

Towards a Business Model Framework for E-learning Companies

Completed Research Paper

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Abstract

E-learning nowadays influences almost every part of life. Individual learners as well as educational institutions and companies increasingly apply e-learning technologies. These developments come along with an increasing number of company formations in the e-learning industry. The choice of the right business model has proven to be an important success factor. To establish in the marketplace, these companies must be aware of their business model. Although a lot of research regarding business models has been carried out, e-learning specific characteristics have not been considered in terms of a standardized description of business models. This paper presents the derivation of a business model framework which addresses the specifications of the e-learning industry. It supports e-learning companies to describe and evaluate their business model according to a fixed scheme consisting of business model elements and their specifications.

Keywords

Business models, business model framework, e-learning, business model elements.

Introduction

E-learning technologies as well as social and digital media nowadays influence almost every part of life (Hoppe & Breitner, 2005). Teaching and learning scenarios in educational and professional context are increasingly enriched by the use of digital learning technologies – in many cases by the use of mobile devices. Learning and teaching by electronic media is carried out at school and university as well as in vocational education and training on the job. This also includes each individual's personal development and informal learning during free time activities. These developments come along with an increasing importance of the e-learning industry. E-learning companies have several target groups which comprise individual learners, schools and universities as well as companies (Dittler, 2011). Particularly large companies with more than 1000 employees belong to the most important target group as they represent the greatest value driver for the e-learning market (IbisCapital, 2013). Current studies prognosticate a

total value of \$49.9 billion for the global e-learning industry by the year 2015 (Global Industry Analysts, 2010). Studies from 2010 already identified a value of \$32.1 billion (Global Industry Analysts, 2010).

The establishment of companies in a highly dynamic market like the e-learning industry requires the choice of the right business model. A business model explains how a company works by offering an abstract view on aspects like critical success factors, activities of value creation and a company's organizational structures (Al-Debei & Avison, 2010; Magretta, 2002). Thus, a business model depicts an abstract view on a company's required information about critical success factors, business processes and financial flows (Magretta, 2002). With the rise of the worldwide web in the late 90s the business model concept has gained in importance in literature and practice (Mahadevan, 2000). When the dot-com bubble burst practitioners and scientists began to analyze why some companies could establish in the market while others have been prevailed by their competitors (Amit & Zott, 2001; Dubosson-Torbay, Osterwalder, & Pigneur, 2002; Morris, Schindehutte, & Allen, 2005).

Business models have already been analyzed in several scientific articles resulting in a large number of definitions, models and theories (Amit & Zott, 2001; Betz, 2002; Chesbrough, Henry, 2006; Di Valentin, Emrich, Werth, & Loos, 2012; Mahadevan, 2000; Osterwalder & Pigneur, 2002; Timmers, 1998; Zott, Amit, & Massa, 2010). However, most business model concepts cover generic aspects without considering the characteristics of a specific industry. Hence, for many industries existing business model concepts are not significant enough to carry out standardized analyses and comparisons of their business models. Particularly the e-learning industry lacks a holistic and standardized business model framework that takes into consideration the specific characteristics of this sector.

This article aims at the derivation of a comprehensive business model framework for companies in the e-learning industry. The goal of the framework is to offer e-learning companies a standardized description of their business models according to a fixed scheme. The framework addresses company founders as well as companies that already exist in the market place to configure their business model from scratch and adapt specific aspects about it. The resulting scientific knowledge represents a grounded approach to describe e-learning business models by classifying them into categories, elements and characteristics of each business model element. The derivation of the framework follows a design science approach (Hevner, March, Park, & Ram, 2004). Generic business model concepts as well as literature dealing with business model-specific aspects for e-learning companies have been considered. Deficits of existing approaches are identified as requirements for the business model framework.

The next chapter shows the results of the related work analysis and the identification of the target groups, followed by an explanation of the concept and the structure of the framework. The section "Business Model Framework for E-Learning Companies" presents the e-learning business model framework consisting of categories, business model elements and business model element specifications. The article closes with a summary of the main results and an outlook on future research.

