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Artificial Intelligence Enabled Solutions in Marketing

Case Ekokompassi

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Abstract		
<p>Artificial Intelligence is a relevant field in computer science which is emerging into businesses. Due to the complexity of the concept itself, it is important to understand what AI is and how it can be integrated into the marketing operations in a business.</p> <p>The objective of this thesis was to utilize the information and insights gathered from experts in the field of computer science, business and marketing to gain a holistic view of the current and future capabilities of artificial intelligence in marketing so that recommendations could be provided to the commissioning company Ekokompassi Oy. The research questions are how to use artificial intelligence in marketing, secondly what are the future predictions in the field of marketing and AI and finally what are the potential AI enabled solutions in marketing for Ekokompassi.</p> <p>Qualitative tools, more precisely in-depth-interviews, were used to gather the main data in this research. The main data was analyzed using content analysis methods from which four main categories were extracted for further examination.</p> <p>The main conclusions of this study answered the initial research questions reinforcing the knowledge gained from the theory. The conclusions indicated that companies which leverage technology in their business strategies can gain an advantage over their competitors who remain to work in traditional ways. AI can predict, analyze and personalize one to one marketing messages to consumers at scale and with precision that humans are incapable of. Companies should not fear technology but embrace it throughout the core functions of the business bearing in mind the issues around ethics and data privacy. The best time to begin gathering business data is today.</p>		
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1 INTRODUCTION

1.1 Research background

Start-ups and small research teams are being acquired for millions of dollars per person to join the giants such as Google, Amazon and Apple to take forward the progress of software and application development (Zaidi 2018). Companies all over the world are using new technology and data to become more competitive, improve customer experience and even new business models are being introduced, thanks to the vast amounts of data and access to it with cloud computing. Researchers and scientists are sharing data with each other, in order to be able to advance faster and gain better, more accurate results with for example robotics, machine learning and artificial intelligence in general. (Reinsel & et al 2018.) The early adopters of new technologies were gaining an advantage from big budgets and solid IT infrastructures in the beginning, but now these big companies are bringing cloud based Artificial Intelligence (AI) services to the masses as well, which enable small companies to utilize AI. Artificial intelligence has become interesting for companies in all fields, especially the marketing sector. (Loucks 2019.)

The timeframe in which new technologies will emerge and change in the work force will happen, is dependent on the country of origin of the respondent. For example researchers from China predict change happening much earlier than researchers from the United States. (Haikonen 2017.) New advances are making computers faster, more efficient, lighter, smaller, using less and even renewable power which opens new opportunities (Buchanan 2019). More data is available from online sources and company databases to help machines become better in doing human like functions so that they can work alongside humans to produce more crop when its needed, prevent disease outbreaks, help disabled people live better lives and aid us in repetitive tasks, such as data collection, analysis and prediction. The hype around artificial intelligence can be misleading and it is important for individuals and organizations to gain the basic understanding of AI and its capabilities. (Microsoft 2018.)

Emerging technology is being used in new creative ways to get the customers' attention by hyper personalizing content and making the entire process of purchasing smoother and faster. Everything in the data-driven world will constantly be learning with sophisticated algorithms, by tracking, listening and watching us and gathering massive amounts of user data, what is called big data. Digitization as a process consists of everything, we do but with intelligent data integrated into it. (Reinsel et al 2018.)

Algorithms, which are sets of rules, programs, that give the computer instructions on how to perform a certain task. Knowing all of this, it is imperative that we also consider and research the potential of artificial intelligence in the marketing sector. The marketing sector is after all, the field in which data plays the most important role and is utilized the most to gain understanding of customers and their journeys. But before we can discover what AI can do for us, we have to gain the basic understanding of what AI really is and what it can be used for. We must not forget that technology alone is not the answer to organizational problems in different processes and that artificial intelligence to this day is not self-aware or empathetic, so it still remains the task of humans to understand gaps in processes and to utilize technology as a means to give the customer an even better customer experience. (Rubanovitsch 2019.)

The commissioning organization of this thesis, Kinos Oy, owns the environmental management system Ekokompassi. The purpose of Ekokompassi is to help organizations become more aware of their responsibilities towards our environment and to make a detailed plan to decrease the negative impact on the nature with different strategies and actions. Ekokompassi is an example of a small startup which has not yet began to utilize their full potential in digital marketing. This thesis will give the company leaders and employees the basic understanding of artificial intelligence and how it is being utilized in marketing. By having this knowledge, they can evaluate their processes and after pinpointing problems, consider if the use of technology can aid them to better manage their data, provide better customer experiences and innovate new more effective ways to do business.

Artificial intelligence is revolutionizing the field of work in many sectors and the organizations and individuals that are able to adopt these technologies into their daily functions will gain an advantage to the ones lagging behind. But most importantly and related to this thesis the report in 2018 made by McKinsey implicates that marketing and sales is the field that will be most affected by AI. (Chui 2019.) The researcher herself is very interested about artificial intelligence and marketing. The potential for further research and the use of the knowledge gained from this research in modern working life can be of a substantial benefit.

1.2 Research problem, aims, objectives and research question

The research problem is formulated from the fact that many company leaders have not familiarized themselves with artificial intelligence and there is a huge gap between early adopters of technology and all the other companies. The companies that embrace technology have an advantage over their competitors. Often the company lacks innovative people who know about new technology and can drive the company into this direction. The implementation of technology into marketing processes is the key issue at hand. Technology is often seen as expensive, difficult, time consuming to learn to use and thus not cost efficient. In addition to these problems, some companies do not even realise technology, that could help them, exists. By exploring artificial intelligence, and understanding the basic concepts, one can begin to ask the right questions which can lead to successfully implementing AI into marketing processes and the gathering of relevant data. By exploring AI and AI software solutions, applications and digital marketing platforms it is possible to gain a better understanding of the options a company has to begin this journey of automation and utilizing technology to optimize the use of resources and create personalized content to customers in marketing and remain competitive in the changing markets of today.

The main aim of this thesis is to understand what artificial intelligence is and how it impacts marketing now and in the near future.

The objective of this research is to utilize the information and insights gathered from experts in the field of computer science and marketing to gain a holistic view of the current and future capabilities of artificial intelligence in marketing so that recommendations can be provided to the commissioning company Ekokompassi.

The research questions are how to use artificial intelligence in marketing, what are future predictions in the field of marketing and AI, and what are the potential AI enabled solutions in marketing for Ekokompassi.

1.3 Research methodology and limitations

Qualitative research is a dynamic recursive process, that begins with an interest, question or identification of a gap in literature that builds and depends on each part of the research (Ravitch & Carl 2016, 2-9). Qualitative research collects and analyses non-numerical data such as text data gathered from interviews. The interest of qualitative research is on peoples' subjective interpretations of their experience and events and by using qualitative methods, valuable predictions can be discovered. In depth theme interviews are used in order to explore the field of artificial intelligence and digital marketing and gain an understanding of how AI is used in marketing and what is to be expected in the near future. These insights gathered through key themes would be difficult to discover by using quantitative methods such as questionnaires and additionally, the goal of research is not to gather data that can be generalized but to seek new insights on the phenomenon from carefully selected respondents. (Hirsjärvi & Hurme 2000, 47 – 48.) Content analysis model has been used to analyze the data and to gain valuable insights in order to answer the research question (Hirsjärvi & Hurme, 144).

Artificial intelligence in marketing evolves at a rapid pace, literature lags behind and by using qualitative methods such as interviews, it is possible to get insights of this gap into the newest technological advancements and practical applications of artificial intelligence and digital marketing that can be otherwise overlooked due to the timeframe in which literature is published. In-depth theme interviews have been used to gather data from marketing professionals and experts in the

field of sales, digital marketing and AI, that have been predetermined by using their level of expertise in the subject, as a criteria.

Limitations of research. As the field of Artificial Intelligence (AI) is very broad and very technical, this thesis will only focus on artificial intelligence on a general level and explore the utilization of AI from a marketing perspective. The technical specifications and creation of AI algorithms, the sets of rules by which AI makes decisions, will not be discussed in this thesis in detail. Examples of the utilization of AI in other fields than digital marketing will be briefly discussed however to demonstrate current capabilities and applications of the technologies to give the reader a broader understanding of what AI is and what it can be used for currently and in the future. By opening up key concepts of AI it will also give room for innovative thinking on how AI can be utilized to solve marketing related problems a company might be experiencing.

Due to the rapid speed technology is evolving, the findings of this research will inevitably be outdated within a fairly short period of time and this thesis should be read, bearing this in mind. The researcher has set the limit to August 2019 to stop gathering news of breakthroughs in the field, as it continues to evolve every day and without this limitation, this research can never come to an end. However, the fundamentals of artificial intelligence and marketing will still apply even though new technological advancements will emerge and transform current applications. This inevitably has an impact on this thesis as all the new innovations cannot and will not be reported due to the timeframe and the purpose of this thesis is not to exhibit everything related to AI for business. Some issues not being discussed in this research will however be left for further research to be continued after at will.

Due to most of the respondents working in companies that research, develop or sell technological solutions, there are certain restrictions to the amount of information that could be reported. Future predictions are very difficult to point to begin with and the newest solutions, can be company secrets that cannot be revealed.

2 ARTIFICIAL INTELLIGENCE

Artificial intelligence is a branch of computer science that aims to create computer systems that can act intelligently mimicking human like actions. A machine performing a task, as such when performed by a human, it is seen to have intelligence. In the business context, AI, more specifically machine learning, can be defined as the continuously declining cost of prediction. (Merilehto 2019.) AI is often referred to as intelligent code rather than artificial intelligence as the definition still varies depending on the perspective of the respondent. Computer scientists often seem to speak about intelligent code while marketing-oriented people like to use the words artificial intelligence. (Future Computed 2018.)

Another interesting way to find understanding of AI, is to propose the question, what is the purpose of AI? The aim is to build machines that can think and/or act like humans can. Working alongside humans to personalize offerings, improve accuracy and speed and increase the ability to scale, is where AI works best. According to Tesler (ca 1970) in his famous Tesler's theorem "Intelligence is whatever machines haven't done yet." What he meant by his original quote is that what a machine or an animal can do, is not human intelligence but something else than intelligence. This is called the AI effect, which means that when big breakthroughs have been made in AI, computers win chess games, they recognize a photo of a cat, critics say this is not AI, it is just computation. What was seen as intelligence before is now normal and thus the definition of intelligence can vary. (McCordurk 2004.)

Humans cannot process large amounts of data with the speed computers can. John McCarthy, who is seen to be the father of artificial intelligence describes it as such: "It is the science and engineering of making intelligent machines, especially intelligent computer programs." (McCarthy 1989.) With AI a company can harness the power of data, personalization and provide impeccable customer service that is available 24/7. (Duffey 2019, 9) The important word to be highlighted here is, "with". Computers alone are not capable of doing these actions. Humans still play an important role in teaching the computers, analyzing and implementing

the results to real life use cases. It is the combination of humans with machines that can take your business into a new level of performance (Merilehto 2019).

Put simply, AI is a machine's ability to recognize patterns, sounds, images, and words, and to learn and reason over data. Some of these actions made possible by AI algorithms, the rule sets by which the computer operates, include learning, problem solving, decision making and prediction by gathering big amounts of data and analysing them. It's a set of technologies that enable computers to understand and interact with the world more naturally and responsively than in the past by using data. However, humans are still better at analyzing emotional intelligence than computers. AI is still in the development phase and the introduction to AI general intelligence (AGI) or AI self-aware intelligence (ASI) is not very close and the AI we have now in 2019 is artificial narrow intelligence (ANI). The words Intelligent automation (IA) can also be used when speaking of Artificial Intelligence. (Siukonen & Neittaanmäki 2019.) The AI algorithms of today have not changed much since the 1980's but the effective computational power is making changes rapidly. This means that computers are able to process larger amounts of data than before and the storing of larger amounts of data is now possible. (Future Computed 2018, 36; Shaw 2019.)

2.1 Important milestones in AI and computing

Artificial Intelligence is not a new phenomenon and there have been extensive research done in the field of AI in the past 70 years. AI has gone through stages of recession and growth. The times of recession we call AI winters. This means that the investments and funding have been stopped and the development "freezes". AI winters have occurred from 1970-1980 and again from the beginning of 1990 to 2000. (Ailisto 2018.)

These milestones presented in figure 1 page 12 are historically important because they are the enablers for using artificial intelligence powered solutions in marketing today.

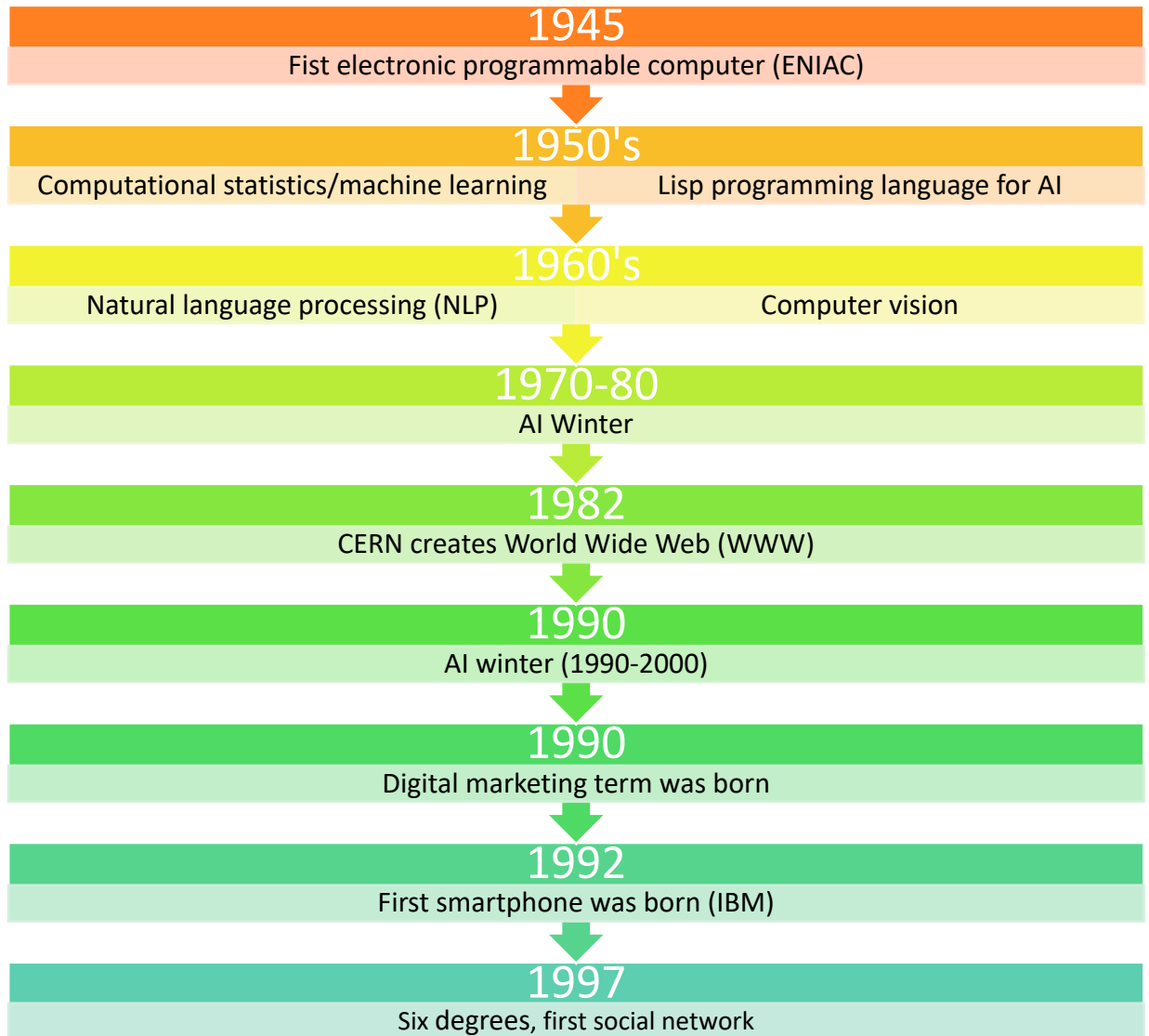


Figure 1 Historically important milestones in technology (Salmi 2019)

Most papers and researches discuss the 1940's to be the first milestones in computing (Christensson 2016). In 1943 Warren McCulloch and Walter Pitts wrote a famous proposal to build computers whose components resembled neurons (McCulloch & Pitts 1943, 115). John Mauchly from Pennsylvania University together with his assistant John Presper Eckert Jr. developed the world's first electronic programmable computer ENIAC (Electronic Numerical Integrator and Computer) for the purpose of calculating broad calculations for the first atomic bomb, a project of the United States Department of War in 1945 (Haikonen 2017). Computational statistics and machine learning were born in 1950 when Turing proposed that if the computer can fool the human to think it is the other human, it has artificial intelligence (Rouse 2017.) The Physical symbol system hypothesis

(PSSH) first formulated by Allen Newell and Herbert A. Simon in 1956, states that a physical symbol system (a digital computer) has all the sufficient means and characteristics needed for general intelligence and with this assumption, with an appropriate computer, Artificial General Intelligence (AGI) can be created. However as stated before, even though it has been claimed, AGI does not exist to this day. Artificial narrow intelligence (ANI) is the type of AI we have today and researchers hope to reach Artificial General Intelligence (AGI) in the near future. (Merilehto 2018; Haikonen 2018) This was the beginning of AI as we know it today. There are however researchers that challenge these assumptions such as Hubert Dreyfus who argues that for a machine to have human like intelligence the whole body of the machine would have to be human like. (Haikonen 2017.)

The deep meaning of artificial intelligence from a philosophical point of view goes out of the scope of this thesis but it is nevertheless interesting to consider and critically evaluate the product offerings of companies. John McCarthy, created the LISP programming language for AI in 1958, which became widely used (McCarthy 1960). Between 1960 and 1980 natural language processing (NLP), computer vision and robotics were on the rise while the development of AI was frozen. The personal computer was a great milestone in the advancement of computing, because more people now had access to computers. In 1982 the Times magazine declared the first personal computer the “machine of the year”. (Brynjolfsson & McAfee 2015, 9.) After this great milestone CERN creates the World Wide Web (WWW) in 1989 for internal purposes and from this time, information sharing, and retrieval begins. The first smartphone was created by IBM in 1992, which brought computers to our pockets and revolutionized marketing to the point we have achieved today. (Jackson 2018.)

These milestones are only some of the important ones in the history, that have led us to the point we are currently at, the fourth industrial revolution (Brynjolfsson & McAfee 2015). As stated before, AI has been researched before and efforts to develop it further have always died down. The lack of capacity to store data and utilize it have been the biggest obstacles. Data has always existed but the means in which to analyse them and further utilize them have been lacking.

But now that we have the capabilities to store massive amounts of data, transform new types of data, such as pictures and speech, into formats computers can process, the access to this valuable data has been granted, and the evolution of new technologies can begin. (Everts 2016.)

Amazon, Google and Microsoft are among the biggest companies offering different types of AI based solutions such as speech to text, text to speech, image recognition, sentiment analysis. In order to understand AI and the possibilities a business has to use AI in their marketing, it is important to go through some basic concepts. These concepts will be elaborated in chapter 2.2. After we have the basic understanding of what AI is, we can explore the concept of data and algorithms in 2.3 and move on to consider what the prerequisites are to implement the use of AI in a company's marketing processes. This theory will provide a basic understanding into artificial intelligence and give the reader the means to consider their own possible use cases for AI in their own work. Whether it is marketing or another function in a company, the main principals that must be understood remain the same.

2.2 Machine learning

Machine learning is a subfield of artificial intelligence that uses data to learn and categorize with minimal human intervention instead of being programmed to do a certain task, in other words it automates the process of learning on its own. Most of what is labeled AI today, is actually machine learning (ML). Machine learning is an algorithmic field that blends ideas from statistics, computer science and many other disciplines to design algorithms that process data, make predictions, and help make decisions. Machine learning is constructed with algorithms that are programmed to learn from the data it has been given and it progresses gradually forward in the learning process. (MIT 2019.) An algorithm is a set of rules, a program, that gives the computer instructions on how to perform a task.

In machine learning the data is divided in to teaching data and testing data. The teaching data is fed to the model first to predict a certain outcome and after the

outcome, the test data solves how well the model has performed (Merilehto 2019, 29). Computers can work 24/7 and more precisely than a human could, which makes AI very useful in repetitive tasks and performing activities at scale. Decision making happens by humans under bounded rationality. We are biased which helps us make decisions faster but less accurately. Now machines are being taught so that they can make independent and unbiased decisions, which makes machine learning very interesting but also raises concerns on how we can trust the data to be accurate. (Hoffmann, L. 2018, 119-120.) Computers are in fact incapable of learning, solving problems, seeing or speaking without specific data given to them. Greg Corrado at Google AI stated that if humans stopped working with AI today, the machine would stop learning in two days. (Corrado 2018.)

As illustrated in figure 2 machine learning itself is divided into several subcategories: supervised learning, unsupervised learning and reinforcement learning.

