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Business models and their relationship with marketing: A systematic literature review

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ABSTRACT

The purpose of this paper is to identify the degree to which the marketing discipline has hitherto engaged with business model literature. The results of a systematic review of business model literature are presented and utilise both the citation counts and the h-index to objectively demonstrate the limited engagement that the marketing discipline has had with business model literature, and the limited degree that the discipline has influenced that literature. The key findings reveal a growing, but formative body of literature that, hitherto, has been dominated by non-marketing disciplines and which has only just begun to be addressed by present day marketing scholars. Using the most influential articles identified in the analysis, the paper concludes with a case for the empirical development of the business model concept with industrial marketing scholarship. Such development is argued to be grounded in the potential of open business models, co-created with multiple stakeholders in a supply chain and the end users of a value proposition.

1. Introduction

In recent years, the business model concept has attracted increased attention from scholars in a variety of academic disciplines and areas of professional practice. However, to date, business models have received very little attention from marketing scholars with only eight business model articles having been published in marketing journals between 1970 and 2011. The aim of the paper is first, to analyse the influence of marketing theory on current business model literature; and second, to identify the main research fronts of the business model concept in industrial marketing. Business models offer a way of consolidating and replicating best practice in industry. Further, the business model concept offers the potential for industrial marketers to better tell a story of how value is created in a supply chain. Such stories are of increasing value in a contemporary environment of consumer sensitivity as to how value is delivered to the market. Hence, the value of this study is to identify the areas where assimilation has taken place as a guide for future research within industrial marketing. Further value is derived by identifying areas in which there has been limited assimilation into the marketing discipline and conclusions are drawn as to why such limited assimilation has taken place. Logical conclusions are then advanced as to where future assimilation with industrial marketing needs to take place, and how industrial marketing can make distinctive contributions to the business model literature. To achieve the paper's stated aims, a systematic literature review was conducted. Findings of a review of the business model literature between 1970 and 2011 are presented and a citation analysis used to identify the number of citations a particular article has gained over a period of years in other published research resulting in the identification of the most influential publications and scholars in the business model field.

The structure of this paper is as follows: first a review of some of the leading contributions to the business model field, their definitions and deployment across disciplinary areas is discussed; second a defence and description of the methodology utilised in this paper are presented, in particular, the employment of bibliometric analysis techniques; third the findings from the study are presented; fourth the conclusions and implications drawn from the study are discussed; and finally the methodological limitations of the study are presented.

2. What is meant by the term 'business model'?

Over the past few years, the term 'business model' has surged into management vocabulary and the use of the term has become "quite fashionable" (Shafer, Smith, & Linder, 2005: 200). The business model concept has been argued to be a relatively new and potentially powerful concept in Strategic Management literature (Osterwalder & Pigneur, 2002; Zott & Amit, 2008) and has become of increasing importance since the dot.com era (Demil & Lecocq, 2009; Doganova & Eyquem-Renault, 2009; Yip, 2004). However, presently, the academic research in respect of business models is not well developed with no commonly accepted view of what it should consist of (a point advanced in discussions by Casadesus-Masanell and Ricart

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(2010, 2011), Chesbrough (2007a), Morris, Schindehutte, and Allen (2005), Osterwalder and Pigneur (2002), and Schweizer (2005)). This ambiguity presents problems for marketing scholarship both in defining the contribution it can make to the further development of business model theory, and understanding how marketing can learn from current business model literature. Shafer et al. (2005) explained that whilst some scholars have offered definitions of the term 'business model', none of these definitions appear to have been fully accepted by the business community; consequently practitioners appear to be confused about how to use the concept. An explanation for the lack of an accepted view of what business models are, advanced by a number of authors (for instance Baden-Fuller & Morgan, 2010; Morris et al., 2005; Zott & Amit, 2010), is that scholars have so far devoted little attention to empirical study of the topic (a point returned to in Section 5). This inattentiveness seems particularly true of marketing scholars.

In order to establish the potential relevance of business model literature to industrial marketing, it is helpful to first examine some of the definitions of business models. Various definitions of business models are presented in Table 1. A central tension in these definitions is the attempt to differentiate the business model as a term from a more generic notion of strategy. Casadesus-Masanell and Ricart (2010: 205) for instance, stated that "a firm's business model is a reflection of its realised strategy" and added that "essentially, strategy coincides with [the] business model, so that an outside observer can know the firm's strategy by looking at its business model". Similarly, Magretta (2002: 88) used a metaphor for explaining what a business model does, and suggested that business models are essentially "stories" that explain how firms work. However, whilst a business model does aid the analysis, testing and validation of a firm's existing strategic choices, a number of scholars have stated that business models are not the same thing as strategy (for instance Magretta, 2002; Morris et al., 2005; Shafer et al., 2005; Yip, 2004). Osterwalder and Pigneur (2002) argued that the distinctiveness of a business model is to provide the 'missing link' between strategy and tactics. An often emphasised and important element in this strategic–tactical dynamic is the customer value proposition (Johnson, Christensen, & Kagermann, 2008). However, apparent in many definitions of business models (see Table 1) are assertions that value is not just something that is produced; rather it is also something that is exchanged and consumed. Many scholars further acknowledge the centrality in business models of the creation, capture and delivery of value to an organisation's customers (e.g. Afuah, 2004; Afuah & Tucci, 2003; Baden-Fuller & Morgan, 2010; Chesbrough, 2007a; Chesbrough, 2010; Johnson et al., 2008; Teece, 2010). Exchange of value has been central in many definitions of marketing (see for instance the review of definitions provided by Ringold and Weitz (2007)). Indeed, Ringold and Weitz (2007) discussed the 2004 definition of marketing as including notions of creating, communicating and delivering value to customers, therefore in light of such evident similarities, the apparent paucity of discussion of business models in marketing journals must surely be an oversight. Analysis of this situation therefore seems appropriate and timely.

