

CHALMERS



How Online Learning Affects the American Higher Education Industry

Unbundling of resources gives rise to new business strategies

*Master of Science Thesis
in the Management and Economics of Innovation Programme*

KARL LAWENIUS
THERESE TELLSTEDT

Department of Technology Management and Economics
Division of Innovation Engineering and Management
CHALMERS UNIVERSITY OF TECHNOLOGY
Göteborg, Sweden, 2014
Report No. E 2014:073

MASTER'S THESIS E 2014:073

How Online Learning Affects the American Higher Education Industry

Unbundling of resources gives rise to new business strategies

KARL LAWENIUS
THERESE TELLSTEDT

Tutor, Chalmers: Christian Sandström

Department of Technology Management and Economics
Division of Innovation Engineering and Management
CHALMERS UNIVERSITY OF TECHNOLOGY

Göteborg, Sweden 2014

How Online Learning Affects the American Higher Education Industry
Karl Lawenius and Therese Tellstedt

© Karl Lawenius and Therese Tellstedt, 2014

Master's Thesis E 2014: 073

Department of Technology Management and Economics
Division of Innovation Engineering and Management
Chalmers University of Technology
SE-412 96 Göteborg, Sweden
Telephone: + 46 (0)31-772 1000

Chalmers Reproservice
Göteborg, Sweden 2014

Abstract

American higher education is experiencing a crisis where increased student debt, poor quality of graduates and governmental budget constraints forces a change in how higher education is viewed upon and in the strategies of educational institutes. Among experts and the general public, ICT is presented as a solution, potentially enabling more efficient cost structures and higher quality education. This thesis addresses how ICT has made its way into American higher education and how ICT has enabled new business strategies among forefront educational providers.

Based on a field study with semi-structured interviews conducted in USA and a profound secondary data analysis it is clear that ICT can impact both the back and the front end of an educational actor's business strategy. Traditionally, universities have been operating similar to Chandlerian firms by having a broad value offering and a high level of vertical integration. However, the current state of the industry and the emergence of ICT force a change. At the back-end, more efficient cost structures and increased quality can be obtained by unbundling and potentially outsource parts of the learning experience, focusing on a smaller set of value bringing activities. In the front-end, competition will harshen and force actors to be clearer about what value they are bringing to their students. Additionally, ICT offers the possibility to rethink traditional performance parameters and add new ones, which enables the pursuit of new markets and the creation of new demand.

It is impossible to predict exactly how ICT will impact higher education in the future and what a successful business strategy should look like. However, it is certain that ICT has had and will continue to have a big impact on higher education in America and that actors within the industry will have to mind their business strategies more carefully in order to thrive in the 21st century.

Keywords: American higher education, Business strategy, Blue ocean strategy, Chandlerian firm, ICT, Online education, Unbundling, Vertical scope

Acknowledgments

This report would not have been possible without the help and contribution from various organisations and individuals. First of all, we would like to express our gratitude towards Sten A. Olsson Stipendiefond and Ratio for enabling the field study underlining this report. Our visit to USA gave us invaluable insights and experiences for life, which we will always be thankful for.

Large parts of our knowledge and understanding of American higher education was gained during interesting interviews with presidents, professors, bloggers and industry experts. We thank all of them for making time to meet us and not only share their knowledge but also their contacts within higher education. They have helped foster an interest that will not end with this report.

We would also like to thank all the friendly people that we met during our visit to USA. Their housing and knowledge of the cities we visited was appreciated, but their friendship even more so.

Not the least, we would like to thank our tutor Christian Sandström who has been a great support writing this thesis. We have learned a lot during our interesting discussions this year and he will for always be our “rich dad”. We hope that our discussions will help him to develop his teaching at Chalmers even further.

Special thanks also to Chalmers and all our friends there. We have shared five fantastic years filled with fun, learnings and personal development. Finally, special thanks to all our loved ones that always stand behind us, providing support and giant-like shoulders.

Gothenburg, June 2014

Karl Lawenius

Therese Tellstedt

Glossary

ALS - Adaptive Learning System, a system that adapts educational material according to students' learning needs

Blended learning – traditional face-to-face classroom methods is combined with computer-aided activities

Blue oceans – denote all markets not in existence today that is untainted by competition

Business model – represents the core aspects of a business and describes how an organisation creates, delivers, and captures value

Chandlerian firm – Alfred Chandler's definition of a successful industrial corporation during the mid 20th century. The Chandlerian firm is large, diversified and vertically integrated

E-learning/Online education – includes all forms of educational technology in learning and teaching

Flipped classroom – a form of blended learning where students are learning content online and do the homework or assigned problems in class with teachers

ICT – Information and Communications Technology

LMS – Learning Management System

MOOC – Massive Open Online Course

Value curve – a curve that illustrates a firm's performance according to its offering level of competition parameters

Vertical integration – a degree of how much a firm own its supply chain

Unbundling – a term that describes how the ubiquity of ICT is breaking up older institutions package offerings, providing the smaller parts at scale and cost unmatched by the old institutions

Table of Content

1. Introduction	10
1.1. Background	11
1.2. Purpose and research questions	11
1.3. Scope and delimitations.....	12
1.4. Disposition.....	12
2. Analytical Framework.....	13
2.1. Industry evolution	13
2.1.1. Industry lifecycle.....	13
2.1.2. Technology Lifecycle.....	14
2.2. Back-end	15
2.2.1. Determinants of a firm's vertical scope.....	15
2.2.2. ICT's impact on firms' vertical scope	17
2.2.3. Unbundling a firm	17
2.3. Front-end.....	19
2.3.1. Porter's generic strategies.....	19
2.3.2. Blue ocean strategy/strategy canvas.....	20
3. Methodology	23
3.1. Research strategy and process	23
3.2. Research design.....	24
3.3. Data collection methods	24
3.3.1. Sampling process and data instances	24
3.3.2. Interviews.....	25
3.4. Data analysis methods	26
3.5. Validity and Reliability.....	26
3.6. Method discussion.....	27
4. Empirical Findings.....	29
4.1. Industry context	29
4.1.1. American higher education history	29
4.1.2. Current situation in USA.....	30
4.1.3. Problems with American higher education.....	31
4.1.4. New political initiatives	33

4.1.5. Continuous learning	34
4.2. ICT and Education	34
4.2.1. Online education	34
4.2.2. MOOC-platforms	35
4.3. Business Strategies	38
4.3.1. Traditional business strategies	38
4.3.2. Backend Activities	39
4.3.3. Innovative Business Strategies	40
5. Analysis	45
5.1. Back-end	45
5.2. Front-end.....	48
5.2.1. Porter's generic strategies.....	48
5.2.2. The Blue Ocean Strategy	51
6. Final Discussion	53
6.1. Findings applied to Swedish higher education	53
6.2. Issues hampering future development of American higher education	55
7. Conclusions	56
8. Reference List.....	58
9. Appendix.....	67

Table of Figures

Figure 1. The industry life cycle. Source: (Grant, 2010)	13
Figure 2. The technology life cycle Source: (Grant, 2010)	14
Figure 3. The different core processes of a company. Source:(Hager and Singer, 1999, p.)	18
Figure 4. Porter's generic strategies. Source:(Porter, 1980)	19
Figure 5. Strategy canvas of Cirque du Soleil Source: (Kim and Mauborgne, 2004, p)	21
Figure 6. The four-actions framework Source: (Kim and Mauborgne, 2004)	22
Figure 7. The empirical research process	23
Figure 8. Geographical location of interviews	25
Figure 9. Comparison of increase in tuitions and fees and typical family income Source: (Whitehouse.gov.gov, 2014)	32
Figure 10. Undergraduate graduation rates at American universities Source:(Freeman, 2013)	33
Figure 11. Acceptance rates at IVY-league institutes in 2014 Source: (Jacobs, 2014)	38
Figure 13. Revenue streams for Community Colleges in 2013. Source: (Aacc.nche.edu, 2014)	39
Figure 14. Student enrolment at University of Phoenix Source: (Annual reports)	40
Figure 15. Minerva's study locations Source: (Minerva, 2014)	44
Figure 16. Strategy canvas and four-actions framework applied to Minerva and Harvard	51

1. Introduction

The opening chapter presents the background of the thesis and motivates why the research is relevant. The purpose of the thesis will be introduced and broken down into two research questions. An elaboration on the scope and delimitations of the thesis will follow and the chapter will close with a disposition of the report.

1.1. Background

Education is a key driver for the development of social and human competencies that lay the foundation of a strong and sustainable knowledge economy (Assembly.coe.int, 2008). Many developed countries are recognising education as a major building block to secure their country's future competitive position. Relatively, education is even more important in USA than in other countries of the world. Most Americans believe that pursuing a higher degree education is of utmost importance in order to advance and succeed in American society (Souza et al., 2013 Whitehouse.gov, 2014).

At the same time, American higher education is facing a crisis never seen before. Ballooning tuitions, reports of decreasing quality of education, gaps between what graduates know and what employers expect them to know and increasing student debt leaves many experts concerned. In the midst of all the problems, online learning emerges as good quality learning, that supports and potentially even disrupt traditional bricks and mortar education (Allen and Seaman, 2013 Eduventures, 2014).

E-learning is becoming increasingly common and means that Information and Communication Technology (ICT) is used to support or enhance learning. Various forms of ICT have, to different extent, been used in higher education for decades and gradually made its way into the mainstream learning experience (OECD, 2005). The introduction of ICT does not only imply technological changes, but rather forces a change in the fundamental concepts that builds up an industry and thereby affect all actors within it (Drucker, 1998). Therefore, merely implementing digital media into old institutions and keep old routines will not be enough. Rather the entire educational system, with all its stakeholders needs to be analysed and potentially redefined. Therefore the digitalisation of education might force a change, not only in how universities, but also governments and other firms, view education. ICT is likely to redefine the boundaries and the set-up of higher education and implies the use of new business models and value propositions in order to be successful.

1.2. Purpose and research questions

The purpose of this study is to research and analyse how ICT has made its way into American higher education and how ICT has enabled new business strategies among forefront educational providers.

The report attempts to account for different ways in which digital technology can be used to improve an organisation's competitive advantage as well as how digital technology has changed the competitive setting of the educational industry. To help guide the research process and fulfil the purpose of the thesis the following research questions have been defined:

R1. How has ICT changed the composition of activities and operations within the American higher education industry?

R2. What types of business strategies are forefront providers using today and how is ICT integrated in the strategies?

1.3. Scope and delimitations

This report is based on a research study conducted in the U.S consisting of 27 qualitative interviews with people connected to the American higher education industry. In addition, a substantial study of secondary sources has been conducted. The scope of the study has been limited to focus on higher education in America. However, considering the size of the American higher education industry this report only covers a fraction of it. Conclusions drawn from this report will be applied to Sweden in the discussion part. Note that no specific research concerning Sweden has been conducted. The researchers have however both attended a Swedish university and lived there for large parts of their lives.

Finally, there are a number of issues related to e-learning that the report will not cover. As an example, the report will not in depth elaborate on pedagogical issues and under what conditions e-learning is superior to traditional learning. Nor will it elaborate further on specific types of e-learning or in any way intend to identify hands-on suggestions of what type of digital technology universities and other industry actors can adopt.

1.4. Disposition

This report follows a traditional thesis structure. Chapter 2 presents the developed analytical framework based on a literature review on relevant literature frameworks and concepts. In chapter 3, the chosen research strategy and methods will be elaborated upon. The chapter also includes a discussion regarding how methods chosen have impacted the result. Chapter 4 presents the empirical findings by describing the industry context, implications of ICT in American higher education and business strategies of traditional and new educational institutes. In chapter 5, the empirical findings are analysed with regards to the analytical framework and the two research questions. Consequently, the chapter will first focus on the back-end by analysing the composition of activities and operations and how it is affected by ICT. The focus is later shifted to the front-end to analyse the value offerings and competitive strategies of educational institutes. Chapter 6 will first discuss the findings in relation to the Swedish educational system and continue with a discussion regarding what a future scenario in American higher education might look like. Finally, chapter 7 presents the conclusions of the thesis by answering the two research questions derived from the purpose.

2. Analytical Framework

This chapter will present the analytical framework which is based upon three areas of investigation; industry evolution, back-end, and front-end.

The three areas of investigation address different parts in analysing how the higher education industry in USA has transformed and how this gives rise to new business strategies. Firstly, industry evolution provides a framework for understanding the context of industry transformation and how competition change as the industry matures. Secondly, the concepts associated with the back-end will provide analytical tools to explain how an actor attempts to create value. The back-end addresses the vertical scope of a firm and how a firm can be unbundled. Thirdly, the front-end address how an actor attempts to deliver value to the market and how they compete. It will describe how to create a defensible position through generic strategies or alternatively by creating new markets through a blue ocean strategy. Overall, the analytical framework will be used as a foundation for the analysis of the empirical data.

2.1. Industry evolution

This section will introduce two theoretical frameworks to explain the industry evolution process. Firstly, an elaboration of the industry life cycle will be made followed by an explanation of the technology lifecycle. These two frameworks will later in the analysis chapter be integrated in the overall analysis of the American higher education industry.

2.1.1. Industry lifecycle

As industries evolve, industries tend to go through the same type of phases which can be analysed through the concept of the industry lifecycle, see figure 1. The research related to the industry lifecycle started with a study of the American car manufacture industry in the 1970s (Peltoniemi, 2011), and the concept has during the years been dedicated research from a wide range of scholars (Cusumano, Kahl, Suarez and F, 2006). It comprises four stages; introduction, growth, maturity and decline. Grant (2010) emphasises that growth in demand and production and diffusion of knowledge are the two fundamental drivers for industry evolution and together they define each stage in the lifecycle.

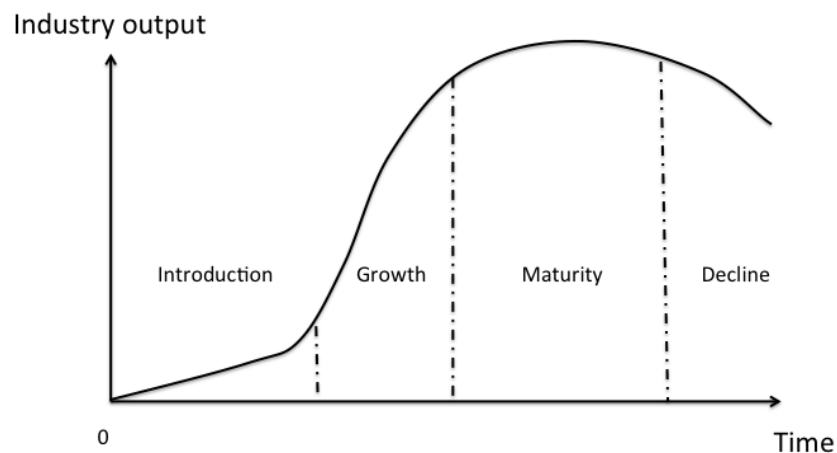


Figure 1. The industry life cycle Source: (Grant, 2010)

In the introduction phase, sales are small and a vast amount of differentiated firms and product designs exist. Technical improvements and increased efficiency lead the industry into a growth stage where it experience rapidly increasing market penetration. Hence, the mass market opens up (Grant, 2010). The key success factors in the growth stage according to Grant (2010) are to design with regards to manufacturing, establish an efficient distribution network, brand building, and process innovation. Increasing saturation will eventually occur when the growth reaches its maximum and lead the industry to the maturity stage. In the maturity stage, competitive advantage is a quest for cost efficiency and shake out of firms typically occurs where a few numbers of firms will remain, each holding large market shares Grant (2010). Customers are knowledgeable and price sensitive in this stage and there are product trends of commoditization and attempts to differentiate by branding, quality and bundling. In the decline stage, the demand becomes obsolete as the products and technologies are competing with new technologies. The stage is characterised by cost cutting and firms are experiencing declining revenues and profit margins (Grant, 2010).

2.1.2. Technology Lifecycle

The technology lifecycle, see figure 2, place emphasis on the dynamics regarding the development of product and process innovation (Grant, 2010), and is closely related to the industry lifecycle (Peltoniemi, 2011). According to Grant (2010), the primarily force behind the technology life cycle is the production and diffusion of knowledge. The technology life cycle comprises three phases; the fluid phase, the transitional phase, and the specific phase.

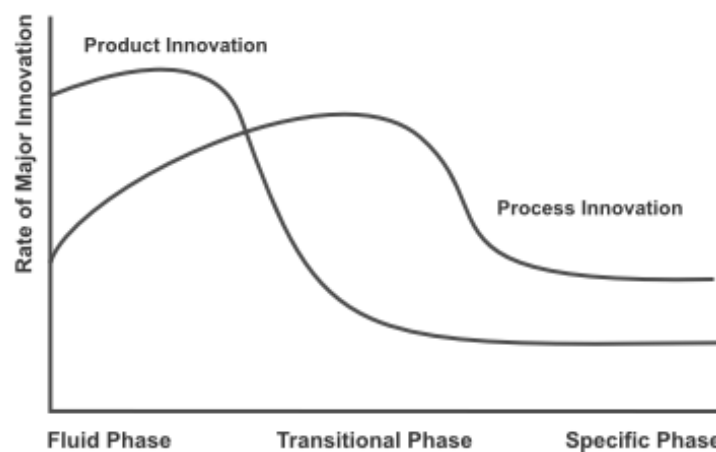


Figure 2. The technology life cycle Source: (Grant, 2010)

In the fluid phase, also referred to as the era of ferment, firm entry is generally high (Cusumano, Kahl, Suarez and F, 2006) and competition is primarily between alternative technologies and product designs (Grant, 2010). Production in the early phase of the technology lifecycle is typically expensive and product performance is low (Peltoniemi, 2011). The industry will therefore eventually converge around a dominant design that Grant (2010) defines as a stable architecture defining the look, functionality and production method of the product. In addition of products and processes, dominant designs are also present among business models (Grant, 2010). The emergence of a dominant design is a critical moment in the industry evolution process since an industry starts to focus on process innovation and economies of scale instead of product innovation. The standardization reduces the uncertainty for customers and encourages firms to

invest in production capacity. As a result, the industry consolidates and there is a shakeout of firms who have chosen the wrong design. In the transitional phase, there is a shift from radical to incremental product innovations and even more attention on process innovations. The costs are falling in the transitional phase and market penetration is increasing rapidly due to the combination of process innovation, design modifications and scale economics (Grant, 2010). In the specific phase, few companies are left and there is a low level of innovation. The industry is having difficulties to grow as the dominant design is embedded into the industry structure and therefore hard to change (Grant, 2010).

2.2. Back-end

This section will introduce concepts related to the vertical scope of a firm and how ICT affect a firm's sourcing strategies. It will also present concepts regarding disintegration and unbundling of a firm.