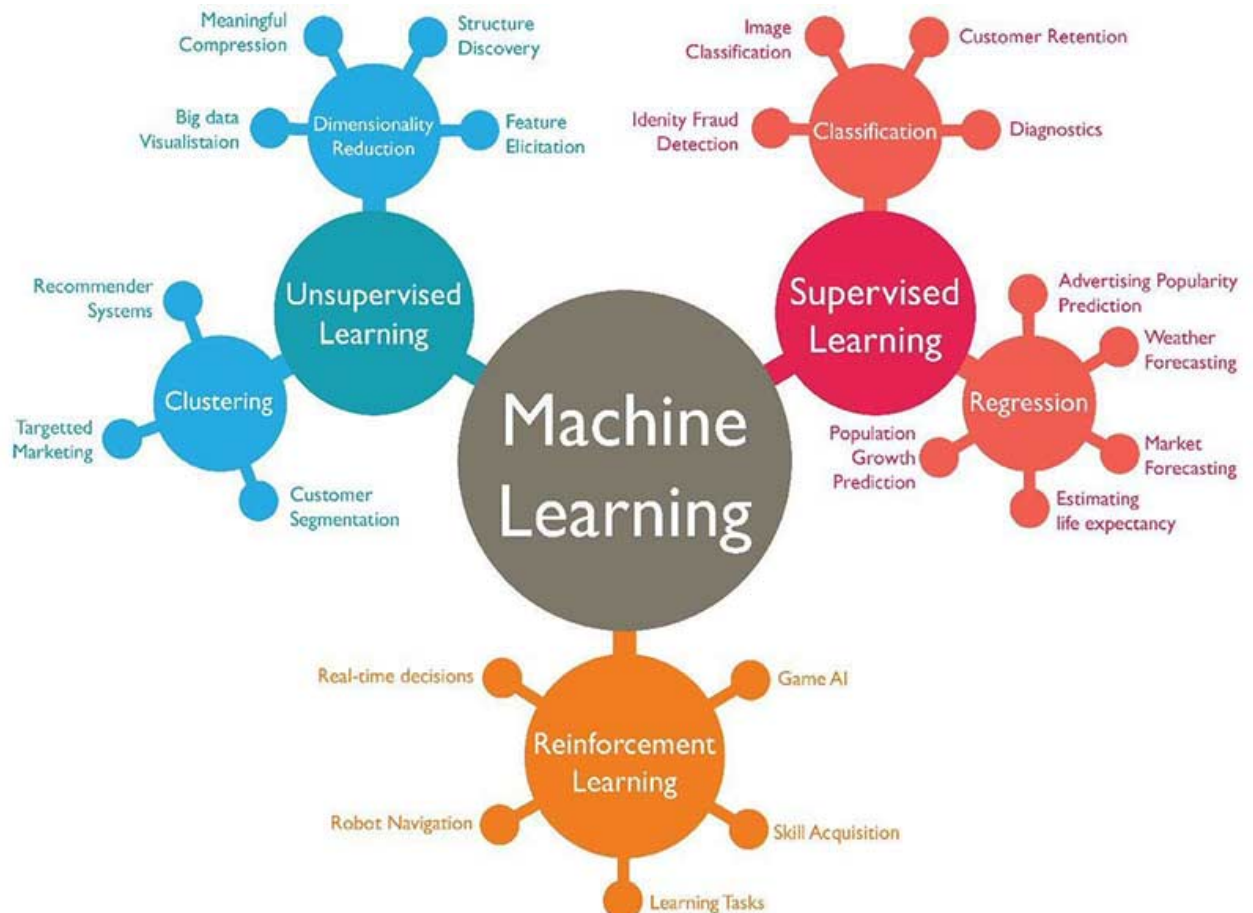


Figure 2 Machine learning categories (Jha 2017)

These different types of learning methods are used when training artificial intelligence which is based on complex algorithms that consist of rules and rule sets by which the machine does a certain task. As technology progresses, the categorization of AI tasks change and can fall into different categories than before and AI models can use multiple learning techniques. (Corrado 2018.) Because of this, it is extremely difficult to categorize and divide machine learning and this illustration is just one of many that can be used. Additionally because of the difficulty in defining what is artificial intelligence and intelligence in general when performed by a human or computer, the actions and categories described in this image, may or may not be truly intelligent actions.

Supervised learning is used for training a model by giving it labeled training data that make large sets of training examples and labels and the known outcome of the process (Merilehto 2019, 19). Supervised learning can be used in classification and regression. Classification can be used for speech recognition, image classification, identity fraud detection and measuring customer retention. A classic example of regression is the weather channel, that uses this type of machine learning to predict upcoming weather anomalies. Also marketing forecasting uses this type of machine learning to find out what data you are looking at and what you are expecting to find. (Jha 2017; Silo.ai 2019)

Unsupervised learning is key to making different automation solutions at a faster pace with minimum interference of humans. In unsupervised learning the outcome of the process is unknown and the model deduces certain assumptions based on the regularity and relation of the data given. (Merilehto 2019, 19.) Use cases for unsupervised learning are for example clustering and dimensionality reduction. Dimensionality reduction is a type of classification. It aims to find relevancies within irrelevancies in unstructured data sets (Lempinen 2019). Clustering means grouping text, images, audio, numerical or mixed data objects into data sets, clusters, in which the characteristics of these objects resemble one another more closely within this cluster. Practical use cases for clustering are for example client segmentation, target marketing and recommender systems in which the target is to understand how customers should be understood. (Jha 2017; Silo.ai.)

Reinforcement learning is based on previously defined parameters by which it can independently analyze and decide as an example which adds should be shown to whom (Lempinen 2019). In reinforcement learning the machine is given feedback on how well it is performing rather than giving the correct outcome, to minimize risk and maximize benefits (Merilehto 2019, 19). Reinforcement learning is used as examples, in the field of game AI, skill acquisition, learning tasks, robot navigation and real-time decision. (Jha 2017.)

Deep learning is a part of machine learning in which optimizing deep neural networks to solve tedious problems. In other words, abstract things are transformed into a machine readable format. A neural network consists of a group of neurons, simple processors which are interconnected and communicate with each other. (Merilehto 2019, 19.) An example to help understand what deep learning in AI can do, is a system for recognizing dogs in pictures and analyzing image quality. Machine learning would feed the system hundreds of thousands of pictures of dogs. Deep learning would help the system recognize patterns (shapes that form a more complex shape that we call legs, multiple instantiations of legs on a creature, four legs is one signifier that you might be looking at a dog). (Koetzer 2016).

Natural language processing (NLP) is a very important part in artificial intelligence that can be used in marketing as well. NLP traditionally falls under deep learning but as stated before, the advancements in technology is changing this classical categorization and NLP in some instances could also be categorized under supervised or unsupervised learning depending on the use case. Natural language processing is a branch of computer science that allows computers to extract or generate meaning from a text that is understood by humans and is grammatically correct (Loucks et al. 2018). In other words NLP helps computers understand and interpret human language by reading text, listening to speech, interpreting language, measuring sentiment and analyzing these pieces to determine what is meaningful and what is not. Additionally the fact that a computer doesn't feel fatigue and is unbiased, makes NLP very interesting for businesses. (Microsoft 2019; Lempinen 2019.) The Finnish language is very complicated and to

this day the applications do not utilize the Finnish language very well and a lot of the times the output makes little sense.

According to SAS Institute of analytics the tasks NLP does, can be used to:

- Categorize content and create alerts and detect if there are duplicates in within the text.
- Discover themes and meaning in text that can be used for optimization and forecasting in for example personalizing content to the customer.
- Extraction of context can be used to pull information from different sources for further analysis
- Sentiment analysis which can identify mood or subjective opinions from large amounts of text. This can be especially useful for chatbots to identify how close you area to closing a deal or to find out customer opinions about your brand or product in online platforms.
- Converting voice commands into text and written text into voice commands.
- Document summarization from large text bodies.
- Automatic machine translation of text into another language. (SAS 2019.)

Based on this list of tasks NLP and text analytics can be used together in marketing for example to identify patterns and clues in emails, written reports or customer feedback in different platforms. It can also classify this content by subject into different pools of data which helps you discover trending issues you are interested in and also rate the content by level of urgency so the people, inside the organization, to know for example, which customers to prioritize first. (SAS 2019.) Google has a lot of these capabilities available for users such as Gmail for filtering spam, Google keyboard Auto-correct, Auto-predict from Google search, Speech recognition from Google Webspeech and machine translation from Google Translate. (GoogleAI 2019.)

AI Computer vision (image recognition) in other words image recognition, is according to Techopedia, a field of computer science which works to enable computers to see, identify and process images in a similar manner than what humans

do (Techopedia 2019). This technology enables computers to “see” by scanning pictures and videos and recognizing what the objects are it is looking at. At this point it is very important to understand that everything related to computer vision is not automatically using artificial intelligence and that this is a very complex process. As illustrated in Figure 2, image classification is categorized under supervised learning, which is under machine learning and AI. However image classification is only one part of computer vision which helps us to classify an image in a photo, what category it belongs to, as an example, a dog. Image localization will show you where the single object in the image is situated as it can recognize objects in pictures. Object detection can detect multiple objects in images and show the location of each object, for example if there is a dog, a cat and a bird, it will localize them all within the image. Image segmentation is different from object detection, it creates a mask of color of the different objects in the image so that we can identify the different shapes and sizes of the objects in the image as well as the placement of the objects. (Sharma, 2019)

Pinterest as an example uses technology to recognize photos of objects and to search the web for similar objects and point out shops to purchase these objects from. Also, AR (Augmented Reality) applications on your mobile device utilize computer vision to for example show how your living room can look like with a new sofa or table in it. However to discuss which specific technology is used to create these applications and to say whether they use or do not use artificial intelligence is out of the scope of this research and remains a fact one can research further. Another real-life use case is an Israeli company called OrCam which introduced a computer vision system in 2013, that can be clipped on a person’s glasses. This system can give aspects of sight to the visually impaired, by analyzing photos using computer vision and using speakers to tell the user what image they are pointing to. (Brynjolfsson & McAfee 2015, 91.) Another example is, researchers from UCLA Samueli School of Engineering and Stanford developed a system that uses computer vision to recognize objects in a similar manner that humans do. They tested the system with over 9000 images of people and objects and the computer was able to build a human image without any guidance or labeling of the images. Computer vision however is not able to learn on its own, at

least not at the moment. It has to be shown thousands of images from which it can “learn” to identify the image that is labeled. (UCLA Samueli School of Engineering 2018.) Image recognition is already today used in radiology detecting tumors, neurological illnesses and retinal disease for example with computed tomography (CT) and magnetic resonance imaging (MRI) getting results much faster using machine learning. InnerEye by Microsoft helps oncologists scan the patient for tumors and other anomalies. This process would take a doctor long periods of time but the computer is able to scan large amounts of images very precisely at a rapid speed making the cell damaging treatment more focused on the tumor instead of healthy tissue around it. (Microsoft 2018, 39-40.)

2.3 Data and algorithms

Data plays an important role in computer science and it is also valuable for marketers. Without data, it is impossible to know who your customers are, what they prefer and what their behavior is. Not knowing this can be crucial for the success of any company. For this, we must explore the definition of data further. Data is described as “facts, statistics or items of information.” A single piece of data, which is actually correctly referred to as datum, can be your location, your phone number or any other information about a person can also be data. (Duffey 2019, 46.)

Data can be categorized in many ways but most often, data is categorized into structured and unstructured data. A definition to describe these types of data is that, structured data is unstructured data that has been classified with metadata which gives the data a context to know what this data is. Metadata can be described in this context as tags given to identify certain data. Unstructured data is therefore data that has not been classified or is not easily classifiable. (Finto 2019; Duffey 2019, 51.) Data can also be categorized into implicit and explicit data. Implicit data is mostly behavioral data such as the date, time or location someone performs an action. Also browsing and scrolling behavior and searches fall into this category. Additionally implicit data can consist of which device one is using and how they are watching content for example, rewinding, fast forwarding

and leaving content. Explicit data is the type of data that a user gives explicitly such as feedback about content such as likes or dislikes. (Arora 2019.)

An algorithm is a set of rules, a program, that gives the computer instructions on how to perform a task. Everything related to Artificial intelligence revolves around data and the algorithms created with this data. AI is good in scaling while humans perform very poorly in this. In the past vast amounts of data have been collected in the form of physical objects such as microfilms, papers, photographs and even dried plants. Today the data we gather is in digital formats of bits and bytes, and in comparison to historical data, the amounts are growing in unprecedented rates. Data amounts that were previously seen as too big to store anywhere can now fit into a simple hard drive. (Everts 2016.) In 2018 an estimate on the amount of data that exists as a visualization was the entire data available stored on DVD's you could have a stack that could circle the earth 222 times. Cloud computing has had a major role in making this possible. (Reinsel et al 2018.) Data can be stored in cloud hosting services such as Microsoft Azure, Google cloud platform or Amazon web services. These three well-known companies are not the only ones offering the storage of data, private hosting services also exist. The important aspect to understand is that today the location of the servers do not play an important role. Your personal or company data can be stored in your own location on your own server or somewhere in your city or across the globe in another country. (Duffey 2019, 48.)

Thanks to the internet that provides these immense amounts of data that can be fed to the computers for analysis, machines are able to perform in faster, more accurately and in more sophisticated ways. These are the key aspects on why AI and machine learning is evolving at the rapid speed it is at the moment. Google, Apple, Facebook, Netflix, Amazon and other large global companies gather data from millions of users every day and they use this data to personalize services and products on the individual level using sophisticated algorithms. Examples of this can be found in Netflix's movie recommendation systems or K-market's personalized front page. Every time we give our personal information to a company, we consent for them to use it to target us with customized selections of products

and advertising by accepting their terms of use which in Europe are regulated by the General Data Protection Regulation (GDPR). Our online activity is monitored and as we download new applications on our devices we agree, or do not agree, to give our information to the company. According to International Data Corporation (IDC), today more than 5 billion consumers interact with data every day. And the reason for this is to be found in the billions of IoT devices that are connected to each other around the globe. (Reinsel et al 2018.) An important aspect to understand about data is that it is not only amounts of data that make a difference but the quality of the data you have and the understanding of how this data can be utilized for a specific activity, are equally important when building AI models. (Merilehto 2018, 132.)

The importance of quality data. The gathering and use of data is complex. What data is gathered from which touchpoints of a process, where it is stored, who owns and has access to all of this data and how are they using and sharing it? We have used data in the past and we continue to use it. Thanks to the advanced computers we have today, we can store enormous amounts of data but what is really relevant and how do we filter it from the non-relevant data and how do we use it in business decisions? Today big data projects gather every piece of data from GPS coordinates to every email sent, literally everything that is in a format that it can be saved on a digital device. As a business, it is important to remember to gather the relevant metadata that will help label and further elaborate the gathered data. This will help people use the data in a more effective way. As we cannot say without doubt which data will be relevant to the user in the future, taking these precautions to ensure the data is saved and stored accordingly is imperative. (Everts 2016.) It is also important to consider that when data scientists train their AI models and share these models with others to utilize in further AI projects, how can one be sure of how the model was trained, based on which amounts of data, gathered from whom. AI models cannot perform without quality data that makes sense.

Data sharing can be seen as a very important milestone when adopting AI in a company as gathering the amounts of data needed for AI projects can be too

large for one company alone. The utilization of data pools aid companies to have access to more consumer data which can be used in AI and automation projects. This new type of data sharing combines anonymous data from several companies into a pool of data which is used by all of the companies without having to share sensitive private company data with the competitor. (Thornton 2019.)

ImageNet, is a data sharing project which was started by Stanford and Princeton universities with the aim of gathering tens of millions of clean images to illustrate each WordNet (Lexical database for English) synonym set. In others words, data that consists of images, is used when designing more sophisticated algorithms to advance the research in computer vision. This means that in WordNet there are concepts described by multiple words or phrases, and ImageNet provides images to these words or phrases, so called synonym sets, also known as “synsets”. This database is constructed with the main goal to help researches advance faster in their research by creating a free large scale database of images for research purposes. (Stanford Vision Lab 2016.) As stated before it must still be critically considered that the data quality in these shared databases could not be of high quality. And if you begin to train AI models with corrupt data, the model will never be able to perform as it should. Smaller companies could share their data in exchange for the use of their competitors’ data to both gain more insights into similar customers’ behavior for example.

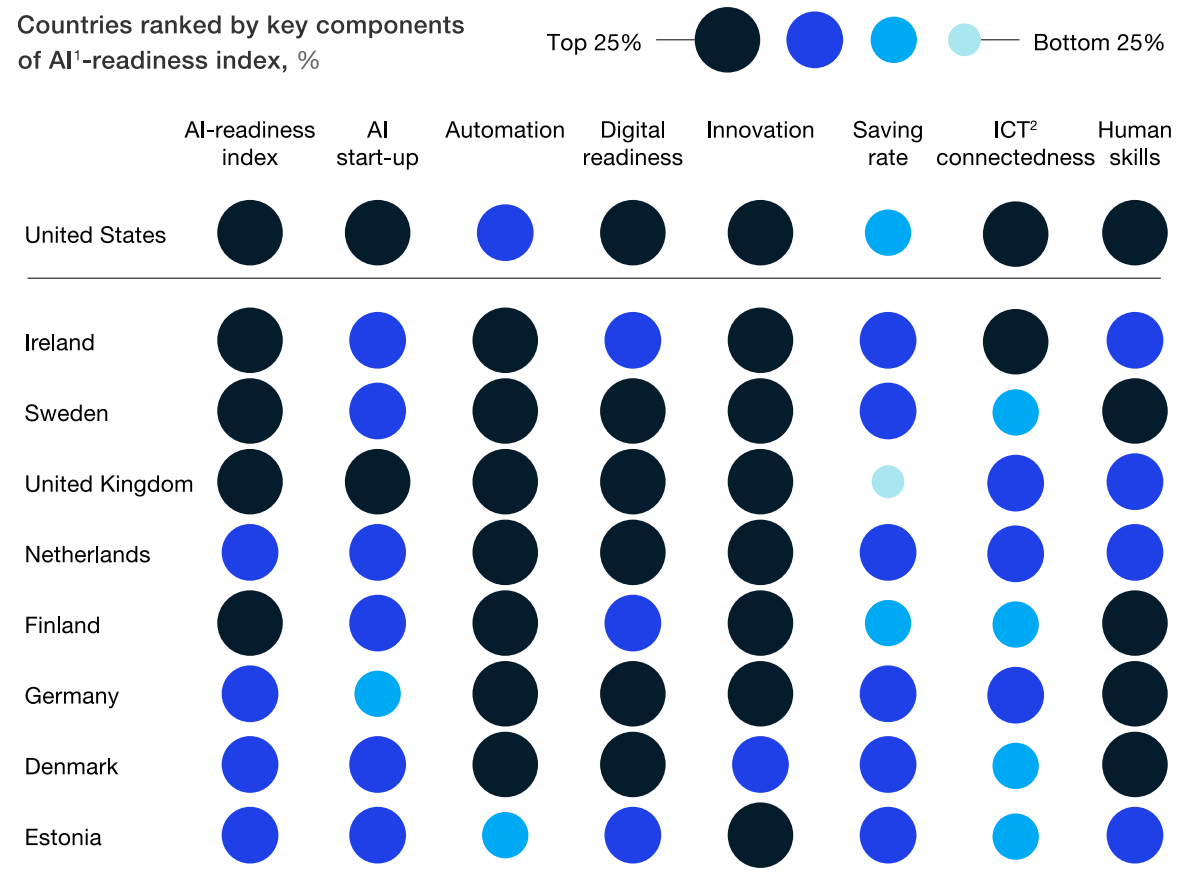
2.4 Prerequisites for implementing an AI strategy

When implementing an AI strategy a company must have a certain level of readiness. From a broad perspective four key differentiators that must be taken into consideration are investment, commitment, risk assessment and operational strategies. A company can implement pilots to test different AI models but the ability to make large investments in these projects after the pilot phase is not the same in Finland as it is in other European countries, even though the technological requirements exist. (Hervonen 2019.) Before a new AI strategy can be implemented, the company must evaluate their own level of readiness. They must begin with a strategy to find out what marketing activities are time consuming and could AI be used to augment employees skills in these areas. Also to find out if

they can improve existing marketing processes with AI. (Syväniemi & Markkula 2015.)

Table 1 page 25 illustrates the readiness in Europe for AI based technology. According to McKinsey (2017) in their research on the readiness in European companies for AI based technologies, only 20 percent of the responding companies said they use any AI-related technology at scale or as an important part of their businesses. Many of the respondents didn't know how to utilize AI or if it would be cost efficient. Finland as an example is at the top 25 percent in human skills, innovation, automation and overall AI readiness index which illustrates that the country is in an overall good position in Europe from a technological point of view. (McKinsey 2017.)

Table 1 The readiness for AI in Europe (Adapted from McKinsey Global Analysis 2017)



An organization must evaluate if they are experienced in maintaining digital platforms that are data-focused or are they still gathering data on paper. Operational

readiness can describe the company's ability to handle large data sets (Guttman 2019). Existing data sets in digital format must be in place or a way to obtain data to train their machine learning models must be available. In Finland, certain customer data can be bought from companies like Asiakastieto Oy but in order to be able to utilize data, the company must be using digital tools (Merilehto 2019). Specialists with skills to analyze and utilize this data must be available either in-house or experts must be brought in from outside of the organization. To successfully adopt these new technologies into the workflows of the company experts have to develop processes to maintain and govern the data and additionally implement and integrate into real use cases for other employees to use. Access to data is feasible, but without technical capabilities to process this data, and without people to analyze the data and put it into use, the point ceases to exist to adopt AI into a business. (Chui et al. 2018; McKinsey 2017; Syväniemi et al. 2018.)

