Comparing business modeling methods: creating and applying a comparison framework for meta-business models

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ABSTRACT

A business model is very important to any company and especially for e-businesses. Over the past few years, several authors have created different meta-business models, methods for business modeling. However, the authors rarely use existing literature for their conceptual design. Because of this, there are no clear semantics in the field of business model research. The elements used in meta-business models are not clearly defined, or differ wildly from one model to the next.

As business models are important to companies, they must add some value. The use of business models certainly does that for just about any company. Nevertheless, this value is strongly limited by the lack of cohesion in the field of business model research.

In order to identify the elements used in meta-business models and their role, 10 meta-business models are compared. First a comparison framework is constructed, consisting of 19 criteria. After that, the framework is applied to compare the different meta-business models.

After the comparison, the elements are categorized in five groups. These groups provide a clear overview of the meta-business models and the role that different elements play.

Keywords

Business model, Meta-business model, Comparison framework.

1. INTRODUCTION

Different authors have provided many different definitions of the term ‘business model’ [17]. Before taking such a definition, the two words can be analyzed to get a feeling of what this is all about. On the one hand, there is ‘business’: the way a company does business or creates value. On the other hand, there is ‘model’: a conceptualization of something – in this case, of how a company does business. An example of a business model is eBay’s, earning a commission for putting buyers and sellers together [11].

1.1 Business model research

In 2004, Pateli and Giaglis [16] performed an extensive literature review and used that to construct a framework for business models research. Gordijn and Osterwalder [5] use this framework to compare their ontologies: e3-value and the Business Model Ontology.

A business model usually consists of several components that describe the way a company does business or the company’s business logic. An example of these components is: Product, Customer, Organization and Financial Aspect [13] as shown in Figure 1. Often, a business model takes a place between a company’s strategy and their process, and may have some overlap with both [1, 13, 15].

![Figure 1: Simplified impression of Osterwalder’s Business Model Ontology](image)

1.2 Meta-business models and a comparison framework

More recently, Vermolen [17] created an up to date overview of business model research published in the top 25 MIS journals over the past 15 years. The result was a list of 36 relevant articles on business models, including nine frameworks. Hereafter, these frameworks will be referred to as meta-business models.

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1.3 Article outline
Section 2 provides the research design, including the research questions that guide this article. Section 3 lists the meta-business models discussed. In section 4, a framework is constructed to compare the meta-business models. In section 5, the meta-business models are compared. Section 6 contains the conclusions and discussion.

2. RESEARCH DESIGN
In this section, the problem and purpose lead to a set of research questions. These are followed by the research methods, indicating where and how the research questions are answered.

2.1 Problem statement
There is a lot of literature on business models, some of it proposing a new meta-business model, or a better version of an existing meta-business model. Other articles may apply a meta-business model to some company in order to test them, add a new dimension or perspective to a meta-business model or compare two meta-business models.

Pateli and Giaglis [16] already pointed out that a lot of research is done next to each other, not building forth on existing research. In addition, Vermolen [17] notes this, stating that existing theory is not used in the conceptual design and that “research in the business model field will only have added value if it is based on theory”.

The result is that a number of meta-business models co-exist, without a clear consensus of which elements are part of a meta-business model. Different authors use their own vocabulary in naming the different elements that they use. Finally, the scope of similar elements can also differ between two meta-business models. For example, Osterwalder [13] defines two separate components for Value Proposition and Costumer, whereas Demil and Lecocq [2] make the targeted customers part of the Value Proposition.

2.2 Purpose
The above-mentioned problems can be summarized by the notion that in the business model field of research, there are no clear semantics. The purpose of this study is to address these problems, and make the differences and similarities of different meta-business models more transparent.

In order to get this transparency, elements used in meta-business models need to be identified. These elements are for example the Components of a meta-business model, a Definition of a business model or Taxonomy. To identify these elements, a selection of meta-business models has to be made. Then, a way must be found to compare them. And finally, the meta-business models must be compared to find the differences and similarities between the elements of meta-business models.

2.3 Relevance
Both Vermolen [17] and Al-Debei and Avison [1] remark the importance of business models compared to technology. However, if this field of research is to add value to the outside world, it must be clear what elements are used. By strengthening the internal structure of business model research, what business models can do for a company becomes stronger as well.

