

The Status, Evolvement and Development Vein of Foreign Value Co-creation Research

-Bibliometric Analysis Based on Web of Science

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Abstract—As the research focus in recent years, value co-creation is also a topic concerns both theory and practice. However, there are only a few literatures have been summarized and analyzed in this research field. Therefore, based on the SCI and SSCI literatures of Web and scientific databases, this paper adopts methods such as document information measurement, knowledge map display and text content analysis to explain and evaluate the research status, development trend as well as evolution, moreover, provide references for relevant researches and make for practical innovation.

Keywords—Value co-creation; Bibliometric; Development vein; Knowledge map

I. INTRODUCTION

Value co-creation, as one of the core issues of corporate strategy, has always been the focus of the theoretical community and the industry. Traditional values believe that companies are the only value creators, while customers are pure value consumers. However, in recent years, with the improvement of customer status, the role of customers in value creation has also changed. Value is no longer created by companies alone, but is created through interaction with customers [1]. The development of emerging technologies such as mobile Internet, social media, big data, and cloud computing has also made consumers more diversified in the way they obtain information, creating convenient conditions for interaction and cooperation between customers and businesses. Zwass reviewed the concept of value co-creation and its knowledge space for research, and put forward a classification framework for value co-creation research in e-commerce [2].

Based on this, through the methods of literature information measurement, knowledge map display and text content analysis, this paper analyzes the annual distribution of foreign value co-creation, the core journals, the co-occurrence of institutions and

authors, and further combs the foreign value-sharing in a visual manner. Create hot spots and topics in the research field, thus summing up the research status, research context and development trend of value co-creation, with a view to providing reference for domestic and foreign scholars to carry out research in the field of value creation.

II. DATA SOURCES AND RESEARCH METHODOLOGY

Searched in the SCI and SSCI literature libraries in the scientific citation database Web of Science (WOS), using value co-creation/value co-creation/co-creation/co-creation as search terms, without limiting the year, through initial screening, finally we obtained relevant record--1308 articles. Excluding journal articles, there were 1 210 remaining records. After browsing the titles, abstracts, keywords, and some of the full texts of the bibliographic records, the records that were not related to repetition, content and subject matter were removed, and finally 833 valid records were screened out. Each of these records includes information such as title, time of publication, author, keywords, abstracts, journals, institutions, and references.

This research adopted methods such as literature information measurement, knowledge map display and text content analysis to analyze the research status, development context and development trend of foreign value co-creation from multiple dimensions. The bibliometric analysis of bibliographic information mainly used statistical analysis tools of bibliographic information, such as SATI and Excel, to classify the collected bibliographic information and reveal the basic spatio-temporal distribution of the domain; The knowledge map shows mainly the use of visualization software--CitespaceV--for keyword analysis and citation analysis.

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III. RESEARCH STATUS ANALYSIS

Through SATI analysis software, a preliminary annual, periodical, institutional, and author statistical analysis was performed on 833 documentary records to visually demonstrate the research status in the field.

A. Annual distribution of documents

After collating the documents according to the year, we drew an annual distribution chart of the documents, as shown in Figure 1. The earliest value co-creation document included in the WOS database is an article "Co-opting Customer Competence" published by Prahalad and Ramaswamy in the Harvard Business Review in 2000. The course of research and development can be roughly divided into three phases: In 2000-2007, it was the foundational foundation phase, and there were only a few documents published every year. Only a few representative articles appeared and the time span was large. It was a long-term value co-creation. The process of knowledge accumulation had laid a certain theoretical foundation for the later evolution and development.

In the period of 2008-2014, it was a period of exploration and development. The annual amount of documents fell within the range of [20,100]. Although there was some fluctuation, it was an ascending stage overall, indicating that scholars have begun to pay attention to the field of value creation. The study; 2014-2017 was a period of rapid development, the number of documents had grown spurt, and there was still a growing trend. Thus it could be seen that the research on value co-creation had

gradually matured after scholars had been continuously exploring and deepening for 17 years.

