Does e-Business Modeling Really Help?

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Abstract

Many innovative e-business ideas are hardly understood by their stakeholders when articulated just by words. To create a better, also shared, understanding, and to enhance confidence in the feasibility of such verbal ideas, we have developed a model-based e-business development approach called e^3-value . *But does a model-based approach really contribute to the development of innovative e-business ideas? To answer this question, we report on an innovative e-business idea about online news provisioning which has been explored using our* e^3-value *approach, and which has been implemented afterwards. To see the merits of* e^3-value *we revisited this project one-year-and-a-half after its implementation. It then shows up that indeed a modeling approach contributes to e-business development, but also some important lessons can be learned to improve our methodology.*

1 Introduction

Over the past few years, many innovative e-business ideas have been considered. Such ideas reveal new value propositions, which are enabled by new technological possibilities, such as the widespread use of the Internet and technologies on top of it.

Recently, it became clear that many e-business ideas are not successful [11]. Many enterprises doing e-business have not been able to create profit with their e-business ideas. Some of these companies who relied entirely on future e-business profits have gone bankrupt.

One of the causes for the many failed e-business initiatives is that the idea was not based on sustainable business. Moreover, many stakeholders did not understand the often vaguely articulated idea very well, so they were not able to assess chances on profitability, before putting the idea into operation.

To this end, we have developed the *e^3-value* methodology, with the goal to explore, to analyze, and to evaluate the economic value perspective of innovative e-business ideas (see e.g. [6, 7]) more thoroughly. The *e^3-value* methodology assesses an e-business idea by conceptualizing it, by estimating future profits for all stakeholders involved and by doing a sensitivity analysis on future events such as price erosion, increasing competition and alike, which can influence the sustainability of the idea. This model-based approach contrasts to more informal approaches which capture an idea only textually, leaving room for misinterpretations, and not allowing for structural analysis and evaluation.

But does our more thorough approach really help? Our action-generalization research method, which we have also used to develop the *e^3-value* methodology, allows us to do reflective learning on the e-business ideas developed with *e^3-value* , and provides insight in the merits of a more model-based approach for e-business development. Action research [4] in general is about actively participating in solving a real-world problem (the action part), and is about scientific reflection on this participation (the research part). Our action-*generalization* research approach retains the inductive and empirical flavor of action research, but also aims at theory formation with sresults. We do so by applying our business modeling approach a number of times in real-life projects, while each time enhancing our methodology by using the reflective learning results.

In this paper, we report on one such an action research cycle: the exploration of an online news article service using our *e^3-value* methodology, and an assessment of that e-business idea one-year-and-a-half after its implementation.

Before discussing the e-business exploration track (the action part) in more detail (section 4 and 5), we first overview the *e^3-value* methodology (section 2) with a focus on the concepts used to represent business models. How to elicit, model, analyze, and evaluate such models is described in [6]. In section 6, we present the reflective learning part of action research: lessons learned one-year-and-a-

half later. Finally, section 7 presents our conclusions.

2 The e^3-*value* methodology

Before discussing the e-business idea at hand, we briefly review our e^3-*value* approach (see for detailed information [6]). The methodology consists of (1) building blocks which can be used to represent an e-business idea, and (2) a modeling process to model, analyze, and evaluate such an idea. The building blocks for idea representation we briefly review below, the modeling process follows from the steps executed in this paper (see for a more explicit description of this process [6], chapter 5).

The e^3-*value* provides modeling concepts for showing which parties exchange things of *economic* value with whom, *and* expect *what* in return. These concepts are based on recent economics and business science literature on e-business [12, 8, 10] combined with formal ontology of systems theory [2]. The conceptualization of an e-business idea, which we call an e-business model, can be graphically represented (see for example figure 1). For diagramming purposes, the reader can download a VISIO tool stencil from our website at http://www.cs.vu.nl/~gordijn/research.htm. What follows is a summary of the most important concepts.

Actor. An actor is perceived by its environment as an independent economic (and often also legal) entity. An actor makes a profit or increases its utility. In a sound, sustainable, e-business model *each* actor should be capable of making a profit.

Value Object. Actors exchange value objects, which are services, products, money, or even consumer experiences. The important point here is that a value object is *of value* for one or more actors.

