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TUDY ON BUSINESS MODEL COMPONENTS: A BIBLIOMETRIC RESEARCH FROM 2009 TO 2014

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ABSTRACT

This article aims to identify the main aspects discussed by scholars regarding business model components. The methodology used was a bibliometric study, based on the Law of Zipf, whose keywords form “Business model” and “components”. Data were collected from the Capes scientific journals database from 2009 to 2014 and from the Web of Science database. The extracted articles underwent descriptive analysis and the data extracted from the Web of Science were processed through Bibexcel Software, in which it was possible to generate a citation matrix that was managed by the Ucinet64 software, generating a list of authors by importance according to the number of citations and their respective relations of co-citations. The results allowed to identify the main research streams about business model components addressed by the scholars, highlighting value proposition, clients, infrastructure, resources, revenue model and costs.

Keywords: Business Model; Business Model Components; Bibliometric research.

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ESTUDO SOBRE OS COMPONENTES DO MODELO DE NEGÓCIOS: UMA PESQUISA BIBLIOMÉTRICA DE 2009 A 2014

RESUMO

Este artigo tem por objetivo identificar os principais aspectos discutidos pelos estudiosos sobre os componentes de modelo de negócio. A metodologia utilizada foi um estudo bibliométrico, baseado na Lei de Zipf, cujas palavras chave forma “*Business model*” e “*components*”. Os dados foram coletados na base de dados dos periódicos científicos da Capes, no período de 2009 a 2014 e aqueles constantes na base *Web of Science*. Os artigos extraídos passaram por análise descritiva e os dados retirados da *Web of Science* foram tratados por meio do *Software Bibexcel*, no qual foi possível gerar uma matriz de citações que foi processada pelo *software Ucinet64*. O *software* gerou uma lista de autores por importância, segundo o número de citações e suas respectivas relações de cocitações. A pesquisa permitiu identificar as principais correntes acerca dos componentes de negócio abordados pelos estudiosos, destacando-se proposta de valor, clientes, infraestrutura, recursos, modelo de receita e custos.

Palavras-Chave: Modelo de Negócio; Componentes do Modelo de Negócio; pesquisa bibliométrica.

1. Introduction

The markets’ dynamics have demanded organizations remain competitive by increasing their ability to adapt to their environments and adjust to meet the needs of customers. These characteristics, while granting competitive advantages to the organization, require them to confirm their transactional processes to mutant conditions in their operating environments. Successful strategies in this direction can lead organizations to greater operational efficiencies and more bountiful competitive advantages (Collis & Montgomery, 1995). However, to ensure that a corporate strategy works competitively it is needed to optimally combine the components of your business model.

A business model is a document developed by the company listing concepts advocated by the company in search of its development, such as business concept, description of its structure, its strategies, etc. Its foremost function is to support the Top Management Team (TMT), harmonizing and standardizing information relevant to building the value created by the organization (Vefago, Francisco, & Nakayama, 2018).

According to Siqueira (2012), researchers have addressed the concept of

Business Models in the context of different domains including management and strategy. Christoph Zott, Amit, & Massa (2011), however, have been researching the subject more in-depth and point out that business modeling studies develop into niches, indicating, a lack of consensus on their fundamentals.

Some themes have been converging across business model scholars. For example, Business Models are treated as a new unit of analysis; or is seen as a transactional process only; or composed of a set of basic activities; or, finally, to be seen as systems of generation and capture of value. In addition, it is an evolving field that lacks the homogeneity of concepts among the researchers (Vils et al., 2017). This leads to many diverse concepts about business models, especially when considering their focus on innovation.

Success in the business environment depends on organizations knowing how to use and prioritize their capabilities to build a processing and delivery structure that can ensure superior performance to their transactions.

In this sense, business models emerge as an administrative instrument of critical importance, either because currently it is the business, not the organization, that answers for the financial return of the economic activity, or because the business can now be

conceived separately from the organization and to provide profit that interests the economic effort. More importantly, the business model has importance within microeconomics, because the efficiency - marketable and economic - of any business depends on the adjustment, operation, integration, and combination of its elements.