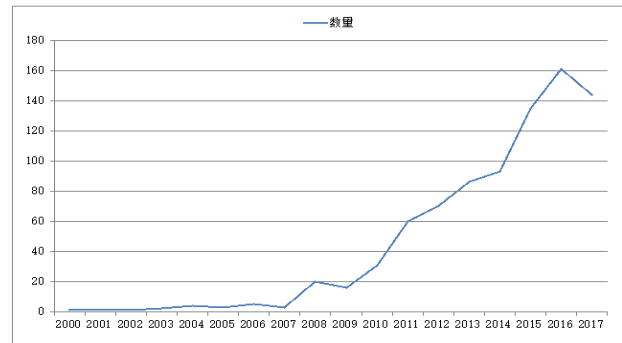


Fig. 1 Annual distribution chart of value co-creation research document in WOS (2000.01-2017.11)

B. Journal Distribution Statistics

According to statistical results, 833 co-creation research literatures on total value involved 289 journals, of which 115 were published in two or more journals. Table 1 selected 16 publications with 10 or more articles in this field. It could be seen from this that value co-creation studies were mainly concentrated in the three fields of management, marketing, and services. Among them, Journal of Business Research, Journal of Marketing Management, and Journal of Service Management had the largest number of published documents, accounting for 48% of the total number of issued documents. The three journals had become the main carriers for the publication of value-creation research results.

TABLE I DISTRIBUTION OF CORE JOURNALS

Journal Title	Number
Journal of Business Research	48
Journal of Marketing Management	47
Journal of Service Management	45
Journal of Services Marketing	24
Journal of Service Research	22
Marketing Theory	21
Journal of the Academy of Marketing Science	20
Journal of Service Theory and Practice	20
Service Industries Journal	19
European Journal of Marketing	17
Tourism Management	14
Service Science	13
Journal of Business & Industrial Marketing	12
Journal of Product Innovation Management	11
Journal of Marketing	10
Management Decision	10

C. Domain Research Institute and Author Co-occurrence Network

In this paper, by combining the authors of several papers published in 833 document records, it was found that there were 1 914 authors who actually wrote value creation research papers, 272 authors published 2 or more papers, and 6 authors who published 6 or more papers. There were 13 places, as shown in Table 2.

It could be seen that there were not many scholars who collaborated on continuous research value. Among them, Vargo, S.L and Edvardsson, B, who published the most papers, published 19 articles and 18 articles respectively. Followed by Lusch, R. F and Skalen, Per, they published 13 articles and 10 articles respectively. As the core author of value co-creation research, they had made great contributions to the research in this field. The first 13 scholars who published 6 or more articles were mostly concentrated in the United States, Sweden,

Finland, and Australia. This point clearly demonstrated the international regions where mainstream scholars are located.

TABLE II TOP 13 HIGH FREQUENCY AUTHORS IN 833 ARTICLES

Author	University	Country	Frequency
Vargo, Stephen L	University of Hawaii at Manoa	America	19
Edvardsson, Bo	Karlstad University	Sweden	18
Lusch , Robert F	University of Arizona	America	13
Skalen, Per	Karlstad University	Sweden	10
Gronroos, Christian	hanken school of economics	Finland	8
Fueller, Johann	University Innsbruck	Austria	8
Witell, Lars	Karlstad University	Sweden	8
Jaakkola, Elina	University of Turku	Finland	7
Akaka, Melissa M	University of Denver	America	7
Mahr, Dominik	Maastricht University	Netherlands	6
McColl-Kennedy, Janet R	The University of Queensland	Australia	6
Frow, Pennie	University of Sydney	Australia	6
Cova, Bernard	Kedge Business School Marseille	France	6

IV. RESEARCH CONTENT ANALYSIS

By running CitespaceV software, clustering analysis and prominence analysis of keywords and co-occurrence analysis of citations are used to explore the research hotspot and research context of value co-creation.

A. Analysis of research hotspots based on keyword clustering

By running CitespaceV software to analyze keywords, 139 nodes and 751 connections were formed. The analysis results show that from 2000 to 2017, the research field of foreign value co-creation formed a discrete, densely populated keyword co-occurrence network. Next, the cluster analysis of the network results in Figure 2 and the text information about the six clusters is derived. After reading and analyzing the text information and literature of the six clusters, six clusters (see Table 3) are concerned with the value. The main research hotspots of the 6 clusters (see Table 3) on value co-creation can be divided into categories I, II, and III.



