



Advancing theory and knowledge in the business-to-business branding literature☆



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ARTICLE INFO

Article history:

Received 1 August 2015

Received in revised form 1 October 2015

Accepted 1 November 2015

Available online 2 December 2015

Keywords:

Bibliographic

B2B branding

Citations

Impact

Research

Review

ABSTRACT

This study investigates the intellectual structure, development, and evolution of business-to business (B2B) branding research by undertaking a bibliometric analysis of scholarly articles on B2B branding over the 43-year period from 1972 to 2015. The analysis covers 169 scholarly articles by 395 authors and 10,270 citations from 33 academic journals in which B2B branding articles appeared. By identifying and evaluating the underlying structure and evolution of scholarly research in B2B branding, this study provides an exhaustive review of this discipline as well as a baseline on which future researchers in the field can build a sound theoretical foundation. The bibliometric analysis results reveal the most cited articles, keywords, authors, institutions, and countries in B2B branding discipline. Further, the study identifies major areas of B2B branding research. The study closes with implications of findings and a report on emerging trends as well as directions for future research.

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1. Introduction

Traditionally, branding is viewable as being of limited significance in B2B and industrial marketing (Saunders & Watt, 1979; Sinclair & Seward, 1988). Subsequent empirical research, however, not only acknowledges its importance, but also reveals its influence on decision-making processes in highly formalized B2B markets when trained professionals are responsible for decision making (Lynch & Chernatony, 2004, 2007). Besides, the business world has witnessed tremendous growth of B2B brands such as Oracle, IBM, Google, and Cisco (Interbrand, 2015). These results from industry add credence to the voice of scholars that argue successful B2B branding can enhance an organization's competitive advantage and financial performance (Ohnemus, 2009; Wise & Zednickova, 2009). Thus, organizations in B2B markets are increasingly implementing strategies and policies aimed at building and sustaining strong brands. Strong B2B brands enhance the possibility of products being placed in the buyers' bidding list during the industrial purchasing decision-making process (Wise & Zednickova, 2009) and can also enable an organization to command a price premium, as well as receiving favorable referrals (Bendixen, Bukasa, & Abratt, 2004). Research in B2B branding points to the importance of strong brands in providing value

to industrial buyers by enhancing their confidence during the decision-making process (Low & Blois, 2002), thereby diminishing risk (Ohnemus, 2009). In addition, B2B brands can reduce buyers' uncertainty and assist the decision-making units to reach consensus (Wise & Zednickova, 2009). Hence, building and maintaining strong brands is viewed as one of the major objectives and an integral part of marketing strategy in organizations in industrial markets (Leek & Christodoulides, 2011a).

After over four decades of research in B2B branding, this particular discipline has reached a certain degree of maturity to be treated as an exclusive field of study. This, therefore, provides a justification for the need of a meta-analytical investigation of B2B branding literature so as to evaluate the underlying structure, development, and evolution of this field of study for the following reasons: First, a critical review of B2B branding literature provides not only a comprehensive view of this domain, but also a starting point and appropriate theoretical foundation for future B2B branding researchers to build on. Second, given that the existing review of B2B branding literature (Glynn, 2012; Leek & Christodoulides, 2011b) has mostly applied traditional qualitative narrative-based methods mostly based on personal judgments (Liu, Yin, Liu, & Dunford, 2015), a bibliometric investigation complements and improves previous studies (Ramos-Rodríguez & Ruiz-Navarro, 2004). Third, as limited attention has been directed at quantitative depictions of the evolution of B2B branding as a field of study, the main objective of the current research is to obtain a more comprehensive understanding of the development of B2B branding research over a 43-year period using a bibliometric method. This study goes beyond traditional citation counts by using CiteSpace, a bibliometric

☆ Acknowledgment. The authors gratefully acknowledge the valuable comments of Chaomei Chen, George Christodoulides, Mark Glynn, and Sheena Leek on earlier drafts of this manuscript.

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analysis software tool, to identify and visualize the intellectual structure of B2B branding research. Consequently, this research provides an inclusive assessment of B2B branding literature that can enable future researchers to trace the shift and identify research gaps, as well as providing directions for future research.

The remainder of the article is organized as follows. In the next section, a literature review is provided. Then, the methodology and data analysis procedures used in the study are outlined. This is followed by a discussion of the results of the bibliometric analysis. The study includes relevant discussions, implications, and directions for future research and limitations.

2. Literature review

Earlier scholars of branding in industrial markets contended that branding had no significant contribution to organizations in B2B markets (Saunders & Watt, 1979; Sinclair & Seward, 1988). However after the 1990s, an increasing number of academics began challenging this earlier contention and providing empirical evidence of the importance of B2B brands (Leek & Christodoulides, 2012; Veloutsou & Taylor, 2012). Increased product homogeneity and the growth in digital and online communication are among some of business environment changes that have resulted in increased empirical work on the value of B2B brands (Baumgarth, 2010; Leek & Christodoulides, 2011b). Additionally, globalization, hyper competition, the proliferation of similar products and services, increasing complexity, and high price pressure are among the forces that have also led to a focus on implementation of branding strategies in B2B markets (Kotler & Pfoertsch, 2006). From the practitioners' perspective, the increased entries in *Interbrand* (2015) further reveal the growing importance of B2B brands (such as IBM, GE, and Intel) that are now among the leading global brands, with a combined value that significantly exceeds that of high profile consumer brands. These developments point to the necessity of regarding B2B branding as a distinct field of study.

While the field of B2B branding is increasingly gaining attention from branding scholars (e.g. Marquardt, 2013; Patel, 2014), research indicates that the literature in this area is still amorphous and inconclusive (Leek & Christodoulides, 2011b). As a result, further empirical research applying longitudinal, meta-analytical, and structural approaches to provide comprehensive information on the intellectual structure and knowledge base of B2B branding as a field of study is needed. Given the multifaceted nature of B2B branding, undertaking such a detailed literature review might be constrained by researchers' expertise (Shafique, 2013), and may also suffer from researchers' subjective evaluations and judgments (Liu et al., 2015). Therefore, applying an objective method such as bibliometric analysis, which is extensively accepted in measuring and mapping scientific communications in other fields of study such as management, innovation and consumer relationships (Fetscherin & Heinrich, 2015), is warranted and can help advance the field of B2B branding.

Bibliometric analysis is a well-established procedure in social science fields such as management (Podsakoff, MacKenzie, Podsakoff, & Bachrach, 2008), innovation (Shafique, 2013), and marketing (Hoffman & Holbrook, 1993). While limited attention focuses on conducting bibliometric studies in branding research, some scholars have started undertaking meta-analytical inquiries into different contexts of branding research such as consumer branding (Fetscherin & Heinrich, 2015), and global branding (Chabowski, Samiee, & Hult, 2013). However, B2B branding remains untouched. Thus, the current study addresses this gap in branding knowledge by conducting a bibliometric analysis of B2B branding.

3. Methods

3.1. Bibliometric analysis

Bibliometric investigations involve a quantitative evaluation of scientific communication (Pritchard, 1969) to understand a particular

phenomenon (Hérubel, 1999), and is defined as “the quantitative study of literatures as they are reflected in bibliographies. Its task ... is to provide evolutionary models of science, technology, and scholarship” (White & McCain, 1989, p. 119). An objective analysis of quantifiable and observable data can facilitate a comprehensive understanding of the underlying intellectual structure and knowledge base within a specific field of study (Shafique, 2013). The fundamental processes in bibliometric analysis involve the measuring of activity, impact, and linkages of specific area of study (Narin, Olivastro, & Stevens, 1994). Bibliometric analyses are considered to be scientifically authentic (Shafique, 2013) in their ability to visualize the fundamental intellectual structure of different research domains (Börner, Chen, & Boyack, 2003; Boyack, Klavans, & Börner, 2005), and to unveil the most authoritative and effective articles, scholars, topics, and prevailing schools of thoughts in a field of study (Ferreira, Santos, de Almeida, & Reis, 2014; Nerur, Rasheed, & Natarajan, 2008). As a meta-analytical and longitudinal form of research, bibliometrics can help researchers to understand the birth, origin, and evolution of a discipline (Hérubel, 1999), as well as complementing and extending the results obtained using more traditional literature review techniques (Ramos-Rodríguez & Ruíz-Navarro, 2004).

Co-citation analyses in bibliometrics indicate scientific communication between researchers and the circulation of knowledge (Fetscherin & Heinrich, 2015; Garfield, 1979; Small, 1973). The primary assumption in co-citation analysis is that when two articles are cited together in subsequent article(s), they are somewhat related (Small, 1973). This assumes that the higher the number of co-citation counts for a given article (author or journal), the stronger the influence of that article in a domain of knowledge (Liu et al., 2015). Thus, the primary objective of co-citation analysis is to provide a comprehensive historical view of the intellectual structure of a specific field of study (McCain, 1989; White, 1990).

