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A Framework for Understanding and Analysing eBusiness Models

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Abstract

As the evolution of e-business technology has passed from the early phase of hype and innovation to the mature phase of adoption and use, the research interest of both the academic and business communities is shifting to investigating opportunities for market exploitation of e-business technologies. As a result, the debates around established e-business models, as well as the way to achieve business model innovation, are ever increasing. However, while many researchers and practitioners are contemplating business models, there is a distinct lack of appropriate theoretical tools in the literature to structure and codify the extant knowledge in the area. The existing research contributions are featured by a great degree of diversity, which is due to the existence of

a variety of reasons and motives for making research on business models. Thus, some researchers try to define business models, others to specify their primary elements, while others have proceeded further to introduce methodologies for developing, changing, or assessing business models. In this paper, we draw on a great number of research contributions in the field of e-business models to propose a framework that further decomposes the research area of Business Models into specific research sub-domains. The proposed framework is then applied to organise and review existing research contributions under each sub-domain.

1. Introduction

There is an ever-growing literature on business models by academics, research centers and consultants. Some speak about "Internet business models", some others about "e-Business models" or "Business models on the Web", and others speak generally about business models. Regardless of the term used, most agree that the accelerating growth of Information and Communication Technologies has raised the interest for transforming traditional business models or developing new ones that better exploit the opportunities enabled by technological innovations. That is why within the last few years, the discussions about business models and the impact of the Internet on them have become more topical.

The motivation for studying business models naturally varies depending on the research interests of the investigators, their viewpoint, background, and study objectives. Being aware of these factors helps at better conceiving the complementarities, overlaps, and potential conflicts of opinions in the area. An exemplary look into some of the most prominent and often cited works in the area surfaces a number of objectives for studying business models:

1. **Understanding** the key elements and mechanisms in a specific business domain and their relationships (Osterwalder & Pigneur, 2002).
2. **Communicating** and sharing the understanding of a business model among business or technology stakeholders (Gordijn & Akkermans, 2001c).
3. **Specifying valid requirements** for the Information Systems that support the business model (Eriksson & Penker, 2000).
4. Identifying options for **changing and improving** the current business model (Eriksson & Penker, 2000), thus facilitating change (Osterwalder & Pigneur, 2002).

5. **Experimenting with innovative business concepts** to determine if current business models can be easily adapted to new concepts (Eriksson & Penker, 2000), as well as to assess the viability of new business initiatives (Weill & Vitale, 2001).

In this paper we present the results of a review analysis that aimed at examining extant research on Business Models (BMs) and classifying it under an explanatory framework that can be used as a guiding vehicle for future research in the area. In the following section we outline our research design and introduce a novel framework that categorizes research in BMs into six research sub-domains. These sub-domains are then used in Section 3 to structure a concise review of the major works researching BMs to date. The paper concludes with an analysis of gaps in the literature and suggestions for further research based on our findings.

2. Towards Defining a Research Framework

In an attempt to explore the research area of business models and identify the research challenges it entails, we realised the lack of an underlying coding mechanism that would understanding of the area and contribute to the identification of its primary concepts and elementary constructs. This conclusion informed our choice of a research design, which initiated through an exploratory study of the Business Models literature. Through a pattern recognition process, a number of common research patterns among the various contributions were subsequently identified. The final set of patterns resulted from reviewing contributions included in a great number of books, papers, articles, and reports that discussed business models and identifying the primary object of research hidden behind each contribution. Based on these patterns, we were then able to construct an explanatory framework that classifies research on Business Models into the following six research *sub-domains*.

A. **Definitions**. Research in this domain concerns defining the purpose, scope, and primary elements of a business model, as well as exploring its relationships with other business concepts, such as strategy and business processes. Definitions constitute a strong focus of research in the Business Model field, especially in the earlier stages of research in the area. In fact, 13 out of the 22 research contributions reviewed in *Table 1* include a definition of BM.

