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A Classification for Business Model Types in E-commerce

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ABSTRACT

Internet business models have been widely discussed in literature and applied within the last decade. Nevertheless, a clear understanding of some e-commerce concepts does not exist yet. The classification of business models in e-commerce is one of these areas. The current research tries to fill this gap through a conceptual and qualitative study. Nine main e-commerce business model types are selected from literature and analyzed to define the criteria and their sub-criteria (characteristics). As a result three different classifications for business models are determined. This study can be used to improve the understanding of essential functions, relations and mechanisms of existing e-commerce business models.

Keywords

Business model, business model types, e-commerce, classification, criteria.

INTRODUCTION

By the invention of computing technology and communication systems, particularly after the introduction of the World Wide Web, a new area, called e-business, was introduced in companies. Many traditional manufacturers and sellers used this media as a leverage to improve their business. The term "e-business model" consists of all business activities via electronic media. E-business consists of three main parts: e-procurement, e-organization and e-commerce. The focus of this research is e-commerce. E-commerce covers the business activities between company and customer via electronic media (Stair and Reynolds, 2008).

Every business needs at least one model that the company can use to structure its business behavior in order to generate revenue and sustain the business (Hawkins, 2003; Hawkins, 2002; Hawkins and Ballon, 2007; Rappa 2010; Turban, 2008; Turban et al., 2004). The model focuses on how all elements of the system fit into a working whole (Wu, 2005). According to literature, every business model consists of different elements called actors and their roles (Ballon, 2007; Clarke, 2004; Weill and Vitale, 2001).

Different aspects of the business models are studied by researchers based on two or a few critical parameters (Amami and Thevenot, 2000; Ballon, 2007; Pigneur, 1999; Tapscott, 1999; Timmers, 1998). Lambert (2010) stated that most of the given classifications are company or industry specific. As a result, the authors believe that the business models in e-commerce still require an improvement of their classifications.

The goal of this paper is to develop a general classification for e-commerce business model types. The classification should assists companies as well as researchers and students in understanding the main mechanisms of existing business models and in creating new business models.

METHODOLOGY

In order to provide a new classification, the following research questions will be answered.

- What are the criteria that will enable the classification of business models in e-commerce?
- How can these criteria be used to develop the classification of business models in e-commerce?

This research follows the following steps. First, literature is reviewed in order to identify the gaps in business model classifications in e-commerce. Second, models which are widely addressed by the most relevant researches in e-commerce are chosen. Third; the selected models are analyzed based on the major elements (i.e. actors, their roles and benefit, generation of revenues), considering the value chain flow, in order to find the criteria and answer the first research question.

As the last step and to answer the second question, selected business models are once more analyzed based on the criteria to provide the classification(s) of business models in e-commerce.

BUSINESS MODELS AND CRITERIA

An extensive literature survey resulted in the selection of nine major business model types frequently mentioned in the e-commerce literature. Selected models and relevant references are given in Table 1.

Category	Author
1. Brokerage Model	Rappa, 2010; Engelfriet, 2005; Wen et al., 2001; Afuah & Tucci, 2001.
2. Advertising Model	Rappa, 2010; Samuelson, 2010; Engelfriet, 2005; Wen et al., 2001; Afuah & Tucci, 2001.
3. Infomediary Model	Rappa, 2010; Madlberger, 2004; Afuah & Tucci, 2001.
4. Merchant Model	Rappa, 2010; Engelfriet, 2005; Madlberger, 2004; Wen et al., 2001; Afuah & Tucci, 2001.
5. Affiliate Model	Rappa, 2010; Engelfriet, 2005; Afuah & Tucci, 2001.
6. Manufacturer Model	Rappa, 2010; Samuelson, 2010; Engelfriet, 2005; Wen et al., 2001; Afuah & Tucci, 2001.
7. Community Model	Rappa, 2010; Engelfriet, 2005; Madlberger, 2004; Wen et al., 2001; Afuah & Tucci, 2001.
8. Subscription Model	Rappa, 2010; Samuelson, 2010; Engelfriet, 2005; Wen et al., 2001; Afuah & Tucci, 2001.
9. Utility Model	Rappa, 2010; Engelfriet, 2005; Afuah & Tucci, 2001.

