridge jm., 2002, econometric anal cro	35	138	–	–	–	–
meyer jw, 1977, am j sociol, v83, p340	36	135	40	103	59	54
granovetter m, 1985, am j sociol, v91, p481	37	130	42	101	64	51
podsakoff pm, 2003, j appl psychol, v88, p879	38	129	–	–	–	–
hannan mt, 1984, am sociol rev, v49, p149	39	125	31	122	25	89
gulati r, 1995, acad manage j, v38, p85	40	122	27	127	–	–
hoetker g, 2007, strategic manage j, v28, p331	41	116	–	–	–	–
stuart te, 1999, admin sci quart, v44, p315	42	115	124	56	–	–
finkelstein s., 2009, strategic leadership	43	113	–	–	–	–
leonardbarton d, 1992, strategic manage j, v13, p111	44	112	37	107	–	–
katila r, 2002, acad manage j, v45, p1183	45	109	–	–	–	–
levinthal da, 1997, manage sci, v43, p934	46	108	96	62	–	–
suchman mc, 1995, acad manage rev, v20, p571	47	108	–	–	–	–
north d. c., 1990, i i change ec perfor	48	104	103	61	–	–
rosenkopf l, 2001, strategic manage j, v22, p287	49	104	–	–	–	–
burt r.s., 1992, structural holes soc	50	103	46	93	–	–

Finally, Table 17 evidences that of the top-50 key intellectual foundations of strategic management research conducted in the past decade, 35 already represented key intellectual foundations of research conducted in the period 1998-2007, which indicates that overall, the key intellectual basis of strategic management only moderately changed within the past two decades, providing support for the observation that the field has consolidated.

4.3.2. The authors that made up the intellectual structure of past decade's strategic management research

In the following, the scholars who were cited by the dataset's 2,987 articles published between 2008 and 2017 will be delineated. The author co-citation map in Figure 9 displays the authors that made up the intellectual structure of past decade's strategic management research. In order to be included in the author co-citation map, authors had to be cited at least 100 times by the 2,987 dataset's articles. The map thus displays the pattern for the 303 authors that fulfilled this threshold as well as the 500 strongest co-citation links between these authors. Table 18 gives an overview of the top-50 most frequently cited authors.

4.3.2.1. The structure of the author co-citation map

In the author co-citation map, particularly David J. Teece, Kathleen M. Eisenhardt, Ranjay Gulati, Jay Barney, James G. March, Donald C. Hambrick, Oliver E. Williamson, Bruce Kogut, Wesley M. Cohen and Michael E. Porter, who are the top-10 most cited authors, stand out. They can be assumed to be the core foundational scholars of past decade's strategic management research.

The map presented above is divided into five clusters. In several areas of the map there is considerable overlapping between clusters, implying a certain degree of interconnectedness between clusters.

The upper left area of the author co-citation map, which is primarily made up of cluster 4, features scholars such as Ranjay Gulati, Bruce Kogut, Jeffrey H. Dyer, Brian Uzzi, Maurizio Zollo, Dovev Lavie and Tarun Khanna whose research rather focuses on alliances and inter-firm cooperation. Additionally, Oliver E. Williamson whose research focuses on transaction cost economics is located in this region of the map as well.

Scholars located in the upper middle region of the map are mainly made up by cluster 1. This area represents authors whose topic of interest is resource-based theory such as Jay Barney, Birger Wernerfelt, Margaret A. Peteraf, Edith Penrose, Russell Coff and Michael A. Hitt.