B. **Components**. Research in this domain is concerned with analysing the BM concept to further decompose it into its fundamental constructs. The specification of BM components ranks second in frequency (following the BM definition domain), with 12

out of 22 contributions referring to BM components. However, BM components assume the leading position when only recent works are considered. This is somewhat expected and indicates a maturation of research in the field that naturally shifts from earlier definitional research to more detailed ontological analyses.

C. **Taxonomies**. Research in this domain relates to possible categorizations of BMs into a number of typologies based on various criteria. A relatively significant portion of work (9 out of 22 contributions) has been performed in this field.

D. **Representations**. This domain proposes a number of possible instruments or/and representational formalisms for visualizing the primary components of a BM and their interrelationships. Compared to the previous domains, relatively less research has been conducted on specifying and describing such tools (only 4 out of 22 contributions relate to this domain).

E. **Change Methodologies**. This domain includes research efforts that focus on formulating guidelines, describing steps, and specifying actions to be taken for either changing business models to adapt to a business or technology transformation, usually in terms of innovation, or choosing an appropriate business model, usually from a set of available ones. This is a relatively new area with intense interest for further investigation but only a few references (6 out of 22 contributions).

F. **Evaluation Models**. This domain is concerned with identifying criteria for either assessing the feasibility and profitability of business models or evaluating a business model against alternative or best practice cases. This is also a relatively more recent research domain a few researchers (4 out of 22) having pursued focused work on it.

Table 1 illustrates the extent to which 22 often cited works in the area of BMs address the aforementioned six sub-domains. It is evident that, though most authors do touch upon more than one sub-domain, there exists no work that manages to synthesize all sub-domains into a thorough and comprehensive analysis of Business Models. This finding might imply the still immature stage of BM research and the need for additional work focused on the *synthesis* (as opposed to the extant prevailing focus on *analysis*) of our knowledge on BMs into more unified theoretical instruments.

No.	Contributions	Definitions	Components	Taxonomies	Representations	Change Methodologies	Evaluation Models
1.	Timmers (1998)	✓		✓			
2.	Mahadevan (2000)		✓	✓		✓	
3.	Kraemer et al. (2000)		✓				
4.	Tapscott et al. (1998, 2000)	✓		✓	✓	✓	
5.	Hamel (2000)		✓				✓
6.	Linder & Cantrell (2000)	✓	✓	✓		✓	
7.	Kaplan & Sawhney (2000)			✓			
8.	Chesbrough & Rosembloom (2001)		✓				
9.	Methlie (2001)		✓				
10.	Afuah & Tucci (2001)		✓				✓
11.	Alt & Zimmermann (2001)		✓	✓			
12.	Gordijn & Akkermanns (2001a,b,c)	✓			✓	✓	✓
13.	Weill & Vitale (2001)	✓	✓	✓	✓		✓
14.	Rappa (2001)	✓		✓			
15.	Hawkins (2001)	✓					
16.	Amit & Zott (2001)	✓					
17.	Applegate (2001)	✓		✓			
18.	Petrovic et al. (2001) Auer & Follack (2002)	✓	✓			✓	
19.	Papakiriakopoulos et al. (2001)					✓	
20.	Osterwalder & Pigneur (2002)	✓	✓		✓		
21.	Magretta (2002)	✓	✓				
22.	Elliot (2002)	✓					

Table 1. Organising Research Contributions under the Framework

To further elaborate on how the sub-domains relate to each other and how BM research has developed over time, *Figure 1* classifies the six sub-domains on a two-dimensional matrix. The two dimensions represent:

a) **Integration (Y-axis)**: Illustrates the degree to which each sub-domain builds upon research conducted in other domains of the Business Model area. In other words, Integration measures the degree to which a specific sub-domain is relatively independent and foundational in nature (Low Integration) or whether it is strongly related to and dependent on a prior understanding gained in other sub-domains (High Integration). For instance, towards specifying a BM Taxonomy, most researchers focus on a set of criteria, which are primarily identical to specific BM Components. Similarly, Change Methodologies are based on: a) specification of BM *Components* in order to identify those that are more liable to change, b) specification of *Representation tools* that will be used for representing both the current and the new business model, thus indicating the changes made, and c) identification of the general *Taxonomy* to which the business model belongs, since this categorization may help identifying changes that are mainly affecting a specific group of business models.