Table 1: Taxonomy of Business Models

The analysis of the business models is done based on the value chain flow, which consists of the suppliers, the company itself, the customers and sometimes other partners. The results of this analysis lead to the definition of three main criteria called “Traded Items”, “Ownership Relation” and “Revenue”. These criteria with their respective characteristics (sub-criteria) are summarized in Table 2. It is important to take into account that customer and supplier are the roles given to the actors. In other words, while a company plays the role of a customer for other companies, it may act as a supplier for its own customers. Further information is available in the thesis of Abdollahi (2011).

Criteria								
Traded Item			**Ownership**			**Revenue**		
Service/Immaterial	Goods	Supplementary Product	Production	Content	Intermediation	Direct	Commission	Subscription Fee

Table 2: Classification Criteria

Traded items

In all business models, suppliers, customers and partners are interacting with each other through the exchange of some kind of items. The criterion “Traded Item” includes the products, produced or provided to customers in order to make revenue. This criterion has three characteristics: “Service/Immaterial” covers all kinds of services, such as supporting customers, connecting buyer and seller; “Goods” includes physical/material and also immaterial products (e.g. software) in the sense of the major products; “Supplementary Product” comprises minor products that can be either material or immaterial. The last criterion is not the core business of the company, although it might generate a considerable income. Supplementary products are more for completing the competitive advantage or providing a complete range of facilities to the customer.

Ownership

The “Ownership” of offered products and services can be divided into three characteristics as well: “Production” refers to those items that the company produces itself. It is assumed that the company can provide services and products independently of its activities. In other words, although production without a customer has no economical explanation, the concept of production and offering depends only on the company’s willingness and plans.

"Content" ownership means that the company provides the platform for the activities while the content depends on the contribution of the user or the customer. In this group, contrary to the production group, the existence of the customers is vital and without them the company is only acting as a platform. A company may decide to continue without a customer; however, the main content could not be produced without the interaction between the users.

The third characteristic is "Intermediation". Here, the company provides a platform for connecting the provider of goods and services to the demanders. This activity is its main business and without the contribution and willingness of both sides, it is meaningless. The difference between this characteristic and the "Content" is that in the latter case the contributors are from the same category but in "Intermediation" usually one side of the contribution is the business partner and the other side is the user. Furthermore, in content ownership the substances are mainly contributed to and generated by the users, although they might be professional users who benefit from this interaction.

Revenue

The third criterion is "Revenue" which has three characteristics called "Direct", "Commission" and "Subscription Fee". In "Direct" revenue the company as the owner of the business model is making its revenue by providing its own products or services to the users or customers defined as the actors in a business model. In "Commission", the main revenue of the e-commerce company is a percentage (commission) of the money paid by the receiver of the services. The end users or the consumers provide indirect benefit for the company through the increase in customer's usage which results in a higher commission amount. This is frequently used in e-commerce companies that connect two parties. In "Subscription Fee" the revenue is generated through the fees received from the users. The subscription fee is also considered in the form of renting a product, either material but mostly immaterial. The fee can be periodic, fixed or a per usage fee.

CLASSIFICATION OF THE BUSINESS MODELS

The above mentioned criteria give an answer to the first research question. To provide a classification to business models and to answer the second research question, selected business models are analyzed, based on the determined criteria. Based on the number of criteria considered in each analysis, three types of classification (i.e. One-Dimensional (Overview), Two-Dimensional and Three-Dimensional) result.

One- Dimensional Classification

To give an overview on the most common business model types, the selected types are fragmented according to every individual criterion (see Table 3) and a short description of each business model analysis based on these criteria is given.

	Criteria								
	Traded Item			Ownership			Revenue		
Business model	Service/ Immaterial	Goods	Supplementary Product	Production	Content	Intermediation	Direct	Commission	Subscription Fee
Brokerage (Priceline)	√			√		√	√	√	
Advertising (craigslist)	√	√		√		√	√	√	√
Infomediary (Doubleclick)	√		√	√			√		
Merchant (Amazon)	√	√	√	√			√		
Affiliate (Amazon)	√	√	√	√			√		
Manufacturer (Dell)		√		√			√		
Community (Flickr)	√		√	√	√		√	√	√
Subscription (classmates)	√			√	√			√	√
Utility (Slashdot)	√				√				√

Table 3: Business Model Fragmentation According to the Criteria

Brokerage Business Model

The first model is the Brokerage model. According to this model, the broker offers some services to different parties and charges them for that. The offered product does not mainly belong to the broker and therefore it is categorized in the service and intermediation group. According to the offered service/immaterial, the broker generates revenue and since this amount depends on the services, it is mainly defined as the commission. However, there is another option, where the broker has the ownership of products or services produced by other companies. That means the broker takes the responsibility of the offered items acting as the seller of the product. In this case, the broker generates direct revenue as well.