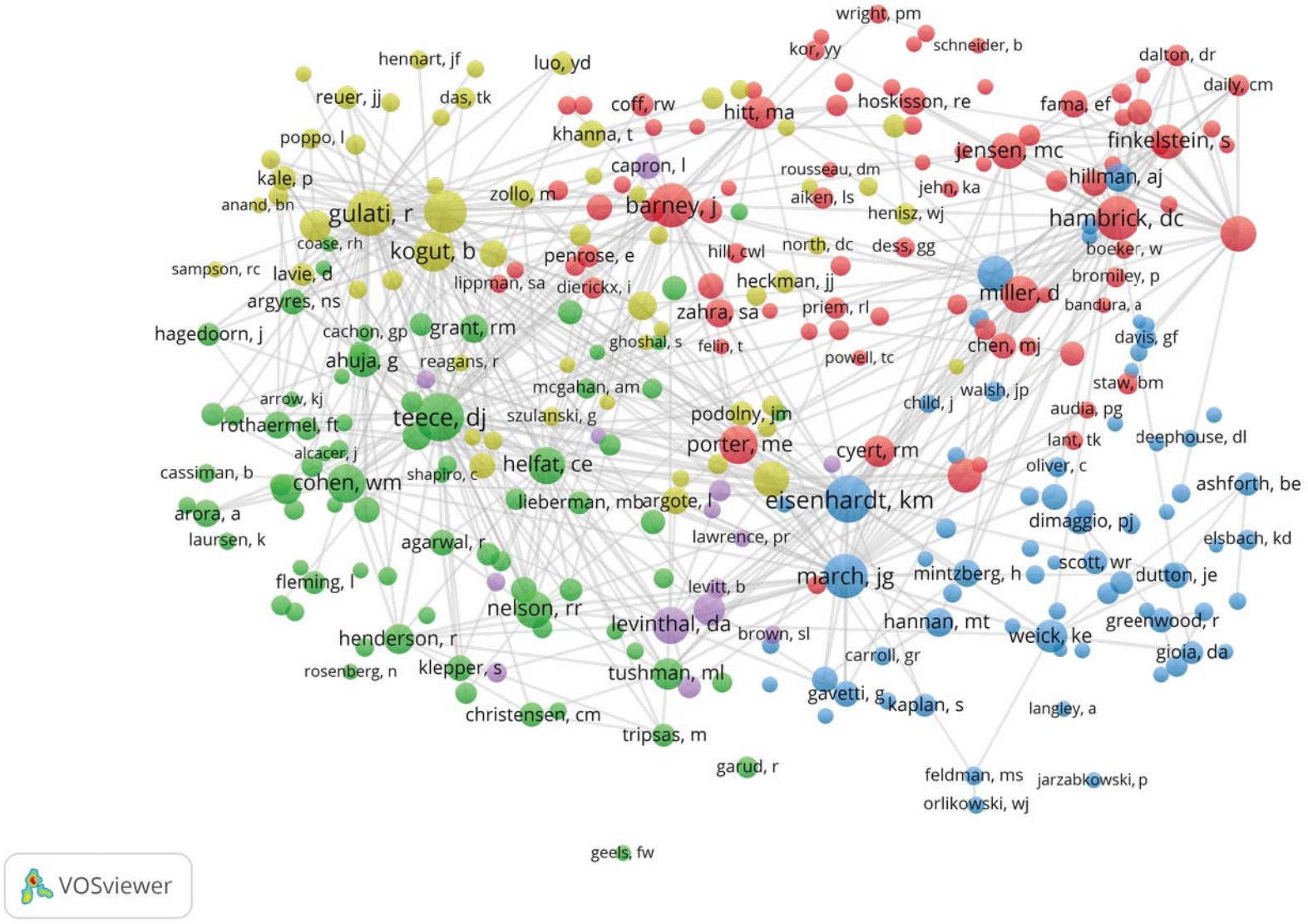

Figure 9: The most influential authors for strategic management research conducted in the period 2008-2017 and their interconnectedness (threshold to be included in the map is 100 citations). Cluster 1=red, cluster 2=green, cluster 3=blue, cluster 4=yellow, cluster 5=violet.

Table 18:
The authors that were most frequently cited by past decade's strategic management research

Rank	Cited author*	Citations	Cluster
1	teece, dj	964	2
2	eisenhardt, km	933	3
3	gulati, r	860	4
4	barney, j	831	1
5	march, jg	830	3
6	hambrick, dc	811	1
7	williamson, oe	775	4
8	kogut, b	662	4
9	cohen, wm	649	2
10	porter, me	630	1
11	helfat, ce	591	2
12	miller, d	573	1
13	nelson, rr	572	2
14	levinthal, da	563	5
15	pfeffer, j	547	3
16	westphal, jd	538	1
17	jensen, mc	530	1
18	baum, jac	527	4
19	greve, hr	510	1
20	finkelstein, s	499	1
21	weick, ke	467	3
22	hitt, ma	454	1
23	ahuja, g	453	2
24	tushman, ml	423	2
25	simon, ha	411	5
26	cyert, rm	404	1
27	dyer, jh	404	4
28	hall, bh	391	2
29	henderson, r	370	2
30	hillman, aj	365	3
31	stuart, te	360	2
32	hannan, mt	347	3
33	zahra, sa	346	1
34	burt, rs	343	4
35	grant, rm	335	2
36	rothaermel, ft	326	2
37	arora, a	324	2
38	hoskisson, re	322	1
39	zollo, m	309	4
40	argote, l	308	4
41	fama, ef	308	1
42	mintzberg, h	307	3
43	dimaggio, pj	306	3
44	uzzi, b	304	4
45	khanna, t	302	4
46	chen, mj	292	1
47	dutton, je	291	3
48	peteraf, ma	291	1
49	powell, ww	287	4
50	carpenter, ma	285	1