b) **Timeliness (X-axis):** Measures the degree to which a sub-domain is currently considered worthy of further investigation based on a) the number of existing research contributions in the field, b) the declared interest of researchers for pursuing further research in the field in the future. In other words, Timeliness differentiates between relatively more mature and well-researched sub-domains (Low Timeliness) and those sub-domains that have emerged more recently and are still perceived by the research community to constitute significant challenges in BM research (High Timeliness).

The arrows in *Figure 1* are meant to signify the interrelationships that exist between sub-domains based on an analysis of both the Integration (i.e. sub-domains building on each other) and the Timeliness (i.e. sub-domains emerging after others) criteria.

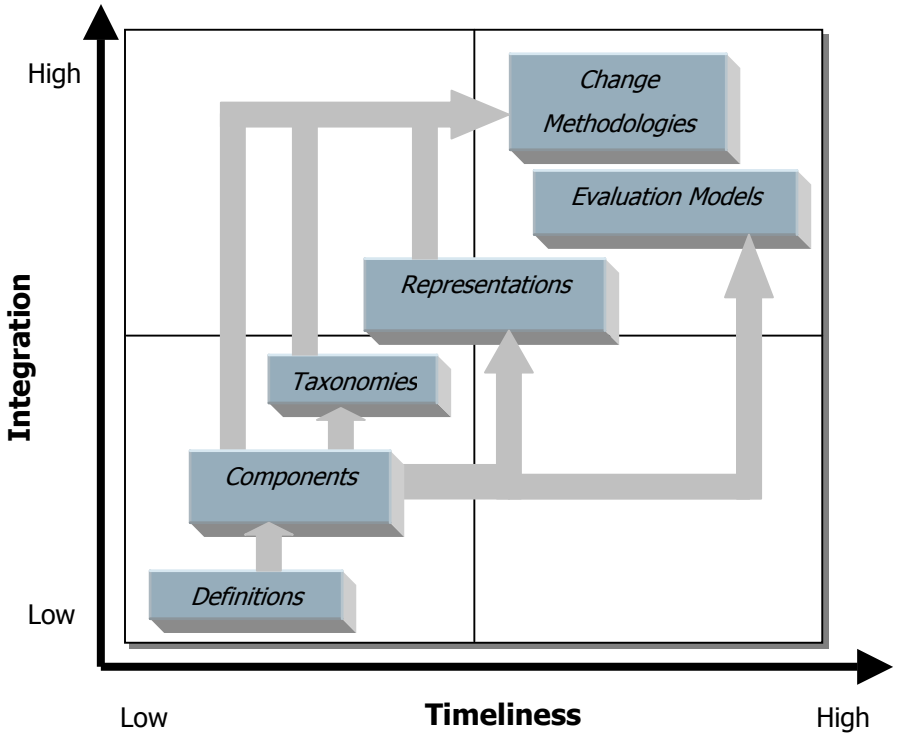

Figure 1. A Framework for Structuring BM Research Sub-Domains

3. Using the Framework for Reviewing Existing Research

In this section we will use the framework proposed above to structure the presentation of extant research on Business Models into the six sub-domains identified. During the course of reviewing each aspect, a number of useful conclusions are reached, which are subsequently revisited and discussed in the concluding section of the paper.