3. The business model in marketing scholarship

Allusions to the creation, capture and delivery of value are evident in six out of the eight business model articles published in marketing journals between 1970 and 2011. For instance, Morris et al. (2005: 729) conceptualised a six-component framework regardless of venture type for characterising a business model that consisted of three increasingly specific levels of decision making, which they termed the "foundation", "proprietary", and "rules" levels. At the foundation level of this framework, the six components are concerned with how the firm will create value and for whom, the firm's internal advantage and competencies, how the firm will position itself in the market, how the firm will make money and the considerations for the capture of growth, resources and time. At the proprietary level, innovative measures are developed for each component and, at the rules level, the guiding principles are established for the operation to ensure that the model's foundation and proprietary elements are reflected in ongoing strategic actions. In the context of a retail venture, Sorescu, Frambach, Singh, Rangaswamy, and Bridges (2011) argued that the purpose of a retail business model is to articulate how value is created for its customers and appropriate value from the markets for the retailer and its partners. Sorescu et al. (2011: S4) proposed a three-element conceptualisation of retail business models, which they termed "retailing format", "activities" and "governance", and a framework that consisted of six design themes that could be used to design innovative business models. These six design themes consisted of three themes for value creation, namely, customer efficiency, customer effectiveness, and customer engagement, and three corresponding themes for value appropriation, namely, operational efficiency, operational effectiveness, and customer lock-in. However, not all scholars in the marketing literature have discussed the creation, capture and delivery of value, and focused instead on quantitative analyses of competition and revenue generation (Kind, Nilssen, & Sorgard, 2009; Pauwels & Weiss, 2008).

In industrial marketing journals, Mason and Spring (2011: 1035) recently discussed value delivery to customers through an examination of the theory behind business models in the context of the recorded music industry and defined value as "the benefits derived by a customer

Table 1
A selection of definitions of business models in the literature.

Author(s)	Definition
Afuah (2004: 2)	"A business model is a framework for making money. It is the set of activities which a firm performs, how it performs them, and when it performs them so as to offer its customers benefits they want and to earn a profit".
Amit and Zott (2001: 511)	A business model depicts "the content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities".
Chesbrough (2007a: 12)	"At its heart, a business model performs two important functions: value creation and value capture. First, it defines a series of activities, from procuring raw materials to satisfying the final consumer, which will yield a new product or service in such a way that there is a net value created throughout the various activities". "Second, a business model captures value from a portion of those activities for the firm developing and operating it".
Johnson et al. (2008: 52)	A business model "consists of four interlocking elements that, taken together, create and deliver value". These four interlocking elements consist of "customer value proposition", "profit formula", "key resources" and "key processes".
Osterwalder and Pigneur (2010: 14)	"A business model describes the rationale of how an organisation creates, delivers and captures value".
Shafer et al. (2005: 202)	A business model is "a representation of a firm's underlying core logic and strategic choices for creating and capturing value within a value network" and it is this core logic for creating and capturing value that is the basis of a business model.
Teece (2010: 174)	"A good business model yields value propositions that are compelling to customers, achieves advantageous cost and risk structures, and enables significant value capture by the business that generates and delivers products and services".
Zott and Amit (2007: 181)	"A business model elucidates how an organisation is linked to external stakeholders, and how it engages in economic exchanges with then to create value for all exchange partners".

from an exchange". They attempted to link a conceptualisation of what business models are with what they do. Business models in a solution business context were also recently discussed by Storbacka (2011) who presented a framework to assist firms in the effective management of a solutions business. This framework enables solutions to improve value creation for customers, create demand for these solutions, sell the solutions to the individual customers and receive compensation based on the customer's value-in-use. Value creation was also discussed by Shin and Park (2009) in the context of e-auctions and demonstrated how variants of e-business models created customer value through differentiation. Value creation was again recently raised in the context of technology-based services by Palo and Tahtinen (2011: 381), who argued that "value exchanges between actors, the service and the customer are important element in a business model". They further presented a framework for describing the core elements of a networked business model, demonstrating how it can be applied in developing business model scenarios. Networked and open business models are an emerging theme within the industrial marketing literature (see also Ehret & Wirtz, 2010; Wirtz & Ehret, 2013). An open-business model examines the creation of value between stakeholders, rather than simply considering the value created within the boundaries of a single firm.

Table 2 presents a summary of these eight business model articles published in marketing journals. This small body of literature acts as a useful benchmark to determine a direction in which industrial marketing can assimilate and contribute to the development of business model literature. However, more can be learned from a systematic review of the entire body of work discussing business models. As a moderately mature body of thought, it lends itself to systematic analysis. Before progressing to present the central findings of our analysis, the methodology through which this analysis was achieved will be outlined in the next section of the paper.

