UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

Bachelor's Degree Project in Industrial and Financial Management

AI in Executive Education

How Artificial Intelligence is expected to change Executive Education

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Abstract

Education organisations are important for the development of the society. Those organisations must continue develop at the same pace as the society to be relevant. One of today's biggest development is the digital transformation of society and education organisations. AI is a part of the digitalization; a technology that has the qualities to learn and get smarter over time. AI will change not only what people learn, but also how they learn. If used properly, AI can contribute to substantial competitive advantages not only for the actors in the education industry but also for the society. One of the identified problems are that there is no specific way of how to implement AI in in education. Therefore, it is challenging to see how AI are expected to change education industry, in this case more specific the executive education businesses. The purpose of the thesis is to create a better understanding for how AI are expected to change organizations that work with executive education, so that individuals can take part in the best possible way as society evolves. Thus, the thesis is built from an abductive approach where empirical findings will be compared with the literature from previous studies in AI. Empirical findings are based on interviews with five Executive Educations CEOs whom all work in the area of professional education. The literature review is based on previous studies in lifelong learning and AI, which is part of the development of digitalization. To answer the research question *How Artificial Intelligence is expected to change Executive Education*. The analysis is divided into *why* and *what* to make it easier to understand the question of *how* AI will affect executive education. The risks with AI have also been taking into account, in order to shown risks that could be limited. The result shows that the organizations understand the meaning of why there need to be change and what types of changes that are relevant today, but it is still unclear how it should be done. One uncertain factor can be that AI is seen as expensive. A solution to the problem could be that organizations in executive education learn to work together both internally and externally from an economic perspective. The whole society has an opportunity to achieve more with AI, and organizations will risk less if they do not have to carry the holding risk themselves.

Keywords: *AI, Digitalisation, Executive Education, Risk, Lifelong learning.*

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Emma Friman

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1. Introduction

In the introduction, the problem with executive education is introduced. Executive education has to be integrated with the development of society in order to be relevant to the high paying participants and therefor considered to be in the front of education demands. Digitalization is described as a part of the societal change that can lead to competitive advantage and growth, but as the society is under development new advanced digital systems have been introduced, AI. Therefore, this thesis will focus how is AI expected to change executive education. To investigate the expected changes, risks have been taking into account.

1.1 Background

Today learning is considered to be a lifelong journey with upskill or reskill during the lifetime of an individual (Coleman, 2017) and colleges and universities play an integral role Edmondson & Saxberg (2017) describe lifelong learning as it will be a central part of jobs and will increase the value and impact of the organization. Part of lifelong learning is done in our traditional education systems, but learning also takes place in other settings, such as the workplace. Learning is an important path to professional success, and the level of an individual's formal education is linked to higher earnings and lower unemployment (Coleman, 2017). Lifelong learning is about maintaining learning, and the need for learning significantly changes across the different phases of a lifespan (Hager, 2012). There are different ways to learn, and learning takes time and efforts (Coleman, 2017).

With digitalization the learning is assumed to be improved, both in learning experiences and time efficiency. Individuals could with technical support discard the distraction and by that gain greater knowledge. On the other hand, technology could create distractions, and these technology devices can make learning difficult or even impossible (Coleman, 2017). At the same time, our society is changing rapidly; social, technological and environmental changes are taking place in the global society, where the presence and importance of education have grown (Dlouhá, Macháčková-Henderson, & Dlouhý, 2013). Education needs to be in balance with the development of digitalization, to be relevant and valued. Many authors have discussed the societal changes based on a few global trends. One of the most repeated continuous trends are; technology development and digitalization (KPMG, 2019). To be able to investigate

advanced digital systems in education, it has been limited and focused on AI. AI is one of the most relevant digital technologies that will change our society, and AI has been defined as industry 4.0 (IVA, 2019).

Bengtsson (2014) argues there is a new demand for new ways of educating and learning. In recent years, domestic technology[1] has undergone a significant change, and the future is facing AI, where systems will combine learning with complex reasoning (LeCun, Bengio, & Hinton, 2015). Therefore, technology can also be an aid in a learning regimen by using technology to supplement learning (Coleman, 2017). In the future, it will not be enough for companies to be digitized; this does not mean that digitization will not be relevant. It will be a natural part of all activities (Visolit, 2019). From an educational perspective, new technology influences both the content used for education as well as the educational environment for learning and the demands from the participants. IBM argue that AI will create a new advantage for both content production and learning situations (IBM Watson Academy, 2019).

The interest in AI is growing, but what really makes it accelerate at a high rate? One answer to this question may be that companies today have access to a lot of data and that there are plenty of examples of useful AI solutions (Danielsson & Lindström, 2020), but few examples in the literature are found on how to properly use AI in the area of executive education (Leathers, 2019).

1.2   Problem statement

Executive education is education programs for professionals in the industry (EFMD Business Magazine, 2019). For participants in the executive educations two of the major differences from traditional education are, that they want to be able to use their knowledge direct after they learned it and they demand to be able to influence their education to be relevant for their own purposes. This is delivered by the principle of learning and practice at the same time, instead of first learn theories and then practice. The demand is to be instant relevant and learning is continual to be competitive. It is a strong believe in lifelong learning and when you stop learning you lose your edge to compete.

[1] Domestic technology is the incorporation of applied science into the home.
(https://en.wikipedia.org/wiki/Domestic_technology)

The digitalization is important for society, and according to Swedish Enterprise (2016) technological development is seen as the most important factor behind the development of wealth. Digitalization means that information can to a greater extent be available, as people today use computers and mobile phones (Svenskt Näringsliv, 2016). This makes it easy for technology to be established and new products, services, business models and behaviours have emerged. This has affected companies, the economy and the labour market. One of the concepts that circulates widely in today's society is Artificial Intelligence (AI) (Naess, 2018). AI can be seen as an identification system[2] (McCarthy & O'Dell, 2013) and can be used for several things; everything from automating simple things using data, to replacing human skills (Danielsson & Lindström, 2020). Technology development and digitalization is a global countervailing factor that provides opportunities for more advanced development, in developing countries (Bengtsson, 2014). AI development will play a significant role in universities and colleges (IVA, 2019).

According to the Swedish Government (2018), there is a need for in-depth knowledge of AI, and they have entered into and invested 40 million Swedish kronor in AI in higher education, which will promote lifelong learning. The Government argues it is crucial to create conditions for lifelong learning. Since the provision of skills is the basis for innovation and competitiveness for Sweden. AI will lead to companies' competence and competitiveness being strengthened (Regeringen, 2018).

The global knowledge landscape is under construction, and development is moving faster than ever. AI is part of 2020's new IT trends; the new technology is essential for success and growth (Visolit, 2019). In today's society with digitalization and AI, new technology will change executive education, and schools need to work with digital tools (Vinnova, 2018). Executive educations are assumed to be among the firms to adopt new trends and technologies (Voller, 2010) Therefore, it is going to be interesting to see how AI are expected to change executive education, because the rapid development in AI creates an increased need for lifelong learning

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[2] System identification is statistical methods that can build mathematical models of dynamical systems from measured data. (https://en.wikipedia.org/wiki/System_identification)

(Regeringskansliet, 2018). Still very few studies could be found that describes how digital systems will change education.

1.3 Purpose

The purpose of this thesis is to increase the understanding of how is AI expected to change Executive Education. In a coming step those insights will create a better understanding for advanced digital systems. By a better understanding for how digital systems effects education.

Digitalization is a broad topic with many perspectives, so to be more specific in this thesis and to be able to focus the investigation the technology of AI is selected. AI represent a well-defined and coming technology that is commonly argued to a society changer of greater magnitude.

Executive educations are assumed to be early adapters of industry and society's needs, which makes them interesting to study if the aim is to search for arguments of new technology adaption. The study object, executive education, capture the problem for this thesis in a way that later could be transformed into more general conclusions when the investigation results are stable and significant. Executive education is a topic that is under development and affected by AI and digitalization. An important assumption for this thesis that Plastino and Purdy (2018) stated is that people will never stop learning and that lifelong learning is essential; instead, they will change the way they learn.

> *"AI will transform not only what people learn, but also how they learn".*
> *(Plastino & Purdy, 2018)*

1.4 Research question

The main research question of this thesis is;

> *How is AI expected to change Executive Education?*

In order to create a deeper understanding the results, of *how* is AI expected to change, the question of *why* and *what* needs also to be addressed.

1.5 Delimitation

AI can be applied to other industries; but this thesis will not capture other industries than executive education, because the empirical findings are strongly connected with professionals in executive education.

1.6 Operational definition

Lifelong learning – is not a new concept. In this thesis the definition of lifelong learning is; the development of human potential through a continuously supportive process which stimulates and empowers individuals to acquire all the knowledge, values, skills, and understand that they will require through their lifetimes and to apply them with confidence, creativity and enjoyment in all roles, circumstances, and environments (Norman & Keith, 1996).

Executive education – There is no general definition of Executive Education (ExEd or Exec.Ed). Part of lifelong learning takes place in educational institutions, and in this thesis, the focus is on one specific education form, Executive education. Executive education is often an extension to a traditional university and offers programs tailored for experienced professionals (Top MBA, 2019).

Digitalization – is an extensive term that addresses the integration of digital technologies. Digitalization is seen as one of the most important business trends in the economic area. Organizations need to be aware of the digitalization to succeed, and therefore, develop digital strategies (Innolytics, 2020).

