

## WHAT DO WE KNOW ABOUT e-BUSINESS MODELS IN PRACTICE?

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### ABSTRACT

This paper presents the findings of an investigation of the extent to which the e-business model concept has been used in empirical research studies, either to test the concept or to utilise the concept as a tool to study some other phenomenon such as profitability. Using a number of criteria, 26 empirically based, e-business model articles were drawn from thirteen years of academic literature ending December 2008.

Notwithstanding the diverse definitions and concepts of what constitutes a business model there is substantial evidence of its application by researchers and business people implying that the business model concept is worthy of continued investigation and researcher attention.

The analysis of the empirical research shows that it relates to a wide range of industries and geographic regions with a strong representation in the online news and media industries. The studies have been published in both management and information systems journals and a range of methodologies are used. This paper identifies research that ascertains business model occurrences in practice. In addition it reveals how researchers are utilizing the concept in empirical studies.

**Index Terms** — e-business model, empirical research, literature review, e-business

### 1. INTRODUCTION

A good deal has been published in relation to business models over the past decade in information management, business management and other business related journals. Although not a definitive concept that all agree on, there is substantial evidence of its utility by researchers. This paper analyses empirical studies that either utilise the business model concept in research or are aimed at gathering data about business models that are being used in practice.

Publications that include the term 'business model' or 'e-business model' in the title were identified from an investigation of academic, refereed journals for the period 1995 through to 2008, using the ProQuest online database,

An analysis of the empirical research that has been generated in a wide range of industries and geographic regions, and that apply a range of methodologies, is presented for the benefit of the business model research

community and other researchers who are looking for a tool to assist with their empirical studies.

The research method applied in this paper is explained in section 2, followed by an overview of the search results in section 3. More detailed analyses of the studies are presented in section 4 which is structured according to the six main themes found in the papers. Section 5 details the numerous opportunities for future research emerging from the empirical studies presented. Section 6 summarises the contribution that this analysis of empirical studies make to general e-business model research.

### 2 RESEARCH METHOD

This research sought to locate and analyse primary empirical research that has been conducted in relation to e-business models and published in a wide range of scholarly journals. Five criteria were used to determine the eligibility for inclusion in the study (Figure 1)

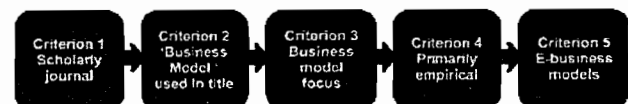


Figure 1: Criteria used to determine eligibility for inclusion

- Criterion 1: Only original studies that had undergone a review process were examined, hence commentaries, book reviews, conference papers, white papers, research reports, working papers and other similar works were excluded.
- Criterion 2: The term 'business model' is included in the title of the paper.

The ProQuest database, which is an extensive electronic resource that provides access to thousands of scholarly journals across many disciplines, was used to search for literature that met criteria 1 and 2. The initial search covered all scholarly studies published between 1995 and 2008.

This search uncovered 291 papers, the first of which was published in 1996. The numbers of scholarly papers that include 'business model' in the title increased substantially in 2000 and continue in an upward trend as shown in Figure 2.

A limitation of the sample selection is that it excluded some key business model papers because they did not use the term 'business model' in the title, e.g. Amit and Zott (2001). In the interests of establishing a clear boundary for

the study we did not include papers that failed to meet our search criteria. A noteworthy omission is Malone and Weill et al (2006) who conducted a major empirical study in relation to business models however it was not published in a refereed journal (and it did not meet criterion 5; it was not specifically in relation to e-business models).