Fig. 2 Network clustering of value co-creation of literature keywords

Category I is value creation research context, including #0. The main keywords in cluster #0 are social media, netnography, brand community, virtual community, and online innovation

communities. The related research on value co-creation is mainly based on the social media context. With the development of information technology, the interaction between value co-creation participants gradually shifted from traditional entity channels to virtual network platforms. The social media platform also became the main medium for value co-creation activities because of its unique sociality and interactivity. Typical studies include: Based on the social networking environment, See-To and Ho confirmed the positive relationship between consumer value co-creation and their purchase intention [3]. Gnyawali et al. found that value co-creation increased the user traffic of social networking service companies [4]. The rapid development of social media has driven the transformation of the co-creation model. Value co-creation has been transformed from a corporate-initiated to a customer-initiated co-creation model, embodying customer-dominant logic [2]. Scholar porter et al. have separately constructed a value co-creation model for both the corporate-initiated form and the customer-initiated form, revealing the two forms of value co-creation mechanism [5]. With the support of new technologies, the customer's rights have been enhanced, and companies have more easily captured the customer's personalized needs and behavioral characteristics. The company's material resources and customer information resources have finally achieved seamless convergence, which also provides powerful conditions for constructing service ecosystem [2].

Category II is a research perspective of value co-creation, mainly including #1 and #3. Among them, the main keywords are service-dominant logic, service ecosystems, service science, service logic, service systems, and service experience. We can see that scholars' research on value co-creation is mainly from the perspective of experience and service. Traditional values hold that companies and customers play different roles independently in value creation. Enterprises are the creators of value, while customers are pure value users or consumers [6]. With the sprouting of value co-creation ideas, value is no longer created by companies alone, but co-created by

companies and customers [7]. Among them, based on customer experience, early service-dominant logic, and value co-creation of service logic, the binary interaction relationship between enterprises and customers is studied. For example, Nambisan and Baron and Zhang analyzed the influencing factors of the binary interaction between customers and companies [8-9]. Although the service ecosystem has become an important research perspective in the value co-creation field, the existing

literature mainly discusses the impact of value co-creation on the upstream and downstream organizations of the supply chain from the perspective of supply chain and lacks the impact of value co-creation on the stakeholders of the service ecosystem from a holistic perspective. For example, scholars Fang et al. and Cheung et al. discussed the role of cooperative capabilities between upstream and downstream companies in supply chain systems for their co-creation value [10-11].

TABLE III CLUSTER IDENTIFICATION OF VALUE CO-CREATION RESEARCH FIELDS

Cluster	ClusterID	Size	Silhouette	Mean (Year)	Top Terms
I	#0	33	0.634	2013	Social media; netnography; brand community; virtual community ; online innovation communities; online community; social network sites; social innovation; blog;
II	#1	28	0.593	2013	service-dominant logic; service ecosystems; service science; systems; service systems; public services; institutional logics; service logic; market dynamics; relational view;
	#3	19	0.639	2012	service experience; customer experience; social exchange; transformational science; e-commerce research; value chain; open innovation; dominant logic;
III	#2	27	0.425	2013	Sustainability; business models; brand; communication; sustainability program brand; inter-organizational learning ; strategic ambiguity; market practice; corporate social responsibility;
	#4	16	0.565	2013	Motivation; purchasing; customer services quality; satisfaction; experience; creativity; consumer involvement; knowledge intermediaries; value-in-use; process complexity; brand contest;
	#5	15	0.636	2014	consumer identity; firm performance; brand identity; stakeholder identity; dynamic capability; strategic alliance; knowledge value; economic development;

B. Research frontier analysis based on keyword emergence

This article uses burst word detection algorithms to determine the transformation of the frontier field of value co-creation research (see Table 4). Based on the time of mutation, the value-creation frontier development is divided into three phases: 2000-2008, 2009-2014, and 2014-2017. The development of the two stages before and after is stable and the change in the middle is slightly larger. This shows that the research perspective, research field, and research content of value co-creation continue to expand and deepen.

From each time point of view, it has the following characteristics: First, from 2000 to 2008, it mainly aimed at the

research perspective based on service-dominant logic and its expansion, such as service science research. The service-dominant logic unifies the products and services, and considers that all economies are service economies, and that customers and enterprises fully interact and co-create value [12]. This explains the economic exchange and value creation from a new perspective, and many scholars have conducted in-depth discussions. Second, from 2009 to 2014, the development of emerging technologies such as mobile Internet, social media, big data, and cloud computing has given new research contexts to value co-creation among participating entities, which in turn has driven the value co-creation research content and the expansion of perspectives. Third, from 2015 to 2017, due to the

rise of personal applications for mobile health care and e-government, value co-creation in the public service domain has

gradually become a hot topic and focus of research.