A business model is only changed or replaced when its constituent elements are understood. Change and flexibility are actions that depend exclusively on knowing the elements and proving the effectiveness of new combinations. Replacing, on the other hand, depends on imagining the composition of new elements, their function, and efficacy.

Therefore, it is important to know and understand what the academy is studying regarding the business model and its components. This leads to the formation of the objective of this paper: to identify the main components of business models, according to the specialized literature, as well as the different conceptual approaches that characterize the most typical or accepted chains in the literature, during the period from 2009 to 2014. For that, we examined the Web of Science database for most referenced authors and their visions about what makes up the business model.

This research was outlined in five sections. The first section presents the introductory questions on the theme, the concept and the importance of addressing the issue. Theoretical foundation is highlighted in the second section, depicting the main definitions on the theme. The third section details the methodological procedures developed. In the fourth section we describe the results of the research. Finally, in the fifth and final section, we bring the final considerations of this article.

2. Literature review

Scholars in business models are concerned with two major platforms for the construction of transactional processes of any nature. A platform involves the combination of the essential

elements of a business, such as business partners, key activities, value propositions, etc. (Osterwalder et al., 2010). The first proposal of this platform is that a business model is composed of a set of instruments that can be emphasized by the organization in support of its competitive strategies. The other platform involves the concept that a business model is a strategy of internal integration of the organization, which focuses on how to collaboratively arrange the set of corporate units and activities that adopt the organizational dynamics to achieve the best results of competitive strategy (Applegate, 2001; Chesbrough, 2010).

2.1 Business model concept

The business model is a system of interdependent and interconnected activities that determine how the company “acts” with its customers, partners, and suppliers. (Amit, Zott, and Pearson, 2012)

For Teece (2010), a business model is able to articulate the logic and provide data and evidence that demonstrate how a company creates and delivers value to its customers. The ideas of value and innovation are closely related when talking about business models (Li, Qiao & Wang, 2017). According to the author, the model describes the architecture of revenues, costs, and profits associated with delivering value to the company’s business.

Chesbrough (2010), in turn, presents functions of the business model: (1) articulates the value proposition; (2) identifies a market segment and specifies the revenue generating mechanism; (3) defines the structure of the value chain necessary to create and distribute the supply of complementary assets needed to support its position in the chain; (4) details of the revenue mechanism; (5) estimates of cost structure and profit potential; (6) describes the company’s position within the value network linking suppliers and customers; (7) formulates the competitive strategy through which the innovative

company will gain and retain advantage over rivals.

Casadesus-Masanell and Ricart (2010) present a critique that managers should have a good understanding of how business models work, and the academic community has been offering a basic knowledge on this issue to date, and there is no (yet) agreement on the distinctive features of superior business models. The authors believe this is due to the lack of a clear distinction between notions of strategy, business models and tactics. In order to do so, they present the distinction between such concepts:

- Business model refers to the logic of the company, how it works and how it creates value for its stakeholders;
- Strategy refers to the choice of the business model in which the company will compete in the market;
- Tactics refers to residual choices open to a company by virtue of the business model it chooses to employ.

Zott, Amit, and Massa (2011) show that the business model has primarily been

used in an attempt to solve or explain three phenomena: (1) e-business and the use of information technology in organizations; (2) strategic issues such as value creation, competitive advantage and company performance; and (3) innovation and technology management. Cavalcante, Kesting, and Ulhoi (2011) postulate that a company's business model serves two interrelated purposes: to provide stability for the development of a company's activities while at the same time, be flexible enough to allow for change.

Organizations can design their own business models, based on a combination and emphasis on areas of interest and expertise. Osterwalder (2007) and Osterwalder et al. (2010) have been working on this concept and use of the business model in a more pragmatic way for organizations. It is true that organizations seek above all, efficient and innovative business models that lead them to more definite advantages in competitive battles.

The following table complements the business model concepts in the conception of different authors.