2.2.1. Determinants of a firm's vertical scope

A firm's vertical integration, i.e. how much of the value chain to own in-house and how much to source from other companies, has been a frequently discussed topic among management scholars over the years (Zhang, 2013). When a firm wants to widen its vertical scope it can either expand upstream, also referred to as backward integration, or expand downstream also referred to as forward integration. Backward integration means that a given firm gains ownership or increased control over supplying activities, where a firm for example starts to produce its own raw material. Forward integration on the other hand means that a given firm acquires or gains control over its previous customers, such as its distributors or retailers. Over the years, several different parameters have been discussed as to why a company should consider moving up or down the value chain.(Zhang, 2013)

Coase (1937) argued that one important aspect of the decision regarding vertical integration is the cost related to a purchase, which made him define the concept of transaction costs. Transaction costs involve all costs associated with participating in a market and includes costs such as searching for information, negotiating and writing contracts, and monitoring and coordinating deals. According to transaction cost economics, an item should only be produced in-house if the transaction costs are higher than the cost a firm would have when producing the item itself (Coase, 1937).

Further, Chandler (1977) saw vertical integration as a way of protecting organisations against market failures. A market failure occurs when transactions on the market are too risky and contracts written to overcome the risk are either too costly or impossible to write. A market that has a high likelihood of failing typically consists of a small number of buyers and sellers, has high asset specificity, durability and intensity, and it oftentimes involve frequent transactions (Stuckey and White, 1993).

Additionally, Williamson (1985) highlights asset specificity as a reason for why a firm should be vertically integrated. He argues that a firm's skill specific core activities are better kept in-house. The purpose for this is two-folded: firstly, it is a way of keeping key parts of a company's value proposition protected. Secondly, in alliance with the thinking of Chandler, it is a way of staying independent from other actors that, if given the chance, might act opportunistically. (Williamson, 1985)

Moreover, a vertical integration can be motivated if it aims at levelling unequally distributed market power, i.e. if another actor in the value chain has a lot of buying or selling power and might use this opportunity to capture a larger part of the value. Another player on the market can then choose to integrate vertically to gain more market power and thus even out the odds. (Stuckey and White, 1993)

In addition, when a new technology is launched or a company has just entered a new market it is often a valid strategy to integrate downstream in order to create a market for the new technology (Stuckey and White, 1993). Furthermore, Wise and Baumgartner (1999) argue that many companies in recent days expand downstream the value chain in order to capture more value. As an industry or technology matures there will be more companies entering the market, pushing prices on products and material down. At the same time, the new entrants increase the installed user base, i.e. the number of customers that has bought the product (Wise and Baumgartner, 1999). These facts put together makes it more attractive for a company to offer services that are directly focused on end customer. Wise and Baumgartner (1999) have found that these years the sturdiest barrier to entry is customer allegiance, which a company possibly can attain by expanding downstream the value chain.

The benefits for a firm being vertically integrated can be: it protects a firm against market failures (Chandler, 1977) and opportunistic behaviour (Williamson, 1985) and that it helps levelling the industry power balance (Stuckey and White, 1993). Additionally, being vertically integrated can hinder new actors to enter the market by enhancing the entry barriers. For example, vertically integrated firms might possess unique skills and knowledge that other actors are unable to obtain on the market, forcing new entrance to also integrate vertically, which in turn leads to high fixed investments (Stuckey and White, 1993). Furthermore, a highly integrated firm might enjoy organisational benefits such as high knowledge transfer between different parts of the company and good control over company activity and the final output (Powell, 1990).

Regardless how good the benefits are, being vertically integrated also has several downsides. One of the most severe is the high investment needed to span a larger part of the value chain. Furthermore, a vertically integrated organisation is more robust and less agile than smaller less integrated organisations (Stuckey and White, 1993). The reason for this is that the activities often are optimised to fit together. Therefore, changing one part of the firm will imply changes to another part as well. This interdependency often creates a complex and rigid firm (Powell, 1990). Having a vertically integrated firm also makes it harder to scale a business since scaling one part implies that other parts need to follow. Further, Hagel and Singer (1999) argues that a firm engaging in diverse activities are likely to focus on the overall performance of the bundle of activities and not on the performance of the separate business units, which are likely to perform better being managed as separate entities. Companies having many diverse core competencies therefore risk being bypassed on all its separate business units by firms focusing merely on one of the things, which in the longer term will threaten the competitiveness of the overall organisation. (Hagel and Singer, 1999)

2.2.2. ICT's impact on firms' vertical scope

Whilst the reasons for changing vertical scope described above presents it much as a company choice, Robertson and Verona (2006) argue that a firm's decision to vertically integrate is not always its own decision. Rather the choice of vertical integration or disintegration is often forced upon a company by technology shifts and industry maturation. As an example Langlois and Robertson (1995) highlight that a company often is forced to produce ancillary activities in-house when a technology is young due to the limited amount of actors participating in the market. However, as technology matures and transaction costs lowers, these ancillary activities are often outsourced in order to reach higher productivity. Thus changes in the industry impose the use of dynamic transaction costs (Langlois and Robertson, 2002 Robertson and Verona, 2006). The introduction of ICT has historically led to lower transaction costs and therefore smaller firms in many industries (Robertson and Verona, 2006 Hagel and Singer, 1999 Abramovsky and Griffith, 2006). The decreasing popularity of the Chandlerian firm is one example where changes in society and technology have changed the scope of the firm. A Chandlerian firm is a big and vertically integrated firm leveraging economies of scale and scope, and it was a popular company structure during the mid-20th century (Robertson & Verona, 2006). The idea with these companies was, in accordance with the thoughts of Chandler, to secure access to resources by being vertically integrated. However, as ICT, globalisation and deregulations have lowered the transaction costs and decreased entry barriers, many of yesterday's Chandlerian firms have been forced to vertically disintegrate and focus their efforts on a smaller set of key activities (Sandström, 2014).

2.2.3. Unbundling a firm

The concept of unbundling is essential for decisions regarding vertical integration. Unbundling is the process of breaking things apart into smaller pieces (BusinessDictionary.com, 2014). The term is often related to ICT since ICT has historically lowered the transaction costs and entry barriers to industries, resulting in new entrants obtaining economies of scale providing small parts of the original bundle to a superior quality. This forces firms to unbundle their organisations to stay competitive (Bakos & Brynjolfsson, 1999 Hagel & Singer, 1999 Wikipedia, 2014).

Hagel and Singer (1999) argue that most corporations struggle to keep their offerings bundled and that many are unaware of the bundle they are possessing. They mean that a traditional corporation is made up of three separate businesses: a customer relationship business, a product innovation business, and an infrastructure business. As seen in figure 3, these different businesses require different pre-requisites in order to prosper and perform optimally. If a firm keeps all businesses core it will ultimately lead to none of the businesses performing at its optimal. This is due to the trade-offs between the optimal management of the separate businesses. As an example, product innovation is commonly best performed in small agile companies where a creative and employee focused company culture is promoted, whilst a customer relationship business is typically bigger with a company culture making it all about the customer. As ICT makes it possible for new niched firms to enter the market, the traditional bundler focusing on all three businesses risk being by-passed by smaller companies focusing on merely one of the three. Doing so, the new entrants will achieve better quality and cost structure as a result since they are not bothered by the trade-offs experienced by the incumbent firm. Therefore Hager and Singer (1999) argue that it is central for a firm to ask the question of what

business they are really in. This development has been obvious in the newspaper industry where traditional paper providers have had large problems adapting to their industry going digital. Nowadays, many newspapers have realised that their main business is in acquiring and keeping a large and healthy reader base that can be leveraged in order to make money on advertisements and subscription fees (Hager and Singer, 1999).

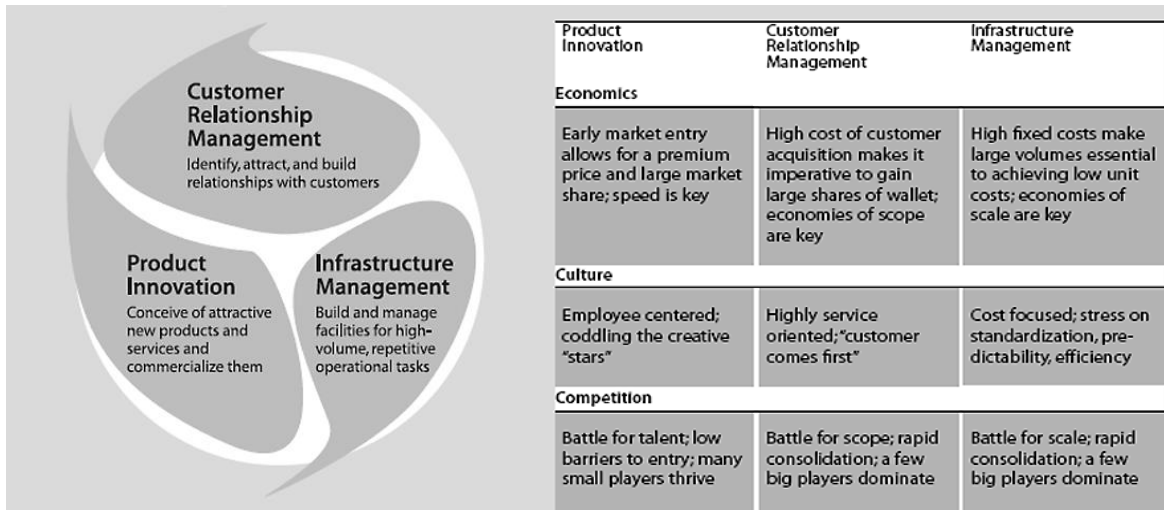


Figure 3. The different core processes of a company Source: (Hager and Singer, 1999)

When a company goes through the process of unbundling it is crucial that they simultaneously work with re-bundling (Bakos & Brynjolfsson, 1999 Bakos & Brynjolfsson, 2001 Hagel & Singer, 1999). Whilst Hagel and Singer (1999) write about re-bundling through modifying company boundaries, Bakos and Brynjolfsson (1999, 2001) write that re-bundling can be made through pricing. Hagel and Singer (1999) means that a company that has decided what business it is in needs to invest accordingly in order to create an atmosphere proper for the chosen business. A firm that focus on product innovation is likely to divest to obtain an agile organisation structure. On the other hand, firms focusing on customer relationship need a large and loyal user base which is costly to acquire and maintain. Therefore these companies are likely to engage in mergers and acquisitions of services and goods that can be used to gain larger parts of customer wallets. Hence, these firms rely on economies of scope and does not benefit from being fractioned. Similarly, a firm focusing on infrastructure can potentially find itself investing in more assets in order to gain economies of scale and reinforce the entry barriers. (Hagel & Singer, 1999)

Further, when it comes to sustainable pricing models Bakos and Brynjolfsson (2001) have studied how lowered marginal costs and diminishing transaction and distribution costs impact on firms' success with bundled and unbundled pricing respectively. Their conclusion was that reductions in marginal costs are likely to favour companies using bundled pricing. While reductions in transaction and distribution costs tended to favour companies using unbundled pricing, i.e. to charge per small unit used. Finally they also saw that many companies have success with a combined strategy offering their customers the ability to choose whether they wanted to pay a bundled prices or rather pay per module or instant. (Bakos and Brynjolfsson, 2001)

2.3. Front-end

In order to analyse front-end business strategies within the American higher education industry, two literature frameworks will be introduced in this section. Firstly, Porter's generic strategy framework will be presented followed by the blue ocean strategy.

2.3.1. Porter's generic strategies

Competitive strategies are essential for firms that want to create sustainable competitive advantage and yield superior return on investment. According to Porter (1980), the best strategy for a given firm is to create a unique composition reflecting its specific circumstances. Porter identifies three internally generic strategies for outperforming other firms in the industry and for creating a defensible position, see figure 4. The three generic strategies are overall cost leadership, differentiation, and focus. In some cases a defensible position can mean to yield superior returns, whereas in others, it can mean that a given firm just obtain acceptable returns for survival (Porter, 1980).

Competitive Scope	Broad	Cost leadership	Differentiation
	Narrow	Cost focus	Differentiation focus
		Cost leadership	Differentiation
		Competitive advantage	

Figure 4. Porter's generic strategies Source: (Porter, 1980)

In the first generic strategy, *overall cost leadership*, a given firm sets out to become the low cost provider in its industry. Depending on the structure of the industry, cost advantages may vary and be driven by, for example, cost-efficient-scale facilities, cost reductions from experience, cost minimization in areas such as services, sales force, advertising, and so forth (Porter, 1980). In addition to providing a low-cost position, cost advantages and economies of scale also provides substantial entry barriers for new entrants. Risks associated with this strategy involve technological changes that reduce or eliminate the value of past investments or learning, imitation of low-cost production learnings, and inability to see market change due to attention on cost. (Porter, 1980)

The generic strategy of *differentiation* means that a given firm seeks to create offerings that are widely perceived by its industry as unique and valuable for its customers. It is a viable strategy for earning above-average returns since it provides protection against competitors in terms of customer loyalty and lower sensitivity to price, hence it enables firms to increase margins. The increased margins, therefore, circumvents the need for having the most cost efficient structure. In the differentiation strategy, entry barriers comprise of customer loyalty and the need for competitors to overcome uniqueness (Porter, 1980). Porter (1980) also addresses a series of risks associated with differentiation that involves cost differentials that becomes greater than the value differentiation to hold brand loyalty, change in customer demand, and imitation from competitors that narrows down the perceived differentiation.

The *focus* strategy rests on the idea that a given firm serves a narrow strategic target more effectively or efficiently than competitors who have a broader competitive strategy. It is a combination of a narrow competitive scope and either overall cost leadership or differentiation. Depending on the combination, firms achieve lower costs in serving the strategic target or differentiation stemming from meeting the demands of the strategic target better, or both. The strategic target may take many forms and could be a particular customer group, a geographic segment, or a product segment. Porter (1980) further warns firms for the risk of obtaining an extremely poor strategic position if none of the three generic strategies is followed, a position known as *stuck in the middle*. Firms in this position are suggested to make a fundamental strategic decision in order to obtain a defensible position and increase profitability. There are also risks associated with pursuing the generic strategies, firstly for firms failing to attain or sustain a strategy and secondly for the original strategic advantage to erode as the industry evolves. (Porter, 1980)

2.3.2. Blue ocean strategy

Most business strategies are all about competition, firms are driven to outperform rivals and yield greater shares of existing markets. According to Kim and Mauborgne (2004), scholars, companies, and consultants have ignored significantly more lucrative aspects of strategy. One such strategy is called the blue ocean strategy and is based on the idea that a given firm can create new market space and thus make competition irrelevant (Kim and Mauborgne, 2005). To understand the nature of the blue ocean strategy, the business universe can be divided into two distinct types of spaces, red and blue oceans. The red ocean denotes all the industries in existence today where the competitive rules are well understood, firms are focused on exploiting existing demand, and industry boundaries are set (Kim and Mauborgne, 2004). In red oceans, space is crowded and increasing competition turns the water bloody, products turn into commodities, and prospects for profits and growth are reduced (Kim and Mauborgne, 2005). Blue oceans, on the other hand, denote all industries not in existence today. Firms create and capture new demand instead of fighting for it, and growth is often rapid and profitable. A cornerstone to the blue ocean strategy is its focus on value innovation and its rejection of the fundamental belief that a trade-off exists between value and cost (Kim and Mauborgne, 2004). Hence, with a blue ocean strategy, firms can pursue a differentiation and a low-cost strategy simultaneously. To illustrate what factors an industry is currently competing on and to create a blue ocean strategy, Kim and Mauborgne suggests the use of a strategy canvas, see figure 5, complemented with the four-actions framework. In figure 5, Kim and Mauborgne (2004) have mapped the competitive compared the incumbent actor Ringling Bros. & Barnum & Bailey with the new entrant Cirque du Soleil.

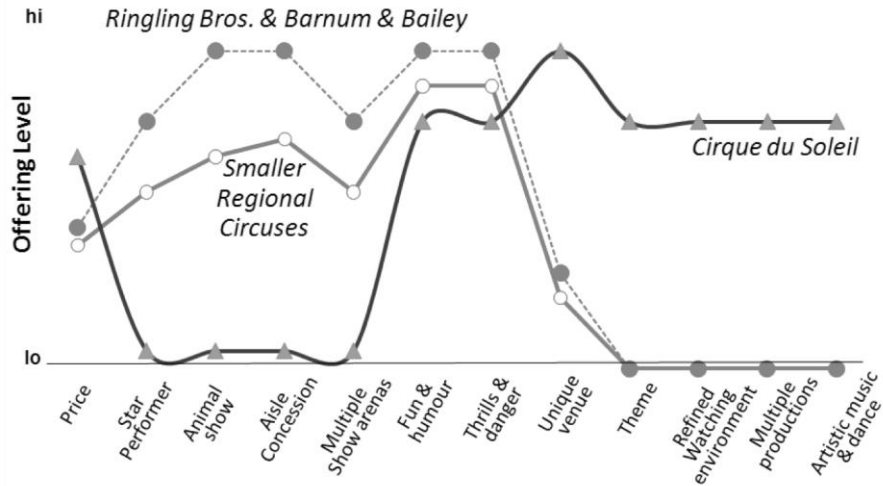


Figure 5. Strategy canvas of Cirque du Soleil Source: (Kim and Mauborgne, 2004)

The strategy canvas is a diagnostic and action framework that serves two purposes. Firstly, it visualizes the current state of competition in the known market space, which allows an understanding for what the industry is investing in and what the customers receive from the existing offerings on the market. Secondly, it allows a fundamental shift in terms of strategic focus from competitors to alternative solutions, and from customers to non-customers. Instead of offer better solutions than rivals to existing problems, the strategy canvas provides a given firm insight into how to redefine the problems within its industry and to reconstruct buyer value elements (Kim and Mauborgne, 2005). The horizontal axis captures the principal factors that the industry competes on while the vertical axis captures the offering level of each principal factor. The parameters are positive, which means that a given firm offers buyers more of that particular factor. Hence, a higher offering level on price for example indicates a higher price for customers. Once the principal factors and its offering levels have been settled, a given firm's performance can be plotted through a value curve (Kim and Mauborgne, 2004).

The second basic analytic framework, the four-action framework, breaks the trade-off between differentiation and low cost by asking four key questions that is the outline for crafting a new value curve, see figure 6. The first two questions, considers the elimination of factors that are taken for granted in the industry and the factors that should be well below the industry's standard, and provide insight into how to reduce costs compared to competitors. The third and the fourth question concerns the factors that should be raised above industry's standard and factors that should be created that have never existed before. They provide insight into how to increase value for customers and how to create new demand (Kim and Mauborgne, 2005). Companies that have been applying the frameworks have found that they do not simply take market shares from competitors, but by pursuing value innovation they also increase the overall market.

