ARTIFICIAL INTELLIGENCE IN DIGITAL MARKETINGS EFFECT ON BRANDING

MASTER THESIS

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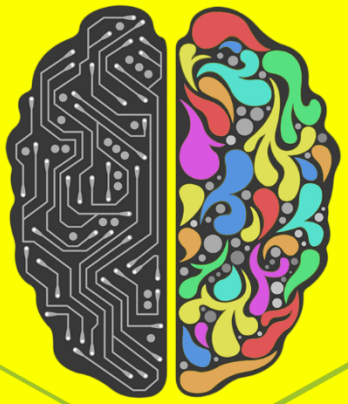

EXECUTIVE SUMMARY

Artificial Intelligence - The buzzword of our century. CEOs of the most renowned companies, like Google, Facebook and Amazon keep mentioning the technology's ability to revolutionize the world as it is today.

Companies worldwide are implementing AI-technology for digital marketing purposes in the hopes of seeing their revenue increase significantly, save time on digital marketing and maybe even limit the amount of digital marketing employees. However, one question seems to be overlooked: 'How might this technology influence branding?'.

This initial question was asked towards a company building AI-driven digital marketing solutions - and that sparked this study. It seeks to explore how the application of current artificial intelligence (AI) technology in digital marketing communication affects a company's abilities in building customer-based brand equity.

To explore this phenomenon, a grounded theory approach is applied, and in-depth interviews with 12 AI-experts possessing knowledge within digital marketing was conducted. These interviews were transcribed and coded, and findings emerged that highlighted limits in AIs ability to build brand equity.

AI-technology is able to work with everything quantifiable, in the sense that for the technology it is identifiable and optimizable if trained probably. Attributes as price, colors or product characteristics will, therefore, be easy for AI-technologies to work with. However, the findings did discover that AI-technology has issues with things that are non-quantifiable. Since parts of branding consist of soft values, heritage, and a brand personality, etc. this makes it difficult for AI-technology to work with and facilitate these aspects of a brand.

This revealed that existing models on how companies can build brand equity were not applicable in an AI-driven digital marketing communication context. Therefore, the conceptualization of a model that could provide as a guideline for the technology's ability to building brand equity was constructed.

The findings derived from this study provides a series of guidelines usable for brand managers and digital marketing specialists when considering to what extent AI-technology might benefit their digital marketing communication.

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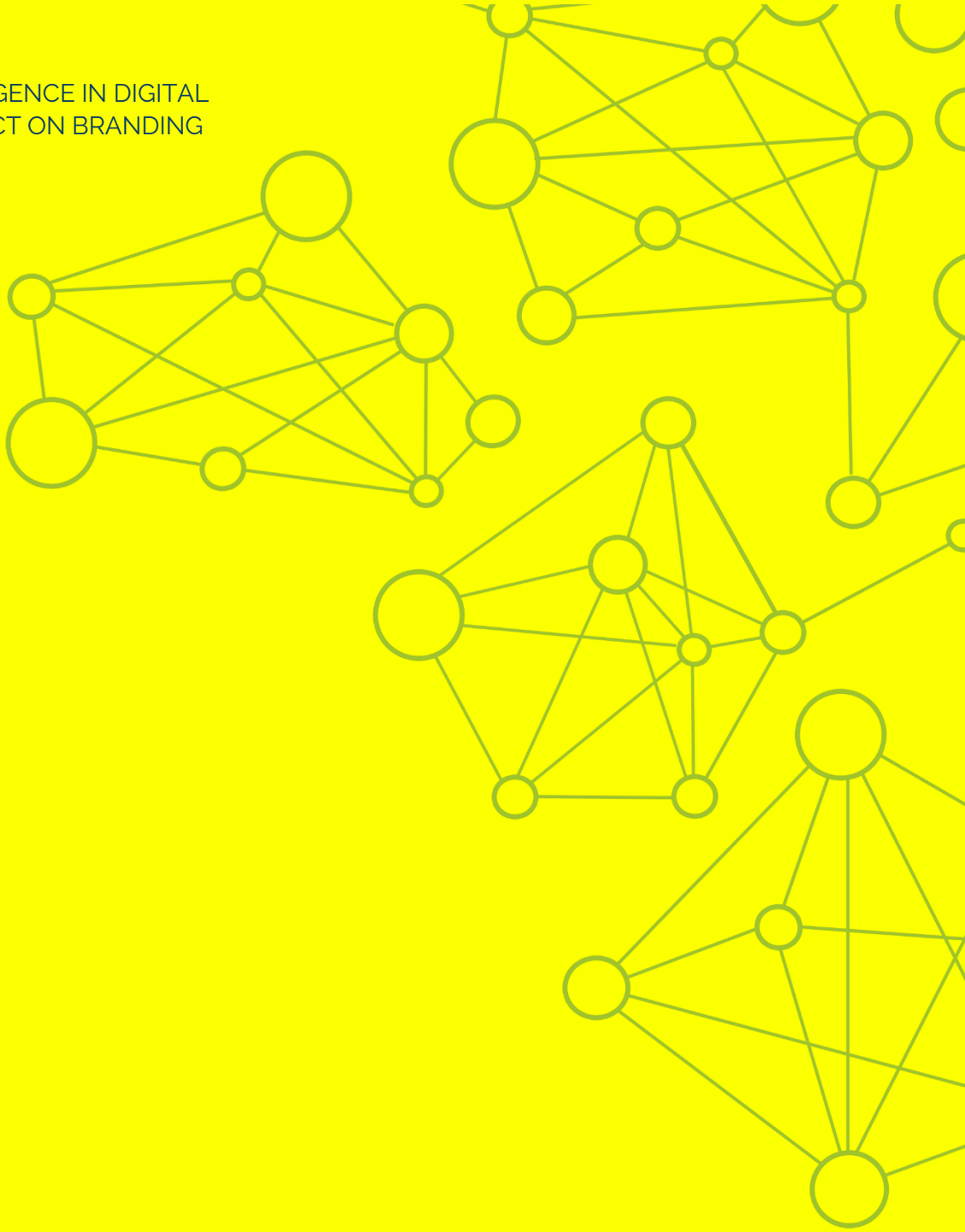

1. INTRODUCTION

"AI is one of the most important things humanity is working on. It is more profound than, I dunno, electricity or fire," - Sundar Pichai, CEO of Google (Clifford, 2018).

Artificial Intelligence is on the lips of all big technology-aware companies. Already the technologies of AI are being implemented in digital marketing in order to optimize the ability to create insights, exploit consumer data, and personalize customer experiences. The technology in itself is being researched intensively, and new applicabilities in digital marketing are being developed every day. Many companies are already implementing AI-technologies for several purposes. However, the research within how this might affect branding is still limited. Might AI-technologies for digital marketing both be suitable for Amazon and Louis Vuitton?

1.1 INTRODUCTION

Artificial intelligence (AI) is on the lips of every CEO in the industry of technology (Forbes, 2018). With Google CEO, Sundar Pichai referring to it as moving *"...from a mobile-first world to an AI first world"* (Google Developers, 2017). Resulting in rapid growth within the AI market (Westerheide, 2017).

In Europe, there are over 400 AI-companies, with Denmark and Sweden being some of the markets with the highest amount of AI-companies pr. mill. inhabitants, Denmark having 1.59 and Sweden having 1.84 AI-companies pr. mill. inhabitants (ibid.).

AI-technology was first created in the early 20th century and is a technological construction based upon a set of mathematical models, which enables informed actions and forecastings (West, 2017).

The technology today is recognized as being on the stage of 'limited memory' meaning that it is able to make calculated decisions and then optimize based on prior experience (Hintze, 2016). It is, in other words, able to learn from these previous decisions in future decision making. Further stages of AI have been defined, in which the technology may be capable of understanding and evolving feelings (ibid). There are even predictions of AI-technology in the future being able to function as conscious beings (ibid.).

AI-technology is increasingly being applied to several industries (Vincent, 2019). For instance, it was able to significantly help doctors in cancer screening (Forbes, 2018). The technology was feed 190.332 images of malignant, benign and tumor-free scans and was then programmed to try and detect tumors and measure their malignancy. Less than two hours after the test was initiated the system was able to identify tumors at the same pace as humans (ibid.). A similar experiment was led by Holger Haenssle, where they tested an AI-system up against 58 dermatologists. Typically doctors would identify 86,6% of cases of skin cancer. The AI discovered 95% and had less false detections (ibid.).

AI is also what is allowing companies to create self-driving cars as it uses input from sensors around a vehicle to learn how to act on the road (MIT Technology Review Insights, 2019).

It is estimated to both be able to increase the safety of driving, optimize the driving experience through real-time route optimization, etc. (ibid).

But it is not only within the medicational industry and for self-driving cars that AI is a revolutionizing technology. One of the most dominating industries in terms of the amount of AI-companies are sales and marketing with 38 AI-companies in Europe (Westerheide, 2017).

Several applicabilities within digital marketing has been highlighted as beneficial and companies are slowly integrating AI-technology in their digital marketing (Davenport, 2016; Zerega, B., 2017).

Through the abilities to collect, analyze and apply data and even learn from the way it is applied AI is revolutionizing digital marketing (Forbes, 2018). It can not only make procedures more efficient but also save time, limit the amount of human errors thereby also save money and identify blind spots (Medium, 2019).

One way is through AI-technology's ability to contribute to a significantly better customer experience, since AI is able to personalize communication or offers based on the data available, making it more relevant to the individual customer (ibid.). This data can be the location, historical usages and past behavior, which can be collected and acted upon through the use of AI giving the user a more tailored experience (ibid).

The use of AI-technology can not only tailor the experience a customer has with a brand but also predict the behavior of the customer, based on historical data (ibid.).

And even though AI might be beneficial in producing insights, it is also able to act upon insights as new AI-technologies are also forming text ads based on the behavior of the user in order to personalize the advertisement to the individual and generate more clicks or purchases (Albert, 2017).

The rise of AI-technology in digital marketing is becoming widely more implemented taking over tasks that have until now been conducted by humans. With these implementations how may a company then secure that the communication to their customers is in line with the overall brand strategy when AI-technology is driving the digital marketing communication? Does this use of AI-technology have an impact on the company's abilities of building brand equity?

1.2 OUR MOTIVATION

"How may an AI-technology, like this, take the limits of a brand into consideration?"

This question sparked an interest in the field of AI and branding. An interest that stayed for a while, and ended out as the starting point of this study.

Previously one of the researchers worked at a Nordic advertising agency where clients kept requiring more personalization at fewer costs in order to ensure relevance to the individual and thereby a high probability of purchases.

One day, the agency was approached by a company claiming to have a groundbreaking AI-driven technology for managing digital marketing and digital marketing communication. The company claimed to be able to solve the problems with personalization and be able to optimize the digital marketing efforts showing impressing results, in terms of sales numbers. Shortly after a dialogue was set up, and the solution was looked further into.

However, in the process of consideration, the researcher questioned the company about the technology's ability to take individual brands and what differentiates them from their competitors into account. Can such technology, for example, take into consideration the importance of Louis Vuitton's exclusivity in their communication?

The company admitted that the abilities to supervise, control and limit the AI-technology could be a problem in the sense that it does not understand the meaning of words, but look at text patterns and experiments with it.

Later it was decided not to implement the technology.

This discussion did though evoke interest for the researchers in this area, and shortly after they discovered that companies, differentiating on hedonistic values were implementing this technology in the US (Marr, 2018).

In the meantime, the CEOs of big tech-giants kept competing on who could state AI as being the most revolutionizing thing at the moment, e.g. Elon Musk (Piper, 2018), Sundar Pichai (Google Developers, 2017), Ginni Rometty (Murphy, 2017). But after some preliminary research, it was found that several companies, not only the technological giants but from all industries, both small and big, were indicating an interest in AI-technology and how it might revolutionize their business. They were however in doubt on how this might be able to help them, but not whether it could.

The researchers did electives within online marketing and big social data analytics to get further insights on the technologies available today, and the functionality of these with the results of only further enhancing the initial idea. They got to talk with real practitioners about the current technologies both digital marketers and their thoughts on the technology and their use of it today and data scientists, about the abilities and functionalities of the technology. They even got to try some AI-driven technologies themselves to see the relation between input and output, e.g. sentiment analysis' and topic modeling.

As we are brand enthusiast, with an interest in digital marketing and the possibilities it gives it, this was an area that we had to learn more about.

AI is being discussed widely at this moment in time, with CEO of Google Sundar Pichai claiming AI to be more profound than electricity or fire (Google Developers, 2017). It is being mentioned as something that will revolutionize business as we know it today, making it both interesting and relevant to dig deeper into the branding possibilities of applying AI-technology in digital marketing.

1.3 STATEMENT OF THE PROBLEM

The last decade, technological advances have changed the way businesses operate and do marketing (Kotler, Keller, Brady, Goodman, & Hansen, 2012).

The digital technologies available are changing the ways that marketers reach, engage and deliver value to customers (ibid.).

This requires for marketers to plan, implement and measure digital strategies which fit the customers and integrate it with the tradition marketing (ibid.).

AI is on the rise and is being used for digital marketing (Zerega, B., 2017). And as brands today should be able to adapt to dynamic changes in the environment and be flexible, it may be very beneficial to implement AI-technology (da Silveira, Lages, & Simões, 2013).

"Machine learning improves the level of personalization that brands can achieve. This almost certainly has a positive impact on the success of the overall brand" (West, Clifford and Atkinson, 2018, p. 327). The high personalization abilities AI-technology has might, therefore, tighten the relationship with the customers, and since customers should be integrated in the creation of the marketing and communication strategy this further emphasizes the benefit AI-technology might have for brands (da Silveira, Lages, & Simões, 2013; West, Clifford & Atkinson, 2018). A brand should though stay consistent in managing the way it presents itself and the way the identity is managed (da Silveira, Lages, & Simões, 2013). With the personalization abilities of AI-technology, this might be problematic unless AI-technology is able to take the existing brand into account in the personalization.

However, existing literature within how AI-technology used for digital marketing affects branding is limited (West, Clifford, & Atkinson, 2018). Previous studies have covered the areas of specific sub-technologies of AI and their effect on elements of branding, e.g., machine learnings effect on personalization and natural language processings effect on customer service (ibid.). This is though only conducted based on the functional benefits of a brand, thereby not taking brand promises based on hedonistic aspects into account, e.g., luxury, even though these are seen as more effective (ibid.).

A previous study has also shown, how implementing AI-technology may impact personal sales and sales management, highlighting areas in which companies can benefit from the technology (Syam & Sharma, 2018) — showing that the implementation of AI-technology can have significant impacts on the repetitive tasks of humans and support them in their work. The researchers of this specific study mention AI as having a considerable effect on the future of sales: *"We hypothesize that selling in future decades will be disruptive and discontinuous, owing primarily to shifts in technology"* (ibid., p. 136).

West, Clifford, and Atkinson (2018) therefore encourage to explore the impact AI-technology may have on, e.g., communication and loyalty, and highlights exploring the impact AI may have on hedonistic aspects of a brand.

1.4 RESEARCH QUESTION

AI is a topic widely being used at the moment, which top-CEOs referring to it as more profound than electricity or fire (Google Developers, 2017).

The growth of the AI-industry is high, especially in the Nordics (Westerheide, 2017). Even though there are many applicabilities of the technology, digital marketing is continuously being mentioned as an area with significant potential, and companies are increasingly implementing AI-technology for several aspects of their digital marketing communication (Davenport, 2016; Zerega, B., 2017).

However, a limited amount of research is conducted exploring the connection between AI-technology in digital marketing and its impact on branding (West, Clifford and Atkinson, 2018). Studies within small areas have been conducted, but none of these covers the hedonistic aspects of a brand and takes the full potential of AI-technology into account (ibid.; Syam & Sharma, 2018). One of these studies does however encourage exploring AI-technology's impact on hedonistic aspects of a brand and the whole communication aspect of it (West, Clifford and Atkinson, 2018).

Branding literature emphasizes the importance of both adapting to the environment, but at the same time staying consistent in the way a brand presents itself, making it essential to consider AI-technology's ability to adapt to the branding environment, both existing and progressing (Interbrand, 2007).

As a result of this, this study seeks to explore and contribute to narrowing the above-described research gap in the literature by exploring the effects AI-driven digital marketing communication may have on a company's ability to create brand equity. This will be done by exploring the research question:

How does the application of current artificial intelligence technology in digital marketing communication affect a company's abilities in building customer-based brand equity?

1.5 DELIMITATIONS

To ensure the focus of this thesis and the quality of the findings the study is delimited in several areas.

The term brand equity will be based upon Kellers (1993) definition: *"In a general sense, brand equity is defined in terms of the marketing effect uniquely attributable to the brand - for example when certain outcomes result from the marketing of a product or service because of its brand name that would not occur if the same product or service did not have that name "* (Keller, 1993, p. 1).

For the term artificial intelligence (AI) Amazons definition will be used: *"the field of computer science dedicated to solving cognitive problems commonly associated with human intelligence, such as learning, problem solving and pattern recognition."* (Amazon, 2018).

It will be used as an umbrella term for the technologies of machine learning, deep learning, and neural networks, not to be mistaken by only covering one of these technologies.

In this study digital marketing communication is as a term for functions related to communicating towards individual through the following digital marketing abilities: Search engine marketing, online public relations, affiliate marketing and online sponsorships, interactive display advertising, opt-in email marketing, and social media marketing (Chaffey & Ellis-Chadwick, 2016).

1.6 STRUCTURE OF THE THESIS

The presented model underneath is an illustration of the structure of this thesis. The boxes represent the main chapters that this thesis consists of. To start the thesis, an introduction containing a description of the area of study was presented, as already introduced above. From here the next chapter presents literature, which will serve as pre-knowledge for understanding the findings. The method that has been used in this thesis to conduct the study will then be presented. Finally, the findings of this study will be presented first highlighting the main findings and then going more in-depth to do a conceptualization of the findings. A discussion on findings that further may influence the use of AI-technology for digital marketing communication will finalize the findings. A conclusion will summarize the method and findings of the study and answer the research question earlier presented. In this chapter implications, limitations and further research will be specified.

Illustration 1: The structure of the thesis.

2. THEORETICAL BACKGROUND

To establish the foundation for the theoretical framework of the thesis, a selection of literature is provided with the aim of giving the reader a sufficient understanding of the core concepts and founding knowledge in which this study touches upon.

In order to build this understanding the literature presented will be divided in the following sections: Customer-Based Brand Equity, which will introduce the concepts of branding and the development within customer-based brand equity, Digital Marketing Communication, touching upon the what digital marketing communication exists of and how it may be used for creating relationships, and Artificial Intelligence, presenting the technologies that lies within artificial intelligence, the functionality and abilities, and how the technology has been used in connection with branding.

2.1 CUSTOMER-BASED BRAND EQUITY

2.1.1 INTRODUCTION TO BRAND

A basic description of a brand is as a name, symbol, design, logo, image, or any combination of these, which is designed to identify a product or service and distinguish it from those of their competitors (Kotler, Keller, Brady, Goodman, & Hansen, 2012). However, it is also an entity that offers consumers added value over and above its functional performance (ibid.). A brand represents a consumer's experience with an organization, product or service, and should be able to differentiate itself in some way from other products or services, designed to satisfy the same need (ibid.). It can be viewed as a holistic, emotional and intangible experience since a brand can be strong enough to evoke feelings of belonging, affection, and love (ibid.).

Branding indicates that the product or service is being charged with the power of a brand (Kotler & Keller, 2012). A branding strategy should, therefore, be able to establish a favorable position of the brand in the minds of the consumers (Fan, 2005). Thus, the role of branding is to differentiate the brand from other competitors in the marketplace, especially in situations where products or services are homogeneous. With the ever-changing consumer preferences, an essential element for developing a powerful brand is to have a branding strategy that is both long-term and consistent (De Pelsmacker, Geuens & Van den Bergh, 2010). However, the dynamic marketplace also forces a brand to find the right balance between remaining consistent and adapt to the new changes (Da Silveira, Lages & Simões, 2013). One mistake can be the cause of brand failure and ruin the consistency and thereby lose credibility among the consumers (ibid.).

In order to distinguish a brand from its competitors, a consistent brand positioning should be created. Brand positioning is defined as *"the act of designing a company's offering and image to occupy a distinctive place in the minds of the target market."* (Kotler & Keller, 2012). This can be developed through the creation of a brand identity. Kapferer (2012) defines brand identity as a set of unique associations and benefits which a brand offers to the consumer. This assumes that the marketer must make sure that consumers internalize brand information. De Chernatony (2006) further emphasizes that the brand identity concept further focuses on the central ideas of a brand and how the brand communicates these ideas to different stakeholders.

The intention of the brand identity of a brand is creating impressions that keeps consisting within consumers, strengthen the presence in the market, and have a positive effect on the values of the organization (Haig, 2018; Kapferer, 2012). The increase is done by establishing recognition and loyalty which is among the key factors for a brand (Haig, 2018).

There are different definitions and understandings of brand identity. Some scholars' view brand identity as an internal construct that is derived from the management of a brand (Aaker, 1996A; Joachminsthaler & Aaker, 2000). This view is described as *"a unique set of brand associations that the brand strategist aspires to create or maintain"* (Aaker, 1996A, p. 68), and that it *"represents what the organization can and will do over time"* (Joachminsthaler & Aaker, 2000, p. 13). De Chernatony (2010) criticizes this view by stating that *"one of the weaknesses of this perspective is that managers focus on the internal aspect of branding"* and that *"thought also needs to be given to the way customers perceive the brand"* (De Chernatony, 2010, p. 55). Kapferer (2012) states that the brand must honor this perception, that the customers have, by the brand pertaining as a long-lasting and stable reference. An enduring brand identity should be resistant to change, although in extraordinary circumstances, for example, if the brand identity is obsolete or on the verge of failing, Kapferer (2012) acknowledges a change. However, some research examines the connection between a stable brand identity and a dynamic marketplace. Csaba & Bengtsson (2006) questions, if a marketplace is dynamic, is it then possible to keep a stable and consistent brand identity or should the brand identity be flexible and adapt to the market. Practitioner research argues, that a brand identity should remain constant and flexible, and a brand should, therefore, establish which parts of its values that should remain constant and which should be flexible (Interbrand, 2007). Collins & Porras (1994) proposes this to be done preserving the core values and purpose of a brand, and only changing operating and cultural practices, specific strategies and goals.

2.1.2 KELLER'S APPROACH TO CUSTOMER-BASED BRAND EQUITY

For the purpose of guiding marketers to form a strategic direction in their branding decisions in many different environments, Keller (2001) developed the Customer-Based Brand Equity (CBBE) model. The purpose of the CBBE model is to reflect a state-of-the-art thinking about branding in academia and practice, to make a model that is applicable for all brands and industry settings, and to have enough breadth to cover important branding topics as well as having the depth to provide useful guidelines and insights (Keller, 2001). The model builds on the premise that the power of a brand resides in the minds of the consumers through what they have seen, felt, learned, and heard about a brand (ibid.). According to the CBBE model, building a strong brand involves four steps (ibid.). Firstly, a brand needs to establish breadth and depth of brand awareness (ibid.). Secondly, a brand needs to create brand meaning through favorable, strong and unique brand associations (ibid.). Thirdly, it needs to elicit positive and accessible brand responses (ibid.). Finally, a brand needs to forge a relationship with consumers that are characterized by intense and active loyalty (ibid.). To achieve these steps, a brand needs to build six steps: Brand salience, brand performance, brand imagery, brand judgments, brand feelings, and brand resonance (ibid.).

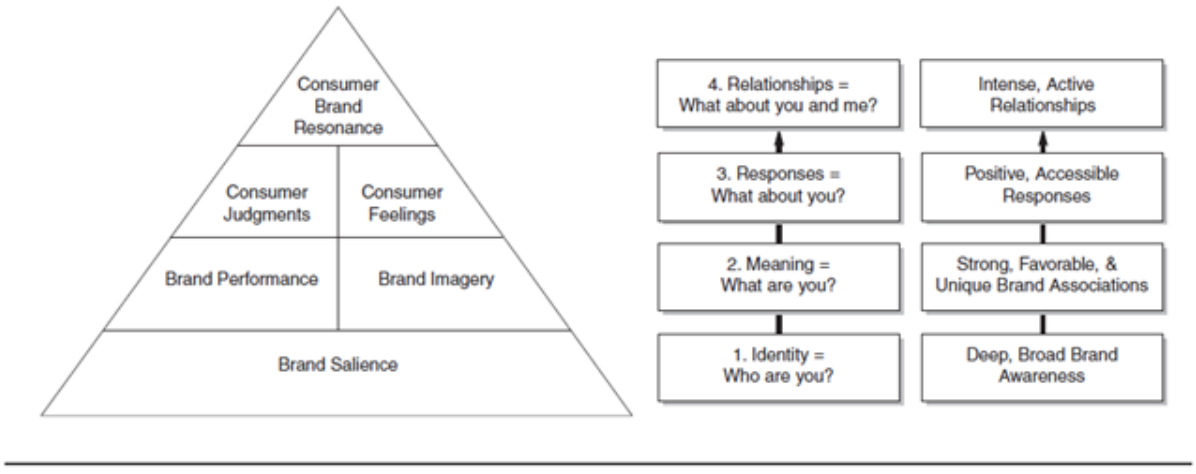

Illustration 2: Keller´s Customer-Based Brand Equity Pyramid (Keller, 2001).

