CLARIFYING BUSINESS MODELS: ORIGINS, PRESENT, AND FUTURE OF THE CONCEPT

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ABSTRACT

This paper aims to clarify the concept of business models, its usages, and its roles in the Information Systems domain. A review of the literature shows a broad diversity of understandings, usages, and places in the firm. The paper identifies the terminology or ontology used to describe a business model, and compares this terminology with previous work. Then the general usages, roles and potential of the concept are outlined. Finally, the connection between the business model concept and Information Systems is described in the form of eight propositions to be analyzed in future work.

Keywords: business models, business model concept

I. INTRODUCTION

Following an article in CAIS discussing the relationship between strategy and business models [Seddon, Lewis et al. 2004] we believe that some clarifications need to be discussed in the domain of business models. Admittedly, the topic of business models led to a lot of publications by journalists, business people, consultants and academics. It is discussed in various different domains, such as e-business, information systems, strategy, and management [Pateli and Giaglis 2003]. Yet, despite all the ink spilt and words spoken, business models are still relatively poorly understood [Linder and Cantrell 2000], particularly as a research area. For example, a survey we conducted with members of the IS community on the ISWORLD mailing list shows that there is a divergence of understanding among people and particularly between business-oriented and technology oriented ones. We asked the participants for their definitions of what they understand to be a business model (Table 1). From 62 respondents we received 54 definitions. For 44

definitions we could distinguish between a more value/customer-oriented approach (55%), similar to the understanding of a business model outlined in this paper and a more activity/role-related approach, which we understand as the more established field of enterprise models (45%). From a company perspective, the former approach is more outward looking, while the latter is more inward looking.

These results show that a discussion of the meaning, but also usage of the business model concept, particularly among and between the business and IS domain is timely.

Table 1. Business Model Survey

	Number of business-oriented respondents	Number of technology-oriented respondents	Total respondents
Value/customer-oriented business model definition	17	7	24
Activity/role-oriented business model definition (EM)	8	12	20
Number of respondents	25	19	44

The literature shows that the topic of business models is often discussed superficially and frequently without any understanding of its roots, its role, and its potential. Thus, this paper aims to shed some light on the origins, the present, and the future of the business model concept, particularly in the Information Systems domain. To do so, we first discuss the concept by itself and then trace the possible areas of contribution, notably in IS, of this relatively young research topic.

In this paper we describe the business model's place in the firm as the blueprint of how a company does business. It is the translation of strategic issues, such as strategic positioning and strategic goals into a conceptual model that explicitly states how the business functions. The business model serves as a building plan that allows designing and realizing the business structure and systems that constitute the company's operational and physical form.

The paper is structured as follows. In Section II we discuss when, how, and why the term "business model" became prominent. We describe its origins, its different understandings, its evolution and its place in the firm. In Section III we show which domains and concepts are addressed in the business model concept. We discuss the use of the business model concept and portray different potential application areas in Section IV. In Section V, we argue that the concept can contribute particularly to the IS domain and we draw a number of propositions for further research. Finally, in Section VI, we conclude and sketch out the different trajectories of business model research in the IS domain.

II. BUSINESS MODELS AS CONCEPT

Before digging into the definitions, origins, and usages of the expression business model we reflect on its semantics. Both business and model, by themselves have a specific meaning. In combination that meaning mirrors many of the possible applications of the business model concept described later in this paper. Based on WordNet 2.0, we interpret the world model as

> "*a simplified description and representation of a complex entity or process*".

Representation implies conceptualization, which can be described as "the objects, concepts and other entities that are assumed to exist in some area of interest and their inter-relationship [Genesereth and Nilsson 1987]. Also based on WordNet 2.0, we interpret the word business as

> "*the activity of providing goods and services involving financial, commercial and industrial aspects*".

Putting these elements together we propose that the reflection on the business model concept must go in the following direction:

> *A business model is a conceptual tool containing a set of objects, concepts and their relationships with the objective to express the business logic of a specific firm. Therefore we must consider which concepts and relationships allow a simplified description and representation of what value is provided to customers, how this is done and with which financial consequences.*

This definition is sufficiently broad to embrace the different reflections on business models that sprung up in different fields such as e-business, IS, computer science, strategy, or management [Pateli and Giaglis 2003].

A review of the literature using the term business model shows that a continuum between authors using the term to simply refer to the way a company does business [e.g. Galper 2001; Gebauer and Ginsburg 2003] and authors that emphasize the model aspect [e.g. Gordijn 2002; Osterwalder 2004]. These two viewpoints differ because the former generically refers to the way a company does business, whereas the latter refers to a conceptualization of the way a company does business in order to reduce complexity to an understandable level. Proponents of the latter viewpoint propose meta-models that consist of elements and relationships that reflect the complex entities that they aim to describe. In other words, for business models, the quest is to identify the elements and relationships that describe the business a company does. Thus, the business model concept can best be understood as a conceptual view of a particular aspect of a specific company. The meta-model then defines the words and sentences that we use to describe this view.

ORIGINS

To detect the origins and particularly the surge of the business model discussion we applied a method successfully used by Abrahamson [Abrahamson and Fairchild 1999] to study management discourse. It consists of tracing the appearance of a specific management term in a large number of journals to study its evolution. We electronically searched the titles, abstracts, keywords, and full texts of all articles in the Business Source Premier database of scholarly business journals for the word string "business model" [cf. Stähler 2001]. The search included several variations of the original term like "e-business model", "new business model" or "Internet business model". The results are shown in Table 2.

Table 2. Occurrences of the Term "Business Model" in Scholarly Reviewed Journals

Year	In Title	In Abstract	In Keywords	in Full Text
2003	30	159	10	667
2002	22	109	2	617
2001	11	100	7	609
2000	16	67	1	491
1999	3	42	1	262
1998	1	19	0	128
1997	1	14	0	66
1996	0	14	0	57
1995	0	4	0	36
1994	0	2	0	18
1993	0	5	0	18
1992	0	2	0	15
1991	0	1	0	10
1990	0	4	0	7