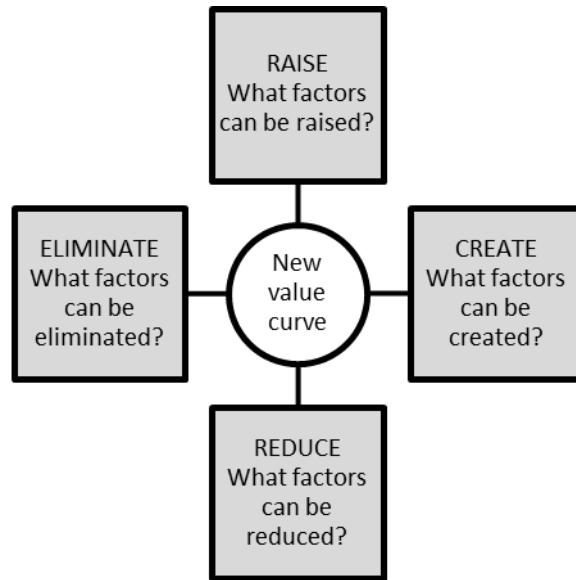


Figure 6. The four-actions framework Source: (Kim and Mauborgne, 2004)

3. Methodology

This chapter will describe the chosen research strategy and process, research design, and research methods used to fulfil the purpose of this thesis. The chapter will further elaborate on the data analysis methods followed by an elaboration on how validity and reliability has been achieved in this report. The chapter will end with a discussion of methods used have affected the result.

3.1. Research strategy and process

This thesis follows a qualitative research strategy in which an inductive and interpretivist orientation has been applied, as defined by Bryman and Bell (2003). Inductive reasoning means that research moves from specific observations to broader generalizations and theories, why it sometimes is referred to as the bottom up approach. Bryman and Bell (2011) argue that this is a useful strategy when there is no clear hypothesis defined prior research since it enables generation of empirically based knowledge so that unknown groupings can emerge. Consequently, an inductive orientation provides greater insight into the complexity of a research topic (Bryman and Bell, 2003). The interpretivist orientation has an epistemological position and emphasizes the examination of interpretations of participants. This to understand a social world instead of adopting pre-selected scientific models. Together, it has led the researchers to be open minded in the collection of data in order to look for unexpected and valuable insights that are applicable for theorizing.

The research process for this thesis, see figure 7, follows the snake model introduced by Holmén (2013). It is a stepwise approach to empirical research and provides advantages in terms of visualization, guidance and simplification of the research process. Even though the model is outlined as a linear process, it has been used in an iterative manner to follow the research strategy. The iterations followed a progressive focusing process where the researchers interacted with the data and gradually changed focus, as suggested by Schutt (2001).

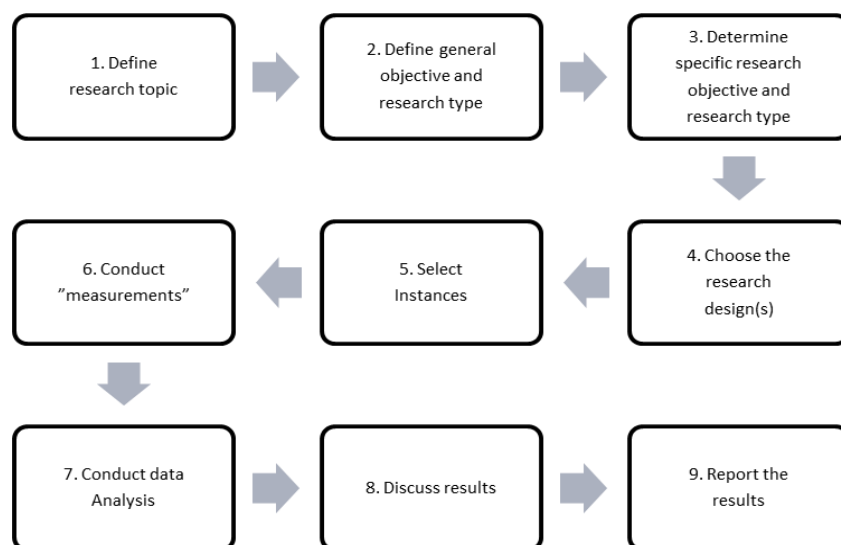


Figure 7. The empirical research process

The research topic was set to investigate how ICT has affected higher education in USA. The general objective and research type addresses the nature of the outcome and is in this report theory oriented. It means that general explanations and thick descriptions have been created to explain how the higher education industry has transformed due to the emergence of online learning. The specific research topic is descriptive and the research type is of empirical nature.

3.2. Research design

The research design is a framework for collecting and analysing data and is designed with regards to the priorities of the research (Bryman and Bell, 2003). This study has applied a multiple-case study research design. This was due to the aim of providing an understanding of behaviours and the meaning of these behaviours in a greater context, while studying several cases over a short period of time. As pointed out by Bryman and Bell (2003), the case study approach provided advantages in terms of chains of evidence, thick descriptions, and multiple sources of evidence. Since the research design is a framework for data collection, it has naturally influenced the choice of data collection methods.

3.3. Data collection methods

The research methods used have been qualitative in nature and data has been collected from both primary and secondary sources. The qualitative methods used to collect primary data have foremost included open interviews and semi-structured interviews. A small but none the less important part of the data collection was to observe the educational institutes in focus and culture of American higher education. The primary data has been supported by secondary data retrieved from documents and other secondary data sources. The sampling process and the qualitative methods used will be elaborated further below.

3.3.1. Sampling process and data instances

A pre-study consisting of open interviews with experts and secondary data collection was conducted in order to select the educational institutes to research further. The criterion for the selected educational institutes was that they should be prominent when it comes to offering online learning. Most of the institutes were approached through email with varying response rate. The successful approaches continued with a snowball sampling, where interview objects were asked for contacts among its acquaintances to get more interviews, as suggested by Bryman and Bell (2003). The snowball sampling enabled the majority of the interviews and the contact with some of the more innovative projects such as the Minerva project and San Jose State's MOOC partnership. The approached educational institutes can be found in the Appendix.

Further, interview objects within the specific educational institutes were selected based on its role, commitment and ease of contact. To find the person with relevant expertise, research was conducted through home pages and LinkedIn. Interviews were also conducted with industry experts, journalists, policy makers, bloggers, and start-ups to get an objective picture of the industry landscape. These actors were selected based on the relevance to the research topic when retrieving information from articles and web pages. In addition, snowball sampling was used in to get in contact with more industry experts. Since mostly prominent and leading educational institutes were selected, the sample can be considered to be selection biased. However, since the interest of the research was to investigate how ICT has successfully been used and how new business strategies have emerged, the bias is considered to inevitable and motivated.

3.3.2. Interviews

To interview is the most commonly used method in qualitative research and entails eliciting of information about the interviewee's own behaviour or that of others, norms, beliefs, values and attitudes (Bryman and Bell, 2011). It is useful when the interviewee has historical information hard to obtain elsewhere (Creswell, 2003), which was the case when understanding business strategies among different educational institutes. The qualitative interviews can be divided into unstructured and semi-structured interviews, which offer a flexible interview process that structured interviews are not able to. An interview list can be found in Appendix I.

In an initial phase, unstructured interviews were conducted with industry experts to gain knowledge and understanding of the research topic. According to Bryman and Bell (2011), an advantage of using unstructured interviews is that the respondent answers freely so that unexpected but potentially valuable aspects might appear. It is preferable when the researchers have limited prior knowledge concerning the research topic. Criticism to unstructured interviews is that it requires a lot of time and effort to code and compare answers. Since unstructured interviews only were used in the initial phase, this was not considered as a problem. The unstructured interviews were further used to create the interview guides for the semi-structured interviews.

The semi-structured interviews comprised most part of the data collection. In comparison to unstructured interviews, the semi-structured interviews were based on an interview guide consisting of questions on fairly specific topics. An interview guide works as guidance to the interview where questions may or may not follow a particular order. It therefore provides flexibility to probe deeper into specific topics and to generate deep and rich information about these topics (Creswell, 2003). The questions used for the interview guides varied, depending on the believed expertise of the interview object and the specific focus of the interview. As more interviews were conducted, new questions arose while others were perceived to be answered which further affected the interview guide.

The majority of the semi-structured interviews were performed in person during a period of eight weeks in USA. The other semi-constructed interviews were performed through Skype prior the field study. In total, 27 interviews were performed which were between 40 and 90 minutes in length. The geographical location of each interview can be seen on the map in figure 8. Each interview was recorded and most of the interviews were transcribed to facilitate the compilation and analysis of the data, as suggested by Bryman and Bell (2011).



Figure 8. Geographical location of interviews

3.4. Data analysis methods

While qualitative data is attractive for researchers with its rich nuances, it also brings difficulties in finding analytic paths through the richness. Therefore, the data analysis methods used for this thesis have been following the grounded theory framework as suggested by Bryman and Bell (2003). Grounded theory is defined to be a development of theory derived from data in an iterative approach where data collection and analysis precede in tandem. One of the key processes to grounded theory is coding, which means that data is broken down into labelled component parts. The data collected has therefore been analysed once it got collected and then once again after the completion of the data collection.

When all interviews were conducted, transcripts and notes were reviewed again and coded using a software program called Nvivo. General themes and opinions were identified to construct a number of arguments that would be of theoretical significance for the American higher education industry. A literature review was conducted in parallel in order to find frameworks that could best explain the observations and conclusions that the researchers derived from the data. Once the literature framework was set, additional secondary data was collected and analysed with help of the presented literature frameworks.

A key part of the analysis was to distinguish the competitive factors of the industry, whereby the most prevalent features of each educational institute was stated. Based on the characteristics and features, the educational institutes were categorised according to their believed generic strategy. Further, two of the educational institute's value offerings were analysed in order to create a value curve that would represent their performance. The offering level of each principal factor was weighed against the other represented institute's value offering and based on the knowledge that the researchers gained during the research process. Hence, no quantitative research methods were used to estimate the offering levels. However, since the aim of this analysis was to exemplify how educational institutes can think about competition and new markets, a definitive picture was not deemed needed. Further, it would require a lot of time and effort to map and measure the exact performance level of each educational institute's offering. Therefore, an arbitrary estimation of the performance levels was considered sufficient. Overall, the grounded theory analysis provided advantages by capturing complexity, linking practice and structuring the analysis process, as suggested by Bryman and Bell (2011).

3.5. Validity and Reliability

The two most essential and fundamental concepts for academic research are validity and reliability (Bryman and Bell, 2003). Validity refers to the extent an instrument measures what it is intended to measure and reliability refers to what extent a procedure produces the same results on repeated trials (Socialresearchmethods.net, 2014). However, qualitative researchers argue that the fundamental ideas of reliability and validity are designed for quantitative research, making the concepts difficult or even inappropriate to apply on qualitative research. Guba (1985) and Guba and Lincoln (1994) instead propose that the assessment of reliability and validity for qualitative research should be related to the trustworthiness and authenticity of the study. For the trustworthiness, they present four criteria that are in parallel with validity and reliability. These are credibility, transferability, dependability, and conformability. Further, they present five criteria for authenticity which are fairness, ontological authenticity, educative authenticity, catalytical authenticity, and tactical authenticity.

The establishment of credible findings is related to the practice of carrying out the research and the confirmation that the researchers have correctly understood the social world that they are researching (Bryman and Bell, 2011). Hence, it is in parallel with internal validity. In this research, triangulation of sources and research methods have been applied to ensure the credibility of the thesis, as suggested by Bryman and Bell (2011). Primary data has been supported and, if possible, validated by secondary data sources. Moreover, the researchers conducted all interviews together in order to ensure that interpretations were made correctly. Additionally, the main takeaways were discussed directly after each interview session and the coding was also conducted conjointly. Since the majority of the interviews were made in the local setting of the interview objects, the researchers were able to see the environments discussed with their own eyes, which further increased the credibility of the empirical findings. Sources for the secondary data collection were thoughtfully selected with regards to when it was written, where it had been produced, by whom, ideological angle, and the value of its content.

Transferability can be related to external validity and refers to connections between elements of study and the researchers own experience (Writing.colostate.edu, 2014). Contextual uniqueness and aspects of significance to the social world has been important in this study, why thick descriptions have been produced to increase the transferability, as suggested by Bryman and Bell (2011). Hence, the thick descriptions enable others to make judgments about the possibility to transfer findings to other settings. It should be further noted that the empirical research does not cover the whole higher education industry, why the generalization of the findings are left to others to make. This research aims to give an indication of what is happening and to stress future academic research areas. Dependability is in parallel with reliability and refers to the consistency of the results. Guba and Lincoln (1994) suggests researcher to adopt an “auditing” approach and ensure that complete records are kept of all the phases of the research process. The researchers have for this study kept a journal, fieldwork notes, interview transcripts and data analysis decisions for others to assess dependability.

Conformability refers to the objectivity of the research, which was addressed in this study by the aim of the researchers not to allow personal values or theoretical inclinations to sway findings, as suggested by Bryman and Bell (2011). However, due to the subjectivity, the researcher will be biased. The authenticity aspects concern the issues with the wider political impact. Fairness is one part of the authenticity assessment that refers to how fair the different viewpoints of the social setting has been represented. Since the approached educational institutes all were in the forefront in online learning and there were only one or a couple of members representing each educational institute, all different viewpoints were not able to be collected. However, the sample combined with the secondary data collection enabled the researchers to get a fair view on the American higher education industry.

3.6. Method discussion

The choice of research strategy and research questions greatly affected the outcome of this thesis. Qualitative research has advantages of providing thick descriptions but implies difficulties regarding findings that are representative for the entire higher education industry. As the researchers' time was limited, the decision was to approach only forefront educational institutes to get an understanding of their perspective. Consequently, the empirical findings are biased. If a quantitative research approach would have been applied, findings could have achieved external

validity and to a higher degree been generalizable. At the same time, the research strategy would have lost its flexibility and not been as prone to detect the valuable insights that was given through the thick descriptions. The researchers therefore agree that, considering the circumstances, a qualitative approach was the most appropriate alternative.

The study has focused on how ICT and online learning has affected the American higher education industry and consequently, the researchers have a perspective corresponding with that focus. If the study, for example, instead had been focused on the competitiveness of American education, the empirical findings that characterise the industry might have looked different. Additionally, looking at traditional educational institutes without focus on ICT might have generated in a different future outlook of the industry.

4. Empirical Findings

This chapter presents the empirical findings of this study and is divided into three sections. The first section will present the history of American higher education, the current situation, new initiatives and the concept of continuous learning. The second section will describe the implications of online learning, the utilization of ICT and the MOOC phenomenon. The chapter will end with a section that introduces business strategies among traditional and new educational institutes.

4.1. Industry context

The American higher education industry is diverse, consisting of both private and public actors. Some actors are for-profit while most are non-for profit and the industry offers a wide variety of universities and colleges. This section aims to describe the settings that surround American higher education, which include what historically has characterised American higher education and what it looks like today.

4.1.1. American higher education history

The oldest higher education institute in the US, Harvard University, was founded in 1636 (Harvard University, 2014) and has had a major impact on how American higher education looks today. In its early years it was designed to imitate the big English research universities of the time such as Cambridge and Oxford. Learning was based on small intimate face-to-face classes and had a close connection to religion and the studies of Christianity. It has then over the years been shaped and influenced to different extent by the surrounding society as well as by its presidents (Christensen and Eyring, 2011). Through its history, Harvard has been able to develop and successfully innovate so that it today, by many, is seen as the world's most prominent university. It is a diverse institution that offers 15 different schools, a wide range of degrees, world-class athletic teams and facilities out of the ordinary (Harvard University, 2014). In addition, the school possesses endowments of more than US \$32 billion used to support the university budget (NACUBO, 2014). Harvard also hosts some of the best researchers in the world by offering tenures to scholars that get funding to pursue top of the line research. This combined enables Harvard to be ranked as one of the best universities in the world year after year (Shangaranking.com, 2014 Topuniversities.com, 2014). However, most importantly, Christensen & Eyring (2011) and Rosen (2011) argue that Harvard is an institution that has influenced the way most higher education providers in the US operate today.

Over the years, Harvard has become the dominant design for universities and countless of other learning institutes have looked to Harvard for inspiration when they have made investments in their own businesses. Therefore, a traditional American University today can not only be described with lecture halls and libraries where students come to learn. Rather a university is a state of the art resort featuring swimming pools, gymnastic halls, athletic teams, countless of office buildings housing professors and other staff, and dining halls with various food chain restaurants (Rosen, 2011). Christensen and Eyring (2011) describe the development among universities during later years with the concept of "bigger and better". They argue that striving for "bigger and better" is common both for universities and companies. With it, they mean that a company experiencing some success will naturally invest to grow, employ more people, and produce more units and better products. Similarly, a university that intends to grow will do it by

building a bigger football stadium, hiring more renowned professors, adding more degrees to the curriculum or building even fancier restaurants. In times of success very few will make a deliberate decision of downsizing a university or a company. Christensen and Eyring (2011) argue that these “bigger and better” tendencies, with a continuous adding of activities and services, have led to higher costs and thus rapidly increasing tuitions.

Another remain from Harvard and other early universities is the liberal arts degree (Christensen and Eyring, 2011). In the classical age, liberal art studies meant studying the skills considered important for a free man to master. The studies back then included learning how to participate in public debate, defend oneself in court, and military service. The aim was to produce a well-spoken knowledgeable man, and the studies put a lot of emphasis on grammar, rhetoric and logic (Wikipedia, 2014). Liberal art studies have remained a central part of American higher education. Therefore, studies at college or university focus on learning how to learn and to master general knowledge areas such as writing and speaking rather than mastering a certain skill.

4.1.2. Current situation in USA

USA is the home of some of the best universities and research institutes in the world (Shangranking.com, 2014 Topuniversities.com, 2014), where the most talented people from various nations come to study. However, the American higher education industry serves many more students than only the top talent. In the fall of 2013 there were 21.8 million students expected to attend a college or a university in the US (NCES.ed.gov, 2014), and the amount of students has more than tripled since 1965 (Christensen, Horn, Caldera, Soares, 2011). In fact, USA is one of the top countries in the world when it comes to providing its people with higher education. The government has a stated goal that by 2020 USA will be the country in the world that provides the biggest proportion of its population with higher education (Whitehouse.gov, 2014). This ambitious education goal has lead most people in America to believe that pursuing a higher degree education is of utmost importance in order to advance and succeed in American society (Souza et al., 2013 Whitehouse.gov, 2014). Further, the notion of education for everyone and education as the pathway to success has its roots in the “American dream” which states that everyone, no matter into what social segment they are born, shall have the chance to be all he or she can be (Loc.gov, 2014). Thus, the notion of education for everyone is deeply rooted in American society and culture, which has had a major impact on the higher education industry today.