4. Bibliometric approaches

4.1. Approaches to assessing a body of literature

The analysis and identification of a field of study can be undertaken through two broad approaches. First, through a subjective approach based on a qualitative analysis of the literature and, second, through an objective approach based on a quantitative bibliometric analysis. Both approaches have advantages and disadvantages and therefore must be seen as being 'complementary' in gaining an understanding of the structure of a field of study (Acedo & Casillas, 2005). Arguably, a subjective, qualitative literature review in isolation cannot adequately answer the question of how dynamically knowledge gets generated and transferred over time (Osareh, 1996) nor adequately reveal the key journal articles and prominent scholars driving a discipline at different points in time (Backhaus, Lugger, & Koch, 2011).

Research fields are characterised by patterns of communication between researchers. This communication manifests itself in various ways, but foremost amongst such communications are citations from one author's work to another. A citation is the acknowledgement that one article receives from another and generally implies a relationship between a part of, or the whole of, the cited article and a part or the whole of the citing article (Smith, 1981). Cronin (1998: 48) referred to citations as "frozen footprints in the landscape of scholarly achievement". Such 'footprints' can reveal patterns of interaction amongst researchers and thus can provide evidence of a discipline's structure (Usdiken & Pasadeos, 1995). Such relationships between authors can be used to create a picture or to identify a trend in a specific research field in terms of the articles that constitute its seminal work. Citation analysis is an area of bibliometrics which deals with the study of the relationships between authors in a field of study.

4.2. Citation analysis

Citation analysis is a widely used bibliometric method that supports empirical investigations of the structure, as well as the research activity of academic disciplines (Backhaus et al., 2011; Radicchi, Fortunato, & Castellano, 2008). Gross and Gross (1927) were the first to use citation counts to evaluate the importance of scientific work. Since then, citation analyses have been undertaken for the assessment of national science policies and disciplinary development (Bornmann & Daniel, 2008). A number of approaches have been developed to measure both the influence of authors within a discipline and the impact of journals on a discipline (Osareh, 1996). A centrally used resource is the Thomson Reuters' Web of Science based *journal citation reports* (JCR). However, journal articles appearing in this database have been argued to be selective with an observed bias towards American journals (Brown, 2011; Johnstone, 2007) and there is some suggestion that the free service provided by Google Scholar provides the analysis of a wider range of publications (Franceschet, 2010). Other useful approaches for ranking the impact of journals include eigenfactors (www.eigenfactor.com) and the h-index (Hirsch, 2005). The h-index can be a particularly powerful tool to rank the impact of a body of authors' work. The h-index is defined as follows:

A researcher has an index h if h of his/her Np papers has at least h citations each, and the other (Np-h) papers have no more than h citations each.

The h-index aims to combine an assessment of both an individual's papers and the citations to these papers. Cronin and Meho (2005: 1275) stated quite succinctly that the h-index "helps us to distinguish between a 'one hit wonder' and an enduring performer". Nevertheless, citation-based rankings of both journals and scholars do not significantly change when compiled on Web of Science and Google Scholar, whilst rankings based on the h-index show only a moderate degree of variation (Franceschet, 2010). However, journal and author impact factors generally involve relatively large bodies of published work (Garfield, 2005) so whilst the h-index has been utilised in this paper, the main focus of the analysis has been citation counts as the body of literature is not of a substantial size.

The raw data that citation counts provide are attractive for the evaluation of performance, as they are "unobtrusive measures that do not require the cooperation of a respondent and do not themselves contaminate the response" (Smith, 1981: 84). The basic assumption

Table 2
Summary of all business model articles published in marketing journals + between 1970 and 2011.

Journal	Author(s)	Title of article
Industrial Marketing Management	Mason and Spring (2011)	"The sites and practices of business models".
Industrial Marketing Management	Shin and Park (2009)	"On the creation and evaluation of e-business model variants: The case of auction".
Industrial Marketing Management	Storbacka (2011)	"A solution business model: Capabilities and management practices for integrated solutions".
Journal of Business & Industrial Marketing	Palo and Tahtinen (2011)	"A network perspective on business models for emerging technology-based services".
Journal of Business Research	Morris et al. (2005)	"The entrepreneur's business model: toward a unified perspective".
Journal of Marketing	Pauwels and Weiss (2008)	"Moving from free to fee: How online firms market to change their business model successfully".
Journal of Retailing	Sorescu et al. (2011)	"Innovations in retail business models".
Marketing Science	Kind et al. (2009)	"Business models for media firms: Does competition matter for how they raise revenue?".

+Marketing journal as classified by the Association of Business Schools (2010).

underlying citation analysis is that authors cite their influences, so that citations act as surrogates for the influence of the cited work (Acedo & Casillas, 2005; Backhaus et al., 2011; Culnan, 1986; Smith, 1981). Therefore, based on a representative sample, the total citations to a certain article, author, or journal offer an acceptable surrogate of that paper's, author's, or journal's influence on a corresponding research field (Culnan, 1986). However, it has been suggested that authors face "professional, scholastic, research and career progression dilemmas" (Brown, 2011: 346) which may skew their motivation to cite other authors; not according to the importance of research other authors publish, but instead in a mutual agreement to increase citation counts (Radicchi et al., 2008), to meet citation quotas set by the target journal (Backhaus et al., 2011) or indeed to pay due deference to highly respected works. Brown (2011: 347) confidently stated that "*JCR* metrics can be manipulated and artificially inflated". Therefore, it is impossible to distinguish citations by motivation and such citing behaviour may affect the outcome of any study. However, whilst the motivation for citing can vary, the share of citations motivated by factors other than influence is relatively small (Backhaus et al., 2011). In contrast with the subjective approach based on a qualitative analysis of the literature, such an analysis can reveal interrelations across different paradigms and offers greater objectivity, because it is the outcome of a composite judgement of many citing authors (Backhaus et al., 2011). Therefore, the analysis does not influence the outcome, because the distribution of authors to research areas is no longer based on the subjective, individual standpoints of the study authors (Ramos-Rodriguez & Ruiz-Navarro, 2004).