Value Port. An actor uses a value port to show to its environment that it wants to provide or request value objects. The concept of port enables us to abstract away from the internal business processes, and to focus only on how external actors and other components of the e-business model can be 'plugged in'.

Value Interface. Actors have one or more value interfaces, grouping individual value ports. A value interfaces shows the value object an actor is willing to exchange *in return for* another value object via its ports. The exchange of value objects is atomic at the level of the value interface.

Value Exchange. A value exchange is used to connect two value ports with each other. It represents one or more *potential* trades of value objects between value ports.

Market segment. A market segment is a concept that breaks a market (consisting of actors) into segments that share common properties [9]. Accordingly, our concept *market segment* shows a set of actors that for one or more of their value interfaces, value objects equally from an economic perspective.

Composite actor. For providing a particular service, a number of actors may decide to work together, and to offer objects of value jointly, using *one* value interface to their environment. We call such a *partnership* a composite actor.

The concepts above allow us to model who wants to do business with whom, but can not represent *all* value exchanges needed to satisfy a particular end-consumer need. It occurs often that, to satisfy an end-consumer need, numerous other actors have to exchange objects of value with each other. As an example think of a shop that exchanges economic values with an end-consumer: as a result, the shop must also exchange values with a wholesaler. It is our experience that showing all such value exchanges to satify an end-consumer need contributes largely to a common understanding of an e-business idea. To that purpose we use an existing scenario technique called Use Case Maps (UCMs) [3]). UCMs show which value exchanges should occur as a result of a consumer need (which we call a start stimilus), or as a result of other value exchanges. Below, the main UCM modeling constructs are briefly discussed.

Scenario path. A scenario path consists of one or more segments, related by connection elements and start and stop stimuli. A path indicates via *which* value interfaces objects of value must be exchanged, as a result of a start stimulus, *or* as result of exchanges via *other* value interfaces.

Stimulus. A scenario path starts with a **start stimulus**, which represents a consumer need. The last segment(s) of a scenario path is connected to a **stop stimulus**. A stop stimulus indicates that the scenario path ends.

Segment. A scenario path has one or more segments. Segments are used to relate value interfaces with each other (e.g. via connection elements) to show that an exchange on one value interface causes an exchange on another value interface.

Connection. Connections are used to relate individual segments. An **AND fork** splits a scenario path into two or more sub paths, while the **AND join** collapses sub paths into a single path. An **OR fork** models a continuation of the scenario path into one direction that is to be chosen from a number of alternatives. The **OR join** merges two or more paths into one path. Finally, the **direct** connection interconnects two individual segments.

3 An e-business idea for online news articles

The e-business idea we have developed using our e^3-*value* methodology is about offering regular newspaper subscribers online news articles (in the form of an article archive). Additionally, the idea is to offer subscribers web services, such as surfing on the Internet, email and alike. In this paper we focus on the idea to offer subscribers an online news article archive only.

From a *financial* perspective, the idea is to use a *termination* fee to finance the online article service. *Termination* means that if someone tries to set up a telephone connection by dialing a telephone number, another actor must pick up the phone, that is, *terminate* the connection. If someone is willing to *cause* termination of a large quantity of telephone calls, most telecommunication operators are willing to pay such an actor for that (the *termination fee*). Because the newspaper has a large subscriber base, s/he is capable of generating a large number of terminations for an *online article* service.

4 An e-business model

A first step in e-business model exploration is to make a more formal representation of the e-business idea using the concepts introduced in section 2. For the e-business idea at hand, figure 1 shows a possible business model based on call termination. By following the scenario path, we see which actors have to exchange value objects in reaction to a start stimulus.

Readers. A start stimulus is caused by a reader if s/he wants to read an online article. Readers are subscribers on a newspaper, the *Amsterdam Times*, and come in thousands. Because of this, and for the assumption that readers value online articles equally, readers are grouped into a market segment. What makes this model special is that a reader has to exchange value objects with *two* actors to read an online article: (1) the *Amsterdam Times*, and (2) the *Last Mile*.

Amsterdam Times. The reader receives an article from the *Amsterdam Times*, and offers a *termination possibility* in return. The latter is key to this business model. By aggregating these possibilities, and because of his/her large subscriber base, *Amsterdam Times* has the potential to generate a large number of terminations.