Historically, a typical college student has been someone that is between 18 and 22 that recently graduated from high school and moved away from home to spend four years of his or her life partying and engaging in self discovering activities. However, this is not the case anymore (Laitinen, 2012 Christensen & Weise, 2014). In fact only 14 per cent of college undergraduates attend full time and live on campus (Laitinen, 2012). The rest of the students oftentimes encounter a very different experience where almost 40 per cent are above 25 years old (Clasp.org, 2014), 25 per cent have at least one child (Institute for Women Policy Research, 2013), 32 per cent have full time and 43 per cent a part time employment (Clasp.org, 2014). Hence, the higher education industry in America is very broad and diverse. For the great many, higher education is something different than the four-year residential experience that people first think of.

As the American government attempt to provide a large part of their population with higher education, they as a result spend much money on it. In 2008, McKinsey & Company predicted that the government spent US \$301 billion on higher degree education and that they in order to reach their education goal in 2020 have to spend an additional sum of US \$52 billion yearly (Byron, Cota, Kartik and Laboissière, 2010). During the 2011/2012 academic year, 71 per cent of all undergraduates received financial aid that helped finance parts of their education (NCES, 2013). The financial aid did in a large extent come from federal sources and in various forms such as grants grants, loans and veteran aid (NCES, 2013). Today, 60 per cent of all college students are taking out a loan to pay for their education (Asa.org, 2014). This development has led the outstanding student loan debt in the U.S. to pass US \$1 trillion (Asa.org, 2014), making it the second biggest private loan category after mortgages. Despite big investments by government and different states that subsidies in-state public institutions, students still have to pay for large parts of their education themselves.

4.1.3. Problems with American higher education

Experts and media agree that the American higher education is an industry in crisis (Barber, Donnelly and Rizvi, 2013 Laitinen, 2012). Various actors are reporting of prices increasing well above inflation (Christensen & Weise, 2014), where more and more students are graduating with an increasing amount of student debt, while they at the same time have a harder time finding a job. Employers' report of an increasing gap between what they expect of a graduate and what the graduate knows. Many universities are experiencing problems where tuitions cannot cover the costs, and are forced to increase tuitions and fees even more. Additionally, government is experiencing financial struggles and many states have been forced to cut down on their education budget meaning less money to fewer people. The stated problems will be further elaborated below.

While American universities have engaged in their “bigger and better” spending activities described above, their costs have risen accordingly. New dining halls and better research personnel hired on long term tenures increase the costs irreversibly (Christensen & Eyring, 2011). At the same time many public universities have gotten less governmental funding due to overall budget struggles. As can be seen in figure 9 below college tuition at four year public universities have risen with 257 per cent since 82/83, while average family income only has increased with 16 per cent (Whitehouse.gov, 2014). For many students it is also unclear whether or not the rapid increase in cost has led to a proportionate increase in quality. With growing costs for attending college the financial situation for college students is getting worse. To afford higher tuitions, students nowadays need to take on more loan and debt (Drake, 2013). In 2012, the average student graduating from college had a total debt of US \$24,301 and the total outstanding student debt in America has passed US \$1 trillion (Asa.org, 2014). This increase in student debt is threatening since there are no tangible assets backing up a student loan. Hence, if the graduate is unable to obtain a well-paid job and improve his or her financial situation, he or she will be indebted for life and will have struggles to obtain other loans such as mortgage and car loans.

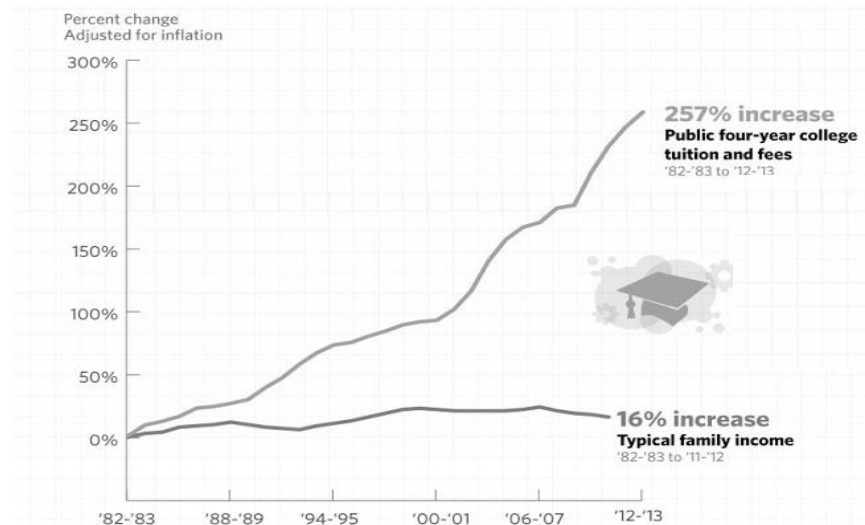


Figure 9. Increase in tuitions and fees and compared with increase in typical family income
 Source: (Whitehouse.gov.gov, 2014)

Even though tuitions are increasing, employers are concerned with the quality of American graduates. In a recent report, only 49 per cent of the employers thought that new college graduates are adequately prepared for working life. At the same time 87 per cent of the education providers, i.e. universities and colleges thought that their graduates are well prepared for working life (Mourahed, Farrell and Barton, n.d.). Further, USA is facing the highest unemployment rate in years, nearly half of all bachelor degree holders do not find employment or are underemployed upon graduation (Christensen & Weise, 2014).

Some blame the poor quality of American graduates on the traditional input-focus adopted by many universities (LeBlanc, 2014 Laitinen, 2012). An input-focus means that universities have been relying on the quality of inputs such as teachers, students, and curriculum to ensure quality on outputs. Therefore, quality of the graduates have been guaranteed through creating a program with the best curriculum, the best teachers and the best students where students are to study for X amount of hours and do Y amount of things. However, the inputs do for various reasons not guarantee the output (LeBlanc, 2014). At first, few universities are fortunate enough to work with the best students. In fact, only the elite universities in the U.S. have low acceptance rates. Additionally, only a few students today devote the hours requested by them and even the ones that do are not guaranteed to meet the learning requirements (Laitinen, 2012). Therefore, the knowledge gap implies a shift from an input focus to an output focus, forcing the question: what do a graduate actually know? (Laitinen, 2012)

Moreover, American college graduation rates are getting worse. The graduation rate is a measure of how many students that graduates from a university in a certain amount of time. It is a debated measure but does, to some extent, show how good American universities are at graduating their students (Selingo, 2013). Figure 10 shows that that only a few students graduate college or university in the expected time (Freedman, 2013). This is an issue that concerns many experts since the slow graduation rate implies that universities are doing a relatively poor job with leading their students through higher education with high costs and low productivity as a result.

Undergraduate Graduation Rates

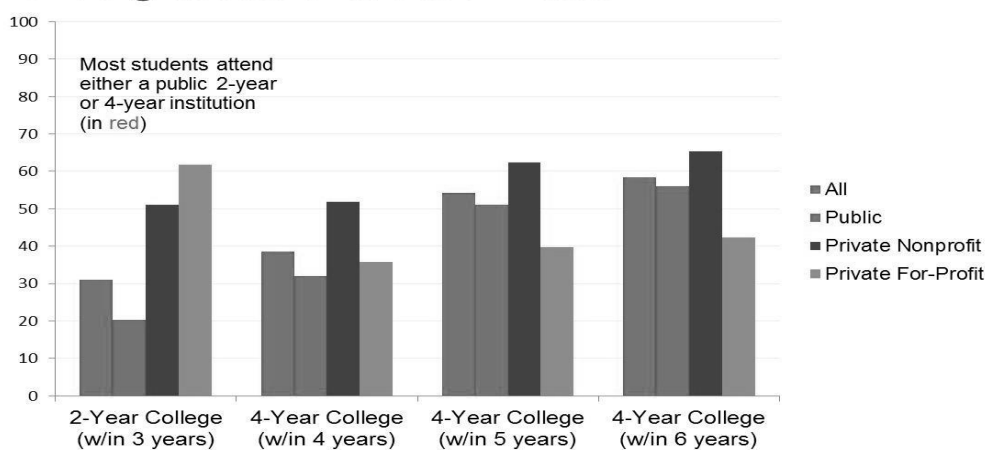


Figure 10. Undergraduate graduation rates at American universities
Source: (Freeman, 2013)

4.1.4. New political initiatives

To respond to the challenges mentioned above and to ensure USA's competitiveness, the federal government has set out a number of goals and launched programs to stimulate innovation within the higher education sector. Innovations that in turn shall increase productivity and help improve the overall quality of education (Whitehouse.gov, 2014). Politicians such as Barack Obama and Marc Rubio are encouraging the government to vote through new legislations that will incentivise non-institutions to provide cost-efficient quality education (Laitinen, 2014). Many of the incentives that set out to change higher education make use of digital technology and are still in early phase of development. Therefore they are not able to ensure all the quality criteria required for being a grant-qualifying program. However, with free-cards provided by government new actors are given the chance to try their offerings and develop what can potentially be solutions to problems concerning American higher education (Laitinen, 2014).

The federal government has further endorsed competency based-learning in order to encourage affordable higher education degrees (Fain, 2014). Competency-based learning means that instead of completing a degree based on a number of credit hours, students earn their degree through demonstrating proficiency of specified competencies (Laitinen, 2014). Each competence demonstrates a single unit and once mastered, students are able to move on to next competence (Leblanc, 2014). In 2013, the U.S. Department of Education announced that programs based on competencies instead of traditional credit hours can be eligible for federal student aid (Edf.stanford.edu, 2014). Further, in an interview with the Chronicle of Higher Education the vice president for postsecondary education at American Progress stated, "One of the things that really enables competency-based learning is the ability to use technology to keep track of what people have learned and can do with what they have learned" (O'Neil, 2013).

The tuning project is another initiative to improve quality of education, which is enabled by the Lumina foundation (Tuningusa.org, 2014). The tuning project ensures quality across disciplines by identifying what the students should know and be able to do after earning an associate's, bachelor's, or a master's degree. The project encourages educational institutes to experiment and

try to standardise their disciplines and courses. As Laitinen states, “*You can have an economic department with 30 faculty members each teaching their own thing*” and through the tuning project, “*educational institutes have now started to question why faculty are not teaching the same thing*” (Laitinen, 2014). The project is a faculty driven process that aims at increasing the transparency for all stakeholders and involves collaboration among faculty from different educational institutes, professional organizations and groups of state (Tuningusa.org, 2014). According to Laitinen (2014), this bottom up approach is more effective since it is hard for the government to give directives that follow through in USA. Historically the most effective strategies are rather to create incentives and let new improvements and innovations be created bottom up.

4.1.5. Continuous learning

In today’s society, where new knowledge is created with an increasingly rapid speed, the need for continuous learning is evermore present. It has become important for people to expand their knowledge base and update their skills in order to comprehend the challenges that everyday life puts them up to. Therefore, people cannot expect to have learned everything that they need to know when they graduate from university and then spend a lifetime executing on this knowledge (Fisher, 2000). Taking the example of marketing, a person that graduated with a marketing degree ten years ago did not learn about social media and would consequently need to complement the degree to be successful at a marketing job (Hughes, 2014). Sebastian Thrun, the father of MOOCs, believes that the climate we live in today stresses the need for more learning on-demand (Corcoran, 2013). Thrun, along with many others, believes that ICT enables learning on-demand since it offers easy access to knowledge whenever and wherever it is needed. Many new actors, such as Udemy and Coursera, are working with ICT to create environments where life-long learning can happen (Hughes, 2014 Norman, 2014)

4.2. ICT and Education

This section aims to present the empirical findings regarding ICT enhanced education. The section starts to explain the notion of online education and will continue to explain the MOOC phenomenon.

4.2.1. Online education

Online education is synonymous with E-learning and means that ICT is used to support or enhance learning (OECD, 2005). From the conducted interviews it is clear that ICT has had and will continue to have a big impact on the higher education industry and the way people in general learn. Dr. Matkin and other interviewees interviewed for this report share the vision of commoditising learning with the help of ICT, “*Imagine a world where everyone can learn everything, at any time for free*” (Matkin, 2014). According to the interviewees, the world described in the quote above is a world not too far away. ICT is changing the world from a place with a scarcity of knowledge to a world, where everyone have access to high quality content and knowledge 24 hours a day 7 days a week (Qayoumi, 2014).

ICT and digitalisation have come to redefine industry boundaries and the rules of the game in many industries over the years (Drucker, 1998). In many of these industries, incumbent players have been caught by surprise and, due to their ignorance, lost their competitive position. Examples of such industries are the music and the newspaper industry (Neuman, 2013).

However, it is also clear that digitalisation of industries creates big advantages for society at large, by lowering costs and making it easier for everyone to access information (Drucker, 1998).

E-learning became popular already before the IT-boom and has ever since been gradually integrated into the mainstream learning experience (OECD, 2005). One example is the Learning Management Systems (LMS) that almost every modern university has incorporated. Additionally, the digitalisation of education opens up for new business opportunities. It enables economies of scale where one university can offer a course to several thousand students. Further, it also facilitates for actors to reach new markets, for example, new geographical markets. Some experts also think that ICT will undermine the importance of having a well-known brand since it increases the transparency (Weise, 2014 Matei, 2012). ICT forces universities to account for what they are really offering their students and what a potential student gets out of attending a certain college. As an example, University of California Irvine has put an entire undergraduate program on YouTube for anyone to watch (Matkin, 2014). Potential students can thereby assess the university based on how good the teachers are and on the delivered content. Additionally, employers today have more criteria and information to judge graduates and potential employees by. Hiring a programmer, employers do not merely have to rely on a degree but can see what a person really knows by accessing GitHub repositories and other portfolio sources (Matei, 2012).

Historically, E-learning has been seen as something inferior in quality compared to traditional face-to-face learning. However during later years E-learning has increased in popularity and reputation (Allen & Seaman, 2013). Today around 60 per cent of all higher education institutions offer some of their content online. Additionally almost 3.2 million students, corresponding to nearly 15 per cent of all students, carry out at least 80 per cent of their education online (Edventures, 2014). However, for online education to really prosper and reach its full potential Mohammed Qayoumi (2014), president at San Jose State University, believes that more standards across the globe are needed.

4.2.2. MOOC-platforms

Due to its interesting value proposition, Massive Open Online Courses (MOOCs) have gained a lot of media attention and been a central part of the online education debate. In popular media, journalists have presented MOOCs as the disrupter of traditional universities and the leveller of higher education since everyone can access the world's best educational resources. Prominent universities such as Harvard and Stanford often offer MOOCs and the courses are basically the same as a course offered to paying students at the university. However, MOOCs are offered for free or for a small fee via the Internet and open for anyone to access. (Youngberg, 2012 Pappano, 2012)

The term MOOC was first coined in 2008 but the concept of open distance learning has been around for a long time (Collins, 2014). Open courses have been broadcasted through media platforms such as radio and television for decades (Björnsson, 2014). In fact, educational programs were broadcasted over the radio already back in the 1920's. Today, the term is used for courses that in different degrees are open to a large crowd, free or offered for a relatively small fee, and with most of its content offered online. In addition to providing content, MOOCs provide an interactive community for students, professors and teaching assistants. The term is being used in different contexts and it is debatable how open and free the courses really are (Fox, 2014 Jouttenus, 2014).

The big hype around MOOCs started in the fall of 2011 when Stanford University launched three individual courses that were offered online, for free and open for the large crowd. The first course was an introduction to artificial intelligence with Sebastian Thrun and Peter Norvig in the lead. In total, the course enrolled 160,000 students, which made Thrun start the for-profit MOOC-platform Udacity (Udacity, 2014). Thrun believed that Udacity could re-engineer American higher education by offering high quality learning to everyone at all stages in their lives for a very low price (High, 2013). Similarly to Udacity, after following high enrolment and success of other Stanford courses, Daphne Koller and Andrew Ng launched the for-profit MOOC-platform Coursera in 2012. MIT, in cooperation with Harvard, did not long after create the non-for profit, open source MOOC platform edX. Today these three MOOC-platforms are the leading platforms in their market and have chosen slightly different business approaches (Tillväxtanalys, 2014).

Udacity has, after experiencing problems working with universities, pivoted into focusing on education for corporations (Weise, 2014 Qayoumi, 2014). Coursera searches for an executable and financially sustainable business model by partnering with various different universities and organisations. Further, Coursera has started to experiment with small payments for courses and what they call a signature track where students can pay for certified pre-defined sets of courses (Coursera, 2014). edX, being a non-profit is working towards their mission statement; to provide quality education to the world, to improve on campus education and to provide opportunity for research (Jouttenus, 2014). However, no MOOC platform company has so far been able to find a sustainable profit generating business model, why their future role is still uncertain (Weise, 2014 Fox, 2014 Collins, 2014).

As an alternative to the MOOC-platforms mentioned, that all work by creating their own content or partnering up with universities as content providers, Udemy is providing a platform where anyone claiming to have knowledge within a certain field can create a course (Udemy, 2014). Udemy attempts to create a platform similar to the app store that use crowdsourcing to provide a marketplace where a person can learn about almost anything (Hughes, 2014). Today, Udemy features over 16 000 courses which are promoted by the likes of more than 3 million students (Udemy, 2014). By letting anyone add content to their platform, Udemy opens up for freelancing teachers (Hughes, 2014). Other education start-ups, such as Verbling; which has a language learning platform also makes a business out of connecting learners with people that are able to teach (Bernstein, 2014).

MOOC-platforms, just as any other platform, serve a two-sided market. On the one hand it serves third parties such as universities, companies or single course creators while on the other hand it serves the students of the Internet. The reasons for why a university provides a MOOC varies but some common reasons often mentioned by prominent universities are: the possibility to “flip the classroom”; meaning that students access pre-distributed material at home so that lecture time can be used for discussions and interaction between students and professors. Universities also use MOOCs in order to gather statistics that can help improve teaching. Since a MOOC typically is followed by a large crowd the statistical sample gets big enough to identify common trends and student learning patterns. This way a teacher can understand if students struggle with certain parts of the course and experiment with different ways teaching a concept

and delivering content. Many actors also provide MOOCs because they see it as their obligation to distribute high quality material to as many people as possible. Additionally, some institutions hope that creating a MOOC will be good marketing and attract students to the physical campus. (Fox, 2014 Collins, 2014 Matkin, 2014 Ranga, 2014 Beshimov 2014 Jouttenus, 2014 Qayoumi, 2014).