Surprisingly, the query shows that the popularity of the term "business model" is a relatively young phenomenon. Though it appeared for the first time in an academic article in 1957 [Bellman, Clark, et al. 1957] and in the title and abstract of a paper in 1960 [Jones 1960] it rose to prominence only towards the end of the 1990s. This surge coincidences with the advent of the Internet in the business world and the steep rise of the NASDAQ stock market index for technology-heavy companies(Figure 1). The term was most frequently but not only used in relationship with the Internet from the 1990s onwards. Oddly, the number of times the term "business model" appeared in a business journal (peer-reviewed and non-peer reviewed) follows a pattern that resembles the shape of the NASDAQ market index. It is not quite clear what to conclude from this observation besides the fact that the topic of business models probably has a relationship with technology.
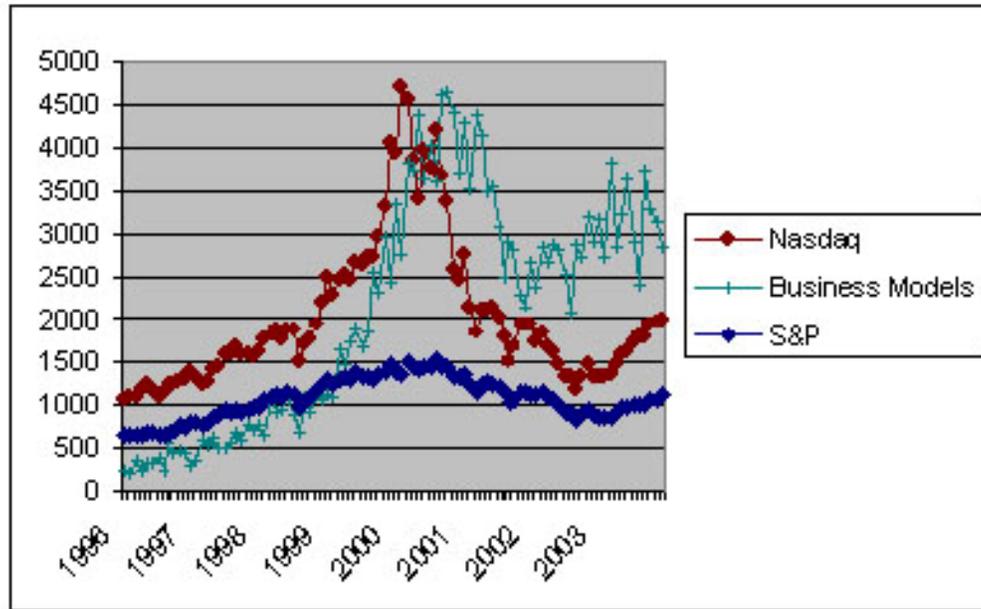

Figure 1. Occurrences of the Term "Business Model" Compared to NASDAQ Fluctuations

Part of the relationship between technology and business models stems from the business model concept's roots in transaction cost economics (TCE). The sharp rise in cheap information technology, bandwidth, and communication possibilities made it much easier for companies to work in so-called value webs because coordination and transaction costs fell substantially [Tapscott, Ticoll et al. 2000; Amit and Zott 2001]. Companies, in some cases even competitors, jointly offer and commercialize value to their customers. That is, the business design choices for managers increased substantially based on cheap and available information technology. This cost decrese led to industry boundaries becoming increasingly blurred. The business model concept is a candidate to replace the industry as a unit of analysis.

Consider iTunes Software/Website of Apple Computer a successful music downloading service. The main role of this service is not only to sell music, but to enhance the company's sales of iPods, a portable digital music player. Thus, in terms of industry sectors, this website includes the software, online, hardware, and music industries. In terms of business models this website forms a whole set of business design choices that reinforce one another.

DEFINITIONS, META-MODELS, TAXONOMIES OF TYPES AND INSTANCES

A lot of the fuzziness and confusion about business models stems from different authors writing about business models when they do not necessarily mean the same thing [Linder and Cantrell 2000]. In the literature, the expression stands for various things, such as parts of a business model (e.g. auction model), types of business models (e.g. direct-to-customer model), concrete real world instances of business models (e.g. the Dell model) or concepts (elements and relationships of a model). In this section we try to bring some clarity to the business model domain by showing what the different authors address when they talk about business models.

We believe that the authors writing about business models can be classified in three different categories that can (but do not necessarily have to be) hierarchically linked to one another.

1. Authors that describe the business model concept as an abstract overarching concept that can describe all real world businesses.

2. Authors that describe a number of different abstract types of business models (i.e. a classification scheme), each one describing a set of businesses with common characteristics.

3. Authors presenting aspects of or a conceptualization of a particular real world business model.

All three categories can vary in their modelling rigour, ranging from simple definitions, over the listing of elements to a set of related, defined and conceptualized elements.

We do not advocate any one of these three categories because they are not mutually exclusive and they all make sense. However, we strongly believe that they must be distinguished conceptually in order to achieve a common understanding of business models. Furthermore, we think that the three levels make the most sense when they are hierarchically linked to each other through a comprehensive approach (Figure 2).
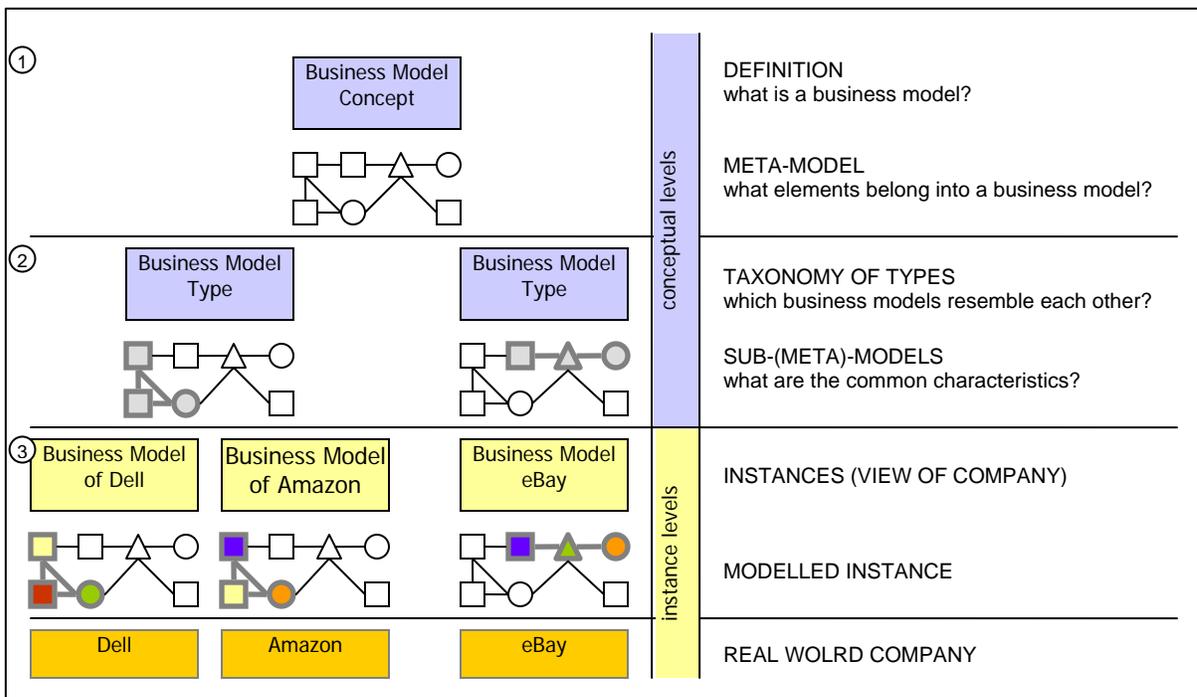

Figure 2. Business Model Concept Hierarchy

Level 1: Overarching Business Model Concept

This first level consists of definitions of what a business model is and what belongs in them and meta-models that conceptualize them. On this level the business model is seen as an abstract concept that allows describing what a business does for a living. The definitions [Timmers 1998; Magretta 2002] simply give an idea of what a business model is whereas the meta-models [Chesbrough and Rosenbloom 2000; Hamel 2000; Linder and Cantrell 2000; Mahadevan 2000; Amit and Zott 2001; Applegate 2001; Petrovic, Kittl et al. 2001; Weill and Vitale 2001; Gordijn 2002; Stähler 2002; Afuah and Tucci 2003; Osterwalder 2004] in addition define what elements are to be found in a business model. Some authors such as Hamel [2000] substantiate the conceptual aspect, while others adopt a rigorous modelling approach (Gordijn, [2002] and Osterwalder [2004]).