3.1. Definitions

Researchers have proposed several definitions that explain what the essence and purpose of a business model is. Linder & Cantrell (2000) define a business model as "*the organisation's core logic for creating value*". Magretta (2002) simply views it as a "*story that explains how an enterprise works*". Nevertheless, she also goes one step further discriminating the Business Model concept from the strategy concept. Thus, she explains that business models describe, as a system, how the pieces of a business fit together, but do not factor in one critical dimension of performance, usually competition, as strategy does.

Other researchers adopt the approach of defining business models by specifying their primary elements, and possibly their interrelationships. The initial and perhaps most often cited definition of this category is provided by Timmers (1998). He defines a business model as "*an architecture for the product, service and information flows, including a description of the various business actors and their roles; and a description of the potential benefits for the various actors; and description of the sources of revenues*". Being primarily influenced by Timmers, Weill and Vitale (2001) define a business model as "*a description of the roles and relationships among a firm's consumers, customers, allies and suppliers that identifies the major flows of product, information, and money, and the major benefits to participants*".

Two other researchers, Osterwalder & Pigneur (2002), conceive the business model in a quite different way. They view it as the missing link between strategy and business processes. More specifically, they consider a business model as the "conceptual and architectural implementation (blueprint) of a business strategy (that) represents the foundation for the implementation of business processes and information systems". Their working definition of business model is as follows: *"A business model is nothing else than a description of the value a company offers to one or several segments of customers and the architecture of the firm and its network of partners for creating, marketing and delivering this value and relationship capital, in order to generate profitable and sustainable revenues streams*."

Tapscott et al. (1998) introduce the notion of a new generation of business models that encompass not only the organisation itself but also its "fellow travellers". Enabled by network technologies, organisations are encouraged to move from an introvert "M-form" to the "E-Form" that is based on the forming of business ecosystems. The major dimensions of strategic action that an E-form organisation must integrate are: customers, markets, products, processes, organisations (structures and relationships), shareholders and financing, social values, and government policy. Two years later, the same authors refer to a business innovation model in the form of 'business webs (b-webs)', which are "inventing new value propositions, transforming the rules of competition, and mobilizing people and resources to unprecedented levels of performance. A b-web is a distinct system of suppliers, distributors, commerce service providers, and customers that use the Internet for their primary business communications and transactions" (Tapscott et al. 2000). Although Tapscott et al. (2000) do not provide a specific definition of Business Models, their approach emphasizes on the feature of "network", which they claim will be prevalent in almost all future Business Models. That is mainly due to the emergence of ICT applications that enable business networking in value chains and nets. Their

approach is an example of how technology's evolution is changing the definition and conception of primary business constructs, such as the Business Model.

Concluding, some researchers perceive the Business Model as a purely business concept that explains the logic of making business for a firm (Timmers, 1998; Linder & Cantrell, 2000; Petrovic, 2001; Rappa, 2001), while some others consider it as a link between strategy, business processes, and information systems (Nilsson et al., 1999; Osterwalder & Pigneur, 2002). The difference between these two interpretations of Business Models concerns the relationship of Business Model with the concepts of Strategy, Business Processes, and Technology. While in the first interpretation the three concepts are included in the description of Business Model, the second interpretation considers them as inter-linked components set in different levels of a pyramid construct (*Figure 2*). In this case, a business model is considered as the conceptual and architectural implementation (blueprint) of a business strategy and represents the foundation for the implementation of business processes and information systems.

