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THE EXAMINATION OF A BUSINESS MODEL FRAMEWORK WITHIN THE E-LEARNING INDUSTRY

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Abstract

The debate on the usefulness of business models to the IT/IS and strategy domains is fraught with confusion and contradictory views. However, recent research has indicated a convergence of ideas and a solid role for the business model concept within industry and the research community. Based within the maturing e-Learning industry, this paper empirically investigates the applicability of the business model concept as defined by Osterwalder et al. (2005). Firstly, the paucity of research within the area of business models and e-Learning is examined along with the convergence of business model research. Using a field study of four e-Learning organisations the value of the business model concept is empirically investigated as well as exploring the business models of the organisations themselves. Using the framework set out by Osterwalder et al. (2005) this study indicates that the business model is a solid tool for communicating the business execution plan of an organisation. However, when examining a specific industry, amendments to the framework are needed to fully describe the nuances of the organisations within that industry.

Keywords: Business model framework, e-Learning industry, field study.

1 INTRODUCTION

Obtaining sustainable competitive advantage weighs heavily on an organisations learning capability (Ruiz-Mercader *et al.*, 2006). Just like many other industries the learning and education industry has not been immune to e-Commerce and Internet-driven change (Beller & Or, 1998; Kiser, 1999; Alavi & Leidner, 2001; Becerra-Fernandez & Sabherwal, 2001; Earl, 2001; Grover & Davenport, 2001). Even though there has been extensive research on knowledge management related to information technology (Alavi & Leidner, 2001; Becerra-Fernandez & Sabherwal, 2001; Earl, 2001; Grover & Davenport, 2001), relatively little attention has been given to the area of e-learning (Holsapple & Lee-Post, 2006). Due to this research deficiency, there is a lack of theories and business models to ensure the economic success of e-learning (Hoppe & Breitner, 2003).

In 2002, the Irish government body Forfás, identified the e-Learning industry as a potential area where Ireland could be a global success (Forfás, 2002). Following this, the Irish e-Learning industry responded by setting up a CEO forum consisting of a cluster of several e-Learning companies. Further collaboration between the CEO forum and Enterprise Ireland (the Irish state development agency focused on transforming Irish industry), resulted in the development of a roadmap and technology agenda. Highlighting the relevance of this paper, one of the key areas identified by the forum was the need for research into business models within the content and e-Learning industries.

Based on a substantial literature review of business models, e-business models and e-learning this paper empirically examines the existing business models within each of the e-learning organisations. The foundation for this analysis incorporates the nine component business model concept outlined by Osterwalder *et al.* (2005). Using this framework the study discovers a number of findings about the e-Learning organisations which in turn test its validity. Finally, a discussion of the findings precedes the conclusions of the study.

2 THEORETICAL GROUNDING

2.1 Business Models

By searching for the existence of the term “business model” in the Business Source Premier database of scholarly business journals, its use can be tracked as far back to an article published in 1957 (Bellman *et al.*, 1957; Osterwalder *et al.*, 2005). Since then its use in academic literature was negligible until the time of the dotcom era when the term became regularly cited in the late 1990’s (Osterwalder et al., 2005). The link between these two events is more than coincidental with business models taking a central role in describing how organisations could compete in the digital economy (Lee, 2001; Seddon *et al.*, 2004). This association is supported by views that the Internet has challenged conventional methods of value creation and also generated a wide knowledge gap between IT developers and organisational stakeholders (Schmid, 2001; Gordijn & Akkermans, 2001). However, a more process orientated view has attributed the popularity of the business model to the advent of the Personal Computer (PC) and spreadsheet software. In effect, this created an ability to conduct in-depth analysis on business processes and pursue tested business models (Magretta, 2002).

Even though, poor application of the business model concept has resulted in many failures, (Vickers, 2000) the inclusion of the term “business model” in the “Internets destructive lexicon” (Porter, 2001) is strongly argued against (Shafer *et al.*, 2005). However, persistent confusion over the domain has earned it the label of being the “most discussed and least understood aspect on the web” (Rappa, 2001). Unfortunately, evidence of this label still exists with requests still calling for the concept to be further clarified (Osterwalder et al., 2005). In an attempt to combat this confusion, numerous definitions have been outlined. Some of the high level definitions describe a business model as a “core logic” or “business system” for creating value (Linder & Cantrell, 2000); (Petrovic *et al.*, 2001); (Auer

& Follack, 2002). More process orientated definitions declare that a business model is a "story that explains how an organisation works" (Magretta, 2002) and the first step in gathering requirements for business information systems (Gordijn & Akkermans, 2001). In addition to these broad comprehensive descriptions, there has been an accumulation of business model definitions detailing its primary components and possible interrelationships (Pateli & Giaglis, 2003). One such example is the highly recognisable definition given by Timmers (1998), stating that a business model is "an architecture for the product, service and information flows, including a description of the various business actors and their roles; and a description of the potential benefits for the various actors; and description of the sources of revenues".