Level 2: Taxonomies

This level consists of several types or meta-model types of business models that are generic but contain common characteristics [Bambury 1998; Timmers 1998; Rappa 2001; Weill and Vitale 2001]. Types refer to a simple categorization, while meta-model types refer to different models. As explained above this distinction reflects different degrees of conceptualization. Furthermore, the types and models can, but are not necessarily a sub-class of an overarching business model concept [Weill and Vitale 2001]. Also, the business model taxonomies do not necessarily apply to businesses in general but to specific industries, such as to WLAN [Shubar and Lechner 2004], computing [Rappa 2004], Mobile-Games [MacInnes, Moneta et al. 2002] or even trafficking in women [Shelley 2003].

Level 3: Instance Level

This level consist of either concrete real world business models or of conceptualization, representations, and descriptions of real world business models. Several authors used the business model perspective to analyze companies, such as Xerox [Chesbrough and Rosenbloom 2002], Dell [Kraemer, Dedrick et al. 2000] General Motors' OnStar project [Barabba, Huber et al. 2002], specific online supermarkets [Yousept and Li 2004]   and online media companies [Krueger, van der Beek et al. 2004]. Yet, these authors vary greatly in terms of conceptualization in how they represent these real world business models.

EVOLUTION OF THE BUSINESS MODEL CONCEPT

Over the years, research in business models matured. Although researchers do not yet rely on each others work and findings extensively, a certain progression can be observed. Based on an extensive literature review we propose five phases in the evolution of business model literature. These phases are shown in Figure 3. We account only for literature that focuses on the business model concept and not on literature merely mentioning business models.

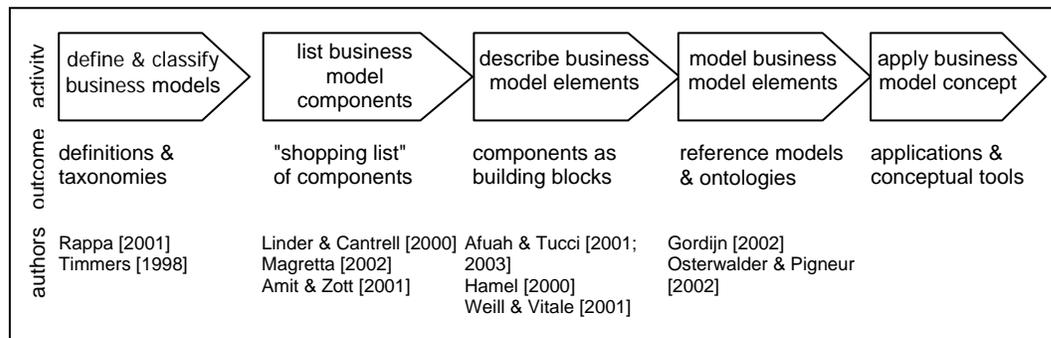| activity	define & classify business models	list business model components	describe business model elements	model business model elements	apply business model concept
outcome	definitions & taxonomies	"shopping list" of components	components as building blocks	reference models & ontologies	applications & conceptual tools
authors	Rappa [2001] Timmers [1998]	Linder & Cantrell [2000] Magretta [2002] Amit & Zott [2001]	Afuah & Tucci [2001; 2003] Hamel [2000] Weill & Vitale [2001]	Gordijn [2002] Osterwalder & Pigneur [2002]	

Figure 3. Evolution of the Business Model Concept

During the first phase, when the term business model started to become prominent, a number of authors suggested business model definitions and classifications [Timmers 1998; Rappa 2001].

In the second phase, authors started to complete the definitions by proposing what elements belong into a business models. At first, these propositions were simple "shopping lists", just mentioning the components of a business model [Chesbrough and Rosenbloom 2000; Linder and Cantrell 2000; Petrovic, Kittl et al. 2001; Magretta 2002].

Only in the third phase did detailed descriptions of these components become available [Hamel 2000; Weill and Vitale 2001; Afuah and Tucci 2003].

In a fourth phase researchers started to model the components conceptually. This work led to the proposition of business model meta-models in the form of reference models and ontologies [Gordijn 2002; Osterwalder 2004]. In this phase models also started to be evaluated or tested more rigorously.

Finally, in the ongoing fifth phase, the reference models are being applied in management and in IS applications.

THE PLACE OF THE BUSINESS MODEL CONCEPT IN THE FIRM

Because the business model concept is relatively young, its place and role in the firm is still subject to debate. Some of the issues discussed are the distinction between business model and business process model [Gordijn, Akkermans et al. 2000], the difference between strategy and business models [Linder and Cantrell 2000; Porter 2001; Stähler 2002; Seddon, Lewis et al. 2004] or the distinction between enterprise models and business models.

The Distinction Between Business Models and Business Process Models

Business models and business process models should clearly be distinguished [Gordijn, Akkermans et al. 2000]. A review of the business model literature shows that the business model concept is generally understood as a view of the firm's logic for creating and commercializing value, while the business process model is more about how a business case is implemented in processes. Part of the confusion comes from the expression "business modeling" being used mainly for the activity of business process modeling, which is the activity of modeling processes [Aguilar-Savén 2004] and not business models. Furthermore, in the domain of business process models, a multitude of tools and concepts already exist, such as UML activity diagrams or Petri nets. In contrast, the concepts and tools that help companies and their managers specify their more conceptual business model are less developed.

Strategy and Business Models

As to the debate about the difference between strategy and business models the picture is much less clear and the authors debating the subject differ widely in their opinion. Some people use the terms "strategy" and "business model" interchangeably [Magretta 2002]. Often they use it to refer to everything they believe gives them a competitive advantage [Stähler 2002]. Yet, a review of the literature shows that the view that business models and strategy are linked but distinct is more common [Magretta 2002; Mansfield and Fourie 2004]. A practical distinction describes business models as a system that shows how the pieces of a business fit together, while strategy also includes competition [Magretta 2002]. In contrast, others understand the business model as an abstraction of a firm's strategy that may potentially apply to many firms [Seddon, Lewis et al. 2004]. In general however, business model literature seems to fit the former definition better, because most of it focuses on describing the elements and relationships that outline how a company creates and markets value.

Business Model Execution and Implementation

Another difference between strategy and business models that has been less discussed to date is that strategy includes execution and implementation, while the business model is more about how a business works as a system. Business model implementation or execution is a widely neglected issue. Wrongly, in our opinion, because it is important conceptually to distinguish model (i.e. the business concept) and implementation (i.e. the form it takes in reality). Many authors write about successful business models. But a business model cannot be successful per se. We believe that a business model can be more or less sound and coherent but then it still must be implemented. A "strong" business model can be managed badly and fail, just as much as a "weak" business model may succeed because of strong management and implementation skills. However, research on what exactly is a "good" or "weak" business model is still in its infancy.