Last Mile. The reader pays the local operator *Last Mile* a fee for a telephone connection. A local operator is a telecommunication operator who exploits the local loop: the last mile of copper or fiber between a telephone switch and a reader's house. By doing so, the local operator owns part of the infrastructure needed to offer a reader a telephone connection. This telephone connection is needed by the reader as a physical connection to access the online article archive using the Internet Protocol (IP). At the time this exploration track was carried out, only one local operator existed in the Netherlands, so only one such actor has been modeled.

Telecommunication consortium. As a result of the aforementioned exchanges both the *Amsterdam Times* and the *Last Mile* need to exchange value objects with a telecommunication consortium to deliver the online article experience to the reader, as can be seen by following the remaining part of the scenario path. These exchanges are about: (1) interconnecting traffic, (2) internet service provisioning, and (3) terminating traffic.

Interconnecting traffic. The *Last Mile*, as the name suggests, exploits only a part of the telephone infrastructure needed to offer the reader a telephone connection for data traffic: the last mile between the reader's house and the nearest telephone switch. To make this telephone connection usable, it should be between the reader *and* a party exploiting IP access servers. These access servers offer IP connectivity and allow the reader, in conjunction with the underlying telephone connection as a physical carrier, to retrieve articles from server(s) hosting the article archive. The reader and these IP access servers can be located hundreds of miles away from each other. Now note that the *Last Mile* offers the reader a connection to an access server, but in reality only operates the last mile copper needed for such a connection. So, *Last Mile* needs to buy him/herself connectivity to bridge the remaining miles. In this case, another party, called a telecommunication consortium, offers this kind of interconnection. *Last Mile* pays the telecommunication consortium for doing so; this fee is called the interconnection fee. It is a fraction of the telephone connection fee paid by the reader.

Internet service provisioning. The core business of the *Amsterdam Times* is to produce news articles and newspapers. They are not so much interested in all technical activities, such IP access provisioning and content hosting, which are needed to make articles online available from a technical perspective. Therefore, they outsource these activities to the aforementioned telecommunication consortium.

Terminating traffic. For each scenario occurrence, the *Amsterdam Times* obtains a termination fee. This is paid by the telecommunication consortium, because the *Amsterdam Times* generates huge amounts of data traffic, thereby utilizing the infrastructure of the telecommunication consortium.

As figure 1 shows, there are two telecommunication consortia which deliver comparable services. The *Amsterdam Times* can choose on a per scenario occurrence basis which consortium will handle the request of the consumer. This is

denoted by the OR fork in figure 1. This enlarges the power of *Amsterdam Times* over the telecommunication consortia, because *Amsterdam Times* decides which consortium gets business. In the project hand at hand this mechanism was used to control the quality of the service delivery: more quality yields more business.

The telecommunication consortium: a partnership. At least one telecommunication consortium (see figure 1) is a partnership, consisting of the actors *Data Runner*, a telecommunication company and *Hoster*, an Internet service provider. Both these companies decide to offer telecommunication facilities for long distance traffic, hosting and IP access jointly as a bundle, under certain special conditions. A special condition can be the price, which might be cheaper for *Amsterdam Times* than an alternative, such as obtaining the objects of value from other actors separately. In this specific case, *Data Runner* and *Hoster* can offer services jointly cheaper, because they co-locate technical equipment such as a telephone switch, IP access servers, and web servers at one physical site, thus saving costly wide area connections to interconnect all these components.

5 Evaluation of an e-business idea

The next step is to evaluate the economic feasibility of an e-business idea in quantitative terms, based on an assessment of the economic value of objects for all actors involved. Evaluation of an e-business idea consists of a number of steps: (1) creation of a profitability sheet, (2) assignment of economic value to value objects, and (3) evaluation using evolutionary scenarios.

5.1. Creation of a profitability sheet for enterprise actors

Table 1 shows a part of a profitability sheet for the *Last Mile* actor. Similar tables for the other actors can be constructed also (see [6]).

We have created this sheet by following the scenario paths, starting at the start stimulus, and each time the path crosses a value interface of an actor, the sheet is updated with value objects flowing in and out of that actor. As the business model in figure 1 contains two different scenario paths, the sheets show two scenario paths also. These paths are named *Telecommunication consortium 1* and *2*, representing the different paths as a result of the OR-fork superimposed on the *Amsterdam Times* to denote the before discussed supplier selection.