Table 3
Top 25 journals publishing business model articles between 1970 and 2011.

Rank	Journal	No. of articles	Weight (%)
1	Long Range Planning	18	4.4
2	Harvard Business Review	9	2.2
3	Journal of Air Transport Management	9	2.2
4	Universia Business Review	7	1.7
5	Energy Policy	6	1.5
6	Technovation	6	1.5
7	IEEE Communications Magazine	5	1.2
8	Oil & Gas Journal	5	1.2
9	Bell Labs Technical Journal	4	1.0
10	Genetic Engineering News	4	1.0
11	IBM Systems Journal	4	1.0
12	Industrial Management & Data Systems	4	1.0
13	Journal of Telemedicine and Telecare	4	1.0
14	Media International Australia	4	1.0
15	Wirtschaftsinformatik	4	1.0
16	Alcatel Telecommunications Review	3	0.7
17	Biofutur	3	0.7
18	Chemical & Engineering News	3	0.7
19	Communications of the ACM	3	0.7
20	Enriching Communications	3	0.7
21	European Journal of Information Systems	3	0.7
22	Genetic Engineering & Biotechnology News	3	0.7
23	Health Affairs	3	0.7
24	+Industrial Marketing Management	3	0.7
25	International Journal of Electronic Commerce	3	0.7
26–258	Others	288	71
	TOTAL	405	100

+Marketing journal as classified by the Association of Business Schools (2010).

5. Methodology

In order to achieve the stated aims of the paper, as an alternative to a subjective, qualitative literature review, a quantitative, bibliometric methodology of citation analysis has been employed to assess business model literature.

5.1. Data collection

At the beginning of November 2011, a search using the Thomson Reuters' Web of Knowledge-based Web of Science citation index was undertaken for four multi-year periods (1970–1995, 1996–2000, 2001–2005 and 2006–2011). The four multi-year periods covered a wide range of years because bibliometric 'snapshots' for analysis are inadequate, even periods of five years are not long enough (Van Raan, 1996). The initial search criterion used was based on the words 'business model' or 'business models' in the title of the journal article relating to each of these four multi-year periods. The initial search revealed 994 documents which included published articles, book reviews, editorial material and letters to editors. This initial search was then refined to include only published articles, thereby excluding book reviews, editorial material and letters to editors. This search revealed 405 published interdisciplinary journal articles between 1970 and 2011. The top 25 journals that published these 405 business model articles are presented in Table 3.

Long Range Planning, classified as 'Strategic Management' by the Association of Business Schools (2010), led the table accounting for 4.4% of the number of published articles. However, journals from other disciplines including energy, health care, information technology, innovation and transportation also featured strongly. The only marketing journal that appeared within the top 25 journals was Industrial Marketing Management, with three published articles. Arguably, this finding points to the particular relevance of business models in the context of industrial marketing. Following this, the search criterion for the data obtained was further refined to include only intra-disciplinary journal articles in the 'business' and 'management' search categories in the Web of Science citation index. The outcome of this search revealed 117 published articles between 1970 and 2011. (In cases where a published article had been allocated more than one category by the Web of Science citation index, i.e. 'business' and 'management' or 'management' and 'engineering industrial' categories, then these articles were still included in the outcome of the search.) From these categories, the 117 articles were then further analysed and sorted into 'marketing' and 'management' articles. The marketing articles were those published in journals classed as marketing by the Association of Business Schools (ABS),[2] and the management articles were those published in intra-disciplinary management journals (i.e. finance, organisational behaviour and human resource disciplines) which excluded marketing journals. All of the remaining 288 extra-disciplinary articles from outside the 'business' and 'management' search categories in the Web of Science citation index were termed as 'other'. Fig. 1 presents a histogram demonstrating the category distribution of published interdisciplinary articles for each of the four multi-year periods.

5.2. Data-set

In order to identify the research that had made most impact on the business model field, a citation analysis of the data was performed to calculate the frequency of citation of the bibliographic references used in all the articles analysed. The resulting data-set used for analysis consisted of 405 business model articles published between 1970 and 2011. To achieve a longitudinal study of the evolution of business model literature, the time frame was divided into four periods. The two periods between 1970 and 1995 and between 1996 and 2000, only saw 40 published articles, but the period between 2001 and 2005 saw the beginning of substantial growth for the discipline with 120 published articles, a trend which continued during the period between 2006 and 2011 with 245 published articles. The period between 1970 and 2000, saw only 185 references cited out of journal articles,

[2] The Association of Business Schools (ABS) is a UK platform of business schools: "The ABS is the voice for the UK's Business Schools and independent Management Colleges and sets the agenda for business and management education in the UK" (ABS, 2013). It further produces and disseminates a series of journal rankings that have been influential in developing this paper.