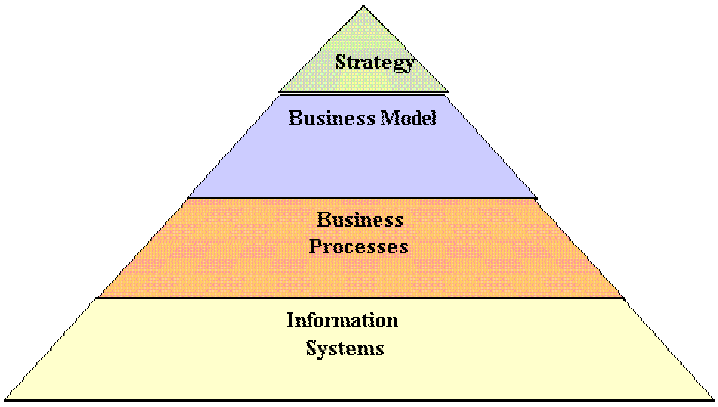

Figure 2. Business Model Definition Framework

3.2. Components

The emphasis in more recent literature is gradually shifting away from Business Model definitions, and instead focuses on decomposing business models into their "atomic" elements, also referred as "components", "functions", "attributes", or "pillars" of business models (Afuah & Tucci, 2001; Hamel, 2000; Petrovic et al., 2001; Weill & Vitale, 2001; Rayport et al., 2001). Unfortunately, the differences in terms used propagate to create a multitude of approaches towards identifying Business Model components, thus not contributing to an overall progress of knowledge generation in this domain. The prevalent approaches followed for defining BM components are:

- Decomposing a business initiative into levels of analysis, from the more general to the more concrete (from e-business implementation to atomic business models), and identifying primary components for each analysis level (Weill & Vitale, 2001).
- Identifying ways to represent a business and defining key information required for each representation way (Weill & Vitale, 2001).
- Decomposing a Business Model into sub-models that link together to build a Business Model (Petrovic et al., 2001; Linder & Cantrell, 2000).
- Identifying principal issues or major components of a BM and decomposing them to sub-components (Hamel, 2000; Osterwalder & Pigneur, 2002).
- Defining vertical and horizontal dimensions of Business Models (Alt & Zimmermann, 2001).

In an attempt to combine and codify the elements identified by the majority of the aforementioned works, we have designed a generic framework (*Figure 3*) that synthesizes a number of standard components identified by the majority of researchers in this field. This conceptual framework consists a revision and extension of Alt and Zimmermann's (2001) proposed construct for the six generic elements of Business Models. The proposed framework consists of two principal dimensions/frames:

a) The **horizontal frame**, including all the **primary components** of a business model, such as *Mission* (Strategic Objectives), *Target Market* (scope and market segment), *Value Proposition* (product/ service offering), *Resources* (capabilities, assets), *Key Activities* (intra- and inter-organisational processes), *Cost and Revenue Model* (cost and revenue streams, pricing policy), *Value Chain/Net* (alliances and partnerships).

b) The **vertical frame**, including the **underlying components** of BMs and the issues that outline the wider business and social environment of a business model's implementation, such as *Market Trends*, *Regulation*, and *Technology*.

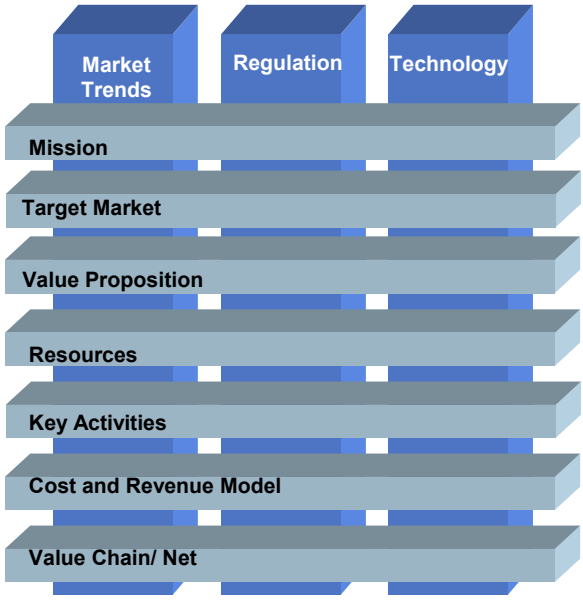

Figure 3. Business Model Components Framework

3.3. Taxonomies

A great deal of research has been directed towards classifying business models and grouping them into specific categories. The business models belonging to the same category usually share some common characteristics, such as the same pricing policy or the same customer relationship model. The taxonomy frameworks of Business Models that are presented in the literature differentiate based on two factors:

a) *Criteria* posed for classifying Business Models,

b) *Objects classified*, whether they are entire business initiatives (such as Amazon, eBay, etc), possibly combining multiple business models (Timmers, 1998; Rappa, 2001), or atomic business models that can be incorporated into an ebusiness initiative (Weill & Vitale, 2001).