3.2. Searching strategy

This bibliometric study of B2B branding research was aimed at unfolding the intellectual structure, and influential articles, authors, and institutions in the area as well as suggesting future research directions. To achieve this, literature reviews of B2B branding studies were used to identify the initial keywords. These keywords were then reviewed and refined by three branding scholars and 5 different keywords emerged. One of them had three permutations: “B2B brand”, “B-to-B brand”, and “BtoB brand”. A search was then conducted using keywords including “business-to-business brand”, “B2B brand”, “B-to-B brand”, “BtoB brand”, “industrial brand”, “corporate brand”, and “organizational brand” in both Web of Science and SCOPUS for scholarly articles on B2B branding. A search for the term “brand” in scholarly search engines would capture any ending variation including brands, branded, branding. The results were crosschecked using other scholarly search engines such as “Emerald”, “EBSCO”, “ProQuest”, “Springer”, “Sage”, “Palgrave”, and “Wiley”. After the keyword search, findings were further scrutinized to identify whether they were relevant to B2B branding. All three authors of this study were individually and independently involved at this stage to screen the results for titles, topics, keywords, and abstracts, as well as reading of the literature reviews and methodologies so as to reach a consensus on whether each journal article could be considered as making a contribution to B2B branding literature or not. Further, the results were screened to ensure that editorials, errata, call for papers, introduction to special issues, volume indexes, books, book reviews, commentaries, conference proceedings, doctoral theses, focus on consumer branding, and mix of consumer and B2B branding articles were excluded. The above screening procedures were aimed at ensuring that the focus of the study was mainly on scholarly articles on B2B branding.

3.3. Data collection

The next stage of the bibliometric analysis involved the extraction of citation and bibliographical information for the findings obtained in the

manual search using two scientific databases—the ISI Web of Science (hereafter WoS) and Elsevier SCOPUS. These two databases (WoS and SCOPUS) are considered as the pioneering and up-to-date academic databases as they constantly and instantly provide and evaluate journal articles and citations. Thus, collecting data for this bibliometric study from both WoS and SCOPUS provided a more comprehensive analysis due to the following reasons: First, while WoS is viewed as the most well-known scientific database (Fetscherin & Heinrich, 2015), SCOPUS, on the other hand, is regarded as the leading database for citation and bibliographical searching (Meho & Yang, 2007). Therefore the two databases can complement each other in providing the relevant material required in the current study. Second, given both databases have their own strengths and weaknesses, combining them can enhance the validity of the study. For instance, bibliographic records in SCOPUS go back to 1996, and those in WoS go as far as 1900 (Falagas, Pitsouni, Malietzis, & Pappas, 2008). While SCOPUS has the limitation of including only a few older articles from leading journals such as the *Journal of Marketing*, it also has the advantage of including a number of journals that have contributed to B2B branding literature but are excluded from the WoS index such as: *Journal of Business and Industrial Marketing*, *Journal of Product and Brand Management*, and *Journal of Brand Management*. Therefore, using both databases not only provides a wide coverage, but also ensures that all journal articles on B2B branding are covered. This further helps in providing a more in-depth analysis and reaching more accurate conclusions. Third, both ISI (the producer of WoS) and Elsevier (the producer of SCOPUS) provide more complete citations and bibliographical information than the other databases such as Google Scholar (GS) that are somehow limited in their collating of the required information (Kulkarni, Aziz, Shams, & Busse, 2009; Meho & Yang, 2007). Finally, a comparison of WoS, SCOPUS, and GS indicated that GS did not provide the same quality of citation and bibliographic information as WoS and SCOPUS. Most current bibliometric studies within the business and marketing disciplines have also used bibliographical data from WoS and SCOPUS, as GS only provides citation but not bibliographical information. Thus, in this study, WoS and SCOPUS were used to complement rather than replace each other (Meho & Yang, 2007).

The search of B2B branding journal articles was finalized in January 2015, and this resulted in the identification of 188 articles (see Fig. 1 for the number of articles published each year between 1972 and 2015).

Further examination of the results revealed that *Industrial Marketing Management* was the leading contributing journal to the field of B2B branding, followed by *Journal of Business and Industrial Marketing*, *Journal of Business Research*, *Journal of Product and Brand Management*, and then the *Journal of Brand Management*. Table 1 shows the number of articles published on B2B branding from the 33 contributing journals.

Extracting citation and bibliographical information for the 188 articles identified as B2B branding research from WoS and SCOPUS revealed

that 19 articles had no bibliographical data in either database (see Table 2). This resulted in collating bibliographical information for 169 articles. However, as the primary focus in a bibliometric analysis is evaluating citations and co-citations, it was assumed that this was not a major problem as the excluded articles would still be captured and analyzed during co-citation analysis if they had significant impact through being cited in successive studies (Fetscherin & Heinrich, 2015). It is worth mentioning that the results confirmed that these articles were captured in the co-citation analysis. For instance, the journal articles by Gordon, Calantone, and Di Benedetto (1993) and Hutton (1997), that had no bibliographical data in WoS and SCOPUS, emerged among some of the most frequently co-cited articles in B2B branding in the results.

3.4. CiteSpace: a bibliometric mapping software tool

The next stage of the bibliometric analysis involved analyzing the bibliographical data that was extracted from WoS and Scopus for the 169 journal articles. Advances in graphical and mapping software can facilitate citation and co-citation analyses, as well as the visualization of the intellectual structure of a domain of knowledge (Börner et al., 2003). Scientific visualization software tools such as “Bibexcel”, “Science of Science Tool”, “VOS Viewer”, and “VantagePoint” can be used in conducting bibliometric research. However, these tools have their own advantages and disadvantages. In the current study, a Java-based scientific visualization software package, CiteSpace, was used (Chen, 2006; Chen, Ibekwe-SanJuan, & Hou, 2010). CiteSpace is viewed as one the most comprehensive bibliometric analysis tools, due to its ability to perform bibliographic coupling, co-author and co-citation analysis (Cobo, López-Herrera, Herrera-Viedma, & Herrera, 2011). CiteSpace facilitates working with, reading and understanding the labels that are displayed in results (Liu et al., 2015), and can also be used to undertake cluster analysis and labeling results based on the most frequently used terms extracted from the keywords, titles, and abstracts of the articles being analyzed. CiteSpace can provide the research networks for different time slices to facilitate the detection of the evolution of the field of study under investigation (Cobo et al., 2011). Further, CiteSpace does not only analyze co-occurrence networks of articles, authors, and keywords co-words, but also facilitates the identification of the fastest growing topics, turning points, and emerging trends in a discipline through betweenness centrality and burst detection (Chen, 2006; Cobo et al., 2011).

Betweenness centrality measures the degree to which a particular node, which refers to a cited article, is connected to other nodes in a network. A node with a high betweenness centrality value (normalized to the unit interval of [0, 1]) links two or more large groups of nodes and signals a critical article in transition from one time period to another (Chen et al., 2010). Betweenness centrality also indicates how major

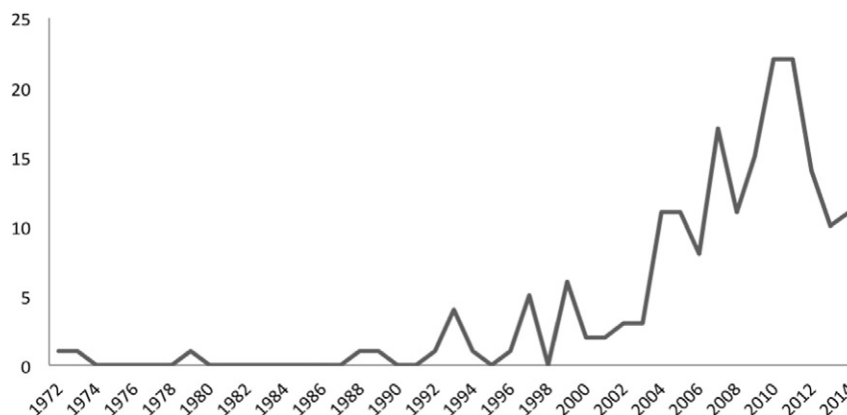


Fig. 1. Number of B2B branding articles (1972–2015).

Table 1
Number of B2B articles in each journal.