AI – To be more specific, this thesis focus on AI as a part of digitalization. In the thesis, AI is seen as an ability of a machine to be able to imitate human behaviour, by using data (Vinnova, 2018). Many technologies, including machine learning and deep learning, include AI, but what distinguishes AI from other methods of automation is that AI has the ability to learn and to become smarter over time (Regeringskansliet, 2018). Not all authors agree on that machines could learn, but for not get caught in a philosophic argument of what machine could or not could in this text I argue machine have learning qualities and for the purpose of this text it will not affect the argument or the results.

Risk – The probability that an adverse event will occur. This can happen both internally and externally. Risks can be avoided by organizations paying attention to preventive measures; therefore, minimizing the risks (Business Dictionary, 2020). When implementing new advanced digital systems, risks must be included to get the best possible outcome.

2. Literature review

The literature review include how executive education is structured based on a traditional aspect of education. After that, AI is introduced and how it is related to deep learning and machine learning, as well as how AI affects today's society. Furthermore, AI is implemented on executive education to gain an understanding of how is AI expected to change executive education. An attempt is made to implement AI on education, which is currently under development. Finally, the literature review captures risks with AI and how to minimize them.

2.1   The concepts of Executive Education and lifelong learning

No general definition of Executive Education (ExEd or Exec.Ed) had been found. Many Business Schools around the world offer programs and courses to experienced executives, business leaders, functional managers in the industry. Often referred to as Executive MBAs (EMBA) programs or Masters. EMBA differ between schools and could globally be certificated through organizations such as EFMD, an international network in the field of management development with over 30 000 professionals. Executive educations are tailored, and customized educations based on customer and market needs that give new knowledge to enhance skills and gain new perspectives (Top MBA, 2019). Smeyers & Smith (1953) argued that educational institutions are forced to design learning based on the students, to be able to engage and motivate learning. How individuals learn to depend on the individual; needs, capabilities, and preferences (Andriessen & Sandberg, 1999). Today's traditional education needs new knowledge, new expectations, and new social and technical conditions. Interaction between research, community, and educational forms is needed. According to Vinnova (2018), it is the university's responsibility to renew and develop education so that it matches changes in society. Executive educations are often organised at universities as an extension and are provides life-long learning experiences to previous graduates.

2.2 Artificial Intelligence

AI is a rapidly evolving digital field (Regeringskansliet, 2018). In the new technology, three core technologies are mentioned frequently; artificial intelligence, machine learning, and deep learning (Oppermann, 2019). In AI, machine learning and deep learning are covered. With AI, methods can be automated, but it is not only AI that can automate, what AI characterizes is that AI has the ability to learn and become smarter over time (Regeringskansliet, 2018).
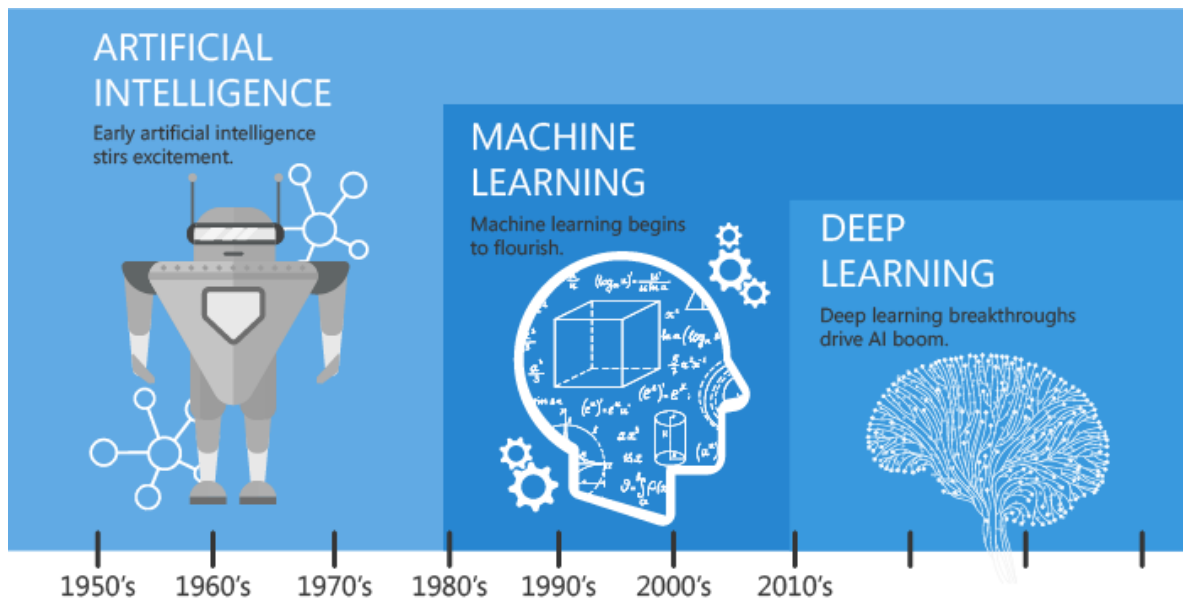
Figure 2.1 - The development of AI (Oppermann, 2019)

The reason why AI is a relevant area today according to Danielsson and Lindström (2020) is that; today, there is access to large amounts of data and the opportunity to find new solutions. Further back in time, the AI journey begin, in 1943, an American scientist Warren Sturgis McCulloch and Walter Pitts, Artificial Neural Networks, presented ANN (Danielsson & Lindström, 2020). ANN is a tool that allows AI to learn things. Where ANN is a simulated biological neural network (Idebro, 2017). After this, the development of AI has looked like a roller coaster (Danielsson & Lindström, 2020).

In 1998 John McCarthly at Stanford, founding father of the discipline, defined AI as:

> *"The science and engineering of making intelligent machines especially intelligent computer programs. It is related to the similar task of using*

computers to understand human intelligence, but AI does not have to confine itself to methods that are biologically observable" (McCarthly, 1959).

Later Kaplan (2016) argued that it is hard to define artificial Intelligence for two reasons. First, there are a few uncertainties about what AI is, and secondly, there is a reason to believe that machine learning has a relationship to human intelligence (McCarthly, 1998). Kaplan referred to a few proposed definitions which are in alignment with McCarthly. Wikipedia (2019) and Encyclopaedia Britannica (2019) define AI as; *the ability of computer programs and robots to imitate the natural intelligence of humans and other animals, primarily cognitive functions such as the ability to learn things from past experiences, understand natural language, solve problems, plan a sequence of actions and generalize*. An interesting observation is that in John McCarthly's article from 1959, when AI was first discussed, the argument was based on programs with common sense, which also could be found in management literature of sense-making for decisions today.

For a change, new advanced digital systems and techniques will be needed; therefore, it is essential for organizations to have a plan, not only to be able to develop as a company but also to reach higher goals. Essential questions that companies can ask themselves are; where they are today, where do they want to be in the future, why changes must be done, and what it will take to get there. One ability used to implement a change and answer the question of why is through sense-making. It makes it easier for individuals to get a deeper understanding and insight into the effects of a change. As individuals gain further understanding through sense-making, individuals will be even better at applying this to pre-existing capabilities within the company. Sense-making is also about anomaly detection, where trends can be revealed and used for innovation processes – here, timing is an essential factor. Sense-making will be easier to understand when the timing is right, which can be utilized when launching something new (Mootee, 2013).

On a lower level, AI is only a programmed rule that determines the machine to behave in a certain way in certain situations. AI programs could sense, reason, act, and adapt. Machine learning is algorithms for various kinds of tasks such as clustering, regression, or classification whose performance improves as they are exposed to more data over time. Deep learning is a subset of machine learning trained on data in which multi-layered neural networks learn from

vast amounts of data. Both machine learning and deep learning are considered to be applications within the AI field. AI can be found in Alexa, Siri, and the Google Translate App, which are all deep learning applications (Oppermann, 2019).

If AI is appropriately used, companies will have access to substantial competitive advantages, which can lead to significant profits (Plastino & Purdy, 2018). Therefore, organizations have to integrate AI, so it fits in with current strategies and people already working in the industry. When an organization needs to change something, they have to build a new model that makes the existing model obsolete. A change cannot be made by fighting the present reality (Mootee, 2013).

> *"The rise of AI in education needs to be approached along social, cultural, economic and political lines." (Selwyn, 2019, s. 22).*

People and machines also have to learn to cooperate by learning from each other. AI provides opportunities by taking on tasks with low value and thus relieving work for workers who instead have the opportunity to focus on parts with higher value, which leads to increased labour productivity. Another thing AI can lead to is more automation in an organization, which decreases the workforce (Plastino & Purdy, 2018). Building a system that works for a company takes time, and vast resources are required, but the outcome can lead to valuable changes that do not require much maintenance. Once AI has been implemented in the company, AI can be used to; quickly calculate product life expectancy. Based on this data, companies can more effectively determine whether the outcome is profitable or not. AI can also be used to prevent errors and shortcomings by being able to detect shortcomings at an early stage (Strandberg, 2018). Therefore, AI can lead to growth because it can quickly collect data at less cost (Plastino & Purdy, 2018).

The capacity of AI is that the whole world has an opportunity to achieve more (Microsoft, 2019). If Sweden can take advantage of the opportunities that exist in digitalization, the country's competitiveness will increase. For this to be possible, increased awareness and knowledge are needed, which in turn will lead to new strategies, policies, and possible measures (IVA, 2019).

