



## ATTENTION-BASED VIEW: PAST, PRESENT AND FUTURE

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### Abstract

**Objective:** To present a review and prognosis of academic research focused on the field of Attention-Based View (ABV).

**Methodology:** Bibliometric analysis using co-word analysis and co-citation techniques of 165 relevant articles published between 2004 and 2021 in journals included in the Web of Science and Scopus databases, considering conceptual and intellectual structures, trends, and possible paths for the field of ABV. The retrieved articles were selected based on the key terms present in the title, abstract, and keywords.

**Relevance:** Identifies the field development, research network, documents the most relevant journals and articles, concepts, and the intellectual framework of prominent authors.

**Findings:** The seminal author, Ocasio, is the most expressive and the center of all networks in ABV research. The leading journal, according to the number of articles published, is the Strategic Management Journal. The conceptual structure presents three groups: the central roots of ABV, the attentional dynamics within organizations, and managerial cognition. Relevant topics are strategic change and communication channels, strategy as practice and studies in multinational companies (MNCs), organizational design, senior management team and governance.

**Theoretical implications:** To present the state of the art, to integrate ABV knowledge and identify gaps for future research showing new trends, such as interfaces with metacognition and governance.

**Practical implications:** Top management team decision-making process is ABV dependent so organizational architecture and its dynamics plays a crucial role in strategy for business success.

**Keywords:** Attention-based view, Bibliometric analysis; Co-citation analysis; Literature review

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## VISÃO BASEADA NA ATENÇÃO: PASSADO, PRESENTE E FUTURO

**Objetivo:** Apresentar uma revisão e prognóstico em pesquisas acadêmicas voltadas para o campo da Visão Baseada na Atenção (ABV em inglês).

**Metodologia:** Análise bibliométrica utilizando técnicas de co-word analysis e cocitação de 165 artigos relevantes publicados entre 2004 e 2021, em periódicos incluídos nas bases de dados Web of Science e Scopus, considerando estruturas conceituais e intelectuais, tendências e possíveis caminhos para o campo da ABV. Os artigos recuperados foram selecionados com base nos termos-chave presentes no título, resumo e palavras-chave.

**Relevância:** Identifica o desenvolvimento e evolução; documenta periódicos e artigos mais relevantes, conceitos e a estrutura intelectual de autores proeminentes.

**Resultados:** O autor seminal, Ocasio, é o mais expressivo e o centro de todas as redes na pesquisa ABV. O periódico líder, segundo o número de artigos publicados, é o Strategic Management Journal. A estrutura conceitual apresenta três grupos: as raízes centrais da ABV, a dinâmica atencional dentro das organizações e a cognição gerencial. Os tópicos de destaque são mudança estratégica e canais de comunicação, estratégia como prática e estudos em empresas multinacionais (MNCs), design organizacional, equipe de gerenciamento sênior e governança.

**Implicações teóricas:** Apresentar o estado da arte, integrar o conhecimento da ABV, identificar lacunas para pesquisas futuras mostrando novas tendências, como as interfaces com metacognição e governança.

**Implicações práticas:** O processo de tomada de decisão da alta administração é dependente da ABV, portanto, a arquitetura organizacional e sua dinâmica desempenham um papel crucial na estratégia para o sucesso do negócio.

**Palavras-chave:** Visão baseada na atenção; Análise bibliométrica; Análise de cocitações; Revisão de literatura

## VISION BASADA EN LA ATENCIÓN: PASADO, PRESENTE Y FUTURO

**Objetivo:** Presentar una revisión y pronóstico de la investigación académica enfocada en el campo de la Visión Basada en Atención (ABV en inglés).

**Metodología:** Análisis bibliométrico mediante técnicas de análisis de co-palabras y co-citación de 165 artículos relevantes publicados entre 2004 y 2021 en revistas incluidas en las bases de datos Web of Science y Scopus, considerando estructuras conceptuales e intelectuales, tendencias y posibles caminos para el campo de la ABV. Los artículos recuperados fueron seleccionados en base a los términos clave presentes en el título, resumen y palabras clave.

**Relevancia:** Identifica el desarrollo y evolución; documenta las revistas y artículos más relevantes, los conceptos y el marco intelectual de autores destacados.

**Resultados:** El autor seminal, Ocasio, es el más expresivo y el centro de todas las redes en la investigación ABV. La revista líder, según el número de artículos publicados, es Strategic Management Journal. El marco conceptual presenta tres grupos: las raíces centrales de ABV, las dinámicas atencionales dentro de las organizaciones y la cognición gerencial. Los temas destacados son el cambio estratégico y los canales de comunicación, la estrategia como práctica y estudios en corporaciones multinacionales (MNC), diseño organizacional, equipo de alta gerencia y gobernanza.

**Implicaciones teóricas:** presentar el estado del arte, integrar el conocimiento de ABV e identificar brechas para futuras investigaciones que muestran nuevas tendencias, como interfaces con metacognición y gobernanza.

**Implicaciones prácticas:** El proceso de toma de decisiones del equipo de alta dirección depende de ABV; por lo tanto, la arquitectura organizacional y su dinámica juegan un papel crucial en la estrategia para el éxito empresarial.

**Palabras llave:** Visión basada en atención, Análisis bibliométrico; Análisis de co-citación; Revisión de la literatura.

## 1 Introduction

Applied Social Sciences research is criticized for the narrow view of strategic phenomena. Attention Based View (ABV) was proposed by Ocasio (1997), as a new explanation of firm behavior and, particularly, of how firms respond to changes in their environment and internal circumstances. It has evolved from a nascent topic area into a hot topic of major subfield of strategic management, nevertheless studies in this approach which emphasize empirical regularities apparently have not achieved their mainstream momentum. As stated by Gavetti and colleagues, ABV, on the quest for a neo-Carnegie School approach, states that bounded rationality and specialized decision structures are cornerstone to be fertilized by advances in a multidisciplinary way encompassing the very nature of Carnegie approach to organizational phenomena (Gavetti et al., 2007).

Decision making and strategy implementation depend on cognitive processes of top management team (TMT) mediated by organizational architecture which creates inducements for them. Therefore, understanding the state of the art of ABV will support professionals and academics in advancing their comprehension of selective attention mechanisms of choice (Bundy et al., 2013; Calabrese & Costa, 2015).

Managers are responsible for organizational decisions at different levels influenced by psychological aspects such as moral understanding, values, personality, ethical behavior, attention and sense of justice. In a social context, the managerial cognition integrates these aspects, which can influence the outcomes of the decision-making process (Rerup, 2009; Vuori & Huy, 2016).

More than 70 years ago, Simon (1947) proposed that humans' bounded rationality results from limited attentional capacity further developed by the Carnegie School to announce the behavioral theory of the firm (BTF), which highlights the explanatory power of limited attention in order to understand decision-making under uncertainty in an information-overloaded world. BTF assumes that paying attention is a necessary condition of decision-making process. Due to attentional deficits, humans cannot include all action alternatives in their decision-making process and, thus, cannot simply choose the optimum option (Cyert & March, 1963).

Attention-Based View (Ocasio, 1997) states that company behavior results from channeling and distributing the attention by decision-makers. Extant literature analyzes the interplay among macro and micro foundations of strategy. From the micro-foundations perspective individual choices, abilities, propensities, heterogeneity, purposes, expectations,

and motivations influences the organization's architecture, agenda and focus. This interplay identifies issues and goals that shall guide top-down strategy. In this regard, the executive attention is an amalgam paramount (Barney & Felin, 2013; Ocasio & Joseph, 2005).

Moreover, Ocasio's Attention-Based View (Ocasio, 1997) has been employed by some authors to analyze a variety of stimuli regarding executive attention such as mindfulness (Weick & Sutcliffe, 2006), selling issues to top management (Dutton & Ashford, 1993), the merger and acquisition integration process (Yu et al., 2005), organizational crises (Rerup, 2009), CEO behavior (Tuggle et al., 2010) and opportune and effective management decision-making process (Barnett, 2008).