2.4 Research questions
The problem statement and purpose lead to the following research question to guide this study:

What elements are used in existing meta-business models?
In order to identify these elements, three sub-questions have been devised:

1. Which meta-business models are used?
2. Which criteria are required to compare meta-business models?
3. What are the differences and similarities between the meta-business models?

2.5 Research methods
In the following sections, the research sub-questions are addressed. In section 3, the first sub-question is answered by producing a list of meta-business models. The list consists of meta-business models described in existing literature. The first nine meta-business models are those listed by Vermolen [17] as Frameworks. The tenth is Osterwalder’s [13] Business Model Ontology.

In section 4, the second sub-question is answered by creating a comparison framework. The framework is also based on existing literature. A combination of four articles [1, 5, 8, 16] provides a total of 19 criteria to compare elements of meta-business models.

In section 5, this framework is applied to answer the third sub-question. The selected meta-business models are compared by checking them against each of the criteria. Per criterion, each of the meta-business model’s literature is searched for mentioning or explanation of the element. A possible outcome for such a check is that an element turns out to be well defined, or that an element is not part of any meta-business model at all.

Finally, section 6 gets back to the main research question, identifying the elements in meta-business models based on the results of the comparison. Then, implications are given for the current situation and future directions.

3. SELECTION OF META-BUSINESS MODELS
The selection of meta-business models consists primarily of the Frameworks present on Vermolen’s [17] list. To this list Osterwalder’s [13] Business Model Ontology is added. In this section each of these meta-business models is briefly discussed, followed by a summary in Table 1: List of meta-business models used.

Zott and Amit [22, 24, 25] composed a meta-model as activity system or transaction system, consisting of three Design Elements (Content, Structure, Governance) and four Design themes (Novelty, Lock-in, Complementarities, Efficiency). The other article on Vermolen’s [17] list by the same authors [23] is not used as it does not present a new meta-business model, but uses the same one.

Gordijn is on Vermolen’s [17] list for two articles using c3-value [6, 9], but the first publication on this meta-business model goes back to 2001 [4]. c3-value allows modeling of different companies, connected through value-webs consisting of exchanges between the companies.

Demil and Lecocq [2] provide the RCOV meta-business model, Recourses and Competences, Organization and Value. They use it to make a case for dynamic modeling, as opposed to static business models, since a company operates in a constantly changing environment.

Hedman and Kalling [7] are the first to build a meta-business model based on the existing business literature. They combine
strategy theory, business research and e-business research to propose a meta-business model consisting of seven components, including Competition and a Scope of Management.

Morris and Schindehutte [12] define a meta-model as six components (Offering, Market Factors, Internal Capability, Competitive Strategy, Economic, Personal/Investor). These six components are defined at three different levels (Foundation, Proprietary, Rules).

Yunus, Moingeon and Lehmann-Ortega [21] take a very elementary meta-business model, consisting of only three components (Value Proposition, Value Constellation and Profit Equation). After discussing these components, they add a fourth component, the Social Profit Equation.

Kim and Mauborgne [10] place the meta-business model between two other tools (buyer utility map and strategic pricing) to help managers recognize potential worthy innovations and reduce uncertainties surrounding them. They probably provide the most light-weight meta-business model, as it consists almost solely of a set of questions.

Wirtz, Schilke and Ulrich [20] use the 4C Internet Typology (Content, Commerce, Context, Connection), to analyze four with 2.0 applications. 4C is made by Wirtz [18], and also used another article published in Long Range Planning [19], as a tool for an analysis. The four C’s are types of business models used in e-businesses.

Doz and Kosonen [3] do not provide a meta-business model, but instead a practical guide business model renewal. I will however discuss them in Section 5.2 Meta-business model Applications under Change methodology, as it provides a useful addition to the meta-business models in this element.

Lumpkin and Dess [11] list seven business models (Commission, Advertising, Markup, Production, Referral, Subscription, Fee-for-service) that have proven to be successful in e-businesses. In this context, the business models are based on four activities (Search, Evaluation, Problem-solving, Transaction) and influenced by three types of content (Customer Feedback, Expertise, Entertainment Programming).