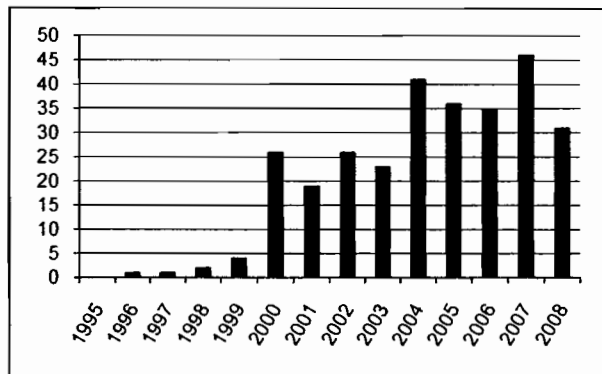


Figure 2: Frequency of scholarly publications that include 'Business Model' in the title

The sample size was reduced further by applying three additional criteria.

- Criterion 3: The business model concept is the focus of the paper. Papers that merely make incidental reference to the business model concept and focus on some other phenomena are excluded.
- Criterion 4: The nature of the research is primarily empirical. Both surveys and case studies designed to discover current practice were included. Papers that focus on developing a framework or model, and use a case study simply to validate that framework or model, are excluded from this study as they are considered to be primarily conceptual in nature rather than empirical.
- Criteria 5: The research refers specifically to e-business models as opposed to traditional business models. The e-business model studies relate to enterprises that rely, to some extent, on the Internet to conduct their business.

To determine the eligibility for inclusion the two authors reviewed the initial 291 papers separately and compared their findings. The papers were assessed according to criteria 3, 4 and 5. The authors recognised that this required considerable judgment and therefore consulted extensively with each other during this process. Any differences in assessment were re-examined jointly and discussed by the two authors to reach final agreement on inclusion or exclusion.

Following assessment according to criteria 3 and 4, 56 papers remained in the sample. Figure 3 illustrates the frequency of empirical studies from 1995 to 2008. It can be seen from Figure 3 that less than half of the empirical

business model studies relate specifically to e-business. The final sample consists of 26 papers.

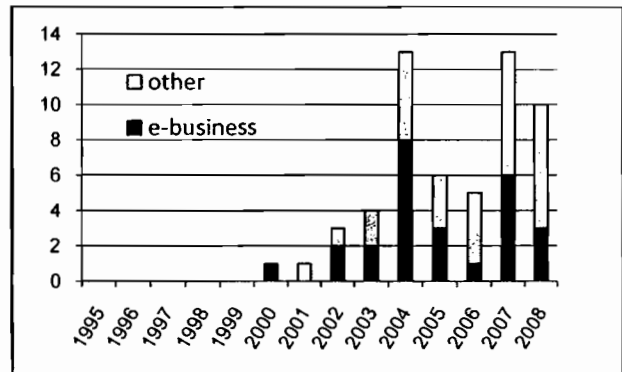


Figure 3: Frequency of empirical e-business model studies in total

The final sample of 26 papers was coded according to a wide range of variables, a subset of which is used in this study and detailed in Table 1. The variables were chosen to ascertain how the business model concept is being applied in practice.

The integrity of the coding was enhanced by having the two authors individually assess each paper and code the characteristics on pro forma sheets. The two assessments were compared and where inconsistencies existed the two authors discussed the reasons for their individual assessments, revisited the papers, and finally arrived at agreement. The results were entered into a data base by one author and to ensure validity were checked against the original pro forma sheets by the second author.

Variable name	Description
Author	Author(s) names
Title	Title of paper
Journal	Name of journal
Discipline	Journal discipline
Year	Year of publication
Region	Focus on specific region
Specific region	Country name
Industry name	ANZSIC two digit industry code name
Type of analysis	Quantitative or qualitative
Case study	Documents at least one case study
Survey	Documents a survey
Description	Description of empirical study
Classification scheme	Includes a classification scheme
How derived	Existing/Conceptual/Empirical
Number of types	No. of types used in the classification
Name of types	Name of types in the classification
Number of criteria	No of criteria used in the classification
Name of criteria	Name of criteria used in the classification
BMs as tool	Study used business model as a tool
BM as tool description	Description of how the business model was used in above study
About BMs	Study was about business models
About BM descriptions	Description of above study

Table 1: Variables used in this study

The data were analysed quantitatively and qualitatively. Initial quantitative analysis involved descriptive frequencies for certain variables while the qualitative analysis involved in depth analysis to identify recurring themes.