Top 20 Keywords with the Strongest Citation Bursts

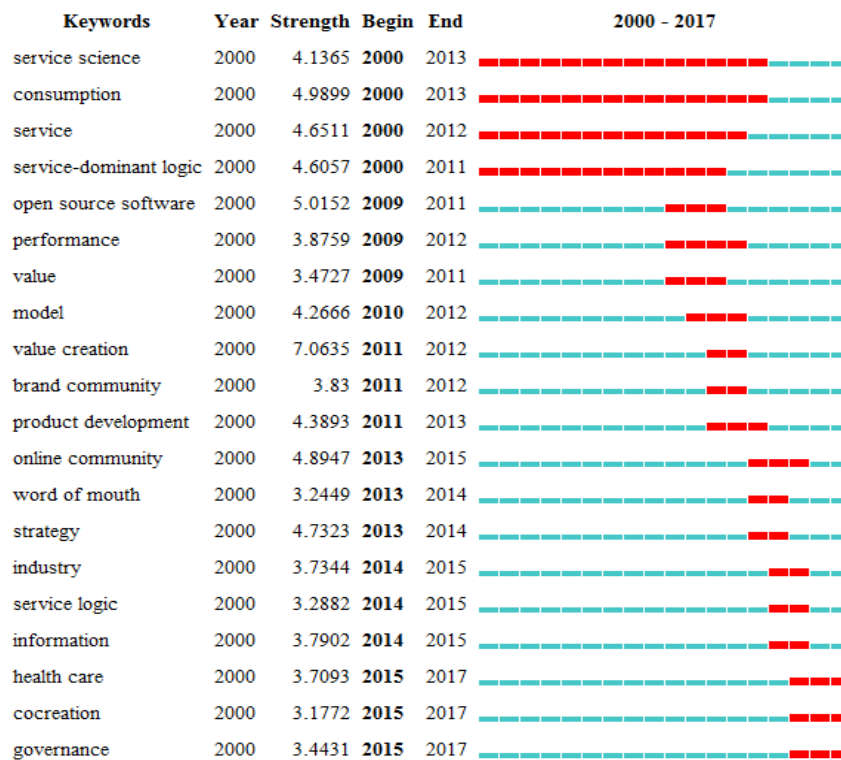


Fig. 3 Prominence word list of Value co-creation

C. Research vein analysis based on co-citation literature

Taking the "References" as the network node, the paper draws a network of co-citation profiles (see Figure 4). This study identifies and analyzes high-cited documents, discovers the core knowledge structure and research evolution vein of value co-creation, and mainly includes the following three aspects.

- Value co-creation based on customer experience.

The author Prahalad's two articles based on the value co-creation theory of customer experience in 2000 (104 times) and 2004 (189 times) states that value is co-created by the enterprises and the customers. The customer experience is the basis of the value, and the interaction between the customers and the enterprises is the core [1, 7] of value creation. His research reveals for the first time the changes in business concepts and business models resulting from the transformation of the role of companies and consumers in the new environment, bringing great inspiration for the theoretical and practical fields to understand the role played by enterprises and customers in the process of production and operation. The effect has brought significant inspiration. After this, more scholars conducted related research. For example, scholars Nambisan and Baron first proposed a conceptual framework for co-creation experiences in 2009 (48 times) based on a virtual brand community, constructed a four-dimensional customer experience framework of practicability, sociability,

easy-using, and hedonic and discussed its influence on the co-creation of customer participation value [8]. Scholars Nysveen and Pedersen analyze the mechanism by which customer value co-creation influences customer satisfaction and loyalty by affecting brand experience [13].

- Value co-creation based on service-dominant logic.