As the manager's attention is limited, it is only activated by stimuli that are relevant to the organization. Moreover, perception of these requires the ability of decision-makers to sense all the signs in the environment that may be suited strategically. Attention limits ensure that certain types of data go entirely unnoticed, preventing interpretation at all (Shepherd et al., 2017). Furthermore, although at first controversial, it is now generally accepted that several perceptual, emotional and cognitive processes can unfold in the absence of awareness (van Gaal et al., 2012).

As mentioned by Dutton et al (1989), attention refers to the set of elements that occupy the conscience of decision-makers and is a cognitive process in which the focal point is selectively focused on one aspect of the environment, ignoring others, actively processing a limited amount of information (Sternberg, 2000; Strayer et al., 2003). Under this perspective, attention is understood as a socially funnel that dynamically structures the pattern of choice within an organization (Cho & Hambrick, 2006; Ocasio et al., 2018).

The limited empirical studies that address the construct of attention in decision-making processes may also be related to the lack of reliable scientific methods in Applied Social Sciences for measuring and analyzing the process. In the last two decades, it was possible to verify the increase of publications in strategic management that use neuroscientific tools to observe cognitive processes (Becker et al., 2011; Lindebaum, 2016; Spence, 2019).

Recently, in a review and conceptual ABV extension framework, Brielmaier and Friesl (2022) proposed that situated attention is shaped by four situational characteristics: the materiality, temporality of the circumstances, social dynamics and the framing of the strategic setting. On the other hand, Andrews (2022) and colleagues present ABV in the context of Multinational Corporation (MNC) concerning different aspects of attention allocation and conceptualizations of attention, its outcomes and antecedents building a nomological network to unveils that future research agenda dealing with MNC and subsidiary interactions.

This article contributes by depicting a map of conceptual framework and intellectual structure of a field of great interest for academics and professionals. This holistic view of the field leverage the understanding of relationships between paradigms and the most analyzed topics thus identifying most relevant achievements and future opportunities (Ferreira et al., 2016).

The conceptual map and intellectual structure should support Junior researchers who often needs to speed up the process of identifying the main areas of research on a topic and the leading authors and articles in each line of research. Besides, it can help by providing them with qualified information for planning their research in gaps of knowledge. Senior researchers can also benefit from a deeper understanding of how the field has evolved, lately more research lines, avenues for future research, or how network of collaborations influence research.

For professionals, the work helps as a guide to improve the perception of relevant stimuli in strategic choices.

To guide our further research into ABV, a comprehensive study of the literature provides the building blocks for a successful start. Given the growing interest and its importance for business performance, the study reported in the present paper was undertaken to gain an understanding of the most relevant sources, the contributors and their main contributions. Using a series of Bibliometric analyses, the paper maps the network of authors and documents, with the aim of highlighting the capital aspects and considering the corresponding implications for future work. The outcome of the study is the prime trends and growth pattern of Attention-based View.

The paper is organized as follows. Section 2 provides a detailed description of the methodology that includes the Bibliometric approach, selection criteria, final data set and the techniques used for analysis. Section 3 presents the results based on 95 journal analyses. Section 4 concludes the paper, highlighting its limitation and future research areas.

## 2 Methodology

Systematic Literature Review (SLR) played an essential role in systematizing scientific publications to use the existing body of knowledge effectively to give evidence-based insights for practical implications and improve professional judgment and competence (Paul & Criado, 2020). Using validated search techniques, objective research questions, data extractions, and data presentations (Ahmad, Menegaki, et al., 2020) SLR is carried out successfully in many areas.

SLR articles can be categorized as domain-based, theory-based, and method-based. Meta-analytical reviews are also increasingly popular in many subject areas (Hulland & Houston, 2020). Domain-based review articles can be classified into different groups; namely – Structured review focusing on widely used methods, theories, and constructs; Framework-based review, Bibliometric review, Hybrid-Narrative with a framework for setting future research agenda, and Review aiming for model/framework development (Paul & Criado, 2020).

### ***Research question's formulation***

Scoping involves the formulation of research questions that provide an underline plan, logical context, aim and base for operationalizing SLR. The key questions formulated for this research are:

RQ1. How has the field and intellectual structure of ABV evolved?

RQ2. What are the most significant contributions, journals, keywords and who are the most influential authors, in the field of ABV?

RQ3. Which are the main authorship networks collaboration patterns?

This study uses the Bibliometric reviews method, employing statistical tools, the analysis in bibliometric review articles figures out trends, citations and co-citations of a particular theme by year, country, author, journal, method, theory and research problem. Softwares like VoSviewer (and R-Studio) are widely used to conduct such bibliometric reviews in diverse subject areas (Paul & Criado, 2020).

As stated by Thomé et al. (2016), the literature offers a variety of approaches for searching and selecting an area of research; however, our analysis is based on six steps that include: Scoping and formulating the research question; Database selection and searches criteria; Search strings or Keywords; Relevancy and Quality assessment; Data extraction; and Analysis and synthesis.

### ***Database selection***

The research articles for this study have been extracted from Web of Science (WoS) due to quality of and comprehensiveness of the data (Ahmad, Aghdam, et al., 2020; Ahmad, Menegaki, et al., 2020; Harzing & Alakangas, 2016; Harzing & van der Wal, 2009). Similar research was conducted at Scopus database and no other paper was identified. As pointed out

by Paul and Criado (2020), one of the most popular and appropriate methods for selecting the relevant articles for any study is to search for articles using rigorously chosen keywords or strings present in the title, abstract or in the keywords list.

Following this approach, the keywords for this study are “Attention-based view”; “Attention-based or ABV”, document type= article, topic= management”. The Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) suggestion includes reporting guidance that reflects advances in methods to identify, select, appraise, and synthesize studies (Page et al., 2023).

Journal articles published only in the English language, from 2004 to 2021 are included for the final analysis. This timespan was defined by the first citation of Ocasio’s seminal work of 1997 identified in both databases.

Articles were assessed for relevance by two researchers working in the field, primarily by reading the title and abstract but, where necessary, the full article was read. An initial search showed 207 articles. After trimming the database, 165 articles were obtained for final analysis (Figure 1).