2.3 Integrating AI to education

The development of digitalization and automatization will result in reduced employment, which leads to the need for new education in skills based on digital skillsets. Labour markets will be changed by digitalization, and this means that lifelong learning and education systems will be faced with new requirements (Vinnova, 2019). Something Kirkwood (2019) agreed that some jobs and skills are going to be affected by the innovation, but at the same time, an innovation that contains AI will become more successful. IVA (2019) further describes how new knowledge requirements will be needed when AI is integrated into the market. Education will change, and it is not certain whether the knowledge that is currently being taught during undergraduate education is relevant in five years. For an individual to gain maximum knowledge, this means that a student with a degree would have to return to university to gain new knowledge. Therefore, lifelong learning is considered to be a fact, where workplaces need to integrate the new educational needs that currently involve digitalization and AI.

Today traditional business schools are working hard to be relevant (Philip A., Sharm, & David, 2018). Traditionally, the individual learns from a linear progression, from the first level to advanced level. When AI is integrated, there is a risk of a gap between these levels, since AI can remove some components when it automates. It can be described as; AI reduces basic knowledge. The Global Network for Business education wrote that the need for executives/students are changing. AI leads to redundant due to emerging technological advances (EFMD Business Magazine, 2019). Therefore, both companies and educational institutions need to adapt their education, so this gap does not get too big, and so students do not risk to miss basic knowledge (Plastino & Purdy, 2018).

Technology with AI has already been used in education, for example, in South Korea with teaching robots (Bengtsson, 2014). The Wall Street Journal (2019) also showed how China has started to use AI in classrooms and how it is used to sensor the student's concentration. Both parents and the teachers access the data of what the children's engagement level in school is. The aim is to boost the student's grades, but the journalist also reported concerns about how the new technologies were used in classrooms. The technology is not so developed today that it has the opportunity to replace the role of professors and automate the learning that takes place in business schools. Instead, AI is used as a knowledgeable personal assistant or scheduling tool. A fully automated classroom is nothing that could be imagined; instead, AI would help

free the professors from everyday tasks, freeing up time that they could spend on creating richer student experiences. These experiences can be seen as a value proposition for universities (Stine, Trumbore, Woll, & Sambucetti, 2019). Edmondson and Saxberg (2017) agreed that AI could lead to increasing automatization of jobs, that in the past, have been exclusively done by people.

Digitalization means that education can take place at a faster pace. The new technology has become a significant and essential part of students' education and is linked to how they learn and experience the studies. The new digitalization has enabled innovative education techniques to emerge, one of these examples being a broader and richer distance education (Khalid, o.a., 2018). Executive education will benefit from using high-tech innovation and digital disruption, which will lead to non-updated knowledge being eliminated (Selwyn, 2019).

Vice consular Johan Schnürer at Örebro University describes the high competition of other universities, where students, staff, and research funding are in focus. It is essential to increase competitiveness continually, this can be done through internationalization and digitalization (Örebro University, 2017). AI has a significant impact on all aspects of society (Örebro University, 2019). During recent years, the university has begun offering education in AI, for society to have a more comprehensive understanding of the subject and a deeper understanding of why it has such great importance and impact on society (Örebro University, 2019). Researchers in technology must also include people with other learning areas in their work to gain a broader perspective and greater understanding of the implications of the new technology (Örebro University, 2019). The opportunity here to solve previous problems in a new and more efficient way (Eriksson, 2019).

Örebro University and Örebro region have now expanded their development and made a big step, investing 2.5 million Swedish kronor to start the AI impact lab, which is an environment for knowledge transfer in AI. The AI impact lab will make it possible for more stakeholders to take part in AI research at Örebro University in their operations. These stakeholders can be small or large companies, as well as the public sector. Through collaboration, projects, resources, and knowledge, stakeholders will be able to create and implement new strategies and technologies that will lead to business growth and becoming more competitive, and that innovation capacity will be able to increase. This is not primarily aimed at companies that are

most in need of AI, but those who currently have the least resources. However, at present, the focus is only on the region (Örebro University, 2019).

AI impact lab has a vision that the students, who are considered to be the innovative force of the future, should be able to benefit from the AI impact lab, regardless of the subject background the students have chosen, where the AI impact lab should be a gathering place for research, companies and the public sector (Örebro University, 2019).

Vinnova (2019) is another organization that has understood the meaning of digitalization and how it can contribute to increased competitiveness. They argue that there are great opportunities in this subject and have invested a large amount of money in supporting projects. For the project to be as profitable as possible, a balance between regulation and innovation is needed to maintain the trust of individuals (Vinnova, 2019).

Bengtsson (2014) concludes that there is a great need for professional development and restructuring of the education sector. Looking at the trend cluster, tomorrow's education, research, and innovation, it is an integrated process of a long-term. The results will not be visible immediately; it is more of a slow-and long-term impact on the society that will be critical for future growth. From the perspective of an investor, it is critical to make a judicious and well-substantiated. It often has high risks by being expensive and difficult to predict, and this new digitalization of AI is hard to estimate as it cannot be seen and calculated like a traditional asset.

2.4 Risks with AI

A considerable lack of knowledge can threaten the potential benefits of digitalization. Countries need to follow the digital infrastructure; otherwise, they risk falling behind in development (IVA, 2018). There are obstacles and complications with digitalization (Khalid, o.a., 2018). There are no barriers to digital transformation, but with a lack of vision, it will be more difficult (Fitzgerald, Kruschwitz, Bonnet, & Welch, 2014). An organization that is satisfied with where they are will find it extremely difficult to accept new changes; therefore, they need to be more open to changes (Fitzgerald, Kruschwitz, Bonnet, & Welch, 2014) and tear themselves away from their habitual behaviour for a successful implementation of digitalization to be successful (Andervin & Jansson, 2016).

To innovate, simplify, and improve processes, tasks, and products, an understanding of digitalization is needed (Edelhard Tømte, Fossland, Aamodt, & Degn, 2019). Organizations need to understand that digitalization will affect the entire organization, so IT implementation should not be limited (Andervin & Jansson, 2016). Organizations are forced to think about the massive data given confining formulas and enterprise software that are available, although more data is not always better. When organizations realize that, it is going to be easier for them to use new and creative ways to handle complex problems (Mootee, 2013).

Technology influences everything people do today and tomorrow. In connection with high-speed connections, such as 5G, AI, and sensor techniques, a society of digital automatization is developed. Initially less complicated, with limited decision parameters that will be automized (Bengtsson, 2014).

For businesses to succeed, resources are required; the most critical factor for resources is how projects should be financed (Mollick, 2013). There are ways to minimize the risk with AI, but without a consensus, the change will only be marginal when an organization implements advanced digital systems. The first question is *what* to do; after that, the question is, *how* (Andervin & Jansson, 2016). When there is tough competition in the market, organizations have to be more efficient and competitive, so that they can quickly develop together with the market, that is *what* they should do. If the risks are shared between a group of companies, they can be more flexible, and collaboration is *how* they should do it (Hallikas & Ojala, 2006). The result of the collaboration will be increased efficiency (Latinovic & Chatterjee, 2019). The value of implementing AI and machine learning are increasing in organizations (Leathers, 2019).

3. Methodology

This section describes the research strategy, research method, data collection research quality and data analysis. The analysis of this descriptive research is designed based on a data collection on both literature review and empirical findings and the thesis therefore includes, both primary- and secondary data.

3.1 Research strategy

In this research, the analysis is descriptive and focusing on creating a fact-based understanding of how AI is expected to change executive education. If there is no knowledge about how our reality is constructed, it will be incredibly challenging to choose the right approach. These approaches involve exploration, description, and explanation of its structure and function and mechanisms that are involved. (Cuadra B, 2012)

AI system, as learning systems, will change over time and are already under construction. This rapidly changing topic makes AI systems attractive, and traditional organizations' will see the benefits of it. The research design is based on facts from literature studies to formulate an understanding of the key concepts of problem and interviews with professionals working within the field of interest. This research focuses on executive education and AI as a part of the digitalization and development in the area. The research focus is on executive education and lifelong learning, how AI has become a significant part of new technology, and how AI will affect executive education. Risks with advanced digital systems are discussed to create a perception of how to minimize the risks. Within this concept, some aspects affect reality; these are the action-based, material, physical, and emotional realities (Cuadra B, 2012).

There are alternative ways of working with literature review and empirical findings; deduction, induction, and abduction. Deduction proves something; it is about using general principles and existing literature to be able to draw conclusions that deal with an individual phenomenon. There is also so-called hypothetical deduction, which means that hypotheses from the existing literature are tested against empirical findings. This research follows a more precisely hypothetical deduction, as the research initially introduces a hypothesis that will be tested in the conclusion (Patel & Davidson, 2011).

A hypothesis is something that can be verified through a survey. It can also be seen as a guide for the researcher, given that the hypothesis describes which method is used when discussing the problem. It is also used to determine whether the reality presented is similar to the outcome at the end. In the end, the research will be able to test the hypothesis and whether the possible outcomes of the survey support the result or contradicts the result (Bell & Waters, 2016). The inductive approach detects studies during passage and is not limited by previous literature (Patel & Davidson, 2011). This research is a combination of both deductive and inductive approach, which leads to the research being abductive. Abductive means that a hypothetical pattern can explain the thesis.

The thesis design is structured by the following process in figure 3.1. Where the thesis is divided into six different main sections, these main sections, which can also be seen as main headings, are divided into sub-headings to get a clear and structured text that is easy for the reader to follow and go back into.