*) Termed by the co-citation map in Figure 9.

Authors situated in the right two quadrants of the author co-citation map (Figure 9) are mainly made up by clusters 1 and 3, and partly by clusters 4 and 5. Scholars featured in this area can broadly be categorized into organizational theory. Influential representants displayed in this area are James G. March, Richard M. Cyert, Herbert A. Simon, Henry Mintzberg, Jeffrey Pfeffer, Karl E. Weick, Michael T. Hannan, Henrich R. Greve, Amy J. Hillman, Kathleen M. Eisenhardt, Joel A.C. Baum, Paul DiMaggio, James D. Wesphal, Donald C. Hambrick, Mason A. Carpenter, Danny Miller and Sydney Finkelstein. The upper right area of the map moreover features authors from the field of agency theory, namely Michael C. Jensen and Eugene F. Fama.

In the mid area of the co-citation map there is considerable overlapping between clusters. The most noticeable author in this area is Michael E. Porter.

The lower left quadrant of the map, which is mainly made up by cluster 2 and partly by clusters 4 and 5 comprises scholars who focus on innovation, knowledge, learning and dynamic capabilities such as Wesley M. Cohen, Daniel A. Levinthal, Richard R. Nelson, Michael L. Tushman, Rebecca M. Henderson, Bronwyn H. Hall, Ashish Arora, Frank T. Rothaermel, Gautam Ahuja, Robert M. Grant, David J. Teece and Constance E. Helfat.

4.3.3. The sources that made up the intellectual structure of past decade's strategic management research

An overview of the sources that were cited by the 2,987 dataset's articles is provided in this section. Sources had to be cited at least 200 times by the articles contained in the bibliographic dataset in order to be included in the source co-citation map presented in Figure 10. The map reveals the 108 sources that fulfilled this threshold and the 500 strongest co-citation linkages between these sources. Table 19 provides an overview of the 50 sources that were most frequently cited by past decade's strategic management literature.

4.3.3.1. The structure of the source co-citation map

The source co-citation map in Figure 10 is divided into five clusters. There is only little overlapping of clusters in the map. The agreement between the map's structure and the clustering obtained can thus be considered as strong (Eck & Waltman, 2010).

The pivotal role of the *Strategic Management Journal* (22,901 citations) becomes immediately evident (Figure 10 and Table 19), indicating its crucial role in being the discipline's core intellectual basis (Durand et al., 2017; Nerur et al., 2008; Ramos-Rodriguez & Ruiz-Navarro, 2004). It is followed by the *Academy of Management Journal* (14,238 citations), *Administrative Science*