Business model implementation and management include the "translation" of the business model as a plan into more concrete elements, such as a business structure (e.g. departments, units, human resources), business processes (e.g. workflows (responsibilities) and infrastructure and systems (e.g. buildings, ICT) [Brews and Tucci 2003]. Furthermore, the implementation of the business model must be financed through internal or external funding, (e.g. venture capital, cash flow) as illustrated in Figure 4.
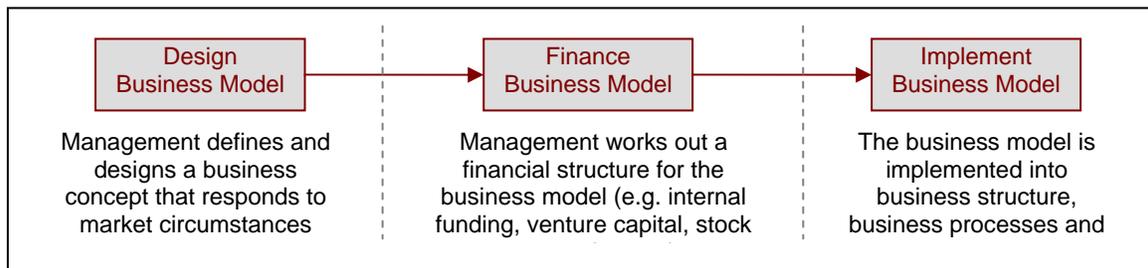

Design Business Model	Finance Business Model	Implement Business Model
Management defines and designs a business concept that responds to market circumstances	Management works out a financial structure for the business model (e.g. internal funding, venture capital, stock	The business model is implemented into business structure, business processes and

Figure 4. Implementing Business Models

The Business Triangle

As explained in the Introduction (Section I) we understand the business model as a building plan that allows designing and realizing the business structure and systems that constitute the operational and physical form the company will take. We call this relation between strategy, organization, and systems the business triangle that is constantly subject to external pressures, like competitive forces, social change, technological change, customer opinion and legal environment (Figure 5).

Enterprise Models and Business Models

Enterprise models and business models differ even though they are conceptually relatively close. The term enterprise modelling is a collective name for the use of models in enterprise engineering and enterprise operation [Bernus 2001]. Thus, enterprise models are mainly concerned with processes and activities [Wortmann, Hegge et al. 2001], while business models essentially focus on value creation and customers. In Figure 5 enterprise models would be found in the business organization box together with similar modelling activities, such as business process modelling. Its main role inside a firm is to improve efficiency [Doumeingts and Ducq 2001]. In contrast, the main role of the business model is to find and design a promising business concept.

Effect of Time

The relationship between business models and time is little discussed. The expression "a company's business model" refers to the way a firm does business. As such, it is a snapshot and description at a specific moment in time. But business models change rapidly [Hamel 2000; Linder and Cantrell 2000], which creates the need to find a more conceptual and shared way of describing them. Also, some companies use business models as a concept to evolve from a
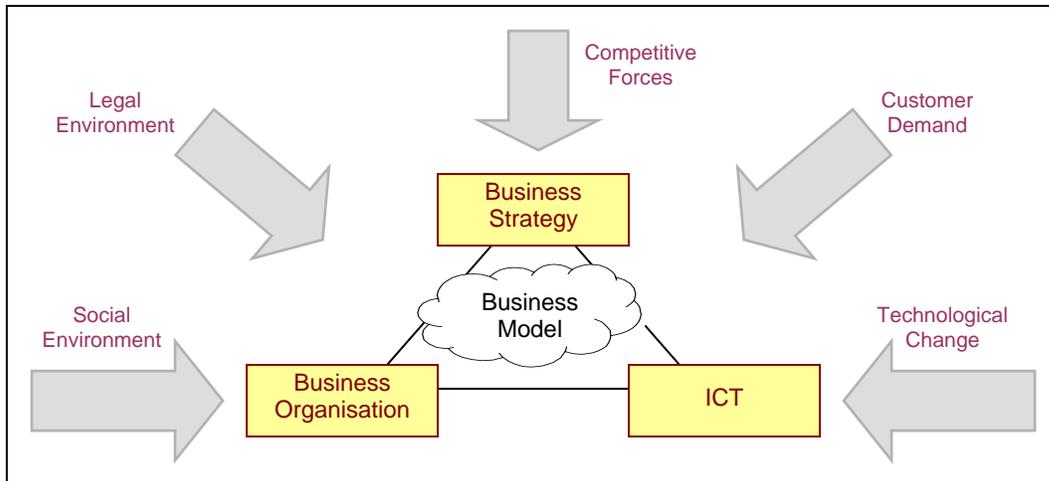
Figure 5. The Business Model's Place in the Firm

specific state of their business model to a designed and desired new business model. Linder and Cantrell [2000] call these models 'change models', which they classify into four basic types: realization models, renewal models, extension models, and journey models (Figure 6).
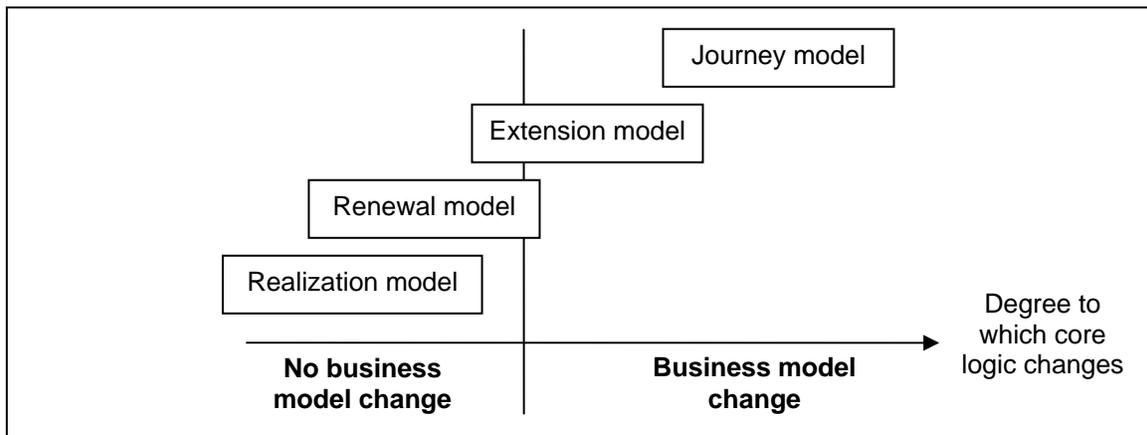

Figure 6. Change Models [Linder and Cantrell 2000]

The Parts are not the Whole

A last common, but important, confusion related to the business model concept is that many people speak about business models when they really only mean parts of a business model [Linder and Cantrell 2000]. An online auction, for example, is not a business model, but a pricing mechanism and, as such, part of a business model (admittedly sometimes a dominant part of the business model). Similarly, an online community is not a business model in itself, but potentially part of the customer relationship. Finally consider revenue sharing. It is not a business model in itself either, but a way of exploiting partnerships to address the customer and distribute the resulting revenues. In our opinion, a business model needs to be understood as a much more

holistic concept that embraces all such elements as pricing mechanisms, customer relationships, partnering, and revenue sharing [Afuah and Tucci 2003; Osterwalder and Pigneur 2004].