5.2. Assignment of economic value to value objects

A second step in evaluation is the assignment of economic value to value objects. Since we only consider the enterprise perspective in this paper, assignment takes two steps: (1) determination of valuation functions for value objects representing money, and (2) reduction of non-money value objects.

5.2.1 Determination of valuation functions for value objects representing money

For enterprises, we only consider cash in and -out flows. This is cf. investment theory: the long-term goal of enterprises is to make profit which requires that the ingoing money flow is greater than the outgoing flow [5]. Consequently, below we only give valuations for value objects representing money.

Telephone connection fee. The telephone connection fee per scenario occurrence is based on a start tariff and a connection-time dependent tariff. To calculate the total monthly fees, the telephone connection fee is multiplied with the realized number of scenario occurrences.

Interconnection fee. The interconnection fee per scenario occurrence (here only shown for actors in *telecommunication consortium 1*) is based on a fraction (the interconnection factor, a number between 0 and 1) of the telephone connection fee, and on a percentage of the physical distance *Data Runner* bridges.

Termination fee. The termination fee *Amsterdam Times* receives, in this case from *telecommunication consortium 1*, is calculated analogously to the interconnection fee, only now we use a revenue sharing factor rather than an interconnection factor. Typically, the revenue sharing factor is smaller than the interconnection factor times the percentage of the physical distance bridged by an operator. Note that by valuing this way, we are capable of analyzing the effects of a decreasing interconnection factor (e.g. influenced by a market regulator), while the revenue sharing factor remains the same. This models a situation where *Data Runner* takes the risk of a decreasing interconnection factor.

IP access fee - *Amsterdam Times*. *Data Runner* charges *Amsterdam Times* an IP access fee in return for giving readers access. This fee is based on an IP access tariff per second. We want to account for the situation that IP access equipment is a very scarce resource; *Data Runner* wants to have the opportunity to assign unused IP access ports to others. Therefore, *Amsterdam Times* is asked to forecast the