Name of journal	Frequency	IF	Name of journal	Frequency	IF
Industrial Marketing Management	54	1.82	Canadian Journal of Administrative Science	1	0.44
Journal of Business and Industrial Marketing	27	NA	International Journal of Management Reviews	1	3.86
Journal of Business Research	23	1.48	International Journal of Service Industry Management	1	1.80
Journal of Product & Brand Management	16	NA	International Journal of Technology Management	1	NA
Journal of Brand Management	13	NA	Journal of Business Ethics	1	1.33
Journal of Marketing	9	3.94	Journal of Business Logistics	1	1.83
European Journal of Marketing	8	1.00	Journal of Business strategy	1	NA
International Journal of Research in Marketing	4	1.58	Journal of Forest Products	1	0.48
Journal of Business-to-Business Marketing	3	0.58	Journal of Marketing Management	1	NA
Journal of the Academy of Marketing Science	3	3.82	Journal of Retailing	1	1.75
Journal of Advertising Research	2	2.56	Journal of Service Research	1	2.48
Journal of Marketing Research	2	2.26	Management Decision	1	1.43
Journal of Services Marketing	2	0.99	Qualitative Market Research: An International Journal	1	NA
Marketing Letters	2	1.06	South African Journal of Business Management	1	0.11
The International Journal of Logistics Management	2	0.95	Strategic Management Journal	1	3.34
Business Horizons	1	1.16	The Journal of Marketing Theory and Practice	1	NA
California Management Review	1	1.67			

IF: Thomson Reuters 2014 Impact factor.

NA: Not Available.

topics are connected in a given network (Chen, 2014). In CiteSpace, betweenness centrality is applied in identifying the turning point of articles. Turning point analysis shows paradigmatic changes and evolution of a specific discipline, and also identifies those articles that have made a major contribution to the intellectual transitions of a discipline over time. Thus, turning point articles are those that have acted as bridges connecting a stream of research over time in the development of a field of study (Chen, 2004; Feng, Zhang, Du, & Wang, 2015). Another important function of CiteSpace is its ability to indicate burst detection, which helps in identifying emerging trends. Burst detection refers to a sharp increase in article citation over a particular period of time. Thus, an article that has received a remarkable amount of attention in a field of study can be identified through burst detection analysis (Chen, 2014). This also helps in revealing the emerging trends in a field of study, as the number of citations an article received indicates a past or emerging trend. In the next section the results of the bibliometric analysis using CiteSpace version 3.9.R6 are discussed.

4. Results

This section discusses the findings of the quantitative analysis of the 10,270 references made by 395 authors in 169 journal articles published on B2B branding in the past 43 years. These results cover co-citation analyses of articles, keywords, journals, and institutions that have influenced the B2B branding as a field of study. The co-citation analyses indicate the intellectual interrelationships among scholars and their articles (Liu et al., 2015). Article co-citation analysis reveals the most influential articles that have shaped the intellectual structure of B2B branding through the analysis of intellectual turning points, as well as identification of possible future research areas through burst detection analysis (Chen, Dubin, & Kim, 2014; Chen, Hu, Liu, & Tseng, 2012). While article

and author co-citations analyses can contribute to the understanding of the microstructure, co-citation analysis of journals uncovers the macrostructure of a discipline (Liu et al., 2015).

4.1. Article co-citation analysis

4.1.1. Highly cited articles within B2B branding research

Article co-citation analysis examines the network of co-cited references (Chen et al., 2010; Small, 1980, 2003) and is used to show the underlying intellectual structure of a field of study (Chen et al., 2012; Small, 1973). Specifically, the extent of uniformity in how specific concepts and references are associated in B2B branding was identified through article co-citation analysis. Highly co-cited articles can act as signals of breakthrough ideas and developments in a specific field (Chen et al., 2010). The article co-citation network in B2B branding covered all the 169 scholarly articles published between 1972 and 2015 and these included 245 nodes (cited article) and 286 links. In CiteSpace co-citation analysis of each node illustrates a single cited article (author, journal, etc.). The size of the node shows the aggregate co-citation frequency of a specific article, whereas the thickness of the ring of each node denotes the number of co-citation across the series of time slices (Chen, 2006; Chen et al., 2012). CiteSpace uses color-coded nodes and edges to differentiate between joint networks, and each year is allocated a different color. In addition, every link connecting the nodes represents co-citation links between articles, and the thicker the link the higher the frequency of co-citation (Chen et al., 2014; Chen et al., 2012).

Fig. 2 shows the results of article co-citation analysis. The article with a node that has the largest citation ring is by Mudambi (2002) titled “Branding importance in business-to-business markets: Three buyer clusters”, indicating that this is the most frequently cited article in B2B

Table 2
B2B branding articles without bibliographical data in the WoS and SCOPUS databases.

Author (Year)	Journal	Author (Year)	Journal
Gordon et al. (1993)	Journal of Product & Brand Management	Dahlstrom and Dato-on (2004)	Journal of Business-to-Business Marketing
Fernie and Pierrel (1996)	Journal of Product & Brand Management	Inskip (2004)	Journal of Brand Management
Hutton (1997)	Journal of Product & Brand Management	Lynch and de Chernatony (2004)	Journal of Brand Management
Collins-Dodd and Lynne Zaichkowsky (1999)	Journal of Product & Brand Management	Munoz and Kumar (2004)	Journal of Brand Management
Kim, Reid, Plank, and Dahlstrom (1999)	Journal of Business-to-Business Marketing	Taylor, Celuch, and Goodwin (2004)	Journal of Product & Brand Management
Rosenbröjjer (2001)	Journal of Product & Brand Management	Webster and Keller (2004)	Journal of Brand Management
Schreiber (2002)	Journal of Brand Management	Wood (2004)	Journal of Brand Management
Baldauf, Cravens, and Binder (2003)	Journal of Product & Brand Management	Lynch and De Chernatony (2007)	Journal of Marketing Management
Rozin and Magnusson (2003)	Journal of Brand Management	Aspara and Tikkanen (2008)	Journal of Brand Management
Blois (2004)	Journal of Business-to-Business Marketing		

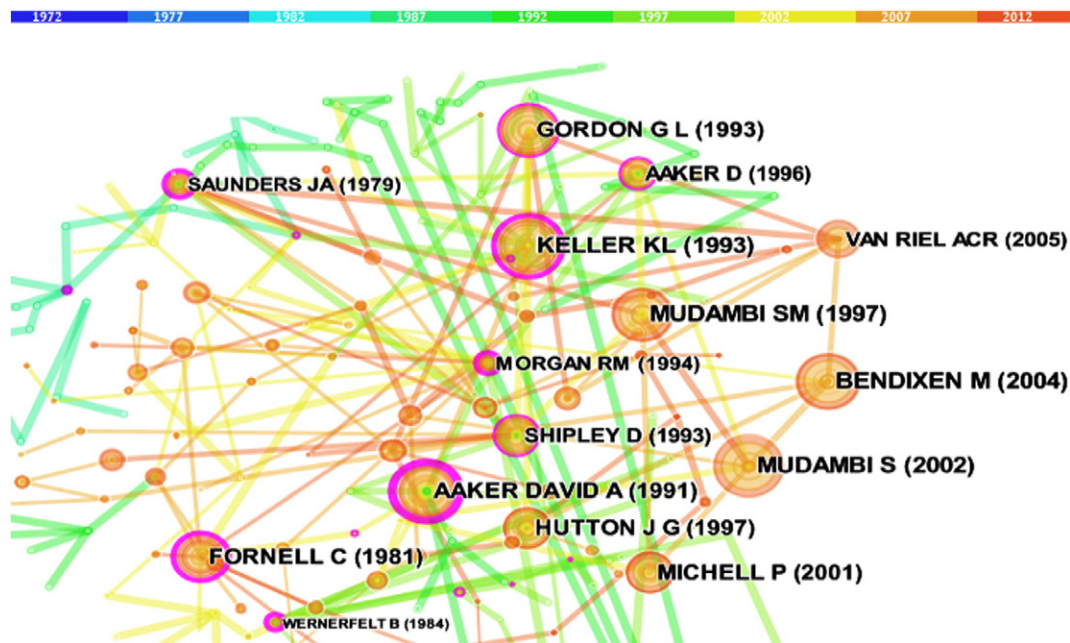


Fig. 2. Article co-citation in B2B branding (colors represent the year of citation or connection). Note: For instance orange color denotes those articles published or connected between 2007 and 2011. Color figure can be viewed online).

branding research (48 citations). Using data from 116 industrial buyers of precision bearings in UK, Mudambi developed and tested a conceptual model indicating that branding was more important in B2B markets than previously believed. The second most frequently co-cited article (with 46 citations) is by Mudambi and colleagues in 1997 and is titled “An exploration of branding in industrial markets”. Mudambi, Doyle, and Wong (1997) identified both tangible and intangible attributes of B2B brands that influence managers’ decision-making process. They then proposed a pinwheel B2B brand value model composed of performance of product, distribution, and support and company each with tangible and intangible elements. The next most frequently co-cited article (with 45 citations) is “Brand equity in business-to-business markets” by Bendixen et al. (2004). This study investigated the brand equity construct in industrial markets using survey data of 54 decision-making unit (DMU) members. The study revealed that while price and delivery are important factors for DMU members, brand equity plays a more important role in the decision-making process and can result in suppliers commanding a price premium in industrial purchasing.