Figure 1

PRISMA flow diagram

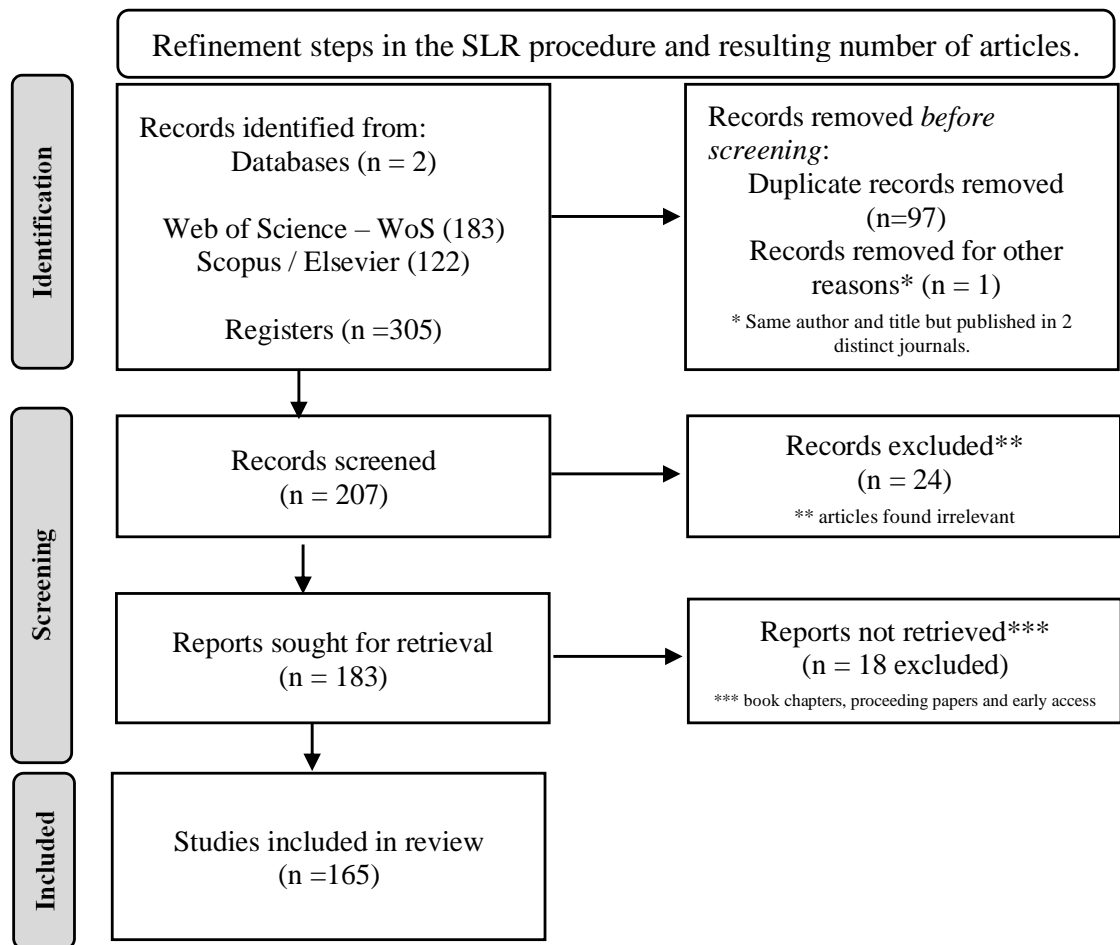


Figure 1 shows the refinement steps in our SLR procedure and the resulting number of articles. As the result of trimming the 207 studies with the following exclusion criteria, 24 were found irrelevant, 13 early access not available to full read, 3 book chapters and 2 proceeding papers. We identified 165 peer-reviewed articles relevant for our research hypotheses.

### Data extraction, bibliometric and network analysis and synthesis

Bibliometric analysis helps in finding the most representative contributors, themes and collaborations (Anwar et al., 2021). The network approach is a quantitative method for analyzing scientific publications and is widely accepted within Bibliometric studies (Randhawa et al., 2016).

Co-word analysis is a methodology involving keywords of articles to seize scientific networks of the field under study (Ding et al., 2001). According to Callon (1986), this is a



content analysis technique establishing relationships and building a conceptual structure of the domain based on pair of words in documents. The idea underlying the method is that, when words frequently co-occur in documents, it means that the concepts behind those words are closely related mapping conceptual structure of a field. Co-word analysis aims to map the conceptual structure of a field using the word co-occurrences in a bibliographic collection. This helps the researchers to highlight the nexus of the main theme with the emerging subfields of the study (Koseoglu & Parnell, 2020).

The Louvain method (Blondel et al., 2008) employs network modularity, which measures the meaningfulness of network division into communities. It starts with assigning each node to separate community and then iterates through all communities, checking whether adding a node from one community to another causes an increase in modularity and choosing the change with greatest score. These processes are repeated until there is no change in community structure. The method has been found to be very fast for large networks and to provide excellent accuracy (Liu et al., 2012).

Co-citation network analysis is a tool to identify the conceptual structure of an academic discipline. Co-citation analysis states that the more two items are cited together, the more likely it is that their content is related, in this study the unit of analysis: document co-citation analysis, author co-citation analysis (Alonso et al., 2018; White & McCain, 1998). According to (Koseoglu & Parnell, 2020), conceptual connections, co-citation networks, invisible colleges, social contagions, knowledge networks, knowledge domains and source knowledge are the other terms that are used interchangeably for intellectual structure (Zupic & Čater, 2015).

As proposed by Anwar et al. (2022), we conduct a co-authorship network analysis to represent the publication work carried out by a given group of researchers. This network is useful to understand collaboration patterns: for instance, the numbers of papers groups of authors write, how many co-authors are involved, the distance between authors within the network and how collaboration patterns vary between authors within the group as a whole.

For this study, 165 articles were converted into Text format which is readable in R-Studio software for Bibliometrix analysis, and into Excel (CSV) format for complementary analysis in VoSviewer. R-Studio is an open-source R-tool for comprehensive quantitative research and scientific mapping, encompasses statistical algorithms, mathematical functionality and visualization capabilities for analysis through tables and graphs (Aria & Cuccurullo, 2017). VoSviewer, as a tool designed to generate and present networks that involve connections between sources, authors, or documents based on bibliographic couplings was used to construct

co-occurrence networks of authors' keywords or index keywords by leveraging text mining techniques (Van Eck & Waltman, 2017).

### *Limitations*

It is possible that some relevant and interesting articles were missed out because they were not present in selected databases or by exclusion/ inclusion criteria. Future work should compare the present findings including other sources of records.

## **3 Results and discussion**

This section presents the descriptive statistics and results of the citation and network analysis. Citation analysis includes the time trend of publications and citations, identifies the most influential sources, the most prolific authors and the most influential articles. Network analysis is divided into subsections; Documents Co-citation analysis, Authors Co-citation Analysis; Co-word analysis and Collaboration network analysis.

### *Descriptive statistics*

The selected 165 articles were published in 95 journals from 2004 to 2021. In total, 396 authors contributed showing an average of 2,76 authors per article and a collaborative index of 2,67. The articles with single authors are 25 (6,3%), while 371 (93,7%) articles were written by multiple authors; this indicator exhibits a different pattern from the Behavior Strategy field where more than 20% are single authored (Anwar et al., 2022). The overall high quality of articles is evidenced by an average citation count of 29,95 citations per article and other related information is presented in Table 1.

**Table 1**

*Baseline Statistics*

Main information	Numbers
Documents	165
Sources (Journals)	95
Keywords Plus (ID)*	594
Author's Keywords (DE)	689
Time period of publications	2004:2021
Total citations	10727
Average citations per articles	29,95
Authors	396
Single authors	25
Multi-authors	371
Articles per author	0,417
Average N° of authors per article	2,40
Average N° of co-authors per articles	2,76
Collaboration Index	2,67

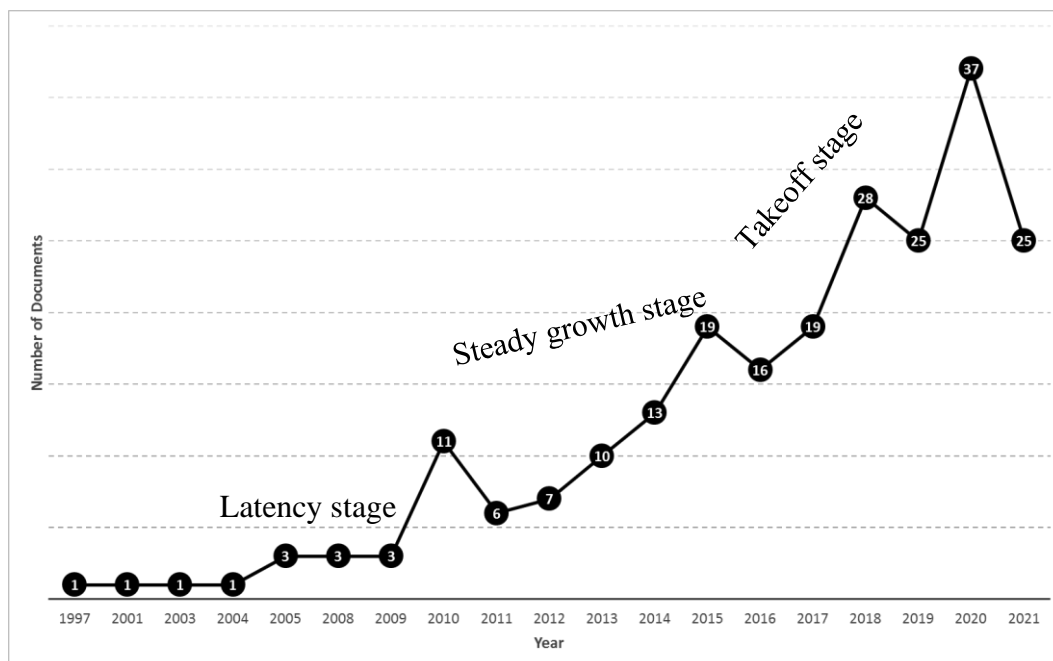
*Note.* \* Total number of phrases used in titles of an article's references

***Annual publication and citation trend***

There is an increasing trend with some variations of research on Attention-based view in the timespan of analysis 2004–2021 in figure 2. The period can be divided into three distinct stages: latency stage (2004–2010); steady growth stage (2011–2015); and takeoff stage (2016–2021). During the initiation stage, only 15 articles (9,09%) were published, which is equal to almost one article per year. The steady growth period represents 34 articles (20,61%) with an improved average of 6,8 articles per year. After 2016, the publication trend showed a sharp increase representing 104 articles (63,03%) of the sample with an impressive average of 17,3 articles per year with an Annual Growth Rate: 22.11% in the hole period. The declining line for year 2021 is because the data was collected up to October 2021 only. However, it is important to note that research on the subject continues to grow.