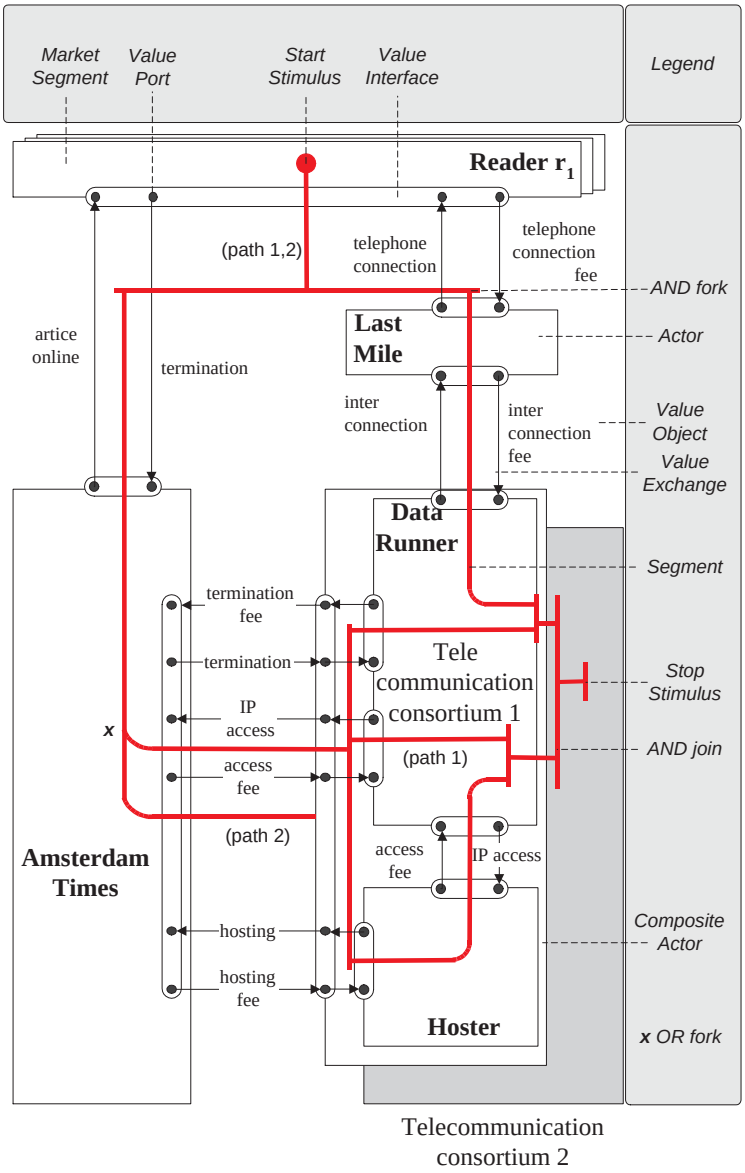

Figure 1. The online article service offered by *Amsterdam Times* is funded by termination fees to be paid by the telecommunication consortium.

Table 1. Profitability sheet for the *Last Mile* actor per scenario occurrence

Actor	Last Mile	
Scenario	Read online article	
	Value Object In	*Value Object Out*
Scenario path	Telecommunication consortium 1	
Likelihood	50%	
Exchanges with readers:	*telephone connection fee* $=$ *start tariff* $+$ *connection tariff* $\times$ *duration*	(*telephone connection*)
Exchanges with telecommunication consortium 1:	(*interconn.*$_{\textit{telco cons. 1}}$)	*interconn. fee*$_{\textit{telco cons. 1}}$ $=$ *telephone connection fee* $\times$ *interconn. factor*$_{\textit{telco cons. 1}}$ $\times$ *distance factor*$_{\textit{telco cons. 1}}$
Scenario path	Telecommunication consortium 2	
...	... similar to telco consortium 1	

number of scenario occurrences on a monthly basis, including the average duration. *Data Runner* then allocates access ports on this forecast, and can allocate remaining ports to others. To motivate *Amsterdam Times* to do good forecasting, the following valuation is used: If the number of realized scenario occurrences drops below an inaccuracy factor (e.g. 75 %) of the forecast occurrences, we use 75 % of the forecast occurrences for the calculation of the monthly IP access fee. Otherwise, we use the realized number of scenario occurrences .

IP access fee - *Hoster*. The IP access fee to be paid by *Hoster* is based on the forecast number of maximum concurrent scenario occurrences. These occurrences require IP connectivity between *Hoster* and *Data Runner* with a predetermined bandwidth to be in place, which is adjusted on a monthly basis, using the forecast. Based on the required bandwidth, we calculate a fee for IP access.

Hosting fee. The hosting fee is calculated in a similar way as the IP access fee for *Hoster*. *Hoster* uses a forecast of *Amsterdam Times* of the number of concurrent page views, which in turn is based on an average number of page views per forecast scenario occurrence. This results in a fixed fee per month for hosting.

5.2.2 Reduction of non-money value objects

All objects which do not represent money objects are removed from the profitability sheets. While doing so, we check if each non-money object, which enters an actor, also leaves the same actor. We assume that each non-money value object that flows into an actor, also flows out such an actor.

Reduced value objects are in table 1 shown between parentheses. For example, we remove telephone connection and interconnection from the actor *Last Mile*, because the telephone connection is an enriched interconnection. *Last Mile* enriches the *interconnection* by exploiting a district telephone switch and a last mile of copper or fiber optics.

5.3. Evolutionary scenarios

The last step of e-business idea assessment is the evaluation of the idea by identifying evolutionary scenarios, as well as their effect on the e-business idea. In contrast to operational scenarios, which describe behavioral aspects, evolutionary scenarios describe events which may occur in the future. Such an event can e.g. be a change in consumer behavior (e.g. a decrease in products bought) or an increase in market competition. Using the valuation in table 1 and other tables for the remaining actors not shown on this paper, we

evaluate several evolutionary scenarios, which model expected changes in the future regarding valuation. As an example, table 2 shows the consequences of the occurrence of identified evolutionary scenarios for profitability sheets.

Scenario 1: Null scenario. The *null* scenario is our best estimate. Observe that *all* actors make a profit.