### 3. QUANTITATIVE ANALYSIS

The quantitative analysis identifies the distribution of studies across a number of variables.

The publications were evenly distributed between the information management and business management journals. This demonstrates that although the business model concept was spawned from the electronic commerce boom of the 1990s, information systems researchers have by no means dominated this research arena. It also suggests that the business model concept is relevant to general business research and practice as well as e-business research and practice.

Half of the total publications related to the information, media and telecommunications industry with no other industry attracting more than two studies. Not all papers state the geographic location of the subjects of the studies but of those that do, almost 50% are European with Asia and Northern America attracting a little over 20% each and the remaining 2 studies involving Australian enterprises.

Three pairs of dichotomous variables were analysed, the occurrences of which are plotted in the radar chart in Figure 4. It can be seen from Figure 4 that there are slightly more qualitative studies than quantitative studies and there is an even occurrence of surveys and case studies.

Approximately 80% of the empirical studies set out to collect data that add to the understanding of the e-business model concept. We labeled this variable 'about business models'. The remaining studies use the business model concept as a unit of analysis for collecting information about some other phenomenon. We labeled this variable 'business model as a tool'.

Two of the 'business model as a tool' studies use the business model as the unit of analysis for testing other management models. Koo, Koh et al (2004) use the business model to categorise businesses into 'online' and 'clicks and mortar' types and then test the validity of Porter's competitive strategy model against these two categories. Similarly Martin and Sellitto (2004) identify two 'atomic e-business model' types in the wine industry and tested Roger's innovation diffusion theory against each atomic e-business model type to describe the wineries that were early e-business adopters.

The remaining 'business model as a tool' studies (Palmer and Lindermann 2003; Kshetri 2007; Kuivalainen, Ellonen et al. 2007) are concerned with measuring enterprise success, change or evaluating other aspects of the enterprise. The qualitative analysis section, section 4, elaborates on these and the other studies in the sample.

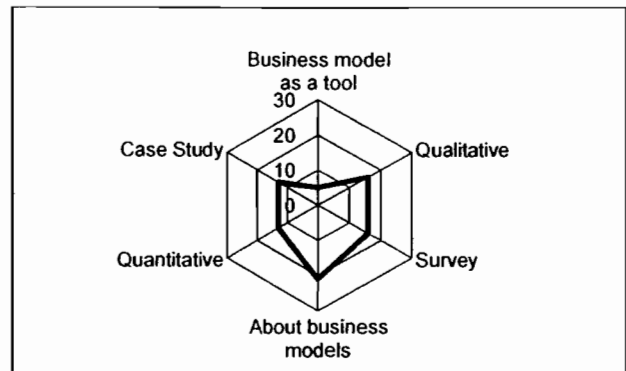


Figure 4: Overview of the type of research

### 4. QUALITATIVE ANALYSIS

In this section the purpose, content and themes of the empirical studies is critiqued. The following five themes emerge:

- e-business models that are being applied in practice;
- e-business models being used by successful enterprises;
- framework for observing or explaining e-business models;
- change to e-business models; and
- evaluation or analysis of existing e-business models.

Each of the themes is discussed in the sections that follow.

#### 4.1 e-Business Models in Use

The empirical studies demonstrate a need to understand what is happening in different industries, the e-business models that are being adopted by organisations and networks, their differentiating characteristics and their applications.

Three of the studies (Li 2002; Leem, Suh et al. 2004; Kauffman and Wang 2008) derive the classifications conceptually and then use them in surveys or case studies. The e-business model types are based on researcher knowledge and experience and then evidence is gathered through case studies or surveys to support the classification.

A further seven empirical studies (Palmer and Lindermann 2003; Ha and Ganahl 2004; Koo, Koh et al. 2004; Martin and Sellitto 2004; DeYoung 2005; Berman, Abraham et al. 2007; Janssen and Kuk 2007) utilise existing classifications for their case studies or surveys. Some of these borrowed classifications are as simple as Internet only and bricks-and-clicks.