Table 1

Business models definition

Author	Year	Business model definitions
Linder and Cantrell	2000	The core logic of the organization for value creation. The Business Model (BM) of a profit-oriented organization explains how it makes money.
Gordijn et al.	2000	A BM explains the creation and addition of value in a multi-stakeholder network of stakeholders, as well as the exchange of value between them.
Amit and Zott	2001	A BM describes the content, structure, and governance of value creation transactions by exploring new opportunities.
Weill and Vitale	2001	A description of the roles and relationships between consumers, customers, allies, and suppliers that identify the great flows of the product, information and money, and the greatest benefits to the participants.
Stahler	2002	A model of an existing business or future business. A model is always a simplification of complex reality. It helps to understand the fundamentals of a business or to plan how a future business should look like.
Chesbrough and Rosenbloom	2002	The BM provides a coherent framework that takes the characteristics and potential of technology as inputs and converts them through customers and markets into economic output. BM

		intermediates the competitive advantages of a company's technological capacity and its presence in the market.
Magretta	2002	The BM tells a logical story explaining who the customers are, what they value, and how the company will make money by providing value to them at an appropriate cost.
Hedman and Kalling	2003	BM is a term usually used to describe the key components of a business. What are consumers, competitors, supply, activities and organization, resources, a supply of factors and inputs of the production as well as components of the longitudinal process to cover the BM dynamics over time.
Leem et al.	2004	A set of strategies for establishing and managing companies including revenue model, high-level business processes and alliances.
Shafer et al.	2005	A representation of the firm's adjacent logic and strategic choices for value creation and capture within a value network.
Osterwalder et al.	2005	A conceptual tool that contains a set of elements and their relationships, which allows expressing the transaction logic of a company. It is a system of interdependent activities performed by a company, by the network of actors around it and by consumers, which creates and delivers value and allows the company to capture it in the form of profits.
Kallio et al.	2006	Means by which a company is able to create value by coordinating the flow of information, goods, and services among the various industry participants, including customers, partners within the value chain, competitors and government.
Johnson, Christensen and Kagerman	2008	A BM consists of four intricate elements: customer value proposition, profit formula, key resources, and key processes.

Source: Adapted by authors based on Siqueira (2012).

From the definitions presented in Table 1 for the business model, it is observed that most of the cited authors use the expression, "value", more specifically to create, capture or propose value to all involved in the transactional chain (clients, company, suppliers, and government).

2.2. Business model components

For a better conceptual understanding of the business model, it is fundamental to understand its components. According to Rausch (2012), the business model is seen as a structuring of concepts, elements, and guidelines related to the organizational study to provide environmental analysis for proposing internal strategies and tactics. This author has developed a conceptual meta-model of business in which are presented influential elements and elements of the same, being:

- Influencing elements: sustainability, economy, technology, political, regulatory and legal aspects, and sociocultural aspects.
- Component elements: integrated analysis, internal analysis, strategy, value, and innovation.

The business model is composed of four descriptive blocks on how the company generates value to its customers. The first one concerns the value of the consumer, that is, to identify how much the consumer is willing to spend in fulfillment of their expectations about a product/service. The second deals with the composition of profit (considering revenues, costs, and profit margin). The third refers to the key resources, being: physical, that is, tangible goods (facilities, machines, vehicles, etc.), financial as regarding its own or third-party capital,

intellectual dealings of brands, patents and rights, and humans, that is, capable and qualified people for the operationalization of key processes. The fourth and last block is formed by the key processes, the process of people that relates the definition of the actions and positions to be assumed by the human resources of the organization. The strategy process tries to determine the approach for the company and the operational process and is concerned with implementing practices responsible for the operationalization of defined strategies (Johnson, Christensen, & Kagermann, 2008).

Thus, it is possible to define which components of a business model are necessary elements that interact around a purpose defined by the managers of the organization.