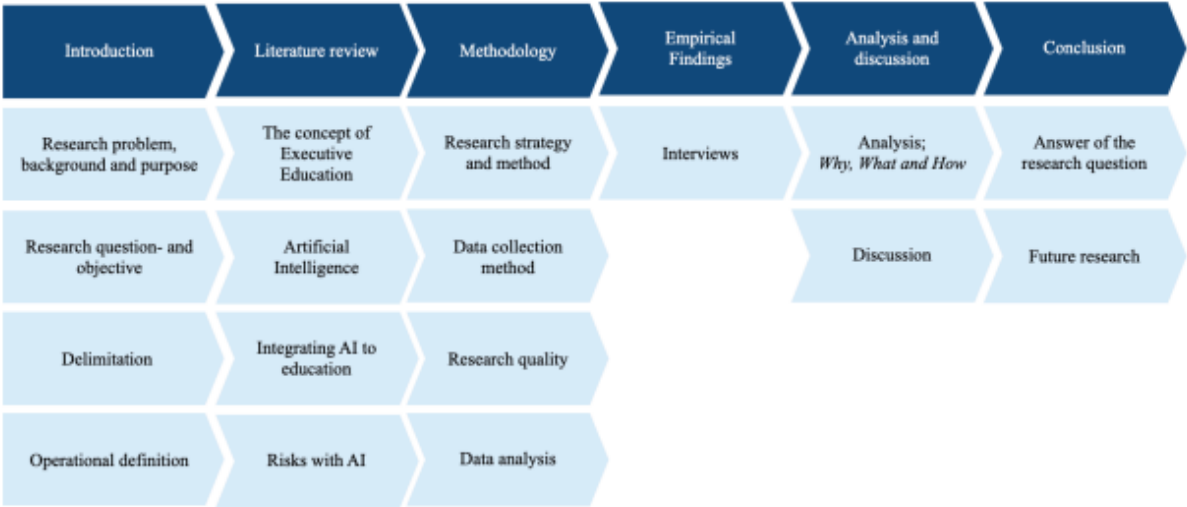| Introduction	Literature review	Methodology	Empirical Findings	Analysis and discussion	Conclusion
Research problem, background and purpose	The concept of Executive Education	Research strategy and method	Interviews	Analysis; *Why, What and How*	Answer of the research question
Research question- and objective	Artificial Intelligence	Data collection method		Discussion	Future research
Delimitation	Integrating AI to education	Research quality			
Operational definition	Risks with AI	Data analysis			

Figure 3.1 - Thesis structure (Gryth & Rundberg, 2018)
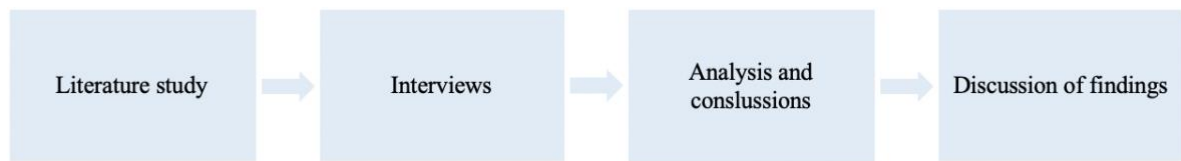
3.2 Research methods

Figure 3.2 - Research method

The first step in the research is deductive when literature statements are searched, structured, and argued to be able to find a logic for this thesis statement (Patel & Davidson, 2011). The results of the literature studies are the literature review, methodology, and the questions for coming interviews. This data set is secondary quality data.

The second step is more inductive when professional executives within the executive education field are interviewed (Patel & Davidson, 2011). Since the problem space has a great deal of uncertainty, the design for the interviews is open questions and more a discussion than using a strictly controlled question. This will give a more abundant data set and limits the risk of missing essential facts that initial literature studies might leave out (Bryman, 2011). This data set is only primary quality data. The interviews create a richer dataset that helps a deeper understanding for the professionals understanding of the digitalization and AI, with perspective of risks, in their business. The secondary literature findings are complemented with the interviews.

The third step is the analysis and conclusions in answering the stated research objective and research question. This analysis is done by comparing the literature review data with the empirical findings (Patel & Davidson, 2011). This analysis is descriptive and formulates what the empirical findings show from the perspective of the literature. To be able to answer the research question, the analysis first captures; why and what changes AI will result in executive education to be able to answer the question of how. In the end, there is a conclusion and further research.

Finally, a discussion of the findings and other observations are made. From this part, new insights and questions are stated for future research and recommendations for executive educations business.

3.3 Data collection method

Data forms the basis for a research. There are different types of data; interviews, observations, collections, and reviews (Yin, 2011). In this thesis, both interviews and pre-existing literature are used. Therefore, both secondary and primary data have been included. (Patel & Davidson, 2011) One advantage of using different types of data is that all forms have different types of limitations, and through the use of several methods, the selected data will become more relevant to the qualitative research (Yin, 2011). With data from both primary- and secondary data, the thesis has an abductive approach. (Patel & Davidson, 2011)

3.3.1 Secondary data by literature studies

The leading search for literature is the library of the University of Gothenburg and Google scholar. The search for literature is mainly in three search categories: *AI and digitalization*, *executive education*. Also, combinations of the different categories are made. To be able to compare previous studies and literature, several different sources have been used in the same field. Given today's society and developments in digitalization, it is considered essential to access secondary data. Because there is a massive amount of information available in general on the internet, this had to be taken into account to build and test new theories. (Yin, 2011) Therefore, literature was first reviewed from the library of the University of Gothenburg to find relevant references, and then Google scholar has been used to get the advantage of multiple writers' perspectives on the same subject.

3.3.2 Primary data by interviews

Based on the initial findings in literature a set of question was formulated. The literature did not give the full answers to stated research question. To be able to fulfil the objective of this research complemented questions needed to be asked. The major challenge in the literature study were that; the literature is mainly American influenced, not always focused on AI and written a couple years ago, so to create a relevant data set of data complementary questions was designed and based on the research question on how is AI expected to change executive education, as well as the risk with AI and the questions can be found in Appendix A.

The data collection was open interviews with a set of questions to address the objective of this research. The first two question was control question to understand the interviews relevance to the topic. The following eleven questions are AI.

The interviews are the following:

Position	Name	Organization	Date	Time	Type
CEO	Henrik Frohm	Swedish Management Group	2019-12-05	40 min	Telephone interview
CEO	Henrik Lundgren	Executive Foundation Lund	2019-12-19	50 min	Telephone interview
CEO	Magnus Rolf	Institute of Business Economics	2019-12-20	45 min	Telephone interview
CEO	Henrik Friman	IHM Business School	2019-12-22	30 min	Face-to-face
CEO	Anders Richtnér	Stockholm Business School	2020-01-07	40 min	Telephone interview

Figure 3.3 – Interviews

Those who have been interviewed have been selected for their interest and knowledge in the area of executive education. It is preferable to have a widespread between different organizations, that is why five organizations have been selected to be in the interview (Bryman & Bell, 2015).

In Appendix B, the participants are listed with contact information. The interviews conducted were semi-structured with open questions. This gives the interviewed party the flexibility and freedom to answer the interview question, even though there is a specific theme that follows as a red thread throughout the interview. (Bryman, 2011) Many interviewees answered several questions at the same time, as the questions were structured in a way that allowed them to speak freely. Hidden questions can also give rise to developing and deepening the answers of the person that is interviewed (Bell & Waters, 2016). This was considered to be the best option to use as there is no research in the subject of AI in executive education, and through a semi-structured interview, there were margins for the interviewed party to come up with unexpected aspects, which could not be predicted in advance. A more abundant data selection was created by this approach. (Bryman & Bell, 2015) Not forgetting that the research question, during the interview is an integral part of knowing what is relevant and what should not be documented, so as not to waste time and going in the wrong direction (Yin, 2011). The interview questions are, therefore, based on the problem discussion.

Performing face-to-face interviews is preferable to obtain as competent and credible information as possible (Bryman & Bell, 2015). Unfortunately, this was not possible for all interviews due to the geographical perspective. Through the use of a telephone interview, independence of where one is in the world is created, and thus, a broader analysis can be created. (Bell & Waters, 2016) In all interviews, recordings have been used to be able to go back to hear and get a broader and more in-depth analysis of what was said and to analyse the answers. (Bryman, 2011) It is also advantageous to use interviews because they can give responses such as a tone of voice and breaks that cannot be revealed in written answers (Bell & Waters, 2016).

3.4   Research quality

There has been just one American previous study found on AI and executive education, but it has been available information on AI and executive education separately. When reviewing external sources, it is vital to be source-critical. (Bell & Waters, 2016) The research quality is also based on ethical aspects, which include the collection, analysis, and presentation of data and empirical data (Nikku, 2013). One ethical concern for this research is the basis of using executive educations as study objects. How representative is this group for lifelong learning, and how mature are those organizations in technology use? In a more extensive study, control groups such as an international executive education organization or an education organization from another profession would be of value. At this early stage and given the complexity to set up a substantial empirical database, this study is the first step, and that needs to be considered in the conclusions being made.

3.5   Data analysis

In this research two mainly data set are used, literature and interviews;

First part of the analysis creates a structure of the research problem by literature research and collection, by creating an initial understanding for key concepts and field of interest. By dedication of the literature founding premises of digitalization in executive education are stated. With limited experiences of what to be true the first logical conclusions are drawn with high uncertainty what affects AI has on Executive education. The literature is mainly used to gain an understanding of how basic principles are designed and how traditional education are made. An essential part of taking into account in information retrieval is the uncertainty in the collection. (Patel & Davidson, 2011) That is why the new adaptations of society have been taken into account. Articles have been used to see developments in the technology industry.