Brand Salience

Brand salience is a term for customer awareness of a brand (Keller, 2001). This brand awareness refers to consumers' ability to recognize and recall a brand (ibid.). However, brand awareness is also more than just the ability for consumers to know the brand name and that they have seen it before (ibid.). It is also the ability to link the brand to certain associations in their memory so the consumers can understand the category in which a brand is competing (ibid.). Furthermore, it is also important that consumers know which needs a brand is meant to be satisfying. Therefore, a critical distinction can be made between the depth and breadth of the brand awareness (ibid.).

The depth of brand awareness refers to how easy it is for consumers to simply recall or recognize a brand (ibid.). The breadth of brand awareness, on the other hand, refers to the range of purchase and consumption situations in which the brand comes to mind, making it essential that the brand also comes to mind at the right times and right places (ibid.).

Brand Performance

The brand performance refers to how the product or service meets the more functional needs of the consumers (Keller, 2001). There are five essential types of intrinsic attributes and benefits, that is considered in brand performance: Primary and secondary characteristics of the product, the reliability, and durability of the product, the level of serviceability, the style and design, and finally the price of the product (ibid.). These different attributes can be easily be used to differentiate a brand from others because often the strongest brand positioning involves an advantage on intrinsic attributes, and it is difficult for brands to succeed if having problems in fulfilling these (ibid.).

Brand Imagery

Brand imagery refers to the extrinsic attributes of the product or a service, and thereby the ability of brands to meet the consumers social and psychological needs (Keller, 2001). It deals with how consumers think about a brand, and not what they think a brand does (ibid.). Therefore, brand imagery can be linked with the intangible aspects of a brand like: Perceptions of the brand users, perceptions of the purchase and usage situations, the associated personality and values, and the associations of the heritage and former experiences with the brand (ibid.).

A key foundational concept behind the brand imagery aspect is the 'Brand Personality Framework' by Aaker (1997). The framework is made upon research which shows that consumers perceive that brands have five distinct personality dimensions: Sincerity, excitement, competence, sophistication, and ruggedness (Aaker, 1997). These five dimensions have a total of 42 traits that relates to each (ibid.). Sincerity has traits like honest and wholesome, excitement has daring and imaginative, competence has reliable and intelligent, sophistication has upper class and charming, and ruggedness has outdoorsy and tough (ibid.). This framework provides a way to monitor what personality characteristics consumers attribute to a brand and can thereby explain how consumers humanize a brand.

Brand Judgments

Brand judgments concern consumers personal opinions and evaluations of a brand (Keller, 2001). It is built by how consumers put together the associations of brand performance and imagery, and the opinions can, therefore, differ among each individual consumer (ibid.). Consumers can have many judgments regarding a brand, but Keller (2001) highlights four as the most important for building a strong brand. First, there is the perceived quality of a brand, where there should be an alignment between the expected performance of the brand and the actual experienced performance of the brand. Next is the brand credibility that refers to the extent in which the brand is seen as a whole in relation to being both innovative, dependable to the interest of the customers, and fun and interesting enough to engage with. The third important judgment is consideration, which is how likely the consumer is actually willing to include the brand in their already established brand purchases. This is dependent on how relevant the consumer finds the brand for themselves.

The consideration will depend on the extent to which strong and favorable brand associations can be created as part of the brand. The final judgment is brand superiority, which relates to what extent the consumers find the brand as being unique and better than other brands. This is important for a brand in building an intense and active relationship with consumers because it should have different and unique brand associations to distinguish itself from competitors.

Brand Feelings

The brand feelings are the consumers emotional responses and reactions with the brand (Keller, 2001). It can be feelings evoked by the marketing, but it can also be the feelings that consumers have about themselves or in the relationship with others (ibid.). There are six types of brand-building feelings in the CBBE model, where the first three are more experiential and immediate, and the last three are more private and enduring. The first important feeling is the calm and peacefulness, which is the brand´s ability to make a consumer feel sentimental and affectionate about a brand. A second important feeling is fun, where the objective of the brand is to communicate in an amusing and lighthearted way.

The last important immediate feeling is excitement, in which the brand should make consumers feel energized by experiencing something special.

The more private feelings starts with having consumers feel safe and secure, where the importance of the brand is on eliminating concerns or worries, that the consumers might have. The second important is the aspect of social approval, where consumers feel that others look favorably on them. This can be displayed through acknowledgment of using the brand or from attributing the product itself to consumers.

The last important feeling is self-respect, where the objective is to make consumers feel a sense of pride and accomplishment through the brand.

These more private feelings can be related to Belk´s theory of the extended self (1988), where consumers use objects because they can identify with them, and also to reflect their own selves to others through the objects they possess.

Belk (1988) describes self-extension to occur through: *"Control and mastery of an object, through creation of an object, through knowledge of an object, and through contamination via proximity and habituation to an object"* (Belk, 1988, p. 160).

Brand Resonance

Brand resonance refers to the relationship that consumers have with the brand, and to which level they feel that the brand is relatable to them (Keller, 2001). The resonance is characterized by the intensity of the psychological connection that consumers have with the brand and the level of activity and engagement this loyalty creates (ibid.). It can be shown through the behavioral loyalty, and the attitudinal attachment can have with a brand, the communities they can create with other consumers, and the level of active engagement they have with the brand (ibid.). Brand resonance is the most valuable for a brand to achieve because it occurs when all other elements have been established (ibid.).

A key foundational concept for brand resonance is the relationship that can be created with a consumer. Fournier (1998) found 15 different forms that a consumer-brand relationship can take.

She also provides a model with factors indicating the overall relationship quality, depth, and strength of the relationship (ibid.). This model introduces six-faceted brand relationship quality construct that reveals factors contributing to the stability and durability of a consumer-brand relationship over time (ibid.). These foundational concepts can be used to further understand why consumers, think, feel, and have a relationship with a product or company brand, and can also explain why relationships can fall apart if not handled properly.

2.1.3 AAKERS DIMENSIONS OF BRAND EQUITY

Another model for measuring brand equity and providing guidelines for driving brand equity is Aakers Dimensions of Brand Equity (Aaker, 1996B).

Aaker seeks to create a set of brand equity measures that can be applied across markets and products. To do this, Aaker has structured four dimensions of brand equity; loyalty, perceived quality, associations, and awareness (ibid.). These are developed in order to derive how brand equity is created and what drives it in relevant markets and produces guidelines in order to add and remove specific measures. Aaker (1996B) argues that the ways of studying this are through either quantitative research based on statistical models or quantitative survey-based studies.

Brand awareness

An often underestimated aspect of brand equity is brand awareness (Aaker, 1996B). Brand awareness fundamentally reflects the salience of a brand in the mind of the customers (ibid.). The awareness can affect both the attitude and the perception, which can make it a driver in brand choice and loyalty. The levels of brand awareness presented by Aaker (1996) is:

- Recognition; the ability to recognize the brand
- Recall; the ability to recall a brand
- Top-of-mind; the ability of being the first brand of thought
- Brand Dominance; the ability to be the only brand recalled
- Brand Knowledge; the customer knowing what the brand stands for
- Brand Opinion; the consumer having an opinion about the brand

The importance of the different levels of awareness may vary among various industries, e.g., recognition may be one of the most essential aspects for niche brands (ibid.). Big established brands may instead be more focused on the ability to recall or be top-of-mind among the customers (ibid.).

Among the awareness levels described, which can be subjects of measurement, it will vary depending on the brand or category what awareness level is most relevant to the company.

However, the use of different awareness levels among brands or categories makes it hard to compare, as some companies may find recognition important, while others may find it less important (ibid.). It may not be possible to accomplish a full picture as the measures of brand awareness focus on the brand name, and not the entire brand itself (ibid.). For some brands, awareness may also be difficult to distinguish from symbols and visual imagery (ibid.). Therefore, it could be useful to not only measure brand awareness on the brand name but also on cueing symbols and visual imagery (ibid.). To measure the awareness, a series of open-ended questions about the recallability may be asked towards the consumer (ibid.). Alternatively, visual recognition could be conducted to track the recognizability (ibid.).

Brand Association

Often aspects for differentiation or association of brand equity is related to the image dimensions of a product class or to a brand (Aaker, 1996B). The difficulty, therefore, is to make general measures that can be applied across different product classes (ibid.).

The measurement can be structured through three perspectives of the brand (ibid.); Value, brand personality and organizational associations.

Value

This perspective highlights the value proposition of a brand (ibid.). This usually involves functional benefits and is common for most product classes. If a company does not create value, it will be vulnerable to competitors (ibid.). Values, therefore, serve as an indicator, summarizing the brand's ability to create the value proposition (ibid.). As value focus on values and not specifically functional benefits, the measures will be applicable throughout multiple product classes (ibid.). The values can be measured through discovering if the value for money being delivered by the brand is positive if there are factors that make it preferable over competing brands (ibid.). As with other aspects of brand equity, the value is relying on the reference the customers have of the brand (ibid.). However, this can be prevented by stating the scene through mentioning comparable brands (ibid.).

Another issue of value is whether it is distinguishable from perceived quality, as these both consider the value to a certain extent, where the perceived quality is divided by the price (ibid.).

However, the research of the agency Young & Rubicam (Y&R) suggests that value and perceived quality represents different dimensions as perceived quality is more associated with prestige and respect, in comparison to value which focuses on functional benefits, the practical utility of buying and using a specific brand (ibid.).

Brand personality

The additional element for differentiation or association is brand personality (ibid.). The brand personality is able to link the emotional and self-expressive benefits of a brand and can create a foundation for relationships between the customer and the brand (ibid.). Brands where only minor differences in the physical representation and that are consumed as a statement of the customer may particularly rely on this aspect (ibid.). An example of this can be the case of alcoholic products, where it may be hard to distinguish two competitors based on their physical appearance only (ibid.). As product groups can have specific personality dimensions, this makes it challenging to create measures that can be applied across products and markets (ibid.). Measures that are able to reflect the existence of strong brand personalities are also possible to develop, however, these may be complex and not specific to the product (ibid.). A way to measure this aspect can, therefore, be through asking whether the brand is considered having a personality, whether it is considered interesting and whether one may have a clear idea of what type of individual that may use the specific brand (ibid.).

However, an issue is that not all brands have personalities, therefore using this as a general indication of strength can result in a distortion (ibid.). This may specifically be a case for brands differentiating based on functional aspects of a brand and value. In the use of these dimensions, irrelevant metrics for the specific context should be avoided (ibid.). Another critique is whether a change in brand equity may affect the brand personality as it can be consistent and therefore not be reflecting changes in the market (ibid.).

Organizational associations

In this aspect, the organization behind the brand is taken into account, e.g. their employees and values (ibid.). This may be especially relevant if brands are similar in their attributes in cases where the organization is visible, e.g. in service businesses, or there is a corporate brand that must be taken into account. It can be valuable in the sense that it represents the brand more than the products and services may do (ibid.).

These associations are often considered crucial as a foundation for differentiation, striving for quality, success and being visible, etc. (ibid.). There is however a difference in a company having innovative products and an organization that is focusing on innovation. Innovative products are based upon existing products that are offered while being an innovative organization tends towards being more long lasting (ibid.). To measure the organizational associations, a set of general scales can be used that apply across product classes (ibid.). This can be done by asking questions to the trust of the organization, admiration of an organization or association with credibility (ibid.). However, similar to other aspects this may not be relevant to all brands, and should, therefore, be considered based on the context.

Brand loyalty

A core dimension in brand equity is loyalty (Aaker, 1996B). With a loyal customer base there are several benefits being a barrier to entry; the foundation for setting a premium price, responding time, the innovations of competitors and a barrier against price competition (ibid.). Other measures like perceived quality and associations can be evaluated on their influence on loyalty (ibid.).

Loyalty is divided into two sub-measured being; price premium and satisfaction (ibid.).

Price premium

The founding indication of loyalty is the price that the customer is willing to pay for a brand, compared to a competitor differentiating on the same benefits (ibid). Price premiums is a term for a brands ability to charge a higher price based on the brand, meaning that a customer is willing to pay, e.g. 20% more for one brand in comparison to another brand (ibid.). And this may be both positive and negative depending on the comparison. The price premium is defined according to a competitor or multiple competitors which should be defined (ibid.). One way to determine a price premium is by directly asking the customer what they would be willing to pay for a specific brand, which is referred to as the *"dollar metric"* (ibid.).

However, it is highlighted as a more reliable measure to the price premium through more well-developed methods like conjoint or trade-off analysis (ibid.). A conjoint analysis would, for instance, be conducted by presenting consumers with a group of products at different price points and based on the results of the analysis a relative price that is associated with the brand is found (ibid.).

A problem with the use of price premiums is that it is purely based on the perspective of competitors (ibid.). If the market is therefore dominated by several companies, a group of price premium measures may be necessary (ibid.). In the interpretation of who the competitors may be is also subject to bias, as a brand may compete on different markets, and their position may vary from one market to another (ibid.). Some markets also have legal restrictions limiting the ability to use price premium, e.g. Japan (ibid.).

Customer satisfactory

The satisfaction among customers can be used as a measure directly to existing customers, e.g. by asking about their thoughts on the product or service (ibid.). This would be able to serve as an indicator of loyalty towards a product class (ibid.). To directly measure loyalty, customers can be questioned directly about their intention to do repurchase (ibid.). An issue when working with satisfaction and loyalty is that it does not apply to those who are not customers, meaning that the ability to measure these metrics would only be based on the existing customer base (ibid.). There may also be differences in the ways these are considered among customers so the measurements may need to be done on a segment level, as brand switchers and loyal customers may not give sense to analyze together (ibid.).

Perceived quality & Leadership

The association of the perception of quality is core to the brand equity (Aaker, 1996B). Therefore, the measures of quality and the related variable, leadership, is relevant (ibid.).

Perceived quality

A vital part of brand equity is the perceived quality, as this has been discovered to be related to several other elements for brand equity, e.g. price premium, brand usage, etc. (ibid.). The perceived quality, therefore, serves as a variable for other elements of brand equity (ibid.). The perception of quality can be measured across different product classes (ibid.). Even though the perception may be different among industries measuring the difference in the metrics gives valuable insights (ibid.). Perceived quality can be measured through comparison to other brands. Here the analyst may look upon consistency, best compared to worst and the degree of quality (ibid.). The perception of quality does, however, use a competitor as a reference, which the analyst should be careful about (ibid.). The issue of loyalty among different segments may also play a role in the perception of quality, as interpretation of perceived quality may differ among brand switchers compared to loyal customers (ibid.).

Leadership

The perception of quality is found to lack sensitivity, as this does not take the changes among competitors into account. So, while a competitor may revolutionize the market and thereby gaining more customers, the brand equity would decrease while the perception of quality may be stable. Therefore, a measure that is better at reflecting the market is necessary.

Y&R suggests a measure of leadership. This term has three different dimensions being the ability to reflect the brand concepts that customers are buying into, the ability to reflect product innovation within a product class referring to the company's ability to move forward technologically, and the ability to reflect customer acceptance. This is, e.g. reflected in consumers motivation for being on a bandwagon and have difficulties with going against the nature of the market.

Leadership may be measured through looking at the growth in popularity, the ability of being first on the market with new developments within the product or service, and by comparing the market leader to another leading brand and a non-leading brand in order to identify the differences.

As leadership is reflecting the size of the market, innovation, etc. this makes it a complex metric. Additionally, it is neither well documented to the extent of other brand aspects covered in the model. This makes it hard to argue for the importance of the metric.

Aaker emphasizes that his model may be used for quantitative research, while Keller's model is applicable to multiple method approaches. As a result of this study using a qualitative research method, Keller's brand equity model is considered the most appropriate.

2.2 DIGITAL MARKETING COMMUNICATION

As a result of the advances in technology consumers and businesses are now operating in a world where technology plays a significant part in their lives. Internet, phones, online shopping, social networks, and instant messaging influence the time spent by consumers (Kotler, Keller, Brady, Goodman, & Hansen, 2012). Therefore, the requirements for marketers to meet customers on these technological platforms are dominant (ibid.). Marketers must use new technologies to stay relevant and close to the customer at the platforms they are present at (ibid.)

In more recent years, marketing automation has been used to create rules that schedule more relevant emails and more personalized communication on websites (Chaffey & Ellis-Chadwick, 2016). It enables companies to automate the different tasks in the marketing process to deliver more relevant communication (ibid.). This personalization that marketing automation can provide is essential in building long-term relationships in digital marketing because long-term relationships are essential to keep repeat visitors and thereby the expenditure on customer acquisition low (ibid.). Marketing automation can, therefore, be described as one-to-one marketing, because of its ability to create a unique dialogue between a company and an individual consumer (ibid.). Peppers and Rogers (1997) highlighted the importance of facilitating one-to-one marketing through digital marketing to achieve the goals of the 5Is:

· Identification: The ability to know your customers in as much detail as possible. This enables the brand to understand what the customers like and dislike, and what they are expecting in the relationship with the brand.

· Individualization: The use of mass customization and personalization to offering benefits to the individual customer based on specific needs, and thereby adding long-term value for the company and customer relationship.

· Interaction: The dialogue between the customer and the company to ensure that the customer´s needs are learned and understood, so the company has a better idea of which aspects to improve in order to strengthen the relationship.

· Integration: The knowledge and relationship between the company and the customer should be integrated throughout all functions, divisions, etc. of the company. The activities must be coordinated, so each customer is given a great experience.

· Integrity: The trust that customers have with a company is essential in creating a relationship, and therefore efforts to learn about the customers should not be intrusive.

2.2.1 MARKETING COMMUNICATION USING DIGITAL MEDIA

Digital marketing managers have many different options for communicating their brand values through digital media channels (Chaffey & Ellis-Chadwick, 2016). A major marketing activity has, therefore, become to choose the most effective digital communication technique and refine it to attract consumers at an efficient cost (ibid.). These different digital media channels all fulfill different purposes of branding. Where some channels are being used to attract consumers, others are being used to communicate brand values, and also to generate awareness and favorability about a specific brand (ibid.). Chaffey & Ellis-Chadwick (2016) separates the digital marketing communication options into: Search engine marketing, online public relations, affiliate marketing, and online sponsorships, interactive display advertising, opt-in email marketing, and social media marketing.

Search engine marketing (SEM) is described as:

"Promoting an organization through search engines to meet its objectives by delivering relevant content in the search listings for searchers and encouraging them to click through to a destination site." (Chaffey & Ellis-Chadwick, 2016, p. 484).

This also includes advertising on third-party publisher sites, and one of the key benefits of this tool is to generate awareness and remarketing.

Online public relations (E-PR) is the practice of maximizing favorable mentions of a brand on third-party sites, which can be media sites, social networks or blogs that are likely to be visited by a brand´s target audience. It includes monitoring and responding to negative mentions and conducting public relations, for example through press releases.

Affiliate marketing is a commission-based arrangement where referring sites receive a commission on sales or leads by merchants. A brand can use this to target different audiences and generate awareness. Online sponsorships can be divided into two options.

The first is the linking of a brand with related content or context in a distinguishable way for the purpose of creating brand awareness and strengthen brand appeal. This could, for example, be through influencers. The second is co-branding, where an arrangement is made between two or more companies to jointly display content and perform joint promotion. This option can strengthen the brand if seen as complementary to another.

Interactive display advertising is the use of online display ads such as banners and rich media ads to achieve brand awareness and encourage a click-through to a specific target site. It can secure dynamic updates to campaigns and achieve a higher brand interaction by targeting the right segment.

Opt-in email marketing is the use of legal, permission-based emailing to prospects or customers who have agreed to receive emails from the brand. It is distinguished by outbound email marketing and inbound email marketing. Outbound email marketing is campaigns used as direct marketing to encourage trial and purchase. Inbound email marketing is the management of emails from customers, typically regarding service inquiries. This option is a tool for personalizing the communication and offers to the customer, which enforces the relationship with the brand.

Social media marketing is a type of online word-of-mouth where compelling brand-related content is shared, forwarded or discussed electronically and offline to help achieve awareness and drive response. A brand can thereby reach a broad audience, and since customers rate the opinions of their friends and families highly, it is effective word-of-mouth to have favorable brand mentions on social media.

As such, all of these different digital media channels fulfill many of the brand equity aspects that are needed to create a relationship with the customer.

2.2.2 CREATION OF RELATIONSHIP ONLINE

A study by Confos & Davis (2016) shows that there is huge potential to create intense and long-term relationships through digital marketing. They built upon Fournier´s (1998) theory of brand relationships, where the brand is described as an active contributing member of the relationship dyad. A brand can through digital marketing now be considered an interactive partner with assigned human qualities, because consumers can converse and share, and the brand can directly communicate with them through post and tweets (Confos & Davis, 2016). The brand relationship, therefore, becomes dyadic, and by liking a brand on social media sites such as Facebook can be interpreted as an affection for the brand (ibid.). Other studies (Waiguny, Nelson & Terlutter, 2013; Hoffman & Novak, 1996) conveys how this dyadic online relationship affects consumers and how they feel connected to the brand. A brand can create this connection through different uses of digital marketing. The first method is through social presence, which helps the consumers to socially connect with others online through sharing material, creating and interacting with content (Keng & Lin, 2006). A second method is creating content that consumers can find interesting and thereby be attracted to the brand (ibid.). Finally, digital marketing can provide personalized experiences, where the consumer can customize the brand, and the brand can communicate to each consumer individually (ibid.). This allows the brand to communicate deeper than by using traditional media, and it has a more persuasive effect on the consumers (Owen, Lewis, Auty & Buijzen, 2013). The nature of the online environment where anonymity is present in many online interactions also allows consumers to share more deeply material, which enforces an online relationship to be more emotional and personal (Mathwick, 2002). Thus, the relationship between a brand and a consumer can become a friendship with depth and meaning (ibid.).

2.3 ARTIFICIAL INTELLIGENCE

Artificial intelligence (AI) covers a science and engineering domain focusing on theory and practice of developing systems that mimic the characteristics associated with intelligence in the behavior of humans, e.g. perception, natural language processing, problem-solving and planning, learning and adaptation and acting the environment (Tecuci, 2012). The goal is to develop intelligent agents formalizing the knowledge and make mechanizing reasoning (ibid.). AI is a wide field with roots from several domains, from computing disciplines to mathematics, linguistics, phycology, statics, etc. (ibid.).

Some systems that are already developed can be characterized as pure AI applications like planning systems (ibid.) Most AI-systems are however developed for complex applications where intelligence is needed in different ways, e.g. to reason with knowledge, process natural language or learn and adapt (ibid.).

AI is often described through an agent-metaphor where the agent consists of a knowledge-based system that perceives its environment, whether this may be the physical world, a graphical interface or the internet, etc. (ibid.). Tecuci (2012) illustrates AI as an agent with its main components as presented below.

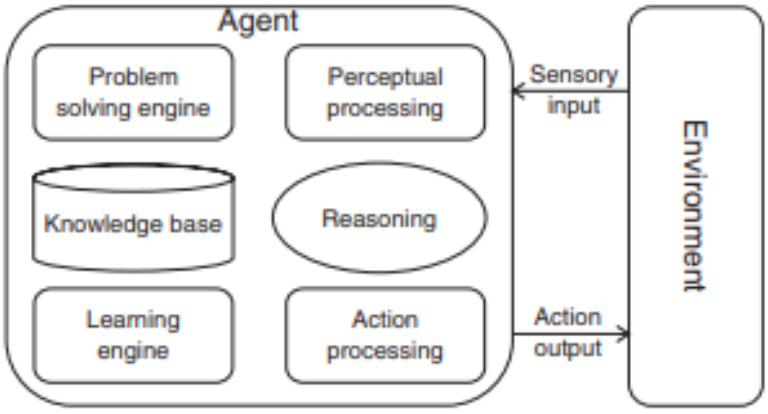

Illustration 3: The main modules of a knowledge-based agent (Tecuci, 2012).

It acts upon environment-set goals which it has been developed for (ibid.).

This agent will over time advance in its knowledge and performance as the system will develop from new data that it will encounter (ibid.).

It can also collaborate with humans as it can interact, and even though it may not follow the direct commands, it may modify the assigned task, or ask for clarification, or refuse the task (ibid.). This ability of collaboration can improve the ability to accomplish tasks, as it increases the AIs ability to contribute to completion of tasks (ibid.).