3. Method

Bibliometrics are characterized by the application of statistical and mathematical methods to evaluate the dynamics and evolution of scientific and technological information. Such methods can be used as an exploratory approach (Andrade & Ramos, 2015). In addition, a bibliometric study, according to Guedes and Borschiver (2005) is a research throughout scientific and technological based publications or a specific period of time; in a specific area of knowledge. In the present case, the evolution of the studies on components of the business model, in the international literature, was evaluated in the period from 2009 to 2014.

The proposed method was suitable for the research, being carried out to the analysis of citation and co-citation (Guerrazzi, Brandão, Junior, & Lourenço, 2015), allowing to identify the relevant issues on the subject, such as publications, authors and approaches (Pilkington & Meredith, 2009). This idea is critical to identify authors who assume a prominent role in knowledge domains (Nerur, Rasheed & Natarajan, 2017).

Co-citation is a way of identifying theoretical currents that represent the area of knowledge studied (Rossetto et al.,

2018). It helps to identify non-convergent and non-consensual lines (Vogel & Güttel, 2013), which is the case of the present research in relation to the exploration of studies on business models.

According to Guedes & Borschiver (2005) the authors of bibliometrics developed “Laws” that guide the analysis of scientific production, namely:

1. Lotka’s Law or Inverse Square Law seeks to measure authors’ productivity, using a size-frequency distribution model of several authors of a certain set of texts.
2. Zipf’s Law or Minimum Effort Act is intended to measure how often words occur in texts, generating an ordered list of terms about a subject.
3. Bradford’s Law or Dispersion Law provides the measurement of the productivity of journals and can establish relationships between them.

For the development of this study, the Law of Zipf was used because by means of keywords, looking for references of authors, obtained data that was to be analyzed through Lotka’s Law.

Bibexcel software was used to obtain data about the articles identified on the subject of this research and the Ucinet64 software to generate a citation matrix.

In the development of this research, we searched the Web of Science database, through the following steps: 1) we selected the keyword “business model” as “topic”, 2) we only marked documents in English and Portuguese, and 3) constricted the initial research date to 01/01/2009 through 01/01/2014.

The search identified 1,749 articles. Of those, the peer reviewed ones were selected, this left 1,278 remaining. It was necessary to make an even greater refinement of the papers, so we excluded, in the resource more options, those pertinent to “experimental theoretical treatment”, “experimental theorist” and “mathematical models”, thus leaving 944 articles.

Of the remaining 944 articles, not all articles were available for free and some were repeated, leaving 626 articles for analysis.

As the purpose of this research is the components of the business model, it was decided to classify as “Yes”, “Maybe” and “No”, that is, in each article, a search was made to verify that it contained the keyword “Components”, and if it was in the abstract it was considered a “yes”, if

it was found in the body of the text, “maybe”, and if it did not have the keyword the article would not be queried and was a “no”. Thus, 183 articles remained for analysis, of which there could still be an exclusion if the word “Components” was mentioned in a context other than that of the business model.

We cataloged these articles as shown in Table 2.

Table 2:
Number of articles downloaded and used

Pages	# papers downloaded	Yes (componentes abstract)	Maybe on (components abstract) outside the	N
1 - 10	75	3	22	50
11 - 20	80	3	18	59
21 - 30	80	3	14	63
31 - 40	51	2	13	36
41 - 50	76	3	29	44
51 - 60	66	1	31	34
61 - 70	69	-	9	60
71 - 80	61	1	17	43
81 - 90	53	2	9	42
91 - 95	15	0	3	12
Total	626	18	165	443

Source: Research data (2015).

After following all the necessary steps in a tutorial: WoS Search → .txt → .doc → .out → .1st → .low → .cit → .coc → .ccc → .ma2 → .xlsx → Ucinet64, we obtained as a result the list of citations of the main authors as presented in the analysis of the results.

In the bibliometric survey it was possible to identify the main components of the business model addressed by the authors in the studies published in the period from 2009 to 2014. Thus, the table below presents a synthesis of the business model components treated by each author.