Recapitulation

Recapitulating, we propose the following understandings about the business model concept's place in the firm. First, the business model can be seen as the conceptual link between strategy, business organization, and systems. The business model as a system shows how the pieces of a business concept fit together, while strategy also includes competition and implementation.

Second, business model implementation contains its translation into concrete things, such as a business structure (e.g. departments, units, human resources), business processes (e.g. workflows, responsibilities) and infrastructure and systems (e.g. buildings, ICT). Business models are subject to external pressure and thus constantly subject to change.

III. DOMAINS ADDRESSED IN A BUSINESS MODEL

To identify the most common building blocks among business models in the literature, we compared the models mentioned most often and studied their components. From this synthesis, nine building blocks emerge that cover all the business model components mentioned by at least two authors. We excluded all elements related to competition and to business model implementation, which we understand as related to the business model but not an internal part of it. The nine blocks are outlined in Table 3 and are discussed in more depth in Osterwalder and Pigneur [2004].

Based on the literature synthesis leading to the nine building blocks we propose the following definition for business models:

> *A business model is a conceptual tool that contains a set of elements and their relationships and allows expressing the business logic of a specific firm. It is a description of the value a company offers to one or several segments of customers and of the architecture of the firm and its network of partners for creating, marketing, and delivering this value and relationship capital, to generate profitable and sustainable revenue streams.*

Table 3. Nine Business Model Building Blocks

Pillar	Business Model Building Block	Description
Product	Value Proposition	Gives an overall view of a company's bundle of products and services.
Customer Interface	Target Customer	Describes the segments of customers a company wants to offer value to.
	Distribution Channel	Describes the various means of the company to get in touch with its customers.
	Relationship	Explains the kind of links a company establishes between itself and its different customer segments.
Infrastructure Management	Value Configuration	Describes the arrangement of activities and resources.
	Core Competency	Outlines the competencies necessary to execute the company's business model.
	Partner Network	Portrays the network of cooperative agreements with other companies necessary to efficiently offer and commercialize value.
Financial Aspects	Cost Structure	Sums up the monetary consequences of the means employed in the business model.
	Revenue Model	Describes the way a company makes money through a variety of revenue flows.

Table 4 names the components proposed by the different authors and show how they relate to the nine building blocks. Elements mentioned by only one author and not covered by the nine building blocks are, for example the capital model and the market model [Petrovic, Kittl et al. 2001]. Though the capital is important to realize and implement in a business model, it is not part of it [Chesbrough and Rosenbloom 2002]. Similarly, we believe that the the market model is important to situate a business model in the competitive landscape but is not part of it. Some authors mention elements related to business model implementation in their approach [Linder and Cantrell 2000; Afuah and Tucci 2003] that we do not conceive as internal to the business model but related to its execution.

The main idea of identifying the domains, concepts and relationships addressed in the business model field is to create a common language. That is, creating a reference model shared among a specific community of practice or creating a more formal ontology of the business model domain. In this context an ontology can be understood as an explicit specification of a conceptualization [Gruber 1993] and would define the terms, concepts, and relationships of business models.

IV. USE AND POTENTIAL OF THE BUSINESS MODEL CONCEPT

Because business model research is a rather young research domain it must still prove its relevance. Its main area of contribution could be in the creation of concepts and tools that help manager to capture, understand, communicate, design, analyze, and change the business logic of their firm.

In the following subsections we outline some of the general roles that the literature proposes for the business model concept (i.e. for the use of formally described business models). We identified five categories of functions, which are:

- understanding and sharing,
- analyzing,
- managing,
- prospects and
- patenting of business models.

In section V we will describe the business model concept's role in IS.

UNDERSTAND AND SHARE

Business models help to capture, visualize, understand, communicate and share the business logic.

Capture.

Although a company's business model is a simplified representation of its business concept. it is rarely described explicitly in a conceptual way. Experience shows that in many cases people are not always capable of communicating their business model in a clear way [Linder and Cantrell 2000]. Furthermore, because people use different mental models, they do not automatically understand the business model in the same way. Thus, a generic and shared concept for describing business models becomes necessary. Such a framework can be understood as a common language between stakeholders to formulate business models in a way that everybody understands.

Table 4. Domains Addressed in Business Models

Business model ontology	Stähler 2001	Weill and Vitale 2001	Petrovic, Kittl et al.	Gordijn 2002	Afuah and Tucci 2003	Tapscott, Ticoll et al. 2000	Linder and Cantrell 2000
Value Proposition	value proposition	Value Proposition, strategic objective	Value Model	Value offering	Customer Value		value proposition
Target Customer		Customer Segments		Market Segment	Scope		
Distribution Channel		Channels	Customer relations model				channel model
Customer Relationship			Customer relations model				commerce relationship
Value Configuration	Architecture		Production Mode	e3-value configuration	connected activities, value configuration	b-webs	commerce process model
Capability		Core competencies, CSF	Resource Model		capabilities		
Partnership	Architecture	e-business schematics		Actors	sustainability (team-up strategy)	b-webs	
Cost Structure				Value exchange	cost structure		
Revenue Model	Revenue Model	Source of revenue	Revenue Model	value exchange	pricing, revenue source		pricing model, revenue model

Note: Table 4 is continued on the next page.

Clarifying Business Models: Origins, Present, and Future of the Concept by A. Ostenwalder, Y. Pigneur, and C.L. Tucci

Table 4. Domains Addressed in Business Models (continued)

Business model ontology	Hamel 2000	Mahadevan 2000	Chesbrough and Rosenbloom 2000	Magretta 2002	Amit and Zott 2001	Applegate and Collura 2001	Maitland and Van de Kar 2002
Value Proposition	Product/market scope	Value stream	Value proposition	What does the customer value?	Transaction component	Product and Services offered	Value proposition, assumed value
Target Customer	Market scope		Market segment	Who is the customer?		Market opportunity	Market segment
Distribution Channel	Fulfillment & support, info & insight			How can we deliver value at an appropriate cost?		Marketing/sales model	
Customer Relationship	Relationship dynamics					Brand and reputation	
Value Configuration	Core processes	Logistical stream	Structure of the value chain		Architectural configuration	Operating model	
Capability	core competencies, strategic assets					Organization and culture, management model)	
Partnership	suppliers, partners, coalitions		Position in the value chain		Transaction component	Partners	Companies involved in creating value
Cost Structure			Cost structure	What is the underlying economic vale?			
Revenue Model	pricing structure	Revenue stream		How do we make money in this business		Benefits to firm and stakeholders	Revenue Model

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Visualize

Humans are quite limited in their ability to process complex information. As can be shown theoretically and empirically, processing information through the visual system can substantially increases the degree to which complexity can be handled successfully [Rode 2000]. Using a conceptualization to capture business models, means that with little additional effort they can be presented graphically [Gordijn and Akkermans 2003].