The most common sets of criteria are:

- **Revenue** and **Position in Value Chain** (Rappa, 2001),
- **Interaction Pattern** and **Value Chain Integration** (Timmers, 1998),
- **Functional Integration** and **Degree of Innovation** (Timmers, 1998),
- **Core Activities** and **Price – Value Balance** (Linder & Cantrell, 2000),
- **Economic control** (both hierarchical and self-organizing) and **value integration** (Tapscott et al., 2000),
- **Sourcing:** What businesses buy (manufacturing versus operating inputs) against how they buy (systematic versus spot sourcing) (Kaplan & Sawhney, 2000).

The existence of multiple sets of criteria suggests (as in the case of BM components) that there are no established and commonly agreed to criteria for classifying business models, but some criteria, such as Value Integration, may be used in various taxonomy frameworks. Moreover, most taxonomy frameworks seem to be narrowly defined for Internet e-Business models. A notable exception is found in Tapscott et al. (2000), who introduce a rather generic taxonomy of Business Models that could apply not only to Internet but also to any type of electronic business featured by a network structure.

3.4. Representations

The fragmentation of research and ad hoc analysis that we have witnessed in the Components and Taxonomies domains is also evident when considering BM representations and design tools. Business Models are usually represented by a mixture of informal textual, verbal, and ad hoc graphical representations. The researchers of business models use different terms for referring to tools that they use for describing their business models.

Tapscott et al. (2000) use the term "**Value Map**" for depicting how a b-web operates, or will operate in the future. The value map depicts:

- All key classes of participants (partners, customers, suppliers)
- Value Exchanges (tangible and intangible benefits, knowledge)

Gordijn and Akkermans (2001a; 2001b; 2001c) adopt a "value viewpoint" in order to build an ebusiness ontology called as **e^3-value ontology**. To represent an e-business value model, they use a lightweight ontology consisting of interrelated core concepts, and they utilize a scenario technique, called Use Case Maps (Gordijn and Akkermans, 2001a). A lightweight ontology contains a limited set of concepts and relations (Jasper & Uschold, 1999). The **e^3-value ontology** includes the following concepts: Actor, Value Object, Value Port, Value Interface, Value Exchange, Value Offering, Market Segment, Composite Actor, and Value Activity.

Weill and Vitale (2001) introduce the term "**E-Business Model Schematics**" as a tool for analysing e-business initiatives and plotting the migration from traditional business to its e-business counterpart. The E-Business Model Schematics highlight three (3) critical aspects of the business model:

1. Participants. Firms of interest, customers, suppliers and allies.
2. Relationships. Either electronic or primary relationships.

3. Flows. Money, information, product or service flows.

Osterwalder & Pigneur (2002) introduce the concept of an **"e-Business Model Ontology"**, that is the conceptualization and formalization into elements, relationships, vocabulary, and semantics of the essential subjects in the e-business model domain. e-BMO is structured into several levels of decomposition with increasing depth and complexity. The first level of decomposition concerns the four main pillars of a Business Model, which are thought to be: Product Innovation, Customer Relationship, Infrastructure Management, and Financials. All these concepts are further decomposed and associated to each other through bilateral relationships.

Summarizing, we can note that the majority of the tools applied for designing and representing business models focus on relationships, objects (flows) exchanged, actors, and processes–activities. Thus, they do not illustrate all components of Business Models, but only those that refer to BM's main components, as they are defined by Timmers (1998). An exception may stand for Osterwalder & Pigneur (2002) who suggest using the concepts and relationships specified in their proposed e-Business Model Ontology (e-BMO) in order to design an ebusiness model.