Classifying business models assist with other research objectives. For example the validity of Porter's competitive strategy model is tested against 'online' and 'clicks and mortar' business model types (Koo, Koh et al. 2004) and Roger's innovation diffusion theory is tested against the 'direct-to-customer' and 'intermediary' atomic e-business model types (Martin and Sellitto 2004). De Young (2005)

examines the implications of scale and learning on Internet based banking business model types.

Empirically derived classifications for the Information Media and Telecommunications industry are produced by Amberg and Schroder (2007) and by Eriksson, Kalling et al (2008)

Amberg and Schroder (2007) conduct a literature review that reveal 15 e-business models relevant to the German digital audio distribution market. These e-business models are then classified according to type of compensation and dependency on supplier or its technology. The result is 4 categories of e-business models:

- Category A - pay per download and independent of supplier
- Category B - pay per download and dependent on supplier
- Category C - flat rate
- Category D - commission for reselling digital audio content

Using a previously derived typology of four e-newspaper business model types (based on degree of bundling and geographic coverage) and a customer preference survey of 3 Swedish newspapers (3,626 usable responses), Eriksson, Kalling et al (2008) derive 3 potential business model types. The three types, Ubiquitous, Local and Prestige, are based on the correlation between consumer preferences and media behaviour and preferences.

The classifications identified in the literature review are useful in understanding the current practice within an industry, however, there are problems associated with synthesising the findings due to the varying number of criteria and the number of e-business model types. The lack of uniformity also limits the utility of the classifications for other industries.

The variability of the classifications in terms of criteria used and number of types derived reveals a multitude of researcher perspectives. In order to utilise the research in diverse industries and for diverse purposes, a means of synthesising the criteria used for classifying business models is required. This is an area that has significant potential for future research and it is particularly important because of the fact that classifications are used in conjunction with other research.

#### **4.2 e-Business Models Used by Successful Enterprises**

More recent studies have focused on successful enterprises and the e-business models that they utilise. These studies have the potential to contribute to knowledge of best practice in the relevant industry.

Five of the six studies in this category come from the Information Media and Telecommunications industry (Arampatzis 2004; Kallio, Tinnilä et al. 2006; Kshetri 2007; Kuivalainen, Ellonen et al. 2007; Mensing 2007). One relates to the banking industry where De Young (DeYoung 2005) conducted a comprehensive statistical analysis of success of Internet bank startups in the US. In contrast to

the other studies in this category, Kshetri (2007) provides insight into the barriers to e-business in developing nations and gives an example of a successful e-commerce firm that operates in Nepal.

#### **4.3 Frameworks for Understanding e-Business Models**

Some of the empirical research utilises existing models and frameworks to facilitate data collection and analysis (Weill and Vitale 2002; Martin and Sellitto 2004; Kallio, Tinnilä et al. 2006; Eriksson, Kalling et al. 2008) whereas others create new frameworks to serve their purpose. Janssen et al (Janssen and Kuk 2007) produce a public sector e-business model framework that reflects the coordinated challenges of public service networks in the Netherlands.

A very different framework is proposed by Ng (2005) for assisting agribusinesses to select e-business models whilst Ha and Ganahl (2004), Chan (2003) and Currie (2004) propose frameworks in relation to the Information Media and Telecommunications industry. Although these frameworks are industry specific, their utility may extend beyond the industry for which they were designed. This point is taken up in the discussion of future research opportunities in section 5.

#### **4.4 Changes to e-Business Models**

As part of the study of successful e-business, change to internal factors; revenue model (Mensing 2007) and introduction of a website (Kuivalainen, Ellonen et al. 2007) have also been considered. Pauwels and Weiss (2008) take a more micro approach examining the relationships between e-business model components. In this study the impact of changing the revenue structure of the e-business model on the marketing aspects of the e-business model is analysed using statistical methods.