**Figure 2**

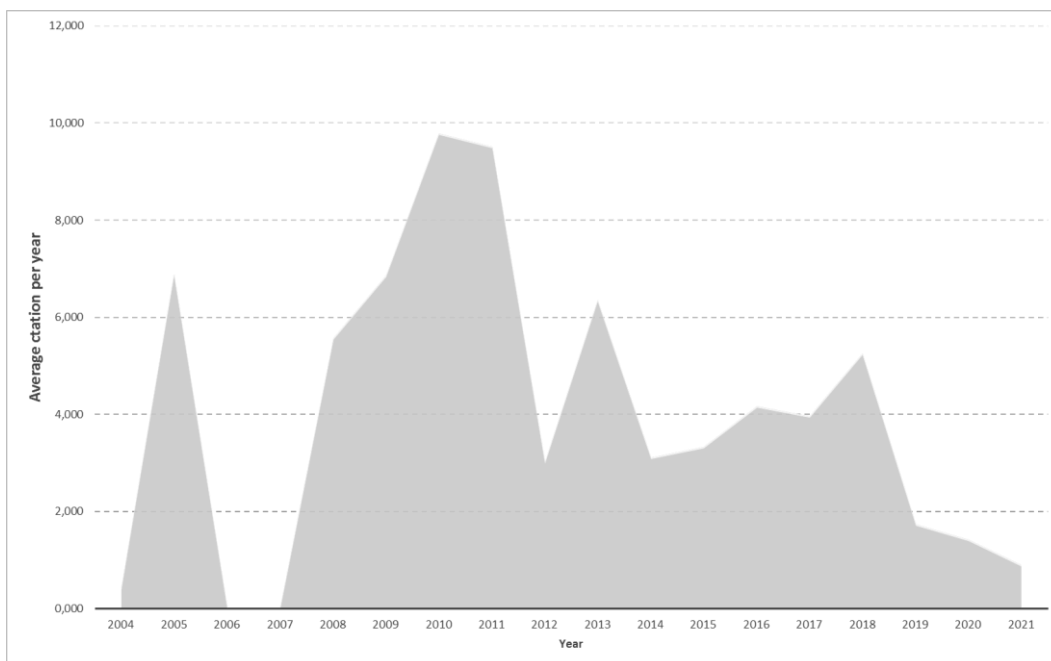
*Time trend of publications on ABV*



Overall, there is a reasonable variation in citations visible in all three stages while no summarizing major topic appear to be distinguished in terms of the topic advancement. Interestingly, in 2006 and 2007 there were no papers on this topic and no citations creating a disruption in the latency stage (Figure 3

**Figure 3**

*Average article citation per year*



A possible explanation for the higher number for citations in 2010, 2011 and 2013 is presented in table 2, mentioning the most cited documents on the current database.

### *Most influential journals*

The results for most influential journals based on the total citation are displayed in Figure 4. The most influential journals are derived from the ranking based on Bradford's law (Brookes, 1969), where a group of journals is divided into different zones. Zone 1 lists the 15 journals with the highest number of publications and citations, and these are likely to be of the highest interest to researchers in the discipline. Strategic Management Journal holds the top position with a total of 1.555 citations, which accounts for 10% of the total number. SMJ is followed by the Academy of Management Journal (AMJ) with 1006 (~ 7%) and Journal of Organization Science with 910 (6%) citations respectively. These citation counts reflect the numbers of citations for the articles selected for this study identified via our keyword's searches.

These results show that Attention Based View has been the prominent area of attention for top-tier journals especially during the recent past. The Strategic Management Journal publishes research articles and eventually "prospective" on new or emerging lines of research.

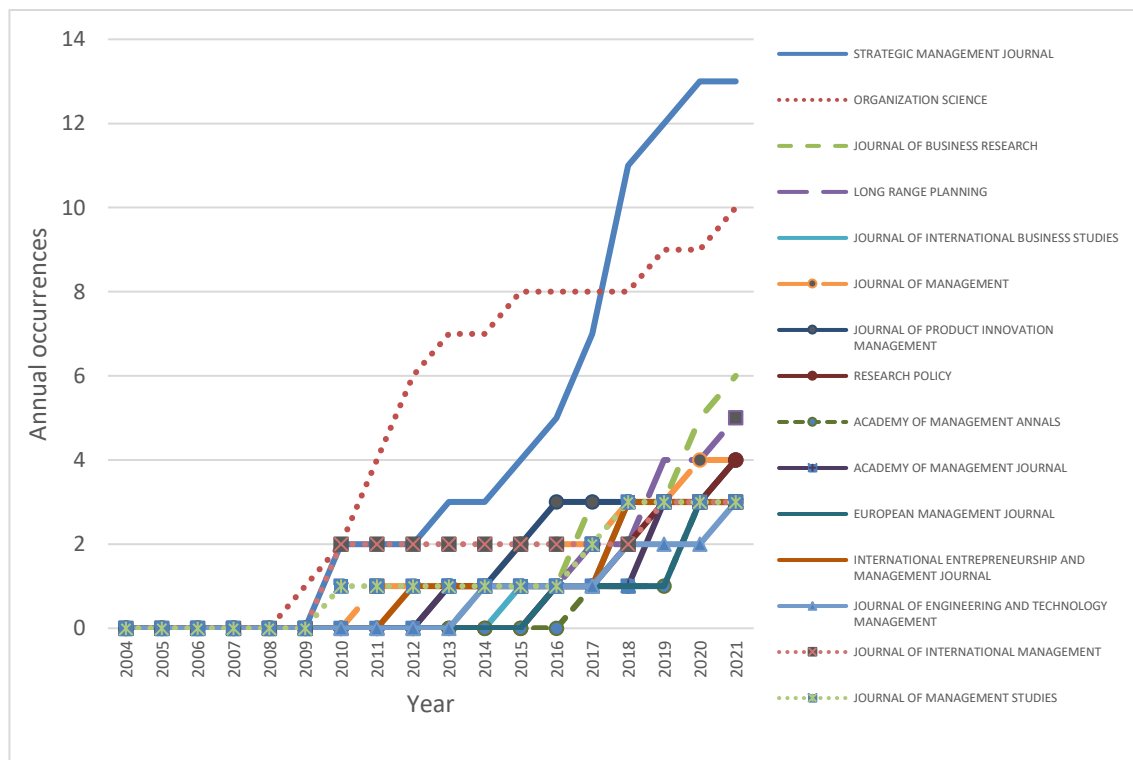
It is interesting to point out that in 2017, within ABV studies reporting in SMJ, it was published the article "Communication and attention dynamics: An attention-based view of strategic change" in the scope of new emerging lines of research, showing the importance of the subject to nowadays' studies.

Moreover, in 2020 SMJ had highlighted ABV in the Editorial section "Contributions to attention-based marketing: Foundations, insights, and challenges" and thus expanded ABV scope beyond strategy, including other aspects of management processes.