San Jose State was one of the first universities to utilize MOOCs and they have seen that it enabled having more students in each class, while it at the same time increased the completion rate in a course. From a business perspective, the president of San Jose State sees MOOCs as a potential tool for universities to increase throughput of students thereby increase revenues (Quyomi, 2014). At UC Berkeley they have also started to institutionalize the MOOC technology, and have similarly to San Jose State, seen increased success rates for students while they at the same time expanded the class from 50 to 250 students (Fox, 2014). Other universities, such as MIT, look at if students have completed an MOOC from their university in the admission process. This way the MOOC becomes a new type of filter for the student recruitment process (Jouttenus, 2012). According to Michelle Weise (2014) at Christensen Institute, MOOCs also have a huge potential for universities serving as dynamic textbooks.

Lately there has been a lot of criticism directed towards MOOCs. The format has been doomed as the solution that would democratise higher education and solve many of the problems related with American higher education (Christensen & Weise, 2014). A hard blow for the MOOC phenomenon was when its “founding father”, Sebastian Thrun, publicly stated that the format was not proper for educating the masses (Chafkin, 2013). The reasons for this statement was a failure experienced when trying to offer low-cost credit granting courses together with San Jose State University (Lewin, 2013). Some other concerns speaking against the format has been the high dropout rate (Penn GSE, 2013) and that most students following the courses are well educated and already has a degree (Christensen et al., 2013). Further, some critics argue that MOOCs offer open and easily accessible content, which should not be confused with the understanding and knowledge about a topic (Tillväxtanalys, 2014). It further demands a lot of time and effort of the participant universities and companies to create a MOOC (Ledin, 2014). Another criticism is the lack of control that comes with providing a course for a large crowd. The anonymous identity on the Internet may give people a chance to deliberately provoke, discriminate, and harass other users on the web.

Overall, few of the educational institutes that the research team has been in contact with are planning on getting MOOCs accredited for their degrees. They are also sceptic towards if their future use will have to do with massiveness and openness (Weise, 2014) but rather see them as a good support to on campus learning (Fox, 2014 Qayoumi, 2014 Feirstein, 2014).

4.3. Business Strategies

This section will present the empirical findings of business strategies among educational institutes. It will do so by first presenting two segments of traditional business models and then continue with backend activities. The chapter will end with three specific examples of innovative business strategies.

4.3.1. Traditional business strategies

The American higher education industry consists of a vast range of different traditional business models. Unlike other countries, USA has never had any central institution organizing the higher education system. This has led to an informal configuration of educational institutes in USA which has been shaped by influences from changing social contexts, demographics, religion, state and local needs (Education.stateuniversity.com, 2014). Two different types of business models have had a major impact shaping the American higher education industry and will be elaborated upon below. At first, top tier research universities such as Harvard have influenced the industry through becoming the dominant design that other universities have imitated (Christensen and Eyring, 2011). Secondly, the American innovation of community colleges has with its low-cost and high accessibility offering enabled education for the masses (Matkin, 2014).

Research universities such as Harvard, Stanford, and MIT are included in the top tier segment. Research is an important element of the universities and the focus is on establishing academic credibility of the highest level (Christensen and Eyring, 2011). The universities positions are determined by the academic reputation; created by hiring the most skilled professors and honoured scholars, recruiting the most promising students, and offer the most sophisticated facilities. Public popularity is, in addition to academic reputation, largely gained from undergraduates and sports (Labaree, 2010). Therefore, the educational institutes also provide athletic scholarships, sports arenas, expensive campuses and much more in an elite environment. The costs are extremely high but so have the revenue streams been. Most of the revenues stem from endowments, federal government aid, student tuition, research grants and patents (Harvard University, 2013). At Harvard, student tuition is priced at US \$41,616 per year (Gse.harvard.edu, 2014). These universities often have an acceptance rate between 5 and 15 per cent, as illustrated in Figure 11. The universities are perceived to provide students with high social advantage (Labaree, 2010).

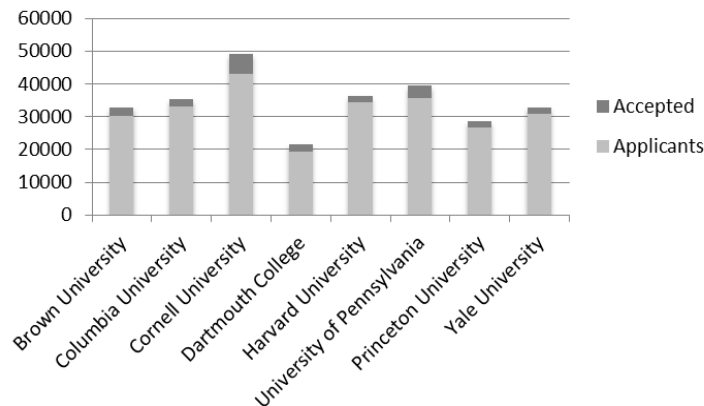


Figure 11. Acceptance rates at IVY-league institutes in 2014

Source: (Jacobs, 2014)

Community colleges, also referred to as junior college, county colleges, technical colleges, two-year colleges, or city colleges, in USA are two-year public educational institutions for higher education (Aacc.nche.edu, 2014). They provide the public with vocational education, courses for transferring to a four-year college or university, associate degrees and sometimes continuous and adult education (Aacc.nche.edu, 2014). Community colleges have developed based on the idea that everyone shall have an educational institute within a near geographical distance (Gary Matkin, 2014), in an effort to strengthen the economic growth of the country. Community colleges operate under the open admission policy act, which means that students are evaluated based on placement tests and not prior academic status. The prerequisite is that the student has a high school diploma or a general education development certificate (Grove, 2014). Hence, the community colleges have high accessibility for students in USA. Today there are 1132 community colleges in USA and the average annual tuition and fees are US \$3,260 (Aacc.nche.edu, 2014). Over 60 per cent of the revenue streams stems from governmental funding as illustrated in Figure 12. Further, tuition fees are in many cases financed by the federal government through Pell grants and other types of grants (Aacc.nche.edu, 2014).

Source	Revenue	%
Federal	\$9,135,894,867	16.1%
State	\$15,972,223,577	28.1%
Local	\$9,807,927,497	17.3%
Tuition	\$16,749,438,987	29.5%
Other	\$5,104,713,349	9.0%
Total	\$56,770,198,278	100.0%

Figure 12. Revenue streams for Community Colleges in 2013

Source: (Aacc.nche.edu, 2014)

4.3.2. Backend Activities

Other non-educational activities, for example school cafeteria or campus bookstores, have been outsourced for many years (LeBlanc, 2014). It allows educational institutes to cut costs and offer better services to students and faculty (Cleveland, 2014). Educational institutes have even started to outsource parts of the content provided in their courses. Publishers such as Pearson and Wiley have been offering educational institutes different types of educational packages for a long time (Collins, 2014). Apart from providing literature to students, publishers nowadays often offer faculty text-specific resources such as PowerPoints, instructor manuals, and mastering new design courseware (Pearsonhighered, 2014).

Universities have traditionally been operating most activities in house, especially the core course providing (Leblanc, 2014). Historically, faculty has been responsible for developing course curriculum, choosing material, delivering content, supporting students, assessing students and finally to improve the course (Leblanc, 2014). When emerging technologies have intervened with the core course providing elements most universities have taken control of the development because of old institutions and traditions. Michelle Weise states: "When universities see a technology as a threat there response is to co-opt it" (Weise, 2014). Therefore when adopting a new technology, a tendency for universities has historically been to start from scratch and offer all parts of the technology themselves. This behaviour has also been common when universities have adopted MOOCs and online learning (Weise, 2014). However, traditional actors have not

used MOOCs and online learning technology in a way that enables it to reach its full potential. This far many universities have only recorded traditional lectures and do not care much about finding a more appropriate format for delivering a course online (Weise, 2014).

4.3.3. Innovative Business Strategies

This section will present three specific business models of universities that are leveraging online learning. It will first elaborate on Apollo Education Group's University of Phoenix. Then, it will continue with Southern New Hampshire University and its new venture College for America. The section will end with a presentation of the Minerva Project.

Apollo Education Group and the University of Phoenix

John Sperling founded Apollo Education Group, hereafter referred to as Apollo, in 1973. Apollo owns and operates several for-profit educational institutions, where the University of Phoenix is Apollo's flagship (Apollo.edu, 2014). The University of Phoenix was founded in 1976 to serve the working adults that due to family and jobs could not attend a university with traditional education hours (Feierstein, 2014). Due to its unique focus on the working adults, the university was able to expand and in 1989 it launched its first online education program. In 1994, Apollo took the decision of becoming public, which increased the cash flow that helped the university to grow and experiment with new alternative education (Apollo.edu, 2014). Within a few years of Apollo going public, the University of Phoenix exceeded an enrolment of 100,000 students and kept on growing. In 2010, the University peaked with 470,000 enrolled students and has since then had a decline in enrolments, as can be seen in Figure 13. A reason for this can be related to the hurdles that the university had to put up (Feierstein, 2014). Apollo has during the years been accused for prioritizing financial gains over student success and has had several governmental lawsuits and investigations against them (Dillion, 2007). Hurdles were therefore implemented in order to avoid enrolling students who had less chance of completing a degree (Feierstein, 2014). Another reason, according to Barry Feierstein (2014), is the increasing competition from other online institutions.

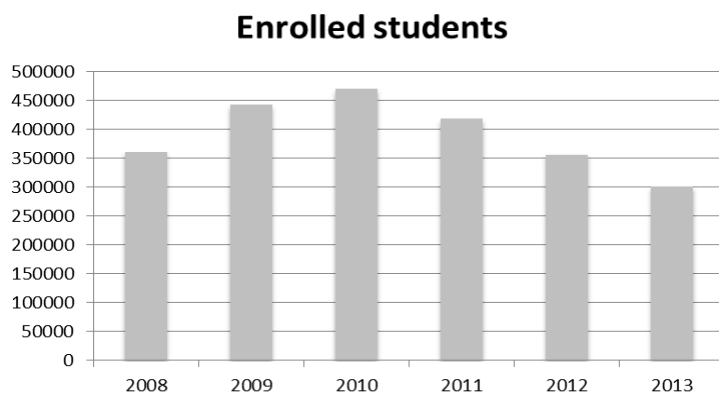


Figure 13. Student enrolment at University of Phoenix Source: (Apollo Group Inc.)

The University of Phoenix acknowledged at an early stage the differences between working learners and traditional students educational needs. Their programs and services were therefore designed to allow students to earn their degrees without major disruption to their personal and professional lives (Apollo Group Inc, 2012). Providing this unique opportunity, University of Phoenix could charge a relatively high price (Weise, 2014). An annual tuition fee for the

academic year of 2012/2013 was priced at US \$9,216 (Collegecalc.org, 2014). Additionally, unlike traditional schools, the University of Phoenix has had a customer focus with, what other schools has perceived as, an aggressive approach to student acquisition (Leblanc, 2014). With their online platform they have been able to leverage their cost structure and scale their offerings (Feierstein, 2014). Today, the university offers associate, bachelor, master and doctoral degrees mainly through an asynchronous online learning environment (Feierstein, 2014). In a synchronized environment, students and teachers takes part at the same time whereas in an asynchronous learning environment, online information content is shared irrelevant of constraints such as time and place (Orr, 2010). Innovation has been a cornerstone for the University of Phoenix, and in 2012 they opened the John Sperling Centre for educational innovation (Apollo.edu, 2014).

Faculty content experts design centralised course curriculums for all the university's programs (Phoneix.edu, 2014), which enable standardisation (Apollo Group Inc, 2012). At the same time, University of Phoenix is continuously working on more customised education for their students (Feierstein, 2014). The university has incorporated adaptive learning into its curricula to offer an individualised approach to learning (Apollo Group Inc, 2012). Most faculty members possess either a master's or doctoral degree and are encouraged to stay in their current work professions in order to bridge the gaps between theory and practice (Phoenix.edu, 2014).

The university has strong brand recognition, but has through the years received a lot of criticism due to the low graduation rates and a high student loan default rate, which means that students are struggling to repay student loans. Additionally, the university has been accused of lacking academic rigor (Dillion, 2007). Therefore, the public has divided opinions of the brand of University of Phoenix. The constant battle on the academic market and the declination of student enrolment has lead Apollo to search for new revenue streams (Feierstein, 2014). In 2012, Apollo founded its wholly owned subsidiary Apollo Lightspeed with the ambition to transform the distribution, pricing and consumption of learning worldwide (Apollo.edu, 2014). Among the ventures launched by Apollo Lightspeed, Balloon is considered to be the most cutting edge and scalable project (Feierstein, 2014). Balloon launched in the spring of 2014 and aims to connect education and employment through a course and skill marketplace platform (Balloon.com, 2014). According to Barry Feierstein, Balloon will serve a market that does not exist today. It is a non-for credit non-degree product where third parties are responsible for providing courses. The determinant of the Balloon project's success will be whether the connection between students and employers are good or not (Feierstein, 2014). MOOC platforms such as Coursera and Udacity are participating in the Balloon project through their contribution of courseware. Barry Feierstein (2014) believes that the value of a degree is going to fall and skill-based education is on the rise, which is in favour of the balloon project.

Southern New Hampshire University

Southern New Hampshire University, hereafter referred to as SNHU, was founded in 1933 as a private non-for profit accounting and secretarial university. The initial target was the people that had come back from the war (Mueller, 2014). During the 20th century, SNHU grew periodically and progressively expanded its educational offering to involve associate's, bachelor's and master's degrees (Snhu.edu, 2014). Financial problems became severe in the beginning of 2000, when the university found itself struggling against declining enrolment, poor name recognition,

and staggering finances (Kahn, 2014). Current president, Paul LeBlanc, was recruited in 2003 to help the university out of the problematic situation. When the recession from the financial crisis hit, the outlook for SNHU was not very promising and the university was threatened to make cuts or shut down (Leblanc, 2014).

Instead of cutting costs Paul LeBlanc, with advice from his friend Clayton Christensen, invested heavily in the university's online department to create new revenue streams (LeBlanc, 2014). On Christensen's advice, LeBlanc created an institution that was separated from the traditional university and targeted students that didn't belong to the traditional student group of 18 to 22-year olds. To meet the non-traditional student demand, the new institution offered a flexible and seamless online education model that in addition was able to scale. The investment in online education enabled the university to grow from 2000 to 38000 online students (Leblanc, 2014) and the university is today the third largest online degree provider in USA (Kahn, 2014). According to Paul LeBlanc, one of the major drivers of growth has been SNHU's focus on customer service (2014).

The technology used to deliver the online education offering is not unique according to Paul LeBlanc (2014). SNHU only wants to satisfy basic needs such as easy navigation through intuitive interfaces and consistency. What is really different with SNHU's model is that they have built a robust customer relationship management (CRM) system on top of the platform, enabling a 360-degree view of each student. The online format enable SNHU to monitor student performance on each section, correlate success factors, see what content is effective, and so forth. It has all led up to a higher graduation rate and higher student satisfaction. Another factor that has increased the graduation rate is that every student gets a personal advisor. The students that SNHU are targeting face many challenges that traditional students do not. Typically, their life with kids and employment might create distractions. Additionally, SNHU has seen that many of their students have failed with previous studies and might therefore lack the confidence of completing a degree on their own. The advisors therefore provide the students with the psycho emotional support that could be vital for a student to complete a given degree. (Leblanc, 2014)

SNHU has further imitated some characteristics of the for-profit players, such as the University of Phoenix. For example, in the student recruitment process, SNHU has employed around 160 admission counsellors that work aggressively to attract new students. As an example, the counsellors call prospective students at an early stage to tell them about the program and help them with the transfer of credits (Kahn, 2014 LeBlanc, 2014). SNHU has also focused on maximising the organisational and operational efficiency, and used economies of scale to drive down the costs. Some of the profit generated by the online department has been reinvested in the traditional campus, which has enabled a growth from 1800 to 4000 students over a 5-year period (LeBlanc, 2014). It has also been used to develop an entirely new learning experience, College for America, which has the potential of disrupting the currently successful online department (LeBlanc, 2014).

College for America

College for America, hereafter referred to as CFA, was founded in 2011 by SNHU and launched its first programs in 2013. CFA provides a complete competency-based learning offering that is built around working adults and their employers. In an aim of connecting workforce research,

higher education, and labour market needs (collegeforamerica.org, 2014), CFA has created an online education offering that is flexible and beats most prices on the market. The first degree was an associate's degree in social science with tuition of US \$2500 per year. In May 2014, CFA launched the first accredited bachelor's degree for \$10,000 in the country. "*A bachelor degree for \$10,000 has been unheard of in USA*" (Mueller, 2014). Students are recruited through partnerships with corporations. Today CFA has 45 partnerships ranges from regional to national companies that include organisations such as McDonalds, FedEx and hospital systems.

The competency-based learning is built around the outcome rather than the inputs. Instead of constructing courses and degrees after credit hours, CFA has created a program based on competencies. At CFA, the students don't take courses; instead they develop competencies and skills through project-based learning (Kazin, 2014). CFA's degrees are today based on generic competencies that are foundational, personal and content oriented (Mueller, 2014). They have been developed and evaluated in cooperation with a multiple number of companies, federal agencies and professors. Each student is provided with a dashboard, which illustrates the competencies that he or she has mastered or "not yet" mastered. The education is self-paced and since it is carried out online, student results can be directly connected to the competencies developed in an online portfolio. For example, if an employer would like to see how good a prospective employee is at presenting, a hyperlink can be found under the specific competence showing a YouTube-clip of the student presenting. In all, it creates transparency and provides measurable parameters for employers to evaluate students (Kazin, 2014).

At CFA they believe that they are a part of the fundamental shift in the education paradigm (LeBlanc, 2014). Not only because of their focus on competency-based learning, but also since they are working with unbundling of resources. CFA has unbundled the faculty with regards on learning coaches, curriculum developers, subject matter experts, reviews and so forth. This has provided CFA with the capabilities of better meeting student demand and enabled a scalable model. Today, CFA has around 400 students and is aiming at reaching 350000 students by 2018 (Kazin, 2014).

The Minerva Project

The Minerva Schools at KGI, hereafter referred to as Minerva, is a new education project about to host their first class in the autumn of 2014. The school has received a lot of media attention (CNBC, 2013 Goodkind, 2014 Brooks, 2013) due to their bold strategy and innovative take on higher education.

Minerva intends to offer a world class undergraduate experience comparable in quality with notable Ivy-league universities such as Harvard, Yale or Brown to only a half of the cost (Katzman, 2014). Minerva intend to achieve this is through re-thinking the meaning of higher education, putting the student and the learning experience back into focus. In order to minimise cost, Minerva does not have a campus with lecture halls, fancy restaurants and coffee shops, libraries and a big football stadium appropriate for a NFL team. Instead all teaching is delivered online and coffee can be bought in a Starbucks of student choice, as there are many in the cities where Minerva is present (Kaminski, 2013).