It was recognised by Pateli and Giaglis (2004) that research into change methodologies was an area requiring researcher attention. These studies make a contribution to addressing this deficiency.

#### **4.5 Evaluation/Analysis of e-Business Models**

Many of the empirical studies set about evaluating or analysing existing e-business models. The objective of the evaluation or analysis varies as do the methods used to make the evaluations and analyses.

Some studies evaluate or analyse the e-business model as a whole and others analyse attributes and relationships between attributes of the e-business model. An example of the first type of analysis is the study by Kauffman and Wang (2008) who measured the performance of Internet firms using non-parametric and semi-parametric survival analyses and concluded that 'Internet firms that served as interaction platforms for individuals and businesses, facilitated online transactions, and relied on advertising as the primary revenue source were more likely to survive'(Kauffman and Wang 2008 p. 229).

Another holistic approach is where a consumer survey of preferences and expectations was compared to existing e-business models in the German digital audio market to evaluate those e-business models (Amberg and Schröder 2007). The studies by Porra (2000), Palmer and Linderman (2003), Ordanini et al (2004) and Koo et al (2004) also represent holistic approaches.

Other studies look at the attributes of the e-business model and the impact of changes to other e-business model attributes (Pauwels and Weiss 2008), profit (Fetscherin and Knolmayer 2004), or on service networks (Maitland, Kar et al. 2005). Also, at the component level, Kallio et al (2006) identified the characteristics of successful business models and their transferability to other regions.

### 5. OPPORTUNITIES FOR FUTURE RESEARCH

Most of the studies examined in this paper are highly specific in terms of the industry to which they relate and they use selection and/or analysis criteria that are unique to the study. Potential exists to replicate the studies in other regions or industries or even at different points in time to discover changes that have taken place since the original study.

As stated in section 4.1 the variability of criteria used to classify e-business models is problematic. This is largely due to the lack of a unified e-business model concept and points to the need for a unifying mechanism that can make the existing and future research more generalisable and therefore useful for theory development. The e-business research community will benefit from a general classification scheme of e-business models that is relevant to all industries so that generalisations can be made based on the empirical evidence (Lambert 2006). This will increase the utility of industry specific empirical research.

### 6. CONCLUSION

The business model concept emerged from the Internet based commercial boom of the late twentieth century and has steadily entrenched itself into the broader business and management research agendas. At the same time the business model concept has failed to take on a universal identity, rather it is polymorphic, molding itself to fit the specific needs of researchers and practitioners with no unifying mechanism.

Although five research themes have been identified from the empirical studies, the individual studies within each theme are varied and fusion of existing research is problematic. The existence of these empirical studies provides evidence as to the usefulness of the e-business model concept for collecting, analysing and evaluating other business phenomena.

This paper has presented a comprehensive quantitative and qualitative analysis of the extant empirical literature that is intended as a source of reference for future research.