Commitment to an AI project needs to be taken throughout the organization without compartmental silos between different business departments. Marketing, sales, IT, logistics and the board of directors must all be committed to the project and have mutual understanding of the goals and how to reach them. An important factor additionally to the technological capabilities of a company is the culture in the organization, which can be a key factor in the success or failure of the AI project. (Microsoft 2019.) Without silos the processing and utilization of information is easier and everyone can benefit from this flowing communication, in other words, companies must break down traditional hierarchies and let information flow throughout (Rubanovitsch 2019, 52). Additionally the mindset of people in every level of the organization must be open to learn new technologies and change the way they work. Change management plays an important role in implementing AI applications so that employees will trust, understand and learn to adopt these new processes in their workflow (Microsoft 2019). Finnish organization VTT Technical Research Centre of Finland Ltd offers a tool to check a company's Artificial Intelligence Maturity (VTT 2018).

Assessing risks is important like in all business decisions before any operational strategies are put in place. It is imperative that the reasons why the company wants to use AI are known, how they intend to use it and what are the measurements by which the results of the project can be analyzed as being successful or not. AI cannot be utilized to remove problems entirely. It is used when a specific problem can be identified in a process that could benefit from having technology automate or scale this process. (Hervonen 2019; Syväniemi et al. 2019; Penn 2018.)

Table 2 illustrates the journey an organization must take to realize the capabilities of artificial intelligence.

Table 2 The journey towards AI (Penn, 2018)

AI-Powered	AI across the enterprise and in every relevant role
Machine Learning	Advancing process automation and data science with supervised, unsupervised, reinforcement learning
Data Science	Exploring the unknowns, building statistical and math capabilities, code and engineering
Process Automation	Automating the known knowns, finding efficiencies, scaling processes
Insights & Research	Qualitative capabilities, explaining the data story, market research
Measurement & Analytics	Becoming data-driven, identifying and measuring KPIs, understanding what happened
Data Foundation	Finding, cleaning, preparing, and unifying enterprise data sources

The first step is to realize what data is available and in what format. Once the data is prepared and being used, it is important to measure how the company is performing (KPI's) and to understand what shifts in the strategy must be made.

Once the data is being used and market research has been done, one can automate processes to scale up. After this step the company has come a long way and is now entering the phase of data science. A team of data scientists can begin exploring the possibilities and code new capabilities into the existing processes. At this point the level of computing and data gathering is at a fairly sophisticated level and if needed, advanced process automation can be introduced to further enhance the company's functions. The last step illustrates the company when AI is implemented throughout the organization, in every role, that AI can enhance in some way, the company can now say to be AI-powered, according to Penn. (Penn 2018.)

McKinsey has also examined more than 400 different actual AI use cases across 19 industries and multiple business functions and have discovered that AI is best used in places where the money is.

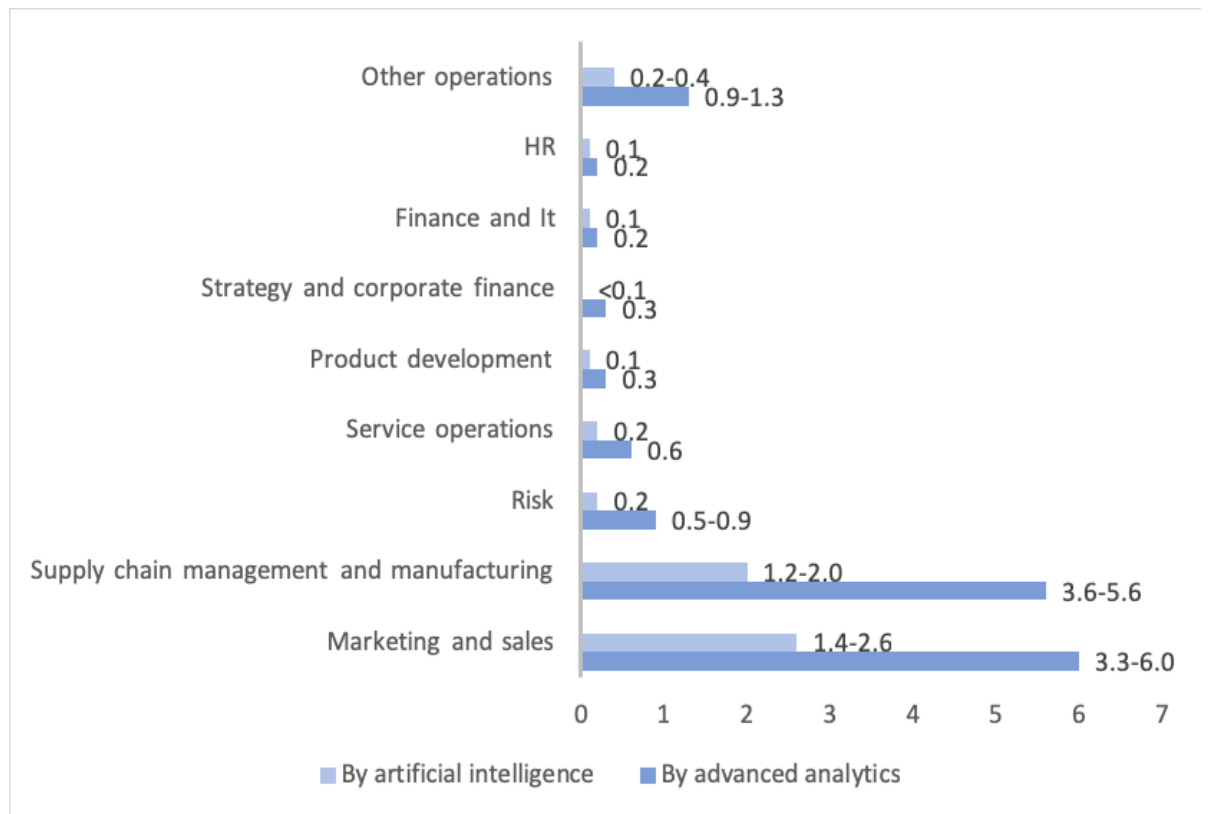


Figure 3 Areas of business affected by AI, \$ trillion (Adapted from McKinsey Global Analysis 2019)

Their research has proved that AI can have the biggest impact in business areas that provide the most value to the company. According to them, marketing and sales has provided significant value in retail organizations for example. By analyzing customer data by using AI to personalize promotions can lead to a 1 to 2 percent increase in incremental sales for brick and mortar retailers as an example. Figure 3 illustrates that AI can bring a value of 1.4-2.6 trillion dollars to the worlds businesses in marketing and sales. (McKinsey 2019.) Another area of great impact is supply chain management and manufacturing where it is estimated that a 1.2-2.0 trillion-dollar value can be created. In manufacturing, predictive analytics is seen to be the biggest value creator, i.e. using AI to predict malfunctions in machines. (Chui et al. 2019.)

Even if the requirements are fulfilled and a company manages to obtain data, AI experts, investments and find real life use cases for AI projects, they still need to address the issues around data privacy, security and take into consideration the ways the AI models are built (Chui et al. 2018).

2.5 GDPA, blockchain, ethics and risks of AI

Laws, regulations and ethical guidelines must be kept up to date and made in order to keep the development and use of AI safe. Cooperation with researchers, nongovernmental groups and leaders is imperative to ensure they are also implemented in practice. (Microsoft 2018.) In Europe the General Data Protection Regulation (GDPR) was enforced in 2018 to protect the data privacy of individual citizens in the European Union (EU) and European Economic Area (EEA). This regulation concerns all businesses that handle private data from individual citizens. This type of regulations are needed to give the individuals control over their own personal data. Companies may only use personal data if given consent to do so, and the individual has the right to ask for their data to be transferred or erased. But still one year after the entry of force of this regulation, Greece, Portugal and Slovenia have not updated their national data protection rules in line with the official EU laws. This narrates well how long a process for legislation is. At the speed of technological evolvment, the legislation lags behind which can create problems. (European Commission 2019.)

New blockchain technology is being developed to ensure the safe storage and transfer of data assets. A blockchain is an open distributed database, a computer file, for storing data which is duplicated across many computers around the world. A blockchain is completely decentralized and no one person, government or company has control over the entire blockchain. A file is comprised into blocks of data. This data comprises of transactions and these transactions are verified, cleared and stored every ten minutes and the block has to refer to the previous block to be verified. When this event reoccurs, we have what is called, a blockchain. These blocks contain the data being handled and additionally time stamps of when the block was created or modified. Any user can view the entire blockchain which gives it transparency, reliability and makes it very difficult to corrupt. The transactions and records in a block are processed by a network of volunteer users on computers around the globe that race to crack the code, verify the data the fastest and win, which means they get paid. The benefits of blockchain technology is the ability to maintain records of all the information that has existed before. This is not just an updated database but has all the historical data inside of it. Another major benefit of blockchain technology is the security. As it is not stored in a centralized location, it is extremely difficult to hack. If you would like to hack one block, you would have to hack the entire history on the blockchain in front of public eyes. (Marr 2019; Tapscott 2018, 6-7.)

Marketing is predicted to change and involve marketplaces that run on blockchains. Companies will need to adopt new sets of tools that can complement or replace existing technologies to engage the markets. Smart contracts using blockchain technology will improve SEO performance and price negotiations, when consumers exchange their personal data for freebies or sell their data. Blockchains will have an impact on different areas in marketing such as branding and earning customer loyalty, advertising, pricing, using consumer data, managing talent and strategic leadership. (Tapscott & Tapscott 2018, 1xiii; Epstein, 2017.)

Ethics concerning AI are also very complicated and vague but some organisations and companies have created guidelines for this. As illustrated in figure 4,

Microsoft has identified six ethical guidelines by which they themselves create new solutions in AI. Their AI solutions are built to be fair and cannot mistreat people or create indifferences. All systems must perform in reliable and safe ways, security is very important and the privacy of users must be maintained and respected, the AI systems in use must be understandable and thus transparent to all users, the algorithms must be built in a way that accountability can be monitored and last the AI systems should not exclude anyone and they must engage people. (Microsoft 2019.)

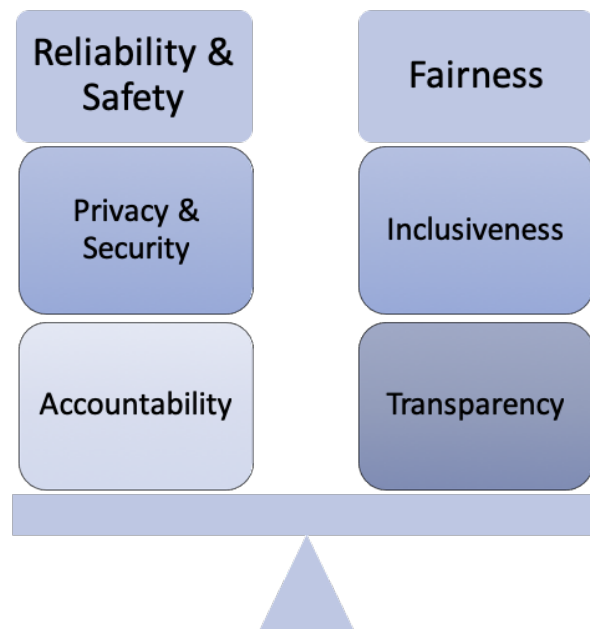


Figure 4 Six ethical guidelines for AI creation (Adapted from the Microsoft corporation 2018)

Depending on the different techniques used to train the models, human biases can be unintentionally passed on to the AI models. In addition to biases, the corruption of models can be a problem. A good example of this was the chatbot released to Twitter by Microsoft that turned racist and vulgar in 24 hours. (Chui et al. 2018.) On the other hand using AI to do a specific task such as evaluating the granting of a loan which should be made based on measurable data such as income and housing information can be quite useful to take away human biases such as skin color or social status (Aalto 2019).

Figure 5 illustrates the unified framework Floridi & Cowls have created of the 5 principals (beneficence, non-maleficence, autonomy, justice and explicability) of AI, that can work as a basis, as an ethical framework, when creating new policies around AI. Developers of AI can also use this framework to reflect their work back on to.

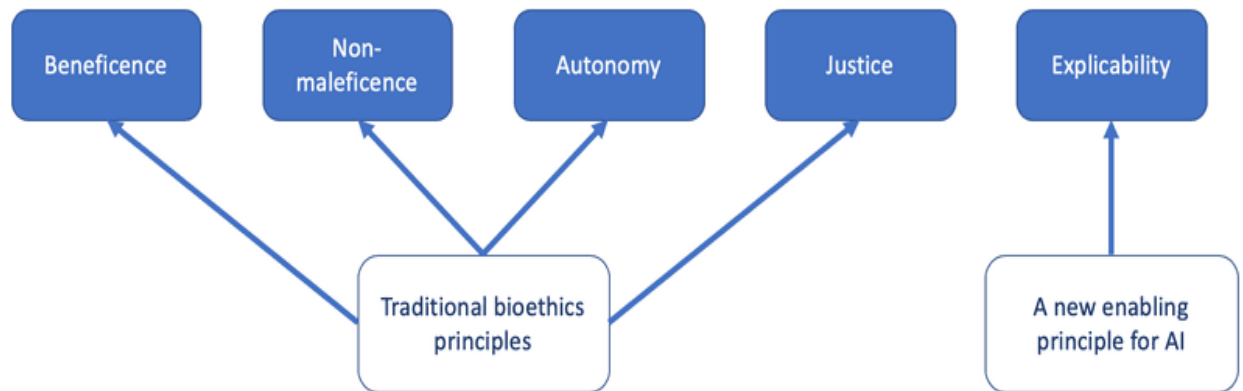


Figure 5 Five principals of AI framework (Floridi & Cowls 2019)

The global regulations and standards play an important role in the development of AI. AI can be used for good or for bad and it remains the responsibility of the decision makers to define these frames and undoubtedly the engineers and data scientists carry a great responsibility when developing AI projects and clear regulations are needed. (Floridi & Cowls 2019).

Risks of AI are already familiar to many. Facebook is a good example of a large corporation that has been fined for breaching the privacy of customers and been accused of illegally gathering user data for its own purposes, as well as storing the passwords in a readable format in their internal databases. (Forbes 2019.) They use technology to gather data for application development among other things and they have been also accused of using their power illegally to gain competitive advantages (Gold et al. 2019). Perhaps the most famous example of the misuse of AI is the Cambridge Analytica scandal. The data analytics company harvested millions of Facebook profiles of US voters and worked with Donald Trump's election team. The software engineers built a powerful program that was able to make predictions and also influence the choices of voters in the presidential election. The same company was linked to the winning Brexit campaign.

(Cadwalladr & Graham-Harrison 2018.) This explains in short, what AI can be used for. Marketing is very powerful when the technology behind it can be leveraged in the correct way, whether it used for good or bad. Chapter 3 will go through more specific topics which fall under marketing and elaborate the capabilities of AI.

3 MARKETING AI

From a marketing perspective, discovering patterns in the past events, predicting what may happen in the future, personalizing and prescribing strategic decisions based on data are important actions AI is capable of (Merilehto 2018). At a broad level when inspecting marketing and AI, big companies like Google, Amazon, Netflix and Facebook are already utilizing new technologies built for document retrieval, text classification, fraud detection, recommendation systems, personalized search, social network analysis, planning, diagnostics, and A/B testing. These capabilities are not very visible to the general public but are widely used in big companies. (Jordan 2019.) Microsoft, IBM and SAP are examples of large companies that offer comprehensive solutions for different marketing activities. Tailored software solutions can be divided into different categories depending on the needs of the company.

- Software and full AI project where the company only receives the results and everything else is done for them
- AI solutions for individual use cases such as Speech to text from Google.
- Hire data scientist to build large scale solutions to solve multiple problems.

To know what AI is and what AI is not in marketing, is a difficult task without going deep into the architecture of the software, which is out of the scope of this thesis. Also from a process point of view, the question must be asked, whether it is relevant if a program is using AI or not. As it already has been stated in this thesis that the definition of artificial intelligence is dependent on the respondent, the evaluation if it is a software using artificial intelligence, intelligent automation or basic marketing automation remains at the discretion of the reader.

Artificial Intelligence technology in marketing is still somewhat new to many organizations and not widely utilized for example in Finnish organizations. According to a survey done about the state in Finland by Ernst & Young, commissioned by Microsoft, 73 percent of company leaders are considering the advantages of AI in their company. However only 45 percent of the board members believe AI can help their business and 23 percent of employees are thinking about AI. (Tolvanen 2019.) The knowledge of applying these technologies to daily marketing functions can be confusing when beginning to adopt new technologies into businesses (Ailisto et al. 2019,77). Some key factors effecting these numbers are that investments in new technologies are not the same in Finland as they are in other European countries. Finnish companies do not seem to be able to scale from the pilot phase even though the knowledge of technology exists. The quality of data and analytics is very good in Finland but carefulness to invest becomes a critical issue that should be addressed. (Hervonen 2019.) A report by McKinsey (2018) also confirms that leadership from the top, management and technical capabilities and access to data are key enablers when setting up an AI strategy in a company. Additionally the Finnish language and small market size set certain restrictions in the advancement of AI projects in organizations (Merilehto 2019).

Marketing continues to evolve with the adoption of new technologies and the use of new platforms and multichannel marketing in which to reach customers and the gathering of quality data and tools to discover important insights becomes even more valuable. By automating processes one can deliver more precise results faster and by using AI a company can customize the customer experiences to a new level that has not been possible before. (Reinsel et al 2018.)

3.1 Marketing automation

An important detail to understand is how to differentiate marketing automation and AI. Marketing automation is only scripting. This means you give it a rule, tell it to perform a certain narrow action, a process, from a to b. and it performs always exactly the same. It is the use of software to automate different processes at scale in marketing in order to save time and resources such as customer segmentation, the integration of customer data and managing campaigns. It does not learn, nor

does it perform better tomorrow. The silos between AI and automation should be taken down and it should function throughout the entire customer journey to ensure a better overall customer experience through personalization and predictability. By using automation software one can manage bigger amounts of data and deliver relevant content at scale. Another key benefit from marketing automation is to automate repetitive tasks and leave humans to do tasks that require human skills. (Houston analytics 2019, Valkonen 2019.)

After establishing what marketing automation does, it is relevant to explore what AI changes in this process. Marketing automation can perform on its own within the limitations of the software solution in use, and artificial intelligence can be added to this automation process to take it a step further. Adding AI to automated processes helps target customers more efficiently by personalizing and prescribing actions that basic automation cannot do. AI in automation is used to help marketers and the sales department manage customers throughout the customer journey and track the success or failure of marketing campaigns in multiple platforms. Multiple platforms refer to email, social media and websites (Bagshaw 2015.)

Monitoring online brand engagement and customer behavior, tracking the customer journey, analyzing and predicting future outcomes are important functions marketers must engage in. One must understand the immediacy and speed of how information flows through the internet and once reviews, comments, complaints and opinions begin their journey on the internet, the impact on a company can be devastating or a breakthrough for a company (Feifer 2018). There are numerous options of software to use in the markets and it is up to the organization to identify what they need the technology to do for them by building an AI marketing strategy. Most marketing AI technology is not very advanced at this point and compared to traditional marketing software do not differ that much. Available software solutions overlap with one another and can create confusion on which software can solve the problems in hand. This is why it is very important to identify pain-points in the operations the company needs solutions to. They may be searching for solutions to transfer existing operations into more efficient ones or they may be looking to find use cases for new AI pilot projects to introduce in the

company to save money and time. The main issue is to identify the amounts of data they have in digital format and the budget they have in use for adopting new technologies. (Merilehto 2019.)

As stated before, numerous allegedly AI enabled solutions are available to use and explore with in marketing, and it remains the task of the company to find out which operations can be improved by adding new technology.

Before implementing data science projects into the organization, a way to begin is to evaluate the current situation in creating and using insights from available data. The four main phases illustrated in Figure 6 helps to evaluate the processes the organization is currently using. Perhaps diagnostics are used to follow marketing campaigns but predictive analytics are not being used to support decision making or perhaps the entire process is automated so that the system recognizes a need and performs the action of placing an order automatically. By asking these questions, one can recognize how insights are being used in decision making in the company processes. (Stachura 2018.)



Figure 6 Four fundamental ways of creating and using insights (Adapted from Stachura 2018)

In the next section of this thesis some different technological solutions will be briefly introduced to bring more awareness of the possibilities a company has to choose from to optimize and scale different activities in marketing. Most of them do not support the Finnish language for the moment. The 5p's of marketing AI framework is used to elaborate different use case for AI in a company. The four fundamental ways of creating and using insights (Figure 6, p.35) is very much in line with this framework from the Marketing Artificial Intelligence Institute (Figure 7, p.36).