Academically there are many aspects with a traditional university experience that Minerva acknowledges as good. For example, Minerva is accredited and offers four-year programs with a traditional schedule. However, in order to drive down costs they have in addition to above-mentioned actions chosen not to hire faculty on expensive lifelong tenures, but instead hires them on shorter basis for research and teaching. Additionally, the founders of Minerva are of the opinion that anything that can be delivered in a lecture is unmoral to charge students for (McBride, 2013). Therefore basic knowledge such as economics one on one will be taught to the students through textbooks, MOOCs and other online resources (Katzman, 2014). Additional teaching is highly focused on student teacher interaction and peer training, a teaching format that according to Mr. Katzman (2014) only is enhanced by the online format. This since students directly can break out into smaller groups and teachers can track student engagement (Katzman, 2014).

Minerva will offer a wide range of topics that their students can choose to major within. However, central to all education is to prepare students for global leadership and innovation. Therefore, the educational experience builds on critical thinking, logical analysis and clear communication (minervaproject.com, 2014). To educate global world citizens, Minerva also offers a higher degree of globalisation. At first they are aiming at accepting top quality students from all over the world. Secondly, a degree at Minerva will not only be studied in America, rather all classes will start their first year in San Francisco and then study one semester each at different locations around the world such as Hong Kong, Buenos Aires, Berlin, London, Cape Town, Mumbai, New York, and Sydney as can be seen in figure 14 below.



Figure 14. Minerva's study locations Source: (Minerva, 2014)

5. Analysis

This chapter will analyse the empirical findings based on the analytical framework. The analysis is divided into a back-end and a front-end section. The analysis related to industry evolution will be integrated in the two sections.

5.1. Back-end

Looking back in time, American universities have been much like Chandlerian firms. They have engaged in a wide range of activities, where they through being horizontally integrated have tried to leverage economies of scope. At the same time they have been responsible for large parts of their own value chain and thus had a high level of vertical integration. However one can question whether being a Chandlerian firm is a valid company structure for a 21st century university. Perhaps a university could benefit from unbundling parts of their organization and outsource activities typically carried out in-house to reach higher productivity and better quality. As American universities are experiencing problems with high costs, poor perceived quality and increasing competition from alternative education sources universities will have to mind their business more carefully. Universities are currently relying heavily on government funding, but the question is if it is a sustainable strategy. Since the government is experiencing increased financial struggles, the government might lower their support to higher education or at least re-allocate it to favour more effective education providers.

From the empirical chapter it is clear that many universities already outsource parts of their business. Areas such as food service on campus and IT infrastructure have already been outsourced to big consumer brands and LMS providers respectively. However, most activities directly related to educating students are still kept in-house. Surely, many professors and universities use books and material provided by publishers such as Wiley and Pearson, but overall the university performs activities related to learning. At most, courses are independently handled by a small number of faculty members in a decentralised manner. Moreover, faculty members are in charge of designing course curriculum, sourcing or creating material, delivering content often through big lecture halls, supporting students to reach optimal learning, assess students, credit students and finally evaluate and improve the course. At most universities, faculty members are relatively well paid and busy. Additionally, all faculty members do not want to teach, but would rather focus on his or her research which often is completely different from what a mainstream student needs to learn.

Some pioneering universities like SNHU and the University of Phoenix have realised that all activities related to a course does not necessarily have to be carried out by the same group of individuals and have unbundled the learning experience. This has led to increased student success and a more efficient cost structure. The recognition that the core learning experience is in fact a set-up of separate activities has led these universities to rethink how courses are created and delivered. In both cases, course curriculum design has been centralised and is carried out by faculty members. University of Phoenix has appointed business professionals to be in charge of student interaction and course delivery. SNHU on the other hand has employed student advisors to support students in their learning process. These business professionals and advisors are not only cheaper to employ, but also better at supporting the students. Therefore, it seems

appropriate to question why traditional universities still let faculty be in charge of all activities related to creating and delivering a course and why all these activities are performed in-house. Is this behaviour supported by theory or is it merely a residue from old traditions. Analysing the situation with traditional sourcing theory provides an indication to how rationale it is for a university to keep most of these activities in house and centred to a small group of faculty members.

Coase (1937) argues that transaction cost is a determinant for the decision of producing in-house. Vertical integration and thus in-house production, is motivated when transaction costs exceed the cost of producing something in-house. Assuming that a large part of the courses that a university offers is not unique nor revolutionary it is likely that the concepts have been taught by other professors over the years. In today's world more content is available online and thus accessible for everyone at any time. New educational actors, such as MOOC-platforms, are providing easy access to the world's best education resources featuring courses from Harvard, Stanford and other prominent universities. Additionally, other online websites such as Wikipedia and YouTube host explanations to almost all foundational concepts usually taught at universities. These resources are typically only a few clicks away and often completely free. Hence, the transaction cost for sourcing large parts of the content used in today's university courses is small.

Additionally, Chandler (1977) saw vertical integration as a protection from market failure. Since there are many content providers on the market there is no reason to expect a market failure and, hence, not a valid reason for keeping all activities related to the core learning process in-house. Educational content that has been provided over the Internet or printed in a book stays there and is more or less accessible forever. Therefore, a university does no longer need to provide content in-house to make sure that it is accessible for their students, they will find it anyhow.

Moreover, theory suggests that asset specificity is another reason for a university to keep a certain activity in-house. If an activity is unique and directly contributing to a university's competitive advantage it should be kept in-house. This is in order to sustain the university's competitive position and to ensure full quality and access. It stresses universities to question whether all their activities related to the core learning experience are unique. As it looks today, most content is the same whether you are following a course at Harvard or at some remote university in Kansas. As an example, in basic courses such as linear algebra, a matrix is a matrix and the way to learn about Gauss elimination should not vary much depending where you are. Despite this, professors at many universities think that their way of delivering content is unique and continue to deliver "their own" content year after year.

Since much of the content produced at a university is not unique and easy accessible online from many different stable providers, literature suggest that it is not valid for universities to keep all these activities in-house. In fact, the highlighted innovative universities show that there are significant cost and quality benefits to obtain for a university that unbundles and outsource parts of its operations. As an example, the Minerva project will offer an in quality comparable education to the IVY-league schools for half the price. This is possible since Minerva has unbundled and outsourced mundane parts of the learning experience. Unbundling also enables universities to collaborate and share content and courses among each other. Doing so, universities can either cut cost if more institutes share one set of the course rather than each

university providing its own set. Universities can also expand their offering by being able to offer a bigger variety in courses. As an example Harvard has classes on social justice not found at Berkeley, and Berkeley has courses on biological food that are not provided at Harvard. With unbundled universities and the help of ICT, students at both universities can potentially access any given of these two courses.

However, when an educational institute unbundle it is forced to ask the question: what is our core business? Educational institutes need to be clear about what value they bring to their customers and make sure that all operations support the core value proposition. Hagel and Singer (1999) identify three different activities central in most mature companies: product innovation, customer relationship, and infrastructure. Even though these different activities are present and essential for most companies they have a tendency of not working well together, since the different units perform best during different circumstances. A university typically possess all these units in-house. Most universities have people in charge of “product innovation” to make sure good content is provided to students. At the same time, most universities have a lot of personnel working with student acquisition and keeping a good student-university relationship. Finally universities often possess a lot of infrastructure. While IT-infrastructure nowadays commonly is outsourced, many universities own big campuses with buildings for learning, housing and much more. As a matter of fact, universities can be viewed upon as property management companies since they own everything from football stadiums, gym buildings, and theatres to dining halls.

Contrary, highlighted innovative actors are rethinking what business they are in which enables them to obtain superior quality and lower costs. Minerva does for example not own any property. They have chosen not to have a library, sports facilities nor a dining hall. Additionally they have, as mentioned above, chosen to source large parts of their basic learning content from other providers. This way Minerva can focus all of its effort on providing superior customer service where a student focus is key and all decisions are taken with the student in mind. Since Minerva is pioneering the space of online learning they are currently forced to produce parts of the IT needed to support their learning experience in-house. However, as technology and the new sub-industry mature it is likely to attract new specialised players providing Minerva with the opportunity to outsource many of these ancillary activities.

SNHU provides an interesting example of unbundling and focusing with their three different business units, College for America, the traditional on-campus university and SNHU online university. These different units of SNHU are to a large extent managed as different companies. They are all located at separate addresses and, apart from the president Paul LeBlanc, each unit has its own personnel. This allows the three different schools to focus on their own key competencies without being hampered by the conflicting interest of another business unit. SNHU online university has chosen their main focus to be customer relationship management. They constantly focus on making the study experience as seamless, uncomplicated and delightful as possible for the student. Additionally they have developed tools for customer acquisition that has proven to be superior to those of its competitors. College for America has on the other hand focused on “product innovation”. Employees at College for America are re-designing the learning experience focusing on the outcomes rather than the inputs. Finally, the traditional on-

campus university has come to focus on infrastructure. Realising that the main benefit with attending a brick and mortar university is the possibility to interact with course mates SNHU have invested in state of the art facilities where such interactions can happen. These investments were enabled by the profits gained from the success of SNHU online university.

The reason why all different parts of SNHU now flourish is because they are all allowed their own space while they at the same time contribute to the SNHU brand. SNHU online university is not hampered by the physical constraints such as location and capacity that the traditional campus brings. Instead they can leverage their key competence of acquiring and maintaining customers, as much as possible. CFA is at the same time allowed to be small and agile so that they can pivot to create a successful new form of education fit for the 21st century. This can be done without the sceptics of traditional faculty or the intervention of the online university that is now so successful. Finally the traditional campus is allowed resources that can be invested in the campus to improve the overall environment. Consequently, a generic decision of what a university's core business is cannot be determined. A university seems capable of succeeding focusing on any one of the three businesses outlined. However, similarly to companies, it is important to make a decision regarding what type of business that is the main business and then support this decision in all operations. This way a university, or any educational provider for that matter, can not only lower its costs but also increase the quality of their value offerings to their students.

5.2. Front-end

This section will analyse the front-end business strategies and compare traditional and new innovative actors' business models based on the analytical framework. The analytical framework uses two different models to describe business strategies. The first model considered the use of generic strategies for a given firm in an aim to create a defendable position in a competitive market. The second model suggested firms to make competition irrelevant by creating new markets, using a blue ocean strategy.

5.2.1. Porter's generic strategies

Competitive strategies are essential for educational institutes that want to create a defendable market position in the higher education industry. Therefore, the various business models introduced in the previous chapter will be analysed based on Porter's generic strategies. An overview of each business models' strategic position is illustrated in figure 15. The educational institutes have different objectives and a defendable position may therefore have different meanings. For actors such as the for-profit University of Phoenix, a defendable position may be to yield superior returns for stakeholders while for private non-profit colleges, it can mean to obtain acceptable returns for survival. The accessibility of the educational institutes' offerings has been the basis for determining the competitive scope. Hence, a mass-market approach means that the offered education is accessible to a large number of students and does not necessarily imply a wide range of educational offerings. Cost leadership and differentiation strategies are determined with regards to each educational institute's value offering.

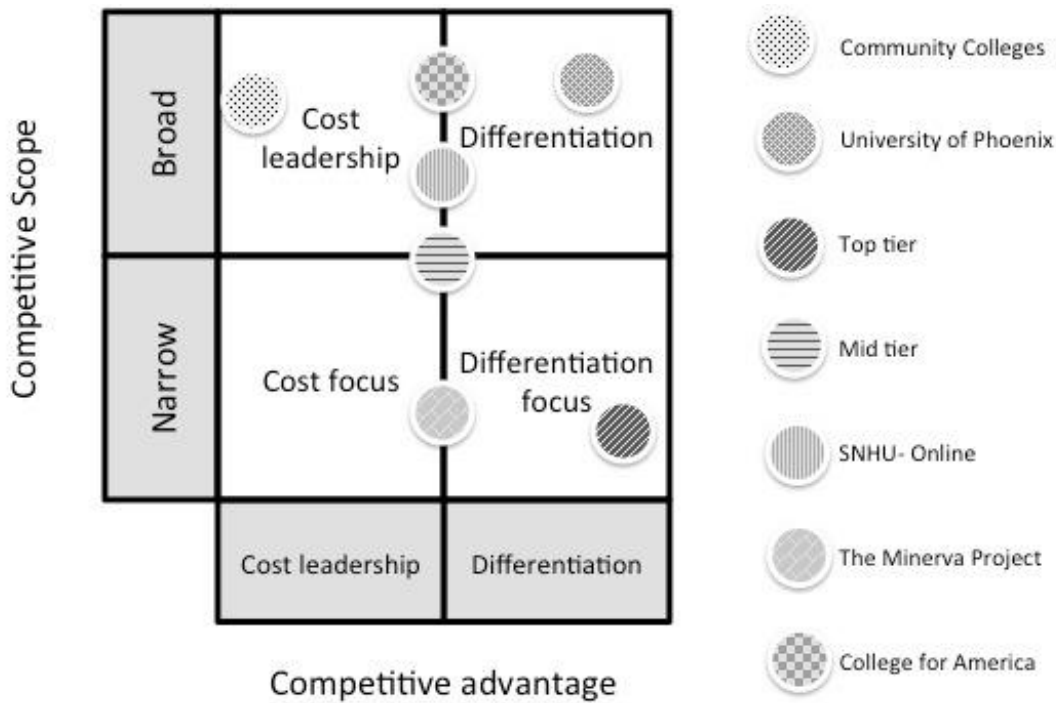


Figure 15. Generic strategies of educational business models

As can be seen in the matrix, there are only three types of business models that have pure generic strategies, University of Phoenix, top tier research universities and community colleges. The other actors are considered to be “stuck in the middle”, for good and bad reasons. Starting with University of Phoenix, it was not long ago that they would have been considered to be “stuck in the middle” for good reasons. At the same time as they were providing an unmet market of working adults with a differentiated offering building on flexibility and convenience, University of Phoenix designed its offering for scale. Comparing with established players of the time, costs were low due to centralised course design, business professionals replacing faculty as teachers, and a high degree of utilization of lecture halls. Additionally, since the students could continue with their lives total cost for students was lower than for a traditional university. Hence, University of Phoenix was able to pursue both a cost leadership and a differentiation strategy simultaneously. The volume of student enrolments and the premium price generated substantial profits for the university, which attracted new competitors to the market. Today, new online actors have imitated University of Phoenix’s offering and, by doing so, obtained a similar or even more efficient cost structure and lower prices. Therefore, University of Phoenix can no longer compete on cost leadership, but is today resting on a differentiation strategy based on brand recognition, local presence through campuses, and customer service. However, the declining enrolment rate indicates that prospective students do not perceive that the extra value justifies the premium price. It is questionable whether the signals that a degree from University of Phoenix sends to future employers are better than that of a competitor. Therefore, University of Phoenix risks becoming “stuck in the middle” once again, this time for bad reasons.

Top tier universities have, for most, a clear differentiation strategy. As long as the universities can provide students with the most skilled professors and honoured scholars, sophisticated

facilities and the most skilled peers, the education is perceived to develop a student into a top performer within his or her topic. Hence, these universities have a high likelihood of helping a student to succeed in life through their unique offerings. Among these universities, entry barriers for competition include a high level of academic reputation, quality of inputs, history, expensive campuses, high endowments, alumni network, and activities related to foster social development. Overall, differentiators are related to perceived quality and brand recognition. The Minerva project, in comparison, is challenging the top tiers by adding values in terms of globalisation and life-long career service to their offering. At the same time, Minerva's offering is built on a cost-efficient platform enabled by ICT, giving them cost leadership advantage. Hence, they are "stuck in the middle" for good reasons. Minerva is competing on uniqueness, but in terms of brand recognition they have an underdog position in relation to top tier universities. To conclude, Minerva is trying to compete in the top tier market segment by using a cost leadership and a differentiation strategy simultaneously.

Community colleges are generally competing with a cost leadership generic strategy. However, it does not imply that they have efficient cost structures. Community colleges have shown similar tendencies as universities, striving for "bigger and better" by adding more activities, building bigger campuses and hire faculty on lifelong tenures. Instead, a cost leadership strategy is mainly achieved through the federal government's heavy subsidizations. These subsidies enable community colleges to provide low-price offerings and thus ensure their competitive position. However, since for-profit and online education providers such as University of Phoenix and SNHU have increased the competition and are offering additional value, community colleges' need to mind their competitive position more carefully. New innovative actors are aggressively acquiring students and offer them flexible schedules, support and a neat study experience that students are willing to pay extra for. In addition, there is a risk that the government chooses to re-allocate their subsidies to favour more value adding and cost efficient alternatives in the future. This might potentially result in that community colleges get "stuck in the middle" for bad reasons, since their cost structures are robust and not particular cost efficient.

The other actors are considered to be "stuck in the middle" for different reasons. Mid-tier colleges and universities that do not serve a niche market, do not have a unique offering nor offer their education at a competitive price will have a hard time to defend their position as entry barriers are decreasing. By leveraging ICT, new actors can provide high quality education supported by an efficient cost structure that enables a low price. The increased quality of alternative low cost education puts high pressure on mid-tier, to either, prove that they offer increased value, or lower their price. Therefore, mid-tier colleges and universities are encouraged to use a focus-differentiation strategy where it is clear what extra value they offer and that this extra value is supported by a motivated premium price. In order to implement a successful focus-differentiation strategy, the focal point should be the students and not top tier such as Harvard. According to Porter, the best strategy is to create a unique composition reflecting each educational institute's specific circumstances. Actors such as SNHU, Minerva, CFA, and the Balloon project are simultaneously using a cost leadership and differentiation strategy in their market segments. They have been able to create their own markets, which will be described further in the next section where an analysis of the business models will be made with regards to the blue ocean strategy.

5.2.2. The Blue Ocean Strategy

Educational institutes can capture new demand instead of fighting for it by using a blue ocean strategy. In this section, the Minerva project will be analysed to exemplify how educational institutes can work with new performance parameters to create new markets. Minerva has been analysed compared to Harvard based on the strategy canvas and four-action framework, see figure 16. It is important to further stress that American higher education is not a zero-sum game, where one actor's gain is another actor's pain. However, as digital technology enters the equation and enables universities and other actors to scale their business and expand their geographical offerings, competition is likely to toughen. With increasing competition it is important for actors within the industry to be aware of their business strategies and the competitiveness of their offerings. The strategy canvas and the four-action framework can then provide insights into how an actor's offering differentiates from the rest and also how it intends to create new value. The canvas visualizes the current state of Minerva and Harvard's offerings in order to give an insight how to redefine the problems within the higher education industry and for the reconstruction of student value elements. Comparing an innovative actor's business strategy to an incumbent player can also provide a mind-set for how companies within higher education can diversify and create their own blue ocean.