Understand

Modern business models are increasingly complex, particularly those with strong ICT and e-business components. The relationship between the different elements of a business model and the decisive success factors are not always immediately observable. Therefore the process of modelling social systems and, in this case, business models help identify and understand the relevant elements in a specific domain and the relationships among them [Morecroft 1994; Ushold and King 1995]. In addition, the visual representation of a business model usually enhances understanding.

Communicate and Share

We already made the point that the business model concept helps in capturing, understanding, and visualizing the business logic of company. Being able to communicate and share this understanding with other stakeholders is simply a logical consequence of the foregoing. Formalizing business models and expressing them in a more tangible way clearly help managers to communicate and share their understanding of a business among other stakeholders [Fensel 2001]. This capability is particularly important for the dialogue among people with different backgrounds, such as managers and systems architects and engineers.

ANALYZE

The business model concept can contribute in analyzing the business logic of a company. The business model becomes a new unit of analysis [Stähler 2002]. Business models can improve measuring, observing, and comparing the business logic of a company.

Measure

Having captured the business model, it may become easier to identify the relevant measures to follow to improve management. This ability would facilitate the choice of the indicators of an executive information system for monitoring strategy implementation [Camponovo and Pigneur 2004], using for example a balanced scorecard approach with its financial, customer, internal business, and innovation perspectives [Kaplan and Norton 1992]. The scorecard is all the more relevant since in e-business the indicators to follow are still an issue of debate.

Track and Observe.

The business logic of a company constantly changes because of inside and outside pressures, as shown in Section III. Therefore a structured approach to business models is important to understand which particular issues changed over time.

Compare

Similar to observing a company's business model over time, a structured approach allows companies to compare their business model to those of their competitors. This argument is based on the reasoning that things are only comparable if they are understood in the same way. Furthermore, comparing one's business model to one of a company in a completely different industry may provide new insights and foster business model innovation. Related to e-business and to dynamic industries comparisons can help incumbents understand how aggressive new competitors and start-ups work.

MANAGE

Business models improve the management of the business logic of the firm. The business model concept helps ameliorate the design, planning, changing and implementation of business models. In addition, with a business model approach companies can react faster to changes in the business environment. Finally, the business model concept improves the alignment of strategy, business organization and technology.

Design

Designing a coherent business model where all the elements are mutually reinforcing or at least optimized individually is not an easy task. Because business models are quite complex, their success is often based on the interaction of a number of apparently minor elements. Furthermore, technology increases the range of imaginable business models [Lechner and Hummel 2002]. Having a business model conceptualization at hand that describes the essential building blocks and their relationships makes it easier for managers to design a sustainable business model.

Plan, Change and Implement

When a company decides to adopt a new business model or to change an existing one, capturing and visualizing this model will improve planning, change and implementation (Figure 7). It is much easier to go from one point to another when one can exactly understand, say, and show what elements will change. In this regard, Linder and Cantrell [2000] speak of so-called change models that are the core logic for how a firm will change over time to remain profitable in a dynamic environment.
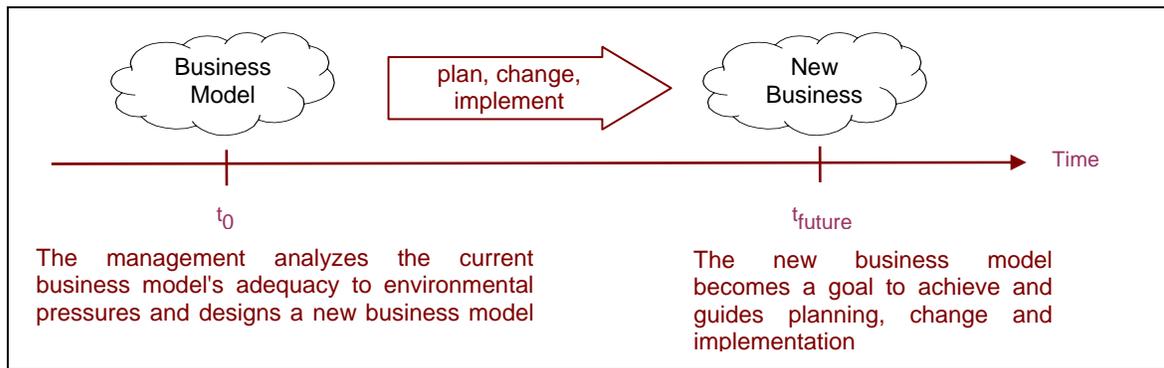
Figure 7: Planning, Changing and Implementing Business Models

React.

Capturing, mapping and understanding create the foundation for improving speed and appropriateness of reaction to external pressures. A conceptualized business model helps business model designers to modify certain elements of an existing business model [Petrovic, Kittl et al. 2001]. Modification is, without doubt, essential in an uncertain and rapidly changing competitive landscape.

Align

In Section 3 we argued that the business model concept can serve as a federator among the triangle of business strategy, business organization, and technology. In other words, the business model forms a sort of conceptual bridge that makes it easier to align these three. Chesbrough and Rosenbloom [2000], for example, see business models as a mediating construct between technology and economic value. The business model concept could become an important tool to

develop and improve existing methods of business and IS alignment further [Osterwalder and Pigneur 2003].

Improve Decision Making.

Having claimed that the business model concept enhances understanding and communicating the business logic of the firm we deduce that decision makers create more informed, and hence better, decisions business models and decisions.[Hayes and Finnegan 2005]. Business models are a new unit of analysis [Stähler 2002] that can be observed and compared, help defining measures and should therefore also improve decisions.

PROSPECT

Business models describe possible futures for a company. We believe that the business model concept can help foster innovation and increase readiness for the future through business model portfolios and simulation.

Innovate

Similar to the argument about improving change and increasing reaction capacities in the firm, we believe that a formal and modular business model approach can foster innovation. Specifying a set of business model elements and building blocks, as well as their relationships to one another, is like giving a business model designer a box of Lego blocks [Burgi, Victor, et al. 2004]. He or she can experiment with these blocks and create completely new business models, limited only by imagination and the pieces supplied. Amit and Zott [2001] explicitly perceive the business model as a locus of innovation. Mitchell and Coles [2003] even see business model innovation as a source of competitive advantage.

Business Model Portfolio.

Based on Allen's law of excess of diversity in evolutionary theory [Allen 2001] one may argue that a company should maintain a portfolio of business models in order to be ready for the future. The idea behind Allen's law is that a sustainable and successful evolutionary strategy requires an amount of internal diversity superior to that of the environment. Allen suggests that agents need to have a stock of potential strategies to be set off in the face of unpredictability in environmental change [Andriani 2001]. In the case of a company, a stock of business models would allow it to cope with change.