Related Work and Target Groups of the Framework

Literature Analysis on Generic and E-Learning Specific Business Model Concepts

The literature review has been carried out according to the research framework of Pateli and Giaglis (2004). The framework decomposes the theoretical area of business models into several sub-domains like definitions, components, taxonomies, conceptual models, etc. They carried out a literature review on business models and classified existing research to the sub-domains of their framework. Manuscripts that have been classified to the sub-domain "components" have been of high relevance for our framework. Hence, the research results presented in this paper can be also classified to the sub-domain of "components" within the research framework of Pateli and Giaglis (2004).

In a first step, relevant scientific articles about business model frameworks have been identified according to the keywords: revenue model, strategy, business models and process models. The analysis has focused on frameworks that consider aspects about *business division*, *software sector*, *service sector* and *content sector* as they are relevant for the e-learning industry (Götzelt, 2010). The results of the literature analysis have been classified according to the consideration of business model components, characteristics of business model components, business model categories as well as the analysis of value chains of the e-

learning industry. Particularly the consideration of components was an important factor as they allow a structured description of business models.

Morris, Schindehutte and Allen (2005) describe business models according to six components: *factors related to offering, market factors, internal capability factors, competitive strategy factors, economic factors and growth factors*. Their framework represents a three tier layer which links a business model's basic elements to strategy and operative layer. The three levels are composed of the foundation level, the proprietary level and the rules level. Osterwalder and Pigneur's (2010) Business Model Canvas describes business models according to nine building blocks which are often applied in literature and practice. The framework of business models in the software industry of Schief and Buxmann (2012) describes business models according to 20 components which are classified into several categories. Each business model component has specific characteristics. The framework considers economic features in form of market data and financial information of listed software companies (Pussep et al., 2013; Pussep, Schief, & Buxmann, 2012). The framework of Zott, Amit, and Massa (2011) describes business models according to three core components: *E-business, strategy & innovation* as well as *technology management*. The components *e-business* and *strategy & innovation* cover aspects about performance, value creation and competitive advantages whereas technology management discusses the practicability of the selected models (Zott, Amit & Massa, 2011).

Hoppe and Breitner (2004, 2005) derived a framework for e-learning business models. They describe business models according to *cost/benefit analysis, finance model, accounting model, revenue/cost analysis, revenue model and sustainability analysis, market analysis, service model, production model, production factors analysis & quality management and evaluation* (Hoppe & Breitner, 2005). Asfoura, Jamous and Salem (2009) have a rather generic view on e-learning business models. They derived a business model consisting of six components, whereas only three components take into consideration e-learning aspects. Nagle and Golden (2007) extended Osterwalder and Pigneur's (2010) business model components with *e-learning industry sub components*. Their business model distinguishes between *customer relationships* and *technology* (Nagle & Golden, 2007). Vossen and Westerkamp (2007) focus on service oriented e-learning companies. They decompose the e-learning value chain to form companies that are specialized and flexible to foster cooperation. However, the framework does not address a structured description of business models, e.g. in form of elements or categories.

The following figure depicts the results from the literature analysis that form the basis for our framework.