Just like the definition stated by Timmers (1998), many descriptions of a business model list numerous components which has nullified their attempts to clear confusion and inversely added to the ambiguity around the domain (Pateli & Giaglis, 2003). One reason for this persistent ambiguity is the tendency for different authors to "reinvent the wheel" and ignore existing research. As a result, the business model domain moves forward at a much slower pace than it could and often stays at a superficial level (Osterwalder et al., 2005). However, more recent approaches at creating a universal definition of a business model have incorporated a methodology of synthesising large quantities of past research. In an effort to find the most common components in a business model, two individual studies create a list of components using the criterion that the component had to be mentioned by at least two authors (Osterwalder et al., 2005; Shafer et al., 2005). As a result of this endeavour, two frameworks of business model components were compiled each with four groupings. Even though the two bodies of work have clear distinctions, their presence is a clear indicator that research in the business model domain is maturing. Using the most widely used criteria for evaluating a model: (i) simplicity, (ii) accuracy, and (iii) generalisability (Miller & Dess, 1993), the Osterwalder *et al.* (2005) model can be argued as being more developed (see Table 1). The Shafer *et al.* (2005) has twenty subcomponents in comparison to a more simplified nine subcomponents in the Osterwalder *et al.* (2005) model. With a generic description for each of the nine subcomponents the Osterwalder *et al.* (2005) framework has arguably better generalisability. However, the Shafer *et al.* (2005) is more detailed and contains a more accurate description of a business model by including such details as cost/profit financial details.

Grouping	**Business Model Component**
Product	***Value Proposition*** –overall view of a organisations's bundle of products and services
Customer Interface	***Target Customer*** – segments of customers an organisation wants to offer value
	Distribution Channel – various means of an organisation to get in touch with its customers
	Relationship – kind of links an organisation establishes between itself and its different customer segments.
Infrastructure Management	***Value Configuration –*** arrangement of activities and resources
	Core Competence – the competencies needed to execute the business model
	Partner Network – network of cooperative agreements with other organisations.
Financial Aspects	***Cost Structure*** – monetary consequences of employing a business model
	Revenue Model – revenue flows through which an organisation makes money.

Table 1: List of Business model components (Osterwalder *et al.*, 2005)

With the aim of further maturing the domain and creating a foundation on past research, an explanatory framework on business model research has been developed (Pateli & Giaglis, 2003). Based on themes and patterns running through past literature, the framework classifies research on business models into six research sub-domains. These sub-domains are comprised of (i) Business Model Definitions, (ii) Business Model Components, (iii) Taxonomies of Business Modes, (iv) Tools for Business Model Representations/Designs, (v) Methodologies for changing or developing Business Models and (vi) Factors and Guidelines for evaluating Business Models (Pateli & Giaglis, 2003).

A more recent and similar classification framework also synthesises past research into a "Business Model Concept Hierarchy"(Osterwalder et al., 2005). The framework structures business model research into three categories (i) Business Model Concept (Definitions and Components), (ii) Business Model Taxonomies and (iii) Business Model Instances (Representations). The frameworks are very similar as the categories almost directly map on to the first four sub domains of the previous framework. This may indicate a clear convergence of business model research and ideas within the domain. However, the majority of these ideas are only at a theoretical stage with very little validation or empirical investigations in industry. In addition, there is no common underlying theoretical basis on which future business model research efforts can be directed and built. Moreover, theoretical links need to be made to other domains in order to establish itself as an independent research domain (Pateli & Giaglis, 2003).

2.2 Business Models within e-Learning

Just like many other industries the learning and education industry has not been immune to e-Commerce and Internet-driven change (Beller & Or, 1998; Kiser, 1999). Nonetheless, e-Learning literature is scant with very few terms used consistently (Nichols, 2003). The term e-learning is often used interchangeably with distance education or distance learning (Holsapple & Lee-Post, 2006). However, e-Learning can be defined as learning that is supported and/or made possible by the use of Information Communication Technology (ICT) (Hoppe & Breitner, 2003).