Scenario 2: *Amsterdam Times* is a bad forecaster. What happens if the *Amsterdam Times* is not a good forecaster of scenario occurrences [1]. It can be seen that *Amsterdam Times* will not make a profit. For *Last Mile* and *Data Runner* there is still a profit to cover the costs. *Hoster* is insensitive to bad forecasts, because it does not depend on the number of realized scenario occurrences.

Scenario 3: Interconnection factor decreases. It is reasonable to expect a decrease in the interconnection factor after some months, because presently this factor is high to stimulate competition between telecommunication operators. As soon as this competition works, this factor will decrease. *Amsterdam Times* does not feel such a decrease, but *Data Runner* will.

Scenario 4: Revenue factor decreases. *Data Runner* may decide to decrease his/her revenue sharing factor. As can be seen, this will harm *Amsterdam Times*.

In conclusion, by valuing the objects for each actor, and by making reasonable assumptions about the number of (forecast) scenario occurrences, we can perform a sensitivity analysis for the business idea hand. This sensitivity analysis is in many cases of more business interest than the numbers of the valuation itself.

6 Lessons learned

E-business idea exploration, as well as its implementation for the project discussed in this paper took place during December 1999 - February 2000. The project was carried out for a publisher of daily newspapers in the Netherlands. The driving actor was the interactive media department, a subsidiary of the publisher. In September 2001, the publisher publicly announced to stop most of its Internet related activities, of which the service outlined in this paper is part of [1]. It is likely that the online article service explored in this paper will be phased out the coming years. Because of this, we revisited the publisher in November 2001. The goal of this visit was first to understand the publisher's decision, but more importantly to assess whether we reasonably could have foreseen a failure during exploration of the online article e-business idea. If so, we can learn from it and improve our e^3*-value* approach. This refers to the reflective learning part of the action research approach we employ to develop and enhance the e^3*-value* methodology.

The publisher has a number of reasons for stopping the *online article* service, but some of these are not directly related to this service. Figure 2 presents causes and effects which motivated the publisher to stop the service at hand, and which are directly related to the online article e-business idea outlined in this paper. The following sections discuss these causes and effects.

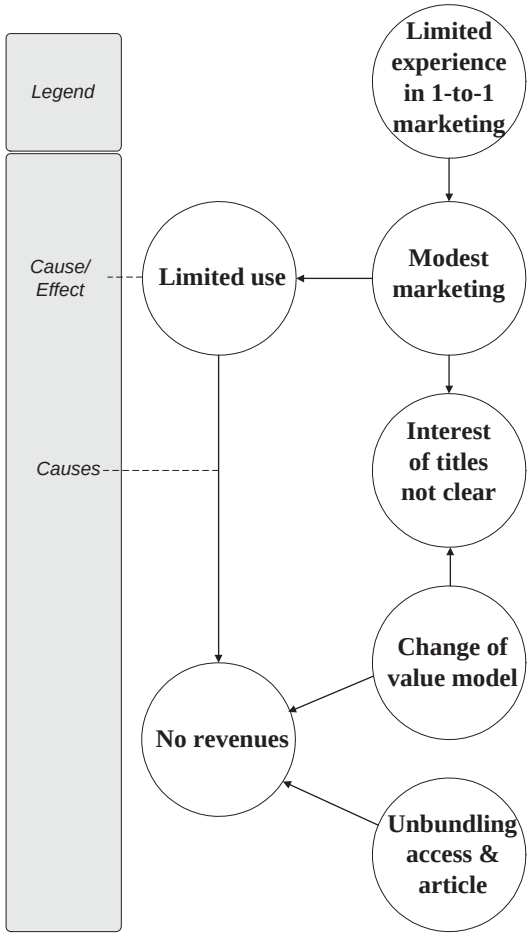

Figure 2. Cause effect graph showing why the online article service is likely to be terminated.

[1] For scenarios 2, 3, and 4, we assume that both telecommunication consortia are equally effected. So, for scenario 2, *Amsterdam Times* has to pay both consortia a fee for bad forecasting, for scenario 3, a decrease in the interconnection factor harms both telecommunication consortia, and for scenario 4, a decrease in the revenue factor will benefit both consortia.

Table 2. Different valuation scenarios. The null-scenario is our best estimate. A second scenario assumes that *Amsterdam Times* forecasts inaccurately. A decrease in the interconnection is expected to occur, especially of competition between telecommunication actors increases (see the third case). The fourth scenario supposes a drop in the revenue sharing factor between *Data Runner* and *Amsterdam Times*.