Advertising Business Model

The second model is the advertising model in which the e-commerce company offers advertising services and products. The revenue method varies, depending on the offered product. If the company provides the services for the publication of advertisements on the websites and appears more like the broadcaster of the advertisements, then it better fits the service/immaterial category with an intermediation role. In this case the revenue is based on commission. This commission depends on the type of agreement and may not be fixed.

On the other hand, when the e-commerce advertising company is producing an advertisement package, which can be considered as the goods that the company is producing, the revenue is direct. As a conclusion, a company may combine different alternatives and generate the revenue in different ways.

Infomediary Business Model

For the traded item in the infomediary business model, both services/immaterial and the supplementary products are possible. That is because most of the companies are providing a service/immaterial to other businesses in order to enable companies to do the analysis for the marketing campaign themselves. In supplementary products, the company has ownership of the product as shown in Table 3. Even when the service/immaterial is offered for concepts like customer behavior analysis, it is still considered as a production ownership, due to the process of analysis on the raw data that creates a new package of information that can later be offered to the business partners. The revenue, which is made in this business model, is based on the direct type since the company receives money, mainly based on the service or the product it offers to the business partners.

Merchant Business Model

In the merchant model, the company provides service/immaterial, goods and the merchant takes the responsibility of the products: for example she or he buys the products in advance and later sells them to a customer. If the merchant offers some supplementary products, such as a device or a tool, which actually supports the usage of another traded item, then the ownership is considered in the production section and the revenue would be direct.

Affiliate Business Model

The next group is the affiliate business model. In this model, the company offers some incentives to other affiliates who can redirect the customers to them. The ownership of the products and goods is from the production type since they belong to the company and therefore the revenue generated is direct.

Manufacturer Business Model

In the manufacturer business model the producer of the goods offers the products which indeed gives a direct revenue and complete ownership. The traded item in this model is considered as goods.

Community Business Model

In the community business model, some parts of the service/immaterial are mainly offered to the users in order to contribute to a professional problem solution. Here the nature of the contributors is the same and therefore the ownership of the service for the company is a content ownership. If the company provides some tools or products in order to support the customer's or partner’s activities, then the traded item would be supplementary and thus belongs to the production ownership. The revenue generated depends on the product type. If the traded item is supplementary then the revenue would be direct. In the content ownership the company receives a commission for broadcasting advertisements on the webpage. There is also another category of generating revenue in this model, which is based on submission fees.

Subscription Business Model

The subscription business model company is mainly a company that offers some services to the customers to facilitate their communication and interaction. The traded item would be service/immaterial and the service is dependent on both sides that have the same nature, therefore it has a content ownership. In case the company offers some special products, which should be paid in advance, the offered product or data is considered as goods and the ownership is production. In all cases the revenue is generated according to the subscription fees, however, if the company publishes advertisements on the website, then it would also be a commissioning type of revenue.

The results of this research indicate that the main difference between the community and the subscription model is that the community has more professional aspects, while the subscription model has more social interactions. The difference shows itself in the traded item criterion.

Utility Business Model

In this model a service/immaterial is provided to some customers (of mainly the same kind) and therefore the company has the content ownership of the information. The revenue is mainly based on the subscription fee or, in other words, the rent of the service used. It is not considered as a direct sales category because the main revenue generated from the usage fee where the customer owns the service or has access over a certain period or amount.

Two-Dimensional Classification

The aim of the Two-Dimensional classifications is to enable companies to find the business models, which match their business characteristics to support them with their planning. Two-Dimensional classifications also help students to recognize the differences between business model types and to grasp their main characteristics. The Two-Dimensional classifications compare two of the three criteria with each other and therefore result in three tables (Tables 4, 6 and 7). The two criteria are compared in order to position each business model based on them. If both criteria are valid in a business model the related cell in the table is filled with the name of the model. In the first table, Table 4, the traded item and ownership criteria are compared.