3.2 The 5P's of marketing AI

The Marketing Artificial Intelligence Institute (founded in 2016) has created a framework to look at marketing from a technological and process oriented point of view. The 5PS of marketing AI framework illustrated in figure 6 consists of planning: building intelligent strategies, production: creating intelligent content, personalization: powering intelligent consumer experiences, promotion: managing intelligent cross-channel and cross-device promotions and last performance: turning data into intelligence. (Roetzer 2017.)

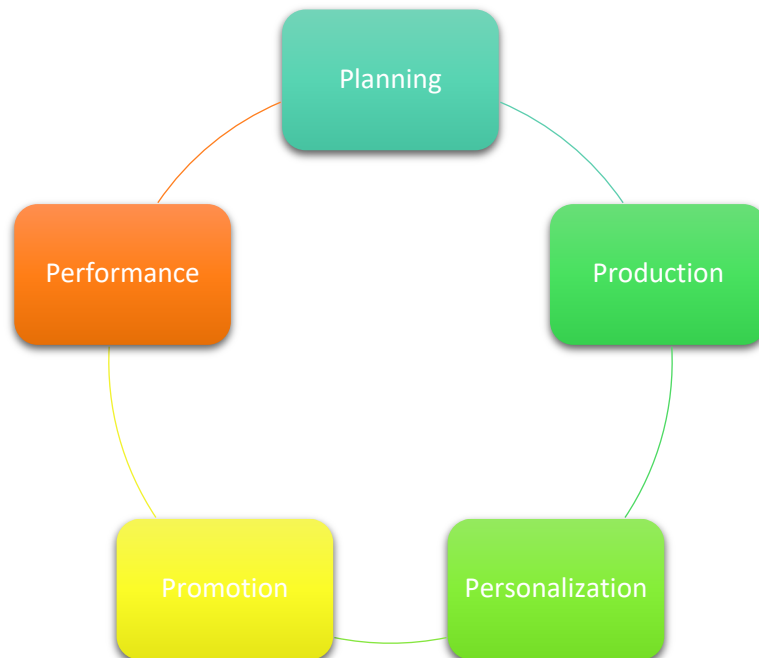


Figure 7 The 5Ps of marketing AI (Adapted from Roetzer 2017)

The 5P's framework is designed to broadly cover the entire marketing process, and help marketers identify gaps and seize opportunities to implement technology in different levels of their operations. (Roetzer 2017.) To know, if alleged AI enabled marketing solutions use AI or not, is impossible without the understanding of the technology behind them which is out of the scope of this research. Some companies which claim to use AI, that can be utilized in these 5 processes, will be briefly introduced in this section of this thesis to gain understanding of some options a company has to gather and process customer data and conduct marketing. In addition to the software used to conduct the procedures in the processes described in this framework, a company must evaluate the process itself to gain the understanding of the what they want to change and at what level are they are currently operating at. The frameworks illustrated in table 2 (p.26) and figure 6 (p.35) can be used as a guideline in evaluating this.

Planning (Building Intelligent Strategies)

The first part of this framework consists of planning. The goal of planning is to analyse different data available and to determine certain goals of the marketing strategy. Constructing buyer personas, predicting consumer behaviour, defining strategies, prioritizing activities and determining how to allocate marketing resources are among important actions that fall into this category. Multiple solutions exist to help marketers gather important customer data and turn it into valuable insights that can be used to build a strategy that will turn leads into sales. (Roetzer 2017.) **Crayon Intel Pro** can be used to do market research and analyse competitors (Crayon 2019). **Hootsuite** can be used for planning content, monitoring and managing social media and analysing performance (Hootsuite 2019). **Ahrefs** SEO tool helps you find important keywords and analyse gaps in your content in a narrow way. By using Ahrefs together with **Market muse** content planning tool you can use the keywords generated by Ahrefs and get recommendations from MarketMuse for content topics and length of the content you produce that will rank well organically. (Ahrefs 2019; Marketmuse 2019.) Marketmuse also evaluates and scores the content so that the content creators can see how the content they have created can rank in search engines. **Buzzsumo** and **IBM Watson analytics** to find patterns and relationships in data, learn what

drives behavior and outcomes, monitor and share insights in dashboards and stories, analyze social media topics and trends, enrich and shape data. (Buzzsumo 2019; IBM 2019.)

Production (Creating Intelligent Content)

Content creation has an important role in marketing in a business. Creating, curating and optimizing content, including blog posts and articles, emails, landing pages, videos and webinars, advertisements and descriptions of products and last but not least use cases of products have to be carefully planned and executed according to certain guidelines in order to be visible in the right place at the right time to the correct consumer. (Roetzer 2017.)

When creating relevant content one must take into consideration 3 aspects: the company and its targets, customers and search engines. One must publish content which serves the companies goals which also provides solutions to customers problems and challenges and is constructed from the customers perspective and these two aspects must be interconnected. After keywords of the content match the search words of customers, the role of SEO takes place. The content must be created according to the guidelines of the search engines which can be a difficult task as the algorithms change constantly. (Kananen 2019, 77-89.)

In order to optimize content for search engines one must follow certain guidelines as a starting point. General guidelines Google encourages to follow as listed on their website are:

- *Make pages primarily for users, not for search engines.*
- *Don't deceive your users.*
- *Avoid tricks intended to improve search engine rankings. A good rule of thumb is whether you'd feel comfortable explaining what you've done to a website that competes with you, or to a Google employee. Another useful test is to ask, "Does this help my users? Would I do this if search engines didn't exist?"*
- *Think about what makes your website unique, valuable, or engaging. Make your website stand out from others in your field. (Google 2019.)*

In their specific guidelines Google instructs not to use automatically generated content which can be confusing as we are discussing using AI and automation to indeed create content and automate different operations in marketing, but when human reviewing and curation is involved in the process, automation is not forbidden. (Google 2019.)

Search engines are becoming more complex and they are improving in offering customers more efficiently what they are searching for regardless of the way the search is conducted. You can search by using images, text or by voice commands. Voice based searches on Google are on the rise and it is predicted that 50 percent of search queries will be voice based by 2020. This requires natural language processing which as stated before is a machine learning technique. Tools such as **Yoast** and **Moz** can help you monitor and organize your content to make sure it is meeting the basic optimizations and help organize content in ways that can appeal to audio search. (Atomic reach 2019; Moz 2019; Yoast 2019.)

Buzzsumo fetches ideas for content marketing and finds when your company name is trending on social media (Buzzsumo 2019). **Atomic reach** allows you to see the content that is working through the tracking of analytics, while it also allows you to create a more comprehensive strategy around AI and machine learning (Atomic reach 2019). **Curata** and **ScoopIt** find relevant content online, helps you editorialize the found content and you can then publish and promote the content through these applications as well on multiple platforms at once (Curata 2019; ScoopIt 2019). Google web converts voice to text and text to voice. **Clarifai** recognizes, categorizes and auto tags images (Clarifai 2019). **AI writer** is also an example of many tools that create content based on your predetermined topic. It will write a text and you can alter it to your use and post. (AI writer 2019) All of these tools listed can be of value when you are creating content for your company, you can save time by having a machine write on your behalf. But with these tools, one must have trust in the program you are using. Where is the information being pulled from, is it accurate and relevant, can you quote the sources as they should be quoted? As stated before, AI alone cannot write relevant content for

you and publish it. One must learn how to work together with the machine to optimize the workflow.

Personalization (Powering Intelligent consumer experiences)

Personalization is crucial for both SEO and customer success. Personalizing consumer experiences can be done through intelligently automated emails, content and product recommendations. Big companies like Starbucks, Amazon and Alibaba use technology to create personalized and relevant content. (Roetzer 2017.) K-market in Finland is a good example of a company that uses customer data gathered through loyalty cards (K-card) to create personalized digital storefronts with product recommendations and offers based on shopping behaviour. With **Skyword** you can recommend highly targeted content to a customer (Skyword 2019). **Sitecore** is a web content management and multichannel marketing automation software (CMT) that helps personalize content and engage with customers across multiple channels (Sitecore 2019). **Salesforce** adapts content recommendations by segments and patterns (Salesforce 2019).

Personalizing content based on consumer behavior causes the consumer to begin to live in their own personalized bubble of information that is missing vast amounts of interesting content. Another way of looking at it can be that personalization enables consumer to have a better customer experience due to the company having the data of the customers preferences and behavior. The Washington Post, Facebook and Google are examples of companies that all customize content (Pariser 2011.) Filter bubbles aka the personalized web, can create some disadvantages for online users and companies. Online users may grow suspicious on the way their data is gathered and used and feel their privacy is invaded. Additionally they feel frustration on the limitations on their options and the content they are being delivered. On the other hand personalized content is valuable to save time and to make the consumer experience easier. (ESL debates 2019.)

Search engines are good examples of personalized results. **Duck Duck Go** does not filter out content based on your preferences, but **Google** does. Companies need to be careful on how much of the data available they use to personalize

content and in which timeframe. The customer must not get the feeling of being watched and tracked too closely by targeting ads before they even realize they want to purchase the product. (Parker 2015; Raine & Anderson 2017.) A filter bubble is the result of algorithms selectively assuming what a user wants to see based on information the user has created through clicks, search and browsing history as well as geographical location and IP address (Techopedia). This can be very problematic from a marketing perspective for the reason that if the customer does not know they want our products or services how can we get into their filter bubble to reach our messages to them? (Pariser 2011.)

Promotion (Managing intelligent cross-channel & cross-device promotions)

Managing cross-channel and cross device promotions to drive engagement and actions, including improving email deliverability, audience targeting, scheduling social publishing and digital paid media management are important actions when promoting content. AI is also very good at analyzing data for delivering retargeted ads. (Roetzer 2017.) **Albert** can be used to adjust and monitor digital ad spend in real time to keep track of the marketing budget (Albert 2019). In addition to many other features, **Hootsuite** is a scheduling and reporting tool that works in 35 social media channels (Hootsuite 2019). **Onespot** optimizes cross channel campaigns (Onespot 2019). **IFTTT** (if this, then that) Creates rules for following social media. You can also follow hashtags and send thank you messages in this software (IFTTT 2019). All of these applications can be used to help reach the correct customers, but it is important to realise that not all of them will be compatible with one another. It is important to find ways in which information flows without silos from one channel or application to another throughout the entire process so that the customer can be engaged in the correct touchpoints. (Duffey 2019)

Performance (Turning data into intelligence)

Measuring performance, forecasting performance and discovering insights from analytics are important parts of marketing. By turning data into intelligence through automated insights and using that intelligence to optimize performance can save resources and is crucial to follow how the marketing efforts are performing. Without proper measurements the efforts made through planning a strategy,

creating content, using resources to personalize the messages and promoting the content to leads and customers will become obsolete. (Roetzer 2017.) Some tools available for turning all of this data gathered in different stages of the customer journey are **Google analytics reports**, **IBM Watson analytics** and **Buffer** to time social media posts and analyze commitment of followers on FB, Twitter, Instagram, LinkedIn and Google+ (Google 2019; IBM 2019; Buffer 2019). With **Growthbot** one can monitor activities and outcomes of marketing messages (Growthbot 2019).

The 5 P framework can be used as a base when thinking about implementing new technology. A marketer must be able to evaluate their working processes and determine when the use of AI could be helpful to plan, produce, personalize, promote and measure performance and when it will not be cost efficient. (Roetzer 2017.) The modern customer journey is complex with multiple touchpoints that sales and marketing must be able to take control of. By using technology, a company can assist employees to be in control of valuable customer data. (Rubanovitsch 2019, 132)

3.3 Chatbots to improve customer experience

A chatbot is a computer program which core function is to simulate a conversation with a human over the internet (Cambridge dictionary 2020). Different types of chatbots include, product and customer service chatbots, informative chatbots and virtual personal assistants. In marketing and sales, chatbots can help a company offer a more personalized service to their customers based on the data it gathers on the customer from internal and external databases. Engaging with customers through chats and chatbots is becoming more common in companies because it helps the humans in customer service in their repetitive tasks. Additionally chatbots can work 24/7 which can be valuable for the company to be able to support the customers regardless of office hours. The chatbots of today are based on question and answer trees. They categorize and find basic information before handing over the customer situations to humans. Natural Language Processing (NLP) can be used at its most simple version to understand the context of customer inquiries and the actions will be driven by the tree structure. Most

likely the chatbots will work more as an internal search engine, which will be able to direct the requests to the correct solution. The use in customer interfaces is the most common today. (Valkonen 2019.)

As figure 8 illustrates, the chatbots are developing to become more conversational and intelligent. From the very basic chatbot that is rule based and replies in predetermined words and does not have understanding of language to the most intellectual bot which can solve problems on its own. By using intelligent chatbots a company can improve the customer experience in many ways, such as giving 24/7 customer support or sell products without having to add personnel. (Valkonen 2019.)

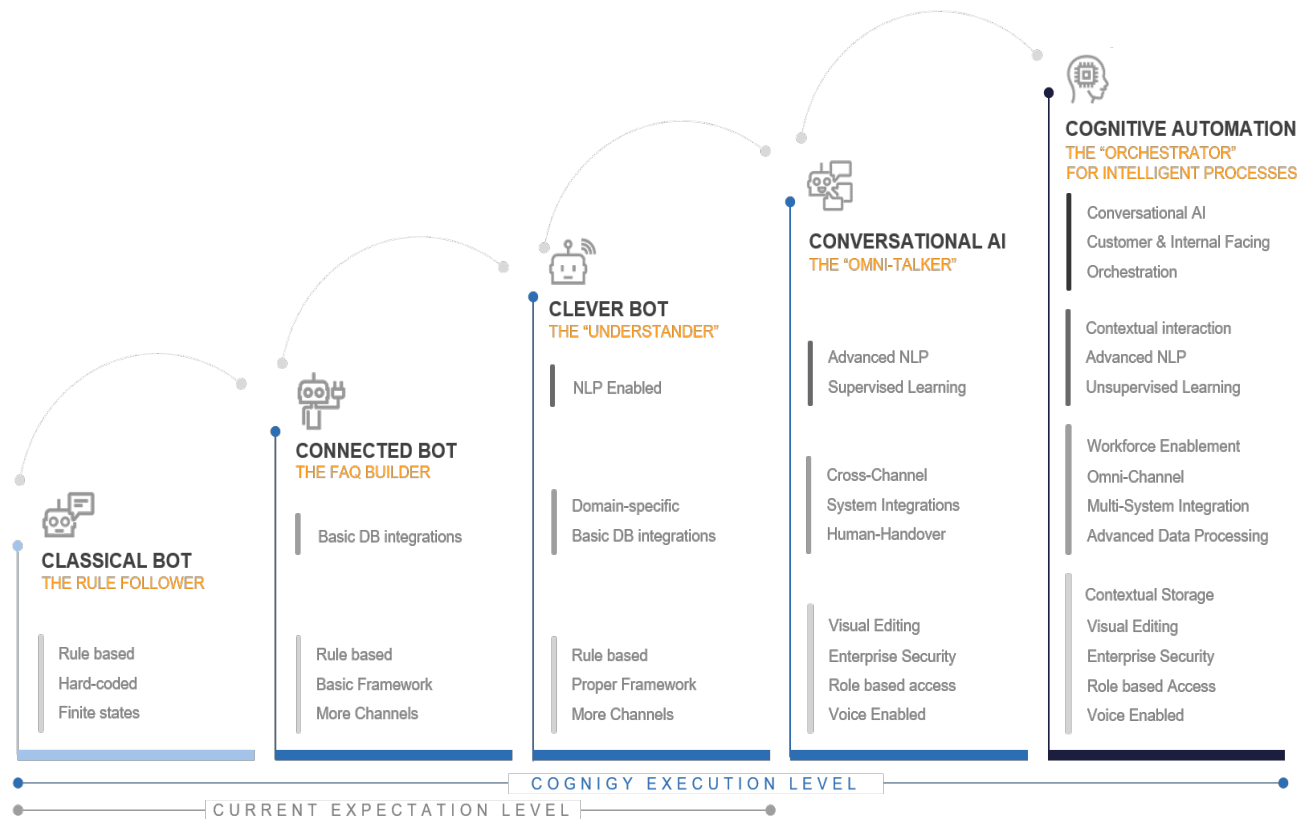


Figure 8 Cognigy – Conversational Automation Platform (Ainia Innovations Oy 2019)

Chatbots utilize AI while simulating the conversations of humans. The more the bot converses with humans or each other the more it learns to answer in a more intellectual way.

Chatbots are given predetermined answers to questions that it then tries to answer and if it is incapable of giving correct answers the conversation can be transferred to a human. This is very useful for example to gather basic information from a customer to save the time of customer service representatives. Chatbots can also send personalized messages, videos and offers to customers and be programmed to sell and interact in a natural way that brings value to the customer. They can also be programmed to gather and analyze customer feedback to improve the quality of the service and even offer discounts or offers for further purchases. The most advanced chatbots are also able to analyze sentiments in text and pictures which give a big advantage to customer service situations. (Komulainen 2018, 311-317.) The advantage of chatbots in customer service situations is the fact that one bot can handle numerous customer situations simultaneously, whereas a human can only handle one at a time (Valkonen 2019).

4 RESEARCH METHODOLOGY

Qualitative research focuses on words rather than on numbers like quantitative research which aims to often verify theory rather than build theory (Quinlan 2011, 286). By using quantitative research it would not be possible to explore the information the respondents have at a deeper level which is based on their experiences and personal viewpoints on the matter being studied. Qualitative research is a set of complex interactive practices that do not belong in one single discipline. It is based on interpretivist assumptions, includes methods of collecting data that are specific to context and can be interpreted in real time based on emerging needs and understanding and methods of analysis are used that contextualize the findings properly. There are multiple methods that fall under qualitative research such as case study, participant observations such as focus groups, visual methods and most importantly related to this research, interviews. The purpose of doing qualitative research is to understand the ways people see, view, approach and experience the world around them and specifically how a certain phenomenon is seen through their own experiences and perspectives. The aim is not to find one truth as in quantitative research but to look at the problem in

a more complex way. Qualitative research aims to explore, explain, describe, understand or analyze the meaning of a phenomenon by developing themes, whereas quantitative research aims to find truth from numerical data such as results derived from questionnaires, that can be generalized to a larger general public based on a certain sampling criteria (Kananen 2015, 138-139; Ravitch & Carl 2016, 5-7; Ghauri & Gronhaug 2010.)

Qualitative research is not a linear process but more a circular research process that moves back and forth. This is a method for uncovering meaning in issues and conceptualizing understanding as well as the process of interpretation as researchers with our prior knowledge, understanding, biases, experiences and expectations. Prior knowledge is needed in the beginning of the research and this knowledge changes throughout the research process through the gathering of information, learning and reading of materials. Through this circular process the research changes and is corrected to change paths along the journey to finally answer the initial research questions. Everything is interconnected and related to each other in the qualitative research process which makes it complex. (Eriksson & Kovalainen 2016, 33-35.)

Qualitative data gathered from interviews is not in numerical form like quantitative data and the analysis of this data is done by using different methods. Quantitative numerical data is easily fed into a program and analyzed into such form that can be generalized for specific groups and clusters of the population. Qualitative data is analyzed by interpreting the data available to find arising themes and sub-themes within the text. Everything the researcher does has to be explained and discussed. As every researcher conducting research is different with a different view of reality, it is imperative that these issues are discussed and that the researcher can convince the reader that they nor their research is biased in any way. (Ghauri & Gronhaug 2010.)

4.1 Research methods and data collection

In depth expert theme interviews with open questions have been used as the main data collection method because interviews in qualitative data collection aim to seek understanding on the participants experiences and understanding on a phenomenon comparing it to other participants views (Alastalo et al. 2017, 214-230). The in-depth interviews are based on key questions that are customized for each respondent and follow up questions are formulated throughout the interview to probe more in depth responses for clarification or elaboration. The research aims to find themes within answers of the respondents more than to find specific answers to questions. Reasons for choosing interviews in this research are developing holistic descriptions of perspectives, experiences and phenomena of artificial intelligence and digital marketing use cases and to describe personal experiences in depth in business context. This could not be done by using a quantitative method. In one-on-one interviews the researcher has an opportunity to interview one person at a time in a deep and detailed way by giving the interviewee space to express their own perspective towards the phenomenon in hand. Telephone interviews are also one-on-one interviews conducted over the telephone which yield the same benefits as one-on-one interview with the exception of seeing the person and being able to interpret their behavior by observation. Due to scattered locations of interviewees, telephone interviews are a useful way to conduct in-depth interviews. (Quinlan 2011, 290-291; Ravitch & Carl 2016, 147.)

Digital interviews resemble traditional interviews with the exception of being performed using a software. This research has used also digital interviews in a addition to traditional interviews. Digital interviews can be divided into synchronous and asynchronous interviews. Synchronous digital interviews are like face to face interviews in which the participants, the interviewer and interviewee interact with each other in real time as they would in a face to face situation. Asynchronous interviews are such where the interviewer sends the questions in advance to the interviewee and receives a response by email or another channel. It can be a Youtube video blogpost or other type of digital audio or video file which contains the responses to the questions. (Eriksson & Kovalainen 2016, 110.)