		Profit (Euro)			
Scenarios		*Amsterdam Times*	*Last Mile*	*Data Runner*	*Hoster*
1.	*Null-scenario, Forecast = Realized*	55,800	39,000	46,100	4,000
2.	*Forecast (1,500,000) >> Realized (150,000)*	-16,920	3,900	12,260	4,000
3.	*Decrease in interconn. factor (1.0 to 0.4)*	55,800	132,600	-700	4,000
4.	*Decrease in revenue sharing factor (0.55 to 0.1)*	-14,400	39,000	81,200	4,000

6.1. Limited use of the service

The use of the online article service is modest. The number of scenario occurrences per timeframe is not as many as hoped for. Disappointing numbers on scenario occurrences was one of the evolutionary scenarios we have identified (scenario 2). Figure 2 shows an explanation for limited use of the online article service: modest marketing.

6.1.1 Modest marketing

A cause for a limited use of the service is the *modest marketing*. For instance, it is not very easy for potential readers to find the service or to subscribe themselves on the service. Also, not many efforts have been done to attract regular subscribers on a newspaper to the online alternative.

Lesson 1: *Development of a marketing perspective is needed during e-business idea exploration.*
The way a service is marketed is currently not part of the *e*^{3}*-value* approach. In contrast, [13] distinguishes explicitly a marketing perspective in addition to the notion of *business model*. We learned from this study that the way an e-business idea (once it can be articulated) is marketed is important for its acceptance and success.

We have identified two causes for modest marketing (see the coming sections): (1) the interest of brand owners in the service is not clear, and (2) there is only limited experience with one-to-one marketing, compared to the mass-marketing a newspaper is used to.

6.1.2 The interest of brand owners in the service is not clear

The publisher has a number of newspapers called titles. Titles have specific *brand owners* being profit-and-loss responsible for their own title. These brand owners were however not explicitly modeled in our business model (see figure 1). We only have identified an actor called *Amsterdam Times*, denoting the publisher and all her brand owners. This actor publishes regular newspaper articles (one of the activities done by the brand owners), and offers online articles (a joint activity of brand owners and the interactive media department). Not distinguishing the publisher's internal structure has the following drawbacks:

- *commercial (selling) responsibility for the online article service is unclear*: the business model does not show in detail who is responsible for value exchanges (e.g. the online articles) between readers and the publisher;
- *interests of the publisher's business units (brand owners and the interactive media department) in the e-business idea is unclear*: the model does not show how brand owners and the interactive media department as independent profit centers earn money with the online article service.

To address the mentioned drawbacks brand owners can be made responsible for offering online articles to their subscribers. To stimulate selling, brand owners may receive a modest fee (a fraction of the termination fee the interactive media department receives from a telecommunication

consortium), which directly relates to the use of the online article service.

Lesson 2: *If multiple business units of one enterprise participate in an e-business idea, model explicitly which units, rather than the enterprise as a whole, exchange value objects with their external customers.*
Profit and loss responsible actors (such as brand owners) being part of a conglomerate should be modeled explicitly, as well as their interaction with customers outside the conglomerate. If such actors commit themselves to a business model, arguments on who is responsible for marketing and selling value objects (such as online articles) afterwards can then be avoided.

Lesson 3: *If multiple business units of one enterprise participate in an e-business idea, model explicitly these units as actors, and the objects of value they exchange.*
In addition to the aforementioned lesson, a business model should also illustrate how actors of a larger conglomerate account each other for a specific e-business idea. For each actor it should be clear how s/he creates value for other actors part of the conglomerate (or for external customers).

6.1.3 Limited experience in one-to-one marketing

The publisher and its brand owners have only limited experience with one-to-one marketing. Such marketing is needed to sell the new proposition to each individual subscriber on a title. In contrast, brand owners are very experienced in mass-marketing.

As discussed before, the *e*^{3}*-value* methodology should be extended with a marketing perspective, also to address a shortcoming in marketing plan implementation capabilities.

6.2. No revenues

After a certain time of execution, an e-business idea should contribute to profit for the participating enterprises. This is not the case for the service at hand. One of the causes for this is a modest use of the service, but two other reasons have been identified: (1) a change in the proposed business model, and (2) unbundling of articles online and IP access.