Traded items and Ownership

Ownership \ Traded Item	Service/Immaterial	Goods	Supplementary Product
Intermediation	Brokerage Advertising	Advertising	
Content	Community Subscription Utility		Community
Production	Brokerage Advertising Infomediary Merchant Affiliate Community Subscription	Advertising Merchant Affiliate Manufacturer	Infomediary Merchant Affiliate Community

Table 4: Traded Item Criterion and Ownership Criterion

The following points result from Table 4:

1. The most crowded cells are in the service traded item. That is due to the fact that most of the business models are providing more service/immaterial than goods or supplementary parts. In other words, companies are tending to provide services and the majority of the activities in the field of e-commerce are done in the service providing area. However, this cannot be extended to all companies and is not a guarantee for success.

2. The cell which contains the goods/content combination is empty. The reason for this is the definition of the content ownership, which says that when the contributors to the substance of the e-commerce website are of the same type (e.g. user) , then the ownership is a content ownership. On the other hand, the traded item in the group of goods indicates that the producer has a supplier role and the demander has a customer role and, therefore, they are not from the same type. Thus this cell is empty.

3. The other cell which has no model specified is the supplementary product/intermediation cell. The company itself mainly offers the supplementary products to the customer. Even if a third party produces the products for the company, the ownership would not be considered as an intermediation type.

4. A further reason for less business models in the goods and supplementary product columns is the complexity of providing models in these categories. To be in this section, the e-commerce companies have to provide their own product for which it requires more infrastructure and resources.

To have a clearer picture of the models, a mapping of the criteria has been done and is mentioned in Table 5. Figures 1, 2 and 3 show the results of this mapping.

Traded Item	Ownership	Revenue
Only Goods → Material	Only Production → Complete	Only Direct → Direct
Only Services/Immaterial → Immaterial	Only Intermediation → Incomplete	Only Subscription fee → Indirect
Only Supplementary → In the middle of the axis	Only Content → In the middle of the axis	Only commission → In the middle of the axis
More than one kind of traded item →In the middle of the axis	More than one kind of the ownership type →In the middle of the axis	More than one kind of the revenue type →In the middle of the axis

Table 5: Criteria Mapping

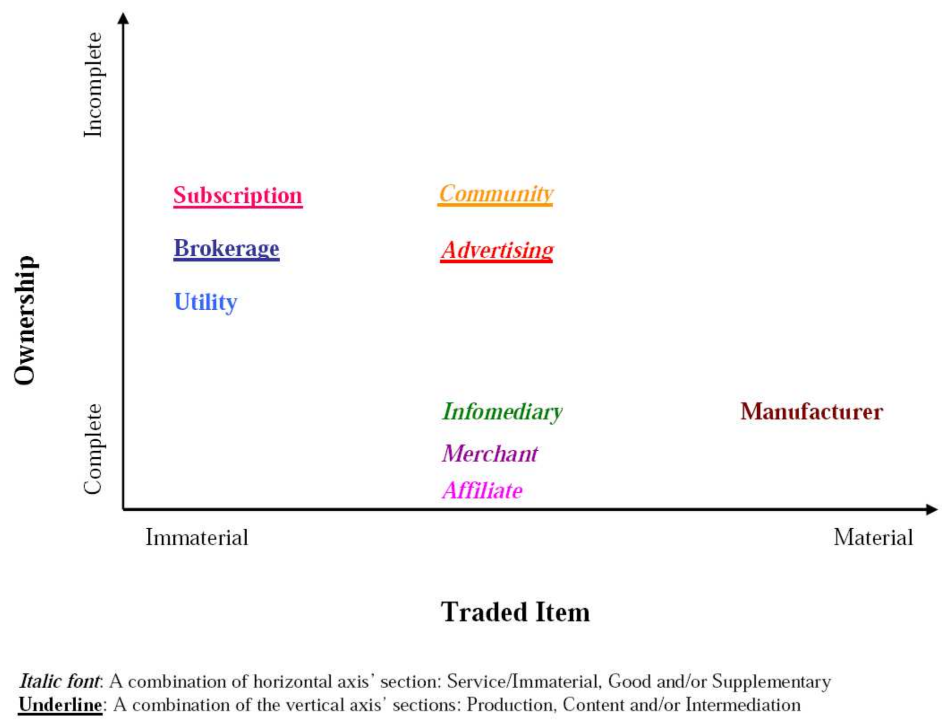

Figure 1: Simplified View of Business Models (Traded Item and Ownership)

A noteworthy area in this figure is the upper area where no model appears due to the fact that there is no business model that provides only products with an incomplete ownership. For companies this is a good opportunity but it is difficult to achieve.