The last meta-business model is Osterwalder’s [13] Business Model Ontology, relevant as it has often been cited. He has also written two other articles, together with other authors, using BMO [5, 15]. However, after a short period he left the academic community to commercially exploit the Business Model Ontology, with success [14].

Table 1: List of meta-business models used

<table>
<thead>
<tr>
<th>#</th>
<th>Authors</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Zott and Amit</td>
<td>Activity System</td>
</tr>
<tr>
<td>2</td>
<td>Gordijn</td>
<td>e3-value</td>
</tr>
<tr>
<td>3</td>
<td>Demil and Lecoq</td>
<td>RCOV</td>
</tr>
<tr>
<td>4</td>
<td>Hedman and Kalling</td>
<td>BM Concept</td>
</tr>
<tr>
<td>5</td>
<td>Morris and Schindehutte</td>
<td>Entrepreneur’s BM</td>
</tr>
<tr>
<td>6</td>
<td>Yunus et. al.</td>
<td>Social BM</td>
</tr>
<tr>
<td>7</td>
<td>Kim and Mauborgne</td>
<td>BM Guide</td>
</tr>
<tr>
<td>8</td>
<td>Wirtz</td>
<td>4C Internet Typology</td>
</tr>
<tr>
<td>9</td>
<td>Lumpkin and Dess</td>
<td>Internet BM</td>
</tr>
<tr>
<td>10</td>
<td>Osterwalder</td>
<td>BM Ontology</td>
</tr>
</tbody>
</table>

4. CREATION OF THE COMPARISON FRAMEWORK

Four articles [1, 5, 8, 16] have been combined to create a comparison framework consisting of 19 criteria. The used definitions of these criteria can be found in Table 2: Meta-business model Characteristics and Table 3: Meta-business model Applications. The ‘X’ show in which article the criteria are mentioned before.

Vermolen [17] names Pateli and Giaglis [16] as one of the frameworks. They present eight sub-domains to classify business model research. Gordijn and Osterwalder [5] compare their meta-business models, using Pateli and Giaglis [16] and Jaspers and Uschold [8], who provide a Framework of seven elements to analyze Ontology Applications. A more recent article trying to create an overarching guide to business modeling is Al-Debei and Avison [1].

The framework is constructed using Gordijn and Osterwalder [5] as basis. They separate the criteria in two groups: Characteristics and Applications. Then, Al-Debei and Avison [1] are added to the framework. Finally, some changes are made to the framework.

The first point of attention is the area Pateli and Giaglis [16] call Conceptual Models. This element was left out in the analysis of Gordijn and Osterwalder [5]. However, it marks an important point when analyzing more than only ontology. There is other business model research, not resulting in an ontology, but presenting a meta-business model nonetheless. This distinction is the first important point for comparison.

The other change is moving the Purpose or Function of the meta-business model, to become the first element in Applications. The purpose of a meta-business model lies not in the model itself, as a Characteristic of the model. Instead, the purpose lies in the use and application of the model.

Finally, as Gordijn and Osterwalder [5] did, the concept Sharing vs Exchange from Jaspers and Uschold [8] is left out of the framework, for it is very strongly tied to Information Systems and Architecture. In the context of business modeling, this criterion has little value.

5. COMPARING THE META-BUSINESS MODELS

The framework will now be applied to compare the different meta-business models. Following the structure of the framework, section 5.1 compares the meta-business model Characteristic, given in Table 2. In section 5.2 the meta-business model Applications are compared, following Table 3.

