

Habitual Exploited Business Model Pillars From 1996-2010

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Abstract

Although there is no widely agreed upon definition and composition of the business model concept, it is evident from the continued presence of the term in both scholarly and broader business literature, that managers and researchers alike find it a useful descriptive and analytical construct. This paper reviews research in the field of business models from 1996 to 2010. Electronic database searches of scholarly journals spanning 1996 when the term business model first appeared in multiple publications to 2010 reveals 62 articles that use the business model components. We identified twenty-eight blocks used in construction of business model and found each blocks importance percentage (%) in construction of business model through implication of dichotomy analysis. The concluded that three have to ask before design a business model. This study may be further explored through proving of this study results on empirical basis.

1. INTRODUCTION

Business model concept widely dispense in business and management research (Al-Debei & Avison, 2010; Zott *et al.*, 2011) and

frequently published articles in journals, newspapers, magazines, proceeding, and as reports. Literature on business model is replete with researches that supply business model definitions, components, typologies, and classification. All of these impart knowledge on what is business model but still there is no universal consensus on it. However, it is becoming clear that business

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model is a multi-access concept. Therefore business model concept varies and depending on the purpose for which it is used. This diverse body of conceptual and analytical research contributed as for better understanding of business model concept, and its application. While drawing on the conceptual research and recognized its contribution in management research in general. This paper supports an empirically, using existing researches on business model concepts and blocks to raise the awareness of the business model roots and concept in the minds of management researchers and recognize ways in which the habitual exploited components can contribute to other management research.

The numerous papers published in the scholarly literature since 1990 contribute to defining components and concepts of business models and this discourse continues. Notwithstanding the divergent views regarding the business model concept, research that uses or studies the business model in a larger context has emerged and continues to grow. The classification research organizes what is known about the business model in ways that make it more accessible to researchers and meta-analysis highlights relationships between otherwise discrete pieces of research thereby advancing knowledge of the business model concept itself. Research that proposes design methods and modeling tools aid in instantiating frameworks, ontologism, change methodologies and adoption factors and evaluation models apply the business model concept to broader management issues.

Although much of the research is analytic and archival, empirical research is emerging that either tests conceptual research or exploratory in nature. The contribution of this paper is to identify and organize business model studies in such a way that its relevance to other management research. It is projected that scholars will gain leverage from existing research and recognize how it can be replicated in other situations and contexts. Scholars new to the business model concept will find this paper a succinct of existing business model studies on components.

This paper is reporting on a search of scholarly literature for the period 1996 to 2010 which identified 62 research papers using the business model frameworks. These papers were analyzed according to the research fields in which the studies are published, the industry and the focus of the study. This paper is structured as follows; in the next section, proved that distinction of the topic in the management research. The second section will give an overview of the business model concept that highlights its relevance to other management research is presented. The third section describes the method employed to select the sample of business model papers literature and review it. The fourth section is an empirical analysis on the identified business model blocks. Concluding comments and limitations of this research are in the final section of the paper.

1.1 Distinct research topic

Recognition of the business model concept as a distinct management research topic in its own right is evident in the increasing number

of business model focused scholarly papers that have appeared in management and business journals since the mid 1990s. The special issues of journals devoted to the concept; Long Range Planning, volume 43 issues 2–3, Management, volume 13, issue 4 and special issue of Strategic Entrepreneurship Journal on business models in 2013. The business model has become a focal concept for strategy (McGrath, 2010) and is closely connected to business strategy, innovation management and economic theory (Teece, 2010). The business model aids in reducing the business information system gap by providing an interface between strategy and information systems design (Al-Debei & Avison, 2010; Gordijn & Akkermans, 2001; Hedman & Kalling, 2003). Although theoretically underdeveloped, business model research is moving toward conceptual consolidation (Zott *et al.*, 2011).