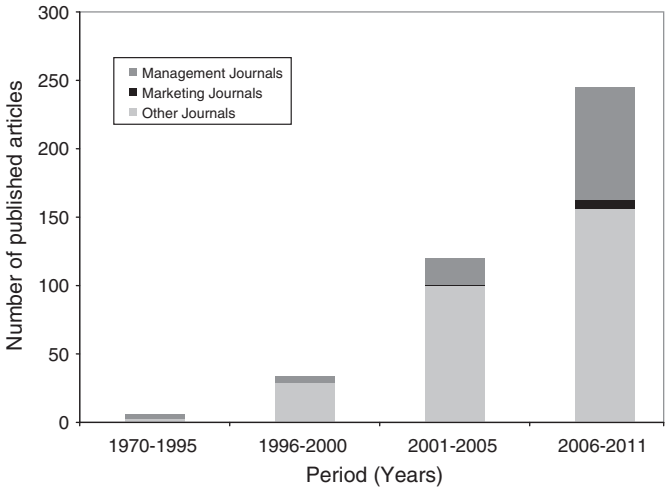

Fig. 1. Distribution of published interdisciplinary business model articles between 1970 and 2011.

but the period between 2001 and 2005 saw 635 references cited out of journal articles which witnessed the beginning of the growth in references cited. However, the period between 2006 and 2011 saw 440 references cited out of journal articles, representing a reduction compared to the previous period. However, logically the reason for this reduction is that these published articles have enjoyed less time since publication to be cited by other authors. 67% of references cited out of journal articles by other authors during the four multi-year periods appeared in management journals compared to only nearly 3% in marketing journals. A summary of the data-set is presented in Table 4.

6. Findings

The citation analysis in this paper attempted to analyse the influence of marketing theory on current business model literature and evaluate how industrial marketing scholarship can better assimilate and further contribute to the development of business model literature. The analysis and evaluation of the knowledge transfer processes involved (1) the characteristics of the key references, (2) the analysis of citing behaviour, and (3) the citation impact and productivity of the top cited journals.

First, the characteristics of the key references, including the identification of each of the four multi-year periods' most cited publications revealed the prominent scholars and key subjects driving the business model discipline at different points in time (Backhaus et al., 2011). Table 5 presents the top ten most cited articles in marketing and management journals by other scholars in each of the four multi-year periods. A citation value (CV), calculated as the ratio of individual citations to the total citations (Backhaus et al., 2011) has been applied to each published article in each individual multi-year period.

Table 5
Key references.

Rank	1970–1995	CV	Rank	1996–2000	CV
	Author(s)			Author(s)	
1	Barnett (1985)	66.67%	1	Barnett (1985)	60.00%
2	Stanford (1972)	33.33%	2	Casper (2000)	40.00%
Rank	2001–2005	CV	Rank	2006–2011	CV
	Author(s)			Author(s)	
1	Mahadevan (2000)	31.67%	1	Chesbrough and Rosenbloom (2002)	17.49%
2	Casper (2000)	21.67%	2	Magretta (2002)	7.16%
3	Weill and Vitale (2002)	12.50%	3	Mahadevan (2000)	5.30%
4	Dai and Kauffman (2002)	8.33%	4	Morris et al. (2005)	5.12%
5	Chesbrough and Rosenbloom (2002)	5.83%	5	Dai and Kauffman (2002)	3.89%
6	Lechner and Hummel (2002)	5.83%	6	Zott and Amit (2008)	3.71%
7	Magretta (2002)	4.17%	7	Bonaccorsi, Giannangeli, and Rossi (2006)	3.27%
8	Stewart and Zhao (2000)	2.50%	8	Zott and Amit (2007)	3.00%
9	Morris et al. (2005)	1.67%	9	Weill and Vitale (2002)	2.92%
10	Lumpkin and Dess (2004)	1.67%	10	Chesbrough (2007b)	2.92%

The first two of the four multi-year periods showed only two articles in each period. This is because these two periods only saw a total of 40 published business model articles in all journal disciplines. The second period (1996–2000) saw Barnett (1985) appear in the first period (1970–1995). The third period (2001–2005) saw Casper (2000) appear in the second period (1996–2000). In contrast, the fourth period (2006–2011) saw six of the ten articles (five of these ranked in the top five), Chesbrough and Rosenbloom (2002), Dai and Kauffman (2002), Magretta (2002), Mahadevan (2000), Morris et al. (2005) and Weill and Vitale (2002) appear in the third period (2001–2005). This implies some reduction in the establishment of classics and innovativeness (Backhaus et al., 2011). No one article spanned more than two periods with no period containing unique references, i.e. no other journal articles were ranked amongst the top ten in one of the preceding periods. The key reference analysis also provided evidence of a significant lack of focus of articles published in marketing journals, as classified by the ABS. A conclusion can therefore be drawn that the development of business model literature by marketing scholars has been limited to a contribution by Morris et al. (2005). The remainder of the contributions having been published in non-marketing classified journals. However, this does not amount to evidence of the relevance of business models to

Table 4
Data-set.

	1970–1995	1996–2000	2001–2005	2006–2011	Total	%
Number of business model articles published	6	34	120	245	405	100
Articles in database						
Marketing journals	0	0	1	7	8	1.98
Management journals	3	5	19	82	109	26.91
Other journals	3	29	100	156	288	71.11
Number of analysed articles	3	5	20	89	117	
Citing articles						
Number of analysed references cited out of journals	11	174	635	440	1260	100
References in database						
Marketing journals	0	7	16	11	34	2.70
Management journals	9	80	336	422	847	67.22
Other journals	2	87	283	7	379	30.08

the marketing discipline, only to a current lack of assimilation between core marketing and other business model scholarship.