3.5. Change Methodologies

The necessity of changing the way in which firms do business and provide value in order to survive and flourish in a high-tech market has been recognized by both academics and managers. Nevertheless, there is no established methodology for understanding and structuring the change of a firm's business model to an e-business one. In the last few years, as the knowledge and interest of firms in the Business Models area increase, more and more research and consulting work has been focused on defining change methodologies.

Tapcott et al. (2000), having stressed the importance of following a strategy for designing a new type of business model based on a network structure, are the first to identify six (6) steps for changing a current BM to a b-web type BM and provide guidelines for doing so.

Linder and Cantrell (2000) provide a general framework rather than a methodology, which however cannot be used to guide the change process. Their contribution is based on a specific identification of components. This however means that if a different set of components is adopted, then the framework will not work or will be subject to changes. Nevertheless, Linder and Cantrell (2000) have made a considerable contribution by

defining a set of change models, classified based on the level of change introduced by the new business model.

Petrovic et al. (2001) have made a worthwhile research attempt to introduce such a methodology grounded on a well-established theoretical framework. However, the steps of their methodology are described in quite general terms, and no guidelines or advice is provided for the core part of this methodology, that is making the change.

Finally, Papakyriakopoulos et al. (2001)'s contribution refers to a step-by-step methodology for transforming a Business Model, thus responding to the need for changing the firm's technology infrastructure. The primary limitations of such a contribution concern the driver of the change, which is considered to be a technology innovation rather than a business opportunity. The analysis is also focused on industry-level (as opposed to firm level) change only and the authors argue in favour of defining new market roles during the transition of current to future business models.

3.6. Evaluation Models

The last sub-domain of the BM field addresses the evaluation and assessment of business models. From the analysis of contributions in the field, it is evident that the definition of assessment criteria is naturally dependent on the purpose of evaluation. Four primary evaluation purposes have been identified:

- **Comparison** with competitors in Business Model terms,
- **Assessment** of alternative Business Models for implementation by the same firm,
- **Identification of risks** and potential pressure areas for a firm pursuing innovation,
- **Evaluation** of an **innovative** Business Model in terms of feasibility and profitability.

To measure the potential of a business model, Hamel (2000) has identified four factors that determine a business model's wealth potential:

- ***Efficiency.*** The extent to which the business concept is an *efficient* way of delivering customer benefits;
- ***Uniqueness***. The extent to which the business concept is *unique*.
- ***Fit***. The degree of *fit* among the elements of the business concept; and
- ***Profit Boosters***. The degree to which the business concept exploits *profit boosters* (increasing returns, competitor lock-out, strategic economies, strategic flexibility), which have the potential to generate above-average returns.

Gordijn and Akkermans (2001c) evaluate the economic feasibility of an idea in quantitative terms, based on an assessment of the value of objects for all actors

involved. Feasibility of a business model means that all actors involved can make a profit or increase their economic utility. Their evaluation approach is to take into account the net in and out flows of value objects. More specifically, this approach creates profit sheets based on either the actor or activity level. Value objects in the profit sheet are assigned a value expressed in monetary units. In such an approach, the use of "what-if scenarios" can help companies make a sensitivity analysis for the business model under consideration with respect to financial parameters such as customer behaviour. In many cases, this sensitivity analysis can potentially be of greater interest than the numbers themselves.

Afuah and Tucci (2001) define three levels for measuring the performance of a business model:

a) Measures of profitability that includes comparison of a firm's profitability to that of competitors using profitability measures, such as earnings and cash flows.
b) Profitability prediction, which is concerned with comparing a firm's profit margins, revenue market share, and revenue growth rate with those of industry competitors.
c) Business model component attributes, which provides benchmarks for appraising each one of the identified components of a business model.