4. Discussion and analysis of result

Table 3:
Business model components in accord with their authors

Authors	Year	Business model components	Reference
Chesbrough et al.	2009	1) Infrastructure (key partner, activities, resources) 2) Value proposition 3) Client (relationship, channels, segments) 4) Financial (cost and revenue structure) 5) External Technological Access	Sabir, Hameed, Rehman, and Rehman, 2012
Doganova et al.	2009	1) Value proposition 2) Value Architecture 3) Revenue model	

Mason and Spring	2010	1) Technology 2) Network Architecture 3) Market Offer (Portfolio of Offers)	
Taran, Boer, and Lindgren	2009	1) Value proposition (products, services and processes) 2) Target customer, (market segments and geographies) 3) Value chain configuration (internal) 4) The core competencies (assets, processes and activities) that translate company inputs into value for customers (outputs) 5) Network of partners: the two strategic partnerships and supply chain management 6) Relationship (e.g. physical, digital, virtual, personal) 7) Profit Formula: Both turnover and cost structure as well as revenue stream	Lindgren and Taran (2011)
Osterwalder and Pigneur	2010	1) The value proposition 2) Customer Segment 3) Communication and distribution channels 4) Relationships with clients 5) The revenue streams (or revenue model) 6) Resources needed to make the business viable 7) Activities needed to run the business 8) Business Partners 9) Business cost structure	Günzel and Holm (2013)
Casadesus-Masanell and Ricart	2010	1) Politics 2) Governance 3) Assets	Daft and Albers (2013)
Al-Debai and Avison	2010	1) Value proposition 2) Value Architecture 3) Financial figures 4) Value Networks	
Hayes et al.	2011	1) Prudence in the cost program 2) Collection of lost revenues 3) Shareholder incentive	Satchwell, Cappers, and Goldman. (2011)
Schön	2012	1) Value Proposition (geography, customers, offer of products and services) 2) Revenue model (customer interaction and insight, channels, prices) 3) Costs model (assets and capacities, main activities, network of partners)	Schön (2012)
Kim et al.	2012	1) Processes 2) Products 3) Organization 4) Data 5) Resources 6) Business Rules	Kim, Lee, and Kang, Kim, Kang, and Ryu (2013)
Günzel and Holm,	2013	1) Creating Value 2) Proposition 3) Delivery and Capture	Günzel and Holm (2013)
Velamuri et al.	2013	1) Business Consulting 2) Complete services	Velamuri, Bansemir,

		3) Education services 4) Financing services 5) Information management services	Neyer e Möslein (2013)
Richter	2013	1) Value proposition 2) Customer Interface 3) Infrastructure 4) Revenue model	Richter (2013)
Otto, Ebner, Baghi, and Bittmann	2013	1) Customers (value proposition, target group, customer function) 2) Revenue (source of revenue, price) 3) Object of Value (type of demand, type of offer) 4) Value Creation (create, divide, change, use, improve, manage)	Otto, Ebner, Baghi, and Bittmann (2013)
Im and Cho	2013	1) Value proposition 2) Customer (segment) 3) Value attribute (tangible / intangible assets) 4) Partner 5) Channel distribution 6) Revenue model (a set of methods to collect financial gains to do business)	
Boons and Lüdeke-Freund	2013	1) Value-added products and services 2) Relations with customers 3) Support Network 4) Financial Structure	Im and Cho (2013) Johannsdottir (2014)
Daft and Albers	2013	1) Strategic core of the company 2) The configuration of the value chain 3) Sustaining Assets	Daft and Albers (2013)
Lindgren	2013	1) Value proposition 2) Users and customers 3) Value chain 4) Competence 5) Network 6) Relationships 7) Value	Lindgren and Aagaard (2014)
Darchen	2013	1) Place of governance 2) Economic Revitalization 3) Positioning in the market 4) Community Empowerment	Darchen (2013)
Cavalcante	2014	1) Creating Value 2) The company's modus operandi 3) Value Capture (Financial Revenue and Market Slice)	Cavalcante (2014)
Dean, Fath, and Chen	2014	1) Environment 2) Facilities and infrastructure 3) Business synergies 4) Green Image	Dean, Fath, Chen (2014)
Miller	2014	1) Activities 2) Cost Objects 3) Resources	Miller (2014)
Iacob	2014	1) Customer view 2) Overview of resources 3) Process vision 4) Product / Service Vision	Iacob et al. (2014)

Source: Research data (2015).