In practice today, most AI-systems do not include all of the components illustrated in the agent-model (ibid.). For instance, an agent working as a chat function will not need any visual or learning capabilities as the task does not require these abilities, but maybe only natural language processing abilities (ibid.).

Intelligence agents have knowledge of the surrounding environment allowing it to reason by manipulating with elements (ibid.). Each relevant aspect of the environment has an explanation in the knowledge base of the agent whether this may be an object, relation between objects, class of objects, law or action (ibid.). This can be shown as in the illustration below, where a hierarchical representation of objects and relationships are present with the rule that they are used for reasoning on the objects (ibid.).

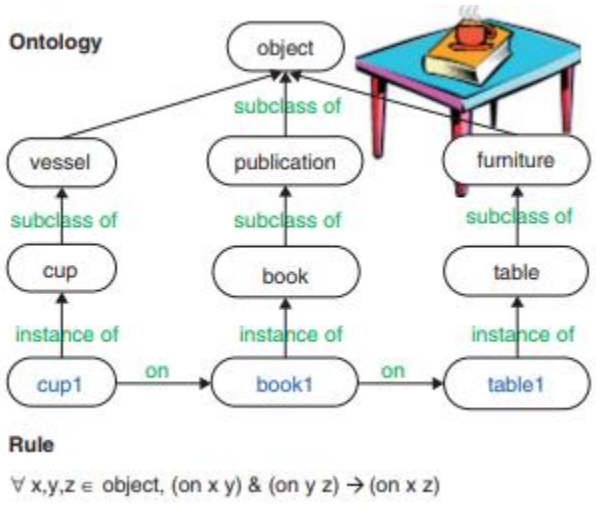

Illustration 4: Example on a situation and its representation (Tecuci, 2012).

Agents mapping of entities and representations lets it reason on the environment by manipulating internal representations and creating new representations (ibid.). This is for instance done by natural deduction (ibid.). The system may assume that the object 'cup1' is on the object 'table1' (ibid.). These natural deduction abilities are based on an algorithm that consists within AIs problem-solving engine, while the ability to reason is done in the reasoning area of the AI (As shown in illustration 4). Illustration 4, therefore, shows the architectural characteristics of an intelligence agent, where knowledge and control are separated as illustrated by the different modules in the model (ibid.).

To build knowledge for an AI, it is essential to take four characteristics into account:

Representational adequacy; to which extent knowledge can represent what is needed in the area of application (ibid.).

Inferential adequacy; to which extent the inferential procedures needed to manipulate representational structures can be presented in order to create new knowledge (ibid.).

Problem solving efficiency; to what extent efficient problem-solving procedures can be presented (ibid.).

Learning efficiency; to what extent new knowledge can be acquired and integrated within the knowledge structures of the AI and modify existing knowledge structures to represent the application area in a better way (ibid.).

No representation is found until now, which is optimal considering all these characteristics (ibid.). Therefore, a series of knowledge representation systems have been developed (ibid.). These are often based on logic, e.g. predicate calculus, with great representation and inferential adequacy, but is not beneficial to problem-solving efficiency (ibid.). Another system is semantic networks, which are complementary to production systems (ibid.). These can present objects and states but have problems in presenting processes (ibid.). The inferential efficiency is high, as a result of the structure that is used for presenting knowledge, which at the same time serves as a guide for collecting knowledge (ibid.). However, the learning efficiency is low as addition, and deletion of knowledge affects the rest of the knowledge base (ibid.). New knowledge must, therefore, be integrated with caution in the existing knowledge base (ibid.).

2.3.1 ARTIFICIAL INTELLIGENCE FOR PROBLEM-SOLVING AND PLANNING

General methods for AI to be proving, problem-solving and planning have been developed (Tecuci, 2012). An aspect that is coherent through all of these methods is the use of heuristic information (ibid.). This guides the search for a solution when dealing with large problems (ibid.). These do not guarantee to find a solution or the findings to be the optimal solutions (ibid.). Some of the methods are resolution, state space search, adversarial search, problem reduction, constraint satisfaction and case-based reasoning (ibid.).

State space uses a method where the problem is characterized as the initial state, referred to as I. O is a set of operators, which in the process becomes a successor state, and G is defined as a goal. The solution will then be sought by applying a series of operators to change the initial state to a goal (ibid.). This is shown in the figure below.

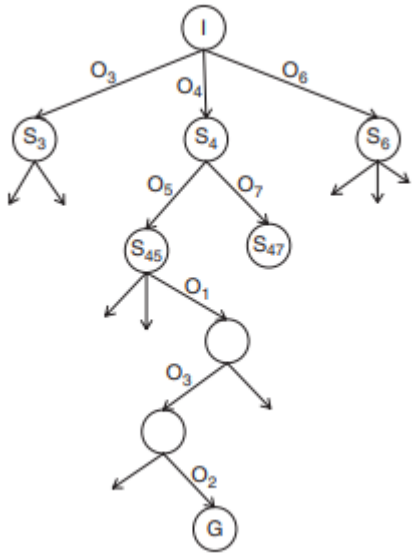

Illustration 5: Problem solving as search (Tecuci, 2012).

Here a series of operators (O) is applied in order to reach the goal (G) (ibid.). A fictional example can be if the AI were to manipulate with the setting of illustration 5, e.g. to move the cup. Then the system will apply an extensive amount of operators in order to find a sequence of actions that moves from the initial state (I) to the goal (G) (ibid.). The sequences will be based on the knowledge base which represents applicability, conditions, and effects in the world (ibid.).

The algorithm behind consists within the inference engine (ibid.). Today, real-world machines are in fact build on the general approach to problem-solving (ibid.). This is, for example, travel planning, route findings, etc. (ibid.).

Another method of problem-solving is adversarial search (ibid.). This is what is used for AIs playing games (ibid.). In this example, I in the illustration above would refer to the initial position in the game, and the players of this game will then alternate in choosing their move (ibid.).

In this method, the AI will forecast the game as far into the future as possible, and consider all possibilities it may do in the current position (I), which in illustration 4, would be O3, O4, and O6, before taking a decision on where to move (ibid.). The move it would make would then radically change the situation, and a new position with several possible moves will occur (S4) (ibid.). From this new position, the new possibilities will be considered (O5 and O7) and the possible responses these decisions may have (ibid.). This way the AI would keep calculating the possibilities and outcomes of different positions of the game in order to have the best odds of reaching the goal, which in a game-setting would be winning (ibid.). In some games there might an endless amount of possible ways the game may turn out, making it very consuming in term of processing power to calculate the probabilities of different turns leading to various results (ibid.).

For this Tecuci (2012) presents an examples of checkers. In checkers, there may be an estimated possibilities of 10^40 non terminal nodes (ibid.). If assumed that these are generated at a rate of 3 billion each second to generate all possibilities and their outcome would require 10^21 centuries, making computing power a limit (ibid.). As this is therefore difficult to generate, the AI would instead estimate as many of the possibilities as possible, and use a heuristic function to estimate values of the generated nodes (ibid.).

This method of problem-solving was what led to the defeat of Gary Kasparov, the world champion in chess by Deep Blue, an AI built by IBM in 1997 (ibid.).

2.3.2 ARTIFICIAL INTELLIGENCE FOR KNOWLEDGE ACQUISITION AND LEARNING

The abilities of AI-technology is mostly a result of the knowledge that is within their training data (Tecuci, 2012). However, in the aspect of machine learning, the main goal is for AI to learn and acquire data (ibid.). This can be based on, e.g. input from a user or data (ibid.). This gives the ability for AI to develop and become more competent, making it better at solving broader problems and conducting fewer mistakes, while also becoming more efficient, solving problems faster (ibid.).

Learning is considered an area with a high amount of complexity. Therefore a lot of research has focused on simple tasks to learn concepts, e.g. understanding the concept of a 'cup' (ibid.).

Concept learning is about making classification functions which separate instances of the concepts from those who are not (ibid.). Often this has been done through empirical inductive learning based on examples, where the AI is learning the definition based on a series of positive and negative examples (ibid.). This helps in generating a generalized description of what is a positive example (ibid.).

These methods may be based on information theory, while others present the learnings as a neural network, where the output is deciding on the ability of the input to entry based on its fit with the concept (ibid.).

In neural networks, learning is done by continuously classifying examples and through these evaluate the extent to which they are associated with the connection between units (ibid.).

However, other strategies of learning besides the inductive concepts of learning are also possible (ibid.). These may be (ibid.):

- Explanation-based learning where learning is based on an operational definition of the specific concept. Here an example provides the instance of the concepts, and by deductively generalizing, the AI identifies essential features of the concepts for it to recognize faster.
- Analogical learning where learning is new knowledge about an aspect is done by transferring this aspect from a similar entity and then test it.
- Abductive learning where observed effects are the base of hypothesizing causes.

- Conceptual clustering where classifying objects into concepts and then learn about the specific concepts.
- Quantitative discovery where discovering quantitative laws related values of variables for characterization of objects.
- Reinforcement learning where the development of knowledge is based on feedback from the environment.
- Genetic algorithm-based learning where models of heredity and evolution were the basis for evolving a population of individuals over generations.

The methods of learning can be used to further build upon the system with new dimensions, as these are mostly complementary methods, and have different needs, e.g. some needs input consisting of a significant amount of conducted examples of a concept in order for work with it, while other methods need only a limited amount of knowledge in terms of input (ibid.). The method of explanation-based learning, for instance, do only need a single example of the concept in order to utilize the input and further learn about the concept (ibid.). These different learning methods may be compared to the ways that students are learned through examples and explanations (ibid.).

Each of the learning methods has limited applicability if used independently, as they require specific knowledge and produces specific, limited output. This, together with the fact that the learning methods can complement each other often results in building multistrategy learning AIs (ibid.)

2.3.3 ARTIFICIAL INTELLIGENCE FOR NATURAL LANGUAGE

Natural language, speech, and visual inputs are aspects that are easily understood by humans, but however can be difficult for AIs (Tecuci, 2012).

When working with input in the form of natural language, the AI is in need of building internal representations of its meaning to be used by the problem-solving engine and thereby understand it (ibid.). However, this is a complicated process as natural language is based on elements like morphology, syntax, semantics, and discourse (ibid.).

By hearing a specific word, it is therefore difficult to even tell if it is a noun or verb, and words having multiple meanings causes problems. Tecuci (2012) uses the example of a diamond:

"What does the word 'diamond' mean? Does it mean the mineral consisting of nearly pure carbon in crystalline form? Does it mean a gem or other piece cut from this mineral? Does it mean a lozenge-shaped plane figure? Does it mean the playing field in Baseball? Because the meaning of a word cannot be determined in isolation, it needs to be interpreted in the context of its surrounding words." (ibid., p.176).

Even sentences may have multiple meanings, as seen in the example of visiting relatives: *"What does 'Visiting relatives can be boring' mean? Does it mean that the act of visiting relatives can be boring? Maybe it means that the relatives who visit us can be boring."* (ibid., p. 176). Therefore, the abilities that cause a system to recognize and understand natural language is very difficult, due to the complication of natural language (ibid.).

The illustration (Illustration 6) underneath shows that understanding a sentence required multiple stages of analysis from morphological analysis, analyzing words and assigning syntactic categories, to syntactic analysis, producing parse trees to identify syntactic components sentences, like noun and verb, to semantic analysis, producing an internal representation of meaning (ibid.).

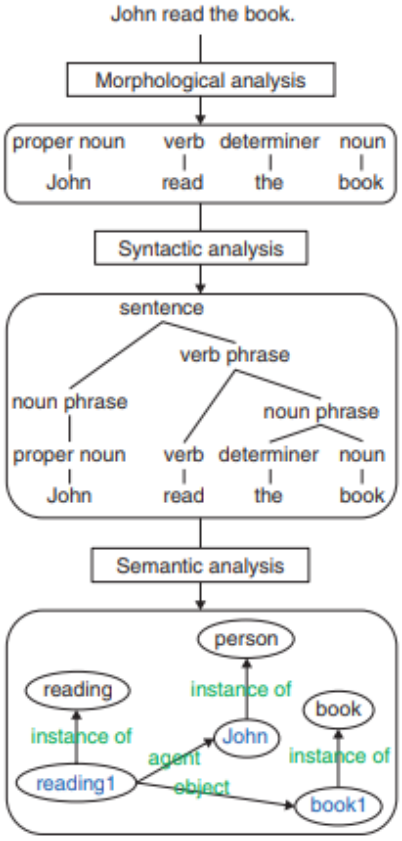

Illustration 6: The stages in understanding a natural language sentence (Tecuci, 2012).

Further, follow-ups on the sentence may be necessary to understand the correct meaning (ibid.). For example if the sentence was extended with *"it was interesting"* in the sentence examples of John reading a book, the system needs to identify that 'it' refers to 'the book' (ibid.).

The accessibility to language on the internet today has had a significant impact on the methods and techniques of natural language processing (ibid.). Here the techniques used are now mostly through probability and statistics (ibid.). For instance, specific words are associated with prior probabilities and the rules of grammar (ibid.). This gives the opportunity to determine the probability of meanings of a word or sentence and evaluate the highest likely meaning in the specific context (ibid.).

The use of natural language processing is within determining positivity or negativity of a text, identifying topics of a text or even to translate text from one language to another (ibid.).

2.3.4 ARTIFICIAL INTELLIGENCE AND BRANDING

Studies within artificial intelligence and their impact on branding are still relatively new, but West, Clifford, and Atkinson (2018) have explored the AI-technologies natural language processings effect on customer service and machine learnings effect on personalization. Also, AI-driven communications effects on brands have also been studied by Syam & Sharma (2018) within personal sales and sales management.

AIs most significant effect on sales within personal selling and sales management was by Syam & Sharma (2018) discovered as being within standard, routine and repeatable activities. In these activities, AI can support and optimize the process, making it more efficient (Syam & Sharma, 2018). Customized offerings could be designed and delivered as the AI-technology could contribute to understanding consumer behavior serving as a significant influence on sales (ibid.)

West, Clifford & Atkinson (2018) conducted a study focusing on the specific AI-technologies; natural language processing and machine learning. The study investigated the use of AI in organizations and the impact this implication may have on their brand. The main aim of this study was on brand promises based on functional benefits. This could, for instance, be the ability to deliver packages on time (ibid).

Natural language processing, which is an AI-technology, was found to be able to take unstructured data like text and generate structured data with meaning and was found to be able to benefit customer services and customer experience (ibid.). This can benefit the brand to a high extent even though it may not be capable of being the main aspect of differentiation (ibid.).

West, Clifford & Atkinson (2018) highlights the importance of access to customer data, and thereby the quality and quantity of training data, which is crucial for the technology, as natural language processing is increasingly becoming more attractive. Therefore, having the technology does not necessarily mean that one will be able to exploit the potential of natural language processing (ibid.). It is considered beneficial to adopt the technology in the early stages, as this will give a better possibility of benefitting from the full potential of natural language processing.

Companies investing in machine learning can also benefit widely on its ability to personalize. The use of this technology makes it possible to do personalization to an extent that brands have not yet been able to do, resulting in an increased brand experience on a big scale (ibid.).

The use of machine learnings ability to personalize communication and offers towards customers gives the ability to enhance the relationship with the individual customer. However, the knowledge of the technology is still lacking, and as a result of that, machine learning is still only implemented to a limited degree even though the technology is available and have enormous potential.

West, Clifford, and Atkinson (2018) argues that brands are being perceived as naive when it comes to technologies and that they cannot invest in technologies or implement systems that they are not understanding.

Most literature shares the view that benefits that are not functional are the best for differentiation, as benefits that are functional are easier to replicate (Kapferer, 1992; Alt & Griggs, 1988). However, the study is different as it provides a case of benefits that are functional being a successful differentiating factor (West, Clifford & Atkinson, 2018). And the ability of a brand to differentiate itself is highly influencing the success of the brand (ibid.).

2.4 CONTRIBUTION AND POSITIONING

2.4.1 THEORETICAL RELEVANCE

Based on the literature presented, the research gap and the research question the theoretical relevance is illustrated below:

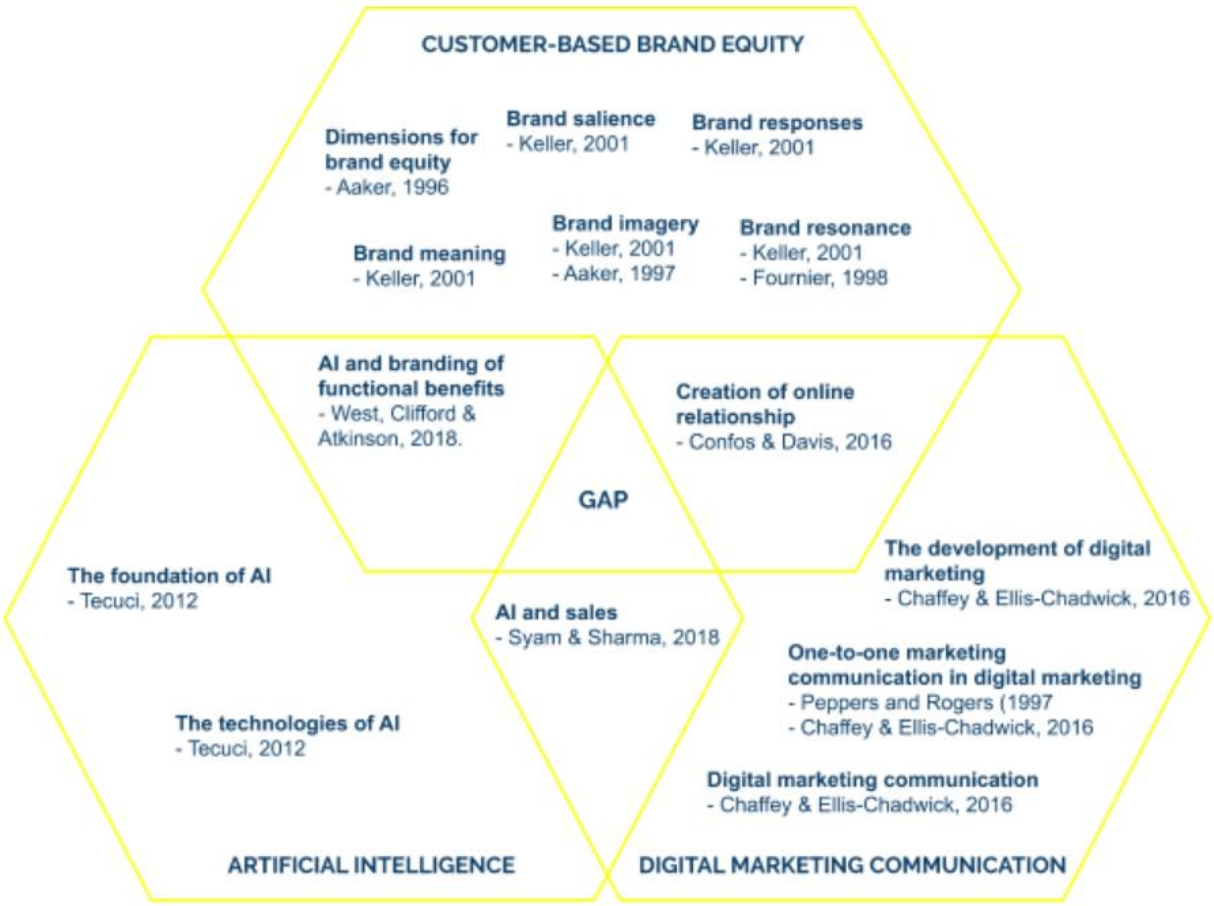

Illustration 7: Venn-diagram showing the research gap of AI-drive digital marketing communications ability to affect a company's ability to build brand equity.

Existing literature within customer-based brand equity is extensive. The same is the case for AI and digital marketing communication. However, the combination of the three reveals a gap. As presented in the theoretical background, existing literature covers limited parts of AIs abilities within branding and even suggests further research within the area highlighting the research gap presented here.

The aim of this study is, therefore, to narrow this research gap by exploring the areas where customer-based brand equity, AI and digital marketing communication interferes.

2.4.2 MANAGERIAL RELEVANCE

In September 2018 the global spending on digital marketing was nearing $100 billion (Reuters, 2018). In 2017 the ad spend in the US alone was increased by 44% (ibid.). This emphasizes that digital marketing is a giant industry with significant investments that are still growing. Marketers have though been frustrated with the lack of control on how to target audiences (ibid.).

One of the areas where AI is predicted to create significant value is within promotion through targeting and marketing (Mckinsey&Company, 2017). Therefore, companies are starting to adopt AI, as lost opportunities are seen as lost sales (Singh, 2018).

Mckinsey estimated that in 2016 companies invested $26 to $39 billion in AI, while tech giants accounted for $20 to $30 billion on AI. 10% went to the acquisition of AI, while 90% was spent in R&D (Mckinsey&Company, 2017). Mckinsey highlights that AI can deliver significant values to those who adopt it seriously and early adopters are gaining a competitive advantage (Mckinsey&Company, 2017).

This sudden increase in the interest of AI and focus on early adoption can result in unintended results, as some of the disadvantages of implementing the technology within digital marketing might not be highlighted.

As previous research is limited within this area, digital marketers need answers to how this adoption may influence their ability to create brand equity, making this study significantly relevant.

3. METHODOLOGY

This chapter will present the methodology of the research and specify the view in which the thesis is founded upon. The first purpose is to assign the worldview, that determines the theoretical framework and how the study practically provides knowledge to answer the research question. The research strategy is formulated based on the ontology and epistemology of the study, which also consolidates how validity and reliability are assigned to the thesis. The chapter contains the following sections: Philosophy of science, Research Method, Data collection, Data analysis and Validity and Reliability

3.1 PHILOSOPHY OF SCIENCE

This study takes a post-positivist worldview. In post-positivism, the ontology is equivalent to the ontology of critical realism. It is believed that reality exists, but that it is only imperfectly viewable because of the humans' intellectual mechanisms which it recognizes as a bias possibly having an effect (Hendersen, 2011; Guba & Lincoln, 1994). This means that the world can only be apprehended imperfectly (Guba & Lincoln, 1994). The epistemology emphasizes that dualism is largely rejected as it is not possible to maintain; however, objectivity is remaining the ideal. It makes an objectivistic assumption from where it is possible to approximate, but not fully know reality (ibid.). This results in the ability to replicate findings being probably true (ibid.).

To judge the quality of post-positivist studies, the criteria that should be used are the conventional benchmarks of *"rigor"* (ibid.). These are internal validity, external validity, reliability and objectivity (ibid.).

Strauss & Corbin (2008) consider their approach as being based upon pragmatism but do however emphasized that to do the grounded theory methodology presented by them, it is not necessary to share their worldview or the assumptions they do (Strauss & Corbin, 2008). It is though highlighted by multiple researchers that Strauss & Corbin's approach to the grounded theory methodology is post-positivist or having post-positivistic criteria based on their emphasis on context and complexity (Weed, 2017; Age, 2011). And whereas positivism emphasizes the use of quantitative methods, post-positivism acknowledges the application of both qualitative and quantitative methods (Hendersen, 2011).

3.2 RESEARCH METHOD

The aim of this study is to answer the research question. Therefore, the method chosen should be the one best fitting for answering the research question (Kuada, 2012).

There are various types of data collection methods. The choice on data collection and techniques should, however, be consistent with the approach that is adopted.

Data collection methods are generally categorized in qualitative methods and quantitative data methods. In this study, a qualitative approach is adopted.

Qualitative research is findings that have not arrived through means of quantification (Strauss & Corbin, 2008). Researchers *"…engage in detailed examination of cases that are related to their chosen topics and present authentic interpretations that are sensitive to specific social-historical contexts"* (Kuada, 2012, p. 93).

This type of research enables a firsthand look at settings and to get an understanding of what participants describe in their answers (ibid.). Some qualitative methods allow for participants to raise topics and issues that may not have been anticipated and can be essential for further research (ibid.). A qualitative research approach is used for gaining new insights about a phenomenon (ibid.).

In the process of working with theory and research two approaches can be used: Inductive and deductive reasoning (ibid.). The deductive reasoning approach uses theory on observations. The inductive reasoning approach, however, uses observations for theory (ibid.).

Inductive reasoning is going from individual cases into general rules (ibid.). If the researcher is able to observe a pattern, the researcher can make conclusions that can be converted into theory (ibid.). Therefore, the inductive approach work from the particular to the general with the purpose of developing new theory (ibid.).

As the research question refers to creating new knowledge within an empirical field and contribute to filling a research gap an inductive approach to empirical research is used.

3.2.1 GROUNDED THEORY

The method that will be used to explore the research question is grounded theory (Strauss & Corbin, 2008). Grounded theory is chosen because it is a method for constructing knowledge within new areas through qualitative research and is *"...designed to develop a well-integrated set of concepts that provide a thorough theoretical explanation of social phenomena under study"* (Strauss & Corbin, 1990, p.5). Since the research topic is lacking theoretical concepts, grounded theory was applied.