E-Learning has been identified as a growing market as a direct result of increased demand for training (Seufert, 2001). It has been forecasted that world wide e-Learning licence revenue will grow at a compound rate of 15.6% each year creating a market worth over $685 million in 2009 (Gartner, 2005). Organisations have been investing more and more on training to respond to a growing need for new information and knowledge required to facilitate organisational changes such as mergers and acquisitions, new business models, re-engineered and reinvented organisational forms (Seufert, 2001). Satisfying this demand, e-Learning is seen as a revolutionary way to empower a workforce with the skills and knowledge it needs to turn change into an advantage (Wild *et al.*, 2002). Nevertheless, although considerable progress has been made, educators have just begun to exploit the transformational power of the Internet (Holsapple & Lee-Post, 2006).

For this field to succeed, e-Learning strategies have to address economical, pedagogical and technological goals. To enable pedagogical and technological quality, different theories and models for e-learning already exist. However, there is a definite scarcity of theories and business models ensuring economical viability in terms of marketable and sustainable products (Hoppe & Breitner, 2003). Furthermore, just one e-Learning business model classification has been identified in literature. The classification contains six generic categories which include (i) Content providers, (ii) Application providers, (iii) Hardware providers, (iv) Service providers (eg tutorial assistance), (v) Hosting services, and (vi) Full service providers (all-in-one solution) (Hoppe & Breitner, 2003). This again highlights the lack of business model research within e-Learning,

3 RESEARCH METHOD

This study, aims to explore the area of business models within the relevant industry structure of e-Learning. The primary data of the study is collected through a field study approach incorporating four e-Learning organisations operating in Ireland. This section describes the research methodology used and argues the suitability of a field study approach for this circumstance.

The objective of this study was to: (i) empirically investigate the business model framework as set out by Osterwalder *et al.* (2005), and (ii) explore the business models incorporated in the study to further the e-Learning and business model domain. The study was categorised as exploratory due to the scarcity of empirical work in the area, the focus on discovery, and the aim of theory building. Marshall and Rossman (1989) propose that either a case study or field study research methodology can be used in exploratory research. The researchers decided that a field study would be most appropriate for this study as it would facilitate the collection of data from a larger number of organisations, and would form the basis for more focused research at a later stage. This approach is in line with the thinking of Galliers (1992). Field studies are field-oriented, cross-sectional case studies that focus on gathering qualitative, anecdotal observations (McGrath, 1979) in order to measure dependant variables without any attempt to control independent variables (Buckley *et al.*, 1976). The primary methods were interviews and document analysis.

Semi-structured interviews were conducted with high level decision makers in the organisations located in Ireland. All interviews were face-to-face and lasted between a range of 45 and 90 minutes. The choice of interviewees was based on a number of factors. These were; (i) in-depth knowledge of the company, (ii) seniority, (iii) availability, and (iv) willingness to co-operate. In collaboration with Enterprise Ireland a list of potential interviewees were put forward from which the most suitable were chosen. Those interviewed had both technical and general business backgrounds, and included representatives of both senior and middle level management. The interview guide approach as proposed by Patton (1980) was used to conduct the interviews. The guide was based on each of the components in the framework with the data being analysed using decision tree analysis and meta-matrices as recommended by Miles and Huberman (1994). This approach facilitated an exploration of the key issues within each organisation and an analysis of these issues across organisations. The interview data was also triangulated with data extracted from documentation gathered in each organisation. Documents included the organisations websites, product brochures and internal presentations.

4 FINDINGS

Using the data gathered from the interviews and documentation analysis, Table 2 was constructed giving a basis for comparison across the four organisations. All of the organisations are based in Ireland and their products predominantly incorporate courses or courseware covering topics such as the life sciences, investments, computer literacy, regulation and compliance issues, new products, and finally new hire training. The industries serviced by these organisations mainly include the high tech and financial sectors as well a number of public sectors.