Of the 183 articles analyzed, only 23 (12.5%) had specific information about the business model components. The others were excluded from the research either because they were duplicated or because they did not specifically deal with the components of the business model or because they had references outside the scope of time of this research.

It is noticed that among the components most cited by the authors are, respectively, value proposition (14 times), clients (13 times), infrastructure or resources (11 times), revenue model (10 times) and costs (6 times). It is also identified that the authors propose on average 4 or 5 components for the organization's business model. This means that about 60% of the authors analyzed consider value proposition and clients as essential components in the business model. In the same line, the income or source of financial inflow is clearly more important for most of these authors surveyed.

It is inferred that there is a consolidation in the components of the business model of the organizations to the extent that there is a generalized concern with the value proposition offered by the parties related to the company (such as customers, suppliers, shareholders, and others), at the same time as when the company is increasingly concerned about the needs of its customers.

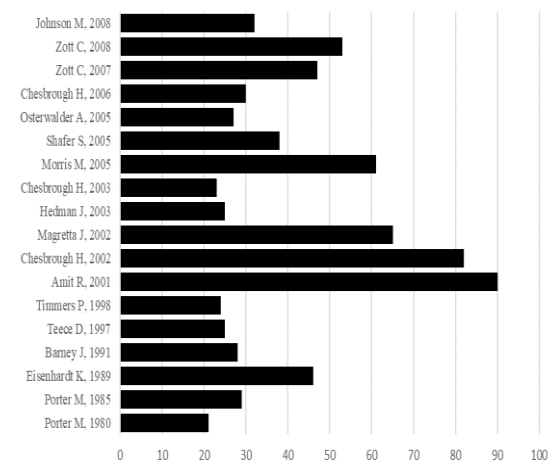
The logic of these preferences may even be the centrality of the customer as a source of financial inflow, but such centrality may be determining a new logic for the value chain combination in companies, both in strategic priorities and in operational effectiveness. In other words, the authors may actually be sending the message that a good business model considers the internal recombination of processes, technologies, capacities and capabilities with a focus on customer preferences. They may also be saying that a good business model is linked to greater operational efficiency, that is, the balanced combination of quality and productivity.

Companies must have care when building their business model, with their

infrastructure, especially with regard to resources. There is also a design in terms of financial aspects, so adequate planning of revenues and cost structure is required. A company that manages these aspects in the business can create and maintain a competitive advantage over its competitors and consequently innovate to improve its routines and processes.

We have shown in Figure 1 an evolutionary panorama of the main authors who were concerned with the study of the business model. The authors with more cited works, published prior to 2009, were separated in this graph. Amit R. (2001) with 90 citations, Chesbrough H. (2002) was cited 82 times, Magretta J. (2002), was referenced 65 times, among others with a smaller but still significant volume of citations, such as Morris M. (2005) and Zott C. (2008).

Figure 1: Evolution of citations until 2008



Source: Research data (2015).

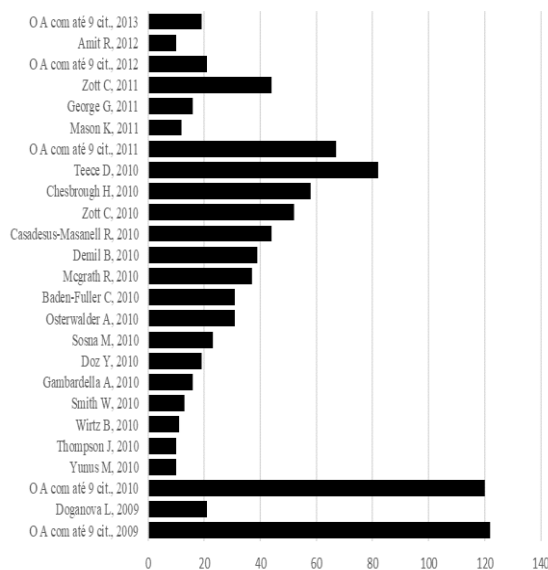
The citations table, changes significantly from 2009. Most of the authors cited before 2009, except for Chesbrough and Osterwalder, do not remain in the citation framework in the period selected for this research.