1.2 Business model concept

Business model term used as fashion in the era of dotcom boom and this increase the academic interest (Shafer *et al.*, 2005) some speak about business model for internet and other articulate about web business model. Massive literature on business model proposed (Teece, 2010). Business model concept has victim of complexity (Weill *et al.*, 2011). But mainly business model concept revolved around the value creation, capturing, and delivering (Osterwalder & Pigneur, 2010; Teece, 2010). For example Chesbrough (2006) affirm that value creation and value capturing are main functions of the business model. Osterwalder and Pigneur (2010) state that business model describe as

how value is created, captured and delivered by an organization. Teece (2010) made description of business model as how firm create and deliver the value to customer and in return gain profit. Ghaziani and Ventresca (2005) concluded that most discussed frame of business model is value. In the same vein Zott and Amit (2010) come to point that typically authors discussed value aspect in defining the business model. The meaning of value perceived in different respects for example customer value aspect discussed by Tapscott (2001), Dubosson-Torbay *et al.* (2002), Osterwalder & Pigneur (2010), Teece (2010) both customer value and company value consider by Bouwman *et al.* (2008), Johnson *et al.* (2008) and economic value describe by Gordijn & Akkermans (2001). Numerous definitions of business model create confusion on the business model concept (Shafer *et al.*, 2005) that is why there is not universal definition of business model (Weill *et al.*, 2011). However, business model can be too abstract because there are various opinions on the concept of the model, and therefore, can cause confusion. Even in existing paper, the starting point to describe the concept of a business model to the process of a business modeling is approached differently, and therefore a continuous discussion about the difference of a strategy and business model is occurred (Stahler, 2002).

Drawing from the discussion that knowledge on the business model impart through adopting different unit of analysis such as organization, business, company, organizational level, organizational entity and some time

network level. Purpose of business model is different in different context for instance starting phase and growth phase of a company, variety of innovation and technology, profit, and not for profit organizations, and importance of technology, innovation vary from organization to organization. These make the harder to build the well defined and strong conceptualization grounding for business model concept. However, business model can be too abstract because there are various opinions on the concept of the model, and therefore, can cause confusion. For example

E-commerce: Business model concept in the e-commerce field define by Timmers (1998) as business model is architecture of flow (product, service, information) in which various business players task, benefits and description of revenue stream.

Technology & Innovation Management: Chesbrough & Rosenbloom (2002) enlighten the business model aspects regarding technology and innovation management as connection of technology with economic value through heuristic logic.

Strategy: Casadesus-Masanell & Ricart (2010) succinctly business model concept in context of strategy defines as induction of business model refers to the way of firm's operating and how concocts value for investors. Ascertain the business model as creation of values by firms by coordination of information, product and service flow among different players (Kallio *et al.*, 2006).

Literature on business model has multi disciplinary directions but has stable roots in strategic literature (Zott & Amit, 2008). Business model has to answer a series of questions essential to any business. Business model concept is drawn from the Peter Drucker's questions; who is customer, what does value and how does intend to earn wealth (Drucker, 1954; Magretta, 2002) and this give the evidence that business model research originated in strategic management. Chesbrough and Rosenbloom (2002) elucidate the premises for the business model concept and found that origin of business model concept found in the literature of strategy from Chandler (1962) book of strategy and structure. In the same vein Amit and Zott (2001) and Hedman & Kalling (2003) make clear in their research, that business model concept has originated in strategy literature.

2. RESEARCH METHODOLOGY

Business model has been break down into various parts such as Osterwalder *et al.* (2005) suggest nine modules, Mason and Spring (2010) offer three components, Johnson *et al.* (2008) supply four parts of business model. However, various other researchers presented different dimension / modules of business model. For example Weill and Vitale (2001) offer business model schematics with four characteristics; required competencies, success factors, revenue generation and strategic and value proposition. Chesbrough and Rosenbloom (2002) discussed the business model as mediating role between the technology and

economic value. Morris *et al.* (2005) developed business model for entrepreneurship with intruding three level; foundation, proprietary and rules. E3-value ontology developed by Gordijn (2002) for e-business model through discussing actor role, exchange value, value port, group the value, value objects, market segment and value activity and in many other researches. Reviewing the recent literature on business model (Ghaziani & Ventresca, 2005; Zott & Amit, 2010; Krcmar *et al.*, 2011; Palo & Tahtinen, 2011; Kim & Im, 2012) and other various publications of indexed journals.