Business Model Component	e-Learning Industry Sub Components	Company A	Company B	Company C	Company D
Value Proposition	Product	Low	High	High	Medium
	Service	High	Medium	Low	High
Target Customer	Organisational	High	High	High	High
	End User	Medium	High	Medium	Medium
	Market Segment	Vertical and Horizontal	Vertical	Horizontal	Vertical
Distribution Channel		Global Sales force	Partner Network	Global sales force	Global sales force.
Relationship		One-to-one relationship	One-to-many relationship	One-to-many relationship	One-to-one relationship
Value Configuration		Waterfall	Iterative	Waterfall	Waterfall
Core Competency	Technology	Medium	High	Medium	Medium
	Customer Relationship	High	Medium	Medium	High
	Pedagogical Methods	Medium	High	Medium	Medium
Partner Network	Integration	Medium	High	No significant partners	Medium
	Orientation	Knowledge	Technology		Knowledge
Cost Structure		Contract Dependent	Investment Capital Dependent	Market Research Dependent	Market Research Dependent
Revenue Model		Cost/contract price structure	Enterprise licensing model Personal Use Licenses Activation Model	Unstructured revenue model	Enterprise licensing model

Table 2: Summary of business model analysis. Adapted from the Osterwalder *et al.* framework (2005).

4.1 Framework Validation

One of the key findings within this paper is the empirical validation of the Osterwalder *et al*. (2005) framework. Using the framework throughout this study, has allowed in-depth analysis into the e-Learning industry/organisations resulting in the discovery of further anomalies. Evident in Table 2, is the use of the framework in generalising an organisations business model and the ability to compare this representation across an industry. Validation of this framework is also evident throughout the findings section as it has aided in building an e-Learning business model classification and an e-Learning specific business model framework. In addition, the nine components of the framework have been found to adequately describe the complexity of a business model from multi-industry perspective.

4.2 E-Learning business model classification

Examining the data in Table 2 it is evident that there are varying degrees of flexibility and innovation embedded within the four business models in the study. A strong indicator of this flexibility and innovation is the core competence component which in-turn has a knock on effect on the rest of the business model. Analysis of Table 2 indicates that the business models of Company A, C and D are quite similar. Each of the organisations have a very similar value configuration, distribution channel and core competence. In addition, it is apparent that these organisations which have customer relationship as their strongest core competence, tend to have a less innovative business model. In comparison, Company B has technology and pedagogical methods as its strongest core competence and as a result, has a visibly more flexible and innovative business model. Thus, classifying the business models with regard to degrees of innovation and flexibility, this study has found two categories: (i) a customer relationship focused business model, and (ii) a technology focused business model. Using the value configuration, partner network, and revenue model components the two business model categories are discussed along with their varying degrees of innovation and flexibility.

4.2.1 Value Configuration

The first similarity between the three customer relationship focused business models is their value configuration. Within each of the organisations lies a well structured/traditional value configuration of sequential steps. Even though there are slight variations between each organisations value configuration they are largely in line with the following description. The first step involves the organisation winning a contract or developing a new product concept. The second step involves estimating the value creation potential of the contract or new product idea. This is done through a market research campaign or a one-to-one discussion with the customer clarifying requirements and expectations. Once satisfied with the preceding two steps, the organisations begin the production phase. With respect to Company D this is a highly regulated process adhering to ISO9000 standards. Once passed through the QA phase of the production process the product is ready to implemented and/or resold.

In addition, using the Osterwalder *et al.* (2005) framework to analyse the data, an interesting paradox arose within the value configuration component of customer relationship focused business models. The organisations had identified the need for better products but also found that the products they were developing were as technologically advanced as the market could handle. This is evident from statements such as “they (the customers) have just got their head around flash” (Company D), “technology is way ahead of what the market can bear and what the market will pay for” (Company C), “there is all the great stuff we can do for customers”….but if we offered “them a PDA or podcast version (of a course) they would go no, all we want is a simple version” (Company A). As a result of this, organisations are reluctant to invest in new technologies as no additional value would be gained from doing so. The resulting effects of this perception on the organisations business models include:

(i) Lack of willingness to invest in new technologies.

(ii) Any new products are mainly developed through multimedia platforms.

(iii) The organisations are slow to develop competencies around new technologies.

In contrast Company B has invested in new technologies and have leveraged their partners expertise in their value configuration. This has added more functionality to their products making them more innovative and unique to the market.