Traded Item and Revenue

Revenue \ Traded Item	Service/Immaterial	Goods	Supplementary product
Subscription Fee	Advertising Community Subscription Utility	Advertising	Community
Commission	Brokerage Advertising Community Subscription	Advertising	Community
Direct	Brokerage Advertising Infomediary Merchant Affiliate Community	Advertising Merchant Affiliate Manufacturer	Infomediary Merchant Affiliate Community

Table 6: Traded Item Criterion and Revenue Criterion

1. In Table 6 and Figure 2 the distribution of the business models is more homogeneous compared to the previous table. Nevertheless, there are still more business models in the services/immaterial row. More companies are tending to offer services based on the higher demand of the customers.

2. There are more opportunities in the market for generating revenue according to the commissioning or the subscription fee and the companies can benefit from that.

3. In order to generate revenue from the subscription part, the provided goods or service should have a significant added value for the customer. Otherwise she or he will not take part in this model.

4. Community model and advertising model participate in all revenue methods and, therefore, appear in most of the cells of the table. This can be used by companies to appropriately define their plans and goals.

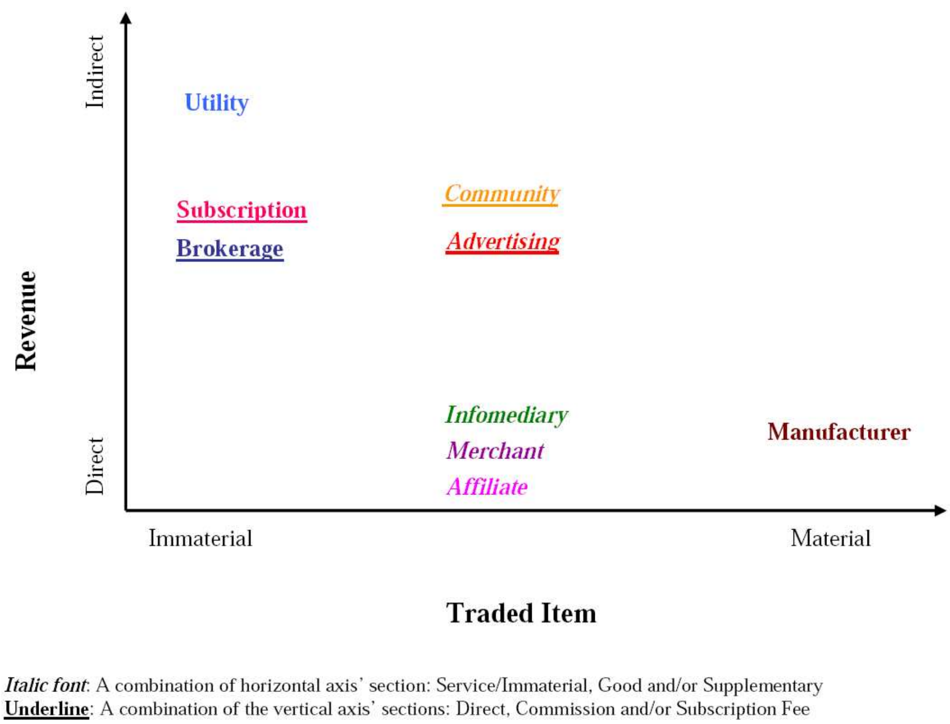

Figure 2: Simplified View of Business Models (Traded Item and Revenue)

Ownership and Revenue

As the last part of the Two-Dimensional analysis, the ownership and the revenue criterions are shown. As an example, the subscription model is chosen and described. As shown in Table 7, the subscription model appears in 4 cells. The ownership of the products offered by the company is based on production and content, while the revenue is generated from subscription fee and commission.