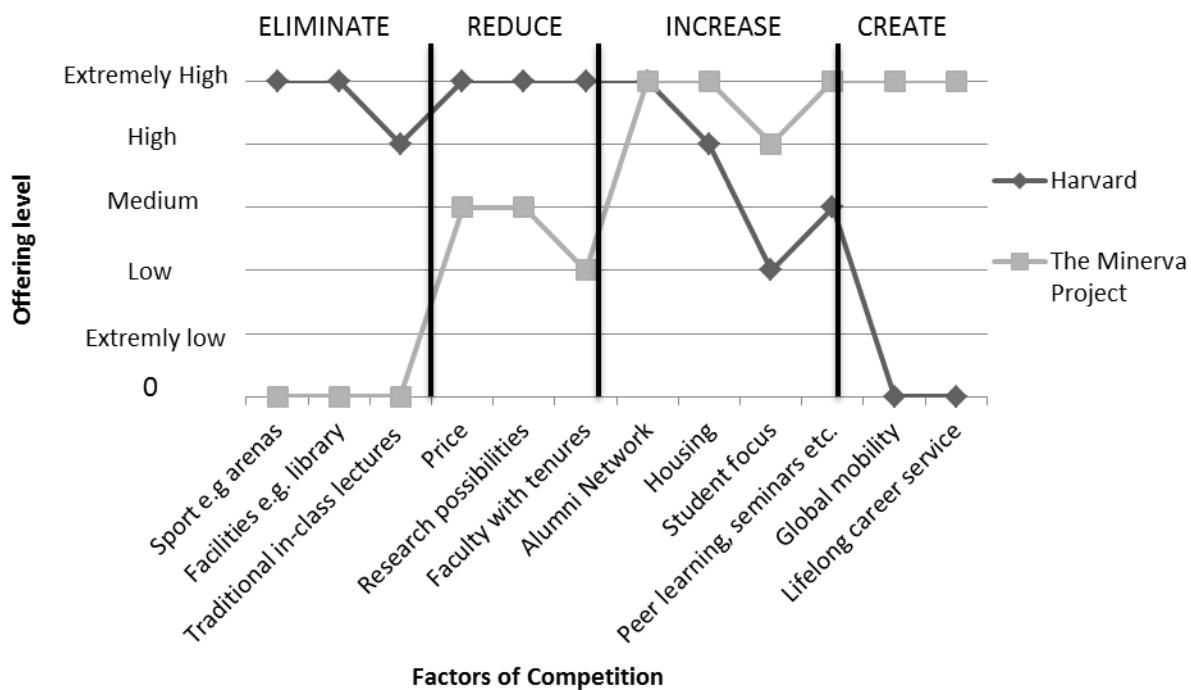


Figure 15. Strategy canvas and the four-actions framework applied to Minerva and Harvard

Figure 16 illustrates a comparison between the value curves of Minerva and Harvard. Minerva has through public statements pointed out that they intend to challenge Harvard on being the best university in the world, which can seem like an ambitious goal. No matter if they succeed or not, figure 16 illustrates how a university intends to become Harvard's equal or superior, not by beating them at their own game but by introducing new parameters and thus shift momentum of

the market. Since many universities are imitating Harvard this provides a good example of how universities can become successful without doing it the mainstream, Harvard, way.

As can be seen in figure 16, Minerva has eliminated spending on campus, sports and in-class lectures. Instead they have chosen to focus on high quality education delivered online and joint student housing around the world. Minerva is also of the opinion that, everything that can be delivered through a lecture is unworthy to charge their students for. Therefore, all education is built around interactive seminars and peer learning. Harvard on the other hand, possesses large campuses with libraries, lecture halls and several sports teams. While Harvard has some focus on seminars and peer learning, teaching at Harvard, especially at undergraduate level, is still centred around one professor and a lecturing type of education. Further, Minerva offers shorter employments and has been able to reduce faculty hired on tenures. In addition, Minerva does not provide their employees access to multimillion-dollar research facilities. However, the online teaching format allows researchers to be anywhere around the world and thus increases their opportunities for doing research. The eliminations and reductions have provided Minerva with an effective cost structure, which in turn has allowed them to reduce the price of their offering.

In addition to the cost reductions, Minerva has been able to deliver more value to their customers. Firstly, all students are provided with housing enabling a setting where students can form close relations, influence one another and learn from each other. Secondly, Minerva also intends to offer education of increased quality by having a student focus and by offering more peer training and seminars. Moreover, Minerva has added two new parameters namely globalisation and life-long career service. Offering global education, Minerva will let their students live at different locations around the world. Minerva also aims at having a diverse student base representing most parts of the world and an education focused on developing global leaders. With this move, Minerva opens up their offering to an entirely new student demographic making the entire world its recruitment area. They are thus more likely to be able to acquire top potentials from all over the world. Additionally, the global focus is likely to improve the reputation of the Minerva brand towards employers since many of them favour candidates with a global perspective to mirror their company's business. Moreover, the lifelong career service does not only offer an extra selling point to market the program to potential students, but also an opportunity to create a close and strong relationship with every graduate, which in turn can lay the foundation of a strong Alumni Network.

To summarize, the new parameters added in Minerva's offering and the decrease in price creates a blue ocean with an expanded potential student base. Minerva gains a global reach with the entire world as its recruitment base. Additionally, they have made their offering accessible to people that would not afford to attend Harvard or any other Ivy-league school.

6. Final Discussion

This chapter discusses what will be important for tomorrow's universities, policy makers and other actors serving the higher education industry. It is divided into two sections where the first part connects the findings of the underlying research with Sweden and thus concerns ICT and Swedish higher education. The second part is concerning the future, and consists of ideas and reasoning regarding the future of higher education in America and in the world.

6.1. Findings applied to Swedish higher education

Their wide differences aside, Sweden and USA are both knowledge nations that are in deep need of a well-educated workforce to sustain their competitive position in a global world. Therefore effective good quality higher education is of utmost importance in both countries. Additionally, both countries' governments are struggling with the dilemma of providing more people with higher education to stay competitive while having big budget constraints.

In contrast to USA, the Swedish public is less aware of the problems related to higher education. One reason for this might be that Swedish higher education is "free"; as to the extent that the government pays for tuition fees while at the same time providing grants and student loans that can cover books and living expenses. This fact makes the general public less aware of the costs related to higher education. In addition, most concerns regarding quality of education in Sweden in media relates to primary and secondary education. Therefore, Swedish universities, policy makers and new actors working with higher education are not incentivised and pressured to change as they are in America. It is the authors' belief that this fact hampers the development of new alternatives to Swedish higher education. No radical rethinking of old routine is forced and positive changes are often carried out by separate faculty members and thus never make it to becoming a big scale institutionalised procedure. Furthermore, Swedish higher education lacks the definite status that it has in America. Higher education is not seen as the only way to reach financial success and since the differences between rich and poor are smaller the impact that a higher degree education has on the life economy is comparably less.

However, the same problems exist in Sweden as in America. People are concerned with the value that higher education really brings. It is questionable whether a higher degree education makes up for the high alternative costs and the student debt. Employers are equally concerned with the quality of college graduates and students are reporting about poor quality teaching and teachers. Therefore much of the debate currently going on in America is also relevant for the Swedish society. To prepare the Swedish education system for the 21st century, Sweden and Swedish actors can learn a lot by studying innovative actors and thinkers in America.

Swedish universities can benefit from rethinking their organisational structure and make all employees ask themselves what value it is that the university really brings. Studying the separate activities within a university, it can be distinguished what activities that needs to be in-house and what activities that can be sourced from other providers, resulting in better quality and a lower overall cost. This requires a rethinking of the role of faculty and whether or not faculty actually has to be in charge of all activities related to teaching a course. Unbundling, Swedish universities might find that some activities currently carried out in-house are better to source from other

actors. Additionally, as blended learning has proven to enhance the learning experience and the student success rate, Swedish universities can adopt this way of educating to a greater extent. Blended learning also enables more students in each class. More students and a higher success rate are two factors that combined increase the throughput of students enabling education for a larger part of the Swedish population.

Similarly to American mid-tier colleges and universities, less prominent Swedish universities are encouraged to rethink what value it is that they are really offering their students. As their American counterparts, they should not only copy the top universities trying to beat them at their own game. Rather, they are encouraged to focus on the student and enhance the student learning experience. In addition, less prominent Swedish universities could create new parameters and potentially create a blue ocean on the market. One concrete strategy could be to imitate SNHU and start to think of students as customers, making sure that the customers are supported on their journey through education. Or they could copy University of Phoenix's concept and offer more flexibility in their courses and thus attract working adults.

Since the lion share of all Swedish universities is public and governmental student support is fundamental for enabling education, the government and its policy makers have an important role to play in the future development of Swedish higher education. Considering the fact that the Swedish public lacks insights into many of the problems that Swedish higher education stand in front of, government's responsibility for educating Sweden for the 21st century is even more important. Since there is a lot of uncertainty surrounding the use of digital technology in education, it is at, this point in time, impossible to predict an optimal education model for the 21st century. Therefore, micromanagement is not to prefer but the Swedish government and society are rather encouraged to stimulate an innovative surrounding around higher education. President Obama is trying to do this by allowing innovative players to operate outside original laws and regulations when they develop their business model. These actors can get financial support and continue with their development even though they do not currently fulfil all the requirements demanded from established players.

It has been shown in other industries that an incumbent player rarely carries out the biggest changes and makes optimal use of a new technology, since they are stuck in old routines and institutionalised processes fit for the old technology. Therefore, incumbent players lack the ability and the motive for innovating, why new players need to be promoted. Since Sweden lacks the media attention existing in the U.S. stimulating innovators to enter the market, Sweden needs to work even harder to create an innovative climate where new actors are incentivised to enter. Another concrete example of what the government can do is that CSN, the authority in charge of student financial aid, needs to be open-minded and at an early stage accept alternative education. This can imply working with new ways of assessing students and their knowledge, shifting focus from the credit hour to an increased focus on competencies and outputs.

To conclude, ICT provides a lot of challenges but also possibilities for Swedish higher education. More people can be educated on the same dollar and hence ICT provides a solution to a stressing concern: how to educate an increasing part of the population in order to thrive in the 21st century economy.

6.2. Issues hampering future development of American higher education

It is clear that ICT and the increasing problems surrounding American higher education have and will continue to change the settings surrounding the industry. However, it is uncertain as to what extent it will change the industry and how rapid the industry transformation will be. Some factors related to American higher education makes it even harder to predict the future of the industry. At first, American higher education is highly regulated and controlled which has a big impact on the competitive climate in the industry and on how fast competition will force incumbent players to change. The subsidies given by state can provide inefficient incumbent actors artificial life support enabling them to stick with old routines and the absence of a focused business strategy. Even though transaction costs are lower and entry barriers have decreased, regulations still hinder innovative actors to enter the market or compete on similar terms as the incumbents. Additionally, the higher education industry is filled with traditions and what university someone received his or her degree from still signals a lot to future employers, friends, family and society at large. Even though experts say that the importance of a university's brand is getting lower as transparency increases, students about to choose a future university will still be affected by friends and family that has certain prejudices about education and whether it should be new or old, physical or digital.

However many of the innovative alternatives studied for this report directs its offer to students that currently are not served by incumbent actors. For these students, the second best alternative is often nothing at all, why they are less likely to be affected by the prejudices of others. If new education alternatives can start with the students not currently served and there gain momentum, it is likely that they will impact incumbent educational institutes and fit "traditional students" soon enough. As an example, competency based education sets out as a low-cost education alternative. However, in the future it might change the focus of the industry from being input centred to being output concerned. This development is welcomed by many stakeholders, not the least the employers since it can bridge the knowledge gap between them and the students.

Finally, the process of making a university's back-end activities more efficient might be hampered by the fact that universities often have a decentralised approach when it comes to the learning experience. This means that professors are in charge of their own courses and that they, within some boundaries, are free to do whatever they want with it. Many professors are pleased with things as they are and might therefore be resistant to change the way they teach or what they teach. Some professors might find it difficult to accept the fact that their lectures are not unique, while others might resist change due to the initial effort of breaking old routines. The decentralised approach might also give rise to a collective action problem where the university could benefit from a change but the incentives for the individual professors are not big enough. However it is important for each individual university and for society at large to realise that there is a shift towards a new paradigm within higher education and that ignoring this shift will not be a valid strategy.

7. Conclusions

The two research questions connected to the purpose are answered in this chapter. The purpose of the study has been to research and analyse how ICT has made its way into American higher education and how this has enabled new business strategies among forefront educational providers. Hopefully, conclusions drawn from this research will initiate a debate and inspire actors within the higher education industry to increase their efficiency and improve the quality of their educational offerings.

RQ1. How has ICT changed the composition of activities and operations within the American higher education industry?

From the research study it is clear that ICT has had and will continue to have a big impact on higher education in America. With its characteristics, ICT has lowered transaction costs and entry barriers to the industry and thus opened up the industry for new providers. Some actors are focusing on smaller parts of the value chain while other actors intend to compete with new unique business strategies. From interviews and secondary data collection, it also stands clear that higher education in America is in crisis and that change is inevitable. The increasing competition in combination with the current situation of the market is forcing established players and especially universities to rethink their business strategies. In the back-end, innovative educational institutes are starting to unbundle their organisations and the learning experience. With this unbundling, they are able to separate different parts of the knowledge creation. Educational institutes can take decisions concerning whether or not a certain activity is key for obtaining a competitive position or if it is an ancillary activity that might yield cost benefits or increased quality if outsourced. Activities that today are seen by traditional providers as obvious for every educational institute to perform in-house are not as unique as once perceived. It is therefore likely that the Chandlerian University from the past will be forced to decrease its scope and focus on its core activities in order to compete successfully in the 21st century. With this focus comes the core question that every company and university needs to ask themselves, what business are we really in?

R2. What types of business strategies are forefront providers using today and how is ICT integrated in the strategies?

In the front-end, ICT increases the transparency and forces actors to be clear about the value that they offer. ICT also enables new possibilities where innovative actors can introduce new factors of competition and thus are able to create “blue-oceans” where differentiation and cost leadership can be obtained simultaneously. Offering courses online, educational providers are able to cut costs, for example since they do not have to provide physical space. Additionally, online education offers more flexibility, makes it possible to scale the offering and reach out to students in a wider geographical area. Consequently, all this together creates opportunities for universities to educate more students and to thrive in an increasingly competitive environment. Since there is no generic strategy suitable for all education providers, it is clear that all educational institutes need to see to their own resources and capabilities in order to create a sustainable competitive strategy. Actors that are not concerned with their business strategy and unconditional imitate the actions of the prominent top tier universities are likely to encounter problems. These actors will likely be squeezed from two separate sides. On the one hand they will be threatened by the increasing value offered by low cost education providers such as SNHU

online university. On the other hand they will be competing with value-differentiated universities that due to the competition and increased price sensitivity among students have to lower their prices.

Finally no one knows what tomorrow will bring and therefore it is impossible to predict a successful strategy for the future. However it is clear that doing nothing and neglecting the changes that are happening will not be a valid strategy. ICT has already left big marks on the American higher education industry and as government and society are forcing a solution to the country's education problems, the interest in digital learning is expected to increase. More niched actors are likely to enter the market, contributing with their unique skills and thus support the overall development of the higher education industry.

8. Reference List

- Aacc.nche.edu, (2014). *American Association of Community Colleges (AACC)*. [online] Available at: <http://www.aacc.nche.edu/> [Accessed 20 May. 2014].
- Abramovsky, L. and Griffith, R. (2006). Outsourcing and offshoring of business services: how important is ICT?. *Journal of the European Economic Association*, 4(2-3), pp.594--601.
- Allen, I. and Seaman, J. (2013). *Changing Course: Ten Years of Tracking Online Education in the United States*. Babson Survey Research Group and Quahog Research Group. LLC.
- Apollo.edu, (2014). *Our History | Apollo Education Group*. [online] Available at: <http://www.apollo.edu/about/our-history.html> [Accessed 4 April. 2014].
- Asa.org, (2014). *Student Loan Debt Statistics - American Student Assistance*. [online] Available at: <http://www.asa.org/policy/resources/stats/> [Accessed 19 May. 2014].
- Assembly.coe.int, (2008). *Council of Europe Parliamentary Assembly*. [online] Available at: <http://assembly.coe.int/Main.asp?link=/Documents/AdoptedText/ta08/EREC1836.htm#1> [Accessed 25 May. 2014].
- Bakos, Y. and Brynjolfsson, E. (1999). Bundling information goods: Pricing, profits, and efficiency. *Management Science*, 45(12), pp.1613--1630.
- Bakos, Y. and Brynjolfsson, E. (1999). Bundling information goods: Pricing, profits, and efficiency. *Management Science*, 45(12), pp.1613--1630.
- Bakos, Y. and Brynjolfsson, E. (2001). Aggregation and Disaggregation of Information Goods: Implications for Bundling, Site Licensing, and Micropayment Systems. In: H. Werthner and M. Bichler, ed., *Lectures in E-Commerce*, 1st ed. Springer Vienna, pp.103-122.
- Balloon.com, (2014). *Balloon*. [online] Available at: <http://www.balloon.com/> [Accessed 9 Jun. 2014].
- Barber, M., Donnelly, K. and Rizvi, S. (2013). *An Avalanche is Coming: Higher Education and the Revolution Ahead*. Institute for Public Policy Research.
- Blackboard.com, (2014). *Blackboard*. [online] Available at: <http://www.blackboard.com/sites/international/globalmaster/index.html> [Accessed 25 May. 2014].

- Brooks, D. (2013). The Practical University. *The New York Times*. [online] Available at: http://www.nytimes.com/2013/04/05/opinion/Brooks-The-Practical-University.html?_r=2& [Accessed 26 May. 2014].
- Bryman, A. and Bell, E. (2003). *Business research methods*. 1st ed. Oxford: Oxford University Press.
- Bryman, A. and Bell, E. (2011). *Business research methods*. 1st ed. Cambridge: Oxford University Press.
- BusinessDictionary.com, (2014). *What is unbundling? definition and meaning*. [online] Available at: <http://www.businessdictionary.com/definition/unbundling.html> [Accessed 21 May. 2014].
- Byron, A., Cota, A., Kartik, J. and Laboissière, M. (2010). *Winning by degrees: the strategies of highly productive higher-education institutions*. McKinsey & Company.
- Chafkin, M. (2013). UDACITY'S SEBASTIAN THRUN, GODFATHER OF FREE ONLINE EDUCATION, CHANGES COURSE. *Fast Company*. [online] Available at: <http://www.fastcompany.com/3021473/udacity-sebastian-thrun-uphill-climb> [Accessed 2 May. 2014].
- Chandler, A. (1977). *The visible hand*. 1st ed. Cambridge, Mass.: Belknap Press.
- Christensen, C. and Eyring, H. (2011). *The innovative university*. 1st ed. San Francisco: Jossey-Bass.
- Christensen, C. and Weise, M. (2014). MOOCs' disruption is only beginning. *The Boston Globe*. [online] Available at: <http://www.bostonglobe.com/opinion/2014/05/09/moocs-disruption-only-beginning/S2VlsXpK6rzRx4DMrS4ADM/story.html> [Accessed 19 May. 2014].
- Christensen, C., Horn, M., Caldera, L. and Soares, L. (2011). *Disrupting College: How Disruptive Innovation Can Deliver Quality and Affordability to Postsecondary Education*. Innosightinstitute.org.
- Christensen, G., Steinmetz, A., Alcorn, B., Bennett, A., Woods, D. and Emanuel, E. (2013). *The MOOC Phenomenon: Who Takes Massive Open Online Courses and Why?* Available at SSRN: <http://ssrn.com/abstract=2350964> or <http://dx.doi.org/10.2139/ssrn.2350964>
- Clasp.org, (2014). *Yesterday's Nontraditional Student is Today's Traditional Student*. [online] Available at: <http://www.clasp.org/resources-and-publications/publication-1/Nontraditional-Students-Facts-2011.pdf> [Accessed 23 May. 2014].