Grounded theory is a qualitative research method, where the focus is on creating conceptual frameworks or theories through inductive analysis from data (Charmaz, 2006). Therefore, making it directly 'grounded' in the data (ibid.). Charmaz (2006) describes the method as being distinguished from other qualitative research methods, as the researcher is involved with the data analysis while still collecting data, as this is used to further shape the data collection. The analysis is conducted through coding and memos (Strauss & Corbin, 2008).

This study is based on Stauss & Corbin's approach to grounded theory, which uses guidelines and procedures. It favors the new technological procedures in contrast to emphasizing on comparative methods (Charmaz, 2006). This approach has been heavily criticized by Glaser, who together with Strauss founded the method of grounded theory, which was initially formed as a contrast to deducing testable hypothesis' based on already existing theories (ibid.). Instead, they touched upon strategies and developing theories from research which were grounded in the data. While Glaser remained consistent with the defined grounded theory method, Strauss shifted towards verification and developed a new approach to grounded theory together with Juliet M. Corbin (ibid.). Thus, Glaser argued that Strauss and Corbin's method would force data and analysis' in preconceived categories, and therefore do not meet the fundamentals of grounded theory (ibid.).
The critique from Glaser did not prevent the success of Strauss and Corbin's approach to grounded theory, which has since been widely adopted in research (ibid.).

Strauss and Corbin introduce the possibilities of using research areas and research questions. This should be used as a guide as areas and questions should be generated to explore rather than to test, as traditionally used in quantitative research (Strauss & Corbin, 2008). Therefore, a qualitative research question might be considered too general and nonspecific for quantitative research (ibid.). Strauss and Corbin address that a grounded theory study is initiated by a researcher based on an initial problem (ibid.). This can be undertaken by an advisor, from technical or non-technical literature, personal or professional experience or emerge from the research itself (ibid.). As described in the section "Our Motivation" this study arose from professional experience among one of the researchers and was further developed by a gap in the existing literature, as pointed out in the "Contribution and positioning"-section.
Thus, this study seeks to explore a research question derived from the research gap, where Strauss & Corbin's approach to doing grounded theory will be used as the research method.

Theoretical sampling

Theoretical sampling is a data collection method that is based on concepts that are derived from data (Strauss & Corbin, 2008). Concepts emerging from the data and questions about these will in the process of theoretical sampling be used for further collection of data (ibid.).
Therefore, this results in the sample being refined continuously making it more accurate, since the collection of data and data analysis is being done continuously.

Incoherence with the guidelines of Strauss and Corbin (2008) no control was put on variables and representativeness and distribution of the population was not in focus. Emerging findings at each process-stage were either for modifying or confirming the emerging theory.

Coding according to Strauss & Corbin

Coding is a big part of the data-analysis method in grounded theory (Charmaz, 2006). Coding can be defined as *"…"mining"* the data, digging beneath the surface to discover the hidden treasures contained within data (Strauss & Corbin, 2008, p. 66).

Coding is the process in which the content of data is defined (Charmaz, 2006). Where quantitative researchers apply preconceived categories to the data, researchers using grounded theory creates qualitative codes by defining what is observed in the data (ibid.). Practically, this is done by labeling the data and making segments based on the content, and this process is dependent on the grounded theory approach. Since this study is using Strauss and Corbin's (2008) approach, the method of coding applied will also be according to Strauss and Corbin's recommendations; open coding, axial coding and selective coding (Strauss & Corbin, 2008; Strauss & Corbin, 1990).

The first phase of the analysis process is open coding. Open coding is taking apart data and concepts to be raw data (Strauss & Corbin, 2008). In this phase, the analyst wants to open up data for all potentials and possibilities that are within it (ibid.). These blocks of data are then given conceptual labels, which helps conceptually similar codes were grouped to create categories and subcategories (Strauss & Corbin, 1990).

Each category can have specific properties and dimensions (ibid.). These categories become the foundation for sampling on theoretical grounds, resulting in need of the researcher being aware in the following findings to find codes similar to the first findings and note their difference (ibid.).

In the second step of the process, the researcher reassembles the fragmented data from the open coding. This is known as axial coding. In this process, the researcher compares the codes to find similarities (Charmaz, 2006).

Even though axial coding is seen as a separate coding process, the distinctions between open and axial coding are done for explanatory purposes as it indicates that although data is broken apart and concepts should be identified for the data, it is also necessary to put it back together by relating the concepts (Strauss & Corbin, 2008). The purpose is to sort, synthesize and organize the vast amounts of data and start reassembling them after open coding, thereby developing a major category (Charmaz, 2006).

Further development of categories is created, and the researcher will continuously scout for indications of these since a single data point is not significant enough to discard or verify a hypothesis although it may be plausible. Instead, this must be present in the data continuously (Strauss & Corbin, 1990).

Lastly, the process of all categories being unified around a core category is known as selective coding (ibid.). This is done at a later stage of the study, and the core category then represents the phenomenon of the study (ibid.). This core category can emerge from the already identified categories, but may also be formed as a more abstract term that can explain the phenomenon (ibid.). The remaining categories will then be related to the core category as either conditions, actions or consequences (ibid.). Here remaining categories that need further explication and gaps of poorly developed categories are completed (ibid.).

Saturation

In grounded theory, new data can create new emerging categories and insights to the existing data. Therefore, some grounded theorists argue that a grounded theory study is never fully finished (Charmaz, 2006). In grounded theory studies, data-gathering cannot be finished before saturation is achieved. Saturation is considered when the gathering of new data no longer provides new theoretical insights or adds new properties to the core theoretical categories (ibid., p. 113).

However, this point varies according to the study, and Glaser and Stern argue against attending to the amount of data, as small samples and limited data is not an issue when aiming to develop conceptual categories as the data collection is then focused towards uncovering properties of categories and the relation between these (ibid., p. 18).

The common focus point is the data's ability to give you as full a picture of the topic as possible within the parameters of the task (ibid., p. 18).

3.2.2 DATA COLLECTION

In order to answer the research question research must be gathered.

One of the most common data collection techniques when using Grounded theory is interviews (Charmaz, 2006). Interviews provide the ability to do in-depth exploration in a specific topic (ibid., p. 25). Researchers often use these as the single method for conducting grounded theory research (ibid., p. 28).

Therefore, interviews were decided as the data gathering method. This will be further explained in the next section.

3.2.2.1 Semi-structured in-depth interviews

In this study, in-depth interviews were used to collect research data as these provide the ability to explore within specific subjects (Charmaz, 2006). However, regular in-depth interviewing differs from grounded theory because the researcher tries narrowing the topics and gathering specific data for developing theoretical frameworks when they proceed with conducting the interviews (ibid.).

There are several ways of structuring an in-depth interview. Charmaz (2006) recommends developing interview schemes but considers it beneficial to make the conversation more fluid by not bringing it for the actual interview (ibid.). However, she emphasizes that new grounded theorists should have a well-planned interview scheme with them in order to concentrate on what the interviewee is saying. Alternatively, the interviewer can miss obvious points to explore, being distracted by 'what to ask next and how to ask it', resulting in unideal questions (ibid.).

Therefore, this study uses a semi-structured approach to conducting in-depth interviews, which secures that all topics are touched upon.

In total 12 semi-structured interviews were conducted. Due to the research area being an emerging field and the selection criteria that was decided upon, the amount of interviewees available was limited. However, the main reason for the amount of interviewees was that no significant codes were emerging from the last interviews, making new categories significant, meaning that saturation was considered achieved.

In-depth interviews focus on understanding the topic. Here the interviewee has the experience that can help the interviewer in understanding the topic (ibid.). Charmaz highlights the combination of flexibility and control that is inherent in in-depth interviewing techniques being very fitting with grounded theory strategies (ibid.).
The time of the interviews varied depending on the amount of emerging questions, topics and talk ability of the interviewee. The shortest interview lasted 35 minutes, while the longest interview lasted 1 hour and 10 minutes. The average length of the interviews was approximately 51 minutes.

When doing semi-structured in-depth interviews for grounded theory, the structure of the interview scheme and formulation of questions becomes crucial. Comments and questions of the interviewer helps the interviewee articulate the meaning and intentions of the interviewee, and therefore the data that will be developed (ibid.).
As a result of this, the development of the interview scheme will be further explained in the next section.

Scripting and execution

Scripting

The interview scheme was constructed with the ability to explore the area of research in mind. In order to explore the research question Keller's model for building customer-based brand equity was used as a framework for the structure of the core questions (Keller, 2001).
Keller's model for building customer-based brand equity provides a comprehensive means of covering important branding topics (ibid.). The model is grounded, and according to Keller applicable to all possible kinds of brands and industry settings (ibid.). Keller (2001) considers the power of a brand as residing from the minds of the customers, and the model covers the areas that Keller finds as ensuring a strong brand (ibid.). As this study seeks to explore the consequences of implementing AI-technology in digital marketing on all aspects of a brand, all elements of the model were taken into consideration in order to give a complete view of a brand.
The *"six brand-building blocks"* of the model served as a list of topics that should be explored during the interviews, and as a guideline for forming and structuring the core branding-related questions to get a complete view of all branding aspects (ibid.).

As the model serves as a 'branding ladder' (ibid.), the way the topics were explored was through identifying each brand-building block and what characterized it. Through these characteristics, questions were formulated to cover whether AI would be able to identify and use the core elements of these brand-building blocks.

Different dimensions separate the six building blocks. These were thought into the process of creating the questions, as it can be seen below. All levels, building blocks and descriptions are based upon Keller's *"Building Customer-Based Brand Equity: A Blueprint for Creating Strong Brands"* (2001):

LEVEL	BUILDING BLOCK	OPENING QUESTIONS FOR EXPLORATION
Brand identity *"Who are you?"* (Keller, 2001, p. 7)	**Brand salience** Refers to the aspects of customer awareness. E.g. How easily and often is a brand evoked? And the linkage to brand name, logo, symbol etc. (Keller, 2001, p. 8)	"To what extent is AI able to increase awareness of a brand through digital marketing communication?"
Brand meaning "What are you?" (Keller, 2001, p. 7)	**Brand performance** The ways in which a product or service attempts to meet customers' function needs e.g. primary characteristics, effectiveness and price (Keller, 2001, p. 10). **Brand imagery** Covers extrinsic properties of the product or service. needs. It refers to the intangible aspects of brand. E.g. personality, values and heritage.	"To what extent is AI, when used in digital marketing able to communicate brand attributes like: emotional attachment, values, personality and heritage?" "To what extent is AI, when used in digital marketing able to communicate brand attributes like: emotional attachment, values, personality and heritage?"
Brand responses *"What about you?"* (Keller, 2001, p. 7)	**Brand judgements** Focuses on the personal opinions of the customers. These may be brand quality or brand credibility etc. **Brand feelings** Refers to the emotional responses and reactions.What feelings are evoked by marketing initiatives, or similar?	"How can an AI system incorporate the opinions, that a consumer have about a brand? (Credibility, percieved quality etc." "How can an AI system incorporate feelings that a customer might have about the brand? If so: Which feelings can the system evoke? And which can't it evoke? (If any)"
Brand relationships *"What about you and me?"* (Keller, 2001, p. 7)	**Brand resonance** Focuses on the relationship and level of identification that a customer has with a brand. This is e.g. behavioral loyalty, sense of community and active engangement.	"How may AI contribute to the relationship between the brand and the customer?" "How can the AI system contribute to creating brand loyalty?" "How can the AI system help in creating a connection/community between consumers?" "How can the AI system make the consumers actively engage with the brand?"

Table 1: The relation between Keller's Customer-Based Brand Equity Model and the interview scheme

The questions were formulated in order to cover the specific brand building blocks. Keller (2001) refers to it as a 'branding ladder' therefore the core questions start by exploring AI in digital marketings ability to work with the basics of a brand in terms of awareness e.g. brand name and logo, and finishes with 'top of the pyramid'-questions exploring the ability that AI in digital marketing can have for the relationship between a brand and a customer.

However, one should be aware that the use of Keller's model for building customer-based brand equity might have an influence on the data output of the study. Even though it is preferable not to use a predefined set of concepts or theoretical framework, Strauss & Corbin (2008) highlights that it can be useful in specific purposes, e.g. using previously identified theoretical frameworks to provide insight, direction, and a valuable list of initial concepts (Strauss & Corbin, 2008). The research should remain open to emerging ideas and concepts (ibid.). Therefore, this model was used as a framework for covering a complete view of the elements relevant to building brand equity, rather than making it dominant for the specific directions and answers in the interviews.

In the actual formulation of the interview questions Kvale's guidelines for conducting interviews, together with Charmaz recommendations for conducting interviews in Grounded theory was taken into account (Kvale, 2007) (Charmaz, 2006).

In order to ensure the comfortability of the interviewee, the initial questions covered lighter topics than the last questions. Charmaz (2006) highlights that when doing interviews for a grounded theory study mainly broad, open-ended questions should be used. These should invite for more detailed discussions on each topic and exploring these (Charmaz, 2006). Questions should be both narrow enough to elaborate on an interviewees reflection, but also general enough to cover many different experiences (ibid.). Therefore, the importance of emerging questions is not necessarily that it is open-ended, but its ability to fit the emerging situation. However, it is also important to note that in-depth interviews are used to explore and not interrogate (ibid.). This was considered in the formulation of questions, both emerging and preformulated.

The role of the interview scheme was to cover the whole topic, and therefore it was not used as a strict structure, but more as a guideline.

Some interviewees started moving into topics, that would be presented in later questions, and instead of cutting them off, the topics were explored as they emerged in coherence with the grounded theory method (ibid.). As a result of this, not all questions needed to be asked, however the topics covered (ibid.).

Execution

Kvale (2007) highlights the importance of the first minutes of an interview. These minutes should result in the interviewee feeling comfortable and willing to talk freely and expose feelings and experiences to a stranger (Kvale, 2007). Therefore, a good contact is crucial and can be achieved by, e.g. the interviewer showing interest, understanding, and respect for what the interviewee says (ibid.).

In order to establish good contact prior to the interview, a checklist was formed on how to act before the interviews (See Illustration 8).

Firstly, the interviewee would be thanked for their participation, and in coherence with Steinar Kvales (2007) recommendations, a brief introduction about the subject of the interview was given. The interviewee was also kindly asked for permission to audio-record the interview, and they were also informed about their ability to be anonymous.

Checklist prior to the interviews:

- Thanking the interviewee for participation
- A brief introduction to the interviewers and the scope of the study
- Asking for permission to audio-record the interview
- Inform about ability to be anonymous
- Letting the interviewee ask any questions for clarification prior to the interview

Illustration 8: Checklist prior to interviews.

Lastly, the interviewee was asked if they had any questions prior to starting the interview. These questions gave the ability to answer any doubts the interviewee might have had prior to the actual interview and helped establishing a good contact, thereby setting a comfortable setting for the interview.

When finalizing the interview, Kvale (2007) recommends doing a 'debriefing' where main points can be discussed, and the interviewee gets an opportunity to introduce any points that they might have held back, or that might not have been fitting during the interview.

Therefore, after the interview, a set of debriefing or finalizing questions were asked. These were used to let the interviewee comment on any points that were made in the initial part of the interview, but also to meet any unsaid points they may have held back, through questions like *"Is there anything else you think we should know?"* and *"Is there anything you would like to ask?"*.

The physical location and time of the interviews were in all cases decided by the interviewees in order to ensure a feeling of comfortability for the interviewee, in coherence with Kvales (2007) recommendations. However, a closed and quiet environment was strived towards in all cases in accordance with Charmaz (2006) recommendations. As a result of this, most of the interviews were conducted at the interviewees' daily offices.

3.2.2.2 Sampling

Selection criteria

In order to answer the research question, it was decided that the decision criteria of the interviewees should be based on their knowledge within specific relevant areas. The interviewees for the study was therefore decided based on a series of selection criteria, these being;

1. Practical experience with AI, practical experience with consulting AI solutions or research requiring knowledge within AI has been conducted.
2. Knowledge of the use of AI within digital marketing
3. A basic understanding of branding

Knowledge within AI was considered vital for understanding the technology and its possibilities, preferably practical experience.

As AI can be used in several connections, knowledge on the use of AI in digital marketing was especially considered important.

In order to have an understanding of the branding-aspect, a basic understanding of branding was included too.

Prior to the interviews, possible interviewees were screened for these criteria mainly through their previous experience, e.g., one of the interviewees were working with AI today, but had previously been working with digital marketing, and had studied corporate branding. When in doubt the interviewees were asked about their knowledge within the specific areas.

Practitioners and researchers

The interviewees consist of two groups: The practitioners and the researchers.

The practitioners are characterized by having experience with digital marketing and either considered using AI for this purpose or having actually used/using AI for digital marketing.

The researchers are characterized by having a strong knowledge within data analytics, and preferably a strong knowledge within AI, but also having knowledge of digital marketing, as this was considered important for understanding the concepts of a brand.

34 experts were contacted. However, the response rate between practitioners and researchers were significantly different. While approximately 63% of the practitioners gave a response, approximately 25% of the researchers responded, even though several follow-ups were done.

This is not considered a threat for the study, as practitioners arguably have more updated knowledge on the application possibilities of the technologies.

The findings will, however, be influenced by the arguably less skepticism among the interviewees who sell AI-technology, compared to researchers and consultants who do not have conflicts of interest in criticizing the technology.

3.2.3 DATA ANALYSIS

Coding

Strauss and Corbin (2008) highlight the importance of data collection being followed immediately by analysis since conducting several interviews before doing the analysis could risk in leaving our emerging concepts. Therefore, each interview was transcribed and line-by-line coded prior to the next interview, and throughout the process, the researchers made field notes. If core concepts emerged from the analysis, these would be implemented in the interview scheme for the following interviews, in coherence with the method of doing grounded theory (Charmaz, 2006).

Even though open-coding should be done with an open mind for emerging ideas and concepts, the model used as a framework for the interview scheme is based upon preconceived concepts. Therefore this may have influenced the emerging codes.

To illustrate how coding was conducted specific coding-examples have been illustrated in table 2.

Table 2:: Example of coding

QUOTATIONS	OPEN CODING	AXIAL CODING	SELECTIVE CODING
"So now this word doesn't work so well with these words, so we'll remove it, it would evolve, and evolve and then -- let's try and put this word back in now, because now it's a different context. So it ends up and when I -- when you look at it with the human eyes, some of those ads, they make zero sense. They start to make a little bit sense but sometimes they're spelled wrong. Sometimes it's semantically it is just not correct, and it looks really funny, and it's just -- I mean it's just -- its trial and error, trial and error, trial and error, but the more money you put in, the more data and faster it goes, the more it will try."	-Optimization of text is trial and error AI created ads may not give sense -Ad creating is trial and error -The development is driven by data	-Learning from data -AI will fail -Learning from data -Learning from data	Data is everything
"I think the, the harder it is to express the goal, so to speak, in a single data point. The more difficult it is. Like finding out what is the color, like spot a logo in a photo as a very well defined task, and like finding out if a person or text is positive or negative, that's also quite well defined, a bit more difficult because you then have to, it's more difficult to get the training examples properly. And like, the more like fuzzy thing you want, the more difficult it probably is to get like a metric that works as a proxy."	-The harder is it to define, the harder it is to work with for AI -Finding color and logo is clearly defined -Emotions in text is defined, but difficult to -trains for -The more fuzzy it is the harder it is to work with for AI	-Definability -Quantifiable characteristics works well -Definability -Definability	Data is everything
"I think as a rule of thumb AI system so far are very good at working with objective data, and then more structured data. So of course, price, product characteristics. These are more quantifiable structured data that already existing systems can work with, I see AI a natural progression of that."	-AI can work with objective and structured data -Price and product characteristics works as these are quantifiable structured data	-Quantifiable characteristics works well -Quantifiable characteristics works well	Data is everything

Transcription

In accordance with grounded theory method, all interviews were transcribed. All interviews were conducted with high-end audio-recording equipment, which was afterwards used for manual transcription. The choice of recording equipment was chosen based on Kvales (2007) recommendations, that the quality of the recording has a significant effect on the amount of stress that is caused with doing the actual transcription.

Since the interviews were audio-recorded, it is not possible to include visual elements, e.g. body language, which may have enriched the data (Kvale, 2007). However, this is the most common technique within grounded theory (Charmaz, 2006).

In the process of transcription unnecessary expressions, e.g. 'ohhh', 'hmmm' or throat clearings, etc. were filtered out. However, change of words and emotional expressions such as laughter was included to indicate the context of sentences.

NVivo

The content analysis was supported by the software tool NVivo 12 (QR International, n.d.). NVivo is a commonly used tool for different types of qualitative data analysis, including studies doing grounded theory (Gilbert, Jackson, & di Gregorio, 2014; Leech & Onwuegbuzie, 2011).

The tool was used for coding, structuring and assembling the codes.

The transcription and coding phase were conducted by two researchers, while process and findings were discussed throughout the process. In order to align and make the coding system as precise as possible.

As categories should be significant, the main findings presented in this study will be based on data from at least one-third of the interviews.

3.3 VALIDITY AND RELIABILITY

One of the most common issues is validity (Strauss & Corbin, 2008). Validity concerns the degree to which a researcher's results may be valid. Ensuring that in the process data was not misunderstood, or misinterpreted (Kuada, 2012). Strauss & Corbin (2008) mentions Hammersley as one of the most widely quoted people within validity of qualitative research. Hammersley argues that research is valid if it represents the features of the phenomena it is intended to describe, explain or theorize accurately (Strauss & Corbin, 2008).

3.3.1 VALIDITY

So, is this study to be considered valid? To heighten the validity of the study detailed documentation in the form of extensive descriptions on how the study was conducted and the data analysis procedure (Kolb, 2012). This is further enhanced with the collected data being provided as transcripts and a presentation of the findings that the analysis led to (ibid.). Since this study use interviews for data collection and a translation is afterwards used for data analysis, the validity of the transcripts could be discussed. Transcripts do not identically represent actual interviews. It is more of a decontextualized conversation, since *"Transcribing involves translating from an oral language, with its own set of rules, to a written language with another set of rules"* (Kvale, 2007). In the same sense, it is not possible to characterize what is a valid transcription, as there is not a true transform from oral to written form (ibid.).
The use of Keller's pre-existing customer-based brand equity model as a framework for conduction of the interviews further increased the internal validity.

Often the bias of the researcher threats the validity of the study (Kolb, 2012). This is met through the reflexivity of the researchers are incorporated in the study, through, e.g. the continuous development of the interview scheme (ibid.).
Further heightening the validity, in coherence with the grounded theory method theoretical sampling is also used, which is the use of additional cases to gather new insights, expand or refine concepts that are already gained (Strauss & Corbin, 2008; Kolb, 2012).

3.3.2 RELIABILITY

The reliability of a study characterizes the ability to which other researchers under similar or identical conditions would be able to repeat the research process (Kuada, 2012).

In order to ensure the reliability of this study transcripts of all interviews conducted are provided as appendix' (Appendix 4-15), and the actual names of the interviewees are used, in opposition to these being anonymous.

As the transcripts were independently coded by each of the two researchers, while though still coordinating in between, a sample was conducted to do an intercoder agreement. The result was a agreement of 94,31 %, where differences were resolved by discussion among the two coders.

Evaluation of research is seen as necessary (Strauss & Corbin, 2008). However, researchers are in doubt on how this evaluation should be conducted, especially in qualitative research (ibid.). Strauss & Corbin (2008) highlights the question whether one set of criteria can apply to all forms of qualitative research, and whether the notion of judging the quality of research is also constructions and therefore up for debate (Strauss & Corbin, 2008).

Corbin highlights that she is not comfortable with using terms as *"validity"* and *"reliability"* in qualitative research, as there are too many quantitative implications. She associates the "truth" of the words to be carrying a degree of dogmatism.

She, therefore, highlights *"credibility"* as a preferable alternative for qualitative research, as it indicates the trustworthiness and believability of the findings.

Glaser & Strauss (1967) also emphasizes credibility as a relevant term mentioning credibility as a term of believing, over validity.

Strauss & Corbin (2008) do though not imply that meeting validity- or quality-assuring guidelines would guarantee quality. Instead, they believe that it should be the quality of the findings and this quality that should be judged by others.

However, Strauss & Corbin (2008) constructed a list of general criteria drawn from multiple sources, that can serve as a guideline for evaluating the quality of research findings (Strauss & Corbin, 2008). These criteria will be considered below in order to consider the quality of the research.

The first criteria presented by Strauss & Corbin is *fit.* Fit is to assess whether the findings resonate with the researchers it was intended for and the participants who took part in the study. As the last interviews were conducted with thoughts partly based on the previous findings, it is believed that the last interviewees were agreeing on the findings, based on their answers to the interview questions.