Keller’s (1993) article, “Conceptualizing, measuring, and managing customer-based brand equity,” ties with Bendixen et al. (2004) at 45 citations is the third most cited article. The fourth most cited publication is a book by Aaker (1991) titled “Managing Brand Equity”. While the focus of Aaker’s book is on consumer based brand equity, it has emerged as a seminal work on B2B brand equity, as researchers working on B2B branding have cited it. The above publications by Keller (1993) and Aaker (1991) are recognized as major contributions to the study of brand equity in B2C context; however, have also been used in most empirical work on B2B brand equity. The fifth most referred article is by Gordon et al. (1993). They found the significant presence of brand equity and investigated brand loyalty in B2B markets. The top 20 most cited publications on B2B branding by co-citation frequency are shown in Table 3.

Several frequently co-cited references among the top 20 most co-cited articles (Anderson & Gerbing, 1988; Armstrong & Overton, 1977; Fornell & Larcker, 1981), while not in the B2B area, can be categorized to have made significant contributions to the methodology that underpin most studies in business and management. This indicates that most scholarly articles in B2B branding have applied quantitative research design techniques. This was confirmed by further analyzing

the methodologies used in B2B branding research in which 58% had utilized quantitative research design, 28% were qualitative studies, 11% were conceptual papers, and only 3% had used a mixed-method or pluralistic research design, combining qualitative and quantitative designs.

4.1.2. Intellectual turning point articles

The next step in article co-citation analysis involved identifying the turning points that can reveal the intellectual transition of a field of study over time (Chen, 2004). A node can indicate an intellectual turning point if it connects several different links (Chen, 2004). In CiteSpace, nodes are highlighted in purple trims (as shown in Fig. 3) and indicate high betweenness centrality and might signal intellectual turning

Table 3

Top 20 co-cited publications in B2B branding between 1972 and 2015 by frequency.

No.	Frequency	Author	Year	Source
1	48	Mudambi S M	2002	Industrial Marketing Management
2	46	Mudambi S M	1997	Industrial Marketing Management
3	45	Bendixen M	2004	Industrial Marketing Management
4	45	Keller K L ^Δ	1993	Journal of Marketing
5	42	Aaker D A ^Δ	1991	Managing Brand Equity (Book)
6	41	Gordon G L	1993	Journal of Product and Brand Management
7	36	Fornell C [*]	1981	Journal of Marketing Research
8	35	Hutton J G	1997	Journal of Product and Brand Management
9	34	Michell P	2001	Industrial Marketing Management
10	31	Shipley D	1993	Industrial Marketing Management
11	28	Van Riel ACR	2005	Industrial Marketing Management
12	27	Aaker D A ^Δ	1996	Building Strong Brand (Book)
13	23	Saunders J A	1979	Industrial Marketing Management
14	22	Keller K L ^Δ	2003	Strategic Brand Management (Book)
15	22	Webster F E	2004	Journal of Brand Management
16	21	Morgan R M	1994	Journal of Marketing
17	20	Anderson J C [*]	1988	Psychological Bulletin
18	20	Armstrong J S [*]	1977	Journal of Marketing Research
19	19	Mcquiston D H	2004	Industrial Marketing Management
20	19	Davis D F	2008	Industrial Marketing Management

Note: Author shown denotes the first author of multi-authored articles.

* These articles have addressed quantitative issues in the business and management field.

Δ These publications are from B2C.

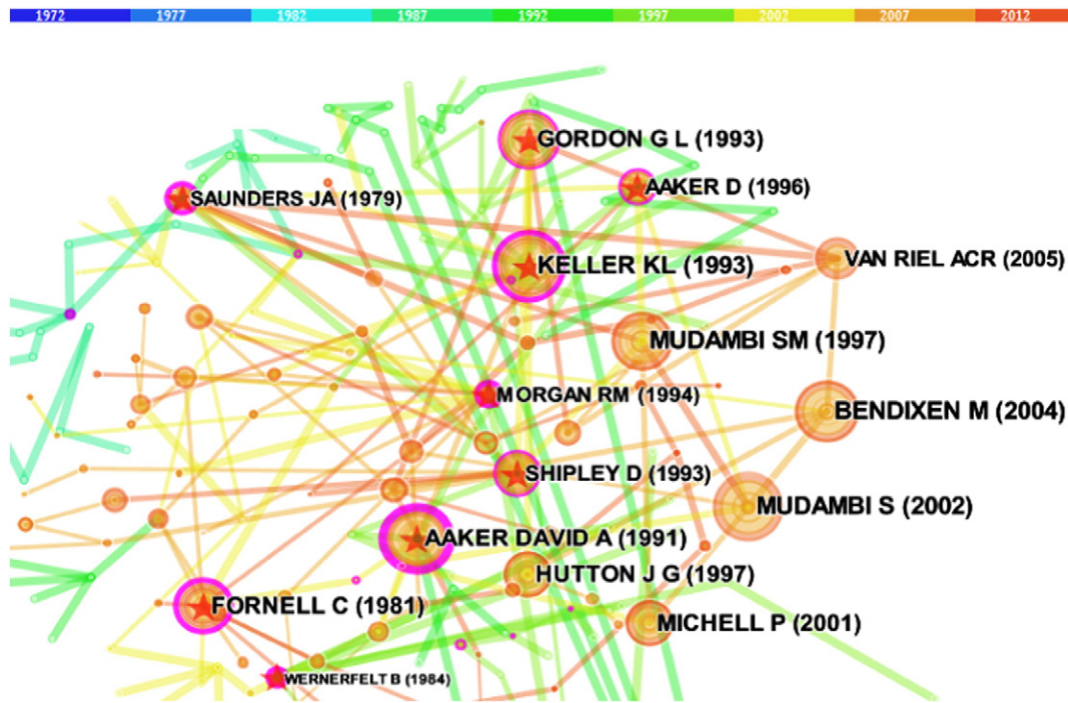


Fig. 3. Intellectual turning points in B2B branding research. *Asterisks are intellectual turning point articles.

points. In addition, intellectual turning points analysis can reveal the articles that have acted as channels connecting research in different periods of time in the development of a field of study (Liu et al., 2015). In CiteSpace the thicker the purple ring, as shown in Fig. 3, the higher the betweenness centrality and the likelihood that an intellectual tuning point exists.

Table 4 presents the ten B2B branding publications with the highest betweenness centrality. The first is Aaker's (1991) influential book titled *Managing Brand Equity*. This book, perhaps, provides the first comprehensive definition for brand equity, and how it can be measured and managed in B2C markets. The concepts in this book have been adopted in later studies when conceptualizing and operationalizing B2B branding (e.g. Nyadzayo, Matanda, & Ewing, 2011). The second article with high betweenness centrality is Saunders and Watt's (1979) article that contends that branding strategies are confusing and have mixed effectiveness in B2B, and ultimately little value is attained from implementing branding in B2B markets. Part of the reason this article received a high number of citations may be due to the large number of subsequent studies critiquing the article (e.g. Glynn, 2012; Homburg, Klarmann, & Schmitt, 2010; Michell, King, & Reast, 2001; Mudambi, 2002). Therefore, this study can also be considered as an intellectual turning point as it had a trigger effect on the successive research in B2B branding.

Table 4
Intellectual turning points in B2B branding publications.

Betweenness centrality	Frequency	Reference
0.40	42	Aaker (1991)
0.39	23	Saunders and Watt (1979)
0.29	45	Keller (1993)
0.29	21	Morgan and Hunt (1994)
0.25	36	Fornell and Larcker (1981)*
0.24	8	Wernerfelt (1984)
0.14	41	Gordon et al. (1993)
0.14	31	Shipley and Howard (1993)
0.11	27	Aaker (1996)
0.09	22	Webster and Keller (2004)

* Article addressing quantitative issues in the business and management field.

The third article is by Keller (1993), which, as discussed earlier, is one of the most frequently cited articles in B2B branding research. Similar to Aaker's (1991) book, Keller's influential article focusing on the conceptualization and operationalization of brand equity has also received considerable attention from B2B branding researchers (see Kuhn, Alpert, & Pope, 2008). While, both Aaker and Keller's works on brand equity have been extensively cited in both B2C and B2B branding literature, their conceptualizations were based on the knowledge gained in B2C markets. This further provides some evidence that the underlying structures in B2B branding have been garnered and transferred from B2C contexts.