### REFERENCES

- Amberg, M. and M. Schröder (2007). "E-business models and consumer expectations for digital audio distribution." *Journal of Enterprise Information Management* 20(3): 291.
- Arampatzis, A. (2004). "Online Business Models in Greece and the United Kingdom: A Case of Specialist Versus Generic and Public Versus Privately Owned Online News Media." *The International Journal on Media Management* 6(1,2): 88.
- Berman, S. J., S. Abraham, et al. (2007). "New Business Models for the New Media World." *Strategy and Leadership* 35(4): 23-30.
- Chan-Olmsted, S. M. and L. S. Ha (2003). "Internet Business Models for Broadcasters: How Television Stations Perceive and Integrate the Internet." *Journal of Broadcasting & Electronic Media* 47(4): 597.
- Currie, W. L. (2004). "Value creation from the application service provider e-business model: the experience of four firms." *Journal of Enterprise Information Management* 17(2): 117.
- DeYoung, R. (2005). "The Performance of Internet-Based Business Models: Evidence from the Banking Industry\*." *The Journal of Business* 78(3): 893.
- Eriksson, C., T. Kalling, et al. (2008). "Business Models for M-Services: Exploring the E-Newspaper Case from a Consumer View." *Journal of Electronic Commerce in Organizations* 6(2): 29-57.
- Fetscherin, M. and G. Knolmayer (2004). "Business Models for Content Delivery: An Empirical Analysis of the Newspaper and Magazine Industry." *The International Journal on Media Management* 6(1,2): 4.
- Ha, L. and R. Ganahl (2004). "Webcasting Business Models of Clicks-and-Bricks and Pure-Play Media: A Comparative Study of Leading Webcasters in South Korea and the United States." *The International Journal on Media Management* 6(1,2): 74.
- Janssen, M. and G. Kuk (2007). "E-Government Business Models for Public Service Networks." *International Journal of Electronic Government Research* 3(3).
- Kallio, J., M. Tinnilä, et al. (2006). "An international comparison of operator-driven business models." *Business Process Management Journal* 12(2): 281-298.
- Kauffman, R. J. and B. Wang (2008). "Tuning into the digital channel: evaluating business model characteristics for Internet firm survival." *Information Technology and Management* 9(3): 215.

- Koo, C. M., C. E. Koh, et al. (2004). "An Examination of Porter's Competitive Strategies in Electronic Virtual Markets: A Comparison of Two On-line Business Models." International Journal of Electronic Commerce 9(1): 163.
- Kshetri, N. (2007). "Barriers to e-commerce and competitive business models in developing countries: A case study." Electronic Commerce Research and Applications 6(4): 443.
- Kuivalainen, O., H.-K. Ellonen, et al. (2007). "An Online Success Story: The Role of an Online Service in a Magazine Publisher's Business Model." International Journal of E-Business Research 3(3): 40.
- Lambert, S. (2006). Do We Need a General Classification Scheme of Business Models. Australasian Conference on Information Systems (ACIS). Adelaide, Australia.
- Leem, C. S., H. S. Suh, et al. (2004). "A classification of mobile business models and its applications." Industrial Management + Data Systems 104(1/2): 78.
- Li, F. (2002). "Internet banking: From new distribution channel to new business models." International Journal of Business Performance Management 4(2-4): 136.
- Maitland, C. F., E. A. M. V. D. Kar, et al. (2005). "Mobile information and entertainment services: business models and service networks." International Journal of Management & Decision Making 6(1): 47.
- Martin, B. and C. Sellitto (2004). "A knowledge dimension associated with e-business models: a study of internet adoption amongst Australian wineries." International Journal of Internet and Enterprise Management 2(4): 405.
- Mensing, D. (2007). "Online Revenue Business Model Has Changed Little Since 1996." Newspaper Research Journal 28(2): 22-37.
- Ng, E. (2005). "An empirical framework developed for selecting B2B e-business models: the case of Australian agribusiness firms." The Journal of Business & Industrial Marketing 20(4/5): 218.
- Ordanini, A., S. Micelli, et al. (2004). "Failure and Success of B-to-B Exchange Business Models: A Contingent Analysis of Their Performance." European Management Journal 22(3): 281.
- Palmer, J. and M. Lindermann (2003). "Business Models and Market Mechanisms: Evaluating Efficiencies in Consumer Electronic Markets." The DATA BASE for Advances in Information Systems 34(2): 23-38.
- Pateli, A. and G. Giaglis (2004). "A Research Framework for Analysing eBusiness Models." European Journal of Information Systems 13: 302-314.
- Pauwels, K. and A. Weiss (2008). "Moving from free to Fee: How Online Firms Market to Change Their Business Model Successfully." Journal of Marketing 72: 14-31.
- Porra, J. (2000). "Electronic Commerce Internet Strategies and Business Models-A Survey." Information Systems Frontiers 1(4): 389.
- Weill, P. and M. Vitale (2002). "What IT Infrastructure Capabilities are needed to Implement E-Business Models?" MIS Quarterly Executive 1(1): 17-34.