The respondents for this research have been purposefully selected because they are field experts, authors and persons with highly reputable careers. The purpose of choosing experts as interviewees is the fact that they bring the validity to research with their extensive expertise and knowledge. (Alastalo et al. 2017, 214 - 218). The initial interviews have brought up further questions that have then lead to more interviews from different experts to add missing links to the entity of this research and to verify the results received in order to build up credibility for this research and to back up the facts. The respondents have been contacted individually via telephone, Facebook, LinkedIn and email to invite them to participate in the interview and to provide them information on the research and its purposes. Additional contact has been made to set up times for the interviews. Interviews have been recorded for further transcribing and data analysis and are stored in the cloud and on multiple devices to ensure their security.

Table 3 List of interviewed experts

Mikko Alasaarela	Open data startup	Impact entrepreneur, AI expert	Skype Interview	18.11.2019
Jani Valkonen	Ainia Innovations Oy	CEO	Skype Interview	25.10.2019
Heikki Ailisto	VTT	Research professor	Skype Interview	23.10.2019
Cimmo Nurmi	SAMK	Vice President	Skype Interview	23.10.2019
Jani Savolainen	Microsoft Oy	Microsoft Dynamics Business group lead	Interview	17.10.2019
Jani Aaltonen	Salescommunications Finland Oy	Owner and CEO	Interview Podcast Appendix 4	26.9.2019
Antti Syväniemi	Houston Analytics Ltd	CEO	Interview	19.9.2019
Edi Sandblom	Houston Analytics Ltd	Director of-services	Interview	19.9.2019
Tommi Havukainen	Houston Analytics Ltd	Country manager Finland	Interview	19.9.2019

Ville Laitinen	Houston Analytics Ltd	CTO	Interview	19.9.2019
Jaakko Lempi- nen	YLE	Head of AI	Skype Interview	12.9.2019
Antti Merilehto	AI Strategy Company	CEO	Skype Interview	11.9.2019
Christopher Penn	Trust In- sights Mas- sachusetts	Co-founder, Chief Data Scientist	Youtube. Appendix 4	August 2019
Ari Utrianen	Xamk	Director of unit Master of Arts and Design	Interview	22.5.2019
Mika Ru- banovitch	Imperial Sales	CEO	Skype Interview	3.4.2019
Mika Lind	Arilyn	Sales	Interview	21.3.2019

Two interviews stand out from the respondents. Christopher Penn was sent a list of English questions in advance, which he answered in English on his Podcast and shared on Youtube and on his LinkedIn page TrustInsights. Jani Aaltonen from Sales-communications was sent questions in advance and the interview was recorded via Zoom and shared on his podcast channel on Soundcloud.

4.2 Data analysis

The data analysis of data gathered from in depth theme interviews is a long process that consist of multiple phases from analysis to reporting. The content analysis method was used a guideline in the data analysis of this research material. A way to describe the process is to begin with familiarizing oneself with the entire data, divide the data into sections, find connections within the data and report the findings. It is very important, to spend time reflecting the results of the data analysis to gain the important insights of the study. (Hirsjärvi & Hurme 2000, 144.) The researcher has the duty of selecting which data is relevant to the research and the analysis is based on this selection. The researcher therefore transfers his or her bias into the research itself as it bases on the knowledge and expertise the researcher has. (Sarajärvi & Tuomi 2009, 20.)

The interview length has been from 30 minutes to 1 hour and 30 minutes depending on the respondent. There was a total of 16 interviews adding to a total of 640 minutes of audio recordings and including the podcast on Soundcloud with Jani Aaltonen and YouTube video files from TrustInsights with Christopher Penn. The audio files have been roughly transcribed at a propositional level where the key messages and observations are recorded (Kananen 2015, 57). Sonix.ai was experimented with to also evaluate the level of natural language processing the solution has, and to implement AI as a real-life case, but all transcriptions were of very poor quality and could not be used. A sample of Sonix.ai transcription can be found in Appendix 2 of this thesis to show an example of what level of natural language processing is available. Google translate is one of the most advanced language translation services but as one can see, Sonix.ai can process the language to a fair level. However, compared to the English language, Finnish is still very far from being useful after directly translated. The text files need significant editing. An observation which arose was that some Finnish speakers use English words and loanwords that have been transformed into Finnish words, especially when discussing business and marketing such as “lean”. The software does not understand the change in the language which made the most errors in the translations.

The main categories and subcategories have been pulled from this data after writing the original quotes, simplifying the descriptions of these quotes into subcategories and finally defining the themes into main categories and further to subcategories. The findings have been written up into conclusions. The interviewees were coded as R1-R16 to keep the responses anonymous as they should in a study but to keep track on which respondent has given which response to ensure the easy use of the data if needed at a further time. (Kuula & Tiitinen 2010, 425.) Analytical coding has been used to find the themes and write further information about the emerging categories. (Richards 2010).

Table 4 illustrates the content analysis categories by which the analysis of the data has been conducted.

Table 4 Content analysis categories in themes

Main category	Original quotes	Simplified description	Subcategories	Definition of theme
Prerequisites to use AI				
Artificial Intelligence				
AI enabled marketing solutions				
The future of AI				

The four main categories were divided into subcategories which are illustrated in table 5. These categories revealed insights in order to discover if the data collected from the experts do in fact support the information gathered from the theory and brought forth new insights.

Table 5 The main categories and sub-categories of study

Main category	Sub category
Prerequisites of using AI	Organizational structuring
	Identifying marketing problems
	Understanding technical capabilities
	ROI
Main category	Sub category
Artificial intelligence	Hype
	Definition of AI
	Humans and AI
	Automation vs AI
Main category	Sub category
AI enabled marketing solutions	Current applications and capabilities of AI
	M2M, M2H, H2M
	Algorithmic influencing and bubbles
Main category	Sub category
The future of AI	Chatbots the future of customer service
	Breakthroughs with AI
	Risks and ethical issues
	Future marketing
	ANI/AGI

5 RESULTS

The results in this thesis are presented following the themes of main categories and subcategories to each four main categories. The experts interviewed have supported and added on to the facts and insights, that are the foundation of the theory of this research.

1. Prerequisites to using AI

The businesses problems that exist in the modern business world when emerging technologies meet traditional business structures and procedures are important issues every company must consider. There are certain steps a company should go through in order to become ready to implement AI in their business operations, especially in their marketing. The theory has suggested that big organizations with lots of data have an advantage and a conclusion based on this could have been made that small companies cannot benefit from AI. However the interviews do in fact suggest, that even small companies can use AI to support their marketing problems, as long as they identify what needs to be changed within their company, they gain an understanding of the technical capabilities of AI and they evaluate how AI will return on their investment.

"Identify the business problem, the size of business does not matter the business requirements and problems matter. " (Penn 2019)

Organizational structuring Digital projects are often separated from the rest of the company departments and this can cause major problems. Often the business department and technology department do not see the same issues nor do they understand the obstacles in the other departments. They must however work together to find these issues and to have the understanding of what to do with the gathered data, and someone must take the responsibility of the desired outcome and to follow it through. Leading with data is the key take away and to implement it throughout the organization breaking the traditional silos.

“The entire organization must be involved when implementing IT-projects. ”
(Rubanovitsch 2019)

Once you recognize the weakest spot in the company operations, you can have a sense of the business problem and then you can dig into specific applications of AI for it. Inside or outside teams can be used to begin using data in business decisions. You need to understand why you want to use AI. It is better to dig into the operations and the capabilities of AI machine learning particularly to understand the framework and further consider the possibilities of applying it to the business context, to provide solutions to the existing business and marketing problems. If you do not understand what the technology is, it is difficult to understand what it can do for you.

“ AI is not good at innovation or strategies, so if you have an innovation or strategy problem, it’s not going to help you. ” (Penn 2019)

Identifying the marketing problem The explosion of supply and demand in most fields of business has caused a flow of information that makes marketing very difficult. Identifying the marketing problem helps a company build a AI strategy. In traditional marketing the customer is in a funnel through which the journey progresses. The traditional funnel can also be transformed into a flywheel, which is a modern version of the traditional funnel in which the customer is in the center and everything around it revolves around the customer. An approach is to find the weakest spot in the sales and marketing funnel or flywheel and to utilize AI in it to take control of the customer journey and to become more reactive at all stages from awareness, consideration, evaluation, purchase, loyalty, retention, based on real time data, not just a feeling or based on memory.

“Everything revolves around the customer. Everyone, despite the department, must serve the customer.” (Rubanovitsch 2019)

AI or no AI it is imperative to understand your target customers. Do you want to market to the existing customers or customers who are like your existing ones.

How can you utilize data that you gather from the customer experience and improve the journey? With all the data available from multiple touchpoints it is important to be able to gather it, analyze it and modify the process accordingly. Microsoft has software that can be integrated to a company's existing software and can be customized to the needs of the company once the business problem and marketing problem has been recognized. This does not require deep knowledge of the capabilities of AI but nevertheless as many of the interviewees have said, the basic knowledge of AI is relevant to everyone. The companies which do not adopt the change that is happening now and realize that marketing is in fact becoming more important will not succeed as the companies that do.

The paradox of today's marketing according to owner and CEO Jani Aaltonen is, the fact that marketing investments are going into manipulating consumers through traditional mass marketing and product-oriented marketing and qualifying leads by hand. Whereas the bubbles of consumers Facebook as an example could bring to you at a cheap price are available, but marketers do not dare to leverage these bubbles because of scandals like Cambridge Analytica etc.

Understanding technical capabilities. Data is available for everyone, often the decision makers say, that the use of technology is too expensive but technology is available for everyone. Often the company also lacks understanding that new technological solutions for certain functions do not necessarily communicate with each other. This can cause the entire process to become a collection of separate projects, functions, that cannot utilize the data gathered in other projects. It is imperative to understand what is available and test, measure and understand what the results are. A very important insight is that the minimum requirement for data is, that there is no minimum requirement. A company can begin with no data, the most important take from this is to begin and to want to change the operations. When using AI in marketing, just know the business case, have a clear business goal, have a well-defined business approach. Also ensure the technical requirements are up to date. A way to approach this is to think of project as software development project. A proposed 5 step approach to this by Co-founder and Chief Data Scientist of Trust Insights Christopher Penn (2019):

step 1 have quality data

step 2 data driven culture KPI's

step 3 have qualitative research capabilities to understand consumer's minds

step 4 have process automation in the company already

step 5 data science capabilities

The company must have people that understand the technology and can find the practical use cases. There must be someone to train and guide the machines or you have to purchase pretrained models or outsource the AI projects. Someone must understand why the machine gives data and how to implement it in business.

Evaluating return on investment (ROI). AI projects consume time and money at first, before it begins to bring back on the initial investments. Someone has to be able to design experiments and projects and this can be a budget issue, but the ROI has to be evaluated. This brings us to how to improve ROI by using AI in marketing. This is very simple, to increase ROI you must be able to bring the spend down and increase earnings. It is crucial to calculate what you expect to spend, what you expect to earn, what are your limits and how much can you invest on the spend side to implement AI in the processes and bring in new technology that can at the end free resources for other operations. Computing costs will offset savings on the spend side in the short term so the goal should be to look at the operations in a longer period of time.

2. Artificial intelligence

As established in the theoretical part of this thesis, the definition of AI is very vague, it depends on the views of the respondent and it changes over time. Marketing people use different words to describe AI as data scientists do as has been proved in this research. Moving beyond how to define AI, the interviews brought forward interesting thoughts on humans and AI and what the capabilities of AI are. Additionally, the initial quest was to differentiate automation and AI but the two have much in common. These themes are all interconnected, and they create a very interesting category.

AI hype. A fact that is very clear in the views of experts in the field of data science, is that the word artificial intelligence is hype. It has been hype in the past and it is so today. The words artificial intelligence are used as marketing words and data scientists rarely use the words when working, but rather call the process by the name of the process or technique itself e.g. reinforcement learning or supervised learning. The hype is still important as it is what builds up investments for research and data projects and the progression of the field of AI which is of course seen to be as a positive aspect. With or without the hype, the actions and work behind AI does not change.

“AI is a marketing term, hype. AI is computer programs that learn fairly fast, a collection of algorithms that are guided in different ways. As human intelligence has not been clearly defined, how can we define machine intelligence?” (Laitinen 2019)

Definition of AI. AI is and has been computer science, an intelligent decision support system that works on the basis of rules, most often on historical data. Artificial intelligence learns from the process to build the system further and can change the output according to how it has learned during the process.

80-90 percent of AI is machine learning especially deep neural networks but it is a mix of different technologies that can be difficult to categorize as some solutions utilize a mix of different solutions. A very interesting and important find in this research is a rule to describe if something is using AI. The 2+1 rule proposed by Vice President of SAMK Cimmo Nurmi was confirmed by many interviewees.

“Based on the data given to it today, if it can learn and perform better tomorrow, without a human teaching or guiding it, it has AI. The 2+1 rule.” (Nurmi 2019)

“The algorithm performs without the guidance of a human, learns by itself and functions better tomorrow than today.” (Ailisto 2019)

“Virtual AI has to be able to make decisions on its own, not yes and no answers, it has to be able to learn and it has to be able to perform better tomorrow than today.” (Valkonen 2019)

“Umbrella term. What can be seen as done like a human when done by a machine is intelligent.” (Havukainen 2019)

“AI is the constantly declining cost of machine learning.” (Merilehto 2019)

A real-life example given of AI is an autonomous vehicle or a AI doctor which learn by themselves and are better tomorrow than today. Smart homes are advertised to be powered by AI, but how do they improve? Will your coffee machine or lamp be able to perform better tomorrow? A very interesting point of view to consider proposed by Nurmi is that, rule based intelligent systems exist and they are often called artificial intelligence but if these systems are in fact called AI, then the actual AI is something at a higher level of intelligence that does not yet have a name. At the end of the day neural networks for example give labels which are equivalent to hashtags, so are hashtag creating systems intelligent? Additionally, as human intelligence has not been defined explicitly, how can we truly say what is machine intelligence?

“AI is something that is very easy for a machine and very difficult for a human.” (Lempinen 2019)

If you do not know if a program uses AI, consider the 2+1 rule. If a human does not touch it or make rules, if it cannot improve, it does not have artificial intelligence. If it is based on simple decision trees, it is not AI.

Humans and AI Artificial intelligence and humans do not learn the same way so it cannot be taught like a human. CEO of Ainia Innovations Oy Jani Valkonen very insightfully said that AI is like a small child, that you can help to learn the basics, monitor it and fix the direction the learning is progressing to. Humans act most often based on feelings. The feelings we have and the ability to analyze them and act on them are what make us different from machines. Humans understand things like nuance, emotion, sentiment and sarcasm in everyday situations and they can act according to these observations when making decisions. Artificial intelligence

on the other cannot. The human brain is not very well understood which makes understanding the logic behind all of this very difficult. Humans do, even though being intelligent beings have their restrictions. Humans scale very poorly and are not very good at prediction. Cognitive dissonance is also a problem of our time. With the large amounts of data gathered from customers you can also get the wrong impression of a customer if you do not know what data to analyze and how to utilize the information gathered from this data. A customer can claim to purchase only healthy foods but in reality, their actions are different. AI can easily analyze this type of data, because it can scan through enormous amounts of data and the problem can be corrected through the use of analytics. If a human looks through only a narrow set of data, at the end, the small details that explain the customer behavior, can be easily overlooked.

“Humans are the conductors of the AI orchestra.” (Penn 2019)

Machines only act based on facts, data that they have been given, or they have found. A machine can read a million books in a short period of time, predict at a high accuracy and make routine like decisions much better than humans can. Machine also see the bigger picture because of this much better and is not subjective like humans are. They never make decisions based on a gut feeling or assumption. But this is not a simple issue nevertheless as business decisions never are. There are multiple issues that perhaps cannot be quantified to a computer by which a human has made a decision by. You might have a deal with a supplier from which you gain personal benefits from that are not straightforward and the decisions for these are made by human intuition and feelings. This is why AI is a good slave but a bad master.

3. AI enabled solutions marketing solutions

Solutions for marketing that have AI exist and are widely utilized in marketing. Whether it is machine marketing to machines or humans marketing to machines or even machines marketing to humans, the technological solution acts as a tool to create value to the customer. New ways to utilize algorithms and filter bubbles are

emerging and marketing is changing at a rapid pace and the third main category will elaborate this.

Current applications and capabilities of AI in marketing AI enabled marketing solutions that can already be used are e.g. Customer relationship management (CRM) systems which one can link customer behavior data to. With these systems it is possible to monitor what customers have done previously and model how they will behave in the future. Facial recognition has developed in the past years and has multiple use cases. Also, AI can be used in customer service, where the calls of a call center can be analyzed according to the length, mood, if a sale was made or not and decisions and suggestions can be made from this. Content creation for simple text can be done with AI. Google is an application that uses AI when giving back search results. Music creation is also becoming relevant in the field of AI. There are multiple AI musicians that are creating algorithms to create music of different genre to use in games, vlogs and marketing in general. Aiva is an example of such system in which you can create AI generated tracks.

Prediction power, execution and optimization are important benefits of the use of AI. A constantly updating prediction solution is something that would be impossible for a human to manage as AI can manage billions of different scenarios and humans only a small fraction of this. A machine can manage to recognize silent connections up to thousands of steps into the future by leveraging deep learning with neural networks, while the best marketers can manage approximately 10-15 steps into the future. An important example to consider is that with the power of prediction, 49 out of a 100 marketing messages reached the correct customer, whereas before the number was only ten. This is very important when you consider the time that is spent, or should be sent in planning, prediction, personalization, promotion and analyzing performance. The entire journey from the beginning to the end is long and takes up resources, so it is important to explore the ways to make the process more efficient. It has the capability to easily find the next best action and suggest actions based on customer behavior such as sending an email or telling sales to call the customer.

Planning is the most important phase in the marketing. The company must understand what is the job that has to be done and gather the data. The traditional methods can with consultants researching and allocating media budgets can take weeks, whereas with AI results from marketing can be measured within a day. A company must have the analytical capabilities to use AI to create predictions that can be optimized.

Production is an important step as today's marketing is all about customer experience and relevant content. Before the marketing was all about creating beautiful visuals and the product itself, today's marketing on the other hand has the same beautiful visuals as default and it must be more meaningful to the customer. The messages must be warm and humane even if the writer of the content is not necessarily a human. This is where AI and humans can work together as a team. A bot can write generic text, find relevant keywords and content to create a base which is then personalized and fixed to contain a message in such a way which triggers feelings in the reader. Most likely authors of books will not be replaced by machines any time soon, but text creation is already a reality, at least in English. The most important take away from this all is that the person creating content must understand there is a person on the other side of the internet, reading the content.

Personalization which is based on data is what AI is good at. It is capable of clustering into segments of one. An interesting way to look at AI in this context is that AI is the enabler and delivery mechanism in the process. Amazon is again a great example of high personalization. Amazon is your Amazon and it looks different to all of us. The key question to ask is how the customer can be served in the channel and at the time which is convenient to them. Going back to the flywheel framework, the customer is in the center and everything else revolves around the customer. Marketing should not be done from the product perspective; it just does not resonate to people. When promoting the brand, company or products the story must be creative, visual and highly targeted with the help of optimization.

It is however important to consider if it is actually relevant to identify if a system uses AI or not. If the IT-solution provides your problem a solution, it should be

irrelevant what technology the solution is based on. For clarification a short list of problems AI can solve has been listed: classification, prediction, scaling, forecasting, pattern recognition. Transforming these problems into AI use cases is another good way to visualize what AI can do. AI use cases can be to analyze the past, predict the future, classify data and categorize data. If the problem is the processing of data too slowly or inaccurately or using too many human resources to do it, using AI to get results better, faster and cheaper can be an option. The problem must be known and where the data can be found to solve this problem. The strength of AI is to learn, and function based on the algorithms, the computer scientist has made when they are incapable of finding solutions to problems themselves. However, a good realization is that with the AI existing today, the computer is still as stupid as the computer scientist who has written the code.

“The expectations from AI are dependent on if you perceive AI to be intelligent or not. It is a lot about expectation management.” (Sandblom 2019)

M2M, M2H and H2M The concepts of machines marketing to machines (M2M), machines marketing to humans (M2H) and humans marketing to machines (H2M) are very interesting. People love to watch Netflix, use Spotify and shop on Amazon because everything is personalized to us. Machines are marketing to humans and it is seen as a positive aspect. In SEO humans are optimizing for machines. But machines can do this better, at scale, at a much faster speed. An example of M2M are topic modeling that has been used to reverse engineer search results. What appeals to humans is similar to what appeals to machines at the moment. Machines already create content such as press releases and financial reports. An interesting issue to think about in the age of machines and humans is that will machines be human like when they are intelligent or will machine intelligence be superior to human intelligence? Most likely AI will not have human-like intelligence, whatever its intelligence might be like.

Algorithmic influencing in bubbles When you look at influencers and brands as examples, they are the ultimate marketing tools of the future. How can you have your wide portfolio such as a network around the globe leveraging your company

and doing your marketing for you? A new way to conduct marketing is an ethical way, as the likes of Tesla's marketing. The company allegedly do not pay for marketing but they have built a brand through a community structure. Leveraging this type of marketing is irrelevant of the budget at hand. Small and medium sized organizations can use the same strategy as large organizations can. It is all dependent on the community one can manage to create. Your own community has the ability to pass through the jungle of algorithms.