4.1.3. Article burst detection

CiteSpace can also be used to perform another algorithm function called "burst detection" to identify the hot topics and possible emerging trends in a field of study (Chen, 2006; Feng et al., 2015). Burst detection specifies the most active area of research by showing the article(s) that have attracted significant attention in a specific discipline over time (Chen, 2006). Table 5 shows the results of burst detection and identifies the top 5 publications that have the strongest citation bursts in B2B branding research between 1972 and 2015.

Articles that are found in burst detection analysis can signal previous and/or current emerging research trend(s), and may have a major impact on the future development of B2B branding. Thus, probing into burst detection results can help in identifying previous, current and

Table 5
Top 5 B2B branding references with strongest citation bursts.

	Author	Year	Journal	Strength	Begin	End
1	Mudambi S	2002	Industrial Marketing Management	5.376	2010	2012
2	Cretu AE	2007	Industrial Marketing Management	4.262	2010	2012
3	Beverland M	2007	Industrial Marketing Management	4.262	2010	2012
4	Kuhn K	2008	Qualitative Market Research	4.078	2010	2012
5	Davis DF	2008	Industrial Marketing Management	4.108	2011	2015

emerging research trends. As shown in Table 5, the first article identified in burst detection is by Mudambi (2002), which is also the most frequently cited article in B2B branding research. Mudambi was among the first scholars to point to the importance of branding strategy in B2B markets as well as to provide one of the first specific conceptual frameworks for B2B branding construct. The second article that emerged in burst detection analysis is by Cretu and Brodie (2007). The researchers found that a company's reputation and its brand image influence customers' product and service perceptions, as well as their loyalty in industrial markets. The third article with notable citation burst is by Beverland, Napoli, and Lindgreen (2007) and this article supports the transferability of the global brand leadership framework proposed by Aaker and Joachimsthaler (2000) from B2C to B2B markets. This research describes that while the capabilities of global brand leadership framework might be similar in B2B and B2C markets, industrial firms use different approaches in applying these capabilities. The fourth article that emerges is by Kuhn et al. (2008); it partially supports the transferability of the CBBE pyramid proposed by Keller (2003) from B2C to B2B contexts, and also extends the framework by placing factors specific to B2B context into Keller's CBBE pyramid. The citation burst for the above four articles began in 2010 and ended in 2012. This might be explained by scholars' and managers' wide spread realization of the benefits of branding in B2B markets, thereby leading to more specific research aimed at providing additional insights (e.g. Leek & Christodoulides, 2011a; Lindgreen, Beverland, & Farrelly, 2010). The last article with citation burst, which began in 2011 and still ongoing, is an article by Davis, Golicic, and Marquardt (2008) which extends Keller's (1993) brand equity framework into the logistics service context in B2B markets. Their study highlights the differences between customers and service providers' perceptions on how brand equity is influenced by brand image and brand awareness and points to a current emerging trend in B2B branding. Its ongoing citation burst indicates that branding strategy in B2B is evolving and diffusing into other B2B aspects such as service providers.

4.2. Keyword co-word analysis

Keyword co-word analysis is used to observe changes in a specific area of research and can help in identifying research taking place at the edge of a knowledge domain (Callon, Courtial, & Laville, 1991; He, 1999; Liu et al., 2015). Keyword co-word analysis facilitates the

extraction of essential concepts under investigation, as well as identification of the key conceptual elements of the area under study (Ronda-Pupo & Guerras-Martin, 2012). As depicted in Fig. 4, the keyword co-word analysis in CiteSpace revealed 136 nodes and 198 links. The terms "equity", "brand equity", and "performance" are the most frequently mentioned keywords.

To conclude, the keyword co-word analysis indicates that empirical investigation of brand equity concept is one of the most popular research avenues in B2B branding. This conclusion is explainable by the fact that building brand equity is viewed as one of the most important strategic issues in B2B markets.

4.3. Cluster analysis of B2B branding research

CiteSpace categorizes co-citation networks into major clusters of co-cited references which are associated closely with one another and are loosely associated with references in other clusters (Chen et al., 2012). These associations assist in identifying active areas of research within B2B branding discipline as well as in determining major areas that need further attention. Fig. 5 shows the major clusters of co-cited references and indicates that the largest number of branding researchers has focused on investigating and analyzing industrial brand equity. The second most important cluster that emerged is of scholars that worked on the power of brands, focusing on investigating the benefits of branding strategies in B2B markets (e.g. Baumgarth, 2010; Glynn, 2010; Zablah, Brown, & Donthu, 2010). The third cluster composes researchers using organizational economics and resource-based view of the firm as a theoretical framework to investigate B2B branding phenomenon (e.g. Capron & Hulland, 1999; Combs & Ketchen, 1999).

The fourth major cluster is composed of studies that have focused on measuring and managing of brand equity (e.g. Bogomolova & Romaniuk, 2010; Michell et al., 2001). The last major cluster includes researchers investigating industrial buyers' perceptions and attitudes (e.g. Alpert, Kamins, & Graham, 1992; Brown, Zablah, Bellenger, & Johnston, 2011), and reinforcing the key role industrial buyers play in the development and implementation of B2B branding strategies. A summary of the findings on the active clusters of the co-cited references is shown in Table 6.

Findings also suggest that the majority of studies in industrial brand equity and managing brand equity clusters have applied insights derived from the B2C context presented by Aaker (1991) and Keller

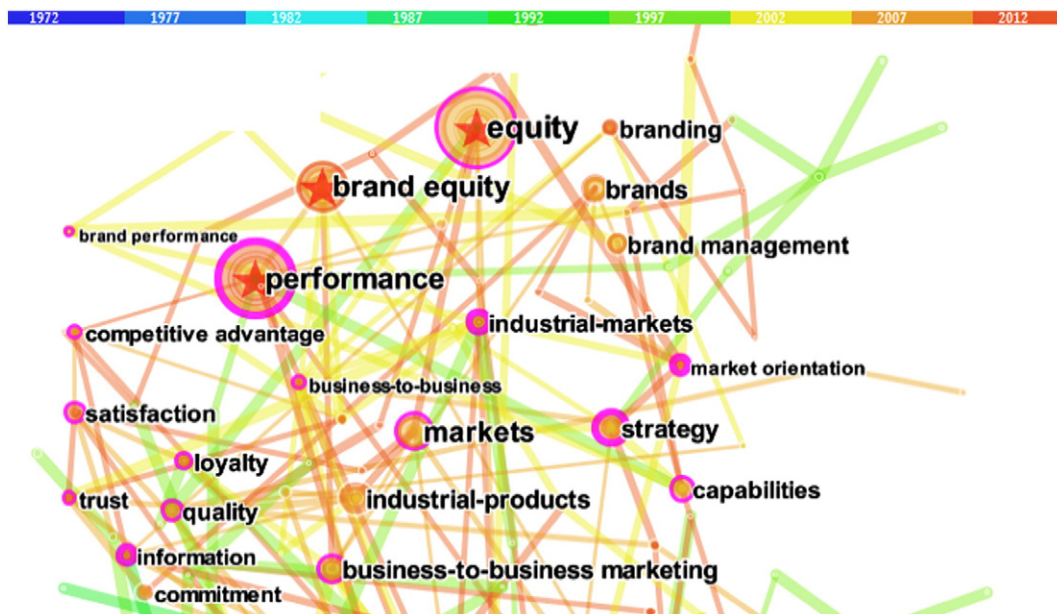


Fig. 4. Keyword co-word network analysis of B2B branding research.