In the study, to locate and analyze research that has been conducted in relation to business models and published in a wide range of scholarly journals; selected GOOGLE SCHOLAR because it provide a simple too broadly search for scholarly literature. From one place, search across many disciplines and sources. First time, write the term "Business Model" in the Google Scholar, returning 2,240,000² results. This is not possible for me to review of all articles that are why select a criterion that was used to determine the eligibility of the studies (on business model framework) for inclusion in the study.

Criterion 1 The term "business models" searched with all of the words and with the exact phrase.

Criterion 2 Where words ""business model" occur in the study. These words

²http://scholar.google.com/scholar?hl=en&q=business+models&btnG=&as_sdt=1%2C5

must occur in the title of the study. This help in eliminating those papers that used word business model anywhere in articles, conference papers, research reports, books, working papers and with other similar work included.

Criterion 3 The search was restricted from 1996 to 2012.

Criterion 4 The search was excluded the patents, citations and search for English results only.

Criterion 5 The research included in the study that cited at least on time to ensure the quality. The focus of this study is business model concept that is why eliminating researches that merely make incidental reference to the business model.

Criterion 6 Author reviews all the papers titles and made inclusion of business and management field researches.

The selection process is illustrated in figure 2. The first three criteria were used in Google Scholar database search returning 4,350³ results. Application of fourth criterion; excluding the patents retrieved 4,290⁴ results

³http://scholar.google.com/scholar?q=allintitle%3A+Business+Models+%22Business+models%22&btnG=&hl=en&as_sdt=0%2C5&as_ylo=1996&as_yhi=2012

⁴http://scholar.google.com/scholar?as_sdt=1,5&q=allintitle:+Business+Models+%22Business+model%22&hl=en&as_ylo=1996&as_yhi=2012

then excluding citations found 2,600⁵ results. Retrieve 2,480⁶ results when used option of search for English pages only. For implication of fifth criterion, arrange the search yearly and find out which research cited and which not cited.

Figure shows the number of researches retrieved from Google Scholar database search for each year and number that excluded and included in the next step of the study. The 1326 searches that met fifth criterion and proceed for next step while 1154 searches excluded. However, the citations of the different researches were in few studies from 1996-1999 while citation of researches regarding business model increased rapidly from 2000 to till now.

⁵http://scholar.google.com/scholar?as_vis=1&q=allintitle:+Business+Models+%22Business+models%22&hl=en&as_sdt=1,5&as_ylo=1996&as_yhi=2012

⁶http://scholar.google.com/scholar?q=allintitle%3A+Business+Models+%22Business+models%22&btnG=&hl=en&as_sdt=1%2C5&as_ylo=1996&as_yhi=2012&as_vis=1