“Create your own small community, a bubble, where you can target the people in the same bubble, whom will share information to other bubbles. ” (Alasaarela 2019)

You must know what keywords trigger interest in the influencers of each bubble, when they are online and systematically create content that seems like a random flow of thoughts but is actually full of triggering words. This creates an effect that will grow the reach of your marketing messages. The people in your own bubble belong to other bubbles, where they again share their relevant messages and the entire process spirals on from this. This is especially relevant to companies which have community and responsibility at the center defining the ways the company conducts business. The way to which one can enter these bubbles is to gain understanding of it. Understand what resonates to whom and at what level. The community can work as the feedback and distribution channel to your marketing. Even when we take away modern technology and artificial intelligence, we as humans conduct our lives in the same way. So, the technology itself is not the most relevant point to understand, but the mindset and interests of the people whom you wish to converse with. Influencing with algorithms is based on the same techniques as marketing, but the understanding of algorithms, how they work is important which makes this a very interesting new addition to the field of marketing.

4. Future of AI

Based on numerous answers from respondents in this research it can be said that, there is no credible way to forecast the future of AI and marketing. With the pro-

gress of technology and the knowledge of the arrival of quantum computing, interesting predictions can however be made, but all they can be are sophisticated hypotheses from experts in the field of computer science. Chatbots are getting more sophisticated and this will change marketing and sales in many ways. Perhaps a human will program the computer to perform a task, and the outcome will be something entirely unexpected, which can lead to a major breakthrough in the industry. To example the uncertainty and unpredictability of this, in 2016 it was prognosticated, that the deep neural networks were so primitive, that it would take 30 to 35 years before a neural network learned how to play the game Go. 18 months later Google's DeepMind beat the world's champion at the game and this prognostication was deemed false. The use of data and development of computing will progress and companies will be confronted with ethical issues and risks that have not been seen before. Additionally, if artificial general intelligence will emerge, how will marketing be effected in the future? The last main category will answer these questions.

Chatbots the future of customer service Customer communications is important in a company, but it can be a task that is difficult to master across all the platforms and devices. Chatbots can help with this task. A few banks in Finland have the most sophisticated bots in use at the moment but the Finnish language creates problems to the development of the solutions. The Finnish language uses sarcasm often and it is difficult to analyze if a comment is negative or positive. A solution to develop the language processing could be to have universities build projects around the development. This can either take the technology forward rapidly or keep it slow. Better technology exists but not many companies are still utilizing them. IBM Watson is a good solution but is difficult to build and takes up to a year to be built. Ainia Innovations provide Cognigy bots that can have real conversations. Based on the information from this research, this is one of the most sophisticated solutions available at the moment. On a global level, Bosch uses a very sophisticated bot which is made by Cognigy. At its best if the sales volume in the company is high enough, this bot can actually go through the entire sales process and close the deal. With this technology 80 percent of the sales process is done by AI. If we consider what this could mean in a company's sales and marketing

department, it is revolutionary. The time left for humans to deal with situations that require emotions, feeling, human judgement and the type of skills AI does not have is significant. Bots should not be left to work alone, and they need human supervision. The purpose of a chatbot is to support humans in their tasks and make the process faster and easier and more pleasant for the customer. Whether the chatbot is in charge of the entire process to the end, or humans take over at some point, is irrelevant. What is in fact relevant is that the process is smooth, and the outcome is what has been initially set. This is a constantly improving process in which the data comes back, it is analyzed, and it must be improved. If technology can aid in this, it should be used.

Breakthroughs with AI The past years have brought on great milestones in AI research and capabilities. Due to better computing power the computers are faster and the large teaching data sets can be handled by computers to neural network computations. Also cloud computing has enabled the storage of larger amounts of data than ever before. What was done before in weeks, is now possible to do in seconds and the amounts of data being stored has grown at an exponential rate. In the 80's there were already rule based computer programs that were not artificial intelligence as we know it today, and despite this, it was at the time referred to as Artificial Intelligence. Until approximately 2012 the local binary pattern, of the Finnish researcher Matti Pietikäinen, had been the most advanced version of facial recognition until the neural networks surpassed this technology. Neural networks are now very developed and as examples, the recognition of images has helped in targeting marketing at a new level to consumers, teaching AI doctors and autonomous vehicles is also now possible. In addition to these great advancements in the capabilities of computing, natural language processing and generation has advanced greatly. The NPT2 project is noted to be one of the great milestones in the past years. Google Open AI created a bot which allegedly wrote such good content on blog posts that they had to withdraw it from the public. This can change marketing as we know it in many levels. It can help us in content creation among but also will it bring trust issues? Another milestone is the Melnet neural network. By adding an additional important dimension to audio, the Melnet project has figured out how to use spectrograms to train AI voices and AI music and the results so far have

been impressive. A very important insight from these current advancements in AI is that AI is still an area which is somewhat unknown, the capabilities and progress sometimes surprise the humans training the models. The ethics and risks must be carefully considered.

Ethics and risks of AI

A technological fundamental question arises from the AI algorithms having the black box effect. The computer is fed an input and it gives an output, but the process which it goes through is somewhat a mystery. When asked, some experts say that this is a problem because they cannot explain it. Some industrial processes cannot use AI neural networks because the understanding of the functionality and how the calculations are made is lacking. Numbers can be extracted from these models but still the understanding of the numbers is not clear. AI can do unexpected things, make mistakes and can be unpredictable, which at itself is a paradox as the fundamental purpose of AI is to predict, to help humans not make mistakes and make numbers explainable. Reinforcement learning and transfer learning have arose as new solutions to answer the problems of human biased or inability.

There are numerous dangers of AI neural networks. They can be brittle, they can be hacked and corrupt by accident or, on purpose. Neural networks cannot necessarily recognize a change in an image for example. If a part of an image is covered up, it does not recognize it and this can cause big problems in the performance of the models. Perhaps these do not sound to be very dangerous threats but if an autonomous car for example does not recognize a photo of a sign because it is partially covered in snow, a serious accident could occur. Also the threats around cyberthreats exist. Data is said to be the oil of this time and it is imperative that every business is prepared for someone getting too much data or for it to be taken into the wrong hands. The Harvard Business review released an article stating that anonymity is a myth. According to CEO of Houston Analytics Antti Syväniemi, the impression was that no one listened. Peoples' behavior is monitored very closely, and the amounts of data points gathered from one person is vast. People do not even want to know how much the companies know about them. We value our privacy but at the same time we want to have easy, fast and

personalized services, as already confirmed previously when discussing our shopping behavior with companies like Netflix, Spotify and Amazon. Also Facebook could be added to this list as people are aware of the privacy issues they have been going through, but still the consumers continue to consume. A big portion of consumers are seen to not have the knowledge to analyze or question the marketing messages given to them and they can be easily influenced with technology. Malevolent influence is a big problem of today. As the case of Cambridge Analytica, data is powerful and can be used in different ways to influence people, if they lack the capacity to question what they read and hear in the media.

Future in marketing The entire field of marketing is changing and one must constantly update the methods being used. The world's first online banner had a click through rate of 78 percent and today these banners have a click through rate of approximately 0,05 percent. We cannot trust what has worked in the past to work tomorrow. Marketers must evolve with the rapidly evolving world to stay relevant. The key to future marketing is to create high quality, relevant content that is delivered to the consumer at the correct time and place. Unnecessary spamming will disappear because it has already been proven to be inefficient. It is more about quality, than quantity. This is the way to engage the customers into conversations and to create a higher level of purpose for the brand itself. According to the experts, very few companies seem to be interested in their customers, they still remain more concentrated on selling their products. This gives a good chance to gain market share, when realizing and leveraging the technology that can give a company the 360 view of the customers.

“Product oriented marketing based on needs is not enough, you must speak to the customer and create value and entertainment.” (Utriainen 2019)

Head of AI at Yle Jaakko Lempinen proposed a thought that today's work consists of 70 percent of actual work and 30 percent of random duties such as filling in reports and other routine tasks. What would happen to the process of working if a machine could take this 30 percent of routine tasks and free humans to be more creative. The machines can already do these routine tasks, make photographs,

create content and perform as an inspiration for designers and content creators, so the future of work and especially marketing will be interesting. In content creation the computer could analyze written text, find relevant keywords, suggest more relevant ideas to add or one could have the computer rate content and publish the highest quality texts.

When personalizing marketing, there is no need to guess anymore. The entire process can be based on historical data and from this data more exact predictions can be made. The era of mass marketing has passed as it is known. Today we have mass marketing but to a segment of one and everything in the process is made for humans. With AI the company can get a 360-degree view of the customers and predict churn and profitable customers with a new level of preciseness. Due to the numerous touchpoints to gather data, the company can get this view of the customers which is based on facts, data, not human intuition, feelings or assumptions which can be distorted. As stated previously the numerous touchpoints give so much data that the company can know the customer too well. In these situations, it is the responsibility of the company itself to treat the data according to GDPR regulations and to also use human skills to make decisions on how much personalization and marketing is appropriate. A company that will succeed with leveraging technology and gaining the trust of their customers, is one that does not spam their customers constantly, even though they could.

Anonymous personalization is an interesting new concept introduced by Director of services at Houston Analytics Edi Sandblom. Anonymous personalization functions without an identity when it is in context to one person. If the identity is missing, the information cannot be leaked. An idea could be to have a company which sole duty is to validate people and function as an intermediary between different instances as a service provider. Just like validating money, they would validate people. This could create a new type of trust system around the data trading, collecting and sharing. How would this effect marketing procedures?

When thinking of robotics, humans and machines and how this will all work together in the future, a very interesting idea rose from the interviews. What if a bot was

added to the traditional marketing process of buyer, seller and service provider? Each individual would have their own filterbot, which would communicate and filter out the relevant content from the noise and book appointments, buy products etc. How would this effect marketing and the generation of content? Would it be more straightforward to reach the potential customers, or would the process become more difficult? The technology exists for everyone to have a personal algorithmic angel filtering out the internet for them, so should this become a product? A key thought which arose from this research was also to critically evaluate the current content online to support the idea of the filterbot. Could these filter bots recognize what content is copy paste versions of the original content and are the facts distorted? A big portion of the articles and blogs are full of content which have been copied from the original content and if the original author of the first content has made mistakes, we can find 20 or more articles on the first page of Google with false information on it. This becomes more and more difficult for a consumer to navigate through, and technology could bring good solutions to fix these issues.

When predicting the future of marketing, new channels in which to conduct marketing arose as important issues to consider. For example e-games can offer a new channel in which to embed marketing messaging. The messages must be highly personalized and targeted with interesting and relevant content which resonates with the target consumer and triggers action. A technological solution alone cannot solve these issues, so artificial intelligence alone is not an answer to the problems in future marketing.

ANI/AGI Today in 2019 we have artificial narrow intelligence (ANI) and artificial general intelligence (AGI) is still far away. Super intelligence, which is the step after AGI is even further away and allegedly does not exist yet. When asked, when will we have AGI, the answers have varied slightly. Some respondents in this study have claimed, we will have it fairly rapidly, as has an IBM senior researcher who has dated the emergence of AGI in 6 years from now. Whereas others claim that a broad human like AGI and an AI capable of human work could be available in 30 years. So we can see how difficult is actually is to predict the future advancements of AI. In practice, AGI could mean neural networks which are capable of learning

concepts that it does not comprehend itself. To this day, we do not have the understanding of what it will be. Researchers see machines doing the tasks of humans such as composing a top listed pop song or driving a truck in 6-7 years, whereas replacing AI researchers was seen to be almost impossible.

Real life AGI depends on quantum computing. The basic functionalities of quantum computing are somewhat known but the applications and use cases are still highly unknown and predicting the future is impossible, as we cannot even imagine what they will be able to do. But quantum computing with its new rules is nevertheless seen as one of the most important emerging changes in technology that have a possibility to revolutionize the industry. An example to help visualize what could be an example of AGI, is an AI robot which functions in a logical way as a human would, without making mistakes.

6 Ekokompassi

The commissioning company of this thesis Ekokompassi is a Finnish environmental management system which offers a certification for small and medium sized enterprises. They work to support and advice companies in making changes to their processes to lower the negative impact on the environment. As an environmental management system, Ekokompassi is based on international environmental management standards and similar Nordic systems and is suitable for all companies, regardless of their industry. Events can also use Ekokompassi certification. The environmental management system is personalized to each company or organization. Ekokompassi is based on a list of ten criteria which are personalized, and the organization, company or event commits to comply with. The company goes through auditing procedures and receives a certification once the 10 criteria are fulfilled. Below is the list of the ten step criteria as Ekokompassi has listed on their site. (Ekokompassi 2020)

1. The organization commits itself to comply with the environmental laws and regulations governing its activities.

2. *The organization has a nominated an environmental manager who is trained for the job.*
3. *The organization shall map the current state of the environmental management within the organization and identify the major environmental impacts.*
4. *The organization has an environmental policy in which it undertakes to reduce its environmental impact in accordance with the principle of continuous improvement.*
5. *The organization shall instruct personnel to consider environmental aspects in their operations.*
6. *The organization has a waste management plan and operates in accordance with waste regulations.*
7. *The organization shall keep records of its hazardous waste, separate it, store it safely and dispose of it properly.*
8. *The organization shall store and catalog the chemicals it uses in accordance with its obligations under chemicals legislation. Safety Data Sheets are available to staff and staff are advised on the safe use of chemicals.*
9. *The organization shall establish an environmental program that includes objectives and measures to reduce environmental impact. The environmental program is updated annually. The targets shall be reset at least every three years. Targets are set for at least two of the areas below and must be based on the most significant environmental impacts. In events, the goals are set in all areas of practice.*
 - a. *Reduction and sorting of waste*
 - b. *Energy efficiency and renewable energy*
 - c. *Responsible acquisition*
 - d. *Material efficiency*
 - e. *Logistics and movement*
 - f. *Communication and influencing*
 - g. *Engaging your partners in business*
 - h. *Other area*

10. The organization shall annually report on the implementation and performance of its environmental program activities. Management and staff are aware of progress in environmental work.

Ekokompassi is interested in the findings of this research to gain more knowledge of new technologies that can be utilized in marketing. As artificial intelligence is impacting all fields of business, it is important to familiarize oneself with the technologies and practical use cases.

Suggestions for Ekokompassi

The 5p's of marketing AI model of the marketing Artificial Intelligence Institute (Figure 6, p. 35) and Table 2 the journey towards AI by Christopher Penn from Trust Insights (table 2, p. 27) can be examined side by side when beginning to evaluate the company's processes now and making a plan for the future. Penn's table works as a holistic map and the 5p's offer a roadmap of the process by which one can systematically conduct marketing by. Figure 9 (p.71) illustrates this combined process.

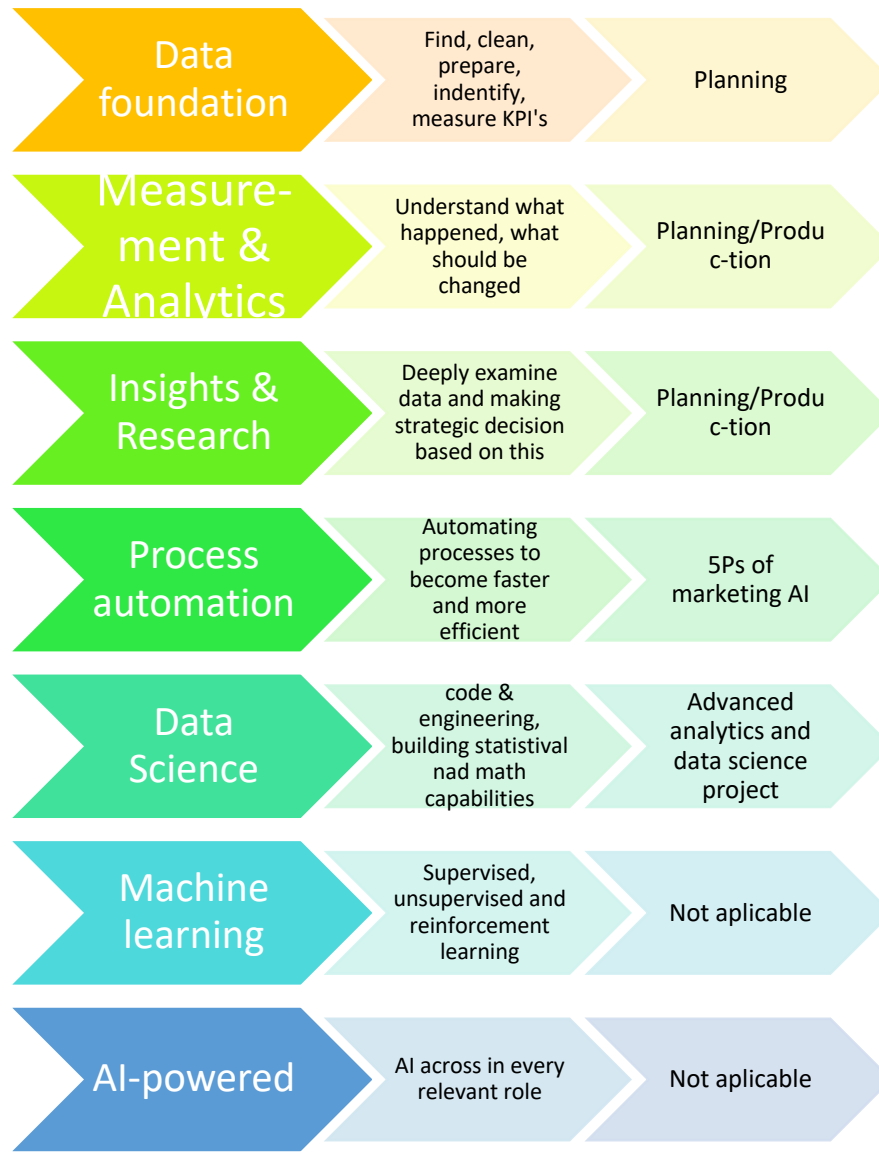


Figure 9 The journey towards AI with 5Ps of marketing AI (Salmi 2020)

Having quality data is the foundation of this entire process and this is the most important step to begin with. Ekokompassi should begin to gather data systematically. Find data that already exists, clean it and prepare it for further analysis. A CRM system is the minimum requirement one must have today when beginning the journey towards AI and modern marketing in order to keep customer data organized, clean and easily available. Hubspot has a good free CRM system one can use to begin with. After if needed Hubspot offers other additions to the system to improve the marketing automation and gain more insights. A key factor in data gathering is that the same system is used throughout the organization and that everyone makes updates with clean quality data, or that the separate systems communicate with each other flawlessly. All data must be in digital format and in a

system. This data foundation works as the base for the planning phase in marketing. If Ekokompassi will begin to make marketing messaging in English Crayon Intel pro could be used for competitor analysis and possible collaborators for Ekokompassi. When planning content, Market muse could be a useful tool to create relevant content that ranks well for visibility once the company will begin to communicate to an international audience. Unfortunately, these solutions do not support the Finnish language yet.

Another good way to begin marketing on a small budget is to utilize groups and communities. The planning of good content is the first step. One can create a VIP group in a chat on Messenger, Whatsapp or Telegram and create a community and share relevant information with the relevant group. Whatsapp is good at the beginning as for now, they have a limit of 250 people in a group. The limit in Telegram on the other hand is 200 thousand so this can be an option if the community is big. LinkedIn is not the best platform for creating communities and groups at the moment. The key is to leverage Facebook and other platforms that exist and really invest in these. Make customer profiles and buyer personas on Facebook and LinkedIn. This doesn't need automation or cost much.

Most companies investments go into traditional product oriented marketing, leveraging mass media and qualifying leads by hand, while investing in quality content that is relevant to consumers could be done, as stated before, more cost efficiently on for example Facebook, Whatsapp and Telegram, which give you your target bubble. When you understand the bubble, you need to enter to get your content seen, liked and shared you have a foundation on which to build your content. Understanding who is your target and when they are on the platform and to leverage the communities to share the messages in their own bubbles is a creative and inexpensive way to create awareness and share your message. Create your own bubble in which you can target others in the same bubble, they will then share in their own separate bubbles and the message will continue to gain tractions throughout different groups of people. The building of culture is very important in today's marketing and this can be easily started with a small community of 200-300 people who have similar interests and mindsets. Especially companies which

have a mentality of social responsibility, shared economy and strong ethical principles can easily leverage this strategy. Related to algorithmic influencing and filter bubbles, I want to separately lift up an important insight, the key is to incentivize people to do good and combine this to the selfish needs of a human. This is an important issue to think about when creating content with the aim of triggering emotions, feelings and after, actions.

Once the business moves forward and the number of customers rise to the thousands, additionally the data foundation is solid and measuring of performance and understanding what has happened is at a good level, separate use cases for artificial intelligence can be thought of. For example, adding AI to the CRM system to predict and suggest actions. As stated before, just by using Google analytics you can actually say you are using AI to make your outreach more impactful. Close to 100 percent of people in their customer journey go to Google to find the first information before they do anything else. This is a very powerful tool that is underused in companies but can reduce expenses in marketing. The benefits of AI, acceleration, accuracy and automation, can be utilized with Google Analytics in a faster way with a smaller budget. By using process automation, the journey towards an AI powered company is already at its midpoint. Measuring performance which is a key in marketing can also be done with Google analytics which is a valuable tool. Once you can see how your content performs, you can adjust your ad spend and content accordingly. Additionally, making sure the content being published whether it is images, text or voice must meet the basic requirements of Google to ensure the visibility on the search engines is important.