Simulate and Test

Simulating and testing business models is a manager's dream. Though simulation will never be able to predict the future, it is a way of doing low-risk experiments, without endangering an organization [Sterman 2000]. By simulating and testing possible business models, managers will be better prepared for the future. Similarly, in the domain of e-business, Richards and Morrison [2001] compare business model simulation to a sort of flight simulator that allows building better e-business strategies.

PATENTING

Increasingly entrepreneurs and companies in e-business can patent e-business processes and even entire aspects of their business model [Beresford 2001]. Therefore business modelling may potentially play an important role in this legal domain. For example, Priceline based much of its business strategy on a patent whose technology matches bids from buyers with interested sellers on the Net [Angwin 2000]. Consequently, patenting of e-business methods created a number of legal battles. A famous one is the case between the online retailer Amazon.com and the online arm of the bookseller Barnes & Noble (B&N). Amazon.com, who received a patent for its "one-click" ordering system, attacked B&N for patent infringement, supposedly caused by the "express

lane" checkout system on the B&N website [Lesavich 2001]. It remains to be seen in what direction patenting business models and business processes moves.

V. WHY DISCUSS BUSINESS MODELS IN INFORMATION SYSTEMS?

In this section we outline why it is important to discuss and understand the business model concept in the IS domain. Our discussion proceeds as follows:

- We present an argument that a conceptual approach is indispensable to designing new computer-based business model tools fulfilling the roles discussed in Section IV.
- We show how the business model concept can contribute to requirements engineering.
- We describe the connection between business models and Information Systems in following company indicators (e.g. a balanced scorecard].
- We claim that capturing, mapping and following the business model of a firm is a form of knowledge management.
- Finally, we reason about the business model's role in defining goals, workflows, and processes.

SOFTWARE-BASED BUSINESS MODEL TOOLS

A fundamental contribution of conceptual business models is in building the foundation for a set of new computer-assisted management tools. The management literature is famous for producing concepts and models and for producing a body of literature on business models. Yet, few of these concepts are translated into software-based tools, although, in our opinion such tools could provide enormous value to business and IS management. For example, some business model functions principally make sense if digitized. Visualizing, designing, and comparing business models can be done quickly when software-based tools are available, but are a cumbersome task when executed on paper. More complex methods, such as simulation, are simply impossible without the help of computers. In software engineering we are already used to a variety of computer-aided software engineering (CASE) tools. Similarly we have a variety of tools for business process modeling and workflow modeling at our disposal. On the contrary, in the more value/customer oriented field we have practically no tools. Yet, we believe that computer-aided business engineering (CABE) and business design (CABD) are promising areas.

However, to use computer assistance, a more rigorous conceptualization of the business model domain is required [Gordijn 2002; Osterwalder 2004]. Once the objects, elements, and relationships of the business model concept are defined, a set of software-based tools can be built to simplify the life of managers.

Proposition 1: Rigorously defined meta-models of business models in the form of formal reference models or ontologies can help in developing new software-based management and IS tools.

BUSINESS AND INFORMATION SYSTEMS ALIGNMENT

Alignment between business strategy and Information Systems is a long-standing key issue in IS management [Brancheau, Janz et al. 1996]. A study of 226 companies supports the hypothesis that alignment between business and IS strategies improves business performance [Sabherwal and Chan 2001]. The link between IS/IT and business models is particularly strong, since IT and IS have been a strong enabler for a variety of innovative business models. Yet, despite the general recognition of the importance of strategic IS alignment, not enough research reports on how such alignment is achieved and sustained over time [Hirschheim and Sabherwal 2001]. We believe that the business model concept could contribute to the creation of a common understanding between business and IT/IS, lead to a strategic and functional integration, an

efficient IT/IS infrastructure, and help choose the appropriate applications and the right IT/IS structures.

Mutual Understanding of IT/IS and Business

The social dimension of linkage between business and IS is defined as the level of mutual understanding of, and commitment to, the business and IT missions, objectives, and plans [Reich and Benbasat 1996]. In other words, business people must be able to formulate their vision clearly and communicate what they expect from IS people. Conversely, and the IS staff must be able to point out how Information and Communication Technology (ICT) can improve a company's business goals (Figure 8) [Brews and Tucci 2003]. However, the business and technology communities sometimes seem quite distant. Every manager and entrepreneur understands intuitively how his business works, but in many cases she or he is rarely able to communicate it in a clear and simple way [Linder et al., 2001]. Similarly, IS people know clearly what ICTs are able to accomplish in IS
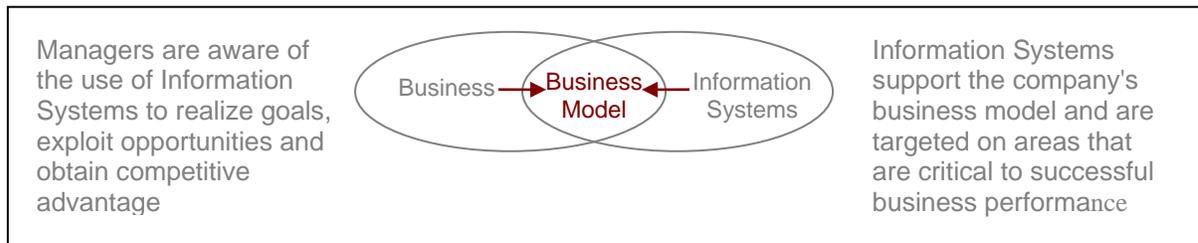
Figure 8: Business Strategy and Information Systems Alignment

management, but they struggle to achieve a strategic fit with the big (business) picture. We believe that the business model could be the conceptual tool to capture, share, and create a common vision of a company's business model.

Proposition 2: The business model concept helps increase the mutual understanding between the business and IT/IS domain. It creates a common language and shared comprehension.

Business and IT/IS integration (Mutual Reinforcement)

Once the business and IS communities share a common understanding of a company's business model they can jointly reflect on how business strategy objectives drive the business model and the underlying IT/IS or, the other way around, how IT/IS evolutions drive business model change and impact business strategy. This statement is a (business model) extension of the well-known Strategic Alignment Model [Henderson and Venkatraman 1999], which is defined in terms of four fundamental domains of strategic choice: business strategy, information technology strategy, organizational infrastructure and processes, and information technology infrastructure and processes (Figure 9). The model addresses strategic fit between IT/IS strategy and business strategy and functional integration between organizational infrastructure and processes and IT/IS infrastructure and processes.

Figure 9 illustrates how the business model concept could serve as the tool to conceptualize and illustrate a company's business strategy and objectives. It could then be integrated with its enterprise model (that represents the organizational infrastructure and processes) and the IS model (that represents the informational infrastructure, applications and user interfaces).