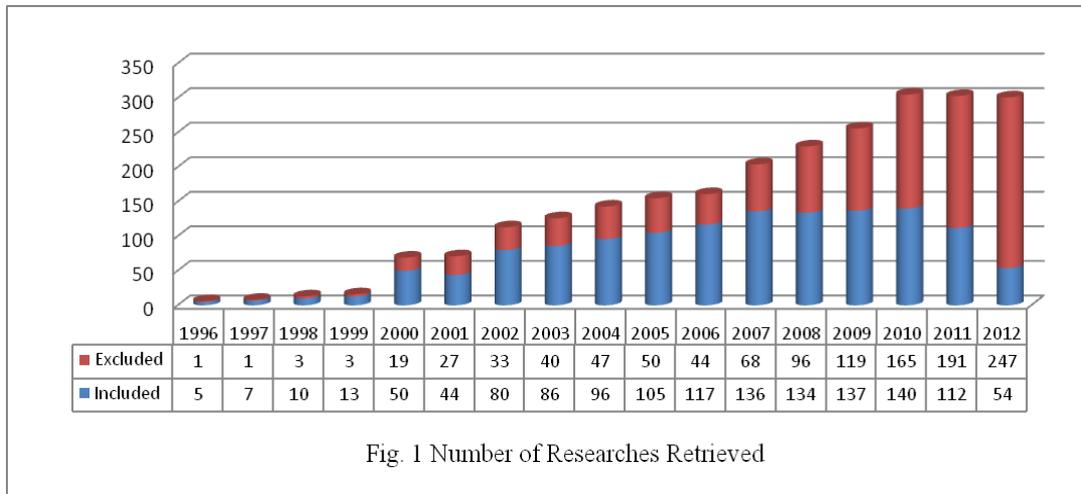


Fig. 1 Number of Researches Retrieved

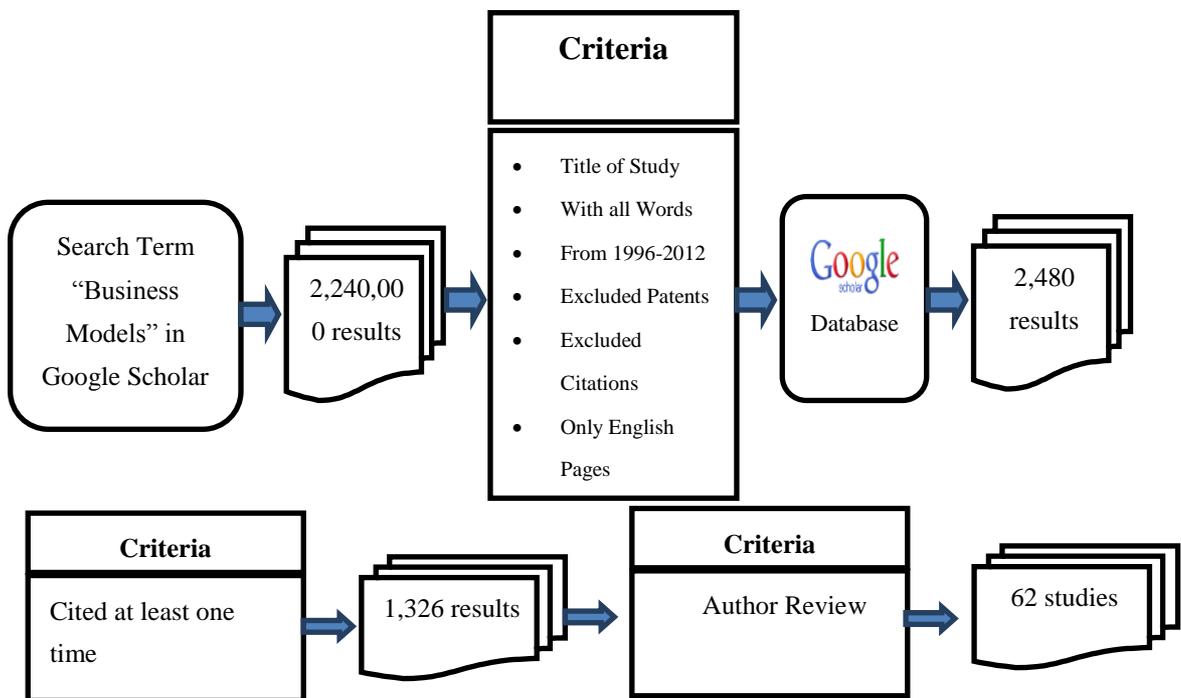


Figure 2: Selection process

Sixth criterion author review, in which author was reviewed all researches title, abstract to determine compliance with set criterion while 62 papers met all six inclusion criteria and therefore remained in the sample. The result of each paper on business model building blocks entered into excel sheet for proceeding analysis.

Frequency distribution used to find out habitual exploitation of building blocks.

Multiple response of selected participants will be recorded first in excel sheet; each variable given a labels, If the business model block (variable) is used, given 1; and if the business model block (variable) is not used, given 0

then applied multiple dichotomy analysis on collected data. In this process, we identified

twenty-eight business model blocks used in different studies; here is given.

Question-What blocks do you consider when you design a business model (these blocks used in different studies from 1996-2010)

- | | |
|--|------------------------------------|
| 1. Abstraction / Aggregation | 15. Legal and Economic Aspects |
| 2. Actors / Roles | 16. Organizational Form |
| 3. Competitive environment | 17. Processes / Workflow |
| 4. Culture/ Control Mechanism | 18. Product / Service (streams) |
| 5. Critical Success Factors | 19. Product Lifecycle |
| 6. External Communication Concept | 20. Profit |
| 7. Finance / Revenue (streams) | 21. Relationship of Actors |
| 8. Focus on Business Unit | 22. Resources (general) |
| 9. Focus on Business Web & Identity | 23. Strategy / Vision / Objective |
| 10. Focus on Organization & reputation | 24. Technology |
| 11. Growth | 25. Utility |
| 12. Information (stream) | 26. Value Chain / Core Competences |
| 13. Innovation | 27. Value Creation/Proposition |
| 14. Leadership | 28. Value Network |

See the appendix for business model building blocks used in different studies from 1996-2010 in chronological order

2.1 Survey results

- The twenty-eight factors were identified
- Arrange the twenty eight blocks in row and researcher name's in column
- Arrange data set file in chronological order
- Each variable is given a label, if the item (variable) is used, given 1; and if the item (variable) is not used, given 0
- The maximum number of responses obtained from an individual was eleven.