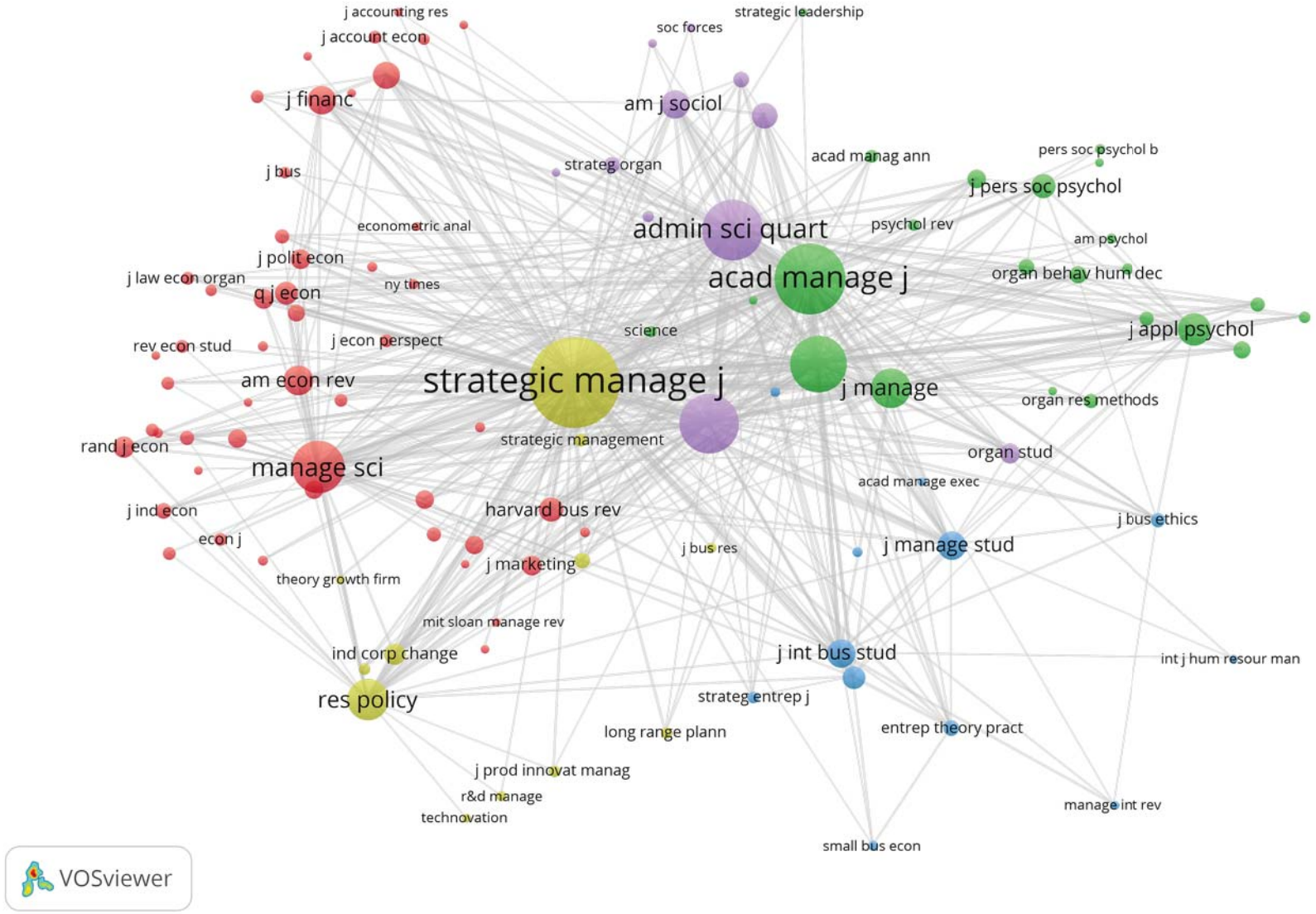

Figure 10: The most influential sources (journals, books, etc.) for strategic management research conducted in the period 2008-2017 and their interconnectedness (threshold to be included in the map is 200 citations). Cluster 1=red, cluster 2=green, cluster 3=blue, cluster 4=yellow, cluster 5=violet.

Table 19:
The sources that were most frequently cited by past decade's strategic management research