Proposition 3: The business model concept improves the integration between the business and IT/IS domain and leads to mutual reinforcement because it creates a shared understanding.
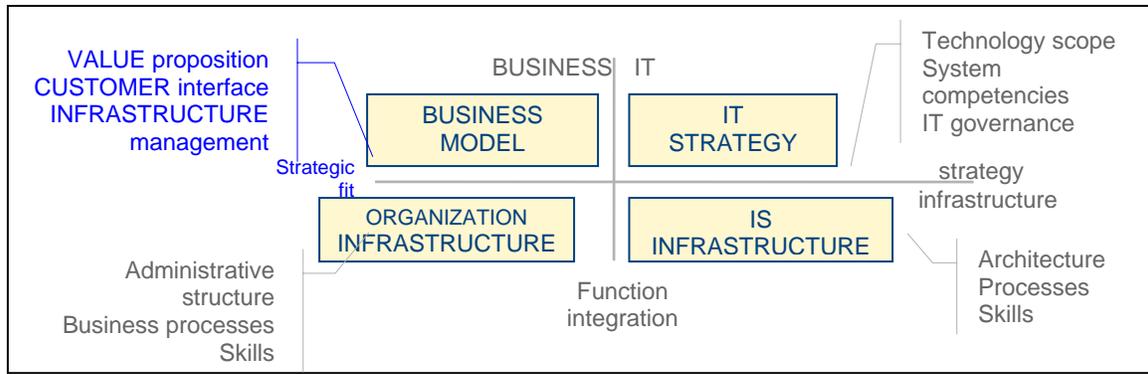
Adapted from [Henderson and Venkatraman 1999]

Figure 9: Business and IT/IS Alignment

IT/IS Infrastructure and Applications

Executives make few choices more critical than deciding which information technology (IT) investments will be needed for future strategic agility [Weill and Vitale 2002]. But it is not yet clear what frameworks assist them for making informed decisions about IT infrastructure and applications.

We speculate that the business model concept could play an important role in these decisions. Our proposition would be to cross the nine basic building blocks describing a company's business model (Secton III) with Weill and Vitale's [2002] conceptualization of IT infrastructure services, which they sub-divided into nine areas. Using this matrix as a basis for analysis it may be possible to achieve a better alignment between the business concept of a company and the IT services provided by the IS department (Table 5).

Table 5. Infrastructure Alignment

9 INFRASTRUCTURE SERVICES / 9 BUSINESS MODEL BUILDING BLOCKS	Application Infrastructure	Communications Management	Data Management	IT Management	Security	Architecture and Standards	Channel Management	IT Research and Development	Training and Education in IT
Value Proposition									
Target Customer									
Distribution Channel									
Relationship									
Value Configuration									
Capability									
Partnersh									
Cost Model									
Revenue Model									

Adapted from Weill and Vitale [2002]

Similarly, we propose using the nine basic business model building blocks to analyze a company's needs in terms of its IT applications portfolio [Ward 1988].

Understanding every element of the business model could allow a company to streamline its application portfolio and achieve a better fit with its business model.

Proposition 4: Understanding a company's business model facilitates and improves the choices of IT/IS infrastructure and its application portfolio.

Table 6. Application Portfolio Management

	Strategic	Key Operational	Support	High Potential
Value Proposition				
Target Customer				
Distribution Channel				
Relationship				
Value Configuration				
Capability				
Partnersh				
Cost Model				
Revenue Model				

Adapted from Ward [1988]

IS Structure

An organization's performance is related to its attaining the appropriate structure and capabilities to execute its strategic decisions. This process involves continuous adaptation and change in relation to a company's strategy and business model. We hypothesize that a good knowledge of a company's business model and its particulars can help to define the IS role and structure better [Hirschheim and Sabherwal 2001].

Proposition 5: Understanding a company's business model facilitates its choices regarding IS role and structure.

REQUIREMENTS ENGINEERING

In line with the Strategic Alignment Model [Henderson and Venkatraman 1999] illustrated in Figure 9 we believe the business model concept can help improve requirements engineering. It seems particularly useful in the process of defining business goals, which are prominent in the requirements engineering literature [Mylopoulos, Chung et al. 1999; van Lamsweerde 2003]. However, this literature says little on how these goals are to be defined. Particularly in the current environment where multi-actor value constellations are common (e.g. in electronic commerce) we need find innovative ways to model business requirements and improve business–IT alignment [Gordijn and Akkermans 2003]. Table 8 shows the relations between business models and goals for requirements engineering.

Proposition 6: The business model concept helps in defining a company's goals and consequently facilitates requirements engineering.

Table 7. Business Models and Goals for Requirements Engineering

9 BUSINESS MODEL BLOCKS	Goal 1	Goal 2	Goal 3	Goal 4
Value Proposition				
Target Customer				
Distribution Channel				
Relationship				
Value Configuration				
Capability				
Partnersh				
Cost Model				
Revenue Model				

BALANCED SCORECARD

The balanced scorecard [Kaplan and Norton 1992] is a decision support tool at the strategic management level. It was also proposed to measure and evaluate IS activities [Martinsons, Davison et al. 1999]. We propose to use the business model concept to improve balanced scorecard design by defining more adequate indicators. We argue that, with the business model captured, understood, and described it is easier to identify the indicators of the executive information system for monitoring the strategy, based on the financial, customer, internal business, and innovation and learning perspectives outlined in the balanced scorecard approach [Kaplan and Norton 1992] (Figure 9).

Proposition 7: Understanding a company's business model facilitates the identification of the indicators to follow in an executive management systems.

Table 8. Business Model and Balanced Scorecard

9 BUSINESS MODEL BLOCKS	Indicator	current score	target score	alarm level
Value Proposition				
Target Customer				
Distribution Channel				
Relationship				
Value Configuration				
Capability				
Partnersh				
Cost Model				
Revenue Model				

Adapted from Kaplan and Norton [1992]

KNOWLEDGE MANAGEMENT

Capturing, storing, and following business models in a company are a form of knowledge management that will increasingly gain importance. The first step in managing business model knowledge is describing a company's model explicitly. In knowledge management this externalisation is known as the process of articulating tacit knowledge into explicit knowledge (Nonaka, Toyama. et al. 2000]. Conceptualizing business models plays an important role in externalizing business models. Similarly, a conceptualization of business processes led to the establishment of the well-known Process Handbook by Malone, Crowston et al. [1999], a knowledge management system for business processes. An important advantage of capturing and storing business model knowledge is that it can be visualized, communicated, shared, and manipulated easily. Likewise, Kaplan and Norton [2000] talk of strategy maps that help managers capture and communicate both their strategy and the processes and systems involved.

Proposition 8: The business model concept helps externalizing, mapping and storing knowledge about the value creation logic of a company.

VI. CONCLUSION

In this paper we outlined the origins, the different understandings, and the evolution of the business model concept. We showed that the business model concept still needs explanation. We built the foundations needed to clarify understandings in the business model domain. Therefore we propose a business model terminology or ontology used to describe business models. This terminology is compared to previous work on this topic. Subsequently, we outlined the general uses, roles, and potential of the business model concept in the firm. Thereafter we discussed why it is particularly important to discuss the concept in relationship with Information

Systems. Accordingly, we sketched 8 propositions to be observed and eventually tested in future work.

Recapitulating, we observe a large potential for the business model concept especially in IS. One of the shortcomings in business model literature is that the different authors rarely build on one another. Consequently, business model research as a whole advances more slowly than it could and often remains at a superficial level.

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