2.2 Dichotomy analysis

The data in excel sheet; comprised with researchers name and business model building blocks. Each variable is given a label, if the item (variable) is used, given 1; and if the item (variable) is not used, given 0. This data sheet import in SPSS 16 for further

analysis, to run a multiple response on the data adopted these given steps.

Step 1

- For defining multiple response sets: select the Analyze from menu bar, select the Multiple Response from submenu of analyze and click on Define Variable Sets
- Appear a new dialog box; here move the variables from Set Definition (i.e. name of twenty eight blocks) into Variables in Set box.
- Value After this, click on option box of Dichotomies Counted In the “Variables Are Coded as” tick “Dichotomies” and type the value in Counted Value box that you assigned to those items which were ticked by respondents (i.e. 1)
- Under the Name box type a suitable variable name (Business Model)

- Under the Label box type a description of this variable (Building Blocks)
- Click Add then appear (Business Model) in Multiple Response Sets
- Click Close

Step 2

- After defining multiple response sets; select Analyze from menu bar then select the Multiple Response and click on Frequencies
- Move (Business Model) from Multi Response Sets into Table(s) box by clicking on the transfer button

- Click OK

3. RESULTS

- Percentage of responses refers to the proportion of a given response in relation to the count: count/total responses.
- Percentage of cases refers to the proportion of a given response in relation to the number of valid cases: count/total valid cases.

Table 1: Business model blocks frequencies

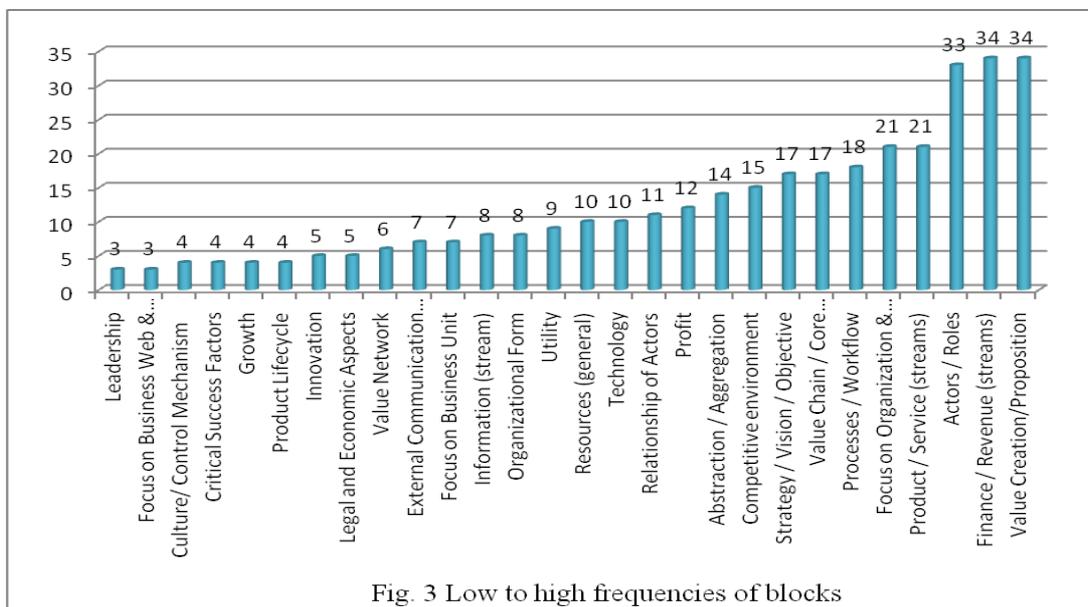
	Responses		Percent of cases
	N	Percent	
Abstraction / Aggregation	14	4.1%	22.6%
Actors / Roles	33	9.6%	53.2%
Focus on business unit	7	2.0%	11.3%
Focus on organization	21	6.1%	33.9%
Focus on business web	3	.9%	4.8%
Relationship of Actor	11	3.2%	17.7%
External communication concept	7	2.0%	11.3%
Finance/ Revenue (Stream)	34	9.9%	54.8%
Profit	12	3.5%	19.4%
Product/ Service Stream	21	6.1%	33.9%
Information Flow	8	2.3%	12.9%
Control mechanism	4	1.2%	6.5%
Critical success factors	4	1.2%	6.5%
Utility	9	2.6%	14.5%
Organization Form	8	2.3%	12.9%
Product Life Cycle	4	1.2%	6.5%
Processes/ Workflow	18	5.2%	29.0%
Legal Aspect	5	1.5%	8.1%
Resources (General)	10	2.9%	16.1%
Strategy/ vision/ Objective	17	4.9%	27.4%
Technology	10	2.9%	16.1%
Growth	4	1.2%	6.5%
Value Chain/ Core Competencies	17	4.9%	27.4%
Value Creation/ Proposition	34	9.9%	54.8%