Revenue	Production	Content	Intermediation
Subscription Fee	Advertising Community Subscription	Utility Community Subscription	Advertising
Commission	Brokerage Advertising Community Subscription	Community Subscription	Brokerage Advertising
Direct	Brokerage Advertising Infomediary Merchant Affiliate Manufacturer Community	Community	Brokerage Advertising

Ownership

Table 7: Ownership Criterion and Revenue Criterion

The main outcomes as resulting from Table 7 are:

1. The distribution of the business models is very homogeneous.

2. A content ownership is dependent on the contributors which are mostly similar. Those companies, which would like to be more active in providing services according to a content ownership should provide an attractive added value to their participants in order to motivate them. With this strategy, an e-commerce website would be more active and the revenue would be generated based on a commission or a direct method.

3. For the intermediation ownership and, generally speaking, to provide a good service, companies should have good partners and a strong relationship with other business actors. In fact this is not very easy, particularly in the very competitive environment in today's e-commerce.

4. Considering ownership and revenue, Advertising and Community models seem to be the most active models. On the other hand, Utility, Infomediary, Merchant, Affiliate and Manufacturer models appear very few in number, since these models are more specific with regard to their activities. The Utility model, for example, mainly has a content ownership of the services and its revenue is produced based on a subscription fee. Furthermore, an Infomediary model has only a production ownership with a direct revenue generation.

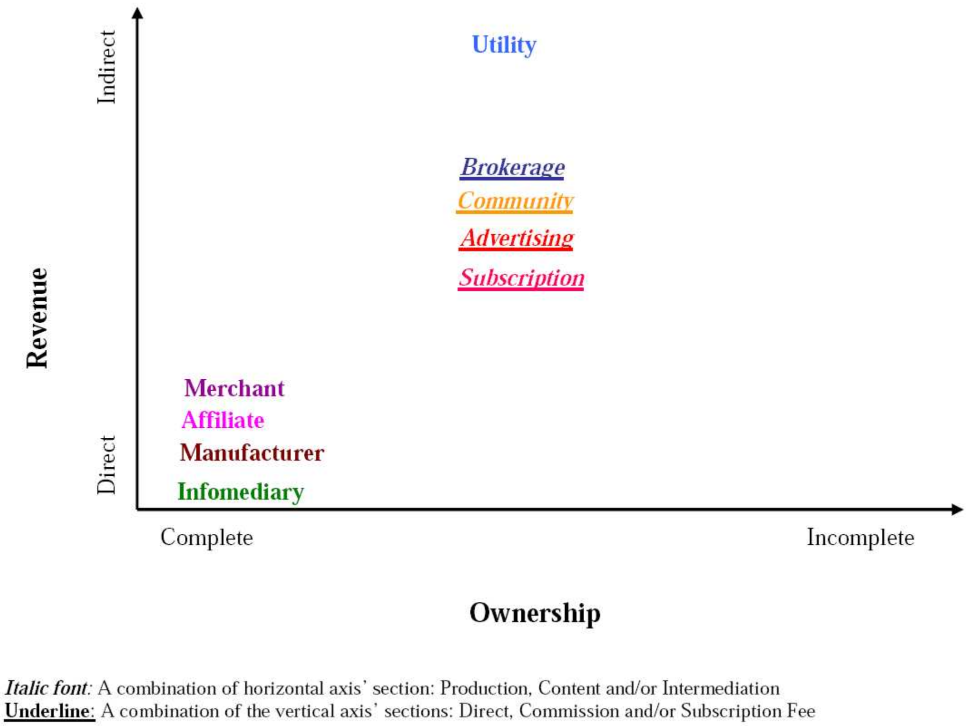

Figure 3: Simplified View of Business Models (Ownership and Revenue)

An interesting finding that needs to be mentioned is that no business model has been identified with a pure "Incomplete" ownership type. It should be kept in mind that an incomplete ownership is only an intermediation ownership. In addition, among all business model maps (i.e. Figures 1, 2 and 3), the last figure has the most uneven distribution. In the first two figures, the models are more evenly distributed but the right side of Figure 3 is completely empty.