5.1 Meta-business model Characteristics

Conceptual model


<table>
<thead>
<tr>
<th>Criteria</th>
<th>Jaspers and Uschold</th>
<th>Pateli and Giaglis</th>
<th>Gordijn, Osterwalder and Pigneur</th>
<th>Al-Debei and Avison</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conceptual model</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>For this criterion, a distinction is made between ontology and non-ontological meta-business models. The first indication is whether the authors use the word ontology. After that, similarities are sought between these and other meta-business models. The non-ontological meta-business models provide less attention to visualization and interactions of components.</td>
</tr>
<tr>
<td>Definition</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>There are as many definitions of business models as there are authors writing about them. Usually a definition captures the primary elements of a meta-business model.</td>
</tr>
<tr>
<td>Components</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>These are the, often visual components used to express the business logic as a business model. These are at the heart of business modeling.</td>
</tr>
<tr>
<td>Focus/Reach</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>Again, here is a difference between ontology and non-ontology meta-models. Ontology is checked for focus; the elements can describe a single firm, or also its partners or even competitors. Any meta-business model will have some connection to, or even overlap with strategy and process/IS.</td>
</tr>
</tbody>
</table>
| Modeling principles      | X                   |                    |                                  |                     | The five modeling principles described by Al-Debei and Avison:  
  - Coherent: the business model must represent the business logic,  
  - Conceptual: the business model is an abstraction, covering only key business components,  
  - Granular: components can be broken down into dimensions to be subdivided into elements,  
  - Multi-level: a meta-business model can be used to describe different organizational levels (e.g. individual company, parts of a company or business networks),  
  - Dynamic: a company must be able to cope with continuous change.  
  The implication of these Modeling principles is that a meta-business model should ‘push’ a business model in the right direction with respect to these five areas. |
| Origins                  | X                   |                    |                                  |                     | This is about the background of a meta-business model. One approach is to see what literature the authors use. Another way is to look at other work of the authors to identify what field of research they are in. |
| Role                     | X                   |                    |                                  |                     | Jaspers and Uschold [8] define the role of ontology in three information levels. Each ‘next’ level is used to describe the information at the ‘current’ level:  
  - L₀ Operational Data: The ‘information’ is data used by applications or users.  
  - L₁ Ontology: The ‘information’ is used to specify data in a required way. L₁ provides the vocabulary for information at L₀.  
  - L₂: Ontology Representation Language: The ‘information’ is used to specify applications. L₂ provides the vocabulary for information at L₁. |
| Users                    | X                   |                    |                                  |                     | These are the people involved in business modeling, the users of the meta-business model. These are not actors described in a business model.                                                                     |
| Supporting technologies  | X                   |                    |                                  |                     | Tools (often software) used to create and formalize the meta-business model. This is something different from business modeling tools.                                                                         |
| Maturity                 | X                   |                    |                                  |                     | Is the meta-business model a vague untested idea? Or has it been tested in real situations and case studies?                                                                                                 |
| Formality                | X                   | X                  |                                  |                     | This criterion is based on Representation of Meaning by Jaspers and Uschold [8], and Design Methods and Tools by Pateli and Giaglis [16]. It analyzes to what extent the meta-business model is expressed in natural language, in formal modeling languages or as computable software. |
Table 3: Meta-business model Applications

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Jaspers and Uebehold</th>
<th>Pettig and Gassig</th>
<th>Gordijn and Osterwalder and Pigneur</th>
<th>Al-Debei and Avison</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose/Function</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td>This is about answering the question: what use is the meta-business model for? Gordijn and Osterwalder [5] already identified the following purposes: “improving communication, inter-company operability, intra-company operability, achieving reliability, enhance business model maintenance, knowledge acquisition, provide a basis for scientific research on business models and provide the fundament for enabling support tools”. Al-Debei and Avison [1] identify the following three functions: serve as a tool of alignment between strategy and operations, provide an interceding framework that allows technological artifacts to contribute to strategy, and finally knowledge capital, also mentioned by Gordijn and Osterwalder [5].</td>
</tr>
<tr>
<td>Tool support</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>Software tools provided by creators of a meta-business model for business modeling.</td>
</tr>
<tr>
<td>Visualization</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>The methods to express a company’s business model graphically or textually.</td>
</tr>
<tr>
<td>Adoption factors</td>
<td>X -</td>
<td></td>
<td></td>
<td></td>
<td>This criterion is for analysis of ex-ante validation methods.</td>
</tr>
<tr>
<td>Evaluation methods</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>This is for ex-post evaluation of an implemented business model.</td>
</tr>
<tr>
<td>Change methodologies</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>Here, a meta-business model is reviewed for concrete tools to change a business model.</td>
</tr>
<tr>
<td>Taxonomy</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>This element analyzes Classification Criteria and Objects Classified in meta-business models.</td>
</tr>
<tr>
<td>Other applications</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>Describes other possible applications of a meta-business model.</td>
</tr>
</tbody>
</table>

**Definition**

Zott and Amit’s [25] activity system perspective: “The content, structure and governance of transactions designed so as to create value through the exploitation of business opportunities.”