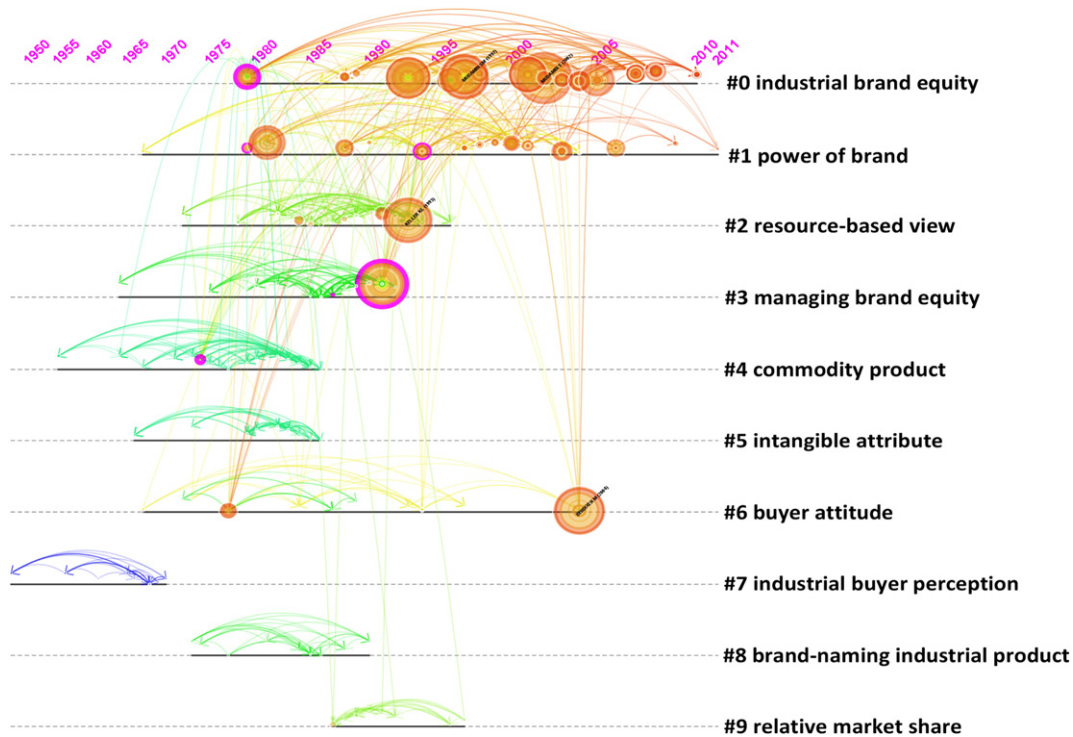


Fig. 5. Cluster analysis of B2B branding research.

(1993), who followed cognitive psychology view of brand equity. While five of the major clusters identified in the cluster analysis are classified as active areas attracting majority of attentions, the other five major clusters including “relative market share”, “brand-naming industrial product”, “buyer perception”, “intangible benefits”, and “commodity product” have not received equivalent considerations from academicians. These findings will be elaborated more in the discussions section.

4.4. Author co-citation network analysis

White and Griffith (1981) first introduced author co-citation analysis as a useful tool in identifying “invisible college networks” by identifying

the number of co-occurrences of individual works by different authors. Identifying interrelationships among scholars that work in B2B branding is one of the objectives of the present study. Fig. 6 shows the author co-citation analysis of B2B branding research obtained in CiteSpace, which is comprised of 214 nodes and 289 co-citation links.

The nodes with higher number of citations are bigger in size and have greater betweenness centrality values. The bigger purple rings around the node imply that these authors are leading scholars with profound influence in the development and evolution of B2B branding research. Additionally, nodes with red inner rings point to increased citations that an author received in a specific time period. Table 7 presents the most influential B2B branding researchers by the number of co-

Table 6
Gist of findings for active clusters of B2B branding research.

Author (Year)	Author (Year) Title
Cited references	Citing articles
<i>Cluster #0 industrial brand equity</i>	
Hutton (1997)	Baumgarth and Schmidt (2010): How strong is the business-to-business brand in the workforce? An empirically-tested model of ‘internal brand equity’ in a business-to-business setting
McQuiston (2004)	Lai, Chiu, Yang, and Pai (2010): The Effects of Corporate Social Responsibility on Brand Performance: The Mediating Effect of Industrial Brand Equity and Corporate Reputation
<i>Cluster #1 power of brand</i>	
Morgan and Hunt (1994)	Hughes and Ahearne (2010): Energizing the Reseller’s Sales Force: The Power of Brand Identification
Srivastava, Shervani, and Fahey (1998)	Baumgarth and Schmidt (2010): How strong is the business-to-business brand in the workforce? An empirically-tested model of ‘internal brand equity’ in a business-to-business setting
<i>Cluster #2 resource-based view</i>	
Barney (1991)	Capron and Hulland (1999): Redeployment of Brands, Sales Forces, and General Marketing Management Expertise Following Horizontal Acquisitions: A Resource-Based View
Wernerfelt (1984)	Combs and Ketchen (1999): Explaining interfirm cooperation and performance: toward a reconciliation of predictions from the resource-based view and organizational economics
<i>Cluster #3 managing brand equity</i>	
Aaker (1991)	Keller (1993): Conceptualizing, Measuring, and Managing Customer-Based Brand Equity
Kotler (1991)	Bogomolova and Romaniuk (2010): Brand equity of defectors and never bought in a business financial market
<i>Cluster #6 buyer attitude</i>	
Bendixen et al. (2004)	Alpert et al. (1992): An Examination of Reseller Buyer Attitudes toward Order of Brand Entry
Robinson, Faris, and Wind (1967)	(Mudambi (2002)): Branding importance in business-to-business markets: Three buyer clusters

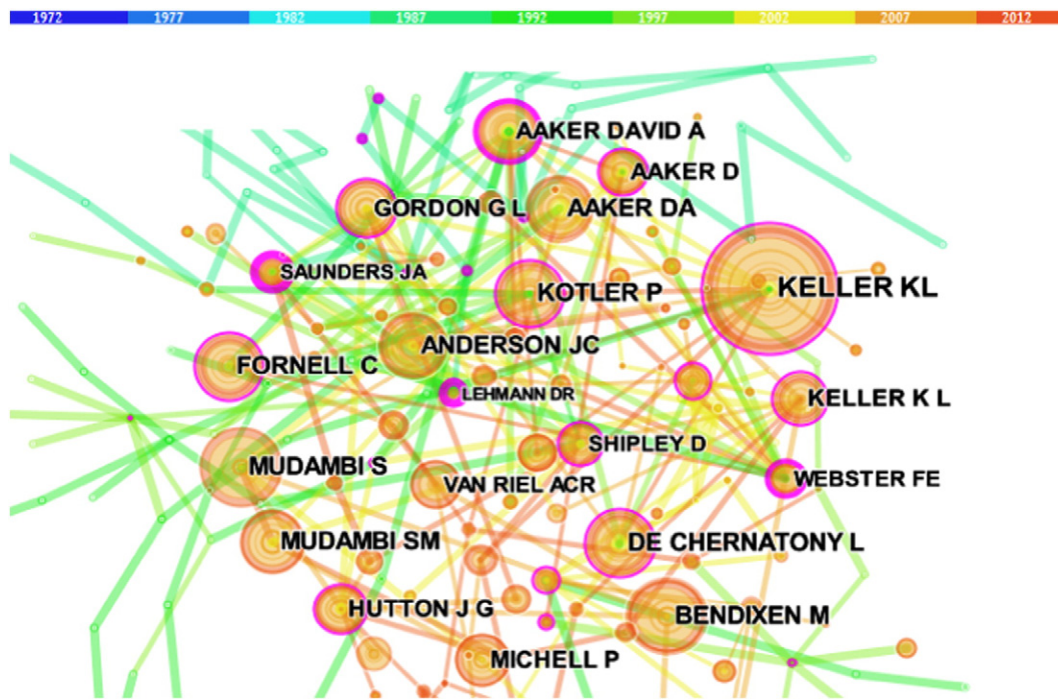


Fig. 6. Author co-citation network of B2B branding articles.

citation frequency. David Aaker, Kevin Keller, and Susan Mudambi are the top three scholars that received comparatively higher number of co-citation from B2B branding researchers.

4.5. Journal co-citation network

Journal co-citation network analysis is used to uncover the macro-structure of a field of study and identify the most frequently cited journals, thereby providing insights into the journals that have contributed to the intellectual foundation of a discipline (Liu et al., 2015). Journal co-citation analysis identifies similarities and examines the structure of the relationship across subject within journals (McCain, 1991; Tsay, Xu, & Wu, 2003). Fig. 7 shows the journal co-citation analysis of B2B branding articles with 155 nodes and 251 links. The results indicate that the top five journals that have collectively contributed to the intellectual base of B2B branding are *Journal of Marketing*, *Journal of Marketing Research*, *Industrial Marketing Management*, *Journal of the Academy of Marketing Science*, and *Journal of Business Research*. All the above journals, with the exception of *Industrial Marketing Management*, are considered general journals that publish papers on various business and marketing subjects. Articles published by the above top journals are often cited more than those in lower quality journals because of a broader readership and perception of higher quality. Thus, the results suggest that *Industrial Marketing Management* has made the greatest contribution not only to the foundation of

B2B branding field of research (e.g. Mudambi et al., 1997) but also to its continuing development and evolution (e.g. Abdul Rahman, Melewar, & Sharif, 2014).

4.6. Country and institution co-citation network

The final stage of the bibliometric analysis involved identifying the most influential and contributing countries, as well as institutions that have contributed to the development and evolution of B2B branding research. US scholars (44) are the most co-cited B2B branding scholars, followed by those from Australia (29), then the UK (21). Moreover, Monash University (Australia) and Birmingham University (UK) emerged as the top institutions in the co-citation network analysis. Further, the burst detection within the countries co-citation analysis showed that US has the strongest citation burst that began in 1972 and ended in 2004. However, no other burst detection based on countries co-citation emerged. These findings point to the dominance of US researchers in B2B branding, or the prevalence to cite US based researchers than those from other countries such as England, Australia, Germany, Canada, and New Zealand that have also been active in B2B branding research especially in the post-2000 era.