Rank	Cited source*	Cited source – full name	Citations	Cluster
1	strategic manage j	Strategic Management Journal	22901	4
2	acad manage j	Academy of Management Journal	14238	2
3	admin sci quart	Administrative Science Quarterly	10363	5
4	organ sci	Organization Science	9777	5
5	acad manage rev	Academy of Management Review	9201	2
6	manage sci	Management Science	7620	1
7	res policy	Research Policy	4838	4
8	j manage	Journal of Management	4440	2
9	j appl psychol	Journal of Applied Pschology	2956	2
10	am econ rev	American Economic Review	2538	1
11	am j sociol	American Journal of Sociology	2400	5
12	j int bus stud	Journal of International Business Studies	2310	3
13	j financ	Journal of Finance	2297	1
14	j manage stud	Journal of Management Studies	2289	3
15	j financ econ	Journal of Financial Economics	2066	1
16	am sociol rev	American Sociological Review	1821	5
17	harvard bus rev	Harvard Business Review	1669	1
18	j pers soc psychol	Journal of Personality and Social Psychology	1640	2
19	q j econ	Quarterly Journal of Economics	1477	1
20	j bus venturing	Journal of Business Venturing	1416	3
21	ind corp change	Industrial and Corporate Change	1407	4
22	rand j econ	RAND Journal of Economics	1326	1
23	econometrica	Econometrica	1235	1
24	j polit econ	Journal of Political Economy	1206	1
25	organ stud	Organization Studies	1165	5
26	j marketing	Journal of Marketing	1140	1
27	market sci	Marketing Science	1068	1
28	j marketing res	Journal of Marketing Research	1049	1
29	mis quart	MIS Quarterly	1041	1
30	j econ behav organ	Journal of Economic Behavior & Organization	979	1
31	res organ behav	Research in Organizational Behavior	952	2
32	organ behav hum dec	Organizational Behavior and Human Decision Processes	909	2
33	pers psychol	Personnel Psychology	845	2
34	working paper*	Working Paper	795	1
35	annu rev sociol	Annual Review of Sociology	766	5
36	psychol bull	Psychological Bulletin	758	2
37	entrep theory pract	Entrepreneurship Theory and Practice	742	3
38	calif manage rev	California Management Review	736	4
39	strateg organ	Strategic Organization	731	5
40	j ind econ	Journal of Industrial Economics	699	1
41	inform syst res	Information Systems Research	642	1
42	j organ behav	Journal of Organizational Behavior	642	2
43	rev econ stat	Review of Economics and Statistics	641	1
44	organ res methods	Organizational Research Methods	623	2
45	j bus ethics	Journal of Business Ethics	583	3
46	j law econ	The Journal of Law and Economics	567	1
47	hum relat	Human Relations	562	2
48	rev financ stud	Review of Financial Studies	549	1
49	strategic management***	Strategic Management	543	4
50	acad manag ann	Academy of Management Annals	535	2

*) Termed by the co-citation map in Figure 10. **) Working papers were cited 795 times by past decade's strategic management literature. ***) "strategic management" could not be assigned to any source.

Quarterly (10,363 citations), *Organization Science* (9,777 citations), the *Academy of Management Review* (9,201 citations), and *Management Science* (7,620 citations), which apparently were key foundations for strategic management research conducted within the last decade as well.

The left hand-side of the source co-citation map primarily features journals from the areas of finance, economics, marketing as well as innovation and technology. The upper left area of the map, which is made up by cluster 1, features journals from the area of finance and accounting, such as the *Journal of Finance* and the *Journal of Financial Economics*, whose significance, however, is rather modest. Journals located in the mid-left area, which is made up by cluster 1 as well, can be associated to economics and statistics. Such journals are, for example, the *American Economic Review*, the *Quarterly Journal of Economics*, the *RAND Journal of Economics*, *Econometrica*, the *Journal of Political Economy*, and the *Journal of Economic Behavior & Organization*. A core foundational journal (in terms of citations received) to be found in this area is *Management Science*, which primarily features research on managerial decision-making based on economics and mathematics. Journals from the field of marketing such as the *Journal of Marketing*, *Marketing Science* and the *Journal of Marketing Research* are to be found in this area as well. The lower left area, which is taken up by cluster 4, features journals from the area of innovation and technology such as *Research Policy* or *Industrial and Corporate Change* of which especially the former is much cited by past decade's strategic management research.

The right hand-side of the source co-citation map comprises journals from the areas of management, psychology and sociology. The center right area of the map is made up of clusters 2, 3 and 5 and features the core intellectual foundations of past decade's strategic management research (in terms of citations received from the dataset's 2,987 articles), which broadly relate to the fields of management and organization theory. These are the *Academy of Management Journal*, *Administrative Science Quarterly*, *Organization Science*, the *Academy of Management Review*, and the *Journal of Management*, all of which are strongly interlinked. Other journals with considerably lower influence to be found in this area, are the *Journal of Management Studies* and *Organization Studies*. Journals from the field of sociology, such as the *American Journal of Sociology* and the *American Sociological Review*, are to be found in this area as well. The upper right area of the map, which is solely made up of cluster 2, features journals from the psychology field such as the *Journal of Applied Psychology*, the *Journal of Personality and Social Psychology* and *Research in Organizational Behavior*. The lower right area of the map which is solely made up of cluster 3 is only sparsely settled. It comprises journals relating to international business such as the *International Journal of Business Studies*, and entrepreneurship such as the *Journal of Business Venturing*.