After the execution of the interviews, some interviewees were presented with the findings of the study to clarify if it fit with their perception. The feedback was positive and was generally agreeable.

The second criteria is *Applicability.* The usefulness of the findings, and the ability to provide new explanations or insights is considered within the applicability. As the study explores a gap in research and not any gap, but one within an emerging industry, as mentioned in the introductory section the findings give new insights to the ways AI is able to work with a brand within digital marketing. This makes it able to deliver new knowledge and thereby making the findings useful.

The third criteria is *Concepts.* Findings should be organized around concepts or themes, even though the actual presentation of the findings is not relevant. In order for the reader to have an understanding, rather than the findings being a mass of uninterpreted data leaving the interpretation to the reader. In this study, concepts are built through the method of using grounded theory, where the coding method gives the ability to construct themes and concepts that are grounded in the data.

The fourth criteria is *Contextualization of concepts. In order for readers to understand why specific events are made, by presenting the context it is in. Therefore, the findings presented in this study will be presented provided with a description of the context they are given in, in order for the reader to know the context of specific statements etc.*

The fifth criteria is Logic. There should be a logical flow, and findings should make sense, so that gaps are not missing or leave the reader confused. As a grounded theory method has been used the findings are presented through concepts or themes, thus the study has strived to present the findings and do the research in as logic a sense possible.

The sixth criteria is *Depth.* Concepts provide a structure of findings, but descriptive details ad richness to the findings. Depth, therefore, makes the difference between thin and rich findings.

In order to ensure the depth of the findings, for instance, several arguments from the interviews has been presented to enlighten each aspect of the findings.

The seventh criteria is *Variation.* Variation should be in the findings by displaying examples that do not fit the pattern or show differences to demonstrate complexity. Variety is presented in the form of the presentation of the findings. Each element shows a depth wherein several cases that do not fit precisely on the given finding is presented. This is done to show variation and depth in specific dimensions of the findings.

The eighth criteria is *Creativity.* Research should present findings in a creative manner and does it say something new. The topics not necessary need to be new, however, new understandings should be presented. This is done by using a field that is widely researched in a technological manner: AI, and combining it with branding through digital marketing. This gives new understandings to both AI and brandings role in digital marketing. The findings are furthermore presented in a conceptualized manner that is considered creative.

The ninth criteria is *Sensitivity. The ability of a researcher to put aside bias' and seek contradictions to assumptions of the research should be considered. In this study, the researchers highly depended on the data collected in generating concepts. It is however noticeable that Keller's model served as a framework for core questions in the interview scheme, which influence the findings of the study. It is though not a possibility to fully set aside biases as a result of the worldview in this study.*

The tenth criteria is Evidence of memos. Researchers cannot recall all thoughts that have gone into the analysis. Therefore it is essential that memos are developed and forming the research as it progresses (Strauss & Corbin, 2008). As it was previously touched upon field notes were conducted and helped set the direction of the analysis.

Since Strauss & Corbin (2008) emphasize that quality should be based on the findings and judgement of others, they do not consider it a must that criteria are applied to all qualitative research methods (Strauss & Corbin, 2008). They have however formed the general criteria as quality-guidelines for conducting grounded theory according to Strauss & Corbins (2008) method.

4.

FINDINGS

This chapter will present the findings of the study starting with presenting the overall relations of the findings. Then the findings for the use of AI-technology and findings for branding abilities through AI-technology will be presented. As a result of these findings, a conceptual model has been constructed which will be presented. Lastly, a discussion will argue different findings and discuss, e.g. which companies should implement AI-technology, and to which degree the technology should be implemented.

4.1 MAIN STRUCTURE

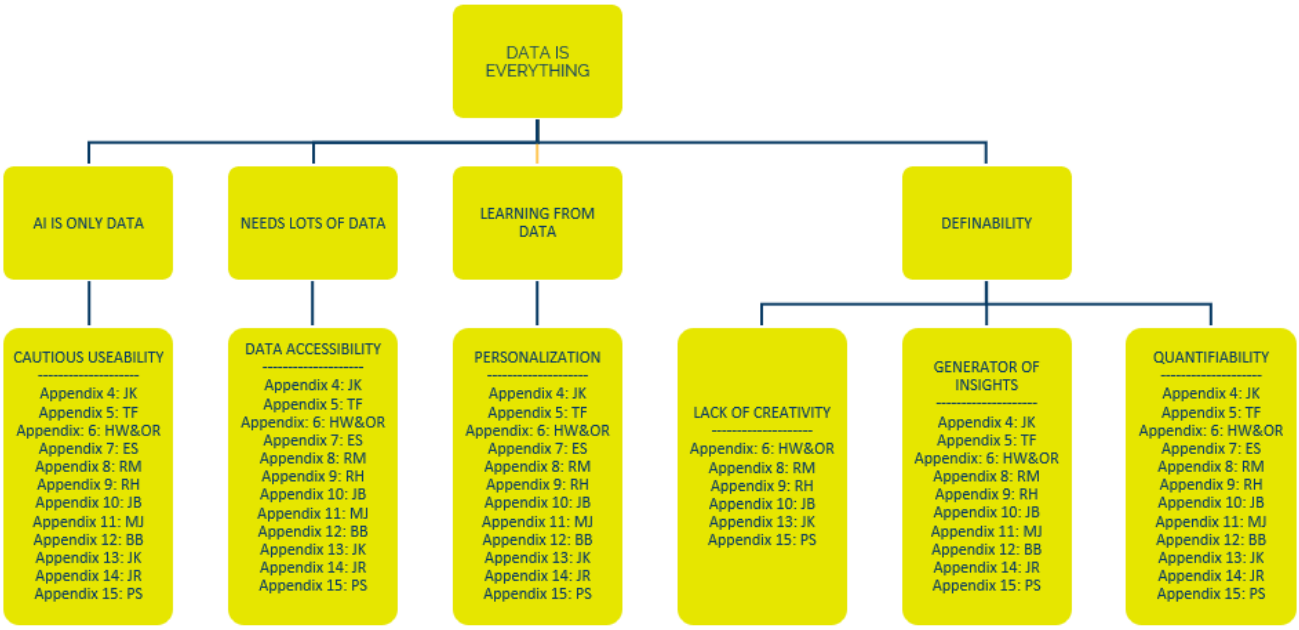

Illustration 9: Main pattern of the data analysis and the contributors to each category

Illustration 9 gives an overview of the core categories, from where all significant findings are related. As illustrated the data analysis uncovered a pattern of all aspects somehow being associated with a selective code referred to as “Data is everything”, which emphasizes that data is vital and that every AI-technology’s ability to act ultimately comes down to the data. From there four categories are separating the findings, these being:

- Definability
- Learning from data
- Needs lots of data
- AI is only data

These categories touch upon different areas of AI in digital marketing. The first being the importance of how data is defined and how this plays a significant role in AIs ability to work with the data or not. The second being AIs ability to learn from data giving it considerable potential for personalization. The third being the need for large amounts of data to function probably, especially when used for data that is hard to define.

The fourth being the fact that AI is only data, meaning that the technology is only as good as the technology provided making it very reliable on the one that provides the data. This can also pose threats to the use of AI, as the amount of data available may vary.

4.2 THE CURRENT STATE OF AI

The study showed a group of findings related to the technology of artificial intelligence (AI). These are able to highlight the current state of AI and give practical insights into the use of AI.

4.2.1 AI IS A BUZZWORD

Many of the respondents agree that AI is a term for a wide range of technologies, that is not clearly defined and can differ among people. AI can consist of algorithms, machine learning, deep learning, and neural networks, but not necessarily all of them together:

"So, brain analytics (BI) has become a huge term, whether you'd like to call it AI or not, I don't care so much what we call it, but using advanced analytics is probably the term that I use, whether you're doing like neural networks or doing sort of more standard BI operate analytics, it doesn't mean the world to me. So, I think that in layman's terms, everybody just calls it AI now." (Appendix 9).

AI is in some cases being used by companies for advertisement purposes. However, it is not necessarily clear for these companies which value they create by stating, that they use AI. The AI word then becomes a type of marketing attribute, because the companies communicate that they are using AI to make them more attractive through the technology.

"So, this AI now is reaching this peak of hype as a buzzword, that just by saying that you are using it, it automatically can give some attention. So, regardless of how much you really use it, just say you're doing it and you're going to be covered by media, you're going to be objects of discussions at the bar among friends." (Appendix 8).

One of the respondents that mentions AI as being hyped also brought up the Gartner Hype Cycle. The Gartner Hype Cycle provides a view of how technologies will evolve over time through the breakthrough, adoption, maturity, and application of a technology (Gartner, 2019).

Many of the respondents regard AI as being too hyped at the moment, placing AI as a technology at the ´peak of inflated expectations´, where many success stories are being created, but not all companies act (ibid.). This peak is normally followed by the ´trough of disillusionment´, where many manufacturers fail with the technology (ibid.).

The technology will then have to be improved before it reaches the end state which is the ´plateau of productivity´, where the technology´s broad market applicability and relevance are finally paying off (ibid.). So, AI will experience a decent, where people will get a much more balanced view and see the pros and cons of the technology, and the technology will also improve from today, where it is described as being a black box that is hard to understand:

"The problem with this technology is like for the first time in human history, we developed something that we cannot explain. A machine that's able to make decisions where we cannot say: This is why." (Appendix 4).

Because an AI system can seem complex many people cannot understand how it functions, it quickly becomes a technology that is viewed as solving all problems or having human-level capabilities. Some of the available systems are not transparent either revealing the technology behind the platforms, which limits the users abilities of knowing how the technology works, but also the ability to compare technologies. When two individual companies both highlight the use of AI, but the customer does not have the knowledge nor the insights to evaluate these, it gets difficult to compare technologies. This lack of transparency of the system can create misaligned views on what AI can and cannot provide a solution to. This causes people to humanize the AI systems, which increases the risk of blindly trusting the system because it solves some challenging tasks. So, people can get carried away with this technology and not be realistic about its limits, which means that it is not only the technology that needs to be improved in AI but also the understanding of AI:

"In some companies, I mean, some are more difficult than other, but there's also a lack of understanding of what you can do, and what AI actually is, or machine learning actually is and what it can do. So, I think there's also still some education to be done in terms of it doesn't have to be magnificent and fantastic." (Appendix 10).

This lack of transparency and knowledge also limits the ability to understand the intention of the systems. Since a considerable part of the abilities of an AI-technology lie within the data provider and the one defining the tasks of the AI, it becomes more complicated when a customer is not able to know the exact intentions and procedures done in the construction of the technology:

"Then maybe we come already back to the fact that often the people that use these technologies don't know how the technology works. And don't know what was the idea of person that designed the technology. And if you then blindly trust the output, then you might get into some trouble, because it might give you something that you didn't intend it would give you." (Appendix 5).

Therefore, one of the suggestions emphasized in the findings is to understand the technology that is being considered for implication or is being used to as large an extent as possible.

4.2.2 AI WORKS BASED ON DATA

The thing that makes AI able to solve problems that would otherwise require many resources for humans is data. The great thing about AI is that humans can just jam pack it full of data, and it will work best when it has all the available data possible. Then the AI system will be able to sort out irrelevant data itself so it can optimize based on what it has learned from previous data. This aspect of AI is called machine learning, and is a foundation of AI:

"How most machine learning, that is the big main technology behind AI, works, is that you say: Here a lot of examples, this is the right answer. Like you could give it a ton of pictures and say all of these has an image of a cat, this one and this one haven't." (Appendix 14).

So, an AI system is capable of learning fast from the data it is provided with. However, much of the data will be historical, which means that it will learn from data, that might not be relevant in future cases. Therefore, there is the possibility that AI in some instances cannot provide any useful insights because the technology will just guess without the relevant data. Another problem is also to find enough accurate data for the AI system to function because the technology is not better than the data it is fed. The data that it should be fed therefore needs to be diversified so that it can find patterns in its data set and be able to provide a more reliable answer to the different situations it is being used for, because it cannot fix a problem without proper data:

"I think you have this amazing term in machine learning called GIGO, which stands for ´Garbage in, garbage out´. That is to say, that if you feed it a lot of bad data, that's like, if a lot of the values are off or sometimes like people are bad at noting data, because it's boring, probably.

So, like, if you have somebody who's missed a comma, or something like that, or a point, then that skews the data a lot. And some algorithms are very sensitive to that, like they expect you always have to, when you interpret it, it has to be in comparison to the data that you've given it." (Appendix 14).

The ability of AI to work with data is also very dependent on how it is trained. Humans should be very aware of what they want to measure for the AI to be able to show them the right results. If this is not clearly defined, humans could end up with results, that they perceive as correct, but which shows results of a different measurement. For the current AI technology this is very important because it is not able to understand the intentions of the data engineer or other people in the organization, but only act on what it has been trained to. Therefore, the technology can also be very biased by the planner behind it and this person's perception of the system, because it can cause the data to vary, and it cannot do anything that a human is already able to do:

"So, it means that the human needs to be able to do it. So, if you cannot do it, you cannot teach an algorithm to do it. So, that is the limitation of the existing technologies. The AI cannot do anything that a human cannot do as it is. So, I think it depends on what is your perception, or your knowledge of what AI is, right. But again, you need to know what you want to generate, and you need to feed it to the algorithm." (Appendix 12).

The data is about consumers behavior online and the interactions they have with a specific company or product. This also results in a huge inequality of the possibility to gather data, where companies with more customers will have more data to feed their AI system, than companies with a smaller customer base. Because data is very important for AI, the company with access to most data has the highest possibility of creating better technology.

4.3 A BRANDING-APPROACH TO USING AI IN DIGITAL MARKETING

The study uncovers a series of findings which are related to AI-technology's ability to work with branding aspects, where it may be beneficial, where there may be limits and what to be aware of when considering the implementation of AI-technology in digital marketing.

4.3.1 AIS ABILITY TO WORK WITH QUANTIFIABLE ASPECTS OF A BRAND

A thing that AI is very capable of working with is quantifiable attributes. Basically, AI functions best when handling objective and structured data, that it easily can analyze and present. These attributes need to be very well defined, and there should be coherence in how these attributes are understood both within the company and on the marketplace. Therefore, attributes like the price, design, color, and size of a product or brand are easy to work with for an AI, because it is attributes that are generic for all companies. This also means that the data for these attributes are always available for the AI to work with:

"I think it´s quite easy for an algorithm, if you have like a picture of your product, say you made cups or something, it could very easily determine the color of the cup and how big it is. And like it could probably even identify where the logo is on the cup and all that stuff. It's quite easy for it to like, if you say, I give it a million pictures and say which of these images has a cup on it, and you could find that algorithm that performs probably better than a human." (Appendix 14).

The amount of data that an AI can analyze is almost impossible for a human being to grasp. The human is limited to handling some data sets and a few dimensions, whereas the AI system performs better with more data. Therefore, such a system is beneficial when working with lots of data, because it is able to find important quantifiable attributes at a higher pace than a human. Furthermore, the analyzation of quantifiable attributes is getting more important in branding because: *"*[…] *you can use AI for a lot of things in advertising and branding in general, because a lot of things that we're working with in advertising and branding is getting quantifiable."* (Appendix 15). Because the quantifiable attributes are so easy for an AI to work with, they can also be easy for an AI to communicate.

Attributes such as price, color, size and shipping price can be identified by such an AI system, and it can determine whether these are important characteristics to advertise a brand or a product through based on AIs ability to optimize on a specific goal, e.g. purchases.

"If you have a product and you would like to communicate about the specifications of the product, and in theory, you would know that some people would like to know something about the color, and some other groups would like to know something about the size, and you had an algorithm that were able to identify this. I think it would be kind of easy to have some inputs that are kind of static. I think kind of those brand attributes that are not emotional should be kind of easy to communicate in a manner that doesn't shout out: This is computer created content." (Appendix 11).

Therefore, attributes that are so well defined and understood by the consumers, such as "Free shipping", "Half the price" or the color of products, can be communicated through AI in a way that consumers does not think about the ad or message being created by such a system. Furthermore, the system can optimize itself on the data of these product characteristics, so it learns which phrases and terms that work, and is able to improve the communication of the quantifiable attributes.

4.3.2 AIS ABILITY OF GAINING INSIGHTS

AIs ability of gaining insights

Humans are limited in how much data they can work with and process at the same time. This could result in many valuable insights being lost because not all data is available when deciding. Therefore, some marketing decisions today are based on a hunch from the marketers instead of being a well-informed strategic decision. By using AI, marketers can gain insights through reports that are based on quantifiable data such as numbers and other well-defined units.

"As a brand, when we sell direct to you in our day and age, data is […] the new gold. […] if you have a middleman, you don't get the data on your customers, you don't have the direct contact with your customers […] you get the feedback directly (When selling directly)*. You can react to it, change product or changing pricing and whatever it might be."* (Appendix 10).

As mentioned, AI systems can react to prices and other attributes by doing minor tweaks and adjustments. However, since the systems are far from getting an understanding of the world themselves, AI is good at supporting human decisions. Right now, AI is primitive pattern recognition machines, that can match patterns from one dataset to patterns from another and present its

findings. Therefore, the system cannot reason about its findings, which is essential in branding decisions.

"I think the system is very good at recognizing patterns, right. And based on the track record of patterns that have been introduced as input, then the system gives a guess on how that pattern can be expected to evolve in the future. Now, can that support some type of branding decision? Absolutely, yes." (Appendix 8).

An AI system is better at finding these different patterns in the quantifiable aspects than humans are, but humans are needed to make sense of all these identified patterns. Therefore, such a system is great at taking vast amounts of structured and unstructured data and condensing it down to some knowledge that is actionable, and because this is a repetitive task, it is better done by an AI system than a human. However, the ultimate input comes from a human and the ultimate refinement and control of the output is the responsibility of a human.

4.2.3 AIS ABILITY TO WORK WITH NON-QUANTIFIABLE ASPECTS OF A BRAND

Soft attributes & AI

It has been established that AI needs clear definitions and easily quantifiable data to work with, in order to be useful for branding purposes. Thus, if the task is hard to quantify, AI will struggle with obtaining data for a specific purpose. Therefore, attributes such as the values, personality, and heritage of a brand are difficult for AI to work with, because they are not clearly defined and objective data:

"I think, where AI is unanimously considered still lacking or showing room for improvement is in working with less structured data on the one hand, and also data that is related to empathy and emotional content. So, I think the moment you go into the emotional component of brands, which is a very important one, I think algorithms or machine learning systems or AI systems in general will be less effective simply because these systems are not sophisticated enough to capture context, emotional and psychological clues from the information that is fed into the system. But considering the state of the art, I see it as still very hard or at least very adventurous to have artificial intelligence work with these types of goals related to immaterial, soft, ill-structured, context dependent areas such as heritage." (Appendix 8).

If an AI system should be able to work with these soft values, it depends on the definition that the technology is provided with. So, if an engineer can define what the values of a brand are and provide it to the system, it will be able to use this attribute as a metric and communicate it to relevant customers. However, when describing these soft attributes, many concepts must be taken into consideration and be defined properly. The AI would need to understand the context, the meaning of every word, and the culture of both the company and the market in which the values are to be communicated. The level of description that is needed for an AI to function with soft attributes is therefore considered almost impossible for many of the respondents:

"So, you would want an AI, let's say you are Bang & Olufsen and you would want an AI that automatically extracts your values. In case you're not sure what your values are, and then automatically generate messages in line with your values to your customers. Would that be a possibility? No!" (Appendix 12).

"So, it's more put them together how you, I mean, which parts of that story do you choose to emphasize? What's the angle that you put on it? And I don't see AI at the present time to be able to do that work for you. We need a human mind for it, because there are so many factors to put into this. It's a lot about subjectivity, and taste, and what's up here now, and what do you like." (Appendix 9).

An AI system would not be able to work optimally with these soft attributes, because it is not able to understand what meaning it has. The system will just use the attribute as an unknown variable, that it can measure through behavior. Because it is an unknown variable, these attributes would be a part of many other attributes in the optimization process that the AI system is always performing. Therefore, if these soft attributes do not provide any quantifiable advantages that can be measured directly in the KPI´s, the AI system could stop using them, because other attributes perform better. Furthermore, since the definitions should be defined internally by the company, it would be difficult for AI to compare the results from these attributes with other companies on the marketplace because their definitions might be different:

"The next problem is, I'm pretty sure that Toyota and Volkswagen say that they're green companies. Which is greener? So, you need a human to quantify that in a very specific way as well. And so just by scraping you will not really capture that." (Appendix 13).

4.2.4 AI, FEELINGS AND OPINIONS

The problem with quantifying and defining an attribute is also apparent if the AI system must identify and act based on emotions. Emotions are socially constructed by humans, and even though humans may understand different emotions, many respondents question the ability of humans being able to define emotions specifically enough for AI to work with them:

"Well, that really depends on how you define emotions because we will not be able to understand emotions. Let's say it would be able to read your face, but it would not be able to actually read your feelings or your emotions. It would be able to -- to read movement. And this movement would be related to something. It would never be true emotions. Everything is zeros and ones. And that's not emotions." (Appendix 7).

As such, the AI will not be able to grasp the concept of an emotion, but it will act based on some behavior that the customer shows, for example, some specific words in a text. AI will use the behavior that a human is showing and match it with a predefined emotion. The chance of an AI misunderstanding the emotion is therefore high because it cannot perceive the world and all its complexities because it is based on a narrow definition from an engineer. But the technology would be able to measure a definition quite precisely:

"But they're very good at when we tell them that you can quantify positivity in this way, then they're extremely good at finding the patterns and saying, okay, if this is your definition of being happy, then I can see that two million people here are happier than the other two million people." (Appendix 15).

An example of a simple and narrow metric of emotions would be the emojis on Facebook. With creating these emojis, Facebook provides the possibility for their users to express a wide range of predefined emotions when they respond to postings in their feed (Yang, 2015). These different responses can then be used by Facebooks and other stakeholders AI to measure the content that makes the users respond with a specific type of emoji. This information could be used to create content that might evoke a customer´s emotions:

"If you have some kind of metrics for a feeling, like a very simple example would be like on Facebook, if you wanted to maximize like, you can, instead of just liking, you can do these kind of react things, like if you want to, it would be quite easy to like have an algorithm that creates text, where its main goal is to maximize like the angry smiley, because that's very quantifiable." (Appendix 14).

The area of measuring opinions of customers is arguably more well-defined than emotions, where several respondents have brought up sentiment analysis. Sentiment analysis is an automated process of understanding opinions about subjects based on written or spoken words (MonkeyLearn, 2019). Besides identifying an opinion, the use of sentiment analysis can extract if the customer expresses a negative or positive opinion, the subject in question, and the information about the customer behind the opinion (ibid.). Like in the case of emotions, an AI system would then be able to measure a customer´s opinion about a product or brand and then act based on their opinion. However, many Natural Language Processing systems today is poorly developed:

"I mean, most Natural Language Processing today is quite primitive, because they are basically word counters. I mean, they look at how many words there are, and then they say: If the word ´smile´ is there, then it adds some points to the kind of the positivity scale. So, they count words, and they don't really care about kind of, in which order the words come." (Appendix 15).

These systems would then be unable to understand the composition of a sentence with how words are positioned and how the grammar is. Some of the respondents agree that this makes it difficult for an AI system to detect if a customer is using irony in their opinions. The technology would in this case not be able to understand, that the opinion means the exact opposite of what the customer has expressed in words.

4.2.5 AIS CREATIVE LIMITS

Since the AI system is not able to understand the context that attributes and opinions are used in, and the technology cannot do reasoning on its own, it will also have problems in creating original content. Creativity is a complex process and not just a stimuli-response, which means that many aspects must be taken into consideration:

"When it comes to creativity and taking all kinds of context into consideration that is difficult to codify, humans has still advantages over computers, because computers will only be able to use this information that you actually can put into a form so that they can actually basically calculate this data." (Appendix 2).

As such, an AI system would make new content based on historic and former data that has been put into the machine. Therefore, such content would be created based on previous patterns, where creativity is very much dependent on breaking patterns:

"You know, you can put together a bunch of Hollywood script writers and ask them in a week to write a cliché movie that will be able to make someone cry based on their experience of what plots to include to make people cry. And an algorithm can do that. But whether that movie will be a success or will be considered a groundbreaking title that can win an Oscar, it will not. So, if you will move out of this metaphor of movie to brands, if you are looking for the creation of the new Apple or the new Coca Cola, I don't think an algorithm can do that, at least not in a sustainable way." (Appendix 8).

So, when it comes to creating new original content that is based on non-quantifiable attributes, many of the respondents agree that this would be the hardest for AI to deliver, and should, therefore, be maintained by humans.