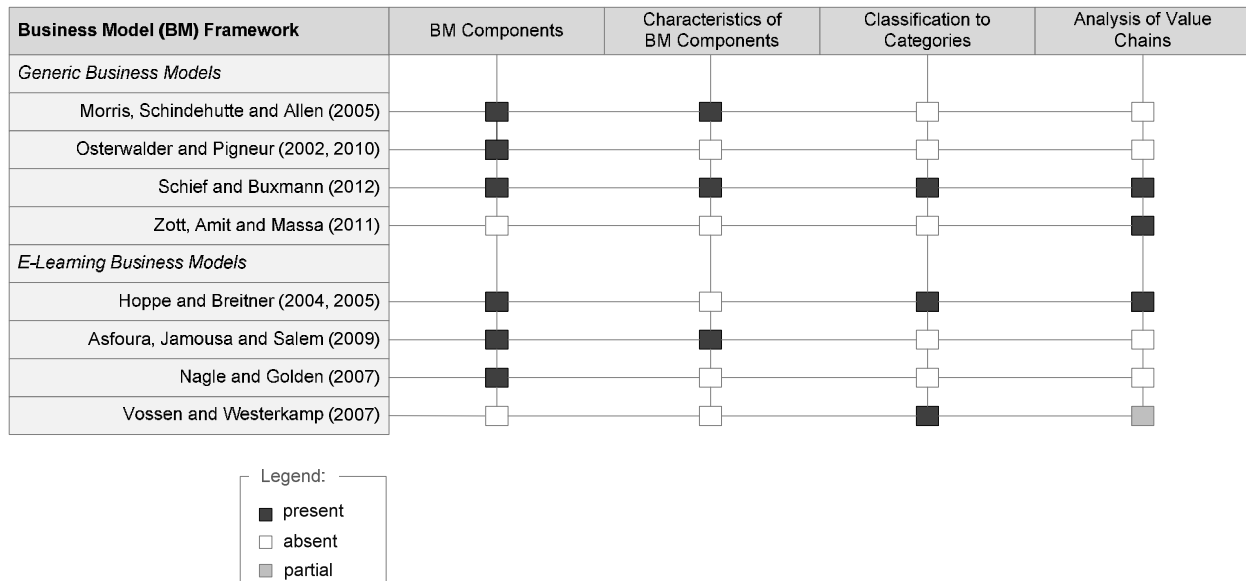


Figure 1. Results of the Literature Analysis

The results of the literature analysis show that only Schief and Buxmann (2012) consider a holistic and standardized description of business models, however with a focus on the software industry. For the e-learning industry, so far there does not exist an approach which supports e-learning companies to

configure their business model in a standardized manner under consideration of the characteristics of this industry.

E-Learning Companies and Target Groups of the Framework

E-learning companies are classified into software provider, content provider and service provider (Ehlers & Pawlowski, 2006). Software providers have a focus on the production process of e-learning software from a technical perspective. Content providers focus on pedagogical and didactical aspects of e-learning software, rather than implementation details. Service providers take into consideration support and consulting services for e-learning software. Full service providers are e-learning companies that cover all areas. The following figure shows the classification of e-learning companies.

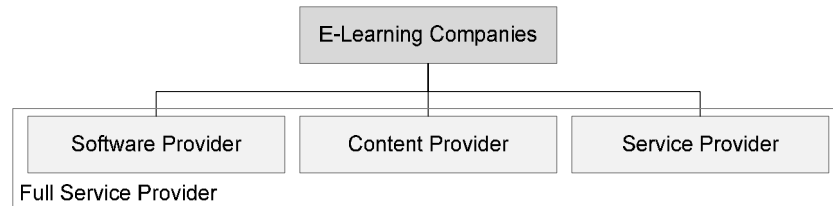


Figure 2. Classification of E-Learning Companies

Hence, e-learning companies can produce content and software but also provide different services for their customers. For this reason, different scopes of designing business models have to be considered depending on the area in which an e-learning company focuses its activities. The framework in this paper addresses e-learning companies of all areas. This multi-faced view comes along with a diversified customer model which requires an identification of the company's value chain, its customers and its partner companies.

A specific characteristic about the e-learning industry is the large number of addressees of e-learning solutions (Hartley, 2001). Digital learning technologies address a large number of users beginning from (vocational) schools to higher education. But also learning during free time activities becomes a factor of increasing importance. Hence, e-learning companies focus their activities on three major target groups: Individual learners, schools/universities and companies/employees (Hoppe & Breitner, 2004). The concentration on each target group requires the definition of specific aspects about the business model. An e-learning company that e.g. mainly focuses on business customers follows a different customer segmentation and standardization of learning contents than an e-learning company with a focus on individual learners or schools.

Concept of the Business Model Framework

Based on the shortcomings of the literature analysis we derived the following requirements:

- R1: The framework should offer a fixed scheme to describe business models by breaking business models down into elements with different specifications.
- R2: The framework should serve as a basis to analyze value chains and business processes to carry out a mapping between the derived elements and an e-learning's underlying business processes.

The results of the literature analysis formed the basis for our classification of business model components and their specifications. Generic and established business model concepts as well as aspects relevant for the e-learning industry have been analyzed and transferred into the framework. Components that are identical in terms of wording or meaning have been consolidated whereas similar components have been included as sub-elements. The result represents a business model framework consisting of 27 business model elements that are classified into the categories: *Value offering, partnerships, market, strategy and finance model*. Each business model element can be described according to specific characteristics (e.g. an e-learning company's partner structure can be either described by a few partners with a strong partner structure or by many partners with a loose partner structure). The framework offers e-learning companies a standardized overview of their core business model elements they should be aware of. Already existing

companies can use the framework to carry out modifications on their already existing business model. The graphical representation of the business model framework has been carried out according to Schief and Buxmann (2012).