The *Strategic Management Journal* – the core foundational source of past decade's strategic management literature – is located quite in the center of the co-citation map presented in Figure 10, evidencing the discipline's multidisciplinary nature. It is strongly interlinked with *Organization*

Science, the *Academy of Management Journal*, the *Academy of Management Review*, *Administrative Science Quarterly*, the *Journal of Management* and *Management Science*, implying that it is often co-cited with either of these journals by the dataset's 2,987 articles.

Finally, the source co-citation map evidences the broad intellectual structure of strategic management research conducted within the recent ten years, which apparently ranges from economics to organization theory and management up to psychology and sociology.

5. Discussion & conclusion

This work set out to explore the structure of strategic management research conducted in the past decade and how its structure has developed. To accomplish the endeavor of assessing the state of the art of the strategic management discipline, bibliometric mapping analyses have been applied.

Through the application of keyword co-occurrence analyses and by assuming that keywords of articles are proxies for their contents (Callon et al., 1991), the salient conceptual elements of past decade's research and their development within the last three decades have been outlined and discussed. Having determined the key concepts for the 2008-2017 period, the most influential contributions published in this period and addressing these concepts, have been identified. This was accomplished by assessing the relative *Web of Science* citations these articles received until the date the bibliographic dataset was downloaded. In doing so, it was assumed that citations of documents are a valuable indicator of their influence (e.g. Ramos-Rodriguez & Ruiz-Navarro, 2004; Tahai & Meyer, 1999). This combination of analyses made it possible to not just obtain the key research streams addressed in past decade's research, but also the sub-fields within these research streams. Additionally, the approach applied here allowed to trace both the historical development of past decade's key research areas and the evolution of the discipline's entire structure within the last decades. By further adhering to the assumption that citations give information about the impact of research, the most influential articles, authors and organizations of the past decade have been determined by assessing the *Web of Science* citations all the 2,987 articles received until the date the dataset was obtained. In order to reveal the intellectual basis of past decade's strategic management articles, document, author and source co-citation mapping analyses were performed. In that regard, the historical development of past decade's key intellectual foundations was traced.

The keyword co-occurrence mapping analysis of research published in the last ten years revealed that concepts, such as performance, competitive advantage, industry, market, innovation, research and development, knowledge, technology, absorptive capacity, alliances, resource-based

theory, dynamic capabilities, decision-making, strategic change, governance and entrepreneurship made up the nucleus of past decade's strategic management research.

Within the area of innovation, research addressing innovation potentials of firm alliance networks, environmental innovation and sustainability transitions, open innovation, absorptive capacity, organizational ambidexterity and business-model innovation seem to be highly prominent. Hot topics in the area of alliances appear to revolve around the management of alliance portfolios as well as alliance governance. Influential literature dealing with the resource-based view seems to focus on the empirical examination of the latter as well as on the role of human capital when attempting to explain competitive advantage. Moreover, calls for advancement of resource-based theory have obviously received attention. The academic discussion addressing dynamic capabilities appears to have revolved around conceptual issues, managerial capabilities and the framework's empirical examination. Conceptual issues apparently also played an important role in past decade's research on entrepreneurship. The topics addressed in entrepreneurship literature, however, appear to be quite diverse. Due to the fact that for the concepts governance, decision-making and strategic change, only two to four relevant articles could be identified, no thematic conclusions were drawn for these areas. No articles were identified for keywords such as strategy, performance, competitive advantage, industry and market, as these keywords tend to be applied in a great deal of contexts. As argued, the prominence of review articles, which are considered as an attempt to organize a field (Denyer & Tranfield, 2009; Tranfield et al., 2003) within the discussed research areas could be regarded as an indicator of fragmented research within these fields.

With regard to the historical development of past decade's (2008-2017) key conceptual elements, most of the identified key elements for the past decade had already been key topics in the 1998-2007 period. This indicates that the structures of the 2008-2017 and the 1998-2007 periods differ only moderately. In line with this, the comparison of the discipline's structures of the periods 2008-2017, 1998-2007 and 1988-1997 revealed that the growth of the field has considerably slowed down over time.