Competitive Environment	15	4.4%	24.2%
Leadership	3	.9%	4.8%
Innovation	5	1.5%	8.1%
Value Network	6	1.7%	9.7%
Total	344	100.0%	554.8%

a. Dichotomy group tabulated at value 1

Multiple dichotomy analysis has shown percent of each blocks usage from 1996-2010 by 62 authors and found percent from 1.2% to 9.6% and percentage of cases from 4.8% to 54.8% of 28 on business model building blocks. The least percent or frequencies of focus on business web (3 or .9%) and leadership (3 or .9%) blocks while highest percent or frequencies of finance/ revenue

stream (34 or 9.9%) and value creation/ (34 or 9.9%) regarding habitual exploitation of business model blocks. Frequency of each building blocks show their importance in construction of business model. For this purpose, build a figure from low to high frequency of blocks regarding exploitation of business model components.



4. CONCLUSION

Research on business models has been analyzed with the intention of raising the awareness of the business model concept in the minds of the management researchers, to get a better understanding of the concept and to recognize all components of business

model used in previous studies from 1996-2010 in which the concept contributes to other management research. A thorough search of scholarly literature uncovered 62 research papers published from 1996-2010 which used the business model frameworks. The majority of these papers are published in journals of business and management

disciplines. These studies used different components in construction of business model. However, multiple dichotomy analysis shown percent of each blocks usage from 1996-2010 by sixty-two authors and found that three blocks are top of list in usage; value proposition (54.8%), revenue stream (54.8%), and actor role (53.2%). Why are these blocks used more frequently as compare to others because three questions have to ask before designing a business model; what customer's need and how business create value to meet with customer expectation (value

proposition), which player involved to link the activities (actor/player role), how generate revenue (revenue stream). A limitation of the sample is the requirement that papers include the term "business models" in the title and it is possible that there are studies that meet our intention for inclusion but because they do not use business model in the title of the paper, they have not been included in this study. However, for further exploration, most exploited building blocks can be proved on empirical basis as complementary pillars in construction of business model.

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References

- Al-Debei, M. M., & Avison, D. (2010). Developing a unified framework of the business model concept. *European Journal of Information Systems*, 19(3), 359–376.
- Amit, R., & Zott, C. (2001). Value creation in e-business. *Strategic management journal*, 22(6-7), 493-520.
- Bouwman, H., Vos, H. D., & Haaker, T. (2008). *Mobile service innovation and business models*. Springer Berlin Heidelberg.
- Casadesus-Masanell, R., & Ricart, J. E. (2010). From strategy to business models and onto tactics. *Long Range Planning*, 43(2-3), 195-215.
- Chandler, A. (1962). *Strategy and structure*. Cambridge: MIT press.
- Chesbrough, H. (2006). *Open business model: How to thrive in the new innovation landscape*. Harvard business school press.
- Chesbrough, H., & Rosenbloom, R. (2002). The role of the business model in capturing value from innovation: Evidence from Xerox Corporation's technology spin off companies. *Industrial and Corporate Change*, 11(3), 529-555.
- Drucker, P. (1954). *The Practice of Management*. New York: Harper and Row.
- Dubosson, T. M., Osterwalder, A., & Pigneur, Y. (2002). E-Business model design, classification, and measurements.