Before beginning with data projects that cost thousand a month, the data should be too big to handle by hand. HubSpot, Oracle, Salesforce and Ainia Innovations are all examples of companies with solutions that support the Finnish language. Houston analytics for example can add optimization and other AI capabilities on top of these programs once the data is available. Also, if there is no data to begin with, it is not a problem, data can be gathered. The most important thing is to remember that data is the most valuable currency of our time. And it's not too late to

begin gathering relevant data today. Other examples of AI companies are CI Computational Intelligence, Koivu Solutions, Elinar, Huble, Bluuko, Headai, Silo.ai and Fourkind. The most important take from this entire research is that you must define your business problem, think of your desired outcome, build a strategy, gather data and add Artificial Intelligence or however you like to call it, help you scale, personalize at a 1to1 level and do the repetitive tasks for you so you can concentrate on building the entire customer experience into the best possible. With advanced techniques such as machine learning the marketing could be automated to predict and suggest operations.

Ainia Innovations offer good solutions to manage the customer communications processes. Anywhere 365 leverages the Office 365 infrastructure to intelligently connect the customers with the correct customer service representative and report useful data. This solution makes the entire process easier for the customer and the organization. Additionally their conversational AI platform Cogigny.AI can help with customer service 24/7. Their conversational AI can work the entire process from first contact to the end without human intervention but also can transfer the process to a human representative when needed. These solutions are a good option when the customer base is slightly larger and handling the processes by hand becomes complicated and time consuming.

Ekokompassi should definitely use the basic understanding of AI brought forward from this research to look additionally beyond marketing, which is the scope of this research and evaluate their other processes as well. Perhaps the marketing can be done by using traditional methods in the beginning, but the other processes of the business could be scaled up and optimized by leveraging AI. The company's main business is to evaluate organizations in complex ways and track their processes to measure the impact on the environment. Perhaps the use of money on AI solutions could be of better use in this rather than in marketing.

7 CONCLUSIONS AND DISCUSSION

The fundamentals of AI and 5Ps of marketing AI framework presented in this thesis provide a comprehensive base into the field of artificial intelligence and marketing. The objective of this qualitative research is to explore Artificial Intelligence in marketing, discover future predictions in the field and to achieve to gather the information needed to deliver recommendations for Ekokompassi. 16 in-depth interviews with the some of the most knowledgeable experts in Finland in the field of computer science, marketing and business were conducted. Two interviews form the sixteen arise because of their unusual settings. The interview of Jani Aaltonen from Sales Communications was conducted as a podcast and Christopher Penn from Trust Insights answered on his YouTube Channel.

Based on the theory and expert interviews I have concluded the following to the questions I sought out to answer.

How to use artificial intelligence in marketing?

Both sales and marketing have grown to realize that AI is here and it is changing the way business is conducted. The strength of Artificial Intelligence is in predicting, suggesting and having the capability to scale based on real facts found in data. One to one personalization at scale is revolutionizing marketing.

The 5Ps of marketing AI (Figure 6, p.35) works as a holistic framework to conduct marketing and find processes in which AI can be of use. Planning content by utilizing vast amounts of data available, finding important keywords to lift content in search engines and gain traction and analysing competitor content are all important actions in marketing. The planning phase is crucial to the success of a marketing campaign. AI solutions such as IBM Watson analytics among others can be used to find patterns and relationships in data to learn what drives behaviour. By taking control of data, the need for intellectual guessing is over. Producing relevant content, whether it is images, video or text, using AI can be more efficient to rapidly find the keywords to embed in the content. By doing this, one can

ensure that the content created matches the search words of customers. Understanding the search engines is also critical to be able to optimize the content and gain visibility. Leveraging and understanding filter bubbles is important to adjust action triggering content within these bubbles. One to one content personalization is the future and vast amounts of customer data including demographical, geographical and behavioural data are needed. Humans can however only manage a small portion of this data, but AI can filter through, organize and suggest hyper personalized actions based of the facts gathered from data. This makes AI such a powerful tool for marketers. On the other hand, if the knowledge of utilizing this data is lacking, AI is purposeless. Promoting content can also be done by using tools such as Hootsuite or Onespot. By using technology to make decisions on ad spend, scheduling and reporting, you can take better control of the marketing processes and change actions according to performance results from reports. The era of publishing random content is over. Valid data must exist to support the decisions made in marketing, or the marketing efforts will become obsolete. Even if a post might seem to be written randomly, if created wisely, it has all the elements needed to trigger the correct target audience and thus is successful in reach, visibility and most importantly conversion. Prediction seems to be the key to future marketing. It also raises the questions of data privacy and ethics which should not be forgotten. To show the customers you know what they want before they know it themselves can create trust issues and the feeling of violation of one's privacy.

What are future predictions in the field of marketing and AI?

As illustrated in Figure 3 (p.28) from McKinsey Global Analysis marketing and sales is the area of business in which AI has provided significant value. The personalization of promotions by analysing customer data, with advanced analytics and artificial intelligence, can lead to significant increase in sales. The data amounts available are so vast that humans will inevitably struggle to make sense of it, thus the utilization of technology will become essential. The future of quantum computing, collaboration between humans and machines and the need for hyper personalization is changing the way we live and do business. The Finnish language presents challenges as the big software companies are mainly offering

their services in English and thus the progress of software applications is slower in Finland, nevertheless companies are creating valuable solutions for example in conversational AI for chatbots. The future of AI and marketing is an interesting field to follow as when we reach the point of Artificial General Intelligence (AGI), we do not actually know what will emerge. It has already been seen that the channels in which marketing is conducted are everywhere, even in games. The next big revolution after AGI has emerged is left to be seen.

What are potential AI enabled solutions are in marketing for Ekokompassi?

We can look at AI solutions in two different ways. Firstly, as software solutions and secondly as strategic solutions, decisions. The bigger picture consists of the solutions that are strategic decisions. Once a company can pinpoint the problems, the solutions can be found to help in the marketing processes. There is no reliable way to state one solution can help Ekokompassi in their marketing process. The insights in this research can act as a guideline to give information, raise the correct questions to find the problems that need to be solved and from this, the solutions, both technical and strategic can be found according to the strategic decisions the company wants to make.

Software solutions can be narrow applications that have a single purpose such as finding keywords on social media or measuring conversion on Instagram. They can also be robust heavy packages of solutions that can handle your entire business processes, not just a narrow marketing problem. Examples of these are Salesforce, Microsoft, Hubspot etc. Ekokompassi can most definitely utilize the light solutions to aid in gathering customer insights, take care of customer data and utilize this data to personalize their marketing efforts to the one to one level and gain the most relevant customer base. Houston analytics are capable of designing systems that are catered to smaller or bigger problems in the organization, but they need to be evaluated case by case. Hubspot offers a good free CRM system to begin with and additional features can easily be integrated with this system when the customer base is large enough. Cogigny chatbots from Ainia Innovations are a good way to take control of the future customer services

and even sales operations. Microsoft offers solutions to use in different stages of the business processes in different sectors as well.

When beginning this research my knowledge of Artificial Intelligence was nearly non-existent but I knew it had an important role in future business. I was aware that in order to succeed I would need to gain an understanding of what AI is and how it can be used in marketing. The knowledge I was able to obtain while researching for the theory was fairly comprehensive. As a final conclusion my expectations, for the information I would gain by interviewing the high-level experts, was extremely high. I was confident to gain truly ground-breaking insights on the future of AI, but my inexperience of the field leads me to assume the findings would be something unexpectedly futuristic even. During the interviews I attempted to probe deep information from the interviewees but felt the answers did not exceed my expectations as such. Perhaps the fact that companies cannot reveal company secrets kept me from gaining the information I assumed to gain, or perhaps the gaps in my understanding of the underlying technology created a setting that would have been different if I was an expert in computer science. Nevertheless, the entire process was inspiring.

“At the end of the day, Artificial Intelligence is nothing more than math” Christopher Penn.

7.1 Validity and reliability

Validity and reliability in qualitative research are equally important as in quantitative research. In both qualitative and quantitative research, the researcher must be able to verify that they have systematically collected information that has led to certain results and conclusions and they have to be able to argue their results. The results of a qualitative research are to be validated and reported in a careful manner. The researcher, interviewees and the readers themselves interpret information in different ways due to their backgrounds, knowledge and the way they perceive things and it is the task of the researcher to report issues in a way to minimize false interpretations for the findings. (Hirsjärvi et.al 2013, 229) Reliability

refers to the fact that if the research was conducted by another person, the results would remain the same. Validity on the other hand refers to if your research is actually answering the initial research questions you have formulated in the beginning of the research process and that the theory supports your findings. (Kananen 2011, 66)

Regardless of the type of research conducted, ethics of research must also be considered. It is a responsibility of the researcher to inform the readers of the limitations and biases of the research. In business studies especially it is extremely important to take into consideration the moral dilemmas one might have in order to be sure not to publish misleading results that can lead to serious repercussions by the commissioning company or respondents to interviews for example. The results of the research must be reported in a clear, reliable and trustworthy way regardless of the personal bias the researcher may or may not have on the matter. Also, the respondents have been informed how the information they have provided will be used and that they will be published. (Ghuri & Gronhaug 2010; Kuula & Tiitinen 2010)

7.2 Further research suggestions

This research has brought up numerous topics to explore in further research some of which are the following:

1. How is AI transforming data analysis for marketing research?
2. Ethics and privacy issues in marketing
3. The benefits of collaborative data collection and utilization, in a small country like Finland.
4. Is the rise of new technologies affecting employee motivation and wellbeing at workplaces?
5. Content creation using AI natural language processing
6. How cost efficient is the use of AI in marketing in which functions?
7. Chatbots in marketing

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Table 4 Content analysis categories in themes. Salmi, A. 12 December 2019.

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To date, the Principles have been signed by 1273 AI/Robotics researchers and 2541 others.

We, the organizers, found it extraordinarily inspiring to be a part of the [BAI 2017 conference](#), the Future of Life Institute's second conference on the future of artificial intelligence. Along with being a gathering of endlessly accomplished and interesting people, it gave a palpable sense of shared mission: a major change is coming, over unknown timescales but across every segment of society, and the people playing a part in that transition have a huge responsibility and opportunity to shape it for the best.

This sense among the attendees echoes a wider societal engagement with AI that has heated up dramatically over the past few years. Due to this rising awareness of AI, dozens of major reports have emerged from academia (e.g. the Stanford 100 year report), government (e.g. two major reports from the White House), industry (e.g. materials from the Partnership on AI), and the nonprofit sector (e.g. a major IEEE report).

In planning the Asilomar meeting, we hoped both to create meaningful discussion among the attendees, and also to see what, if anything, this rather heterogeneous community actually agreed on. We gathered all the reports we could and compiled a list of scores of opinions about what society should do to best manage AI in coming decades. From this list, we looked for overlaps and simplifications, attempting to distill as much as we could into a core set of principles that expressed some level of consensus. But this "condensed" list still included ambiguity, contradiction, and plenty of room for interpretation and worthwhile discussion.

Leading up to the meeting, we extensively surveyed meeting participants about the list, gathering feedback, evaluation, and suggestions for improved or novel principles. The responses were folded into a significantly revised version for use at the meeting. In Asilomar, we gathered more feedback in two stages. First, small breakout groups discussed subsets of the principles, giving detailed refinements and commentary on them. This process generated improved versions (in some cases multiple new competing versions) and a few new principles. Finally, we surveyed the full set of attendees to determine the level of support for each version of each principle.

After such detailed, thorny and sometimes contentious discussions and a wide range of feedback, we were frankly astonished at the high level of consensus that emerged around many of the statements during that final survey. This consensus allowed us to set a high bar for inclusion in the final list: we only retained principles if at least 90% of the attendees agreed on them.

- Research Issues

- 1) **Research Goal:** The goal of AI research should be to create not undirected intelligence, but beneficial intelligence.
- 2) **Research Funding:** Investments in AI should be accompanied by funding for research on ensuring its beneficial use, including thorny questions in computer science, economics, law, ethics, and social studies, such as:

- How can we make future AI systems highly robust, so that they do what we want without malfunctioning or getting hacked?
 - How can we grow our prosperity through automation while maintaining people's resources and purpose?
 - How can we update our legal systems to be more fair and efficient, to keep pace with AI, and to manage the risks associated with AI?
 - What set of values should AI be aligned with, and what legal and ethical status should it have?
- 3) **Science-Policy Link:** There should be constructive and healthy exchange between AI researchers and policy-makers.
 - 4) **Research Culture:** A culture of cooperation, trust, and transparency should be fostered among researchers and developers of AI.
 - 5) **Race Avoidance:** Teams developing AI systems should actively cooperate to avoid corner-cutting on safety standards.
 - Ethics and Values
 - 6) **Safety:** AI systems should be safe and secure throughout their operational lifetime, and verifiably so where applicable and feasible.
 - 7) **Failure Transparency:** If an AI system causes harm, it should be possible to ascertain why.
 - 8) **Judicial Transparency:** Any involvement by an autonomous system in judicial decision-making should provide a satisfactory explanation auditable by a competent human authority.
 - 9) **Responsibility:** Designers and builders of advanced AI systems are stakeholders in the moral implications of their use, misuse, and actions, with a responsibility and opportunity to shape those implications.
 - 10) **Value Alignment:** Highly autonomous AI systems should be designed so that their goals and behaviors can be assured to align with human values throughout their operation.
 - 11) **Human Values:** AI systems should be designed and operated so as to be compatible with ideals of human dignity, rights, freedoms, and cultural diversity.
 - 12) **Personal Privacy:** People should have the right to access, manage and control the data they generate, given AI systems' power to analyze and utilize that data.
 - 13) **Liberty and Privacy:** The application of AI to personal data must not unreasonably curtail people's real or perceived liberty.
 - 14) **Shared Benefit:** AI technologies should benefit and empower as many people as possible.
 - 15) **Shared Prosperity:** The economic prosperity created by AI should be shared broadly, to benefit all of humanity.
 - 16) **Human Control:** Humans should choose how and whether to delegate decisions to AI systems, to accomplish human-chosen objectives.
 - 17) **Non-subversion:** The power conferred by control of highly advanced AI systems should respect and improve, rather than subvert, the social and civic processes on which the health of society depends.
 - 18) **AI Arms Race:** An arms race in lethal autonomous weapons should be avoided.
 - Longer-term Issues

- 19) **Capability Caution:** There being no consensus, we should avoid strong assumptions regarding upper limits on future AI capabilities.
- 20) **Importance:** Advanced AI could represent a profound change in the history of life on Earth, and should be planned for and managed with commensurate care and resources.
- 21) **Risks:** Risks posed by AI systems, especially catastrophic or existential risks, must be subject to planning and mitigation efforts commensurate with their expected impact.
- 22) **Recursive Self-Improvement:** AI systems designed to recursively self-improve or self-replicate in a manner that could lead to rapidly increasing quality or quantity must be subject to strict safety and control measures.
- 23) **Common Good:** Superintelligence should only be developed in the service of widely shared ethical ideals, and for the benefit of all humanity rather than one state or organization.

Example of voice to text transcription from Sonix.ai in Finnish language.

“Markkinointipuolella on aika vaikea nähdä että mikä ero on markkinoinnin missään ja automatisoinnissa automatisoidessa monesti että se prosessi niin markkinointiautomaation prosessi ja tyyli ei ole oikeasti se koko prosessi vaan siellä on jotain pitää tehdä etukäteen ei siinä vaiheessa kun automaation inho on esimerkiksi se että meillä on tehty markkinoinnin automaatioon vaikka viisi erilaista niin kun markkinoinnin automaatioprosessia ja sen tekoäly valitsee sen asiakkaan käyttäytymisen perusteella mitä se niitä käyttää. Se on jonkun semmonen mitä ne tällä hetkellä perusautomaatio ei tee vaan robotiikka ohjaa niitä kehiin ja sitten siellä se on. Se on ehkä se mikä nyt on tulossa nkunin voimakkaammin koska halutaan yksilöllistä hallintaan aikaan sidottua paikkaan sidottua hyvin paljon nopeampaa kun se on aika vaikeaa muun muuhun sidottu. Me ei voida välttämättä sanoa että missä kannattaa vaan se pitää päättää siinä nopeasti siinä sitten sieltä tulee automaatioprosessit sieltä tulee konteksti erilaiset niin se voi olla että sen senaaminen antaa sen mahdollisuuden mutta sitten kun mennään taas hypätään sieltä pilvimaailmasta alaspäin niin taitaa.”

Transcription from audio file made by the researcher herself.

”Markkinointipuolella on aika vaikea nähdä että mikä ero on niinku markkinoinnin AI:ssa ja automatisoinnissa. automatisoinnissa monesti on että se prosessi niin markkinointiautomaation prosessi, on rajattu johonkin. ja se ei ole oikeasti se koko prosessi vaan siellä on jotain mitä pitää tehdä etukäteen. eli siinä vaiheessa jos mentäisiin automaatioon on esimerkiksi se että meillä on tehty markkinoinnin automaatioon vaikka viisi erilaista niin kun markkinoinnin automaatioprosessia. ja sen tekoäly valitsee sen asiakkaan käyttäytymisen perusteella mitä se niistä käyttää. Se on niinku semmonen mitä tällä hetkellä se perusautomaatio ei tee vaan robotiikka ohjaa niitä keinoja sitten siellä se on. Se on ehkä se mikä nyt on tulossa niinkuin voimakkaammin koska halutaan yksilöllistä halutaan aikaan sidottua paikkaan sidottua, hyvin paljon nopeampaa. ja kun se on aikaan paikkaan ja muuhun sidottu. Me ei voida välttämättä sanoa se että missä kanavassa se on vaan se pitää päättää siinä nopeasti siinä sitten sieltä tulee automaatioprosessit sieltä tulee konteksti tulee erilaiset. niin se voi olla että se AI antaa sen mahdollisuuden mutta sitten kun mennään taas hypätään sieltä pilvimaailmasta alaspäin niin tota.”

Interview questions:

1. Mikko Alasaarela

1. Mikä on määritelmäsi tekoälystä
2. Mikä on määritelmäsi algoritmista?
3. Algoritmien rooli markkinoinnissa?
4. Pitääkö markkinoijan osata käyttää algoritmeja?
5. Miten?
6. Hyödyntääkö kaikki algoritmit tekoälyä?

2. Riku Eskelinen

1. Ongelmat markkinoinnissa?
2. Asiakasjärjestelmien tila?
3. Tunnetaanko asiakkaat?
4. Mitkä prosessit ovat vaikeita ekokompassille?
5. Missä markkinointiin liittyvissä prosesseissa tarvitaan apua teknologiasta?
6. Missä on liikaa dataa jota kukaan ei ehdi käsitellä?

3. Jani Valkonen

No predetermined questions were written or sent to the respondent.

4. Heikki Ailisto

No predetermined questions were written or sent to the respondent.

5. Cimmo Nurmi

No predetermined questions were written or sent to the respondent.

6. Jani Savolainen

1. Miten määrittelet tekoälyn?
2. Miten perinteinen markkinointiautomaatio ja tekoäly eroaa toisistaan?
3. Mitä uutta ja merkittävää tekoäly tuo markkinointiin?
4. Mistä erottaa onko tekoäly oikeasti tekoälyä vai jotain muuta?
5. Mitä ongelmia sinulla on ollut markkinointi projekteissa/prosesseissa tekoälyn kanssa joissa olet mukana?
6. Onko sinulla kertoa konkreettisia esimerkkejä hyvistä tekoäly projekteista markkinoinnissa jotka ovat onnistuneet?
7. Missä prosesseissa tekoäly mielestäsi on kaikista kustannustehokkain tai järkevin markkinoinnissa?
8. Eri vaiheessa markkinointia tekoälystä voi olla apua. Mitä tekoäly tuo näihin kyseisiin prosesseihin? Onko se automaatiota vai tekoälyä?
9. Mitkä ovat perusedellytykset markkinoinnin automaation tai tekoälyn hyödyntämiseen yrityksessä?
10. Chatbotit uhka vai mahdollisuus? Missä menee automaation ja tekoälyn raja?
11. Mitä näet lähitulevaisuudessa tekoälyn ja markkinoinnin saralla? Mikä muuttuu?

12. Mikä on mielestäsi paras lähestymistapa teknologian lisäämiseen yrityksessä jossa käytetään edelleen kynää ja paperia tai ollaan pienemmillä budjeteilla?
13. Mitä vaikutuksia markkinointiin on kun koneet mainostavat koneille ja kun koneet mainostava ihmisille?
14. Mitkä ovat tärkeimpiä eettisiä kysymyksiä/ongelmia tekoälyn saralla?
15. Mitä teillä on Microsoftilla tarjota asiakkaille mitä muilla ei vielä ole?
16. Olisiko sinulla jotain muuta oleellista kerrottavaa mitä en ole osannut kysyä?