Second, the average number of citations served as an indicator of the dynamics and status of a discipline's development (Backhaus et al., 2011). In Table 6, the average number of references per article demonstrated a marked increase from 10.67 during the period between 1970 and 1995 to 21.80 for the period between 1996 and 2000. The average references per article again demonstrated a marked increase from 23.70 for the period between 2001 and 2005 to 40.49 for the period between 2006 and 2011. This represented a 279% increase in the average number of references during the four multi-year periods. This finding indicated the significant growth of a business model knowledge base that has stimulated ongoing knowledge generation. Furthermore, the expansion of electronic journal databases considerably facilitated the acquisition and diffusion of business model knowledge (Backhaus et al., 2011) which likely explained the disproportionate increase of 104% between the period 1970 and 1995 and the period 1996 and 2000. The expansion of published business model articles, as presented in Fig. 1, likely explained the increase in average number of references per article of 71% between the period 2001 and 2005 and the period 2006 and 2011.

The average number of references cited per article from management journals demonstrated a modest increase from 4.33 during the period between 1970 and 1995 to 5.20 for the period between 1996 and 2000. However, the average references cited per article from management journals demonstrated a marked increase to 14.15 for the period between 2001 and 2005 and a further marked increase to 31.42 for the period between 2006 and 2011. This represented a 626% increase in the average number of references cited per article during the four multi-year periods. This finding indicated the significant growth of a business model knowledge base in the management discipline that has stimulated ongoing knowledge generation. Again, the expansion of published business model articles in management journals, as presented in Fig. 1, likely explained the increase in average number of references per article of 122% between the period 2001 and 2005 and the period 2006 and 2011. The average number of references cited per article from marketing journals, as classified by the ABS, demonstrated a modest increase from zero during the period between 1970 and 1995 to 0.60 for the period between 1996 and 2000 and then decreased to 0.35 for the period between 2001 and 2005. The average references cited per article demonstrated an increase to 2.16 for the period between 2006 and 2011. Whilst this represented an increase in the average number of references cited per article during the four multi-year periods, this finding indicated the very modest growth of a business model knowledge base in the marketing discipline which has seen only eight articles published between 1970 and 2011. The percentage of self references offered another indicator for exploring research dynamics (Backhaus et al., 2011). The lack of alternative references forces authors from younger research fields to cite themselves more than authors from more established research fields (Garfield, 1979). Thus the increase in the percentage of self references, from zero in the first multi-year period to 6.55% in the fourth multi-year period, indicated the immaturity of the business model literature as a management and marketing discipline.

Third, Table 7 presents the top 25 'business' and 'management' category journals in the Web of Science citation index ranked according to the impact factor (Garfield, 1972) of their published business model articles compared with their h-index score between 1970 and 2011. Cronin and Meho (2005: 1275) stated that a journal or scholar with an index of h has published h papers each of which has been cited in other papers at least h times.

A total of 119 articles appeared in 63 journals. From the 1260 references analysed, 847 references appeared in management category journals, 34 references appeared in marketing category journals (as classified by the ABS), with the remaining 379 references appearing in other journals. The dominance of non-marketing journals is evident with only one marketing journal, the Journal of Business Research, ranked 2, appearing in the top 25. The only other marketing journals appearing in a total of 63 journals were the Journal of Marketing, ranked 34, the Journal of Retailing, ranked 40, Industrial Marketing Management, ranked 47, Marketing Science, ranked 49 and the Journal of Business & Industrial Marketing, ranked 57. There is one journal, Industrial and Corporate Change, whose single cited article appears to have led the evolution of the business model discipline, accounting for an impact factor of 205.00. Arguably, as a more rigorous metric, the h-index was next calculated for each journal as a comparison to the impact factor. There are three journals whose productivity and impact appear to have led the evolution of the business model discipline. These journals are Long Range Planning, (h-index of 9), Technovation, (h-index of 4), and International Journal of Electronic Commerce, (h-index of 3), which are all listed as Grade 3

Table 6
Citing behaviour.

	Period			
	1970–1995	1996–2000	2001–2005	2006–2011
Average number of references	10.67	21.80	23.70	40.49
Average number of references cited from management journals	4.33	5.20	14.15	31.42
Average number of references cited from marketing journals	0.00	0.60	0.35	2.16
Percentage of self references cited from management and marketing journals	0.00%	1.83%	5.70%	6.55%

Table 7
Top 25 journals' citation impact and productivity.