6.2.1 Change of business model

After we left the project, contract negotiations between the publisher and the telecommunication consortia continued. They felt that the designed business model was too complex, and so they decided to choose for another model. The difference with the original model (see figure 1) is that the publisher pays a very modest fee to the telecommunication consortium for hosting and access. Moreover, this consortium earns money by termination fees. So, in the new model the publisher is not paid, but rather must pay a modest fee itself.

Such a new business model only works if there are revenues for the publisher from other sources, e.g. from subscribers, or an increase in customer loyalty/branding, which can be translated into revenues. However, it was decided not to choose for such a solution: fees are only *paid* by the publisher and not *received*. It also not clear how the business units (brand owners and the interactive media department) themselves are funded for this service. This is one of the main reasons why the online article service can not survive.

6.2.2 Unbundling access and online articles

The original business model (see figure 1) assumes that the *only* way to access an online article is to set up a telephone connection with a *selected* telecommunication actor. With such a telecommunication actor, the publisher has an agreement on termination fees. In other words, access is bundled with online articles. This can be concluded from the actors shown, their value interfaces and exchanges, as well as the way scenario paths are drawn. Bundling of access and articles ensures that an interconnection fee and termination fee is paid to the telecommunication consortium and the publisher.

Some brand owners have chosen not to bundle access and the online article. Readers of a specific label can choose an Internet Service Provider (ISP) themselves to access the online articles. To do so, the online article archive is connected to the Internet. As a result, no interconnection fee is paid to the telecommunication consortium the e-business idea was designed for, and consequently the publisher does not receive a termination fee. This disrupts the designed business model presented in figure 1. As a result, the telecommunication consortium does not receive fees anymore to finance his/her hosting service offered. Therefore, this actor may charge an additional fee for hosting, e.g. to the title responsible for unbundling. In conclusion, the consequence of unbundling is that the online article service must be financed by sources elsewhere (e.g. by the reader), but it is not clear how this happens.

Lesson 5: *Find evolutionary scenarios by using various kinds of scenarios: (1) scenarios caused by changes in valuation, (2) scenarios caused by a change in the number of scenario occurrences, and (3) scenarios caused by a change in a business model's structure.*
During idea exploration, we have only focused on evolutionary scenarios, which capture changes in valuation by actors, e.g. as a consequence of market deregulation, and scenarios presenting wrong assumptions on the use of the

service (wrong numbers on scenario occurrences). By revisiting the publisher, we have learned that evolutionary scenarios can also be classified as changes in the structure of the business model itself (e.g. removing value exchanges and ports, and debundling).

7 Conclusions

Does e-business modeling really help? To answer this question, we have presented a non-trivial e-business idea on news provisioning, which has been modeled, analyzed and evaluated using our *e*^{3}*-value* methodology, and we have revisited the company responsible for the idea one-year-and-a-half after its implementation.

The result of the exploration track carried out some time ago was that stakeholders understood the idea well, and knew critical factors of the idea such as the ability to forecast reliable, and sensitivity of the idea for decreasing interconnection and termination fees. The *e*^{3}*-value* methodology enhanced the common understanding of idea in a way that was not possible by traditional e.g. verbal ways: telecommunications companies only succeeded in explaining the complicated revenue model by drawing our graphical model; verbal attempts failed.

To our believe, a model-based approach can contribute even more if it is not only used for the exploration of a busines idea, but is also used to assess consequences of changes in the business model, which occur as a result of the dynamics of a business environment itself. Failures as discussed in section 6.2.1 could have been seen by constructing business models capturing changes, in this case in arrangements between actors. The *e*^{3}*-value* methodology is capable of assessing consequences of changing such arrangements, which can even be formalized by a new value model (see [6], chapter 8). The same holds for debundling access from content: a change in the business model which was not foreseen during exploration, but the effect can be explained by making and analyzing a business model.

In conclusion, e-business modeling is a useful approach to understand and analyze an e-business model. This is not only shown by the common understanding of the business idea after exploration of the idea, but also by the capability of our *e*^{3}*-value* modeling approach to explain the business idea-in-operation one-year-and-a-half later.

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