Reports form the basis for how organizations work with development in the field of AI and digitalization, where more updated variations have been used to have greater relevance. Reaching conclusions by deduction can be a deceptive method as exceptions often occur that falsify the assumption. The first analysis gave structure to the research and questions to be deeper investigated and discussed.

Second part of analysis is explorative and creates deeper understanding which gives ability interpret the literature study results. Instead of using limited literature conclusions, the inductive method with open questions created a large data set but with specific focus on the research objective. Empirical data that gave descriptions of today with a Swedish perspective and focused on the specific object of executive education.

Third part of analysis compare the results of the two data sets by the lens of the research objective and to answer the research question. The analysis is structured by the three questions; *why*, *what,* and *how,* which describe and explain the research question. During this analysis new questions are identified outside the scoped of this research, which are captured in the end discussion of this work.

4. Empirical Findings

The data for this study is interviews with experts in the area of executive education. As AI has not come so far in the development, this empirical finding will also capture digital transformation, because AI is a part of the digitalization. The interview objects are; Swedish Management Group, Institute of Business Economics, Executive Foundation Lund, Stockholm School of Economics, and IHM Business School. The empirical findings are only based on primary data.

4.1   Swedish Management Group (M-Gruppen)

Mr. Henrik Frohm, CEO of Swedish Management Group, December 05, 2019.

AI as a part of the digitalization on executive education

Today Swedish Management Group has about 5-10% education that is including AI, and it is primarily their education called Master of Strategy, where AI is part of the education when looking at business strategies. According to Frohm AI is part of digitalization; it makes digitalization smarter and many companies try to understand AI, and others have been forced into AI, an example of forced AI is face recognition.

Frohm describes how their strategy has different entry values for them; one is that their education deals with digital transformations that include aspects such as how digitalization affects and changes leadership, also how generations will develop and what abilities they will possess, because there is a big difference in abilities in the 21st century and the 20th century, being two different societies in which people grow up. Therefore, the Swedish Management Group looks at where the future leadership needs to be and how they should organize their businesses and operations to get there. Frohm further describes from an internal perspective, the organization includes how they choose to run the company. Today, they use Einstein, which is a form of AI in the salesforce, to develop and operate a better business. Frohm notes that it is essential how education is carried out; not what education includes. They look at how they can use advanced digital systems to strengthen learning and how to remove the geographical boundaries that exist today.

Traditional school learning according to Frohm is based on only one model for all individuals; everyone should learn the same thing in the same way, at the same time. Frohm describe that the Swedish Management Group meets all individuals manually and not digitally, but this is something Frohm argues that AI could change executive education, by having an AI mentor, who creates individual education plans. Where individuals will achieve the same goals, but they will have completely different education plans based on what they have done historically and which knowledge they achieve from earlier studies. Frohm further imagines that in the future, the education industry could develop that all citizens have an AI mentor, which follows an individual's development.

Frohm sees that current strategies will need to change. Today according to Frohm the Swedish Management Group has access to a vast data collection, with a low ability to analyse and extract the value. They automated their data for recommendations of customers that they should contact. Frohm does not see that business will be negatively affected by automation; instead, he thinks they can focus on things AI cannot give them, for example, increasing emotional thinking, where people can have a more profound and closer relationship with each other. AI will be used according to Frohm from an internal perspective to more automation of processes that are repetitive and recurrent, that is, classical administration. From an external perspective, AI can be used to generate increased customer value, by digitalization enabling more extensive data collection in a shorter time compared to what a human can physically perform. At the same time Frohm assume the fact that digitalization and AI have been incorporated into their business is a success in itself since many people are inquiring about the new technology.

AI can be applied to other industries than the education industry, Frohm does not consider the model will differ depending on the industry; slightly, the outcome of the process. AI could be used regardless of whether it is about training, that an individual wants to achieve a particular physical goal or knowledge to work in a specific industry. This is linked to the fact that everything an individual does is a form of learning. This makes the process for how is AI designed quite general according to Frohm, and he argues that it is the goal that makes it more specific and unique.

Frohm define that digitalization has increased significantly. If the employees in the organization do not have to work with administrative tasks, they have more time to invest in creating additional customer value. Therefore, Frohm means that resources can be used more effectively. From a financial aspect, organizations need to ask the question of how much money is worth investing in an AI project.

Nevertheless, Frohm would not say that investments with automatization, digitalization, and AI differ from other investments. He further describes that the most significant risk with digitalization that includes AI is that individuals and businesses may feel more exposed and unprotected. For example, organized crime could exploit personal data. The risk for the Swedish Management Group when it comes to developing education according to Frohm based on AI is primarily the human factor, how individuals perceive their changes. Therefore, it has to be normalized. Frohm also mentions another factor that is that the individual becomes more dependent on having a good and functioning connection at all times, which is a limitation in itself, given that Sweden today only has 4G.

Frohm and the Swedish Management Group argues that they have the same approach to AI as other organizations do. Today they use face recognition, and the vital part for the organization is that their students do not feel that it is insecure. The conclusion on how to minimize this risk of uncertainty, the organization, tries to normalize it.

4.2   Institute of Business Economics

Mr. Magnus Rolf, CEO of the Institute of Business Economics on December 20, 2019.

AI as a part of the digitalization on executive education

According to Rolf, it is difficult to say how AI are expected to change education; he describes that he hardly knows what AI is. In their business, they work a lot with advanced digital systems and have much technology included in education. All their lessons are broadcasted in real-time, so individuals can decide for themselves whether they want to participate in the classroom or if they remain in the office and conduct the education there. Rolf further describes that their business has come longer than its competitors with the development of digitalization. Their education is also recorded, which allows students to go back afterward and watch the lectures again. Teacher presentations are being recorded, but they do not record the classroom itself.

The recording is also done from a geographical perspective. Currently, Rolf explain the Institute of Business Economics has premises in Stockholm, Gothenburg, and Malmö. This allows them to interact with other institutions. For example, a teacher holding a lecture in Stockholm can be viewed in Gothenburg and Malmö at the same time; this enables flexibility. Continuous development is being done, and Rolf define that the Institute of Business Economics is trying to digitize as much as possible. Today the organization has come a long way, where there is a digital delivery, parallel to traditional. When it comes to personalized treatment, it is essential for the Institute of Business Economics that both people who choose to come to the classrooms and those who participate online are treated in the same way and get the same experience.

Rolf state that the Institute of Business Economics has been working with the development of the digital system for about 5–6 years. They have been comparing their systems with American universities that have inspired them and according to Rolf there are few schools in Sweden that offer something similar with digitalization in executive education. However, Rolf narrate that even if the organization is based on digitalization, they do not see that automation would work entirely in the classroom, the same form of care around course participants is still needed as in an old system. Processes and flows can be automated, but according to Rolf when it comes to learning and care itself, they must probably relate to the old way.

Rolf argues that the key to digital systems working well for their organization is based on their control of the stages. Institute of Business Economics has done this by hiring technicians or specialists in advanced digital systems. Rolf express the environment in their organization in Stockholm, there is a control room, where all lessons are monitored. He pictures the monitoring is currently done by physical persons sitting with multiple screens, where they can see what is happening in the classrooms both in Stockholm and elsewhere, so they can help if the teachers need help with the technical part. Rolf describes it as a demanding control device, and it is necessary for the organization to not losing control. Rolf further describes that if they are to be able to offer more than twice as many courses, compared to what they offer today, they will, in the long term, have to automate this process. Automation of the student flow is also relevant to the business, their students can now register at different times, and the business finds a system for how the students can get into the digital flow directly when registering for a course. It will facilitate the business administrative work, towards more automated processes to convert points

of interest to customers. Digitalization also means that the business reduces the use of its paper, thus saving the environment, by publishing course material on the teacher portal.

Rolf clarify that education must follow the development of society with AI. Today it is possible for the Institute of Business Economics to offer courses with AI. The Institute of Business Economics tries to identify areas that are attractive and satisfies market needs. There is an acceptance for new technology, and at the same time, it is necessary to prove value to the customer. Rolf further present that the Institute of Business Economics is not afraid of changes; they always try to have many ongoing projects and find new and exciting solutions to offer.

Risks with AI and how to minimize them
Rolf argues that their organization is at the forefront, but it is necessary to ensure that their delivery works as well as possible continually. He argues that customer satisfaction is crucial, and like other investments in the organization, the investor wants a return. Therefore, Rolf argues that AI do not differ from other investments.

To minimize the risk, the organization must consider whether it is worth implementing AI. Rolf's experience is that he needs help; it is not possible to make IT-based decisions without help. It is something Rolf learned over the years. If the right decisions can be made in IT, there must be a team that evaluates and has knowledge in the area. It makes it easier, according to Rolf, to make decisions based on the organization's opinions.

4.3 Executive Foundation Lund

Mr. Henrik Lundgren, CEO of Executive Foundation Lund, December 19, 2019.

AI as a part of the digitalization on executive education
Lundgren express the development in the education industry, swings back and forth quickly. Digital and distance education were an essential part of education a few years ago, where much effort was made to develop distance education. He argues that today this has balanced itself, and now there is an understanding that distance education works well in education if the purpose is to certify the student in a smaller area.