4.2.5 IMPLEMENTATION OF AI AND THE LIMITATION OF DATA

Many of the respondents agree that AI is very important for companies and is only going to be a larger part of the future for branding. Therefore, a brand should develop strategies for how to deal with the technology, if the brand should be able to compete against others:

"But if you don't get into it, other brands will become so efficient. Let's say if you are Nike and then you just don't do this, then Adidas will at some point be so efficient, that you will be stalling after that. […]. In a general term, if you don't kind of open the bag and investigate and try and figure out what this can do and definitely also what it can't do, you will be in trouble, eventually." (Appendix 10).

Nowadays, everything that can be optimized or automated is going to be. If a brand does not use AI in some way it is in danger of being disrupted, and the necessary investment will increase the longer a brand waits because the adoption of AI is slow and expensive. However, the fear of disruption should not scare managers into going from zero to a hundred in the use of AI. Some of the respondents suggest starting to use it for smaller projects in order to gain a lot of feedback and evaluate it along the way. Their first task is to consider, where to find the data that should be provided for AI because the technology behind can be extremely simple and is often based on rules. It is however also very powerful at the same time because it acts solely on data and without the same reasoning that humans have.

Therefore, the system cannot distinguish between something right or wrong, unless it has been trained to. This means that AI is very dangerous to use for branding because it can make anything up in order to optimize:

"[…] the examples that have been today about people who communicate, or who was it that made this Twitterbot who went Nazi in a day or two because people just wrote a lot of shit, and it adapted to that. So, I think it needs a lot of human supervision at least at the moment. I think it will do for a lot of years" (Appendix 11).

This Nazi-Twitterbot is an example that all AI systems can fail and probably will. It can be because of individuals trying to affect the AI for fun, or it can be the system itself in the search for optimization. It can affect the company economically because the AI system would need a lot of resources and costs to find the right approach to online communication, which is also a returning cost. Furthermore, it can hurt the company through their branding, if the AI system discriminates and it causes a shitstorm towards the company. Therefore, if a company cares about its brand, it should set up structures internally that prevents the AI to make these kinds of mistakes. This involves supervising the AI in terms of quality assurance and leaving more complex decisions to be taken by people in the organization.

In the recent years, actions have been taken by legislators to prevent the illegal use of data, which also limits the scope of AI. Especially the implementation of the General Data Protection Regulation (GDPR) in May 2018 makes the use of AI more difficult:

"But and I think with, like GDPR, although it makes some of our work more difficult […]. Some data, that we don't think is like that sensitive or might be very useful, the algorithm is very difficult to get, and you have to be very careful with how you store it and all that stuff. But it's probably a good first step." (Appendix 14).

The GDPR makes it more difficult for the companies to provide unlimited data to AIs, which is how it operates best and thereby limits the progress that can be made with AI. However, many of the respondents do not see this evolution as a bad thing, because it is an area, where the legislation has been lacking. This was exemplified by the Cambridge Analytica scandal, where many people's data was abused, which called for tighter regulation of online data.

4.2.6 AIS ABILITY TO BUILD RELATIONS

AIs effect on customer experience

Traditional advertising through television and other media is typically generic in order to communicate with a lot of different segments. The message is not tailored to a specific individual, and this makes these sorts of advertisements challenging to remember for the consumer. The diversity of products in advertising is also limited because a brand would typically only have the resources and capabilities of focusing on one product or service for one campaign. By using AI, brands have the possibilities to split their resources on different products:

*"I can take a very real example which is like, one of the things that our tool (*Cobiro) *is doing, that no agency would ever do for you, right, which is that, if you're an e-commerce platform, and you have, I don't know, let's say you have ten thousand products on your website, right. If you run it through our tool, we will create an individual search advertisement for each one of those products. Now, this is something that a marketer is not going to do."* (Appendix 6).

The ability to create an ad for every single product increases the possibility of providing relevant advertisements to the individual. Together with the data that an AI system can obtain from consumers, it is possible for AI to make fine-grained segments all the way down to an individual level. This makes it possible for AI to show an ad to the right segment at the right time, which increases the consumer experience:

"So, starting from where it actually fits together you could say that using AI to find out the right timing and the right segments, and when would people be interested in which product or which offer, using AI to discover that and act upon that in terms of a marketing automation and being more timely and relevant in general, that will leave the end customers with a more positive brand experience. So, they'll feel recognized, they'll feel acknowledged, they'll feel that their history is taking into account and they are remembered, they'll feel as if they have been seen and not being sold to, but more being serviced" (Appendix 9).

As such, AI can make advertising more personalized, where consumers can be served advertising or other marketing material when they want, displayed the way they want, and communicating the things, that they want to hear. This creates a more tailored communication and based on the AI abilities of pattern recognition and machine learning the technology can be automated, so that it can communicate and engage a lot faster with the relevant consumer.

AIs ability to match individuals and build relations

Based on the personal information that an AI system can obtain from every consumer; it can also match the interest of these individuals:

I just started doing kind of mountain climbing a half a year ago, and then I joined a mountain climbing group, and now it starts recommending me different kinds of groups, which is quite primitive. But it basically knows that people who are in this group are also in these types of groups. So, I mean the AI, what they can do is they can find people that are like you, so they can help to kind of figure out who are similar and who would enjoy being in groups together, when they are in a group together. (Appendix 15).

As such, an AI system could connect consumers with similar interests using a brand as a possible platform. Therefore, it can build the foundation of a community based on the online behaviour of different consumers. However, there needs to be other consumers involved in the community. If the community is built upon AI systems posing as consumers, the community would be ruined:

"What we really need to understand also is that, this place (Klub) *is actually a very good example of that, is that people join communities in order to be with other people. And basically, AI cannot be another person. So, I think a lot of communities and customer groups and so on, it's, based on the idea of people being brought together. […]. So, I mean, you could probably create a community with ten AIs and one human being, and that one human being would be fooled, thinking its other people, but it's only because he thinks that they are real people that it works. The minute that he finds out that they are AIs, the whole thing would fall apart."* (Appendix 15).

However, a person could develop a relationship with a brand through the personalization that an AI system can provide. The AI is able to deliver relevant recommendations with a faster response time based on their behaviour. This personalization can make a consumer more loyal because they feel that the brand knows them, and thereby AI can make the brand communicate their language:

"Yes, I mean, especially when it comes to recommendations and the whole thing about knowing your customer and that is definitely one of the things that AI can do, if you work with an intelligent AI, you can really build a connection with your consumer because you can target them with the right products, you can target them with the right information, and so on" (Appendix 15).

"But if you're in that domain I believe you can actually tighten the relation; you can make it a more clear cut appropriate brand for this person because you have a lot of knowledge about what this person has of interest." (Appendix 6).

This loyalty can then evolve to the consumers becoming ambassadors of the brand, which the personalization aspect also adds to. The AI can provide valuable insights on the consumer, that can provide the brand with how to target the possible ambassadors, on which consumers that are most likely to become brand ambassadors:

"So, someone will put in that, yes, we like it very much up till nine or ten, they'll be a promoter. Then AI can look at that data set, okay, who actually answered nine or ten positively. And based on the similarity between these customers and the rest of the customer database, it can determine the likelihood of which other customers, if they have answered, would also have answered nine to ten." (Appendix 9).

However, one of the drawbacks is, that the definition of a brand ambassador could become one-sided, meaning that the ambassadors of the brand could end up being from the same segment. This could risk the diversification possibilities that the AI system can provide.

4.4 A CONCEPTUAL MODEL FOR BUILDING CUSTOMER-BASED BRAND EQUITY IN AN AI-DRIVEN DIGITAL MARKETING COMMUNICATION CONTEXT

The findings raised questions to the branding abilities when doing AI-driven digital marketing communication.

To build brand equity, the abilities of using all elements of a brand are crucial (Keller, 2001).

The current brand equity models do however not fit with the abilities of AI-driven digital marketing communication. Therefore, it is found necessary to provide a conceptual model for building brand equity through AI-driven digital marketing communication, that can serve as a guideline for practitioners considering to implement AI-technology in digital marketing communication.

One of the most acknowledged brand equity building models is Keller's Customer-Based Brand Equity Model (ibid.). Aspects of Keller's model reflects the findings of the study making it appropriate to draw upon the model in the conceptualization.

Kellers Customer-Based brand equity model was therefore drawn upon to compare the findings with Keller's presentation of dimensions for constructing strong brands.

Keller separates the model and building blocks in the four steps; brand identity, brand meaning, brand responses and brand relationships (ibid.).

The model originally serves as a branding ladder where the steps must be approached in a particular order to build a strong brand (ibid.).

The conceptualization does however not work as a ladder, where one dimension must be accomplished before another, as the abilities of digital marketing have been shown to be able to work across the steps identified by Keller (2001). For instance, it is easier to build a relationship with the customer though AI, than communicating hedonistic branding aspects.

Therefore, the overall steps will not be included in the conceptualization.

Instead, it was identified that the most significant criteria for digital systems to be able to work with a specific aspect of a brand was its complexity, or ability to be defined. The model is structured in accordance with the level of difficulty for AI to work with the specific building blocks based on the findings in this study. This gives the opportunity for practitioners to consider the specific brand building blocks and compare them with the difficulty of working with them in digital marketing communication through AI technology.

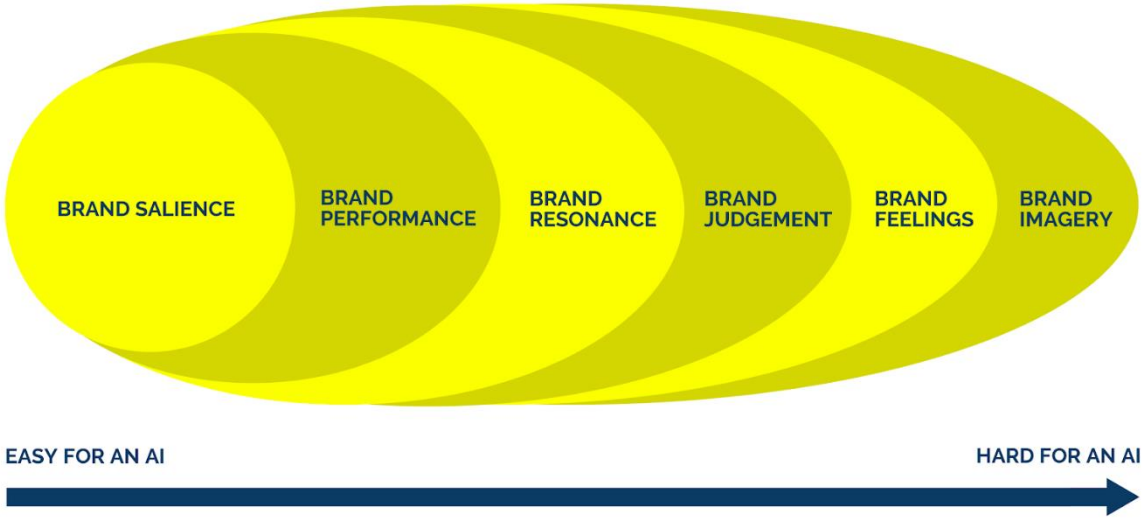

Illustration 10: Conceptual Model for Building Customer-Based Brand Equity in an AI-driven digital marketing communication context.

Brand salience

The core of brand salience is the ability to recall and recognize a brand. This is mainly done through; the logo, the brand name, etc. An example of an AI-system working with brand salience is:

"You would see that in Dynamic search ads. If you use that solely you will see -- well, Dynamic search ads is an AI where the engine calls the website and generates a headline based on what is on the website. The website would be able -- or the caller would be able to recognize a brand and show a branded ad in search for instance." (Appendix 7).

Here it is emphasized that websites have predefined identifiers for logo and brand name, which make it easy for an AI to identify work with them since they are already categorized.

The use of AI also helps making a brand of being present when needs occur in order to meet the needs of the customer when and where it may be online. This is done through customer profiling, and lets and AI optimize on when it is most likely that a customer may purchase a product.

Brand performance

A company's brand performance covers the product itself and refers to how the customer may meet the customer's functional needs (Keller, 2001). This can be through e.g., primary characteristics, price or design.

Earlier it was highlighted that an AI is good at working with quantifiable metrics, making brand performance one of the easier brand building blocks for an AI to work with. This is however not as easy as working with the primary elements of brand salience, since these elements of brand salience were already predefined, making them easily identifiable. However, brand performance aspects are still relatively easy for AI to work with as a result of the quantifiability. Some of the aspects will though be easier to work with than others, as, e.g. price is easier quantified than general design characteristics. AIs ability to work with quantifiable brand attributes is backed up by the study of West, Clifford, and Atkinson (2018), which found that AIs ability to work with functional brand benefits is beneficial. The foundings discovered that AIs ability to communicate functional brand benefits through the AI-technologies of natural language processing and machine learning was beneficial and that through the use of AI-technologies functional benefits was an efficient differentiator (West, Clifford and Atkinson, 2018).

Brand resonance

Keller (2001) sees brand relationships as the top of the branding ladder in the original model. It touches upon the psychological bond that customers have with a brand as well as their level of activity.

Due to the abilities that AI offers for personalization, the technological possibilities provide an ability for individuals to feel more attached to a brand, and thereby strengthen the relationship by , e.g. personalized communication and offers.

AI-technology would be able to find the right timing, the rights segments and at what time customers may be interested in a specific product.

This use of the technology leaves the customer with a positive reaction, because of an increase in brand experience, which can strengthen the relationship. This way the customer will feel that they have their interests have been taken into account and that the communication towards them has not just been generic, but personalized to them as a person.

As described above AI-technology can improve the relationship through light personalization, but if the right access to data is available AI-technology is also able to personalize on a deeper level: *"Taking an entity about like something in the wall like a profile on Facebook could be a note on the knowledge graph and you want to find out who are your friends and do that for everybody, and then you have a knowledge graph. And now for each person you can attach information sources, like who wrote this at this time and produce a model of this. But if you're in that domain I believe you can actually tighten the relation, you can make it a more clear cut appropriate brand for this person because you have a lot of knowledge about what this person has of interest and it's both a question of whether at all you should go in and try to work with this person."* (Appendix 6).

The personalization aspect tightening the customers' attachment to the brand is not considered particularly difficult, as the systems are already produced for the circumstances, and the data is often collected already. Therefore, AI can quite easily work with the relationship and tighten the bond to the customer based on personalization. West, Clifford, and Atkinson (2018) found in their study that it can reasonably be assumed that the relationship can be developed through personalized communication and considers it a positive impact on the success of a brand (West, Clifford & Atkinson, 2018). Confos & Davis' (2016) study further emphasizes that the use of digital marketing has significant potential of creating beneficial relationships.

AIs is also beneficial in terms of building brand engagement. This can be done through identifying customers who are likely to be brand ambassadors, and based on their previous online behavior personalize the communication and potential offers to the individual in order to provide the best possible incentive. The AI may take previously engaged customers into account considering their behavior, and search for similar characteristics among other customers in order to find the most relevant individuals. It may not only identify and target customers who are likely to engage in the brand but also be able to match individuals. Based on the behavior of individuals the use of AI is able to identify possible similarities with other individuals making it able to match people.

This can be beneficial in creating brand communities, where an AI would be able to identify and connect engaged individuals based on their interests and behavior. It was additionally found that AI, if trained probably would be able to pretend to be individuals in a brand community and mimic the actions of ordinary humans, in order to make meet the needs of a customer.

Brand judgements

Customers have personal opinions and evaluations of brands. They might think or feel a certain way of a brand, e.g. perceived quality or credibility.

Now, at this level, it starts being more difficult for AI-technology, as opinions are both a little more fuzzy than the previous stages, but also challenging to obtain data about. The ability to work with this aspect increasingly relies on the amount of quality data available. If the AI had access to all the data in the world, it may be possible to train it for detecting and working with customer opinions. This way a company could use the customer data available in their systems to get an understanding of the opinions of the customer if their internal systems were integrated. This is their CRM-system, support section and marketing data. By cross-referencing all this data a company could build a customer profile and based on the actions of the customer from the different touch points estimate the perception of a brand. However, this method would require a digital infrastructure that is able to collect all available data and cross-reference it, which in theory would be possible, but in practice would be very difficult.

In order to make AI work with specific perceptions of a brand, an individual would have to express their thoughts on a platform that the AI would have access to in order for it to be used, which in itself can be difficult.

However, this is not enough. The AI must also be able to identify the relatively fuzzy opinion an individual may have. There are already structured data on how people feel in regards to brands since customers are often asked to evaluate their experience, but the ability to use this data essentially comes down to the ability to control the input of the data, as the input reflects the out in terms of quality.

Therefore, in some situations where the input does not give abilities for the use of AI-technology companies may consider changing the way consumers provide data:

"I mean, let me give you sort of an example, of actually, probably the largest you can say hospitality firm in the world, Booking.com. It is a Dutch company, and they basically allow you to book your hotels via this website. And they were interested in being able to accurately sort of assess the quality of the hotels that they list on their website so that they can basically suggest better hotels to consumers that will make them more happy. Now, they had the issue for some time, some years ago, they basically asked humans for qualitative feedbacks on how they experience their stay at a hotel. So, they had just one of these input windows. And the people did comment in on how they felt about their stay at a hotel. Now the problem was then that, of course, in this field, you would have positive and negative feelings. And yeah, what is often happening then is that companies think about, okay, we need some sophisticated algorithm to figure out what are the positive aspects, what are the negative aspects. We do some natural language processing, all these kinds of things. But essentially what the company did and what is just very smart is they just started to ask different questions and split the field into two. So, they asked what were the positive aspects and what were the negative aspects? By that they just increased the quality of the data that they get to process significantly. Because now the people that are giving the feedback are clearly distinguishing between this is what was nice and this is what was not nice. So basically, you just outsource that to the person who's giving the input. And you have much better data quality that you can actually use for the algorithm." (Appendix 5). So, by changing the data input to a form, where the difficult part of the data is sorted, which here would be the positive and negative aspects of the experience, the AI is to a much further extend able to work with the opinions of the customers.

AIs ability to work with brand judgements is in theory not better than brand feelings, which is considered more difficult in this model. The argument is however that the availability of data makes a difference between the two. While texts with feelings may be expressed online, it is challenging for an AI to gain access to it, and it can be discussed whether this feeling will actually reflect the actual feelings of the individual. Brand judgement can, however, be collected by changing the input of the data or giving access to reviews.

Brand feelings

AIs ability to work with the emotional responses and reactions to the brand that customers' are having is dominated by its ability to identify and understand feelings.

It was discovered that AI-systems are able to detect feelings based on customer texts and facial expressions. However, today the access to facial expressions in digital marketing is limited, leaving the identifications to be based on text alone. An analysis of feelings in a text is though also possible through sentiment analysis, as previously mentioned. Here the amount of data that AI has available becomes crucial for the identification of the correct feelings, as this will be based purely on the specific input of the customer, e.g. swear words, smileys, and marks will help identifying feelings.

In order to identify feelings the definition of a specific feeling will be essential for AIs ability to work with it, which can cause issues, as defining a feeling can be difficult. How does one define depression? Or positivity? These emotions humans are expressing are aspects of the nature of humans which artificial systems are not able to understand. This means that in order for AI to work with these it is necessary to define these feelings to the system. However, even for humans, it can be hard to quantify a feeling, as humans are not aware of what they consist of either. But if a data-provider is able to quantify it, AI will be beneficial and be able to work with it, as a result of their abilities to find patterns. It would e.g. be able to test based on feelings, so if it was able to identify the happiness of people, it could test how elements may affect happiness. If a change in color or similar had an effect on people's happiness. So, in order to be able to work with feelings, it all comes down the ability to define feelings and provide quality training data.

AIs abilities to evoke feelings would once again be based on the ability to identify feelings. It will though be able to provoke feelings of customers to influence them to do a specific action. It would be about identifying the incentive, and what the sentiment is and based on these analyses, on an individual level identify the customer, so that the next time they are exposed to a message it would be based upon the previous behavior, and therefore reflect their sentiment. This would though require extensive training data for an AI to fully and successfully execute these actions.

It is though essential to notice, that as it was discovered that AI-technology will not be able to understand feelings or what a feeling is, but will work with it as a variable that triggers an action.

Even if digital marketers had access to facial expression data it would, therefore, be questionable whether AI-technology would actually be able to interpret the feelings of a customer, as it would relate specific facial expressions to particular feelings, but what it would actually read would necessarily be feelings rather than just movements in the face of a customer.

This would also be a relevant discussion for the use of analyzing feelings through other means of data:

"But to what extent are actually signals that you can track and pick up, to what extent are they actually related to the actual maybe state of mind and feeling of a consumer? So, yeah, that is sort of an approximation of that. And I don't know if you think about sort of how people behave on websites. If people behave in a similar way, does that mean that they sort of have the same feeling? That is probably difficult to tell. There's like plenty of reasons why you leave a website, might be that your kid is crying in the background. It might be that you think the content on there is just very bad. It might be that you realize the products on the website are too expensive for you. So, it's very different motivations actually. Of course, there's like some indications and your usage behavior that can help you to infer, what is the motivation? But it's not always a hundred percent clear, obviously. And it's also difficult to train the algorithm on this type of behaviors, because you really cannot observe that. So even if you would look into an individual case, you would not know what was not a motivation. So, it's difficult to actually get some data base on which you can train your AI algorithm actually." (Appendix 5).

So, even if a particular behavior is identified as being due to a specific feeling, this is not always clear, as there is no way of ensuring that this is actually the case, and there can be multiple reasons for the identification of the feeling.

Brand imagery

This brand building block covers extrinsic properties, e.g. brand personality, values, and brand heritage. These being more intangible aspects of the brand. Keller (2001) initially considered brand imagery as being one of the second steps on the ladder for building brand equity. The findings do however result in this being the hardest brand building block when done through AI-technology in digital marketing. This is evaluated based on the complexity of brand imagery, which causes several problems for a digital non-conscious system, such as an AI. One of the reasons is the difficulty of building a training dataset that can train an AI to identify the intangible aspects of a brand:

"So, I guess like identifying soft values, like finding out what kind of like what your customers think about your brand is of course a more difficult task. Because what _ like how most machine learning that is the big main technology behind AI, works is that you say, here a lot of examples, this is the right answer, like you could give it a ton of pictures and say all of these has an image of a cat, this one and this one haven't." (Appendix 14).

As identifying and working with brand imagery-aspects would require an extensive amount of examples of companies with correct identification of their brand imagery-aspects. This aspect of difficulty in gathering training data is touched upon multiple times.

And not only may it be hard to quantify parts of brand imagery and create a training dataset, but it is also a matter of considering if the quantifiable method makes sense as highlighted by one of the interviewees:

"Yes, I guess I mean, quantifiability is a must, you need to be able to quantify. And then, I guess I've said that a couple times as well, you also need to be able to quantify in a meaningful way. So, you may be able to quantify things. But maybe the things that you quantify, are not related to what you're actually interested in, and branding or company values is a very good example because how do you quantify company value and there, you either have to decide that it's not possible, you need a human intuition to be able to do that, or then you need to decide so, how do we quantify it? and then you need to say, well, where can we get the data. And then when you found the data, you really need to figure out whether you have found the right data, and you are running a risk.

And this is where you also need, one of the areas where it really needs to put in that doubt saying, that you may have found the data and say, well, now we've quantified company values, and we're able to do some pattern recognition and compare with other companies and talk about our values compared to other companies, but does it make sense?..." (Appendix 15). So, when working with such complex brand elements supervision by a human will be necessary in order to ensure that, e.g. the values are quantified in a way that is being considered correct. Even afterwards the quantification may not make sense.

Afterwards, the same interviewee touches upon the ability for AI to then account for the development in company values:

"...and going forward, well, we can use this model for five years. Does it make sense five years from now? Is something in the world changing? I mean, branding of companies, like twenty to thirty years ago, the environmental impacts of company didn't really have any influence on a company brand. But today, it has immense impact if you're doing something bad for the environment it´s really bad for your brand. So, that's kind of a data point, that needs to be put into your model, which was not there twenty years ago. So, that's kind of how data models are also changing, and you really need to be aware of that." (Appendix 15).

So, even though one may be satisfied with the result of the quantification of values the development of company values can change over time, e.g. becoming environmentally aware, and the ability to identify and work with changing values is highlighted as an issue.

Brand imagery is therefore considered the most challenging brand building block for AI to work with.

4.5 DISCUSSION

This study explores how applying current artificial technologies in digital marketing communication affects a company's abilities of building customer-based brand equity. The findings uncover that current brand equity models are not applicable in an AI-driven digital marketing communication context, as the guidelines of the models do not reflect the abilities of the technology.
It was discovered that AI is capable of working with quantifiable brand attributes like price, colors or characteristics. AI can not as easily work with soft aspects like values, heritage, feelings, and opinions. However, this depends to what extent it makes sense to quantify the specific element, e.g., to what extent a company relies on a definition of a feeling to be directly reflecting the emotions of a customer. This is mentioned as being questionable, as online behavior does not always reflect the actual state of mind, as it is not able to control the result, and the data input is often very limited.