Figure 4 provides insights into source headway overview in terms of annual production. SMJ seems to have a strong and long-term commitment and has been publishing on Attention Based View over an extended period, demonstrating robust growth, followed by Organization Science and the Journal of Business Research. Publications in the latter started in the last decade, but it has demonstrated significant vertical growth over the last five years.

**Figure 4**

*Source Growth*



It should be noted that although the Long-Range Planning was among the top five publishers it was still outside the top five. There are, again, some surprising omissions (e.g. Strategy Science), and inclusions (e.g. Journal of Engineering and Technology Management), in the list. Strategy Science, for example, is omitted, due to a lack of publications encompassing

the relevant keywords over the review period. These results show that Attention Based View has been the prominent area of attention for top-tier journals especially during the recent period.

### *The most prolific and influential researcher*

With the aim of evaluating the scientific output of researchers based on *h*-index, *g*-index, citations (full citation, fractional citation, Citation per Year, etc.), the ranking of authors based on full citation count show Ocasio as the forefront author with 686 citations followed by Vaara (2018) and Joseph as first author with Ocasio (2012) as second and third with 224 and 192 citations respectively.

At the author-level metrics *g*-index and *h*-index measure both the productivity and citation impact of the publications of a researcher and thus show the impact of academics, representing the most cited papers based on the number of citations of their publications. Ocasio (University of Illinois Urbana-Champaign) is at the highest rank, with six publications, in total citation Joseph is at second with five publications and Laamanen is at third with four publications. As the proportion of single-authored papers was low, no difference in top authors ranking was observable and even though Ocasio began publishing at the end of the 1990s, he maintains the top position in the field.

Most influential articles are ranked based on the total citation. Normally, in total citation parameter, the old articles get high ranking, but their influence may be less than the current articles if the ranking is based on citation per year (CPY). The results presented in Table 2 showed that the article published by Ocasio (2011) has on average more CPY than Grimpe, C., & Kaiser, U. (2010) and Gregoire, D. A., Barr, P. S., & Shepherd, D. A. (2010).

**Table 2**

*List of works ranked by year and number of cites*

Rank	Title	Reference	Total Citations (TC)	TC per Year	SJR	H	Quartile
1	Attention to Attention	(Ocasio, 2011)	405	33.750	6,96	238	Q1
2	Balancing Internal and External Knowledge Acquisition: The Gains and Pains from R&D Outsourcing	(Grimpe & Kaiser, 2010)	285	21.923	4,40	184	Q1
3	Cognitive Processes of Opportunity Recognition: The Role of Structural Alignment	(Gregoire et al., 2010)	232	17.846	6,96	238	Q1
4	Commanding board of director attention: investigating how organizational performance and CEO duality affect board members' attention to monitoring	(Tuggle et al., 2010)	195	15.000	11,40	286	Q1
5	Top management attention to innovation: the role of search selection and intensity in new product introductions	(Li et al., 2013)	157	15.700	11,19	318	Q1

Accordingly, the most influential article is “Attention to Attention” published a decade ago. The article reflects on the concept of attention and its distinct operationalization by numerous metatheories such as the behavioral theory of the firm, managerial cognition, issue selling, attention-based view, and organizational ecology. In this paper, the author develops five propositions on how diversity on attention at organizational level provides alternative theoretical options against structural determinism or strategic choice, on the explanation of organizational adaptation and change.

The second-ranked article is titled “Balancing Internal and External Knowledge Acquisition: The Gains and Pains from R&D Outsourcing” published in JMS (Grimpe & Kaiser, 2010). This article U-shaped relationship between R&D outsourcing and innovation performance presenting the amount of managerial attention to as an organizational scarce resource in the traditional framework proposed by Cyert & March (1963). The third most influential article is “Cognitive Processes of Opportunity Recognition: The Role of Structural Alignment” Organization Science (Gregoire et al., 2010). The article develops and tests a model of cognitive process that lays behind opportunity recognition.



The results presented in Table 2 also showed that 60% of the top 25 articles are published in the journals with H-factor above 200 and 92% of the articles have at least H-factor above 100.

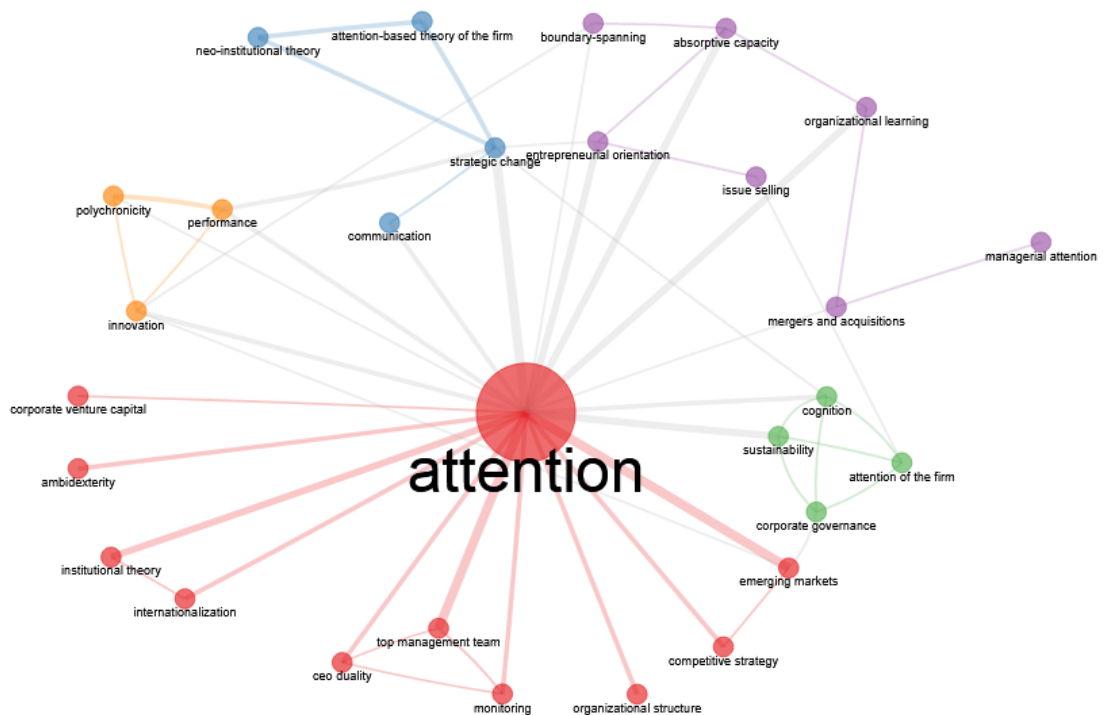
### *The conceptual structure of attention-based view*

In this paper, co-word analysis centered in author supplied keywords was used to represent the conceptual network (Callon et al., 1983; Ding et al., 2001). Here, the size of the nodes depicts the occurrence frequency of the keywords. The higher the frequency, the larger the node size will be. The thickness of the line connecting nodes is proportional to the closeness of connections between two keywords.

The thicker the line between two key words, the closer their relationship will be. Five clusters distinguished by colors in Co-occurrence Network visualization are shown in Figure 5. Each cluster represents a theme based on co-occurrence keywords in our sampled papers.

**Figure 5**

*Co-occurrence Network in Attention Based View Field*



Notes: 1) Clustering by Louvain, normalized by association level with minimum edges of 1 and 31 nodes. 2) Authors Keywords were cleaned from synonyms and all non-concepts were removed.

The red cluster is the largest network of keywords with a major theme as “Attention-based view” (i.e. attention) associated with other nodes such as top management team, competitive strategy, institutional theory and organizational structure. This cluster is also connected with other relatively smaller clusters such as “Strategic Change” and “Entrepreneurial Orientation and Capability”. The Green cluster is related to sustainability, corporate governance, cognition and firm level attention process. The purple cluster presents key concepts of Entrepreneurial Orientation and Capability and its linkages with Merger and Acquisition (M&A), organizational learning, boundary-spanning, issue selling and managerial attention. The blue cluster is based on network of keywords relating to strategic change, attention-based theory of the firm, neo-institutional and communication.