The analysis of past decade's strategic management literature in terms of received citations by revealing research on innovation, resource-based theory and dynamic capabilities as highly significant, provided partial support for the results of the keyword co-occurrence analysis of the past decade (2008-2017). It furthermore identified research on corporate social responsibility, institutional theory, signaling theory and team effectiveness as prominent in strategic management literature of the past decade. Additionally, from the analysis of those articles' authors as well as the organizations these works originate from, the key role of American authors and universities became evident.

In order to provide an overview of the intellectual foundations of research conducted in the last ten years and to trace the historical development of these intellectual foundations, co-citation analysis was performed. The results indicate that the intellectual basis of strategic management

research conducted within the recent ten years has been primarily made up of resource-based theory, dynamic capabilities, evolutionary theory, behavioral theory, institutional theory, organizational economics, organizational learning, innovation, knowledge, absorptive capacity and inter-firm relations. In that regard, a noticeable result to emerge from the tracing of the historical development of the discipline's key intellectual foundations is that resource-based theory has maintained its prominent position and that industrial organization economics has further declined in significance. Moreover, in this context, it has become evident that dynamic capabilities theory has established itself as a key concept in strategic management research in the past decade. The pendulum by which Hoskisson et al. (1999) described the movement of the strategic management discipline from internal firm characteristics to industrial organization economics in the early 1980s and then back towards internal firm structures in the 1990s, thus, appears to have continued its swing towards internal characteristics of the firm. Additionally, it could be concluded that firm knowledge, organizational learning and institutional theory have established themselves as key intellectual foundations of strategic management research in the past decade. Also, research addressing econometric issues has developed to an important intellectual basis implying that the field has further shifted its focus to empirical, quantitative research methods.

The co-citation analysis further identified authors, such as David J. Teece, Kathleen M. Eisenhardt, Ranjay Gulati, Jay Barney and James G. March and sources, such as the *Strategic Management Journal*, the *Academy of Management Journal*, *Administrative Science Quarterly*, *Organization Science* and the *Academy of Management Review*, as those that heavily impacted past decade's strategic management literature.

The research presented here has several limitations. These limitations not only stem from the bibliometric techniques applied, but also from the selection of journals at the very beginning.

With regard to the latter, due to its multidisciplinary nature, it is difficult to fully cover the whole discipline. In this study, the ten most influential management journals as evidenced from the *Social Sciences Citation Index* were utilized. Specifically, the bibliographic data of all research articles related to strategic management published in these journals between 2008 and 2017 was downloaded. Because of its specific focus, all articles published in the *Strategic Management Journal* between 2008 and 2017 were included. For the other nine journals whose focus is broader, the intent to only retain articles on strategic management was accomplished by including only those that contained the term *strateg** within their titles, abstracts, or keywords in the bibliometric analyses. This choice is subject to biases. First, the field of strategic management was limited to ten journals, most of which had been utilized in previous bibliometric analyses of the discipline. The approach applied here, however, overlooked important journals from the area of strategic management such as *Long Range Planning*, *Global Strategy Journal* or *Strategic Entrepreneurship Journal*. Second, the way of identifying strategic management articles from the nine journals other than the *Strategic Management Journal*, is both limiting and overreaching at the

same time: For sure, not all articles on strategic management have the term *strateg** in their titles, abstracts or keywords, and in contrast, articles not related to strategic management might have this term in their titles, abstracts or keywords. This implies that in this analysis there might be both a lack of bibliographic data of articles that relate to the strategic management field and the presence of articles which actually are not related to the discipline. In order to assess the extent of this bias, the bibliographic maps constructed in this research were also constructed solely for the *Strategic Management Journal* (Ramos-Rodriguez & Ruiz-Navarro, 2004; Nerur et al., 2008). Overall, the results obtained by only evaluating the *Strategic Management Journal*, however, only varied to some degree from those obtained here, implying that the procedure applied in this work can be considered as acceptable.