- Cleveland.com, (2014). Economics 101: Colleges cut costs by outsourcing tasks from making copies to running dorms. [online] Available at:
http://www.cleveland.com/business/index.ssf/2010/07/economics_101_colleges_cut_cos.html [Accessed 10 May. 2014].
- CNBC, (2013). *Active learning with the Minerva Project*. [video] Available at:
<http://video.cnbc.com/gallery/?video=3000222840> [Accessed 26 May. 2014].
- Coase, R. (1937). *The Nature of the Firm*. 1st ed. [ebook] Available at:
<http://www3.nccu.edu.tw/~jsfeng/CPEC11.pdf> [Accessed 12 May. 2014].
- Collegecalc.org, (2014). *University of Phoenix Online Campus - Tuition, Total Cost, and Price to Attend*. [online] Available at: <http://www.collegecalc.org/colleges/arizona/university-of-phoenix-online-campus/#.U5bJnpSSzXw> [Accessed 5 Jun. 2014].
- Corcoran, B. (2013). Udacity's Sebastian Thrun On the Future of Education. edSurge. [online] Available at: <https://www.edsurge.com/n/2013-04-02-udacity-s-sebastian-thrun-on-the-future-of-education> [Accessed 27 Jun. 2014].
- Creswell, J. (2003). *Research design*. 1st ed. Thousand Oaks, Calif.: Sage Publications
- Cusumano, M., Kahl, S., Suarez, F. and F, o. (2006). *Product, process, and service: a new industry lifecycle model*. MIT Working Paper 228.
- Dillion, S. (2007). *Troubles Grow for a University Built on Profits*. *New York Times*. [online] Available at:
<http://www.nytimes.com/2007/02/11/education/11phoenix.html?pagewanted=all> [Accessed 10 Apr. 2014].
- Drake, B. (2013). *Households owing student loan debts at record levels*. [online] Pew Research Center. Available at: <http://www.pewresearch.org/fact-tank/2013/07/01/248455/> [Accessed 24 May. 2014].
- Drucker, P. (1998). *The next information revolution*. *Forbes ASAP*, 24, pp.47--58.
- E-learning in Tertiary Education: Where Do We Stand?*. (2005). 1st ed. OECD.
- Edf.stanford.edu, (2014). *Student aid can be awarded for 'competencies,' not just credit hours, U.S. says | education's digital future*. [online] Available at:
<http://edf.stanford.edu/readings/student-aid-can-be-awarded-competencies-not-just-credit-hours-us-says> [Accessed 10 April. 2014].

- Education.stateuniversity.com, (2014). *Higher Education in the United States - HISTORICAL DEVELOPMENT, SYSTEM*. [online] Available at:
<http://education.stateuniversity.com/pages/2044/Higher-Education-in-United-States.html>
[Accessed 20 April Jun. 2014].
- Eduventures, (2014). *Seizing Opportunity, Navigating Risk: A Guide to The Evolving Online Market*.
- Fain, P. (2014). *Feds give nudge to competency-based education @insidehighered*. [online] Insidehighered.com. Available at: <http://www.insidehighered.com/news/2013/03/19/feds-give-nudge-competency-based-education#sthash.FPPkpGKU.dpbs> [Accessed 8 May. 2014].
- Fischer, G (2000). Lifelong Learning - More than Training. *Journal of Interactive Learning Research*, Volume 11 issue 3/4, pp. 265-294.
- Freedman, J. (2013). The Typical College Student Is Not A 'Typical' College Student (And Other Fun College Demographics Data). *Forbes*. [online] Available at:
<http://www.forbes.com/sites/joshfreedman/2013/09/20/the-typical-college-student-is-not-a-typical-college-student-and-other-fun-college-demographics-data/> [Accessed 26 May. 2014].
- Goodkind, N. (2014). *Watch your back Harvard, this tech titan is coming for your students*. [video] Available at: <http://finance.yahoo.com/blogs/daily-ticker/this-silcon-valley-tech-titan-wants-to-change-the-way-america-does-college-141457019.html> [Accessed 26 May. 2014].
- Gort, M. and Klepper, S. (1982). Time paths in the diffusion of product innovations. *Economic Journal*, 92, pp. 630–653
- Grant, R. (2010). *Contemporary strategy analysis*. 1st ed. Hoboken, NJ: John Wiley & Sons. Chapter 3. Industry Analysis: The fundamentals
- Grove, A. (2014). *Open Admissions: College Admissions Glossary Definition*. [online] About.com College Admissions. Available at:
<http://collegeapps.about.com/od/glossaryofkeyterms/g/Open-Admissions-definition.htm>
[Accessed 19 May. 2014].
- Gse.harvard.edu, (2014). *Tuition and cost*. [online] Available at:
http://www.gse.harvard.edu/admissions/financial_aid/tuition/ [Accessed 15 May. 2014].

- Guba, E. G. (1985), 'The Context of Emergent Paradigm Research', in Y. S. Lincoln (ed.), *Organization Theory and Inquiry: The Paradigm Revolution* (Beverly Hills, Calif.: Sage).
- Hagel, J. and Singer, M. (1999). Unbundling the Corporation. *Harvard Business Review*, March-April 1999, pp.133-141.
- Harvard University, (2014). *Harvard University*. [online] Available at: <http://Harvard.edu> [Accessed 21 May. 2014].
- Harvard University, 2013, *Financial report fiscal year 2013*. Harvard University Press, Cambridge.
- Institute for Women Policy Research, (2013). *College Students with Children are Common and Face Many Challenges in Completing Higher Education*. Institute for Womens Policy Research.
- Jacobs, P. (2014). *Ivy League Admission Letters Just Went Out — Here Are The Acceptance Rates For The Class Of 2018*. [online] Business Insider. Available at: <http://www.businessinsider.com/ivy-league-acceptance-2018-2014-3> [Accessed 10 May. 2014].
- Kahn, G. (2014). *How Tiny, Struggling Southern New Hampshire University has become the Amazon of Higher Education*. [online] Slate Magazine. Available at: http://www.slate.com/articles/life/education/2014/01/southern_new_hampshire_university_how_paul_leblanc_s_tiny_school_has_become.html [Accessed 10 May. 2014].
- Kaminski, M. (2013). Ben Nelson: The Man Who Would Overthrow Harvard. *The Wall Street Journal*. [online] Available at: <http://online.wsj.com/news/articles/SB10001424127887324110404578627712224845012> [Accessed 26 May. 2014].
- Katzman, J. (2014). *Interview with Jonathan Katzman*.
- Kim, W. and Mauborgne, R. (2004). Blue ocean strategy. If you read nothing else on strategy, read these best-selling articles., p.71.
- Kim, W. and Mauborgne, R. (2005). Blue ocean strategy. 1st ed. Boston, Mass.: Harvard Business School Press.
- Knewton.com, (2014). About Knewton. [online] Available at: <http://www.knewton.com/about/> [Accessed 25 May. 2014].

- Labaree, D. (2010). Understanding the rise of American higher education: How complexity breeds autonomy. *Peking University Education Review*, 3, p.007.
- Laitinen, A. (2012). *Cracking the Credit Hour*. New America Foundation.
- Langlois, R. and Robertson, P. (2002). *Firms, markets, and economic change*. 1st ed. London: Routledge.
- Lewin, T. (2013). After Setbacks, Online Courses Are Rethought. *The New York Times*. [online] Available at: <http://www.nytimes.com/2013/12/11/us/after-setbacks-online-courses-are-rethought.html> [Accessed 11 Jun. 2014].
- Lincoln, Y. S., and Guba, F. (1985), *Naturalistic Inquiry* (Beverly Hills, Calif.: Sage).
- Loc.gov, (2014). *Students - Procedure - The American Dream - Lesson Plan / Teacher Resources - Library of Congress*. [online] Available at: <http://www.loc.gov/teachers/classroommaterials/lessons/american-dream/students/thedream.html> [Accessed 18 May. 2014].
- Matei, R. (2012). What is the Biggest Threat to Traditional Universities. *Forbes*. [online] Available at: <http://www.forbes.com/sites/quora/2012/01/11/what-is-the-biggest-threat-to-traditional-universities/> [Accessed 20 May. 2014].
- McBride, S. (2013). *Entrepreneur starts his version of Harvard, tuition-free*. Reuters. [online] Available at: <http://www.reuters.com/article/2013/09/17/us-usa-education-minerva-idUSBRE98G07620130917> [Accessed 8 Jun. 2014].
- Mourahed, M., Farrell, D. and Barton, D. (n.d.). *Education to Employment*. McKinsey & Company.
- NACUBO (2014) *U.S and Canadian Insitutions Listed by Fiscal Year 2013 Endowment Market Value and Change* in Endowment Market Value FY 2012 to FY 2013*.
- National Center for Education Statistics (NCES), (2013). *2011-2012 National Postsecondary Student Aid Study (NPSAS:12)*. U.S. Department of Education.
- Nces.ed.gov, (2014). *Fast Facts*. [online] Available at: <http://nces.ed.gov/fastfacts/display.asp?id=98> [Accessed 18 May. 2014].
- Norman, B. (2014). Udacity Blog: Sebastian Thrun: Lifelong Learning and Trustworthy Credentials. [online] Blog.udacity.com. Available at: <http://blog.udacity.com/2014/06/lifelong-learning-and-trustworthy.html> [Accessed 27 Jun. 2014].

- Nueman, R. (2013). Billiga nätkurser hotar svenska högskolor. *SvD*. [online] Available at: http://www.svd.se/nyheter/inrikes/billiga-natkurser-hotar-svenska-hogskolor_8833986.svd [Accessed 20 April. 2014].
- OECD, (2005). *E-learning in Tertiary Education: Where Do We Stand?*. Organisation for Economic Co-operation and Development.
- Orr, P. (2010). Distance supervision: Research, findings, and considerations for art therapy. *The Arts in Psychotherapy*, 37(2), pp.106—111
- Pappano, L. (2012). The Year of the MOOC. *The New York Times*. [online] Available at: http://www.nytimes.com/2012/11/04/education/edlife/massive-open-online-courses-are-multiplying-at-a-rapid-pace.html?pagewanted=all&_r=0 [Accessed 25 May. 2014].
- Pearsonhighered.com, (2014). Pearson Highered Catalog. [online] Available at: <http://www.pearsonhighered.com/pearsonhigheredus/educator/catalog/index.page?null> [Accessed 15 May. 2014].
- Peltoniemi, M. (2011). Reviewing Industry Life-cycle Theory: Avenues for Future Research. *International Journal of Management Reviews*, 13(4), pp.349--375.
- Penn GSE, (2013). *PENN GSE STUDY SHOWS MOOCS HAVE RELATIVELY FEW ACTIVE USERS, WITH ONLY A FEW PERSISTING TO COURSE END.*
- Porter, M. (1980). *Competitive strategy*. 1st ed. New York: Free Press. Chapter 2. Generic competitive strategies
- Powell, W. (1990). Neither Market Nor Hierarch: Network Forms of Organization. *Research in Organizational Behaviour*, 12, pp.295-336.
- Qayoumi, M. (2014). *Mohammed H. Qayoumi, President San Jose State University.*
- Riddell, R. (2013). 12 learning management system providers and what they bring to classrooms. [online] Education Dive. Available at: <http://www.educationdive.com/news/12-learning-management-system-providers-and-what-they-bring-to-classrooms/97613/> [Accessed 25 May. 2014].
- Robertson, P. and Verona, G. (2006). Post-Chandlerian Firms: Technological Change and Firm Boundaries. *Australian Economic History Review*, 46(1).
- Rosen, A. (2011). *Change.edu*. 1st ed. New York: Kaplan Pub.

- Sandström, C. (2014). The Chandlerian University. [Blog] *Disruptiveinnovation.se*. Available at: <http://disruptiveinnovation.se/> [Accessed 20 May. 2014].
- Schutt, R. (2001). *Investigating the social world*. 1st ed. Thousand Oaks, Calif.: Pine Forge Press.
- Selingo, J. (2013). Graduation Rates: Flawed as a Measure of Colleges, But Still Useful. *The Chronicle of Higher Education*. [online] Available at: <http://chronicle.com/blogs/next/2013/05/19/graduation-rates-flawed-as-a-measure-of-colleges-but-still-useful/> [Accessed 26 May. 2014].
- Shanghairanking.com, (2014). *Academic Ranking of World Universities - 2013/ Top 500 universities / Shanghai Ranking - 2013 / World University Ranking - 2013*. [online] Available at: <http://www.shanghairanking.com/ARWU2013.html> [Accessed 22 May. 2014].
- Socialresearchmethods.net, (2014). Measurement. [online] Available at: <http://www.socialresearchmethods.net/kb/measure.php> [Accessed 5 May. 2014].
- Souza, H., Jacobs, G., Nagan, W., Slaus, I. and Zucconi, A. (2013). A Revolution and a New Paradigm in Education. *Cadmus*, [online] 2(1). Available at: cadmusjournal.org.
- Stuckey, J. and White, D. (1993). When and when not to vertically Integrate. *The Sloan Management Review*, Spring 1993, pp.71-83.
- The Chronicle of Higher Education, (2014). The Rise of Teaching Machines. [online] Available at: <http://chronicle.com/article/The-Rise-of-Teaching-Machines/127389/> [Accessed 25 May. 2014].
- Topuniversities.com, (2014). *QS World University Rankings 2013*. [online] Available at: <http://www.topuniversities.com/university-rankings/world-university-rankings/2013#sorting=rank+region=+country=+faculty=+stars=false+search=> [Accessed 22 May. 2014].
- Tuningusa.org, (2014). *Tuning USA - Home*. [online] Available at: <http://tuningusa.org/> [Accessed 20 May. 2014].
- Udemy, (2014). *Online Courses - Anytime, Anywhere / Udemy*. [online] Available at: <http://www.udemy.com> [Accessed 15 Feb. 2014].

- Whitehouse.gov, (2014). *Higher Education / The White House*. [online] Available at: <http://www.whitehouse.gov/issues/education/higher-education> [Accessed 22 May. 2014].
- Whitehouse.gov, (2014). *This is why it's time to make college more affordable / The White House*. [online] Available at: <http://www.whitehouse.gov/share/college-affordability> [Accessed 18 May. 2014].
- Wikipedia, (2014). *Liberal arts education*. [online] Available at: http://en.wikipedia.org/wiki/Liberal_arts_education [Accessed 22 May. 2014].
- Wikipedia, (2014). *Unbundling*. [online] Available at: <http://en.wikipedia.org/wiki/Unbundling> [Accessed 21 May. 2014].
- Williamson, O. (1985). *The Economic Institutions of Capitalism*. 1st ed. New York, N.Y: The Free Press.
- Wise, R. and Baumgartner, P. (1999). The New Profit Imperative in Manufacturing. *The Harvard Business Review*, September-October 1999, pp.133-141.
- Writing.colostate.edu, (2014). Writing@CSU. [online] Available at: <http://writing.colostate.edu/guides/guide.cfm?guideid=65> [Accessed 8 May. 2014]
- Youngberg, D. (2012). Why Online Education Won't Replace College-Yet. *The Chronicle of Higher Education*. [online] Available at: <http://chronicle.com/article/Why-Online-Education-Wont/133531/> [Accessed 25 May. 2014].
- Zhang, D. (2013). The Revival of Vertical Integration: Strategic Choice and Performance Influences. *Journal of Management and Strategy*, 4(1), p.1.

Appendix: Interview List

This Appendix presents the 27 interviews conducted during this study.

Organisation	Name	Function	Date	Interview Mode
1776	Lauris Gravelis	Trainee	20140422	In person
Apollo Education Group	Barry Feierstein	Chief Commercial Officer	20140408	In person
App Academy	Kush Patel	Cofounder	20140314	In person
Babson College	Dennis Hanno	Provost and Senior Vice President	20140415	In person
Carnegie Mellon	Jason Lohn	Professor	20140324	In person
Chalmers/Stanford	Hans Björnsson	Professor	20140228	In person
Christensen Institute	Michelle R. Weise	Senior Research Fellow	20140321	In person
College For America	Martha Rush-Mueller	Director of Public/Non-Profit Partnerships	20140416	In person
College For America	Cathrael Kazin	Chief Academic Officer	20140416	In person
Degree of Freedom	Jonathan Haber	Blogger	20140226	Telephone
Education Next	Julie Landry Petersen	Journalist	20140218	Telephone
edX	Teppo Jouttenus	Program Manager	20140418	In person
Harvard University	David J. Collins	Professor in Corporate Strategy & International Business	20140219	Telephone
Inside Higher Ed	Paul Fain	Journalist	20140421	In person
Minerva The Project	Jonathan Katzman	Chief Product Officer	20140422	In person
MIT	Erdin Beshimov	PhD and Entrepreneur	20140414	In person
Moorpark College	Dr. Bernard Luskin	President and CEO	20140331	In person
New America Foundation	Amy Laitinen	Deputy Director for Higher Education	20140420	In person
San Jose State University	Mohammed H. Qayoumi	President	20140411	Telephone
Southern New Hampshire University	Paul LeBlanc	President	20140416	In person
Stanford	Ranga Jayaraman	Associate Dean and Chief Information Officer	20140321	In person
Tillväxtanalys	Anna Ledin	Analyst	20140220	Telephone
UC Berkeley	Armando Fox	Academic Director, Berkeley Research Center for Online Education	20140318	In person
UC Irvine Extension	Gary Matkin	Dean	20140407	In person
Udemy	Shannon Hughes	Senior Director, Marketing	20140327	In person
Verbling	Mikael Bernstein	Cofounder and CEO	20140319	In person
-	Brian Collins	12 years experience in publishing	20140328	Telephone