5. Discussion

In this study, bibliometric analysis is used to quantitatively trace the development and evolution of B2B branding as a field of study, so to provide a critical evaluation and review of this discipline over the past four decades. Applying a scientometric and text mining approaches, this research provides a comprehensive view of this domain of knowledge. This study went beyond the traditional citation counts, and used a bibliometric mapping software tool to identify and visualize the intellectual structure of B2B branding research through co-citation analysis of articles. Results indicate that B2B branding is still in its infancy needing of much further attention both theoretically and conceptually to grow. Findings suggest that some of the B2B branding aspects such as industrial brand equity, brand power, and managing brand equity have received greater attention from researchers than other aspects and point to the dominance of a single theoretical and methodological approach. In

Table 7
Top 20 most cited authors in B2B branding field of study.

No.	Frequency	Author	No.	Frequency	Author
1	148	Aaker D A	11	39	Michell P
2	122	Keller K L	12	35	Hutton J G
3	100	Mudambi S M	13	33	Van Riel ACR
4	59	Webster F E	14	33	Shipley D
5	53	Kotler P	15	27	Berry L L
6	51	Bendixen M	16	27	Beverland M
7	45	Fornell C	17	26	Homburg C
8	44	Anderson J C	18	25	Davis D F
9	43	De Chernatony L	19	25	Saunders J A
10	41	Gordon G L	20	23	Morgan R M

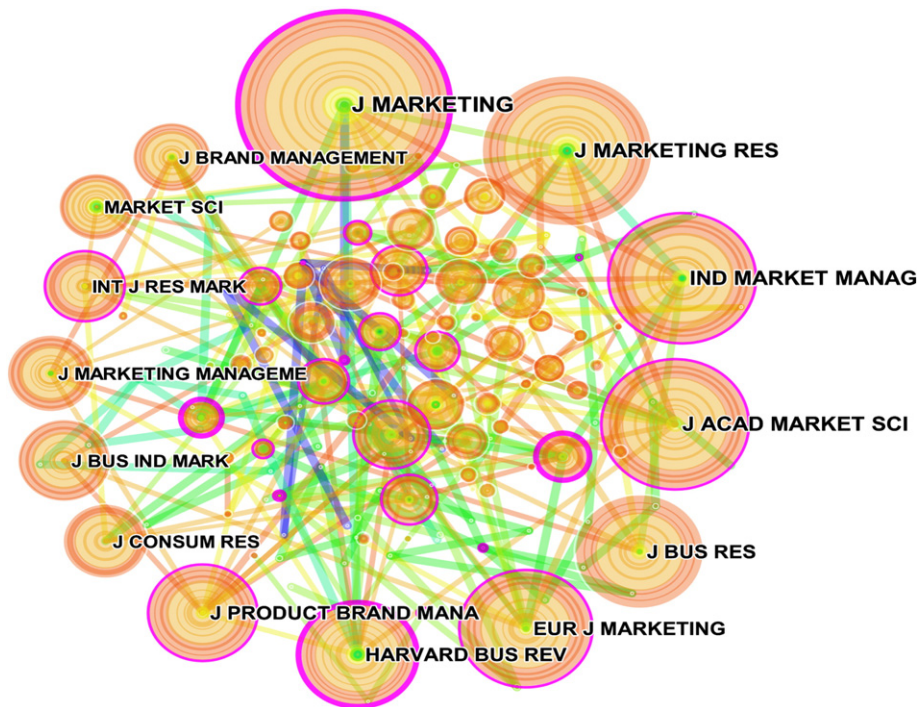


Fig. 7. Journal co-citation network of B2B branding research.

addition, the analysis suggests research on B2B branding has mostly adapted insights from the B2C context. The “Why should companies pursue a branding strategy?” and “Why should customers purchase a brand over other alternatives?” questions by managers still remain unresolved in current B2B branding literature.

The article co-citation analysis identified underlying intellectual structure as well as breakthrough ideas and developments within B2B branding as a field of study and identified Aaker (1991) and Keller (1993) as being among most frequently co-cited publications suggesting that the underlying intellectual structure of B2B branding is based on the knowledge gained in B2C context. Further, by exploring the role of branding in B2B markets, differentiating between B2C and B2B branding, and distinguishing among three types of industrial buyers, Mudambi (2002) and Mudambi et al. (1997) represent major breakthroughs in advancing the B2B branding discipline. The above results are consistent with findings from the cluster analysis, which identified the power of the brand, industrial brand equity, managing brand equity, and buyer attitudes as the areas that have attracted most attention in B2B branding research.

The next important finding of the bibliometric analysis was the identification of the intellectual turning point articles that helped in unfolding the intellectual transition of B2B branding research, detecting its paradigmatic changes, and identifying the channels connecting research in different periods of time. Referring to Table 4, results suggest that the intellectual transition of B2B branding has followed a path from the initial contention of branding being irrelevant in B2B (Saunders & Watt, 1979) to the realization of great advantages ascribed to building of industrial brands (Shipley & Howard, 1993), creating industrial brand equity (Gordon et al., 1993), and then proposing how brands can be built in industrial markets (Webster & Keller, 2004). Closer examination of the intellectual turning point articles also indicates that several important theoretical foundations have been applied in the development of B2B branding including cognitive psychology view (Aaker, 1991; Keller, 1993), social exchange theory (Morgan & Hunt, 1994), and resource-based view (Wernerfelt, 1984), with the majority of studies following a cognitive psychology approach.

Burst detection analysis helped identifying possible new intellectual turning points. Referring to Table 5, those articles with their citation

burst terminated might be the result of rapid participations of B2B branding scholars in a specific period of time to diffuse their ideas. Davis et al. (2008) investigated brand equity within B2B logistics service providers and still has an ongoing citation burst signaling a new intellectual turning point in B2B branding research. This suggests a paradigmatic change and intellectual transition from focusing on only product branding to include service branding in industrial markets.

The cluster analysis revealed the major research areas in B2B branding and identified the most active area that researchers are focusing on is industrial brand equity. However, most research has transferred the branding knowledge garnered in B2C to B2B with scholars frequently examining brand equity models proposed by Aaker (1991) and Keller (1993) in different B2B contexts. This has resulted in a limited number of advanced theories and specific models proposed for B2B branding and brand equity. Topics such as intangible attributes and benefits of branding in B2B, industrial buyers' perception of branding, how to successfully brand products and services in B2B, branding and commoditization in B2B, and the market share, financial, and economic implications of branding in B2B are some of the issues warranting further empirical attention.

6. Implications and directions for future research

This bibliometric study has several important implications, and reveals potential avenues for future research. Overall, the findings suggest that both theoretical and methodological issues pertaining to B2B branding research need further investigation. First, most researchers (Davis et al., 2008; Kuhn et al., 2008) on B2B branding have used the cognitive psychology school of thought to underpin their research pointing to the dominance of this theoretical framework in B2B branding research. Following the cognitive psychology approach, empirical research in B2B markets has focused on brand awareness and associations, perceived quality, brand loyalty, and brand image. While the importance of these factors should not be overlooked, the complex nature of industrial markets should not only requires contextual measures for these factors but also additional and/or replacement factors specific to the B2B context when applying the cognitive psychology approach.

Some scholars point out that while the underlying assumptions of branding may work in both B2B and B2C markets, differences across these markets (Beverland et al., 2007) call for the development of more relevant and specific factors related to branding process in B2B contexts. For example, B2B buyers, compared with consumers in B2C, are usually responsible for complex high volume purchases with significantly greater financial values. This responsibility necessitates that buyers follow careful consideration and greater caution in their decision-making process. In addition, buyers in B2B markets may also be required to evaluate their purchasing decisions based on criteria of multiple stakeholders such as social and environmental considerations, the intensity of competition in the marketplace, the trustworthiness of suppliers' organization claim, supplier reputation, and the degree of customization of the product or service offering. Thus, future B2B branding research should consider alternative theoretical frameworks that can help explain these unique issues in B2B markets.

Second, other theoretical approaches such as social exchange, resource-based, and information economic views among others have received limited attention compared with cognitive psychology approach. Given that social exchange and reciprocity theories have long been studied in the buyer–supplier relationships in B2B (Morgan & Hunt, 1994), additional empirical work underpinned by these theories could enhance understanding of exchange and reciprocity processes from a branding perspective in industrial markets. Little research applying the resource-based view (RBV) in B2B branding has been undertaken. Given that branding in B2B is considered as one of the crucial organizational capabilities (Capron & Hulland, 1999), studying how brands can be used to attain strategic competitive advantage in this ever-changing and dynamic nature of business can provide useful insights such as answering: “Why should companies pursue a branding strategy in B2B markets?”