According to Lundgren, the value of meeting a person physically will increase as digitalization and distance education increase. He defines there is a need to find balance and allowing AI to

be implemented slowly, even though many organizations want to be at the forefront. Further, he describes that it is essential to let this take time so that the gaps that exist in today's technology can be filled in a valuable way. Many organizations are ready with capital and would like to invest in AI, but there is a lack of understanding of what to invest in. Society must go through this process. Lundgren connects AI with when the internet was new and saw that the implementing process could be seen as similar to when websites were built in organizations, although organizations did not know how to use it.

Lundgren means some things cannot be controlled, and these are ethical and legal aspects. It is something that can usually be solved and handled afterward, and it is a part of the development. The Executive Foundation Lund also works with a platform called learning lounge, where time, environmental, and cost savings can be made. Through this platform, the organization can reduce the copying of material previously made, and students have access to upload their data. This is an example of a successful digital investment according to Lundgren; the organization has implemented as the organization is under development.

Lundgren express today, some schools use student mentors for students who learn more slowly, for students to have the possibility to develop as other individuals, based on their needs. Lundgren argues this could be replaced by AI; the benefit of this is that an AI robot does not get tired. For example, they are learning accounting as well as well helps with learning to the same extent that a teacher could do, given that it is primarily about repeating and feeding the same kind of tasks. According to Lundgren, the tight sector in today's society for all managers is time. The pace today is higher than it was a few years ago. Digitalization is support for this problem, so that students have the opportunity to prepare with the help of digitalization, and the time students meet can be as high-quality as possible.

Risks with AI and how to minimize them
Lundgren describes that the business has no vision that digitalization will be the central part; he instead argues that physical meetings have a higher value. The business needs meetings, and the exchange of experience is a vital part of the Executive Foundation Lund, where their visions are more important than being the first with digitalization and AI. Since the Executive Foundation Lund, does not make invests in AI, no significant risk was discussed with Lundgren.

To minimize the risks, according to Lundgren the Executive Foundation Lund chooses not to be at the forefront with digitalization and AI. The primary reason that he describes is that technology is not the core competence of the organization.

4.4   Stockholm School of Economics Executive Education

Dr. Anders Richtnér, CEO of Stockholm Business School Executive Education, January 07, 2020.

AI as a part of the digitalization on executive education

When it comes to the implementation of AI, Richtnér describes that the Stockholm School of Economics uses a certain amount of automated processes, in which they have access to massive data, but he argues there are still opportunities to analyse and use the data in a more effective way.

Richtnér further describes that when it comes to the customer journey and automating it, there is a difference between the Stockholm School of Economics primarily due to that other schools have more B2C customers, whereas most of Stockholm School of Economics customers are based on long and deep relationships. However, Richtnér says they are automating their processes for their B2C customers regarding the customer journey process, where these customers go through a longer part of the process all by themselves. This means that the participants themselves are given more responsibility.

Richtnér describes how the organization currently uses digital exams in the areas of finance and insurance, where there is only one correct answer to the exam question. It is structured so that the teachers themselves create questions, and then they are automatically corrected. Every student will get random questions, which means that no student gets the same exam. Digital exams are not so developed that automatic correction can take place when questions involve qualitative text and analysis by the students.

According to Richtnér, the organization is entrepreneurial in the sense that they are working on exploring and testing new things, i.e., have built investments based on where there is a customer need and then expanded if tests are successful. If there is a need, Richtnér argues that it comes to direct use, if it comes to direct use, they can be evaluated directly.

Richtnér consider there are also disadvantages of not having 5- or 3-year cycles. He describes it can be expensive if businesses do not have a long-term plan because organizations always want to be involved in a continuous change process. But this is Stockholm School of Economics' way of meeting the market by trying to emphasize speed, to reduce massive investment costs. Instead, they try to pick out some significant IT investments based on smaller trials.

Stockholm School of Economics has looked at alternative forms of financing to reduced costs, when it comes to crowdfunding, but Richtnér argues that it is difficult because the organization is owned by the business school, so it is perceived as strange to go out and crowdfund. He further argues that the same has to do with venture capital, where the organization is part of the academy, and in the academy, they do not work with venture capital. It is the Stockholm School of Economics' ownership structure that prevents them from using venture capital or crowdfunding, yet collaborations in other forms take place. However, Richtnér clarifies that they have business partners and are not against working with others, but they do not use crowdfunding nor venture capital as of today for their executive education operations. The Stockholm School of Economics' has, in some cases, received donations. Then cooperation can also take place internally when teams within the organization learn to work together, the organization will be stronger, and there will be a difference in what the organization does.

Risks with AI and how to minimize them
Richtnér describes that he sees the risks with personal ethical data and who has access to that data and how that data is handled.

Richtnér claims that ethical issues are incredibly important and therefore has an ethical advisory board, which the business uses when implementing changes. From a political perspective, the organization is extra cautious when it comes to entering an international market and collaborations. It is not like they do not include international collaborations, but Richtnér clarifies there are more questions than answers because they do not want to risk their data falling into the wrong hands.

4.5 IHM Business School

Dr. Henrik Friman, CEO of IHM Business School, December 22, 2019.

AI as a part of the digitalization on executive education

Within IHM's operations, Friman estimates that the use of AI is currently below 5%. Friman describes how the organization has built-in software that is used in the educational components, including in their digital analytics and digital marketing.

The use of AI is less than it should be within the organization, according to Friman, and he states it should be further in development. Today, the organization uses AI to a small extent, such as correction, matching competence of students with existing knowledge requirements. AI is also included in educational steps to understand data better. By using AI when it comes to correcting degree assignments, an appropriate correction of assessments will be made. Therefore, it is not only seen as more manageable for the teacher to correct but also fairer for the students. When it comes to the matches, it means that the students who come to the school have a higher probability of passing the education they are recommended to attend, which, on the whole causes AI to give the business a better quality in the decisions to be made.

Friman argues that AI and digitalization are an increasingly important part of everything they develop, both today and in the future, as the digital side becomes more dominant in the educational programs. Friman describes that the critical part of learning is not just learning how to implement AI, but also what it means and how the business could use it elsewhere. To be able to use it elsewhere, qualified persons are required. Friman claims the digital part should be a natural part of the business. They have a marketing department that is built to become the benchmark of the industry in digital marketing. The development of the entire business strategy and digitalization is continually changing and is considered an essential part of the strategy. Both from the administrative part as well as education. When it comes to the content of the education they offer, Friman says, AI is a natural part of education because IHM's market is primarily a leading industrial company.

Friman said, by using AI, the effects for the business will result in both an efficiency part, where today many manual parts can be replaced with machine and data support, where working hours can be freed up to be able to develop offers and content instead. Most innovations today are based on the technology at the bottom, digitalization enables innovation, and it is in the same

way that AI becomes a prerequisite for doing future business, entirely new business that the business does not see at present.

When it comes to the risk of digital and AI, Friman argues that it is essential to prioritize. Nevertheless, he does not see AI are not considered to be different from other technological investments in the business. Friman considers that the business has a reasonably weak capital because the business is seen as small compared to the large organizations engaged in similar education initiatives. For both IBM and Google to enter IHM's market, with a completely different capital to be able to make investments. As a result, the most significant risk for IHM is that it does not have enough capital to make the necessary investments. An additional risk is choosing the wrong project to invest in.

A further risk that Friman states with AI is that today it is based on data and statistics, which contradicts IHM's business, in that the business is working to understand and not just follow trends. He sees understanding is an integral part of being able to do new development work, new markets, new products, and offers. For education to be as rewarding as possible based on being an individual, but also in IHM's case with different industries and companies, an essential component is that everyone cannot learn the same business models and the same way of tackling problems. Because each business is unique, and all businesses come to the same solutions, competitors will compete in the market with equivalent products and services.

Today, the risks are minimized by the organization trying completely new collaborations. Therefore, Friman claims, IHM's marketing department has established a collaboration with another companies, where they together build up the marketing department.

5. Analysis and discussion

In this chapter, the analysis is done based on the literature review and empirical findings. To answer, the research questions the analysis is divided into three parts; why, what, and how. To make it easier to understand why changes should appear in education, what type of changes will be relevant when implementing AI to executive education organizations, and how it is expected to change the executive education. The chapter is concluded with a discussion of all three areas which are connected to executive education.

5.1 Analysis of why changes should appear

According to the literature review, lifelong learning will always be relevant; the education industry is in great need of a change, and AI will play a significant role in the changes in executive education as education is offered new advanced digital systems (Vinnova, 2018). The new technology, which includes AI, will affect education and will create changes in both content production and learning situations (IBM Watson Academy, 2019), and the education that is given today is probably not considered relevant in a few years. Students will then have to return to strengthen their knowledge (IVA, 2019), education, therefore, has to change for students to gain maximum knowledge (EFMD Business Magazine, 2019). Also, to become value-creating and relevant, the learning will need to be in balance with the development of digitalization (KPMG, 2019). However, institutions have to be careful, to avoid devaluating the primary education and AI will not only affect what people learn but how they learn (Plastino & Purdy, 2018). Bengtsson (2014) agrees that when AI is implemented in education, AI may risk having a gap between the primary knowledge and the advanced level, because some parts will be automated. To minimize this risk, education must develop at the same pace as society develops, but the benefit by using AI is that it has the ability to automate and become smarter over time, which is not something other automatisation systems are able to do (Regeringskansliet, 2018).