Business Model Framework for E-Learning Companies

The following sub-sections describe the developed business model framework. Any combination of business model elements amongst each other can be carried out. The derivation of the business model categories has been conducted according to Morris, Schindehutte and Allen (2005) and Schief and Buxmann (2012). Particularly the categories *Value Offering*, *Partnerships* and *Market* cover e-learning specific aspects, whereas the categories *Strategy* and *Finance Model* rather focus on generic aspects.

Value Offering

This business model category has been derived according to Hoppe and Breitner (2004), Nagle and Golden (2007), Osterwalder and Pigneur (2010) as well as Vossen and Westerkamp (2007). It describes an e-learning company's key activities regarding software and content. Because of the specific requirements of the e-learning industry, the business model elements of this category are classified into the sub-categories *Software and Services Offering* and *Content and Services Offering*. The first sub-category addresses value creation and services regarding the technical production of e-learning software whereas *Content and Services Offering* focuses on didactical and pedagogical aspects regarding the offered content.

Software and Services Offering comprises the *Production Model (SW)* and the *Technical Service Model*. The Production Model describes how an e-learning product is manufactured. Possible software products of the e-learning industry have been integrated in the framework as specifications of this business model element: CSCL (Computer Supported Collaborative Learning), MOOCs, Drill & Practice, Tutoring Systems and Simulations have been derived according to the framework of (Hoppe & Breitner, 2004) who refer to these aspects with their sub-component "Production Factor Analysis". The specification "platforms" has been integrated into the *Production Model* based on Vossen and Westerkamp (2007). The *Technical Service Model* covers all technical oriented services an e-learning company offers to its customers. *Software Manufacturing* describes a company's role within the manufacturing process of a software product. *Standardization* encompasses a company's decision whether the learning software is offered to customers in a standardized or customized manner.

Content and Services Offering has a focus on pedagogical and didactical contents of the e-learning product. *Standardization of Contents* can be described from standardized to fully customized contents. *Reuse of Contents* is a topic of increasing importance in the e-learning industry (Hoermann, Seeberg, Divac-Krnic, Merkel, Faatz & Steinmetz, 2003). It is enabled by learning objects (LO) or reusable learning objects (RLO) (Valderrama, Ocana, & Sheremetov, 2005). LOs and RLOs facilitate the combination of already existing learning content to create and expand further learning contents and courses (Morris, Schindehutte & Allen 2005; Valderrama, Ocana, & Sheremetov, 2005). This causes higher costs for the production of these contents (Valderrama et al., 2005). Thus, companies have to decide if they aim at the production of RLOs at high initial costs or the production of non-reusable LOs.

Mobile e-learning software requires the technical adjustment to mobile devices as well as the adjustment of contents that are specifically tailored for mobile devices (Lopez, Royo, Laborda, & Calve, 2009). Hence, aspects like screen size or time factors have to be considered. Mobile learning contents should be compact and offer users the possibility to stop and continue their courses any time. Hence, mobile learning units should be packed in small "consumer packages". The business model element *Mobile Adaptation of Contents* addresses these aspects. The *Actualization of Contents* describes the frequency in which updates of e-learning contents are provided. Information and learning contents are not stable entities as they continuously change. Thus, it is important to ensure a high degree of actuality of e-learning contents. If for instance major changes are carried out on a company's SAP R/3 system and the company has implemented for its employees a training unit for the SAP R/3 system, it has to update the training unit and adapt it to the new requirements.

The *Distribution Model* describes the distribution and supply of generated products and services. It is neither classified to Software and Services Offering nor to Content and Services Offering. The *Distribution Model* is responsible for establishing channels of communication, sales and supply to a company's customers (Morris, Schindehutte & Allen, 2005). In doing so, the distribution of products and services can be carried out directly, indirectly or by own/foreign channels (Osterwalder & Pigneur, 2010). The following table shows the classification of the business model component Value Offering with its business model elements and their specifications:

<i>Software & Service Offering</i>											
Production Model (SW)	CSCL	MOOCs	Tutoring Systems	Simulations	Platforms	Serious Games	LCMS	LMS	CMS	Author. Tools	
Technical Service Model	Technical Assistance			Platform Services			Hosting Services				
Software Manufacturing	Internal Service Delivery		Outsourcing	Licensing		Resale			Value Added Resale		
Standardization	Standardized			Medium Customized				Customized			
<i>Content & Service Offering</i>											
Production Model	CSCL		Drill & Practice		Simulations		Serious Games		Mobile Optimized		
Service Model	Tutorial Assistance		Content Quality Management		Content Brokerage		Content Placing		Didactical Consulting		
Content Creation	Service Offering		Outsourcing		Licensing		Resale		Value Creating Resale		
Standardization of Contents	Standardized			Medium				Customized			
Reuse of Contents	Low			Medium				High			
Mobile Adaptation of Contents	Low			Medium				High			
Actualization of Contents	Constantly		On Demand			Yearly			Other		
Distribution Model	Global		Partner Network			Online			Other		

Table 1. Business Model Elements of “Value Offering”

Partnerships

This category covers the cooperation of e-learning companies with suppliers and other companies. Efficient partnerships come along with an optimization of resources as well as the generation of economies of scales. Further benefits of partnerships are strategic alliances which reduce risks and an increased pool of resources (Osterwalder & Pigneur, 2010).

The business model element *Partnership Orientation* is suggested by Nagle and Golden (2007). It describes the partner's core competencies which have an impact on *Partner Integration* and the distribution of products and services. Nagle and Golden (2007) differentiate between “knowledge partner” and “technology partner”. Knowledge partners can be classified into expert partners and accreditation bodies. Expert partners e.g. enable e-learning companies to produce a course that requires additional expert knowledge which cannot be covered by the e-learning company. Accreditations carried out by accreditation partners increase the credibility of a course or learning material offered by the e-learning company. Knowledge partnerships are characterized by a low degree of partner integration as they are not part of the e-learning company's distribution channel. An example of “technology

partnership” is the integration of a technology partner’s material within a course. Hence, technology partnership is characterized by a high degree of *Partner Integration* as both partners share the same distribution channel (Nagle & Golden, 2007). This principle was incorporated into the framework, but further divided and adapted to the formal principles of the framework. The selection of partnerships within the *Partner Structure* describes if an e-learning company has loose relationships to many partners or few but strong relationships. In most cases, few and strong relationships come along with cost advantages and an increase of efficiency. Partnerships with many small companies are characterized by a low degree of dependencies with high transaction-costs and low value chain integrations. *Maturity* distinguishes between long-ranging and short-ranging relationships. The lowest level of *Partnership Integration* is based on transactions. Medium partnership integration reveals, that a company has implicit and explicit cooperation contracts and agreements. The highest integration level can reach from cooperation hierarchies to mergers of entire companies. These components show, that business model elements have an influence on each other. If an e-learning company’s *Partner Structure* is characterized by few partners with a strong partner structure, this will come along with a high degree of *Partner Integration*. Hence, e-learning companies have to be aware, that changes on one business model element have an impact on other elements of their business model. Table 2 depicts the elements of the business model category *Partnerships*.

Partner Orientation	Software Partner	Technical Services Partner	Content Partner	Content Services Partner	Complementary Services Partner
Partner Structure	Few Partners and Strong Partner Structure			Many Partners and Loose Partner Structure	
Maturity	Long-term			Short-term	
Partner Integration	Low		Medium		High

Table 2. Business Model Elements of “Partnerships”

Market

This category refers to market and customer related aspects of a business model. It can be found in different variations, definitions and descriptions of all analyzed business models. General market investigations are covered in Hoppe and Breitner (2004) whereas definitions of customer types can be found in Morris, Schindehutte and Allen (2005) and descriptions of customer relationships in Osterwalder and Pigneur (2002, 2010). Long term partnerships are characterized by a high degree of dependency but they enable the establishment of common standards and process integration which comes along with higher degree of efficiency and cost benefits than dynamic short term partnerships.

The right choice and segmentation of *Customer Types* enables a successful and competitive participation in the e-learning market. The stronger the customer segmentation, the better the company adapts to a market niche (Osterwalder & Pigneur, 2010). Successful companies centralize their customers’ needs which reflects in their guiding ideas and activities. Thus, a segmentation must focus on the customers of a specific e-learning company. This business model element has been derived from Asfoura, Jamous and Salem (2009), Hoppe and Breitner (2004), Morris, Schindehutte and Allen (2005), Nagle and Golden (2007) as well as Osterwalder and Pigneur (2002, 2010).