When AI-technology can contribute to success when used with quantifiable attributes but are not able to contribute to success when working with soft areas, it gets relevant to discuss the need for these soft-areas for the individual company.

The findings suggest that companies, to whom intangible branding aspects are not crucial for their overall brand, can implement AI without lacking important brand-aspects. If a company is, therefore, differentiating based on quantifiable branding aspects, e.g. price or delivery time, AI-technology will be able to identify and work with these attributes. This is a result of these being easily definable and therefore easy to both train and identify by AI-technology.

In contrast, companies to whom the intangible branding aspects are crucial for their overall brand and the way they differentiate from their competitors may need reconsider as these aspects can be very hard, or impossible for AI-technology to work with.

Since these more soft attributes are harder to define and quantify, the ability for AI-technology to identify these will be significantly harder. Even if a company was able to train an AI to identify hedonistic brand attributes of a company this would still demand a 'grading', as previously described:

"The next problem is, I'm pretty sure that Toyota and Volkswagen say that they're green companies. Which is greener? So, you need a human to quantify that in a very specific way as well. And so just by scraping you will not really capture that." (Appendix 13).

Because, where the price is easily compared through the numeric values, the degree to which a brand is focusing more on quality or environmental concerns would be very hard to define and would be highly dependent on the definitions and examples provided by a human. This could possibly make it biased towards the beliefs of the human individual.

The perception of specific hedonistic brand attributed may also vary based on the company in question. Who is to say that Toyotas perception on how a company is green is the same as Volkswagens? Comparing hedonistic aspects among different companies can, therefore, be difficult as the definitions on how they are present may be different from brand to brand.

The ability to compete on being the greenest company, e.g. makes it difficult for the AI-technology to compare and evaluate the position of different companies. It would require massive amounts of training data, which clearly defines the way that a specific company is green. However, This would still be biased as it is not considered possible for a single data-provider to have the insights of the meanings of a thousand companies values and how these are perceived, presented and what they mean for the individual company. This is the same for other hedonistic aspects. Heritage may affect and be perceived differently by different companies. If two different companies have both been founded and built in Denmark, they may have a similar heritage, but the perception of it may be different. One may consider the impact of being a Danish company a significant part of the brand, while the other can consider it less important, and irrelevant.

If companies, to whom the intangle branding aspects are essential for their differentiation abilities, do however implement AI-technology for their digital marketing communication, this may have severe consequences for the brand of the specific company.

AI-technology develops and optimizes through testing, so if a company is differentiating based on, e.g. a premium-quality, premium-price strategy an AI-technology can only correctly work with quantifiable parts of the brand the abilities to express the premium positioning through digital marketing communication is limited. An AI-technology may construct communication messages that do not fit with the brand-positioning in the process of test, with the risk of damaging the brand. As highlighted by some of the interviewees, AI will fail, and if the ad-message expresses very unpleasant words in the name of the brand, it may have very damaging results.

If this AI-driven digital marketing communication is mixed with initiatives such as offline marketing emphasizing the intangible aspects of the brand, this can become a problem, as companies should stay consistent (Kapferer, 2012). However, the extent to which AI is implemented could be considered. As the applicabilities of AI in digital marketing are wide, the use of the technology for companies differentiating on primarily hedonistic aspects of a brand can still be beneficial. The AI-technology may be set within strict limits in order to make sure that it does not communicate in a way where it can have negative effects on the brand. It may also be used to an extent where it only provides insights on the customers in order for the marketer to then form the brand messages. This way the marketers would be able to fit the wants and needs of the customer with a message that addresses these while emphasizing the core of the brand. The ability to personalize communication to the individual will however not be a possibility as it is unrealistic for a marketer to generate ads for individuals. The AI can through the insight generation provide the marker with better circumstances for making an informed decision, as it may provide data on segments about their interests, behavior, characteristics, etc. This makes it easier for the marketer to form the advertisements to the specific segments. AI may even be implemented to an extent where it conducts everything but the ad-creation process, meaning that the AI-technology can segment, target and optimize the ad-performance, but based on ads that are provided by the marketer.

The personalization aspect was discovered as a key ability of AI-technology in digital marketing communication which may strengthen the brands relationship with the individual, and create brand loyalty through the strengthened relationship.

There may be a limit to how personalized a company's communication should be when targeting the individual to make sure that it does not become 'spooky', which is emphasized by several interviewees:

"There's also the balance between being relevant and then just being spooky. And if you know -- if you overdo it, then people will feel that you like surveillance that like you're monitoring all the time, which you are, but they just don't know. So, you got to do it and you got to do it right. I mean Amazon I think for a few years back bought the patent for something called anticipatory shipping, so they would send, you know, I know that in Copenhagen someone's going to buy the Harry Potter book. So, I'm either going to send the Harry Potter book to the local storage in Copenhagen because; then we can deliver it within an hour. And even more crazy, I can actually send it to you because I know that statistically, next Tuesday, you will buy the Harry Potter book, so i'm actually going to send that to you Tuesday morning. So, it's on you doorstep. I don't think they ended up implementing the last bit, but it can be done. And that would kind of just freak people out. So, it's kind of the balance between the two of those it think." (Appendix 9).

This emphasizes that even though personalization and optimization may be done to improve the relationship with the customer, extensive optimization and personalization may cause the opposite, as customers are 'spooked' by the level of service.

This increase in personalization and its abilities to optimize service can also cause issues when implemented without setting limits. The environment may change, within factors that the AI does not have access to through data. If a customer has been looking at a shoe at a particular website and is afterwards presented with advertisements for the specific shoe to make the communication relevant to that customer and influence them to purchase the shoe, then the AI will not be able to identify what is happening outside of its data-accessibility. This means that if the customer has afterwards purchased the same shoe in another webshop or at a physical store, this will not be registered. Therefore, the AI will keep presenting the advertisement to the customer until it is being considered unlikely that the customer will purchase it. However, the continuous ads following the customer may be perceived as annoying and cause irritation for the customer, which may even lead to a bad experience affecting the decisions of the individual at a later point

Even though this may be a relatively unharming example this can cause significant problems depending on where it is used:

"So, we have one of our clients is called InterFlora, you probably know, and they're using AI to determine from the text of a greeting card. What is the occasion of the bouquet of flowers, which it usually is, what's the intention behind the gift, what is the occasion and what is the relationship between the buyer and the receiver. And so, for instance, if someone has _ if you can see in the greeting card that it says birthday in the greeting card, then you could, most likelihood, it will be like a birthday thing and then the next year, maybe you'd want to buy them flowers again. So, if you do a simple algorithm that, you'll hit most of the of the occasions, right. But on the other hand, you could be, so if you do like a message on that saying, hey, you bought a birthday bouquet for someone, we suggest you do that again.

So, if you explicitly state that knowledge and you say that claim that you know this, then you have to be extremely careful, because then you have a greeting card saying something like, dear mom, on Thursday, we would have celebrated daddy's birthday if he hadn't died from cancer. So, imagine that you, I mean, you'd have a too simple algorithm, where you haven't taken into account, the fact that maybe not looking at the sentiment. This is actually an emotionally sad email, and mostly sad greeting card. If you don't filter that out in your algorithm, then you can really annoy people and actually hurt their feelings, and they will be having a tremendously bad brand experience for that individual and may even blow up into a shit storm or something like that." (Appendix 9).

This is just one example of personalization having a significant negative effect on the brand experience, even though it was intended to increase it.

Therefore, AI-technology should have limits in order to ensure that damaging experiences do not appear to a certain extent. However, limiting the AI may also result in limiting the possible positive aspects of most customers not having negative experiences with AI. The question may therefore be, is it worth limiting the technology if it might cause severe negative brand experiences among a handful of people if it can possibly significantly increase the relationship with thousands of other customers to whom the error does not occur? This is a question that should be considered when setting the limits of AI. It is though possible that the handful of negative experiences gets unpleasantly more attention than the positive experiences possibly ruining the ability to acquire specific new customers. On the other hand, the thousands of positive experiences may cause the negative ones to 'drown' in comparison, causing the positive experiences to have more focus and thereby attracting more customers.

However, this increase in personalization may also have consequences on a brands ability to differentiate itself. And existing literature emphasizes that the success of brands is highly dependent on their ability to differentiate themselves (de Chernatony, 2010).

To what extent should a brand differentiate the communication towards the individual? If the customer is very environmentally aware should the environment aspects of a brand be presented as a vital element of the brand? This may enhance the relationship with the individual and increase the probability of them purchasing a company's product or services.

But, what if the environmental focus is not a vital part of the brand as a whole?

Should company values then be personalized to the individual? As mentioned earlier Keller (2001) emphasizes the importance of staying consistent in the way the brand is communicated. As personalization of communication is not a possibility with every channel, e.g. with offline marketing, then how should the brand be exposed there? How can a brand then stay consistent across different channels? Consumers may construct different understandings of what the brand attributes of a specific company are, as they have been approached individually with personalized messages. However, what limits a company from only using digital marketing platforms for advertisement, giving them the opportunity to personalize values to the individual without compromising the consistency in the communication, as the individual will be seeing the same values? A company may benefit significantly from differentiating based on the ability to personalize. This way environmentally conscious individuals may be served communication about environmental awareness personalized to them individually to make them have the best possible customer experience. Some interviewees mentioned the ability to personalize towards the individual on functional brand aspects like price. This way the individual could be presented with the price they are estimated to be willing to purchase. This thought could, therefore, be transferred to the use of hedonistic aspects of a brand. Personalized experiences also based on hedonistic aspects of a brand would be expected to be perceived as highly relevant, and not only delivering a valuable customer experience but strengthening the bond with the customer in terms of the relationship. This may even have a significant effect on brand loyalty, as the communicated message would always be optimized towards the interest of the individual. Therefore, if the customer may develop over time and change their user behavior, the AI-technology would adopt the change in behavior and apply the best possible approach to the individual at any given time.

This means that the customer does not even have to change radically, but their customer profile based on the data of the AI will change at the same pace as the user behavior changes. The application of AI among all aspects is therefore seen to be able to deliver severe possibilities for the creation of not only customer experience, but strengthening relationships and ultimately building brand loyalty.

How may a company, if personalizing the brand values to the individual, then differentiate from competitors if everyone is personalizing their communication to the individual in order to meet their preferences? This may lead to a situation where two competitors are targeting the same individual based on the same AI-technology and communicating the same brand attributes, which will make differentiation abilities very limited. However, practitioners do argue that brands should be flexible in the way they are expressed, while still having some constant that represents them (Interbrand, 2007).
Often companies do not share data as this can be used as a competitive advantage. Therefore, the customer profile will be based on the data that is available to the individual company, resulting in differences in the customer profiles among competitors. This leads to differences in the data that AI-technology forms their personalized communications based upon, making it almost impossible for two companies that target the same individual to communicate exactly the same messages.
The amount of data it requires for a customer profile to reflect the interests of the individual is not fixed, meaning that to reveal a customer's interest in the environment may be easily expressed in the data for multiple companies. This makes it easily identifiable for AI-technologies among different competitors.

Therefore, it is essential to consider to which degree personalization should be implemented, which elements AI-technology should be able to personalize to the individual, which limits should be set and how this may affect the individual company.
What is vital in order for AI-technology to be working with both quantifiable attributes, but especially with those attributes that are har hard to quantify is training the AI. In order to train AI, a sufficient quality dataset must be provided that can give examples of different input and outcomes.

However, It has also been discovered that there can be significant benefits to implementing AI-technology. Therefore, a large investment in AI-technology for digital marketing may result in an increased loyalty among customers, as a result of personalization and thereby a better customer experience. The investment in AI, therefore, has the possibility of delivering a return on investment that is significantly higher than what was initially invested in it. And as the technology keeps learning it will only become better and more precise over time resulting in even further enhancing the relationship with the customer. However, providing enough data can be problematic as it requires companies to have a significant amount of historical data, or manually conduct an extensive amount of trials to create a dataset, e.g. a human reading thousands of websites and afterwards evaluating the values that the company is emphasizing. This highlights the need for a significant amount of resources or historical data, which not necessarily many companies have.

The companies that may have this type of data are usually older companies, who have several years on the market and have build historical data over time. Therefore, making it ideal for AI-technology to have a significant effect. The amount of resources required to assign new employees to develop the AI-technology is assumed to be at a level where older companies are able to invest. This is considered as these are expected to have been on the market long enough to build up the necessary amount of capital needed.

The effect the application of AI in digital marketing may have for older companies are however considered minimal by an interviewee, who believed the expected high amount of awareness to make the use of AI-technology having a smaller impact. The application is however assumed to have a significant impact on the relationship with the customers as a result of personalization making the importance of creating awareness a secondary issue for older companies. Older companies are therefore ideal for implementing AI-technology in digital marketing if the circumstances are as described.

In contrast to new brands it can be valuable to advertise as brand awareness may be quite low. Therefore, new companies are seen as being able to leverage more on some aspects of implementing AI-technology in digital marketing, as they have a limited awareness among consumers.

For young brands, it is though significantly more difficult as there is a limited amount of historical data, which makes the abilities of the AI-technology more limited and increases the error margin. For young brands, it therefore can be more costly to implement AI, as for the algorithm to train it would require a higher amount of errors, which may result in significant consequences for a brand, as a bad experience can ruin the relationship with a customer (Da Silveira, Lages & Simões, 2013). New companies are also limited by the amount of resources available making it even more challenging to implement AI-technology. The capabilities it would require to work with AI-technology would be costly in terms of acquiring employees to develop it. The implementation of AI-technologies among new companies may, however, give these a significant advantage in the market over the competitors as big companies usually have more problems in implementing new technologies due to the complexity of the companies. If this is therefore utilized correctly, it may be able to disrupt an existing market, as a result of old companies being slow in implementing the technology, or the industry being still relatively new. In such a situation the use of AI-technology can leave a gap to the nearest competitors.

When dealing with a limited dataset for training, and limited ability to implement it, the new companies may need to reconsider using AI-technologies. But there may be an alternative, which is highlighted by another interviewee. The ability to purchase AI-technologies as a service from other companies:

“So, if you're a brand new, definitely look into this vertical services problem is that if you do that, then you create a lot of dependencies in your business. Because what if Albert is going bankrupt in one year, then you have zero alternative. So, it's, disrupting one of your services on one of your product that is actually based on that. So, but on the other hand, it takes a lot of time to -- an investment to actually do it yourself. So, if you want to do internally what these guys are doing, then you need to hire people and collect the data, to figure to crack the problem, which is not necessarily easy to crack. I don't know exactly how they do it.

Maybe it's simple, maybe it's advanced, I don't know. But still, it will take a lot of time.[...] of course that Brand could do it itself but it's much nicer to use Reconbee because as they explain it on the website if you want to do it yourself. It's going to cost you two years and probably more than one point five million dollars.

So, the examples I gave you, the above seems simple, but when you want to develop a full solution that works for -- at scale for your company and that works in production. It takes a lot of time and efforts, actually. So, adopting AI is actually not that easy. Because you need to think of it as a big IT project, right? But again, you can also use this, these small companies, super specialized in one thing and try to create a product around it. So, if I would be a startup, for example. I would definitely try to leverage as much as possible of things which are already done, instead of trying to do it myself. For bigger companies, the approach and the strategy might be a little bit different." (Appendix 12).
The costly process of developing AI-technologies can be prevented by using these independent companies. This comes at a cost though, as the use of AI-technology produced by others can leave a threat as the customer does not necessarily have the access nor the knowledge to get an understanding of the specific technology. This results in leaving AI to manage parts of the digital marketing or communicating on behalf of the company to customers, while the marketer does not know how this is conducted. Meaning there is a black box scenario, where one must trust the output, without knowing how it was generated. *"Yeah, yeah, I think it's just always tricky to use something that you don't fully understand. And that is, I think, one of the biggest issues that we're facing at the moment. That there is not enough people that truly understand what kind of insights and in which way these insights are actually being generated for you and why you might want to be careful about this sort of thing."* (Appendix 5). This black-box scenario makes it hard to evaluate the results of the technology as the customer does not know the intention of the creators and are not able to understand it for themselves. They are instead relying on 3rd-party information.
This also makes a company rely on a supplier, which can be a weakness, as the supplier can exploit the possibility to make it very costly for the company, or if the supplier goes bankrupt, it can have a significant negative influence on the company.

Among the findings, the importance of knowing the training data was also emphasized. It is not only a limitation to not understand the technology in itself, but if an AI-product is bought already based on a training data set it becomes crucial to know the foundation of data the AI was trained upon. As AI-technology is only as good as the data, biases, and errors may be present in the training data of an AI that is bought. The data may even be skewed unintentionally.

This can for example be the case in situations where AI-technology is trained on the American market, as this is a big market with a lot of data available.

If the AI is later used on the UK market or even transferred to the Danish market as presented by one of the interviewees, it can have fatal consequences for the usability of the technology. Cultural differences among the countries can result in wrongly categorized elements, which can be a severe issue if not addressed, and it may be challenging to address if the marketer does not have the insight nor the knowledge to detect such issues. These errors may not only be as a result of culture, but also small differences like grammatical differences among the US to the UK, e.g. Within the culture is also how people express themselves in text for example. A specific sentence may be perceived as being positive in the US while being considered negative in the UK resulting in errors in the data when used for other markets. However, since suppliers of the technology are aware that the customers do not have the knowledge to assess the quality of the data nor the ability to do so, they may exploit the opportunity to further advertise and sell their technology.

The interviewee highlighted that most of the technologies that are available for purchase for customers who do not want to develop and train it themselves are based on American data that is later applied to the market where it is to be used, which he mentioned as a significant problem.

However, the current market situation is emphasized to be complicated and dangerous as a few dominant players are primarily owning the AI market. Companies like Google offers advances technology and high possibilities of exposure and targeting through their marketing platforms. Google spends tremendous amounts on developing their AI-technology for marketing each year and then makes their platform relatively cheap based on the payment methods. This makes it difficult as a company to invest in AI-technology that can perform better than Google's, as the amount of resources that are invested are significantly different, and amount of knowledge that Google has already generated making it hard to outcompete these.

Therefore, using the platform Google provides may be a beneficial start in doing intelligent digital advertisements through AI-technology. These technologies are however not explained, meaning that it is not transparent how the exposures of advertisements are conducted technologically. This means that the user is not aware of how the technological process is conducted and is not able to get a clear understanding of how the technology works. This limits the ability to develop knowledge within the use of AI-technology.

The metrics that Google delivers may not always be explained to an extent where it is possible to conduct the specific meaning of it. Results of advertisements presented through Google's platform can, therefore, be hard to understand and make it difficult for setting KPIs.

In the findings of the study it was highlighted that the use of natural language processing in practice is limited, and mostly based upon probabilities of different words and marks. The literature though presents natural language processing as being very beneficial in its way to analyze sentences on different levels to fully understand the meaning of a text (Tecuci, 2012). It is therefore evident that the vast possibilities that the technology is having according to theory is not what is reflected in the products currently available in the market. This is however not clear to the customers of natural language processing systems. These may be of the perception that it is an advanced technology that analyses on several levels in order to deliver a quality result, while it may, in fact, be based on probability among words alone. As a result of the lack of transparency within the industry, this may, therefore, be a case with other technologies of AI. As the amount of people who have the knowledge and insights to evaluate these technologies is limited, the average marketer will have difficulties in distinguishing technologies of low quality from technologies of high quality. This becomes even more difficult with the term AI being used for several purposes, one of them being just a term for marketing purposes. This difference in the expectation and actual product can have consequences on the market of AI. Since the average customer is not able to distinguish high-quality technology from low-quality technology, customers may become afraid of implementing these, as they are not sure whether it is worth the investment. This leaves problems for all providers of the technology as it may decrease the demand.
However, such a situation may force the necessity of a strict definition of the terms, which is possible for the average customer to understand in order to keep trust towards the market. This way low-quality technologies would be exposed and high-quality technologies would be able to charge a premium price, as their product is now being acknowledged of being of high quality.

So, how does the application of current AI-technologies in digital marketing communication affect the abilities of building customer-based brand equity? This will depend on several characteristics of the company in question.

5.

CONCLUSION

The following chapter will answer the research question though summarizing the findings of the study. Furthermore, it will touch upon the implications this study may have on theory and practitioners. The limits of the study will be highlighted, and suggestions for further research presented. This will be presented through the following sections: Conclusion, Theoretical Implications, Managerial Implications, Limits, and Further Research.

5.1 CONCLUSION

AI-technology is increasingly being implemented in digital marketing communication. Since the technology is continuously being implemented, it was considered interesting to investigate how this implementation might affect the ability of building customer-based brand equity.
A limited amount of research is already done within the area of AI-technology and branding, especially within digital marketing communication. Therefore this study sought to explore the following research question:

How does the application of current artificial intelligence technology in digital marketing communication affect a company's abilities in building customer-based brand equity?

The findings discovered that AI in itself is used as a buzzword, where using the term alone can be used for marketing purposes. Combined with this is the fact that there is no transparency in the technology. People do not understand the technology and are blindly trusting the results it produces.
As people do not stand the technology, there is a degree of overselling, as it can often be perceived as capable of something it is not.
The term of AI is usually used as an umbrella term for several sub-technologies. However, there is no strict definition of AI, meaning that some people perceive AI as only some of the technologies it involves.

It was however found that when used for branding purposes AI can easily work with quantifiable attributes, as these can be identified and worked with. AI can improve on quantifiable-aspects and comprehend an amount of data that is not possible for the human mind making it very valuable.
When it comes to attributes and aspects of a brand that is not easily quantified AI-technology is struggling with identifying and working with these.
AIs ability to work with such aspects rely on the data-providers ability to define the aspect and provide a quality data training set.

The training data set gives AI the ability to learn what is right and wrong in dealing with a specific task. This makes it difficult for AI to be creative, and therefore where creativity is needed human intervention is necessary.

AI is constantly learning by trial and error, meaning that it will fail, and if it is facilitating digital marketing communication this can damage the brand experience of the individual. Therefore, it is essential to set limits for an AI, as the technology at the moment will be failing massively when dealing with not directly quantifiable tasks, and it is strongly suggested that human supervision is always done to secure the quality of the results, the AI delivers.
As AI will always fail, companies should go slow when implementing the technology as this will give the ability to build up more historical data over time, making it more precise. Here it is essential to highlight that the harder metrics are to quantify, the more examples must be provided in the form of training data for AI to perform at an acceptable level.

The use of AI-technology can to a high extent contribute to creating a relationship with the customers, as it can profile each customer based on data and personalize the approach to each of these based on the individual. These personalization abilities can increase the customer experience and contribute to creating brand loyalty.

The findings discovered that the current brand equity models are not applicable when used in an AI-driven digital marketing communication context, making it necessary to construct a conceptual model that provides a guideline for the technology's ability of building brand equity.
As a result of this, a conceptual model for building customer-based brand equity in an AI-driven digital marketing communication context was formed based on the findings, which displays to what extent AI-technology can work with and facilitate different branding aspects.

As quantifiability is vital in order for AI-technology to work with specific tasks, this becomes a crucial factor in AIs ability to work with brand building blocks. The brand salience elements, like brand name and logo, already have pre-assigned labels when used online, making the elements identifiable for AI-technology.

Therefore this is the easiest brand building block for AI to work with. The brand performance aspect covers, e.g. price and product characteristics, which are easily quantified also making these easy to work with. Brand resonance covers the relationship between customers and the brand. AIs ability to contribute to the enhancement of the relationship between the customer is a strong attribute of implementing the technology in digital marketing communication. This is a result of its ability to benefit from a significant amount of data, and personalizing communication to the individual.

However, the brand building blocks covering more intangible aspects, which are more difficult to quantify, are harder for AI to work with. Brand judgement covers the opinions of customers e.g. the perceived quality. AIs ability to work with opinions is limited, as the accessibility to data about opinions are limited. However, sentiment analysis' of text is able to identify opinions to a certain degree. The data input in text can though be limited making it difficult to do a precise estimate on a opinion and require a significant amount of training data. Whether the identified opinion from the sentiment analysis reflects the actual opinion of the customer is though not certain as it is not possible to investigate further. Brand feelings touch upon a customers feelings, but like brand judgement the accessibility to data is limited, and even though estimates can be made on the feelings of a customer, these may not reflect the reality as a result of the data limitation. The toughest brand building block for AI-technology to work with is brand imagery. Brand imagery covers the hedonistic aspects of a brand e.g. values and heritage. This is a result of the difficulty of quantifying this building block. For AI to work with these, it demands a lot of a data-providers ability to define values and heritage, which may be difficult, and can create biases. It will also require an extensive training data set in order for an AI to be trained well enough to get a grasp of these aspects, which may require extensive resources to create

The findings shaping the model highlights that the use of current AI-technologies in digital marketing communication affects a company's ability to build customer-based brand equity. This is a result of the technology currently not being able to facilitate all aspects needed for building customer-based brand equity. It does, however, show that elements that have historically been difficult to improve are significantly easier through the implication of AI, e.g. the relationship with the customer.