4.2.2 Partner Network

The partner network in Company B is primarily technology orientated and is highly integrated into the organisation and its value proposition. The innovative value proposition of the organisation is in the form of a plug-in to a major software development platform. This major software firm has been involved in product development phase and has also used the product to demonstrate/teach new features of the software platform at technology conferences. This has not only given the product an excellent endorsement but also acted as a distribution channel through "evangelising" the product. Company B has one other major partner that supplies task specific electronic reference material. This dimension of the product is electronically embedded in the product and allows end-users to access additional reference material as they progress through their course/task. In contrast the other three organisations either have very little partners or their partners are knowledge orientated and have a medium degree of integration. There are two types of knowledge partners. The first category mainly consists of external subject matter experts. The second type is made up of accreditation bodies that give creditability to the courses produced by the organisations. The importance of such accreditation bodies is questionable as stated by Company D, "if you are looking at it from 1-10 and 10 being the strongest, it's a 2 or 3". Moreover, the integration of such partners is much less than for Company B. The extent of the integration goes as far as supplying highly specific material for courses that the organisations do not have the sufficient expertise or raw inputs (such as manuals for courses on new products) to work on. The result is that such partners bring a degree of flexibility and innovation to the process of producing courses but overall the partners are just another input into the production function with very little impact in the usage of the product. In addition, unlike the technology orientated partners, knowledge orientated partners are not a part of the e-Learning organisations distribution channel. However this distribution channel deficiency is more then compensated by the strong global sales force teams in each of the e-Learning organisations. Company A, C and D have a high dependence on their sales force to distribute their products. It is apparent that such a distribution channel is very traditional and also indicates that the core competence of these organisations is more customer focused rather than technology focused.

4.2.3 Revenue Model

Finally, the revenue model of Company B is much more flexible then other three organisations. The fact that Company B has three licensing models compared to one for each of the other organisations is an indication of the flexibility and innovation embedded in its business model. The licensing models are directed towards three types of organisations (see Table 2): large enterprises (enterprise model), small-to-medium enterprises SME's (activation model), and micro organisations (personal usage licence). An example of how technology underlies the revenue model in Company B can be seen in the activation licensing model. The activation model is based on the concept of encryption keys being assigned to individual courses. An SME then agrees to purchase a number of encryption keys which must be consumed within a certain time scale. The advantage of this for the SME is that it allows them to "get people up and running" without "putting a huge sum at risk" (Company B).

4.3 E-Learning business model framework

While classifying the data using the Osterwarlder *et al.* (2005) framework it was necessary to include additional subsections within parts of the model. These extra subsections (labelled e-Learning industry sub components in table 2) were required for a more accurate comparative analysis between the organisations as wells as a more complete picture of the e-Learning industry. The components that needed extra detail include: the value proposition, target customer, core competence, and partner network. Taken as exemplars, both the core competence and target customer component are explored in more detail highlighting the validity of this finding as well as further describing the e-Learning industry.

4.3.1 Core Competence

Within the Osterwalder *et al.* (2005) framework the core competence component is one of the key parts of a business model. Described by Osterwalder, an organisations core competence "outlines the competencies needed to execute the company's business model". This is clearly evident in the data gathered within the study as the core competence can be seen to have a significant effect on all other parts business model.

Examination of the results depicted in Table 2 reveals three underlying competencies that an e-Learning organisation needs. These include: (i) customer relationship management, (ii) technology, and (iii) solid pedagogical methodologies. Customer relationship management involves: ensuring the customers requirements are understood correctly and in return the customer knows exactly what they are getting, achieving the value proposition balance of creating value for the corporate customer as well as the end user, supporting the customer through the rollout of the implementation of the product and providing a quality after-sales service. The technology competence for most of the organisations centres on designing e-Learning applications with multimedia software. These applications are mainly built as a plug-in for existing e-Learning platforms (Learning Management Systems) or as standalone courses that operate independently. The final core competence relies on the ability to integrate solid pedagogical methodologies into the applications built by each of the organisations. This enables the learner needs to be fully addressed so that they can learn in an effective manner.