Gordijn’s [5] e3-value: “Constellation of enterprises and final customers that jointly create, distribute and consume things of economic value.”

Demil and Lecocq’s [2] RCOV: No explicit definition is given, “the BM is considered as a concept or tool to address change and focus on innovation, either in the organization, or in the BM itself.”

Hedman and Kalling’s [7] business model concept: No ‘proper’ definition is given; instead, three other articles are referenced, producing an initial list of concepts.

Morris and Schindhutte’s [12] entrepreneur’s business model: “A business model is a concise representation of how an interrelated set of decision variables in the areas of venture strategy, architecture, and economies are addressed to create sustainable competitive advantage in defined markets.”

Yunus et al. [21] social business model: No definition given, but explained as: “close to ‘social entrepreneurship’, defined by Mair and Marti as ‘a process involving the innovative use and combination of resources to pursue opportunities to catalyze social change and/or address social needs’.”

Kim and Mauborgne’s [10] business model guide: Business model is not defined, simply used as management tool.

Wirtz’ [20] 4C typology: “A business model reflects the operational and output system of a company, and as such captures the way the firm functions and creates value.”


Osterwalder’s [15] Business Model Ontology: “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.”

**Components**

In the Components used in all meta-models are compared. At the top, the ten different meta-business models are aligned horizontally, next to each other. Below the authors/titles, all the Components used in the meta-business model are aligned in a vertical line. The horizontal lines connecting Components from different meta-business models indicate similarity of these Components. Analogue concepts appear more or less on the same height, labeled by a generic name on the far left.

**Focus/Reach**

Zott and Amit’s [25] activity system perspective: Focus on activities, centered on the firm, but may transcend the company, including partners, vendors and customers. Central is the business logic, which can be described for the whole firm, or a small daily activity.

Gordijn’s [5] e3-value: Focus on network of enterprises, working together, forming partnerships to create value.

Demil and Lecocq’s [2] RCOV: The focus is primarily inward, looking at a company. In addition, there is a lot of attention for organizational change. This change can be triggered deliberately or environmentally and will lead to changes (e.g. in volume) without the business model changing, or structural change may spark business model evolution.
Figure 2: Concept-map of meta-business model Components
Hedman and Kalling’s [7] business model concept: The main body is activities and organization. The market/industry (including suppliers) has a prominent place and finally a longitudinal dimension adds a sense of time.

Morris and Schindehutte’s [12] entrepreneur’s business model: ‘Core components’ mainly describe the business logic. They include the firm’s market, strategy and economic factors. The next levels focus more on the specific business logic and practical guidelines.

Yunus et al. [21] social business model: In the first place, the focus is solely on the company and their business logic. However, the social profit equation adds a connection to society’s socially respected norms.

Kim and Mauborgne’s [10] business model guide: The position of the business model is in a set of tools, to help determine and implement a strategy concerning innovations.

Wirtz’ [20] 4C typology: the four Cs make up different categories of business models.

Lumpkin and Dess’ [11] internet business models: The seven business models show the business logic, supported by four types of activities, that show what the company does, and provide a hint towards strategy.

Osterwalder’s [5] Business Model Ontology: Focus is on a specific company and how that company does business. Firm’s partners are included in the meta-model, however not strongly connected to other elements.

Modeling principles

- **Coherent** The coherence of a meta-business model will be checked by the connections between components. The components are usually connected by arrows, indicating some form of exchange or a causal relation. This is the case for Gordijn’s [5] e3-value, Demil and Lecocq’s [2] RCOV, Hedman and Kaling’s [7] BM Concept and Osterwalder’s [5] BMO. The other meta-business models have no graphic of components, or connect them without clear causal relation.

- **Conceptual** All meta-models have abstract components that can represent parts of a firm or firm’s context.

- **Granular** with abstract components, these can be ‘zoomed in on’. Even a component as concrete as the question ‘what is the cost target?’ can provide wide dimensions with a range of elements to be researched.