A clear understanding of the customer and the customer relationship can be only achieved by an identification of the underlying value chain. For this reason the *Customer Positioning in the Value Chain* is part of the framework. This business model element has been derived from Morris, Schindehutte and Allen (2005). It can be described according to the specifications: downstream supplier, upstream supplier, state, institution, central market, merchant, service provider and end user. A successful market cultivation not only requires a successful identification and segmentation of the customer group but also the right *Customer Relationship* to the different customer groups. Thereby, the choice and the costs of the customer relationship play a significant role. Several goals can be followed such as the acquisition of new customers or the establishment of already existing customer relationships to increase the working volume of the customer (Osterwalder & Pigneur, 2010). Hence, the right choice of the customer type to different

customer segments enables a better market cultivation. This business model element has been derived based on the frameworks of Morris, Schindehutte and Allen (2005), Nagle and Golden (2007) Osterwalder and Pigneur (2010) and Schief and Buxmann (2012). The following table shows the business model elements and specifications of the category Market.

Customer Type	Educational Institution (Private & State)	Business		Commercial Customer		Individual Learner	
Customer Positioning in the Value Chain	Downstream Supplier	State	Institution	Whole-sale	Merchant	Service Provider	End User
Customer Relationship	Personal Assistance	Communities		Co-Creation		Automated Service and Self Service	

Table 3. Business Model Elements of “Market”

The next two sub-sections describe the business models elements that are classified to the business model category “Strategy” and “Finance Model”. Aspects about strategy and finance are rather generic aspects. However, these categories represent a substantial part of any business model, regardless the industry sector.

Strategy

Strategy focuses on a company’s long-term decisions and its long-term success (Porter, 1996). It has been derived according to Hoppe and Breitner (2004), Morris, Schindehutte and Allen (2005) as well as Schief and Buxmann (2012). In the literature strategy is also described as personal/investor factors (Morris, Schindehutte & Allen, 2005) or competition model (Hoppe & Breitner, 2004). This business model category consists of the elements *Investment Horizon* and *Competitive Factors*.

The *Investment Horizon* has been adopted from the framework of Schief and Buxmann (2012) and Morris, Schindehutte and Allen (2005). This element gives an overview about a company’s planned growth and strategic goals within a specific time span. It has an impact on the investment value and expected backflows (Morris, Schindehutte & Allen, 2005). The business model element *Competitive Factors* describes an e-learning company’s unique selling proposition (Morris, Schindehutte & Allen, 2005; Osterwalder & Pigneur, 2010). This business model element is part of most existing business model frameworks (Morris, Schindehutte & Allen, 2005; Osterwalder & Pigneur, 2010; Schief & Buxmann, 2012). If e.g. a company founder of an e-learning company aims at a maximum growth within a short time span (“Growth Model” of the category “Investment Horizon”) this will come along with a strong focus on business activities regarding “Speed”, “Innovation Leadership” and “Price”. The following table depicts the aforementioned business model elements and their specifications.

Investment Horizon	Own Requirements Model		Income Model		Growth Model		Speculation Model	
Competitive Factors	Quality	Customi-zation	Efficiency	Price	Customer Relationship	Innovation Leadership	Network	Speed

Table 4. Business Model Elements of the “Strategy”

Finance Model

This category consists of Revenue Model, Pricing Model, Sales Volume, Cost Structure and Profit Margins which makes it similar to the economic profit function. The *Revenue Model* indicates the different ways money flows within a company (Hitt, Michael, Amit, Lucier, Charles, & Nixon, Robert, 2002). This business model element is a key component of all analyzed business models. The *Pricing Model* describes the price setting of a specific e-learning software or service offering with the goal to achieve the maximum profit. The *Sales Volume* indicates the amount of sold products and services. This business model element has been derived based on the frameworks of Morris, Schindehutte and Allen (2005) and Schief & Buxmann (2012). The *Cost Structure* describes the composition of costs which should be always kept on a

low level (Osterwalder & Pigneur, 2010). Companies can be characterized by cost-based or value-based structures. Value-based companies aim at offering products and services of high quality at a high price. They focus on their core competencies while sourcing out all activities that are not part of their core business (Osterwalder & Pigneur, 2010). Cost-based companies aim at offering their products and services at small prices, not setting quality in the focus. A company's economy is described by its *Profit Margins*. This business model element with its specifications has been derived according to Morris, Schindehutte and Allen (2005) and Schief & Buxmann (2012). Particularly the category Finance Model is characterized by several incompatibilities. If e.g. an e-learning company aims at a "value-driven" *Cost Structure* or at a "high" *Sales Volume* in the first years of company foundation, they cannot select several specifications of these business model elements. Hence, the business model elements of the Finance Model have to be selected according to the specified business model elements of the category Strategy. Table 5 shows the business model elements of the Finance Model.