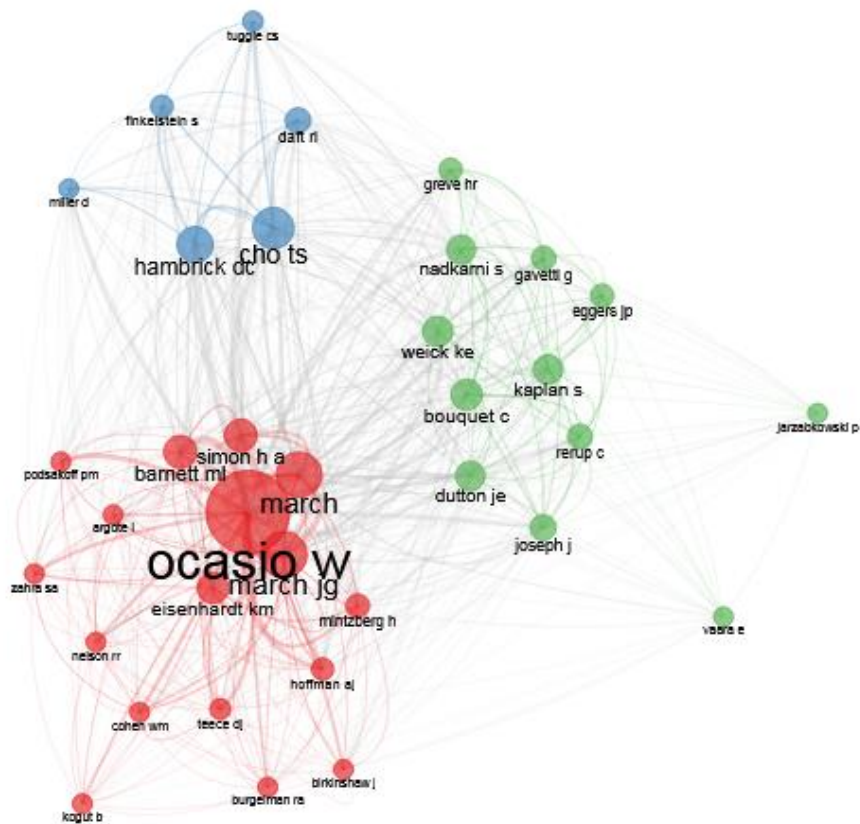
Finally, the orange cluster represents performance, innovation and polychronicity. Understanding these themes, their underlying theories and network relationships provides the pathways for future research and development in the field of Attention-based view and Strategic Management in general.

Co-citation network is the most accepted bibliometric method and its reliability in connecting documents, authors or journals based on joint appearance in the reference lists reveals intellectual structures of fields (Alonso et al., 2018).

In the current study, the co-occurrence network of ABV is shown in Figure 6. The size of the boxes indicates the strength of paper co-citation and distinct colors of the boxes correspond to the different clusters of papers. Within the network, each node represents publications and the lines between them are citations. The nodes with thick links/ lines reflecting stronger association and are considered as the most cited authors or documents. The nodes with the highest links are considered the most cited ones.

Figure 6

Co-occurrence network of Attention Based View Field



Each cluster is indicated with a distinct color and labeled with a title, based on the contents of the research articles. The highest the co-citation of two papers in a paper citation network, the more possible is that these papers deal with similar topics. Given that strong co-citation relationship, a reflection of each cluster in the network demonstrates that publications bridging different domains can be considered as a common research stream based on research background and topics.

The red color represents cluster 1, showing more nodes with Ocasio (1997) as the biggest node. This cluster represents the overall conceptualization of ABV and has the focus on “Carnegie School” three foundational works (Cyert et al., 1958; Cyert & March, 1963; Simon, 1947), “Learning” and “Absorptive Capacity” (Cohen & Levinthal, 1990; Levinthal & March, 1993; March, 1991). Articles in this cluster mainly involved studies that underpins aspects related with selection, reasoning and processing of information in the Strategy Context and how institutions, routines and organizing.

Green represents cluster 2, which discuss topics of documents like attention structures, distributed attention, shared emotions effects, social dynamic of organization; attention

attributes and grasping theory of agency, behavioral science, treat rigidity, issue selling and contingency. This cluster shows a relevant link of Ocasio, W. (2011) with Ocasio, W., & Joseph, J. (2005) publication. These two publications have the major citations referred as a reflection by the links with other publications within the cluster.

Cluster 3 is in the blue color and it concentrates on “Top Management Team” and “Upper Echelon Theory”. Thus, the intellectual structure of Attention Based View can be categorized into three groups as (1) “Carnegie School”, “Learning” and “Absorptive Capacity”; (2) “Organizational Attention Dynamics” and “Attentional Mechanisms”; (3) “Top Management Team” and “Upper Echelon Theory”.

The top articles per cluster are shown in Table 3 based on measures of intermediate centrality that provide information on how productive communication can take place in a network and who are the leading authors in controlling the network communication. Intermediate centrality measures the number of times a node lies on the shortest path between other nodes; it means that an individual influences the flow around a system or concept.

**Table 3**

*Intellectual structure and key articles*

Cluster		Title of top articles in each cluster	Reference	Between centrality
<b><i>Cluster 1 – Core roots of ABV as theory and practice</i></b>				
1	1	Towards an attention-based view of the firm	(Ocasio, 1997)	44,83
1	2	A behavioral theory of the firm	(Cyert & March, 1963)	9,32
1	3	An Attention-Based View of Real Options Reasoning	(Barnett, 2008)	4,41
1	4	Administrative behavior	(Simon, 1947)	4,06
1	5	The Role of Expectations in Business Decision Making	(Cyert et al., 1958)	3,36
<b><i>Cluster 2 – Organizational dynamics of attentional process</i></b>				
2	1	Attention to attention	(Ocasio, 2011)	44,99
2	2	An attention-based theory of strategy formulation: Linking micro-and macroperspectives in strategy processes	(Ocasio & Joseph, 2005)	15,55
2	3	Weight versus voice: How foreign subsidiaries gain attention from corporate headquarters.	(Bouquet & Birkinshaw, 2008)	7,68
2	4	Architecture, attention, and adaptation in the multibusiness firm: General electric from 1951 to 2001	(Joseph & Ocasio, 2012)	7,59
2	5	Attentional triangulation: Learning from unexpected rare crises	(Rerup, 2009)	6,39
<b><i>Cluster 3 – Managerial cognition</i></b>				
3	1	Attention as the mediator between top management team characteristics and strategic change: The case of airline deregulation.	(Cho & Hambrick, 2006)	42,91
3	2	Upper echelons: The organization as a reflection of its top managers	(Hambrick & Mason, 1984)	13,03
3	3	Framing contests: Strategy making under uncertainty.	(Kaplan, 2008)	9,10
3	4	Cognition and renewal: Comparing CEO and organizational effects on incumbent adaptation to technical change	(Eggers & Kaplan, 2009)	7,66
3	5	Environmental context, managerial cognition, and strategic action: An integrated view.	(Nadkarni & Barr, 2008)	5,72

Cluster 1 contains the core roots of ABV as theory and practice. It begins at Carnegie School with Simon (1947) and investigates managerial decision behavior inside administrative organization by proposing a bounded rationality solution for choice, called Satisficing heuristic. In the same institution (Cyert et al., 1958), researchers worked to expand the notion including empirical data from case studies. They pointed out that besides the rules of the thumb, decentralized and specialized structures play an important role in decision process along with personal features and managers expectations implying that the real outcome diverges from the predicted by previous behavior theories.

Cyert and March (1963) some years later in the foundational work on the Behavior Theory of the Firm recall Satisficing heuristic combining the individual behavior with organizational settings and constraints, amplifying the manager focus to the firm operational business context, including politics and specialized decision structures in the process.