- **Multi-level** every meta-business model can be applied to different levels: a whole company, a business unit or a single transaction. Again, with any abstract components, these can be molded to fit different levels: focus on a product line, or a single transaction.

- **Dynamic** If a meta-business model is coherent, it forces a user to correctly address all consequences of changing the business model. It could also be argued that having fewer components makes it easier to change, just as a smaller firm can change easier. However, having only a few components to describe a large firm will probably not provide the insights required to deal with organizational change or business model change.

Origins

Only a few authors explicitly mention this in the articles. A way is to see what research area the authors are in and what other work they have published.


Demil and Lecocq [2] based RCOV on what they call a Penrose view of the business model concept, “adopting Penrose’s view of the firm as a bundle of resources...at once dynamic, and based on the interaction between distinct core components.”


Morris and Schindehutte [12] describe theoretical underpinnings: using and combining about 20 articles on strategy, architecture and business models.

Yunus and Moingeon [21] base their work on business literature and social entrepreneurship.

Kim and Mauborgne [10] use a very elementary understanding of what a business model is. Other publications by the authors focus mainly on business strategy.

Wirtz’ [18] first published 4C as German book in 2000, still uses it to analyze the influence of internet.

Lumpkin and Dess [11] are not in business model research; instead entrepreneurship and strategy. They claim that the seven business models have proven successful, thus it could be said that they serve as an ex post analysis of internet business models.

Osterwalder [5] mainly referred to Business literature, the four main elements are modeled after the Balanced Scorecard (Kapan and Norton 1992).

Role

Ontology is by definition L1. The question is, if non-ontological meta-business models share this level. Anything more than operational data – or in this case an applied business model – has to be more than L0, as it provides a vocabulary for business modeling.

Users

Users are often not explicitly specified. However, putting the different articles together provides the following list of users involved in business modeling: management, entrepreneurs, consultants, scientists, investors, stakeholders, partners, employees.

Supporting technologies

Only Gordijn and Osterwalder [5] describe (electronic) tools used in the development of the meta-business models. No other author mentions this.

Maturity

Some authors created a meta-business model, and developed it over time, and are often still working with it. These authors are: Zott and Amit, Gordijn, Demil and Lecocq, Wirtz and...
Osterwalder (who now works for himself, not in the academic community anymore).

Morris and Schindehutte are still in business model research. The other authors come from another area of research. Their work in the field of business model research is a one-time exercise.

**Formality**

Gordijn and Osterwalder [5] identify e3-value and BMO to be light-weight and semi-formal. This is however in the context of IS Applications, in the field of business model research, these are the most formal meta-business models available.

In Table 4: Formality order of meta-business models, all used meta-business models are ordered, going from most formal to least formal. The shading indicates that these meta-business models grouped together are not far apart with respect to formality.

### Table 4: Formality order of meta-business models

<table>
<thead>
<tr>
<th>#</th>
<th>Authors</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gordijn</td>
<td>e3-value</td>
</tr>
<tr>
<td>2</td>
<td>Osterwalder</td>
<td>BM Ontology</td>
</tr>
<tr>
<td>3</td>
<td>Hedman and Kalling</td>
<td>BM Concept</td>
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<td>Activity System</td>
</tr>
<tr>
<td>7</td>
<td>Yunus et. al.</td>
<td>Social BM</td>
</tr>
<tr>
<td>8</td>
<td>Lumpkin and Dess</td>
<td>Internet BM</td>
</tr>
<tr>
<td>9</td>
<td>Wirtz et. al.</td>
<td>4C Internet Typology</td>
</tr>
<tr>
<td>10</td>
<td>Kim and Mauborgne</td>
<td>BM Guide</td>
</tr>
</tbody>
</table>

5.2 Meta-business model Applications

**Purpose/Function**

Most meta-business models serve more or less the same purposes and functions as mentioned earlier in Table 3: Meta-business model Applications. A few specific purposes stand out:

Demil and Lecocq [2] want the whole business model concept to provide help in a dynamic, constantly changing environment.

Yunus and Moingeon [21] pose business modeling as a tool to add a social element to the business.

**Tool support**


**Visualization**

Usually ontology is strongly connected with a visual element that presents meaning, both in the components and the connections. However, the graphic elements are not always explained well.