Rank	Cited journal	No. of articles	No. of times cited	Impact factor	h-Index
1	Industrial and Corporate Change	1	205	205.00	1
2	Journal of Business Research[a]	1	60	60.00	1
3	Organization Studies	1	56	56.00	1
4	California Management Review	2	106	53.00	2
5	MIS Quarterly	1	48	48.00	1
6	Strategic Management Journal	1	42	42.00	1
7	Management Science	1	37	37.00	1
8	Organization Science	1	34	34.00	1
9	International Journal of Electronic Commerce	3	85	28.33	3
10	Journal of Public Policy & Marketing	1	20	20.00	1
11	Organizational Dynamics	2	38	19.00	2
12	Academy of Management Executive	1	17	17.00	1
13	Information & Management	1	17	17.00	1
14	MIT Sloan Management Review	2	33	16.50	1
15	Academy of Management Perspectives	2	28	14.00	2
16	Journal of Business	1	13	13.00	1
17	Interfaces	1	12	12.00	1
18	Harvard Business Review	9	100	11.11	2
19	Research-Technology Management	3	31	10.33	1
20	R & D Management	1	10	10.00	1
21	Technovation	6	52	8.67	4
22	European Journal of Operational Research	1	8	8.00	1
23	Information Technology & Management	1	7	7.00	1
24	Supply Chain Management—an International Journal	1	7	7.00	1
25	Long Range Planning	18	112	6.22	9
34	Journal of Marketing[a]	1	4	4.00	1
40	Journal of Retailing[a]	1	1	1.00	1
47	Industrial Marketing Management[a]	3	0	0.00	1
49	Marketing Science[a]	1	0	0.00	1
57	Journal of Business & Industrial Marketing[a]	1	0	0.00	0

[a] Marketing journal as classified by the Association of Business Schools (2010).

journals, (ABS). However, the ABS classified the three aforementioned journals in different fields. Long Range Planning was listed in the 'Strategic Management' classification, Technovation was listed in the 'Innovation' classification and the International Journal of Electronic Commerce was listed in the 'Information Management' classification. The dominance of non-marketing journals was evident again with the marketing journals Industrial Marketing Management, Journal of Business Research, Journal of Marketing, Journal of Retailing and Marketing Science which all achieved h-indices of 1. The Journal of Public Policy & Marketing was not classified as a 'Marketing' journal by the ABS.

7. Conclusions and implications

There are two facets to the main thrust of the findings of this paper. The first is that the marketing discipline has had limited engagement with literature on business models, and second, has had limited influence on the current body of key articles in which business models are discussed. One possible conclusion is therefore that business models have no relevance to the marketing discipline. However, this is not a conclusion advanced in this paper. The rejection of such a negative conclusion is based upon three key factors. First, there seems no natural home for business model literature. This is demonstrated in the above analysis (Table 7) and was also succinctly identified by Chesbrough and Rosenbloom (2002: 533) when they suggested that business models draw from and integrate "a variety of academic and functional disciplines, gaining prominence in none". It would appear therefore that with no natural home, a case for theoretical development of business models can be advanced in a number of disciplines. The quantitative identification of the most influential business model articles in the field is therefore helpful in progressing a more qualitative examination of the content of these key articles (detailed in Table 5) for the purpose of building a logical case for such theoretical development to take place within the marketing discipline, and particularly within industrial marketing scholarship. Therefore, the second factor advanced in this paper is to reject the above negative conclusion (and based on the examination of such key articles) is the centrality of value exchange in the discussion of business models. Indeed a major point of consistency in business model literature is that they are involved with the creation, capture and delivery of value (see Section 2). The definition of marketing has evolved over many years from having economic exchange at its heart (for instance in Bartels, 1974) to a broader notion of value exchange, including non-profit situations (for instance in Arndt, 1980) and has more recently moved away from the very notion of exchange in favour of the creation, communication and delivery of value (in the 2004 AMA definition of marketing discussed by Ringold and Weitz (2007) and Sheth and Uslay (2007)). The subsequent updated 2007 version of the AMA definition retains an emphasis on value but further includes explicit reference to clients, partners and society at large (discussed in Gundlach and Wilkie (2009, 2010)). However, critics persist and cases for further emphasis on stakeholders (Smith, Drumwright, & Gentile, 2010) and a service dominant logic (Gamble, Gilmore, McCartan-Quinn, & Durkan, 2011) in marketing definitions have been advanced. It would seem, therefore, that there is significant synergy in respect of the creation and delivery of value as a core purpose of marketing and a central theme in the business model literature. Indeed, there seems further synergistic recognition of the need to also communicate a business model to key stakeholders. Casadesus-Masanell and Ricart (2010), for example, argued that the purpose of a business model is to communicate strategy whilst Magretta (2002: 88) argued that a business model is a "story" about a firm's strategy. These definitions sit comfortably alongside Ballantyne, Frow, Varey, and Payne's (2011) assertion that value propositions are forms of communication. It therefore seems credible to argue that the creation, delivery and communication of business models should be concerns of the marketing discipline. It is possible, however, to further interrogate discourse in the key business model literature to identify the ways in which industrial marketing in particular has, and can continue to make distinctive contributions to the development of this literature, and indeed the product of this analysis forms the third factor with which we reject the above negative conclusion.

Implicit in discussion of business models in the key articles identified in Table 5 is that business models are something that are first developed by a company and then subsequently delivered to a market; "the focus is on internal processes and design of infrastructure that enables the firm to create value" (Morris et al., 2005: 727). The following passage is also illustrative of such a bias towards an inside-out focus.