Vargo and Lusch proposed the famous "service-dominant logic" in 2004 (384 times), enriching and expanding the theory of value co-creation [12]. In the 2004 (384 times), 2006 (44times), and 2008 (276 times) studies, Vargo and Lusch revised the terminology and content of the basic propositions of service-dominant logic, highlighting the importance of customers and the basic role of services in exchange relationship [12,14,15]. In the literature of 2008 (276 times), Payne and other scholars also pointed out that in the service-dominant logic, services are a common form of exchange, but no longer a specific form. These scholars' research laid the foundation for the development and evolution of service-dominant logic [16]. Gronroos first proposed the service logic in 2008 (77 times) and divided the service logic into customer service logic and supplier service logic, emphasizing that service is the process in which customers interact with suppliers to promote value co-creation [17]. Gronroos further pointed out in 2011 (80 times) that the use value created by customers is the real value while the value created by supplier is only the potential value, but the interaction between the enterprise and the customer can promote the enterprise to

become the creator of the real value [18]. In 2013 (97 times), Gronroos deepened and expanded the study of service logic and proposed that there are three regions of value co-creation: supplier, alliance, and enterprise. Only in the joint region can suppliers and customers directly interact with each other to create use value [19].

- Value co-creation based on service ecosystem.

The service ecosystem is the extension and evolution of service-dominant logic, and it is another important research perspective based on the service network environment [20]. After Vargo and Lusch first proposed the concept in 2010 (59 times), scholars conducted an in-depth study of this. Vargo and Lusch in 2011 (86 times) believed that the service ecosystem is an actor-to-actor (A2A)-dominant loosely coupled space-time structure in which participants co-create value through the integration of resources and the interactions provided by services, in which institutions play a core driving force in co-creation service systems [21]. Edvardsson in 2011 (94 times) considered that in the real environment, the value co-creation between stakeholders is influenced by social forces (positions and roles of suppliers and customers in the social structure) [22]. These authors' viewpoints emphasize that the loosely coupled service ecosystem is a complex A2A system. Each participating entity creates value for oneself and others under the constraints of the institutional environment through resource integration, service exchange, and interaction. It is an all-dimensional value co-creation process.

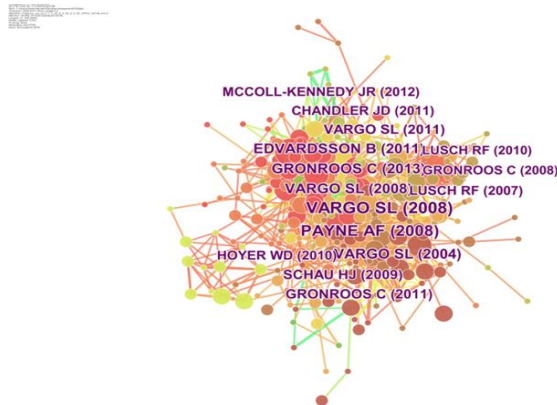


Fig. 4 References Co-citation Network Map

V. CONCLUSION

This article takes the value-creation related literature as the research object. Through literature information measurement, knowledge map display and text content analysis methods, we can see that 833 foreign value-creation research literatures have been combed to know in recent years:

The statistical characteristics of the research literature show three In terms of the following aspects: First, although there is a certain amount of fluctuation in the number of publications, the overall situation is still in a growing trend. Second, although the perspectives and perspectives of value-creation research are broader and diverse, the research content is still mainly focused on management, marketing and service in these three areas; Third, There are few scholars in continuous research on value co-creation, among which the most published

researchers are Vargo, Edvardsson and Lusch. Their continuous in-depth research makes the theory and practice of value creation present a new development trend.

Through the keyword clustering analysis, keyword prominence analysis and reference co-citation analysis, we discuss the research hotspot and evolution of the value co-creation field: First, with the rapid development of emerging information technologies such as big data, mobile internet and social media, etc., the channel for value co-creation has shifted from traditional entity channels to virtual network platforms. The resource integration and interaction methods between value co-creation entities have also undergone tremendous changes. Research perspectives and research context have also been presented. New changes require more scholars to carry out in-depth research; Second, through keyword prominence analysis, we find that with the deepening of the degree of co-creation and the enhancement of consumer rights awareness, the co-creation subject is gradually expanded by enterprises and customers to the government and public service sectors, and future research can expand more from the value co-creation in the field of public service. The authors of high-frequency citations such as Prahalad, Vargo, Gronroos, and Edvardsson are the leading figures in the field of value co-creation research. Their original views reveal the main research perspective and evolution vein of customer experience - service-dominant logic - service ecosystem. The service ecosystem as an extension of service-dominant logic has become an important research perspective for value co-creation in the current complex network environment.

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