Further analysis indicates that for an e-Learning business model to be successful it is a necessity that they are proficient in each of the three underlying competences. However, as highlighted in Table 2, one of the main differentiation factors between the organisations is that they excel in one or a combination of these core competencies. For instance, Company A is proficient at blending multimedia technologies and pedagogical methodologies. However, its core competence lies in the organisations ability to support a strong trusting relationship with its customers. This results, in Company A being put on the preferred vendor list of its client and in return the client gets a "level of comfort" from a one-on-one service and a guarantee to deal with any potential problems. Similarly, Company D, state their core competence as the relationship they have with their clients. This materialises in complete client confidence and "the ability for the client to see a win win situation". In contrast, Company B's core competence is the innovative ability to blend new technology and strong pedagogical methods. This core competence stands to organisation by creating a unique product that fits directly into the workflow of its end-user. In addition, the high technology competence gives rise to a variety of revenue models that enables the corporate client to mitigate risk on a new innovative product. Even though Company B provides one-to-one tutor support for its end-users it has no customer involvement in the development of its products and largely deals with customers on a one-to-many basis.

4.3.2 Target Customer

From table 2 it is clear to see that as well as targeting different market segments, each of the organisations also class their customers into two types: (i) the corporate customer, and (ii) the end-user. The corporate customer is largely represented by senior management whose duties include: the

identification of e-learning requirements, and authorising the procurement of such products. In contrast, the end-user is the customer that actually consumes the product. In effect, this study has found that creating value for the end-user/ learner is not enough. Using the Osterwalder *et al.* (2005) framework it has been found that value must also be created for the corporate customer in order for the e-Learning product to be successful. Analysing the data gathered, the consensus across the organisations is that the ability to create a clear value proposition or a "win-win situation" (Company D) for the corporate customer is more important then creating value for the end-user. Table 3 summarises all the benefits of e-Learning that have been identified by the organisations in the study. Table 3 also classifies each of the e-Learning advantages with regard to the type of customer the benefit is focused. It is apparent from the table that most of the benefits created by the e-Learning organisations in the study accrue to the corporate customer. Most of the benefits revolve around the cost efficiency of using e-Learning and the need to comply with industry regulations. Also the ability to identify people with strong skill sets and strong performance on certain courses allows the corporate customer manage their resources more effectively. In contrast the primary benefit for end-users revolves around ease of learning. This benefit is realised in expert course construction allowing course material to be taught in a highly effective manner. Accessibility features for disabled learners is also a big benefit as well as the ability to load courseware onto different modes of learning. In total, the Osterwalder *et al.* (2005) framework has aided the identification of a key value creation premise within the e-Learning business models as well as communicating the fact that they are primarily business-to-business orientated. However, it has also been identified that the framework needs alteration with regard to the e-Learning industry. As a result, sub-components were required to fully capture the e-Learning landscape as well as enabling strong comparative analysis across the organisations.

Corporate	**End-user**
Marketing exercise - in the sense that e-Learning courses procured by organisations to educate their customers will largely act as a marketing tool for the organisation.	Strong pedagogical methods within e-learning makes it easier for end-users to learn the material
E-Learning is an efficient mechanism in ensuring organisations are legally compliant in a number of functions (i.e. HR)	Course versatility allows end-users consume a course in a format they are most comfortable with. Especially disabled end-users
On site learning direct to a learners PC. No need to send people away on courses	Quality course content - subject matter supplied by experts.
Relatively few resources needed - just a PC (hosting solutions)	
Allows management to easily identify certain skill sets within the organisation.	
Gives management another performance metric.	
E-Learning can be closely aligned with certain workflows. Reducing the amount of time downtime needed for training.	

Table 3: Primary focus of e-Learning benefits

5 CONCLUSIONS

One of the main contributions this paper makes is it uses and empirically tests the business model concept defined by Osterwalder *et al.* (2005). The concept is the result of a comprehensive amalgamation of past research and subdivides the business model into nine distinct components. On top of the business model, Osterwalder *et al.* (2005) outline eight propositions with the aim of exploring the role and use of the model. One of the underlying themes of the Osterwalder *et al.* (2005) framework is that the business model concept is a solid tool for communicating the business execution/ value creation aspect of an organisation. With the support of the findings in this paper this underlying theme is validated. Within each of the findings a clear picture of value creation is depicted. By aiding the identification of the organisations core competence, the framework sets a foundation for communicating the key value creation aspect in each of the organisations. Further examination of the effect a core competence has on the rest of the business model, highlighted the cohesiveness of the model and its ability to act as a unit of analysis. Taking this into account the framework was successfully used as an analytical tool for the comparison of each of the business models as well as individual business model components across each of the organisations. However, when analysing the data using the Osterwalder *et al.* framework, amendments in the form of sub-components were required to fully capture the nuances of an e-Learning model. Thus, when examining a specific industry, such sub-components maybe required for a more accurate analysis.

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