More than a decade after the proposition of ABV (Ocasio, 1997), Barnett (2008) published the most relevant study dealing with portfolio choice selection based on Real Options (ROR) in Project Management. His framework presented coupling of managers routine activities and ABV as an applied theory. This article shows a process that starts with communications structures, noticing options, hierarchical structures, project champions under governance channels of overseeing leads to options that could be exercised, maintained and excluded.

Given its origins in the Carnegie School tradition (Cyert et al., 1958; Cyert & March, 1963; Simon, 1947), the ABV is often regarded as an information processing perspective in which attention is the critical limit on the information-processing capacity of the organization.

The second cluster of intellectual structure of ABV field was named organizational dynamics of attentional process. It begins with the publication of Ocasio and Joseph (2005), using ABV as a bridge integrating macro and micro perspectives in the strategic process, pointing out that strategy formulation is a fluid, decentralized process, constrained by governance and communication channels. This leads to the conclusion that strategic initiatives retention is the core of competitive advantage.

In addition, the article presents a model which proposes that during organizational activities, there are two streams of content: one of them refers to performance and feedback and the other deals with knowledge flow, which creates the inputs called issues and initiatives, which through the lens of selective attention they are channeled by a tight and loose network, framing the initiative selection and validation in the decision-making process. Thus,

organizational attention generates a firm's strategic agenda, the issues, and action alternatives that guide the allocation and deployment of resources in organizations.

The relevance of Bouquet & Birkinshaw (2008) publication is related with the beginning of attentional scale development and application in multinational management, emphasizing the importance of three attention dimensions: relative, supportive and visible, considering subsidiaries in a multinational enterprise (MNE) context.

Claus Rerup (2009) contributes with a qualitative approach that adds new dimensions of attention: stability, coherence, and vividness, acting in an intersection which creates the intentional triangulation concept. Through this intersection of interdependent dimensions, organizational attention can process rare events that could lead to critical consequences, enacting organizations to learn how to deal with or prevent crises.

Ocasio (2011) expanded ABV framework by discussing the central role of communication channels in “attentional engagement,” defined as the process of intentional, sustained allocation of cognitive resources to guide problem-solving, planning, and decision-making. As neuroscientists have identified three varieties of attention: selective attention, executive attention, and vigilance at the brain level, Ocasio (2011) notes that attentional engagement is central to the ABV perspective on attention and is relative to insights obtained from previous research on managerial cognition, which defined attention more narrowly in terms of selective attention and perception, rather than Ocasio's broader definition. In summary, communication frames managerial attentional engagement, and Ocasio was the first to propose the role of social interactions occurring within and across communication channels.

Joseph e Ocasio (2012) presented the application of how communication frames channelizing managerial attention and engagement in strategic choices and actions. The relevance of their finding is to describe how to use ABV to read organizational structure of a corporation, and how interaction affects the adaptation of its constituent's business units considering the attention flow within and across governance channels. They found out three communication integration modes: cross-level; cross-function and channel coupling examining threats and opportunities responsiveness. Of these, cross-level channels imply differentiation and integration in corporative structures allowing, through situated attention, to build a greater comprehension of aspects of environment by limiting issues and initiatives combinations proposed to guide organization strategic choice.

The last cluster named managerial cognition presents the connections between ABV and upper echelon theory. Since the evidence of strategic decision making as a cornerstone of strategic process in organization, Hambrick and Manson's (1984) pioneer article presents a lack

of integration between executives, decision making and informational flows, even though its dimension was one of most proficuous approach to strategic decision process in the early eighties. Bringing together Bounded Rationality and Behavioral Theory of the Firm, they proposed that the upper echelon was crucial for the strategic choice.

Hambrick and Cho's (2006) contribution is positioning ABV as a mediator of strategic choice process from TMT perspective, applying their model to the case of airline deregulation. They state that the TMT is the locus of attention, supported by organizations theorists. Daft and Weick (1984) showed that the interpretation of organizations is an action attributed to the leadership team. As the attention is a result of noticing and encoding by managers, this is intricately connected with their cognitive experiences and values, so a change in the composition will lead to different outcomes. This implies that attention is a mediator between TMT characteristics and Strategic Changes.

The Frame Effect is how managers make sense of non-structured information. Moreover, when the frames are not consensual, political practices emerge as a way of mobilizing organizational bias in their interests. The more unpredictable the scenarios, the more likely it is that opportunistic behavior will emerge, enabling power redistribution and change the organizations structure in their choice. ABV is one of the theories that supports the understanding of how interpretative process influences strategy formulation, mainly in their encoding phase (Ocasio, 1997) in an adaptive attempt to make sense in this environment. In this process, the elaboration of strategy under uncertainty emerges as a dominant logic in the management team, altering the previous frame (Kaplan, 2008).

Environmental context, managerial cognition and strategic action are previously not direct related, and Nadkarni and Barr's (2008) article integrates them by having cognition a mediation variable. Their major contribution is to investigate how environmental context are related to the focus of attention (noticing aspect of ABV) in the decision-making process of TMT strategic actions. The organizations theory of Daft and Weick (1984) states that organizations answers to environment could be a deterministic driven interpretation system of scenarios, which pops up some specific strategic action. This paper proposes the opposite direction of stimuli, where the industry structure shifts the leadership focus.

Eggers and Kaplan (2009) discuss that managerial behavior influences the whole ecosystem by validating technical changes aligned to their beliefs, exploring opportunities in new knowledge basis. In this paper, the authors evaluate in which degree the CEO's attention direction influences the organizational outcomes and promotes the renewal of stablished organization even though these technologies are surrounded by uncertainty. ABV is related in



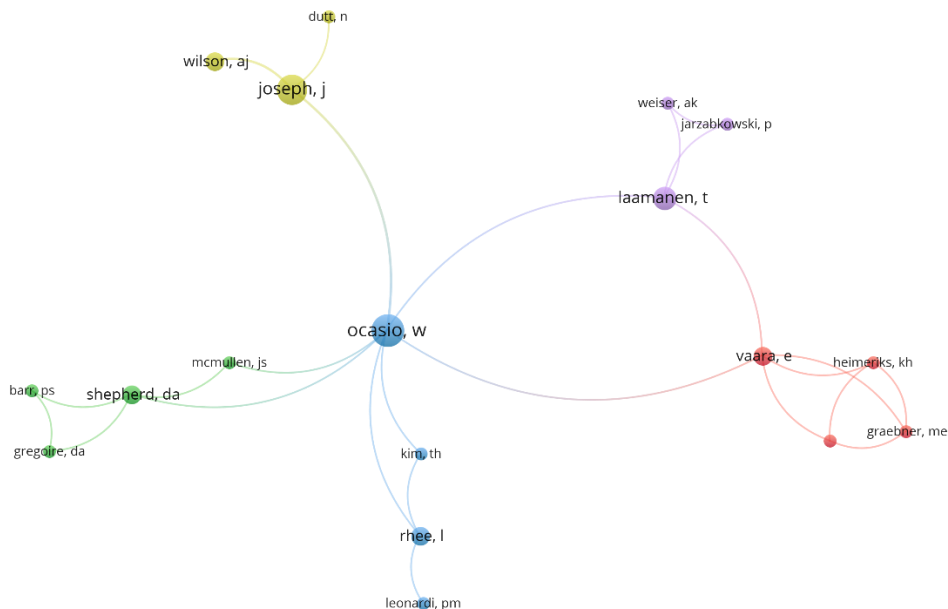
its three dimensions: perception, codification and choice, capturing the presently evolving focus of CEOs in the renewal effort. The potential accelerative effect of CEO attention matters more when the company has sector-related capabilities. The level of the CEO's attention effort provides a confirmation of adequate timing to enter the market.

### Co-authorship network

The network illustrated in Figure 7 reveals that Ocasio, W (Ocasio, 2011) is the most influential author in the network portrayed, has stronger associations with Joseph, J (Joseph & Ocasio, 2012), Laamanen, T (Burgelman et al., 2018), Vaara, E (Graebner et al., 2017), Rhee, I. (Rhee & Leonardi, 2018) and McMullen, J. S (Shepherd et al., 2017), relative to other authors in this network with whom he has also collaborated. Each one of these leading authors build bridges between ABV and other thematic field. The red network connects ABV to Strategic Changes and the use of formal communication channels and practices, including vocabularies, rhetorical tactics, talk and text as possible levers that dynamically shape organizational attention.