Weill and Vitale (2001) refer to key factors that have an influence on the profitability and viability of e-business models. Their focus is on the following factors:

1. Level of ownership for the customer relationship, data and transaction
2. Firm's access to key information about customers, products, markets and costs
3. Conflicts raising from combination of atomic models to e-business initiatives, such as Channel Conflict, Competency Conflict, Infrastructure Conflict, and Information Conflict.

Summarising, we can observe that the evaluation criteria domain is perhaps the less mature BM research area. The majority of the criteria proposed in the literature are derived from generic theory and are mostly driven by financial indicators (for example, profitability and margins) that are very difficult, if possible at all, to measure *ex ante*. However, this result is not surprising. The BM evaluation domain is inherently complex and to some extent dependent on other domains such as change methodologies. It is therefore rather expected that knowledge generation will proceed at a slower pace here, following prerequisite developments of understanding and maturation of other domains.

4. Conclusions and Further Research

In this paper we have presented the results of a *bottom-up review approach* for defining an explanatory framework of research in the area of Business Models. The analysis, further to its internal value as it has provided us with an analytic lens through which current and future research on e-business models can be looked at, systematized, and analysed, has also yielded some important findings.

Firstly, it has shown that the BM field has now matured to a degree that allows it to move beyond the initial stages (which were mostly concerned with elementary definitional works) to more in-depth analyses that aim at providing toolkits for representing, analysing, assessing, and changing business models. Thus, we expect the majority of future research in the area of BMs to move towards the upper-right quadrant of the framework introduced in Figure 1 (High Integration / High Timeliness research sub-domains).

Secondly, the analysis has shown that the research community is yet to invent a common underlying theoretical basis on which directed future research efforts could be built. The absence of such a common basis renders some of the works incompatible with each other (and perhaps even inconsistent altogether), mostly un-reusable, and often repetitive. The framework we propose in this paper may be valuable as a classificatory mechanism for placing the extant knowledge blocks in the area of BM analysis so that future efforts can build on these blocks and generate new knowledge in a more robust and co-ordinated fashion.

Moreover, the framework can provide a starting point towards a unified theoretical advancement in the area of Business Models that will strengthen the foundations of the area and address its reference disciplines and theories that are somewhat missing from the majority of ongoing research. For example, we have seen very little to link today's research on Business Models to earlier theories of industrial organisation, network economics, social network theory, and so on. We contend that unless such a theoretical link is established, the BM field will not be able to distinguish itself as a distinct research domain, perhaps independent of the eBusiness and eCommerce specificities.

The framework we have proposed in this paper is amongst the first outcomes of a larger research effort aiming at:

a) Organising existing research work in the area of BMs;
b) Reviewing research work in a systematic and robust fashion;

c) Identifying knowledge and practice gaps in each aspect;
d) Identifying opportunities for future research contributions;

This paper was mostly concerned with satisfying the first two objectives, however it provides the background knowledge that is needed for working towards meeting the third and fourth objectives as well. In the course of analysing extant research on BMs, we were able to identify and pinpoint gaps and opportunities for further research, both on the individual sub-domains and (perhaps more importantly) on the intersections between them. Such avenues for further research might include:

a) Work towards a unified theory of Business Models, drawing on a carefully selected set of reference disciplines from Management Science, Economics, and Social Sciences.
b) Work towards synthesizing BM Components with Representation Tools that will aid understanding and communicating BM essence; a stream of research in this area could address the question of whether specific representation formalisms are indeed needed for Business Models or whether extant mechanisms commonly used in business will suffice.
c) Work towards continually validating and testing the applicability of the framework as a means of organizing BM research, especially in the course of future developments that will undoubtedly occur and will perhaps render the framework outdated (for example, in view of recent developments in Mobile Business and mBusiness Models).
d) Work towards establishing robust Evaluation Criteria and developing targeted Change Methodologies as these have shown to be still highly under-research sub-domains in the BM field.

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