Few studies have followed an information-economic perspective in B2B branding (Leischnig & Enke, 2011). Given the asymmetric nature of information in industrial markets on the buyers' side (Homburg, Stierl, & Bornemann, 2013), future research could focus on how B2B brands can act as a signal of supplier's product or service credibility. Such research could help uncover how information-economic perspective of branding approach in B2B markets could help in bridging the information gap between suppliers and buyers so as to reduce information costs and diminish purchase risk. This could help answering the “Why should customers purchase a brand over other alternatives?”

Third, results specify some unexplored research areas that provide directions for future research. Although Mudambi et al. (1997) argued that branding in B2B have both tangible and intangible attributes differing from those in B2C; inadequate attention have been directed toward systematically understanding these intangible attributes. Likewise, industrial buyers' perception of branding might facilitate the attainment of successfully building and managing brand equity. Prior research found that buyers play a pivotal role in B2B markets and have differing perceptions toward branding (Mudambi, 2002). Future research could focus on buyers' perception when advancing branding strategies. Additionally, the findings are limited and opposing regarding branding of industrial commodity products (McQuiston, 2004; Sinclair & Seward, 1988). Further research is necessary to resolve this discrepancy in future attempts and discover how the transfer from commoditization to differentiation occurs in B2B applying branding strategy. Organizations operating in today's highly competitive B2B markets marketing homogeneous products at similar price ranges may benefit from implementing B2B branding strategies (Kotler & Pfoertsch, 2006), so as to turn commodity products and services into highly customized and differentiated offerings. While, scholars have pointed to the importance of B2B branding in creating financial benefits (Ohnemus, 2009), limited empirical attention has been paid to investigate the role of B2B branding in enhancing market share, as well as financial and economic performance. Such works could provide empirical evidence of the role of branding strategies in industrial markets.

Fourth, the findings of this study demonstrate that the influence of Davis et al. (2008) work on looking at brand equity from a logistics perspective, which started in 2011, is still ongoing suggesting a change in B2B branding field from just investigating the importance of brand equity to examining B2B brand equity within specific contexts, such as the supply chain, as another promising avenue for future research. While scholars (Abdul Rahman et al., 2014) have started to address brand equity from logistics perspective, other facets of supply chain management such as procurement and industrial purchasing has received limited attention. Another implication of this finding is the importance of branding B2B services. Investigating the role of branding in services such as installation, operations, repair and maintenance, consultancy, and insurance could make significant contributions to this field of study. As some transactions in B2B markets usually include individualized customized solutions that have both a product and service components, future empirical work could focus on the role of solution branding in B2B markets.

Fifth, the results of this bibliometric analysis suggest that some of the influential publications on the development of B2B branding as a field of study are reference books in B2C domain (Aaker, 1991; Keller, 2003). B2B researchers could also focus on similar contributions in the B2B branding area (Glynn & Woodside, 2009; Kotler & Pfoertsch, 2006). Future researchers could also rely more on the evidence found in B2B area.

Sixth, scholars based in the US, Europe, and Australia dominate B2B branding research. These findings show the paucity of empirical work in B2B branding form developing and emerging markets as well as from nonwestern economies. Given that some of the fastest growing B2B brands are based in these economies, future research examining the role of B2B in Africa, Asia, South America, and the Middle East could be encouraged to enrich the current B2B branding literature.

Finally, the present research provides important implications from a methodological perspective. The results of the articles co-citation reveal that most studies in B2B branding have applied quantitative research methods. Thus, future research could utilize qualitative and conceptual research techniques to advance B2B branding as a field of study. Scholars can also utilize pluralistic methodologies combining qualitative and quantitative research methods to provide more robust findings and advance theory.

7. Conclusions

Based on the accumulative results in this bibliometric analysis and a review of extant literature, a trajectory comprising of four different periods emerged to mark the development and evolution of B2B branding as a field of study as shown in Table 8. The first trajectory occurred between 1972 and 1991, when limited empirical work on B2B branding was undertaken, suggesting the discipline was not appealing to most researchers at that time. This trajectory could have been a response to earlier contentions that branding had no significant role to play in B2B marketing by scholars such as Saunders and Watt (1979), and Sinclair and Seward (1988). The second trajectory for B2B branding research occurred between 1992 and 2006. This era was when branding was identified to be an important factor in B2B markets, and when some of the most valuable B2B brands such as Google, CISCO, Oracle, Intel and IBM emerged. In addition, during this phase scholars started acknowledging the role and presence of brand equity in the B2B sector (Gordon et al., 1993). Subsequent studies also confirm the important role B2B branding plays in facilitating the commanding of price premiums, enhancing buyer satisfaction and loyalty (Low & Blois, 2002; Michell et al., 2001), stimulating referrals (Bendixen et al., 2004; Hutton, 1997), as well as in reducing purchase risk for buyers (Bengtsson & Servais, 2005; Mudambi, 2002) in industrial markets. Further, from the theoretical perspective, cognitive psychology approach was a dominant theoretical foundation in this period.

Table 8
Trajectory of B2B branding research.

	1972–1991	1992–2006	2007–Present	Future Research
	<i>Irrelevance of branding</i>	<i>Benefits of branding</i>	<i>Brand equity</i>	<i>Branding spillover</i>
Intellectual structure	<ul style="list-style-type: none"> Product perception Product non-differentiation Brand name Commodity product Brand effectiveness 	<ul style="list-style-type: none"> Brand equity Loyalty Performance Competitive advantage Quality assurance Distribution efficiency Intangible asset 	<ul style="list-style-type: none"> Equity Performance Satisfaction Buyer–supplier relationship Brand importance Brand image Corporate reputation 	<ul style="list-style-type: none"> Market share Financial performance Economic performance Extended buyer–supplier relationships Buyer perception of brand Commoditization and branding B2B service branding Solution branding Improved cognitive psychology Extended social exchange theory Resource-based view Information economic view
Theoretical foundations		<ul style="list-style-type: none"> Cognitive psychology 	<ul style="list-style-type: none"> Cognitive psychology Social exchange theory 	

Following this period some consensus emerged among researchers on the existence and importance of branding in B2B markets, leading to the analysis of the role of brand and brand equity as strategic assets in industrial firms. This research trajectory started in 2007 and is still ongoing. During this period, researchers mostly focused on analyzing the role of brand and brand equity as strategic assets in industrial firms. As a result, scholars started placing emphasis on examining how building and sustaining B2B brands with high equity enhance organizational performance (e.g. Wise & Zednickova, 2009). The article co-citation and keyword co-word analyses also indicate brand equity is the most popular topic among B2B branding researchers. Brand equity and how it is managed and measured also emerged as major research areas found in the cluster analysis. For instance some scholars focus on brand equity (e.g. Bogomolova & Romaniuk, 2010; Kalafatis, Remizova, Riley, & Singh, 2012; Lambkin & Muzellec, 2010), whereas other concentrated on managing brand equity (e.g. Beverland et al., 2007; Zaichkowsky, Parlee, & Hill, 2010). Further, different models of B2B brand equity such as franchisee-based brand equity (Nyadzayo et al., 2011), trade-based brand equity (Davis & Mentzer, 2008), and internal brand equity (Baumgarth, 2010) have been proposed in this period. Researchers in this period have also introduced a range of theoretical foundation to explain B2B branding. The most evident is social exchange theory, which has been applied to explain the buyer–supplier relationships through branding lens.

Based on the above results, a final trajectory is proposed. Research in this period is projected to continue focusing on theoretical advancements, modifications, and improvements using both qualitative and conceptual methods. It is also expected that research move toward treating brands as a more significant tactical resource in the highly competitive B2B markets. Potentially, research could investigate the influence of branding on financial and economic performance, and market share. Further, investigating brand equity from other supply chain perspectives is another interesting area for further research. Probing into the branding role in buyer–supplier relationships, branding B2B service and solution, commoditization and branding are also among potential research topics.

8. Limitations

This study is not without limitations. First, researchers tend to cite their own work, which affects the co-citation analysis results. However, this did not have a significant effect on the results and conclusions as the number of B2B branding authors far exceed the number of articles published. Second, researchers tend to cite high quality or ranked journals more, which could impact bibliometric analyses to find them as higher contributors to knowledge. Third, given a time lag between when an article is published and when the article is cited in another article, this might result in a bias toward articles that were published earlier as the impact of more recent contributions can only be revealed

over time. Fourth, all the articles examined in this research were published by researchers in English speaking western countries. Inclusion of articles by non-English researchers in nonwestern countries could result in somewhat modified findings.

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