Three-Dimensional Classification

For companies interested in new markets or for those that are new in e-commerce, it is very beneficial to determine and understand the business model that fits their business requirements. This information can be significantly beneficial because it helps these companies to manage their resources in a proper way. The Three-Dimensional classification presented in this section considers all three criteria at the same time. To apply the Three-Dimensional classification to the business models, a company should follow the following steps:

1. Look into the list of criteria described in Table 2 (i.e. traded item, ownership and revenue) and select the most business relevant characteristic in each criterion.

2. Filter the business models according to the selected characteristic of the first criterion (i.e. Traded Items) and eliminate the non-relevant ones.

3. Filter the business models resulting from step 2, according to the selected characteristic of the second criterion (i.e. Ownership) and skip the non-relevant business models.

4. Filter the business models resulting from step 3, according to selected characteristic of the third criterion (i.e. Revenue) to get the final list of relevant business models.

To provide more clarification, an arbitrary business scenario is explained: A company offers "Service/Immaterial" as its traded item (step 1). This characteristic results in the selection of all business models except the Manufacturer model (step 2). Furthermore, still as part of the first step, the company chooses "Content "and "Production" as the most relevant type of ownership. At this time the company can find the relevant business models according to the chosen ownership. In step 3, the Content ownership results in Community, Subscription and Utility models while the Service-Production ownership leads to Brokerage, Advertising, Infomediary, Merchant, Affiliate, Community and Subscription business models. In this phase the company can plan, based on the desired type of revenue. In this example the company is generating the revenue base on the

"Subscription Fee". Step 4 closes the Three-Dimensional analysis by the selection of four business models: Advertising, Community, Subscription and Utility. The process is illustrated in Figure 4.

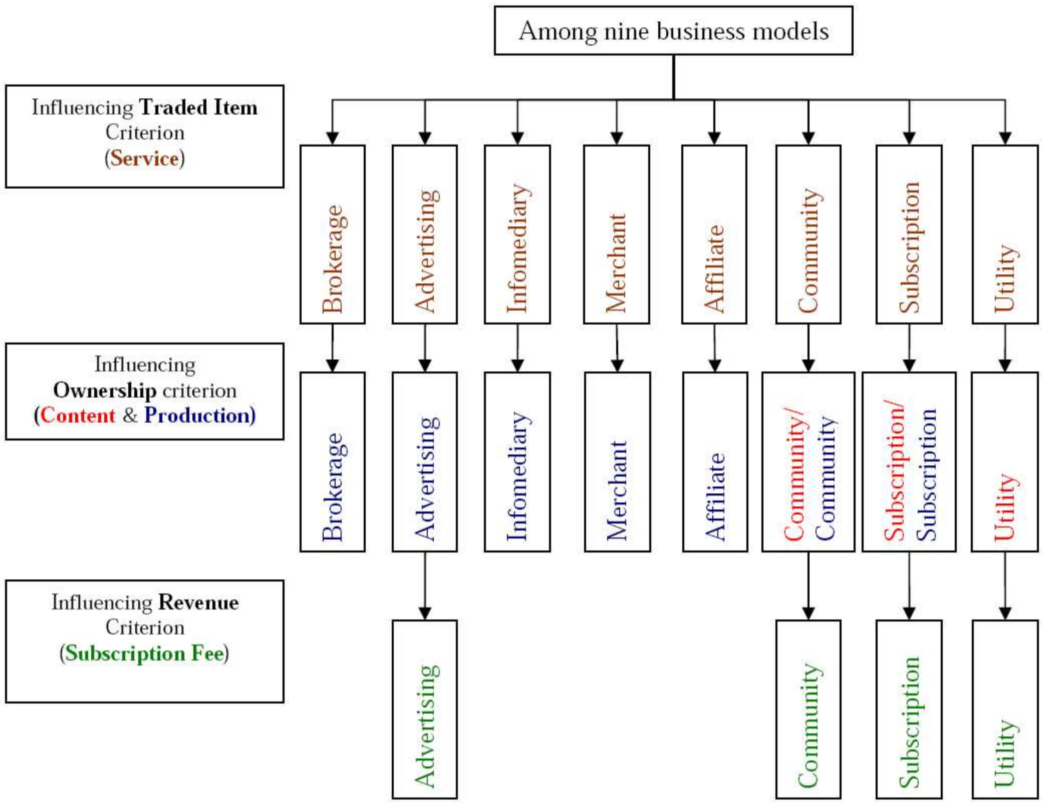

Figure 4: Three-Dimensional Analysis for the Sample Company in the Scenario

It is important to keep in mind that it is not a *must* for the companies to consider all three criteria in the analysis at the same time. But an additional criterion makes the positioning or distinguishing of the appropriate business models more precise.