With regard to the applied bibliometric mapping techniques, the well known limitations apply. Both co-word and co-citation maps suffer from arbitrary threshold setting (Callon et al., 1991; Peters & Raan, 1993a; Rip, 1988; Small & Griffith, 1974), which is thus present in this work at least to some extent. Particularly co-word analysis appears to be susceptible to problems stemming from the choice of the threshold (Callon et al., 1991; Peters & Raan, 1993a). In that regard, Peters & Raan (1993a) argue that researchers have to strike a balance between lower thresholds that result in a large number of items displayed in the co-word map, which might result in several redundant words, and higher thresholds that would result in a smaller number of items displayed, a smaller number of redundant keywords and the loss of small research fields. In this work's keyword co-occurrence analyses, the thresholds were set to 50, which implies that the focus was rather set on a broader picture of the discipline that filtered out "noise" (Peters & Raan, 1993a; Rip, 1988), which in turn ensured sufficient readability of the keyword co-occurrence maps. Smaller research areas, however, might have been overlooked. A further problem specifically pertaining to co-word analysis is that of synonymity of words (Peters & Raan, 1993a). The threshold of 50 was also chosen in order to counteract the problem of synonymity: in the listing of the 98 keywords for the period 2008-2017 that fulfilled the threshold, it was relatively easy to check and correct for the synonymity of words, which in contrast would have been a rather difficult exercise for a list of a few hundred terms. This in turn implies that keywords that were below the threshold of 50 occurrences but were synonymous to those that fulfilled the threshold were ignored, which, however, has shown to not significantly bias the results obtained.

Co-citation analysis has its limitations as well. Similar to the keyword co-occurrence analyses, the thresholds for the co-citation mapping analyses were chosen in such a way that noise was filtered out: The inclusion thresholds were set to 50 citations for documents, 100 citations for authors, and 200 citations for sources. Again, the focus was thus rather put on a broader than on a wider picture. Apart from the predicament arising from the choice of the inclusion threshold, co-citation analysis suffers from other limitations. Referring to the document co-citation analyses performed in this research, works can be cited for reasons other than building upon existing

knowledge (Baumgartner & Pieters, 2003), such as for challenging existing knowledge, the prominence of authors or generating self-citations by authors (Brown & Gardner, 1985). Moreover, in terms of the author co-citation analysis performed here, only the first authors of cited references were considered due to the fact that *Web of Science* data only includes the first authors of an article, which might undervalue the role of influential co-authors (Nerur et al., 2008). Finally, the fact that works published at a later date have less time to receive sufficient citations, is not accounted for in co-citation analysis, which according to Ramos-Rodriguez & Ruiz-Navarro (2004) biases results only to a small extent, since influence is a matter of time. Conversely, in the citation analysis that revealed past decade's most influential articles in terms of *Web of Science* citations they received until the bibliographic dataset was downloaded, it was, however, decided to adjust for articles' ages, since the aim was to present an up-to-date picture of topics researched.

Nevertheless, despite its limitations, the analysis of citations is commonly considered to be an objective measure of documents', authors' or journals' influence that is less susceptible to biases than subjective approaches (e.g. Baumgartner & Pieters, 2003; Brown & Gardner, 1985; Nerur et al., 2008; Ramos-Rodriguez & Ruiz-Navarro, 2004).

Furthermore, the determination of past decade's key-conceptual elements from the keyword co-occurrence map's results (those keywords that appeared at least 100 times within the 2,987 articles identified for the past decade) and the inclusion threshold (15 citations per year) set for the respective articles identified within key conceptual elements, obviously were arbitrary. Moreover, several articles identified within the respective key conceptual elements also addressed other key elements, which underlines the field's multidisciplinarity. Such articles thus would also have fit to other key elements determined. The topics within the key-conceptual elements would have been examined in more detail if the thresholds of 15 citations per year had been decreased so that more articles per key-element would have been identified.

Finally, this work delineated the structure of the strategic management discipline during the past decade, outlining key research fields and contributions as well as the recent major intellectual foundations. Moreover, it put an emphasis on the discipline's evolution as well as on the historical development of past decades's key research areas and intellectual foundations. Despite the fact that the field comprises a large variety of research areas and that patterns of fragmentation were observed within the identified key research streams, overall, from the comparison of past decade's research with that of the preceding decades, it appears that the strategic management discipline has consolidated within the past decade.

Apparently, to date no existing scientific work has explicitly examined strategic management research conducted in the recent ten years nor has the historical development of concepts and foundations that made up the discipline in that period been analyzed, which is why this work shall be of special interest to strategic management research.

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