Other meta-business models may provide some graphic with arrows between the components, but fail to clearly explain what those arrows mean. Morris and Schindehutte [12], Wirtz et. al. [20] and Lumpkin and Dess [11] rely on textual explanations, but also make use of tables/matrices to give a better overview.

**Adoption factors**

The only author that explicitly discusses this is Gordijn [5], who provides a tool for profit calculations after a business model has been designed.

Other implicit discussion of the validation of business models are in three articles. Kim and Mauborgne [10] have analyzed over 100 companies, providing a solid base for the tools delivered. Lumpkin and Dess [11] claim that the business models identified have proven to be successful in the internet environment. Morris and Schindehutte [12] provide three different levels, forcing business model developers to carefully think about implication for implementation.

**Evaluation methods**

None of the authors explicitly discusses this issue. Demil and Lecocq [2] make a remark about it, turning the argument around: “a model may be said to be consistent when the various choices about its RCOV core components lead to a sustainable performance – profit is the indicator for BM consistency.”

**Change methodologies**

As with Adoption factors and Evaluation methods, this subject is little discussed. Especially in the case of Demil and Lecocq [2] this appears strange, as they strongly emphasize continuously changing environment a company is in. However, they provide no concrete tools for business model change.

Only Gordijn [5] talks about: “veritable change methodology that accompanies the user from the deconstruction of an existing business model to the design and reconfiguration of a new business model.”

Doz and Kosonen [3] do not create a meta-business model, but instead provide a concrete tool for business model change. They identify three “meta-capabilities”: strategic sensitivity, leadership unity and resource fluidity. The Leadership Action Agenda provides five steps per meta-capability.

**Taxonomy**

Only Zott and Amit [25], and Wirtz [20] can be mentioned for this criterion. The first two authors provide four Design Themes (Novelty, Lock-in, Complementarities, Efficiency), which are more general types of Value Propositions. The four Cs from the 4C internet typology (Content, Commerce, Context, Connection) are the four main types of Value Proposition in e-businesses.

**Other applications**

This is especially for Osterwalder [5], who says that “BMO proposes the navigation of business models. In other words its observation from different business perspectives (e.g. customer perspective, infrastructure perspective).” However, as Osterwalder is no longer active in the academic community, nothing has been done with these ideas.

6. **CONCLUSIONS AND DISCUSSION**

This study started with a research question, meant to provide a transparent insight in meta-business models:

**What elements are used in existing meta-business models?**

In order to identify these elements, the three sub-questions have been answered. The meta-business models can be found in Table 1: List of meta-business models used. To compare these meta-business models, the framework consisting of 19 criteria, found in Table 2 and Table 3. The differences and similarities between the meta-business models are found by applying the comparison framework throughout section 5.
Section 6.1 reviews the results of the comparison. These results answers the main research question, ordering the elements in five groups. Section 6.2 includes feedback to the Problem, Purpose and Relevance and provides a look at future directions.

6.1 Conclusions
The comparison framework identified 19 elements that are part of business model research. However, the issue addressed is to what extent these elements are present in existing meta-business models. Using the results of section 5, the comparison framework is reviewed by classifying all criteria in one of the five following categories:

2. Every meta-business model provides its own interpretation of these criteria. However, a core is identified where the differences overlap.
3. There is no clear distinction on these criteria. Different meta-business models provide different results, but those results can also be applied to other meta-business models. The results are not excluding; instead, they complement each other.
4. These criteria are not discussed, or very little.
5. These criteria present no added value in analyzing meta-business models.

In Table 5, all the framework’s criteria are classified with one of the discussed values. The groups and criteria are discussed below.