Revenue Model	Usage Fee	Open Source	Basic Fee	Mediation Fee	Licensing	Sell Rights	Freemium	Advertisement
Pricing Model	Fixed Price	Usage-based	Customer-based	Per Contact	Local	Time-based	Pricing Bundle	
Sales Volume	Low			Medium			High	
Cost Structure	Value Driven		Cost Driven		Investment Capital		Market Research Based	
Profit Margins	Low			Medium			High	

Table 5. Business Model Elements of the "Finance Model"

Conclusions and Outlook

The popularity of concepts like the Business Model Canvas (Osterwalder & Pigneur, 2010) has shown that a standardized description of business models offers a lot of application potential. Motivated by this, we derived a framework for business models in the e-learning industry. It offers company founders of e-learning firms as well as already existing companies the possibility to describe their business models in a standardized manner by means of categories, business model elements and characteristics of business model elements. The framework has been derived according to the research framework for business models according to Pateli and Giaglis (2004). Based on a literature analysis about generic and e-learning specific aspects about business models, deficits have been derived as requirements and have been integrated into the framework.

In a next step, the derived components and specifications are going to be evaluated in form of interviews with company founders and CEOs in the e-learning industry to validate and refine the derived framework. In doing so, its practical applicability is going to be evaluated. A limitation of the framework is, that so far it is still very static, not taking into consideration dynamic aspects like the influence of business model elements among each other or the influence of business model configurations on business process layer. Hence, once the framework is validated, a knowledge base is going to be developed, which contains all derived business model elements and their specifications to analyze how the business model elements influence each other.

The implications of business model configurations on a company's underlying business processes is also going to be addressed in future research. In doing so, business processes and value chains of the e-learning industry will be analyzed to integrate these aspects in the business model framework. Therefore, the value chain of the e-learning industry will be developed and mapped to each element of the business model framework. The standardized and formal representation of the framework serves as a basis to estimate the impact of specific business model configurations to business process layer.