Organizations that work with executive education are agreeing with the literature; digitalization and AI has been increased significantly in recent years for organizations working with executive education. Frohm claims there is a big difference between the abilities of individuals in the 20st century and the abilities of individuals in the 21th century because they grow up in two different

societies and Friman agrees that today digitalization is becoming an increasingly important part of development and changes our business models. According to Lundgren the development in the education industry has already begun. Rolf agrees with this and adds that for businesses that teach, it is vital to follow society's development with AI.

The literature review argued that AI has a significant impact on all aspects of society (Örebro University, 2019). Internationalization and digitalization are two factors that can lead to increased competitiveness (Örebro University, 2017). AI cannot be stopped – which is why schools need to learn how to use AI to avoid falling behind and be out-competed by other schools (Andervin & Jansson, 2016). Over the past year, schools have begun to offer an education that includes AI, to help individuals understand why new technology has such a significant impact on society (Örebro University, 2019). If Sweden learns how to take advantage of the opportunities that exist with digitalization and AI, it will lead to increasing country competitiveness (IVA, 2019).

According to the empirical findings, AI is already included in organizations, but it is, to a minimal extent, around 5-10% or under.

5.2 Analysis of what kind of changes

Traditional business schools are working hard to be relevant in today's society (Philip A., Sharm, & David, 2018). When digitalization is integrated into the market, new knowledge requirements will be needed (Vinnova, 2019), but it is the school's responsibility to face the changes in society (Vinnova, 2018).

According to the literature, organizations unfortunately have problems using their data effectively (Leathers, 2019). For organizations to benefit from their advanced digital systems, a change in their current strategies will need to take place. For the business to benefit from their data, they will need to identify new strategies that can integrate with existing strategies and people that already work in the industry to meet the changes with digitalization (Plastino & Purdy, 2018; Bengtsson, 2014). Automatization provides the opportunity to focus on work with higher value, which will lead to increased labour productivity (Plastino & Purdy, 2018). Building systems that work for companies takes time and often requires substantial resources, the advantage of AI is that it can lead to valuable changes that later do not need much

maintenance (Strandberg, 2018). Productivity improvements as AI help organizations to automize because AI can quickly collect data at a cheaper cost than before (Plastino & Purdy, 2018).

Friman argues most of the innovations today are based on technology, and because AI is part of the new technology, it becomes a prerequisite for future business to succeed. Frohm and Richtnér further agrees that today organizations have access to a massive amount of data, where the organizations have a low ability to analyse and extract value-creating data. Since efficiency is seen as a value-creating part of an organization, Friman argues businesses are interested in finding ways that can be more efficient, something that AI can do with machine or data support.

Frohm sees AI is a part of digitalization, that makes digitalization smarter, and the empirical findings suggest the same as the literature review; to involve AI in education, schools must learn how to strengthen learning with the use of advanced digital systems. Lundgren states time is the tight sector, where digitalization and AI can help solve problems. The area in which automation is to take place will depend on the organization. In some organizations, it is a matter of offering a broader range of courses. Frohm states the automation can be seen from an internal and external perspective. Within organizations that are more advanced in the field of digitalization, there are still physical persons who monitor the technology in education. For it to be possible to offer a broader range of programs, Rolf argues that the monitoring needs to be automated. From an external perspective, Frohm also argues that automation can take the form of invoicing and recommendations of which customers should be contacted. Friman agues if the organization matches its student's needs, the business has the opportunity to offer better quality because the students are more likely to pass the education. An additional advantage according to Rolf is that automation could bring is that the students are transferred directly into the business's digital system as soon as they have gone through the registration process, which reduces the administrative work of the business. If customers are using advanced digital systems in the registration process, Richtnér sees that the value with meetings will probably increase and from an internal perspective Lundgren sees that AI could not only be used in an administrative aspect, also in a learning aspect where the individuals task is to learn a craft, and the main focus is on repetitive tasks. Digital exams are something schools have been implementing, but Richtnér clarifies this is possible if there is only one right answer. The

advanced digital systems are not so developed that they could handle analysis questions. Today, some schools use student mentors for students who learn slower. So, according to Lundgren all students have the same conditions to achieve the same course objectives, based on the individual's needs. This is currently done manually at several organizations, to meet the specific needs of individuals. By broadcasting live and recording at the same time in the classroom, Rolf sees that individuals get the chance to go back and listen to the education more than once; this may help individuals that learn at a slower pace Frohm also sees this to an even greater extent, that all individuals should have access to an AI mentor, who follows the individual's personal development through life, not only in school. Rolf clarifies that organizations that have a strong focus on digitalization meet the needs of all individuals in the same way whether they choose to come to the classroom or take part in education digitally. Lundgren does not see the benefits with digitalization as strongly as Rolf, instead Lundgren sees the value of meeting a physical person will increase.

As the literature suggests, the technology is not so developed today; people cannot imagine that the entire education industry would be automated. AI can instead be used for helping professors in their daily work, which frees up time that they can spend on creating richer student experiences (Stine, Trumbore, Woll, & Sambucetti, 2019).

According to Frohm businesses will not disappear because they choose to automate, but instead, the organization will be able to focus on the things AI cannot handle, for example increasing the students emotional thinking, which allows people to have a more in-depth and closer relationship with each other.

5.3 Analysis of how AI is expected to change executive education?

The literature describes how digitalization will affect the entire business and that it is essential for organizations to understand this; therefore the implementation of IT should not be limited (Andervin & Jansson, 2016). Technology influences everything we do today and tomorrow (Bengtsson, 2014). Digital benefits can be threatened if there is a lack of knowledge (IVA, 2018) also in connection with the implementation of high-speed connections, there will be a natural transition of 5G, AI and sensor techniques (Bengtsson, 2014). Therefore, sense-making can facilitate when change is to take place; individuals can then gain a deeper understanding of why and what effects the change will have. This means that individuals will find it easier to

apply the changes in pre-existing activities. Innovation processes can be facilitated with the help of trends and timing (Mootee, 2013).

The organizations from the empirical findings agree that the digital part should be a natural part of the business. At the same time, Lundgren argue that it is vital to find a balance with digitalization and the implementation of AI, by implementing it slowly and allowing it to take time, it will be a valuable way to fill the gaps that exist in today's technology. Even though Rolf claims it is difficult to take it slow. Therefore, all organizations do not agree on how AI should be implemented. An example of this is that some organizations are trying to digitize as much as possible; they want to be at the forefront and think it is valuable to test new things and are not afraid of changes and creativity to find new and exciting solutions, that is one example why it is hard to identify how AI are expected to change executive education.

At the same time, institutions are forced to adapt, and design learning based on the individuals' ability to engage and be motivated (Smeyers & Smith, 1953). It is important to remember that learning depends on the individual's; needs, capabilities, and preferences (Andriessen & Sandberg, 1999). Today's society is creating a whole new premise, with globalization, prerequisites for economic growth, competitiveness, and innovation (IVA, 2019). Traditional education, therefore, needs new knowledge, new expectations, and new social and technical conditions (Vinnova, 2018). Also, it must be integrated with cultural, economic, and political aspects, which are governed by society (Selwyn, 2019). From an economic perspective, AI are seen as expensive and difficult to predict (Bengtsson, 2014). AI can, from a cultural and political perspective, benefit from the use of high-tech innovations and advanced digital systems. This will eliminate the up-to-date knowledge, and students will be able to access the latest version of what is offered in education (Selwyn, 2019).

In the empirical findings, it is clear that organizations need to take into account certain aspects when implementing digital tools and AI. Lundgren mentions that some things cannot be controlled; these are ethical and legal aspects. Therefore, when it comes to how AI are expected to change executive education, there are some guidelines for organizations to follow. Something that should be added to the guidelines are from an environmental perspective, minimizing paper consumption, through the use of teacher portals digitalization leads to savings, something that both Rolf and Lundgren see as a successful change with digitalization.

By using digitalization, organizations can also remove the geographical boundaries that exist, and this can also be seen as an advantage to preserve the environment to avoid unnecessary travel. Lundgren further describes from a social and economic perspective, organizations can save time and costs, that should be added to a benefit with AI, and how it is expected to change executive education.

To find an appropriate way of how AI are expected to change executive education, the risk with AI needs to be taken into account. As the literature shows, an understanding of digitalization is required to innovate, simplify, and improve existing processes (Edelhard Tømte, Fossland, Aamodt, & Degn, 2019). The risk of implementing AI is great, given that today there is no concrete way of how companies can apply AI (Andervin & Jansson, 2016), and there are obstacles and complications of digitalization (Khalid, o.a., 2018). Uncertainty will play a significant role in decisions being made (Kirkwood, 2019). As interest increase in digitalization and AI grows, organizations are forced to have an understanding of the risks that will affect (Hallikas & Ojala, 2006). Because organizations lack a vision, it will be harder for organizations to implement digital transformation (Fitzgerald, Kruschwitz, Bonnet, & Welch, 2014) and to be able to minimize the risks it is vital to have a clear vision for the organization to be able to move in the same direction and keep the organization on track (Andervin & Jansson, 2016). Depending on the industry and the company vision, priorities will differ.