- Thunderbird International Business Review*, 44(1), 5-23.
- Ghaziani, A., & Ventresca, M. (2005). Keywords and cultural change: Frame analysis of business model public talk. *Socio logical Forum*, 20, 523-559.
- Gordijn, J. (2002). *Value-based requirements engineering: Exploring innovative e-commerce ideas*. Amsterdam: Free University Netherland.
- Gordijn, J., & Akkermans, H. (2001). Designing and evaluating E-business models. *IEEE Intelligent Systems*, 16(4), 11–17.
- Hedman, J., & Kalling, T. (2003). The business model concept: Theoretical underpinnings and empirical illustrations. *European Journal of Information Systems*, 12(1), 49–59.
- Johnson, M., Christensen, C., & Kagermann, H. (2008). Reinventing your business model. *Harvard Business Review*, 86(12), 50-59.
- Kallio, J., Tinnila, M., & Tseng, A. (2006). An international comparison of operator-driven business models. *Business Process Management Journal*, 12(3), 281-298.
- Kim, S., & Im, K. (2012). Business model characterization by analyzing business model components of patent data. *Applied Mathematics & Information Sciences*, 6(1), 303-309.
- Krcmar, H., Bohm, M., Friesike, S., & Schildhauer, T. (2011). *Innovation, society and business*. Internet based business models and their implications. 1st Berlin Symposium on Internet and Society.
- Magretta, J. (2002). Why business models matter. *Harvard Business Review*, 80(5), 86-93.
- Mason, K., & Spring, M. (2010). The sites and practices of business models. *Industrial Marketing Management*, 40, 1032-1041.
- McGrath, R. G. (2010). Business models: A discovery driven approach. *Long Range Planning*, 43(2–3), 247–261.
- Morris, M., Schidehutte, M., & Allen, J. (2005). The entrepreneur's business model: Toward a unified perspective. *Journal of Business Research*, 58(6), 726-735.
- Osterwalder, A., & Pigneur, Y. (2010). *Business Model Generation: A handbook for visionaries, game changers, and challengers*. John Wiley & Sons.
- Osterwalder, A., Pigneur, Y., & Tucci, C. (2005). *Clarifying business models: Origins, present, future of the concept*. Communications for the Association for Information Systems, 15.
- Palo, T., & Tahtinen, F. (2011). A network perspective on business models for emerging technology based service. *Journal of Business & Industrial Marketing*, 26(5), 377-388.
- Shafer, S., Smith, H., & Linder, J. (2005). The power of business models. *Business Horizons*, 48, 199-207.
- Staehler, P. (2002). *Business model in the digital economy*. Cologne Lohmar: Josef Eul.
- Tapscott, D. (2001). Rethinking strategy in a networked world: Or why michael porter is wrong about the internet

- strategy. *Strategy and Business*, 24, 1-8.
- Teece, D. J. (2010). Business models, business strategy and innovation. *Long Range Planning*, 43(2-3), 172-194.
- Timmers, P. (1998). Business models for electronic markets. *Electronic Markets*, 8(2), 172-194.
- Weill, P., & Vitale, M. R. (2001). *Place to Space: Migrating to E-business Models*. Harvard Business Press.
- Weill, P., Malone, T., & Apfel, T. (2011). The business models investors prefer. *MIT Sloan Management Review*, 52(4), 17-19.
- Zott, C., & Amit, R. (2008). The fit between product market strategy and business model: Implications for firm performance. *Strategic Management Journal*, 29, 1-26.
- Zott, C., & Amit, R. (2010). Business model design: An activity system perspective. *Long Range Planning*, 43(2-3), 216-226.
- Zott, C., Amit, R., & Massa, L. (2011). The business model: Recent developments and future research. *Journal of Management*, 37(4), 1019-1042.