### Table 5: Classification of comparison criteria

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conceptual model</td>
<td>1</td>
</tr>
<tr>
<td>Definition</td>
<td>2</td>
</tr>
<tr>
<td>Components</td>
<td>2</td>
</tr>
<tr>
<td>Focus/Reach</td>
<td>2</td>
</tr>
<tr>
<td>Modeling principles</td>
<td>1/5</td>
</tr>
<tr>
<td>Origins</td>
<td>3</td>
</tr>
<tr>
<td>Role</td>
<td>5</td>
</tr>
<tr>
<td>Users</td>
<td>3</td>
</tr>
<tr>
<td>Supporting technologies</td>
<td>4</td>
</tr>
<tr>
<td>Maturity</td>
<td>1</td>
</tr>
<tr>
<td>Formality</td>
<td>1</td>
</tr>
</tbody>
</table>

**Group 1. Clear distinction**
The results from these criteria are remarkably similar. From the Modeling Principles only Coherence and Dynamic are part of this group. Only the results from Maturity differ from the others, as it looks more at what the authors are doing up to this day, not so much at them meta-business models themselves.

**Group 2. Similar core**
Core of Definitions given: concept/tool, structure, value. Other things mentioned: change, strategy, competition.
Core Components are: Value Proposition (9/10), Finance (9/10) and Organization (8/10). Optional Components are: Customer (6/10), Partner (6/10) and Resources (7/10).
Core of Focus/Reach: a company, its activities and value proposition. For some, the focus is more broad, taking into account other companies and competition or strategy. For others, the focus is more narrow, focusing more on just the product or Value Proposition.

**Group 3. Complementary elements**
Origins: business literature, strategy, information systems, ebusiness research and entrepreneurship.
Users: management, entrepreneurs, consultants, scientists, investors, stakeholders, partners, employees.
Purpose/Function: improving communication, inter-company operability, intra-company operability, achieving reliability, enhance business model maintenance, knowledge acquisition, provide a basis for scientific research on business models and provide the fundament for enabling support tools. Serve as a tool of alignment between strategy and operations and provide an interceding framework that allows technological artifacts to contribute to strategy. Demil and Lecocq [2] add that the business model concept must help in a dynamic, constantly changing environment. Yunus and Moingeon [21] pose business modeling as a tool to add a social element to the business.

**Group 4. Criteria not discussed**
Concerning these elements, there are two possible conclusions. The first potential conclusion is that these elements are not part of meta-business models. However, even if they are not part of the meta-business models themselves, these elements are still important in business modeling. As such, different authors have discussed them.

The other conclusion would be that they are actually part of the meta-business models, but not discussed. This would suggest that the articles used do not fully represent the research.

**Group 5. Criteria not useful for analysis**
Modeling Principles: Conceptual, Granular and Multi-level. All these elements are part of what defines a meta-business model. For analyzing business models they may be useful, but in meta-business models they provide no extra insights.
Role: As shown, any meta-business model is L1. However, what L2 is in this context may vary widely. The vocabulary for creating a meta-business model is natural language, it can also be formal computer-code, or blocks and arrows for a drawing.
Other applications: Only Osterwalder [5] mentions an idea. For other meta-business models, Other applications may be adapting the model for social business modeling. However, such ideas are not discussed in this way.
Finally, something that did not add any value to the analysis was the separation of criteria in Characteristics and Applications.

**Visualization of the results**
To get a visual impression of how the different meta-business models relate to each other, the groups can be used as axis. Only groups 1 and 2 can be used for this, for they provide some distinguishable elements. These results have been plotted in Figure 3.

Ordering group 1 is easy, as all criteria results are similar. These elements are labeled in the axis: Formality.
For group 2 the core of each element will provide a baseline. The meta-business models can ‘score points’ on the three elements: Definitions, Focus and Components. The amount of deviation from this core will displace the meta-business models from the baseline.
6.2 Relevance and future directions

Having answered the research questions, the problem of unclear semantics has been addressed. The elements of meta-business models, their use, the differences and similarities have been identified. This contributes greatly to the cohesion of the business model field of research.

Within this niche of business model research, something that remained unclear was the relation between elements identified as the fourth group and meta-business models. These elements are Supporting technologies, Tool support, Adoption factors, Evaluation methods, Change methodologies andTaxonomy.

Another direction is to look at dynamically dealing with elements from different meta-business models in another model. It could for example be investigated if Components can be added to or removed from a meta-business model. Is it possible to add a Social Profit Equation to the Business Model Ontology, without compromising the cohesion of BMO?

7. ACKNOWLEDGEMENTS

I thank Lucas Meertens for all his guidance and feedback concerning both the process and the meaning represented by all models.

8. REFERENCES