**Figure 7**

*Collaboration network of authors*



The second portion of the network in purple encompasses the ABV linkage with Strategy as a Practice (SaaP) research movement standing out how to manage the trade-off between consistency and change of attention focus of strategists and their repertoire in a

dynamic environment of Multinational Corporations (MNC) (Ocasio et al., 2018; Weiser et al., 2020).

The yellow branch of the network shows the integration of ABV with Governance, TMT, company growth, the relevance of attentional coupling across units increasing the success tailor-made solutions in corporations and how subsidiaries sell their ideas to the headquarters (Dutt & Joseph, 2019; Joseph & Ocasio, 2012; Ocasio & Joseph, 2005, 2018; Wilson & Joseph, 2015).

A recently published systematic review focusing ABV and MNC misses some of the most relevant articles in the subfield (Dutt & Joseph, 2019; Ocasio & Joseph, 2018; Weiser et al., 2020), leading to an inconclusive consolidation of extant literature still leaving gaps in the future agenda (Andrews et al., 2022). Interestingly, our work from an ABV perspective using most relevant articles covered more insights in topics like TMT, coupling, SaaP, strategic change, adaptation and environment sharing only one article (Scalera et al., 2018). We agree with Andrews (2022) perspective that unsystematic literature review led to divergent empirical findings and inconsistent development of theory and research agenda. In this sense, their review contributes by framing MNC-ABV frontier in relation to antecedents (internal context and external context), theoretical concepts (cognitive and resources) and outcomes (international performance, organizational activities and internationalization). In addition, this paper highlights the need of deepening ABV understanding on MNC short-term or sustained attention and its influence on outcomes such as local non-financial performance or risk propensities, both Governance related topics.

The part of network in green displays relationship of attention-based view and strategic opportunities beliefs, dealing with cognitive individual and organizational process to recognize opportunities, and the specific role of prior knowledge in cognitive processes of opportunity recognition. Authors recognize that both superficial features (memories and knowledge) and structural relationships (processing and alignment) can influence interpretation by encoding process of stimuli exploitation for strategic action (Gregoire et al., 2010). In addition, Shepherd, McMullen and Ocasio (2017) provide a two-stage model of opportunity exploitation. From environmental change perception to strategic action, issues are mediated by variables such as manager experiences and knowledge structure, degree of immersion and cognitive mode. The first stage explains how a top manager notices environmental changes as potential opportunities. The second stage hypothesizes how the TMTs allocate their attention to environmental changes in a sustainable way, encoding opportunities as radical or incremental which are worthy of exploitation as core of competitiveness of the company.

The final portion of network in blue refers to ABV and Innovation networks: in the first study, authors introduce the notion of attention allocation in networks and propose two pathways following a logic of interrogation or a logic of recombination, showing that in highly constrained network interrogation is a more reliable pathway to good ideas, because focused attention shows positive association with one's ability to in-depth information processing. On the other hand, divided attention is more prone to success in low constrained networks (Rhee & Leonardi, 2018). In a latter study, Rhee, Ocasio and Kim (2019), analyzing subunits from a large Hierarchical Business Group, propose a novel mechanism, cognitive accessibility, explaining how cross-level managers (middle to TMT) might influence the problemistic search for R&D solutions concluding that in this organizational type a focal member firm reinforces R&D search in response to the performance shortfall.

Brielmaier & Friesl (2022) in an ABV review, instead of unifying the field they presented a scatter pattern of research development in four clusters: focus of attention, attention structures, environmental embeddedness and particular situation, pointing out an unusual methodological pathway for systematic reviews. On the other hand, our work laying in a traditional bibliometric analysis of the field reflects the core articles by relevance not just presenting by their existence in selected databases. Additionally, less than a half of their revised articles are also in our database, most of them are not top ranked articles. Furthermore, core strategy themes like coupling, manager(ial) experience and competitiveness are underexplored in their proposed framework. We find that when variable considerations are not totally absent their specific role is not adequately presented, including a perception of not as much of theoretical contribution examination for a conceptual extension where the missing link is the cognitive perspectives, vision and uses of the major findings developed by researchers in these sixteen years of ABV development.

#### 4 Conclusion

The aim of this study was the identification of the most influential sources, researchers, documents, keywords and themes contributing to the development of Attention Based View. The number of annual publications reflects the overall increasing trends. The fewest publications were found up to 2010. This period can be labeled as the latency stage. From 2011 to 2015, the annual publication trend started to increase and hence - it can be called the development stage. Beyond 2016, a sharp growth has been seen in the field and this may be

called the take off stage. During this period, no renowned journal published a special issue on the topic.

Top ranking journals such as Strategic Management Journal (SMJ), Organization Science (ORSC) and Journal of Business Research (JBR) are the major contributors to the development of Behavioral Strategy. The top three most influential authors are Ocasio (2011), Grimpe & Kaiser (2010) and Gregoire et al. (2010) with 33.75, 21.923 and 17.846 citations per year respectively. All these influential authors were published in top ranked journals of management. The important and most relevant keywords that have been identified are: top management team, competitive strategy, institutional theory and organizational structure, strategic change, entrepreneurial orientation, capability, sustainability, corporate governance, cognition, firm level attention process, M&A, organizational learning, boundary-spanning, issue selling, managerial attention, attention-based theory of the firm, neo-institutional and communication. These keywords and the themes identified through this research will help researchers in the field or who are interested in designing and establishing their research scope or even updating their lecture orientation for students.

Attention-based view is an emerging research interest within Behavior Strategy. Our scope in this study has been the identification of the intellectual structure and collaboration networks. Using bibliometric methods, we found a three-dimension cluster composed by: a) core roots of ABV; b) organizational dynamics of attentional process; and c) managerial cognition. The collaboration networks results spotlight five groups direct or indirectly linked to Ocasio (2011). These groups cover most of the thematic aspects of strategy which includes, but not limited to i) TMT, strategic choices, action, change, and practices; ii) communication channels, vocabularies rhetorical and official documents; iii) MNC intra-firm aspects – coupling, issue selling, R&D, external elements of culture and institutions effects in performance; iv) Opportunity identification and activation, managerial knowledge modes of – exploration and exploitation; v) cognition – processing aspect of, qualitative aspects of, as individual or social level of analysis, all of them been activated by attention or been the attention catcher element.

The fundamental theory of ABV shows that different board members can perceive the same event or discussion in very different ways over the past decades, eventually impacting the overall performance of the organization itself. Governance and its mechanisms are one aspect that has not been well explored under the circumstance that nowadays, its concept has evolved (dealing with much more complex issues than “only follow the rules”) to risk and opportunities analysis. It is still a challenge to investigate the roles of organizational structure of specialized

decision-making and external pressure in determining the practice of contemporary issues like environmental management or carbon footprinting through ABV lens.

Although attention as the central topic of ABV has allowed deep insights into the antecedents and consequences of attention in organizations, something seems to be missing either in cognition aspects or in governance frontier. The ongoing attempts to consolidate the field have been somewhat ineffective due to deficiencies in methodological decisions, resulting in narrow or fragmented outcomes.

### *Future directions*

Considerable progress has been made in comprehending the metacognitive level of situated attention. However, there is still much to learn in this area, which is deeply ingrained in contemporary research projects and the ABV governance frontier. The results presented in this article will encourage and facilitate researchers in their efforts to connect and discuss the effects of ABV on firm strategic management.

Despite the publication of newer studies, our research remains strong and conclusive. It is based on bibliometric analysis and provides solid evidence to support the conclusion that the attention-based view has developed into a thriving subfield of Behavioral Strategy research. This subfield has a specific focus on understanding the dynamic nature of attentional phenomena.

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