7. Jani Aaltonen

1. Miten määrittelet tekoälyn ?
2. Marketing AI institute on tehnyt 5Ps of marketing AI raamin. Planning, production, personalization, promotion, performance. Mitä voidaan automatisoida ja miten sekä voitko avata mitä lisäarvoa tekoäly tuo kuhunkin kohtaan? Onko se ikään kuin kirsikka kakun päällä?
3. Planning, building intelligent strategies
4. Production, creating intelligent content
5. Personalization, powering intelligent consumer experiences
6. Promotion, managing intelligent cross-channel & cross device promotions
7. Performance, turning data into intelligence
8. Miten markkinoinnin automaatio eroaa tekoälystä ja mitä tekoäly tuo markkinoinnin automaatioon?
9. Onko tekoäly mielestäsi tärkeää markkinoinnissa?
10. Onko sinulla kertoa konkreettisia esimerkkejä hyvistä tekoälyn projekteista markkinoinnissa jotka ovat onnistuneet ja epäonnistuneet?
11. Voiko pienempi yritys hyödyntää markkinoinnin automaatiota ja tekoälyä? Miten?
12. Millaisena näet markkinoinnin tulevaisuuden ja onko tekoälyllä siinä millainen rooli?

8. Antti Syväniemi

17. Miten määrittelet tekoälyn
18. Onko ohjelmissa oikeasti tekoälyä käytössä jos on niin miten tämä eroaa tavallisesta markkinointityökalusta?
19. Markkinoilla on valtavasti työkaluja joita yritys voi hyödyntää eri vaiheissa markkinointia. Pystytkö kertomaan mitä markkinointityökaluja voi hyödyntää kohdassa 3. Vai onko tämä lähtökohtaisesti väärä lähestymistapa?
20. Eri vaiheissa markkinointia tekoälystä voi joidenkin mukaan olla apua. Mistä sun mielestä voi saada apua nälhin eri toimintoihin?
21. Miten yrityksen kannattaa lähteä rakentamaan omaa markkinointi strategiaa jossa hyödyntää tekoälyä?
22. Onko pienen yrityksen rahallisesti mahdollista/kannattavaa hyödyntää uusia teknologioita heidän markkinoinnissaan jotta he pystyvät kilpailemaan markkinoilla? Jos on niin miten heidän pitäisi edetä?
23. Onko sinulla kertoa konkreettisia esimerkkejä hyvistä tekoälyn projekteista markkinoinnissa jotka ovat onnistuneet ja epäonnistuneet?

24. Miten yrityksen pitäisi lähteä keräämään dataa jos sitä ei juurikaan valmiina?
25. Mitä lisäarvoa tekoäly voi tuoda yksittäiselle asiakkaalle?
26. Mitä tarjontaa teillä on Houston Analyticsillä mitä muilla yrityksillä Suomessa ei ole?
27. Olisiko sinulla jotain muuta oleellista kerrottavaa mitä en ole osannut kysyä, etenkin markkinointiin liittyvää?

9. Edi Sandblom

1. Miten määrittelet tekoälyn?
2. Miten markkinointiautomaatio ja tekoäly eroaa toisistaan?
3. Reinforcement learning mikä ohjelma kykenee esim. päättämään isosta massasta kenelle pitää markkinoida ja mitä ?
4. Mitä uutta tekoäly tuo markkinointiin?
5. Onko ohjelmissa oikeasti tekoälyä käytössä jos on niin miten tämä eroaa tavallisesta markkinointityökalusta?
6. Mitä ongelmia sinulla on ollut markkinointi projekteissa tekoälyn kanssa joissa olet mukana?
7. Onko sinulla kertoa konkreettisia esimerkkejä hyvistä tekoälyn projekteista markkinoinnissa jotka ovat onnistuneet?
8. Missä prosesseissa tekoäly mielestäsi on kaikista kustannustehokkain tai järkevin markkinoinnissa?
9. Mitkä ovat kokemuksesi perusteella hyviä tekoälyä hyödyntäviä ohjelmia/aplikaatioita/alustoja kohtien 7-11 prosesseille. Mikä on markkinointityökalujen laita tällä hetkellä? Mikä käyttää tekoälyä ja mikä ei?
10. Mitkä ovat perusedellytykset markkinoinnin automaation tai tekoälyn hyödyntämiseen yrityksessä?
11. Chatbotit uhka vai mahdollisuus? Missä menee automaation ja tekoälyn raja?
12. Mitä näet lähitulevaisuudessa tekoälyn ja markkinoinnin saralla? Mikä muuttuu?
13. Mikä on mielestäsi paras lähestymistapa teknologian lisäämiseen yrityksessä jossa käytetään edelleen kynää ja paperia ja ollaan pienemmillä budjeteilla?
14. Mitä vaikutuksia markkinointiin on kun koneet mainostavat koneille ja kun koneet mainostava ihmisille?
15. Mitkä ovat tärkeimpiä eettisiä kysymyksiä/ongelmia tekoälyn saralla?
16. Mitä teillä on Houston Analyticsillä tarjota asiakkaille mitä muilla ei vielä ole?
17. Olisiko sinulla jotain muuta oleellista kerrottavaa mitä en ole osannut kysyä?

10. Tommi Havukainen

1. Miten määrittelet tekoälyn?
2. Mikä on tämänhetkinen tilanne Suomessa tekoälypohjaisten markkinointityökalujen käyttöönotossa ja kokeilussa?

3. Minkä tyyppisiä tekoälypohjaisia markkinointiratkaisuja yritykset ovat läheneet kokeilemaan ja mitkä ovat toimineet hyvin?
4. Onko ohjelmissa oikeasti tekoälyä käytössä jos on niin miten tämä eroaa tavallisesta markkinointityökalusta?
5. Mikä on asiakkaalle keino suodattaa pelkästään tekoäly hypellä mainostavia yrityksiä pois ja löytää oikeasti uudenlaisia ja älykkäitä ratkaisuja?
6. Mitkä ovat kokemuksesi perusteella hyviä tekoälyä hyödyntäviä ohjelmia/aplikaatioita/alustoja kohdan 6 prosesseihin
7. Eri vaiheessa markkinointia tekoälystä voi olla apua. Mistä sun mielestä voi saada apua näihin eri toimintoihin?
8. Mitä voimme oppia Amazonilta ja muilta suurilta edelläkävijöiltä?
9. Mistä dataa jota tekoäly hyödyntää voi saada tai ostaa?
10. Mikä on paras ja "ihmismäisin" chatbot joka on on markkinoilla Suomessa? Mikä yritys sitä käyttää? Tekoäly vs automaatio chatbotissa.
11. Mitä tarjontaa teillä on Houston Analyticsillä mitä muilla yrityksillä Suomessa ei ole?
12. Olisiko sinulla jotain muuta oleellista kerrottavaa mitä en ole osannut kysyä?

11. Ville Laitinen

1. Miten määrittelet tekoälyn?
2. Puhuiko tekoälystä tekoälyä ja jos et niin millä sitä mieluummin kutsut?
3. Mitä kuuluu tekoälyyn? Jos lähdet luokittelemaan sitä alakategorioihin, esim supervised learning, unsupervised learning ja reinforcement learning, deep learning? Osaatko lyhyesti selittää maalaiselle nämä käsitteet?
4. Tekoäly, tukiäly, apuäly, älykäs koodi, älykäs automaatio. Osaatko avata näitä hieman?
5. Miten tekoäly on kehittynyt 80 luvulta tekoäly talven jälkeen? Johtuuko se muustakin kuin siitä että tietokoneet pystyvät prosessoimaan paljon suurempia data määriä ja pilvipalvelut auttavat suurien data määrien säilyttämisessä?
6. Onko ohjelmissa oikeasti tekoälyä käytössä jos on niin miten tämä eroaa tavallisesta markkinointityökalusta?
7. Mitkä ovat keskeisimpiä tehtäviä jossa tekoäly on osoittautunut niin tehokkaaksi että olisi typerää olla hyödyntämättä sitä yrityksessä, etenkin markkinoinnin näkökulmasta?
8. Mitä ongelmia tekoälyn kanssa on ollut projekteissa joissa olet mukana?
9. Onko sinulla kertoa konkreettisia esimerkkejä hyvistä tekoälyn projekteista tai prosesseista markkinoinnissa jotka ovat onnistuneet?
10. Mitkä ovat uusimpia läpimurtoja tekoälyn saralla? Ja ovatko nämä jo käytössä vai vasta "laboratoriovaiheessa"?
11. Millä mallilla on suomen kielen tulkinta tekoäly sovelluksissa? Puhe tekstiksi, teksti puheeksi, sisällöntuotanto automaationa, blogien ja videoiden analysointi etc. Mitkä ohjelmistot osaavat tätä tehdä?
12. Perusautomaatio vai tekoäly? Missä menee raja että automaatio on älykäästä?

13. Mikä on paras ja "ihmismäisin" chatbot joka on on markkinoilla Suomessa? Mikä yritys sitä käyttää? Tekoäly vs automaatio
14. Mitkä ovat tärkeimpiä eettisiä kysymyksiä/ongelmia tekoälyn saralla?
15. Mitä merkittäviä muutoksia näet lähitulevaisuudessa tekoälyn ja markkinoinnin saralla?
16. Jos asiakkaalla on paljon asiakasdataa käsinkirjoitetussa muodossa, onko mahdollista tai edes järkevää käyttää konenäön (computer vision) apuna jotta nämä tiedot saataisiin digitaaliseen muotoon?
17. Mitä teillä on Houston Analyticsillä tarjota asiakkaille mitä muilla ei vielä ole? Puhutaan vendor provided services and software-as-a-service sekä Ai systes for individual use cases. Onko tämä luokittelu edelleen relevantti vai miten itse luokittelisit palvelut? Haluaisitko avata tätä hieman sekä kertoa teidän tarjonnasta?
18. Olisiko sinulla jotain muuta oleellista kerrottavaa mitä en ole osannut kysyä?

12. Jaakko Lempinen

1. Miten määrittelet tekoälyn?
2. Miten määrittelet supervised learning, unsupervised learning ja reinforcement learning, deep learning?
3. Tekoäly, tukiäly, apuäly, älykäs koodi, älykäs automaatio. Osaatko avata näitä hieman?
4. Miten tekoäly on kehittynyt 80 luvulta tekoäly talven jälkeen? Johtuuko se muustakin kuin siitä että tietokoneet pystyvät prosessoimaan paljon suurempia data määriä ja pilvipalvelut auttavat suurien data määrien säilyttämisessä?
5. Mitkä ovat keskeisimpiä tehtäviä jossa tekoäly on osoittautunut niin tehokkaaksi että olisi typerää olla hyödyntämättä sitä yrityksessä, etenkin markkinoinnin näkökulmasta?
6. Mitä ongelmia tekoälyn kanssa on ollut projekteissa joissa olet mukana?
7. Onko sinulla kertoa konkreettisia esimerkkejä hyvistä tekoälyn projekteista tai prosesseista markkinoinnissa jotka ovat onnistuneet?
8. Onko suomessa Salesforce Einstein tasoista tekoälyä käytössä ja saatavilla yrityksille?
9. Miten te hyödynnätte tekoälyä Ylellä? Mitkä ovat olleet parhaimpia käyttökohteita? Markkinointiin liittyvää?
10. Mitkä ovat uusimpia läpimurtoja tekoälyn saralla? Ja ovatko nämä jo käytössä vai vasta "laboratoriovaiheessa"?
11. Millä mallilla on suomen kielen tulkinta tekoäly sovelluksissa? Puhe tekstiksi, teksti puheeksi, sisällöntuotanto automaationa, blogien ja videoiden analysointi etc. Mitkä ohjelmistot osaavat tätä tehdä?
12. automaatio vai tekoäly? Esim chatbot? Muita esimerkkejä?
13. Mikä on paras ja "ihmismäisin" chatbot joka on on markkinoilla Suomessa? Mikä yritys sitä käyttää? Onko siinä tekoälyä?
14. Mitkä ovat tärkeimpiä eettisiä kysymyksiä/ongelmia tekoälyn saralla?

15. Mitä näet lähitulevaisuudessa tekoälyn ja markkinoinnin saralla? Onko jotain jo mullistavaa tiedossa?
16. Jos asiakkaalla on paljon asiakasdataa käsinkirjoitetussa muodossa, onko mahdollista tai edes järkevää käyttää computer vision apuna jotta nämä tiedot saataisiin digitaaliseen muotoon?
17. Vendor provided services and software as a service or AI systems for individual use cases? Onko tämä mielestäsi hyvä ja jaottelu ymmärtääkseen mitä erilaisia paketteja yritykset tarjoavat? Salesforce, IBM watson, microsoft, Houston analytics ja muut pienemmät paketit esim Buzzumo, Market muse, Hootsuite, Curata? Ovatko nämä kaikki turhia suomen markkinoilla? Mitä työkaluja suomalainen yritys voi hyödyntää suomen markkinoilla sekä ulkomailla?
18. Eri vaiheessa markkinointia tekoälystä voi olla apua. Mitä sun mielestä voi hyödyntää 5ps of marketing?
19. Olisiko sinulla jotain muuta oleellista kerrottavaa mitä en ole osannut kysyä?

13. Antti Merilehto

1. Miten määrittelet tekoälyn?
2. Mikä on tämänhetkinen tilanne Suomessa tekoälypohjaisten markkinointityökalujen käyttöönotossa ja kokeilussa?
3. Minkä tyyppisiä tekoälypohjaisia markkinointiratkaisuja yritykset ovat läheneet kokeilemaan jotka ovat toimineet hyvin?
4. Onko sinulla kertoa konkreettisia esimerkkejä hyvistä ja huonoista tekoälyprojekteista tai prosesseista markkinoinnissa jotka ovat onnistuneet?
5. Mikä on asiakkaalle keino suodattaa pelkästään tekoälyhypellä mainostavia yrityksiä pois ja löytää oikeasti uudenlaisia ja älykkäitä ratkaisuja?
6. Mitkä ovat kokemuksesi perusteella hyviä tekoälyä hyödyntäviä ohjelmia/aplikaatioita/alustoja kohtien 7-11 prosesseihin.
7. Planning: Building intelligent strategies
8. Production: creating intelligent content
9. Personalization: power intelligent consumer experiences
10. Promotion: Managing intelligent cross channel and cross device promotions
11. Performance: turning data into intelligence
12. Mistä dataa jota tekoäly hyödyntää voi saada tai ostaa?
13. Mitä näet lähitulevaisuudessa tekoälyn ja markkinoinnin saralla?
14. Mikä on mielestäsi paras lähestymistapa teknologian lisäämiseen yrityksessä jossa käytetään edelleen kynää ja paperia ja ollaan pienemmillä budjeteilla?
15. Jos saisit kertoa terveiset yritykselle joka ei halua tai ei voi panostaa markkinointiin, mikä se olisi?
16. Mitkä ovat tärkeimpiä eettisiä kysymyksiä/ongelmia tekoälyn saralla?
17. Mikä on työkalu jolla voi muuttaa puheen tekstiksi Suomen kielellä ja tekstin puheeksi?

18. Olisiko sinulla jotain muuta oleellista kerrottavaa mitä en ole osannut kysyä?

14. Christopher Penn

1. Can you give me some examples of digital Marketing projects that use AI in some way that failed and succeeded and reasons behind The success or failure?
2. Important functions of AI with big data are analyzing the past, predicting the future and prescribing future strategies according to the marketing AI institute. What else do you know to be important use cases for AI in marketing?
3. What are your recommendations to begin with and how would one proceed in a small or medium sized company or start up in utilizing AI in their marketing processes?
4. What are the prerequisites for using AI in marketing in a way that you can maximize Return on investment (ROI)?
5. According to a known AI researcher there are 25 subdisciplines of AI. Within these subdisciplines there are different functions of AI. In your opinion which functions are relevant to marketing and would you have a reallife use case example of each? I picked out some he has listed.
 1. Cognition
 2. AI knowledge
 3. Expert system
 4. Knowledge representation
 5. Automated planning
 6. Computational intelligence
 7. Multiagent system
 8. AI applications
 9. Pattern recognition
 10. Intelligent agents
 11. Artificial neural network
 12. Human-computer interaction
 13. Vision
 14. Machine learning
 15. Speech recognition
 16. Planning
 17. Superintelligence
 18. Question-Answering system
 19. Optical recognition
 20. Decision support
 21. Intelligent system
 22. Virtual digital assistant
 23. Optical recognition
 24. Machine perception
 25. Robotics
 26. Affective computing
7. What is in your opinion the most important milestone that has been reached in 2019 with AI and digital marketing and how do you see the future of digital marketing.

7. Will humans drop out of the loop with marketing? Will it be machines marketing to machines?

15. Ari Utriainen

1. Miten olet käyttänyt tekoälyä markkinoinnissa? Onko sinulla esimerkkejä toimivista ja ei toimivista käyttökohteista? Mikä on ollut paras, miksi?
2. Jos verrataan pieniä ja suuria yrityksiä, markkinointibudjetit ovat todella erilaisia.
3. Mitä toiminnan automatisointia suosittelet pienille yrityksille jotta kustannustehokkuus olisi suurin?
4. Mitkä on mielestäsi digimarkkinoinnin tärkeimmät asiat jotka jokaisen alalla olevan tulisi tietää?
5. Mitä markkinoinnin automaatiojärjestelmiä olet käyttänyt ja millaisia ne mielestäsi ovat?
6. Saadaanko tekoälyllä mielestäsi tehostettua eri toimintoja, miksi?
7. Kuinka tärkeä rooli mielestäsi tekoälyllä on digitaalisessa markkinoinnissa, miksi?
8. Miten voidaan tehostaa viestien perille vientiä?
9. Millaisena näet tulevaisuuden markkinoinnin?
10. Löytyykö markkinoijalle vielä töitä vai korvataanko myynti ja markkinointi työ tekoälyllä tai jollain muulla?
11. Onko isojen toimijoiden kuten Apple, Google ja Facebook seassa tilaa PK yrityksille ja pienille markkinointiyrityksille?
12. Lohkoketju miten se mielestäsi tulee vaikuttamaan markkinointiin, miksi?
13. Mitkä ovat vinkkisi PK yrityksille digimarkkinoinnissa nyt ja lähitulevaisuudessa?

16. Mika Rubanovitsch

1. Mitkä ovat tärkeimmät ensiaskeleet markkinoinnin ja myynnin automatisoinnin aloittamiseen?
2. Mitä keinoja suosittelet käytettäväksi myynnin ja markkinoinnin automatisoinnissa?
3. Mitkä kanavat ovat mielestäsi tehokkaita myydä ja markkinoida asiakkaille tänä päivänä?
4. Kokemuksesi perusteella ovatko Suomalaiset yritykset ottaneet teknologian käytön hyvin haltuun? Voitko perustella vastaustasi?
5. Mitkä ovat asiakkaiden tuntemukset teknologian lisääntyneestä käytöstä yrityksissä?
6. Pitäisikö mielestäsi yrityksessä hyödyntää tekoälyä? Perusteletko vastauksesi?
7. Onko tekoäly uhka vai mahdollisuus? Miksi?
8. Mikä on uusin ja innovatiivisin digitaalimarkkinoinnin keino tällä hetkellä?
9. Mitkä tulevat olemaan suurimmat innovaatiot lähitulevaisuudessa myynnissä ja markkinoinnissa, tekoälyn ja uusien teknologioiden takia?
10. Tuleeko mieleesi jotain olennaista mitä en ole kysynyt ja haluaisit kertoa?

17. Mika Lind

1. Miten AR hyödyntää tekoälyä?
2. Miten AR:ää voidaan käyttää myynnissä ja markkinoinnissa, käytännön esimerkkejä?
3. Mitkä toimialat hyötyvät eniten AR teknologian käytöstä ja miksi?
4. Missä tilanteessa AR markkinoinnin käyttö on mielestäsi järkevää?
5. Minkälaisia käytännön esimerkkejä voit kertoa AR käytöstä markkinoinnin ja myynnin tukena?
6. Pitääkö yrityksessä olla valmiina jotta voidaan hyödyntää AR:ää markkinoinnissa ja se on järkevää?
7. Minkälaisia laitteita AR/VR vaatii asiakkaalta jotta he voivat sitä käyttää? Milloin ei tarvitse enää arilyn appsia?
8. Monille yrityksille budjetti on ongelma. Onko AR käyttö pienellä budjetilla mahdollista? Jos on, onko sinulla tästä esimerkkejä? Miten käytettynä se voisi olla järkevää?
9. Mikä on edistyksellisin AR sovellus/käyttötapa tänä päivänä?
10. Miten AR/VR tulee muuttumaan ja kehittymään lähivuosina, onko suosio laskussa vai nousussa?
11. Mitkä ovat vinkkisi yritykselle joka vasta aloittaa automaation ja digimarkkinoinnin tiellä?
12. Mitä olennaista haluaisit kertoa mitä ei olla käsitelty?

Interview of Chistopher Penn.

<https://youtu.be/M4GeEf9sqN0>

<https://youtu.be/69saYxUIP3Q>

<https://youtu.be/h9xTzclDjXE>

<https://youtu.be/DVHa2ZgnojA>

<https://youtu.be/EbtxmlO3Wd8>

https://youtu.be/_ml2EElwWm8

<https://youtu.be/orPDSjbWyCE>

Interview of Jani Aaltonen.

<https://soundcloud.com/sales-communications/141-markkinointi-ja-tekoaly>