REFERENCES

- Al-Debei, M. M., & Avison, D. (2010). Developing a unified framework of the business model concept. *European Journal of Information Systems*, 19(3), 359–376. doi:10.1057/ejis.2010.21
- Amit, R., & Zott, C. (2001). Value Creation in e-business. *Strategic Management Journal*, 22(6), 493–520.
- Analysts, G. I. (2010). Worldwide eLearning Market to reach \$49,9 billion by 2015. San Jose. Retrieved from http://www.prweb.com/releases/elearning/corporate_elearning/prweb4531974.htm
- Asfoura, E., Jamous, N., & Salem, W. (2009). The economic classification of E-Learning business models. *IEEE Multidisciplinary Engineering Education Magazine*, 4(1-2).
- Betz, F. (2002). Strategic Business Models. *Engineering Management Journal*, 14(1), 21–28.
- Chesbrough, Henry, W. (2006). *Open Business Models - How to thrive in the new innovation landscape*. Boston: Harvard Business School Press.
- Di Valentin, C., Emrich, A., Werth, D., & Loos, P. (2012). Conceiving Adaptability for Business Models – A Literature-based Approach. In *International Conference on Information Resources Management (Conf-IRM)* (pp. 1–13). Vienna.
- Dittler, U. (2011). *E-Learning: Einsatzkonzepte und Erfolgsfaktoren des Lernens mir interaktiven Medien*. München: Oldenbourg.
- Dubosson-Torbay, M., Osterwalder, A., & Pigneur, Y. (2002). eBusiness Model Design, Classification and Measurements. *Thunderbird International Business Review*, 44(1), 1–11.
- Ehlers, D., & Pawlowski, J. M. (2006). *Handbook on Quality and Standardisation in E-Learning*. Berlin: Springer.
- Götzelt, K.-U. (2010). *Customer Focused E-Learning*. Lohmar: EUL.
- Hartley, D. E. (2001). *Selling E-Learning*. Alexandria, VA: ASTD.
- Hevner, A. R., March, S. T., Park, J., & Ram, S. (2004). Design Science in Information Systems Research. *MIS Quarterly*, 28(1), 75–105.
- Hitt, Michael, A., Amit, R., Lucier, Charles, E., & Nixon, Robert, D. (2002). *Creating Value: Winners in the New Economy* (1st ed.). Malden: Blackwell Publishers.
- Hoermann, S., Seeberg, C., Divac-Krnic, L., Merkel, O., Faatz, A., & Steinmetz, R. (2003). Building Structures of Reusable Educational Content Based on LOM. In *Proceedings of the 15th Conference on Advanced Information Systems Engineering*.
- Hoppe, G., & Breitner, M. H. (2004). Business Models for E-Learning. In *Multikonferenz Wirtschaftsinformatik*.
- Hoppe, G., & Breitner, M. H. (2005). A Glimpse at Business Models and Evaluation Approaches for E-Learning. In G. Hoppe & M. H. Breitner (Eds.), *E-Learning: Einsatzkonzepte und Geschäftsmodelle*. Hannover: Physica Verlag.
- IbisCapital. (2013). *Global e-Learning Investment Review*. London.
- Lopez, J. L. G., Royo, T. M., Laborda, J. G., & Calve, F. G. (2009). Methods of adapting digital content for the learning process via mobile devices. *Procedia Social and Behavioral Sciences*, 2673–2675.
- Magretta, J. (2002). Why Business Models Matter. *Harvard Business Review*, 80(5).
- Mahadevan, B. (2000). Business Models for Internet-based E-Commerce: An Anatomy. *California Management Review*, 42(4), 55–69.
- Morris, M., Schindehutte, M., & Allen, J. (2005). The Entrepreneur’s Business Model: Towards a unified Perspective. *Journal of Business Research*, 58(6), 726–735.
- Nagle, T., & Golden, W. (2007). The examination of a Business Model framework within the elearning industry. In *Proceedings of 15th European Conference on Information Systems* (pp. 247–248). St. Gallen.
- Osterwalder, A., & Pigneur, Y. (2002). An eBusiness Model Ontology for Modeling eBusiness. In *Proceedings of the 15th Bled Electronic Commerce Conference – eReality: Constructing the eEconomy* (pp. 75–91). Bled.
- Osterwalder, A., & Pigneur, Y. (2010). *Business Model Generation* (1st ed.). Hoboken: Wiley.

- Pateli, A., & Giaglis, G. (2004). A research framework for analysing eBusiness models. *European Journal of Information Systems*, 13(4), 302–314.
- Porter, M. E. (1996). What is strategy? *Harvard Business Review*, 76(6), 61–78.
- Pussep, A., Schief, M., & Buxmann, P. (2012). Results of the German Software Industry Survey 2012. Darmstadt, Germany.
- Pussep, A., Schief, M., Weiblen, T., Leimbach, T., Peltonen, J., Rönkkö, M., & Buxmann, P. (2013). Results of the German Software Industry Survey 2013. Darmstadt, Germany.
- Schief, M., & Buxmann, P. (2012). Business Models in the Software Industry. In 45th Hawaii International Conference on System Science (HICSS) (pp. 3328–3337). Grand Wailea.
- Timmers, P. (1998). Business Models for Electronic Markets. *Journal on Electronic Markets*, 8(2), 3–8.
- Valderrama, R. P., Ocana, L. B., & Sheremetov, L. B. (2005). Development of intelligent reusable learning objects for web-based education systems. *Expert Systems with Applications*, 28.
- Vossen, G., & Westerkamp, P. (2007). Establishing Business Models for Service-Oriented ELearning. In Proceedings of the IADIS International Conference. Lisbon.
- Zott, C., Amit, R., & Massa, L. (2010). The Business Model: Theoretical Roots, Recent Developments, and Future Research (IESE Business School - University of Navarra No. WP-862).
- Zott, C., Amit, R., & Massa, L. (2011). The Business Model: Recent Developments and Future Research. *Journal of Management*, 37(4), 1019–1042.