The implementation of Internet businesses, resulted in a greater capacity of processing and transmission of data, and with the entry of Web2 into operation, the horizontalization of the business structures has gained space. This has altered the forms of internal rearrangement - processes, technologies, and resources - aimed at creating and

capturing value by customer centrality, with reflexes in transactional processes (now increasingly based on business virtualization).

From 2009 onwards, the emphasis was no longer on simple structural combinations as thought in the first period of business model proposals and began to focus on the forms of value addition, especially supported by the technological domain base and innovation capacity of enterprises. Perhaps this is the main reason why only Chesbrough, involved with the innovation and open business model and Osterwalder, equally involved with customer centrality and value creation, continued to be cited in the period under review. Figure 2 shows a list of the main authors, business model scholars from 2009 to 2014.

Figure 2: Evolution of citations of the last years



Source: Research data (2015)

It can be visualized how the citations behaved within the analyzed period itself, gaining emphasis on Teece D. (2010) (82 citations), Chesbrough H. (2010) who continues to produce articles on the business model and was cited in 58 publications.

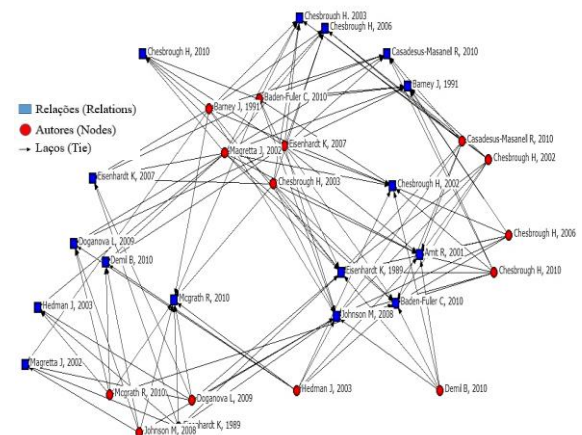
It is also observed that in this period the citations are concentrated around a few authors and several other authors have been cited, albeit in a lesser number of times - between 2 and 10 times.

It can also be noted that 2010 was the year with the most publications on the subject. From then on, there was a drop-in production that addressed constitutive elements of business models. This fall in production can be attributed, eventually, to the exhaustion in the forms of approach due to the lack of a new element, or by a real consolidation of the theoretical constructs that underpin the business model. This might require further analysis to verify the change in focus or emphasis on business components and the evolution of the conceptual chains.

This analysis allowed the targeting to raise the business models components according to the approach of authors who continue researching on the subject, as previously exposed.

Finally, in Figure 3, it is possible to verify the relation of the main authors who quoted and were cited, selecting those who received at least 21 citations and a maximum of 90.

Figure 3: The relation among the key's business model authors.



Source: Research data (2015).

Figure 3 shows the interconnection between the main researchers of the theme, that is, their ties, their relations, what they research in common, because this causes new constructs can arise and consolidate.

5. Final considerations

Organizations are increasingly dependent on improvements in how they manage their activities, so they can gain and maintain a competitive advantage. In

this context, it is essential to building good and efficient business models. The great challenge facing modern companies is to know how to efficiently combine their resources, technologies, processes, capabilities, and competencies with their organizational structures and systems so that they acquire the necessary agility and efficiency in transactional processes.

In this research, it was possible to identify the main business model components addressed by the authors in the studies published in the period from 2009 to 2014.

From components nature viewpoint, it can be affirmed that value and customers are the major determinants of business design considered by almost all authors. These two components are compounded by three other main ones: resources, financial inflow, and costs.

For future studies, we suggest the analysis of the evolution of the studies about the components of the business model in the immediately following years.

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