Furthermore, if a company's wish is a business model(s) that covers all its needs, then a combination of different characteristics should be considered. For example, imagine that the company analyzed in Figure 4 above, is now looking for model(s) that meet all business characteristics. The first filter leads to the same results as in the previous analysis, where all business models except manufacturer were qualified for the third step. The difference shows up in step 3 during the second filtering. This means that in the new analysis, step 3 nominates only 2 models that can fulfill both ownership requirements (i.e. content and production). These two models are namely the Community and the Subscription models. The results are showing deviation from the first analysis where 8 models have been qualified. Finally, both Community and Subscription models fulfill the subscription fee revenue, so in the end the new analysis leads to the selection of only 2 models capable to meet all business needs of the company.

In the new analysis, there is a risk that none of the business models may fulfill all requirements at the same time. If that is the case then the company may switch to the first strategy. If it is not allowed due to any restrictions and the company is still interested in an "all in one Business Model" solution, then either the creation of a new business model specific for that company or a new set of analysis is suggested.

CONCLUSIONS

The results of the analysis done on the business models show that the actors and their interactions are the key factors for analyzing business models. Based on the interactions of the involved parties three main criteria have been identified which can be used for general classifications of business models: Traded Item, Ownership and Revenue. In each criterion the business models may differentiate by showing different characteristics. To address this issue, each main criterion is described by three occurrences (for Traded Item: Service/Immaterial, Goods and Supplementary; for Ownership: Production, Content and Intermediation; for Revenue: Direct, Commission and Subscription Fee). These criteria and characteristics are general and not industry or company specific.

Based on the identified criteria and their characteristics different classifications of business model types are provided:

(1) an One-Dimensional (overview) which considers all criteria together,

(2) a Two-Dimensional classification which is based on combinations of only two criteria, and

(3) a Three-Dimensional classification which is based on a hierarchical combination of all three criteria.

The One-Dimensional (overview) provides an understanding of each criterion and the criteria-related behavior of business model types. The main outcomes of this overview are: First, the business models are behaving differently in various criteria. In other words, the nine business model types are properly selected. Secondly, the result shows that the majority of the business models are providing a service/immaterial traded item, a production ownership and direct revenue.

The Two-Dimensional classification has the advantage that it gives information about the interrelation between two criteria. In fact, this leads to a more appropriate understanding and selection of business models. However, at a time this covers only two of the criteria. In other words, three analyses are required to have sufficient information for a comprehensive view on the business models. To make the classification easier to understand, all main criteria are quantified based on their characteristics as follows: the traded item from immaterial (pure service) to material (pure goods); the ownership from complete (production) to incomplete (intermediation) and the revenue from direct (direct) to indirect (subscription fee). As a result, the Two-Dimensional classification identified no business model in incomplete ownership and only one business model with pure material (Manufacturer) and one with pure indirect revenue (Utility). Results also show that in e-commerce almost all business models are providing services (immaterial traded item). This result recommends that the companies interested in using e-commerce should carefully investigate the market due to high competition.

In the Three-Dimensional analysis all three main criteria are considered at the same time, which enables the analysis of all business characteristics in a single analysis. Nevertheless, the results of this analysis differ from case to case, therefore no specific general results can be provided. In case the classification does not lead to a business model, the company is encouraged either to change the classification strategy or to define a new business model. In the end, this classification is performed differently from the other two regarding the analysis and presentation approaches, due to the fact that Three-Dimensional results require Three-Dimensional figures.

The business model classifications fulfill the main goals of this research. The results of these analyses and classifications will be helpful to achieve an understanding of the essentials and mechanism of different existing business models in e-commerce.

However, this research has its own limitations as well. Firstly, results and findings are not implemented since this was out of the scope of this study and requires a company with no previous experience in e-commerce. Secondly, the collected data are gathered by means of a desktop research, published reports and documents, as well as author's self-observation and analysis of websites.

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