> "[a business model] begins with articulating a value proposition latent in the new technology. This requires a preliminary definition of what the product offering will be and in what form the customer may use it. The business model must then specify a group of customers or a market segment to whom the proposition will be appealing and from whom resources will be received".
>
> [Chesbrough & Rosenbloom, 2002: 534]

A slightly different trajectory has been taken in industrial marketing business model discourse (e.g. Ehret & Wirtz, 2010; Mason & Spring, 2011; Shin & Park, 2009; Storbacka, 2011; Wirtz & Ehret, 2013). Within this literature, the development of value between partners in a supply chain is emphasised and this appears to mirror concerns in the more recent articles in our sample that fall outside marketing journals (Zott & Amit, 2010). The concept of value co-creation is an emerging theme across the marketing discipline (Fisher & Smith, 2011; Sheth & Uslay, 2007). Value co-creation was initially conceived as a means through which value is created in conjunction with customers rather than being created entirely inside the boundaries of a single firm and delivered fait accompli (Prahalad & Ramaswamy, 2000, 2004a,b). The concept acknowledges the increasing role of consumers as innovators in the development of a value proposition (Von Hippel, Susumu, & De Jong, 2011). The thrust of work examining co-creation within industrial marketing also reflects the acceptance of value being co-created between buyers and suppliers (Vargo & Lusch, 2008) and has more recently been empirically examined in the context of intensive business services (Arikka-Stenroos & Jaakkola, 2012), project networks (Mele, 2011) and complex solution networks (Jaakkola & Hakanen, 2013). Such network based views of value co-creation, in which "multilateral relationships amongst all actors of a network" (Mele, 2011: 1377) are accepted, seem to underpin parallel discussion by industrial marketing scholars examining business models. Mason and Spring (2011: 1033) for instance state that "by divulging different parts of the business model to investors, suppliers and customers, the business model (or fractions of it) becomes sited in the business models of others". In this sense, other stakeholders outside a single firm become active players in open-business models rather than passive receivers of closed-business models as the above mentioned quotation from Chesbrough and Rosenbloom (2002), and the thrust of much discussion in the list of influential articles above (Table 5), seems to imply.

The further development of insight into open business models may therefore partially address some of the concerns within the co-creation literature, such those by Andreu, Sanchez, and Mele (2010: 241) that "there is a lack of research focused on providing frameworks that can help organisations to manage the value creation process." Industrial marketing scholars interested in co-creation have also identified themselves with calls for "an extension of thinking beyond customer supplier relationships, to a network of stakeholder relationships" (Truong, Simmons, & Palmer, 2012: 198) whilst others acknowledge that research examining value co-creation amongst all actors in a network is "still in its infancy" (Mele, 2011: 1377). It is possible therefore to build a credible argument for further development of

the business model concept in the industrial marketing literature. It is further possible to present a strong case for the potential of industrial marketing to make distinctive empirical contributions to the broader business model debate. That distinctiveness lies in the development of open business models, co-created with multiple stakeholders in a supply chain, and the end users of a value proposition. The Industrial Marketing and Purchasing Group's (IMP) interaction and network perspective for instance contains numerous models and theories that could be deployed to further develop such distinctiveness. The focus within that perspective on the embeddedness of action and relationships across time also offers the potential to develop dynamic open-business models that evolve over time and which are not fixed and static entities (a point recently advanced by Mason and Spring (2011)). Further distinctiveness could be developed in the more quantitative industrial marketing tradition by examining mediated models based on satisfaction, trust, commitment and relationship quality (see for instance Cater & Zabkar, 2009; Keh & Xie, 2009; Skarmeas, Katsikeas, Spyropouiou, & Salehi-Sangari, 2008), their antecedents and successful business model outcomes.

The value that industrial marketing scholarship offers to the development of business model literature regardless of research tradition would appear to be grounded in the potential to develop the concept of co-creation of value between multiple stakeholders. Here lies the potential value of the business model concept to industrial management practice. Industrial marketing scholars discussing value co-creation point to problems with communicating how value, particularly reciprocal value (Truong et al., 2012) is communicated. This problem only becomes more marked where multiple interactions and value exchanges beyond the buyer–supplier dyad are apparent (Ballantyne et al., 2011). One recognised facet of business models is their ability to communicate a story about value creation (Casadesus-Masanell & Ricart, 2010; Magretta, 2002). Open business models therefore hold the potential to offer clarity and transparency in reciprocal value exchanges between multiple stakeholders. Whilst this paper does not yet offer direct benefit to practice, it offers a route map for scholarship that may lead to significant benefits to practice being made in the future.

This paper has identified a slightly anomalous situation in which marketing scholars, and in particular industrial marketing scholars, have had little interaction with a developing body of work with which it is possible to demonstrate that much synergy exists. The situation is changing and the nature of this special edition provides evidence of progress. The findings in this paper have contributed to that progress by identifying the key influences in that body of work, and have further advanced a logical argument for further research development within industrial marketing scholarship.

8. Limitations

The findings from this study have been limited due to the methodological constraints that resulted from the research design and the data-set. The first constraint related to the nature of the database searches of published journal articles. The Web of Science citation index is constantly being updated with new literature as it becomes published, therefore the data collected for this study represents a 'snapshot' of data in the database during the short period of data collection. Our sample consists of journal articles, based on the assumption that these amount to the frontier of research. However, further additional materials such as books and conference papers may also provide evidence of knowledge transfer, but were not considered in our paper. Different keyword searches when undertaking the database searches might have also altered the results. However, it is reasonable to assume that the articles analysed in this paper represent the main research efforts in the business model discipline. The second constraint related to the citation analysis of the data-sets. Citation analysis is retrospective in nature so developments in the business model discipline (as with any discipline) appear in the citation data only after some time has passed. A journal article must be exposed to the academic community for a certain period of time before it is cited by other scholars and will appear in the journal databases (Backhaus et al., 2011). It can be argued that this was a limitation in the data collection for the fourth multi-year period.

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