In the empirical findings' risks can be seen from different dimensions according to Richtnér. Rolf claims it is hard to see how AI are expected to change executive education, given that individuals hardly know what AI is, and if individuals do not know what the outcome will be, it is going to be challenging to see how to get there. Lundgren has chosen not to be at the forefront with advanced digital systems. This is because the organizations do not have the knowledge required in digitalization. Rolf does the opposite of Lundgren, and instead uses decision-making assistance, when investing in digital tools. Another factor Lundgren state is that the organization does not want the entire business to be digitalized. A key factor for Rolf when implementing digitalization into an organization is not to lose control. That is why new digital delivery has to work parallel with continuous delivery. Processes and flows can be automated, but the learning itself must probably stick to the old way. Risks of AI can be reduced by listening to society according to Frohm, by thinking about how other organizations or

individuals perceive their AI. Richtnér therefore argues that businesses should work with exploring and testing new things. Frohm's solution to this is to normalize AI.

When Örebro University started the AI impact lab, both small and large companies, as well as the public sector, had a chance to be a part (Örebro University, 2019). The gain of collaboration will result in operations increasing their efficiency (Latinovic & Chatterjee, 2019). With collaboration, organizations can grow and become more competitive by getting access to how to create and implement new strategies and technologies (Örebro University, 2019). It is not only from an external perspective that collaboration can take place but also internally. Internally, organizations must learn to collaborate, between departments, to be able to keep up with community development (Andervin & Jansson, 2016). If the organizations learn how to use AI, that capacity will lead to the whole world being able to achieve more (Microsoft, 2019), not only in the education industry but in other industries as well. Regardless AI should be a tool that helps research, companies, and the public sector (Örebro University, 2019).

Lundgren describes that many schools are ready with capital for AI, but lack understanding of what and how to do it properly. However, Friman further describes that none of the schools can be seen as industry leaders, like IBM or Google. The possible capital used cannot be compared. By cooperating, the risks can be minimized. This is why some organizations have already started collaborations to be able to invest in costly projects. Without collaboration, Frohm sees difficultness, the organization will find it challenging to achieve results. Cooperation can also occur internally, where the organization works together in teams to be stronger and increase competitiveness.

AI according to Friman and Rolf are not different from other investments. Frohm argues that AI can be applied to other industries as well, not just the education industry. Rolf further describes investors want a return regardless of and Frohm adds everything has to do with learning, whether it is to reach a training goal or academic learning.

5.4 Discussion of the findings

The result of the thesis gives insight on how is AI expected change executive education; there is also an analysis of why the need for change and what needs to be changed to answer the question of how. Based on this, an opportunity to discuss why changes are expected to occur is provided and what kind of changes digitalization and AI are expected to bring. Finally, the question of how it will happen in practice will be answered when AI is implemented in organizations that work with executive education.

The *why* behind the need for change is mostly rational arguments based on assumptions for improved effectiveness by automatization, and according to Swedish Government Offices (2018) AI have the ability to learn and become smarter overtime. Here, almost every interviewee showed a great desire to implement AI as the development of digitalization to gain the benefits, except for one exception Executive Lund Foundation. Executive Foundation Lund is a management institute and considered it more relevant to stick to their vision than to implement something new. At the same time, they use some digital tools to some extent today, but they prefer not to be at the forefront of the implementation of AI.

The literature and the empirical findings, therefore, go hand in hand, as these agree that lifelong learning is an important subject that will face changes, as the society is under development with digitalization and AI. Traditional education will change according to a more significant part of the literature (Vinnova, 2018; IBM Watson Academy, 2019; EFMD Business Magazine, 2019; Plastino & Purdy, 2018), to minimize the risk of having a gap between basic knowledge and advanced level education as the individuals change their way of learning, Bengtsson (2014) argues that a development must appear at the same rate as society changes. Sooner or later, AI will be a part of executive education, but organizations will allow implementation at the pace that suits the business. To make it easier for businesses to meet new technology and make it possible for students to gain maximum knowledge, AI will not be an essential factor instead of lifelong learning will, and as lifelong learning is developed with society, AI will become a natural part.

The result shows that for individuals to maintain lifelong learning, organizations must understand; *what* changes are possible, to know what organizations should allow AI to take over and what should be limited. Leathers (2019) argues that the problem is that organizations

do not know what they are going to do with all their data, so they, according to Plastino & Purdy (2018), need new strategies that are integrated with pre-existing.

Guidelines are needed for *how* AI should be implemented in businesses that work with executive education - not allowing AI and digitalization to take over individuals' learning, instead of strengthening their learning. The purpose of the thesis was to see *how* AI are expected to change the businesses of executive education. AI is an uncertain area today, and there is no practice on how to use it and therefore challenging to see the expected changes. However, one thing that is certain, according to Selwyn (2019) that if organizations want to make the implantation possible, it must be integrated with social, cultural, economic, and political aspects, which are governed by society. Something that all organizations seem to have control over. Both the literature and empirical findings agree that AI cannot change entire businesses that work with executive education. Instead AI will, to some extent, affect executive education in the form of automation.

The result puts a great deal of pressure on organizations that work in executive education because IT should not be limited within the business, while the business must adhere to their visions. Therefore KPMG (2019) states there must be a balance between AI and lifelong learning so that nothing takes over the other. There is still limited consistency in the view of how AI are expected to change executive education. Some factors will influence how, that both literature and empirics agree on; these are that the connection in Sweden is still 4G, additional factors in the uncertainty of the subject AI, is that AI will not be visible immediately. It has a slow-and long-term impact on society. By being difficult to predict and estimate the outcome of, AI are seen as expensive. Therefore, the risks must be minimized, and ways to minimize the risk are to develop at the same pace as the society and work together both externally and internally.

6. Conclusion

In this section, the research question how is AI expected to change executive education both internally and externally are answered. This chapter also discuss suggestions for further research, with AI that includes more research of AI how are expected to change organizations.

6.1 Answer to the research question

The purpose of the thesis was to understand how is AI expected to change executive education.

The problem discussion was that the organizations that currently work with executive education do not know how is AI expected to affect and change the business both internally and externally. Also, the organizations that were interviewed are not industry-leading and do not have enough resources to dare to take risks of implementing AI. Executive education is a low margin business and an industry that is moving slowly to develop the best possible lifelong learning, which leads to risk-averse thinking in new technologies. Except for one school, the Institute of Business Economics uses more advanced digital systems in education compared to other schools. However, all schools are well aware of the development of AI taking place. Örebro University is another school that is at the leading edge of developing AI implementation in education. One of the reasons for that is that they have a clear vision; education is based on development, and AI is a natural part of that.

In the discussion, the conclusions can be drawn that all interviewed organizations understand why executive education is in great need of change, even if schools have different views on digitization and AI. All executive education organizations agree that benefits will come from an environment perspective and that AI contribute to automatization both externally and internally. AI got the ability to learn and get smarter over time therefore, organizations can externally automatize administration work, to free time, that educators can use to spend on value-creating developments. Internally AI can help students have access to lifelong learning of higher value. AI will help executive education to develop a more efficient process for both users and administrators. With AI, executive educations are confident that they will achieve more than today when understanding *the why* and *the what*, the question of *how* could be answered.

The answer to the research question is thus that organizations today are in an early stage of the s-curve. The uncertain factor is that people do not know what AI is and how to use it properly, not only in executive education but also in other industries. The literature on AI in executive education is limited. Some industries have come further in the development of AI. The implementation of AI in other industrial sectors should be able to influence AI in executive education. However, the important thing is that AI supports lifelong learning and does not replace it. AI strengthens individuals' lifelong learning.

The problem with risks could be solved when organizations start to work together. A key factor is to collaborate both externally and internally. Depending on the owner's structure, organizations will choose different ways of collaborating; this will minimize the risks. The interviews showed that organizations understand the risks of AI in executive education. The risks are decreased when the organizations work closely with the market and listen to market demands.

Another problem is the uncertainty of AI, as it is challenging to create a practice for how organizations should implement AI. It cannot be calculated as a traditional asset, given its many uncertain variables. In the future, there will be a way to accurately calculate AI, which means that several organizations most likely will use AI as an everyday tool.

6.2 Future research

During the thesis work, a large number of interesting questions were discovered which could not be included in this first study of AI in executive educations. This study focuses on a specific industry, Executive education, which is close and adaptive to the market they serve today and in the near future. Executive education is a mirror of the Swedish industry. If this study shows that the executive school system is not advanced in AI matters, what does that mean for other industries, and what does that mean for AI in the Swedish industry in a broader perspective?

The research question for this thesis is assumed to be highly relevant to other fields and industries. The thesis showed the importance of *why* and *what*, according to AI and the need for a better description of *how*. The recommendation for future research is to focus on *how* this needs to be solved to be able to make better decisions regarding AI.

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Appendix A – Interview questions

1. Which roll do you have in the organization?
2. How long have you been working in this field?
3. How much (percentage) of your education has AI components today?
4. What is your strategy for digitalization in education?
5. In which level is AI, private/institutional?
6. Do you have to change your current strategies if you implement AI?
7. Where are you going to use AI, and what will be its effect?
8. Do you have an example of a successful AI/digital investment?
9. Please describe how digitalization, AI, specifically is done today?
10. What are the greatest risks in AI/digital transformation?
11. What risk does AI have in your strategy for development of education?
12. Do you think of the risk, of AI?
13. How do you minimize the risk of AI?

Appendix B – Interview participants

Name		**Affiliation**
Friman	Henrik	IHM Business School, Sweden
Frohm	Henrik	Swedish Management Group, Sweden
Lundgren	Henrik	Executive Foundation Lund, Sweden
Richtnér	Anders	Stockholm Business School, Sweden
Rolf	Magnus	Institute of Business Economics, Sweden