Appendix (Business model building blocks used in different studies from 1996-2010 in chronological order)

Chronological author's name	Abstraction / aggregation	Actors / roles	Focus on business unit	Focus on organization	Focus on business web	Relationship of actor	External communication concent	Finance/ Revenue (Stream)	Profit	Product/ Service Stream	Information Flow	Control mechanism	Critical success factors	Utility	Organization form	Product life cycle	Processes/ workflow	Legal aspect	Resources (General)	Strategy/ vision/ Objective	Technology	Growth	Value chain/ core competencies	Value creation/ proposition	Competitive environment	Leadership	Innovation	Value network
Baatz (1996)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Osterle (1996)	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Carroll and Trebnick (1997)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Timmers (1998)	0	1	0	0	0	0	0	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lindstrom (1999)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Nilsson <i>et al.</i> (1999)	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
Willars (1999)	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Bartelt and Lamersdorf (2000)	0	1	0	0	0	0	0	1	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Eriksson and Penker (2000)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	0	0	0	0	0	1	0
Heinrich and Leist (2000)	0	1	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	1	0	0	0
Wirtz (2000)	1	0	0	0	0	0	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hamel (2000)	0	1	1	0	0	0	0	1	0	0	0	1	0	0	0	1	0	1	0	0	0	0	1	1	0	0	0	0
Klueber (2000)	1	1	0	1	1	0	0	1	0	1	1	0	0	1	0	0	0	0	0	0	1	0	0	1	1	0	0	0
Stewart <i>et al.</i> (2000)	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Mahadevan (2000)	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Martinez (2000)	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Zimmermann (2000)	0	1	0	0	0	1	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rappa (2001)	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
Gordijn and Akkermans (2001)	1	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0
Applegate (2001)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
Buchholz and Bech (2001)	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
Afuah and Tucci (2001)	0	1	0	0	0	1	0	1	0	0	0	0	0	1	1	0	0	0	0	1	0	0	1	1	1	0	0	0

Alt und Zimmermann (2001)	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1	0	1	0	0	0	1	1	0	0	0
Amit and Zott (2001)	0	1	0	1	0	1	0	0	0	1	1	1	0	1	0	0	1	1	1	0	0	0	0	1	0	0	0
Gordijn and Akkermans (2001)	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0
Porter (2001)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0
Rentmeister and Klein (2001)	1	1	0	1	0	0	0	1	0	1	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0
Robert and Racine (2001)	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Weill and Vitale (2001)	1	1	1	1	0	1	0	1	0	1	1	0	1	1	0	0	0	0	1	0	0	1	0	0	0	0	0
Bieger <i>et al.</i> (2002)	1	1	0	1	0	0	1	1	1	1	0	0	0	0	0	0	0	1	0	1	1	0	1	0	0	0	0
Bieger <i>et al.</i> (2002)	0	1	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	1	1	1	0	0	0	0	0
Ray Poot (2002)	0	1	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Dubosson <i>et al.</i> (2002)	0	1	1	1	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	1	1	0	1
Chesbrough & Rosenbloom (2002)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
Hoque (2002)	0	1	0	1	0	0	1	1	0	1	0	0	0	0	0	0	1	1	1	0	0	1	1	0	0	0	1
Magretta (2002)	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Mercer (2002)	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	1	1	0	0	0	0	1	0	0
Osterwalder and Pigneur (2002)	0	1	0	1	0	1	0	1	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0
Schogel (2002)	1	0	0	1	0	0	0	1	0	1	0	0	0	0	0	1	1	1	1	1	0	0	1	1	0	0	0
Servatius (2002)	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0
Stahler (2002)	0	1	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0
Chesbrough 2003	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	1	0
Van D <i>et al.</i> (2003)	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1	0
Scheer (2003)	1	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0
Ostoswaltes (2004)	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Osterwalder <i>et al.</i> (2005)	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1
Morris <i>et al.</i> (2005)	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	0	0	0	0
Shafer <i>et al.</i> (2005)	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0
Voelpel <i>et al.</i> (2005)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	
Bronsseau and Penord (2006)	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bonacorsi <i>et al.</i> (2006)	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Pieter Ballon (2007)	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Kagermann and Osterle (2007)	0	1	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
Seppanen <i>et al.</i> (2007)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	
Bouwman <i>et al.</i> (2008)	0	1	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0
Johnson <i>et al.</i> (2008)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0