The study is based on in-depth interviews with a group of AI-experts who have knowledge within digital marketing, through a grounded theory approach.
As the study takes a post-positivist worldview the quality of the result is evaluated based on the validity and reliability of the study. To enhance the validity of the study, detailed descriptions of the data collection and analysis process are included in the study together with transcriptions of the data used for the analysis and the findings that the analysis led to. The inclusion of the transcripts increases the reliability of the study, together with the names of the interviewees being displayed rather than being anonymous. As transcripts were analyzed independently, the researchers conducted an intercoder agreement, and the differences were resolved by discussion among the coders. The paradigm does, however, highlight a researcher bias, resulting in the researchers influencing the results of the study. It is however considered replicable based on the provided data and the worldview of the paradigm.

The companies who might benefit from implementing AI-technology is split. Older companies have more access to historical data and more resources to implement the technology, while new companies might have limited access to historical data and fewer resources to implement the technology. These companies can draw on external technology providers to deliver AI-technologies, but this causes a dependency on the supplier, which might be costly. The findings also highlighted that what the technology may be capable of in theory may not be how it is used in practice making it even more challenging to distinguish high-quality AI-solutions from low-quality AI solutions.
It is however emphasized, that companies who are differentiating based on hedonistic aspects of a brand can face several problems if implementing AI-technology for their digital marketing communication, as it is hard or impossible for the technology to take these aspects into consideration. It is however beneficial for companies differentiating on quantifiable aspects, e.g. price or delivery time to use AI-technologies for digital marketing communication, as these are easy to identify and work with for the AI.

The extent to which companies should personalize their digital marketing communication is also questioned as it can cause problems if personalization and optimization are not limited. It can be considered as 'spooky' by the customers or even cause problems as it is only able to act on the data provided, and can therefore not take external factors into account.
Whether AI should personalize company values to the individual should also be taken into consideration, as it can improve the relationship with the customer, but causes problems in being consistent in the communication of the brand, e.g. online vs. offline.

5.2 THEORETICAL IMPLICATIONS

The findings of this study highlight that current customer-based brand equity models are not applicable in an AI-driven digital marketing communication context. Therefore, a model for building customer-based brand equity in an AI-driven digital marketing communication context was constructed.

The existing theory emphasizes that digital marketing is beneficial for creating relationships between the brand and the customer. The findings of this study show that the use of AI can benefit the relationship between the two even further through the use of AI-technology's ability to personalize to the individual.

The ability to build a relationship with customers through digital marketing is emphasized by the existing theory as an opportunity to create intense and long-term benefit of digital advertising methods. Findings do however show that there is a limit to the benefits of personalization, as extensive personalization can have a damaging effect on the customers' perception of the company.

5.3 MANAGERIAL IMPLICATIONS

The growing focus and use of AI-technology in companies makes it necessary to start implementing AI-technology. The implementation does not need to be comprehensive but is essential to get an understanding of the technology, and the process of considering what might be AI-valuable data and start collecting it. The crucial element for AI-technology is data, so beginning to collect, or organize data is vital for future implementation of the technology.

The implementation should be done slowly as the AI will be developing over time through trial and error, meaning that in the initial learning process, errors might occur more often.

Companies are implementing the technologies, but before applying AI-technology for digital marketing communication, it is necessary to consider the consequences this might have on the company’s brand.

If the brand is differentiating on hedonistic aspects, which are difficult to quantify, AI will not be able to fully communicate the brand to the consumers. This can result in problems when differentiating from customers and combining digital marketing with offline marketing initiatives, as these will communicate two different messages making the company inconsistent in communicating their brand. This can have severe consequences of a brand resulting in a loss in credibility among customers in the short term, but also damaging the brand identify in the long term (Da Silveira, Lages & Simões, 2013; Kapferer, 2012).

However, do a company differentiate on branding-aspects that are easily quantifiable, the use of AI can be very beneficial, as the use of AI-technology for digital marketing communication will be able to emphasize the core aspects of the brand.

When implementing AI-technology for personalization with the goal of improving customer experience, to further increase the revenue from the specific customer, the degree of personalization needs to be considered.

Too extensive personalization might lead to a situation where the customer experiences the personalization as 'spooky', making the initiatives more likely to damage the customer experience. Limits should, therefore, be implemented to the personalization in order to prevent harmful personalized communication.

When considering the degree of personalization, the elements for personalization should be regarded as as personalizations in the communicated brand-attributes of a company might cause problems for the overall brand.

5.4 LIMITATIONS

Through the foregoing chapters limitations to the study were highlighted.

The response rate among researchers was significantly lower than for practitioners. This is despite numerous follow-ups, which means that even though a severe amount of potential interviewees was contacted the amount of researchers to practitioners was significantly different. It was however judged that the views of the practitioners would represent best the current state in the usability of the technology making them more crucial to the study than researchers.

AI is continuously developing and at the moment a 'hot topic'. Given the speed of development within AI-technology, it is, therefore, possible that the findings of this study which are relevant today may not be considered as necessary in a couple of years limiting the longevity of the findings.

The development within AI also has consequences for the definition of AI. This study uses Amazon's definition of AI, which reflects the definition of the industry. However, while the study was conducted, it was discovered that some individual practitioners were of the understanding that the definition of AI was different. This was clarified during the individual interviews, but could however affect the generalizability of the study.

5.5 FURTHER RESEARCH

This study takes a company-perspective considering the benefits and limits of using AI-technologies for digital marketing communication. Taking a customer-perspective on this area could be a topic for further research, investigating what customers think about the companies use of AI for digital marketing communication. Characterizing in which areas they might consider it an improvement, and where it might be damaging.

It was revealed that companies should consider to which degree personalization might be beneficial because the personalization of hedonistic aspects of a brand to the individual might cause problems for the brand if it is not able to be aligned with communication on, e.g. offline channels.

This may also cause problems to the ability of a company to be identified if the values are personalized towards the individual customer, which could be a topic of investigation.
The same was highlighted with too extensive use of personalization, where the customer might consider it 'spooky'. Another case is that the application might ruin the customer experience as a result of not being able to include aspects that are not available to the AI, e.g. the purchase of products elsewhere.
The degree to which personalization should be implemented is therefore also an area for further research.

AI consists of different sub-technologies, e.g. machine learning and deep learning. This thesis studied all aspects of AI-technology. However, future research may look further into the abilities of the individual technologies and how these may affect a company's abilities to build brand equity.

Companies are investing heavily in the development of AI-technology to extend the applicabilities of the technology (Mckinsey&Company, 2017). Several comments on the future abilities of AI-technology was touched upon during the execution of the interviews. New research could explore the potentials AI has to minimize the limits highlighted in this paper, e.g., to what extent AI in the future will be able to work with all elements of a brand? If there might be a situation where there is no need for human supervision? And where the limits of the technology then might be?

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Appendix 1: Word explanations

Machine learning: Is a part of AI and is the science of getting computers to learn and act like humans do, and improve their learning over time in autonomous fashion, by feeding them data and information in the form of observations and real-world interactions."

Deep learning: Is a part of AI, and a more complex version of machine learning which constantly learns by itself and can decide for itself whether a forecast is correct or not.

Neural networks: Is a part of AI, and a is a complex version of machine learning which models itself based on the human brain. It creates an artificial neural network that through an algorithm allows the computer to learn by incorporating new data.

Natural Language Processing (NLP): Is a sub-field of AI and consists of the application of computational techniques to the analysis and synthesis of natural language and speech.

Training dataset: Is a set of data that teaches an AI to act in a certain way. This could for instance be to analyze sentiment in text. In this situation the training data may consist of thousands of text pieces and a sentiment for each, for example "This is great" with the label of positive and "This is bad" with the label of negative. Thousands of these examples will then become the basis knowledge for the AI to analyze text pieces and estimate the sentiment.

Appendix 2: Interview Scheme

The initial interview scheme:

Intro

- Thank interviewee for participation
- Brief introduction to who we are (Name and study programme)
- Interviews are planned to take upwards of 60 minutes
- Ask for permission to audio-record the interview
- Ask if they would like to be anonymous
- Inform that there are no right or wrong answers, as we are asking about experiences and opinions, based on their knowledge
- Brief explanation on the topic and the focus of the study
- Does the interviewee have any questions before we start?

Opening questions (Basic knowledge)

- Tell a bit about yourself? (What do you do?)
- What is your relation to branding & AI?
- What is your experience with AI on digital platforms?
- Do you know any AI tools for digital marketing?
    - If you have implemented it - How was it first like? (And what where your thoughts on it)
    - What was the reasoning behind the implementation?
    - What did you learn about it during the process of working with the AI-tool on a daily/weekly/monthly basis? (Good/bad)

Core questions

Brand Identity/Salience

- To what extent is AI able to increase awareness of a brand through digital marketing communication?

Meaning

- Brand Imagery
    - To what extent is AI, when used in digital marketing able to communicate brand attributes like: emotional attachment, values, personality and heritage?

- Brand Performance
    - To what extent is AI, when used in digital marketing able to communicate brand attributes like: Pricing-level, design, style and special benefits?

Responses

- Consumer Feelings
    - How can an AI system incorporate feelings that a customer might have about the brand?
        - If so: Which feelings can the system evoke? And which can't it evoke? (If any)
- Consumer Judgements
    - How can an AI system incorporate the opinions, that a consumer have about a brand? (Credibility, percieved quality etc.)

Consumer Brand Resonance / Relationships

- How may AI contribute to the relationship between the brand and the customer?
- How can the AI system contribute to creating brand loyalty?

- How can the AI system help in creating a connection/community between consumers?
- How can the AI system make the consumers actively engage with the brand?

Closing questions

- If you were to give any advice in relation to branding, to advertisers who considers using AI for digital marketing, what might that be?
- Is there anything you might not have thought of before that occurred to you during this interview?
- Is there anything else you think we should know?
- Is there anything you would like to ask us?

- May we get back to you if we have any follow-up questions?

Appendix 3: Characteristics of interviewees

A detailed description of the characteristics of the interviewees:

Person	Company-type	Position	Knowledge within AI	Knowledge within branding	Knowledge within digital marketing
Jesper Korskjær	Global B2C	Senior Data & Campaign Specialist (Previous Area Business Manager at Albert+)	High	Medium	High
Thomas Frick	Copenhagen Business School	Assistant Professor	High	Low	Medium
Hao Wu & Ola Rønning	Software-company	Product Manager & AI Lead	High	Low	High
Ebbe Skau	Agency	Search Marketing Consultant	Medium	Medium	High
Rony Medaglia	Copenhagen Business School	Lecturer, PH.D	High	Low	Medium
Rasmus Houlind	Software-company	Chief Strategy Officer	High	Medium	High
Jakob Bartholdy	Consultancy	Account Executive	Medium	Medium	High
Mads Jørgensen	Consultancy	Insights Consultant	High	Medium	High
Benjamin Biering	Consultancy	Head of Data Science	High	Medium	High
Jacob Knobel	Consultancy	Independent consultant	High	Medium	High
Jonathan Rystrøm	Consultancy	Junior Data Scientist	Medium	Medium	High
Peter Svarre	Consultancy	Independent consultant	Medium	High	High

Appendix 4: Transcription of interview 1 - Jesper Korskjær

The interview with Mr. Korskjær was held in Gentofte on the 15th of march 2019.

Interviewer: Tell us a little bit about yourself, your background and…

Interviewer: What is your experience and the how come you are…

Interviewee: The thing is; I don't really have a technical background, I do consider myself somewhat technical nerd. But that's just -- I mean, I have always had an interest in the tech part and the coding part as a hobby, professionally I have a sales background. So I have -- over the years I have built my career from looking under the hood of these various techs and selling them to relevant customers. Basically, it's that's a very short description.

I was for many years in the publishing background, I worked for the biggest, magazine and online publisher in Scandinavia. So I spent 8 years there, but I kind of grew a little bit out of my role. I mean they would not develop and grow too fast.

I wanted to work with this exciting new thing called programmatic advertising where everything was automated, and also very hot potato back then. And I didn't have the possibility, so I changed my job, worked for six months for programmatic advertising; found out it was sort of interesting but also ridiculously boring because there's really -- there is no purpose. I mean now everything was automated, instead of picking up the phone and having the seller and the buyer speak, was just done by two pieces of software, talking together through an option. So yeah, well. I learned what I could learn about that.

And then I moved on into the ad tech business and I was employed with a company that was selling e-commerce technology, spend a couple of years there. Also an exciting new field that, and really e-commerce is great in the field of -- within digital advertising, because everything is very miserable, because the end product is seven stuff, right?

So, there's always bottom line and there's always certain percentage of improvement that you can improve by adding some tech to the tech stack, then you will have the result. It speaks for itself.

Branding has always been somewhat different, but the more you get to know about brand advertising and creating brand awareness, it is not that different. There is an end product and they are measureable end products as well. Not as reliable because you don't have the physical product that you have to send out of new store, because somebody bought something. But you get reports, improvement within different factors of brand awareness and recognition, and perception and all these different factors.

So you don't have a 100% accuracy rate – I mean you cannot say for sure that these target audiences now they -- now they love your brand more than they did before. It's a little bit uncertain, but still somewhat trustworthy. It is a survey and sometime people will answer funny.

So that was like my time in e-commerce was very exciting, I learned a lot about former's marketing. And it's something that I was able to use here. So I had really -- I have a lot of tools in my toolbox here, and I'm kind of -- I can talk to the techniques -- the tech guys, I can talk to the project managers, I can talk to the creatives. So, I'm really able to communicate all the way around with everyone.

So here I'm just kidding, I'm right in the middle of crazy times. Huge projects, large sums of money, a lot of investments, and the amazing ambition is something that I would just -- we are -- we getting somewhere. We are also making a lot of mistakes, a lot of expensive mistakes, but the good thing is that we are learning from them. So what is just -- it's just a great -- it's a very -- it's the playground, but it's a very serious playground.

So, that's what I'm doing here now. We are of course - here we are about 6,000 employees, at Ørsted and, we do have, a number of engineers working with the artificial intelligence, but that's for analyzing purposes for big data coming in from our offshore within the parks around the world. We have several thousand data points being collected by all kinds of sensors in these windows, which are in need of being of course coordinated and we need AI to extract insights from all this massive data.

So there are some people who are very, very skillful within that field. I of course in digital marketing, I will, in time, introduce AI within this company. Of course, gradually on small scales where it makes sense.

Today, everything is still, I mean most of it is optimized, automated, a lot of it's programmatic. But we are also still manually sorting and diving into massive amounts of data, trying to make sense of this -- all this big campaign set up that we have. We are active in seven countries right now with a big handful of different campaigns running all the time. And we have very well defined audiences. We have, right now I think seven, defined audiences which we are interested in reaching, communicating to them.

So, what if I started to multiply these factors by amount of campaigns by different languages and landing pages and it becomes very complex to set up. And AI would definitely thrive in this environment, because we as human beings with human brains, we have -- we do have limited capacity. So it's a field of - the AI technologies is a field of amazing opportunities. So I mean, five, six years from now, I think, I don't think it will be a long time. Five, six years, I think we will be able to make some remarkable progress by using whatever the AI technologies is putting in the market.

Interviewer: This experience you have within AI and digital marketing, where does it come from or how have you developed it, your knowledge base?

Interviewee: Well, first of all, I mean, I was employed with Albert. It's always -- apart from that, it's just been a like a serious copy for me. I mean, I have studied AI, I took a few coding courses, so I am not a ninja, I'm a noob, but I do -- I can do basic AI coding and R, and Python. And just for playing around with, just to gain a little bit of understanding. But I have talked to data engineers and programmers at Albert, and I have seen their whiteboards with algorithms and that is way beyond my capability. That's crazy.

But I have the -- I understand the basic principles of how AI is built, how it works, how it evolves, how it learns. And it's -- I mean it's an amazing technology and there -- I mean, the sky's the limit. So as I see it today, it is like the first baby steps of AI.

Basically I feel you have to look at AI as a concept, it has been around since mid-sixties or something like that. But of course, data and processing capabilities have been very limited and -- I mean, if we traveled 10 years ahead in the time machine and we look back at now, we would also say that our capabilities with processing data was very simple, 10 years ago. So it's developing and it's developing fast. I'm sure you're familiar with -- it's called Moore's law, the law of exponential growth and double capacity every five years and half costs.

So, I mean, if that continues, we -- I had heard somewhere that, by 2025, we will have the first AI, with a capacity of calculating beyond the human brain. Right? So that could be a massive breakthrough of course.

But, and then, if we will look – if we try to look in the crystal ball, because that's where most important -- the most funny thing and interesting thing to talk about. But try to look into the future and see how are things, going to develop, what's going to happen.

If you look at the trends, I think it could if -- that the marketing of today will become, of course, much better targeted, today, It's not being done very successfully to some extent. I mean, it's better and it's a lot better than just five years ago. A crazy lot better than 10 years ago. But still we all know, we all surf online and we all see ads that are completely inappropriate. Just irrelevant for us. Right?

But it's moving ahead and AI is going to be very beneficial within this process of targeting because they are -- AI is able to manage communication on a one to one level. Everything today is being done in bulk. You know we are working in target groups of x amount of people with data being kind of -- you know -- it's not deterministic data, it is all probabilistic and then because you need the volume, and which simple – we are using simplified models within both targeting, but also attribution and stuff like that. Just to make our simple human brains, understand what we're doing with it -- also the reporting is always. It's not too -- it's almost high level all the time, It's not too granular because your brain will just explode, If you have to make sense of presenting data off, exposing your ads to a million people -- you have to simplify things.

With Ai, you can also have a simple, simplified insight, but really the AI can keep track of all data on a one to one level. So that's what's very unique, something that's never been done before.

So within tracking, within targeting, but also the ability to communicate with an ad. I mean, why not, we are sitting here in this room, we were just talking to each other. Why is it that we are not texting or writing letters to each other, because talking to each other is easier, right? So why is it that an ad is not communicating? I mean, if you see something interesting about the product. See these pair of shoes, ah they look cool. Today you have to click the ad, you have to go and read, spend time on a website and maybe be the load is very slow. Maybe it takes you to a green pair of shoes, but you were actually looking at a red pair of shoes. I mean, wouldn't it be nice if you could just ask me the ad, tell me more about this stuff. We already see this developing and these intelligence speakers right? Google, Alexa, Google Home. And if that trend catches on, if voice enabled search will become the dominant way of searching in the future, I don't see any reason why ads and marketing shouldn't be developed in the same way. I mean, if we end up with people searching through the loud speakers by speaking to the search engine, there's not going to be any traffic on the traditional search engine anyways, so there's, I mean you have to follow, you have to move, your advertisement to voice enabled communication.

I think we going to see a development and maybe even an explosion of chatbots, but that's just an intermediate step. I think chatbots will develop, first of all, people first step, we will see a lot of chatbots coming on the market, we'll see a lot of trolls trying to reprogram it. And like you say the funny stuff, and that's very shareable. It's something that everyone would like to share on social media, like, look, we made this chat bot say Hitler, that's amazing, so we have to get across that stage, all the baby mistakes.

Eventually, chat bots will develop, so you will not notice that you're not talking to a human assisstant as we see in some promotional videos, which is maybe, maybe not painted in a little bit more positive than they actually are. But I think we will develop this that you will actually be communicating by typing, with an assistant virtual that is virtual and you will not notice, you will never know, you won't be able to tell the difference.

And why wouldn't that evolve, develop into a voice enabled communication? I mean, you will be calling on the phone or you will be talking to someone through a loud speaker, who will be telling me about services

and products or informing you about something you'd like to know more about. It's a lot easier than typing something in the search engine, and looking for it and browsing through 20 results, before you find what you're actually looking for. I mean, why is it that people are listening to podcasts and audio books today instead of reading a book or going online to read something? It's easier.

So when that happens, it's going to be very interesting from a political perspective or legislation, perspective saying, what are we going to do? What are you going to do when you, all of a sudden you find yourself completely manipulated by some artificial intelligence that sells you stuff, and you don't really know that it's not a human person? Is that really – should that really be legal?

Today we have marketing legislation, right? By saying that if you -- if there's an ad online, it should be clearly marked that this is an advertisement, this is sponsored content. This is promoted content. So, you understand this is not a journalist with an objective mind. So this is a subjective, commercial piece of content.

I think the same will apply for more advanced marketing, like AI marketing; that the AI will be -- I mean obliged to say, be aware. I am an AI. That would make sense. Probably there's going to be a number of years before the government, the government's of the European Union (EU) catches up, and includes this in the GDPR, because; they are always couple of years behind right? But its -- I mean it's very interesting that to -- when you start thinking about the opportunities from a commercial perspective, but also from a consumer perspective, if it's done right, which unfortunately I think it would not be, but if it is done right, I can really, I can be served, communication or advertising or marketing material when I want, and displayed the way I want and just talking to me based on my preferences.

It's both nice and it's also very scary because an obvious thing is that the AI collecting my data will know more, too much about me and will sell me stuff I don't need, or make me vote for a political party that I don't intend to vote on. I mean -- again, there is a lot of ways that AI can go -- go rogue. It's – right now we have things moving in terms of developing the AI, rather steady, slow, but steady, because it's being developed by human beings right. So we are adding – we are measuring, we are improving, we're learning. At some point there is going to be a breaking point, when the AI can start programming developing itself. That could be rather crazy, right?

So I read articles about within the programming industry, saying that pretty soon there is going to be AI programmers available, so that you can sit down, you could have an idea about a new piece of software. You can ask the AI to code this piece of software and then, the human developer can sit down and like maybe finish the last 5-10% of the software. The software itself is going to be programmed and ready within seconds. I mean that's just -- this is a ridiculous thought but why? I mean if the processing capabilities there -- imagine movie maker's move and making an animated cartoon, Avatar 7. I mean if you have the storyline, you can ask the AI to create and if you have the unlimited processing power, you can have a movie produced in an instant of a second. At some point AI will also be able to be so creative that it will actually be able to build its own story board, create his own movies.

Again, think of the scary part is, when all of a sudden you have AI's dominating everything that humans need to do, what are we going to do the right? And what -- how will we know when that shift happens? Is kind of interesting thought that in theory, behind the scene, the AI could take over. You wouldn't know that. I mean we don't know if there's -- it's a hypothetical crazy thought, but we don't know if there's any people behind Google, the Google search engine. Google will know. But maybe they said, okay, we've got machines taken care of everything. Now we're just pretending.

[Laughter]

I mean, it's crazy -- that's crazy thinking about those, maybe taking it a bit too far. But definitely I think, I feel like the intelligence of the marketing will -- I mean there's any -- every opportunity the ground is open to make something extremely intelligent. Which again, what about ethics? Ethical guidelines, right? Because there is good people and there is bad people out there. And if you are living in a world driven by economy, and you have commercial interests, and you are -- you have a responsibility, you have a budget, you have a target to grow revenue for your company? By almost any means or by any means illegal, we see it all over the world today, people are avoiding taxes and Multinational companies, they don't pay a single dollar of tax in Denmark because they just -- they're just using all the loopholes in the tax legislation.

So there's -- I mean…

Interviewer: Endless possibilities. [Laughter] so many

Interviewee: Well, if there's so many rules that are being bent, and AI's is developing too fast for politicians to make the correct laws and -- I mean, nobody is -- Why would someone stick to the ethical guidelines? Maybe we would in Denmark because we are somewhat moral people but then, what about the Chinese or the Russians, do you think that they are going to give a shit? I mean, they are -- I mean it's -- a company is -- by definition is going for world dominance, right? I mean we're going to outcompete the competition, and as long as we are within the laws, why would we be ethical, if we could double our revenue tomorrow by using AI capabilities; I mean anyone would do that.

So the thing is that, I think it's going to catch us by surprise. I think people will be shocked that -- shit, I got manipulated, I got catfished. Right? It's -- there's a world of trouble out there waiting to happen. But also maybe politicians and maybe people will move fast, maybe people – maybe the populations around the world will demand strict rules on this. But again, everything regarding the Internet and IT technology and -- it's always been a -- sort of a movement like leave us alone, it must be unruled. If you look at the pirate bay or tor browser and deep web right? I mean leave it alone, which -- everything should be allowed because you're going to -- you're going to break -- you're going to limit development of the internet and blah blah, blah, all this and why wouldn't AI fall into the same pitfall as that.

Interviewer: Cool. Nice. It's very interesting. So in terms of how the state is today in Ai, it could be quite interesting to try to define where the limits are for it, as I understood it with the different shoes, the red and the blue one you mentioned earlier. It seems as if it's able to communicate or increase awareness of a brand through advertising. Communicating, you will be able to recognize what brand is being served to me here based on the algorithms. But would it be -- how can AI, when it's used in digital marketing, communicate brand attributes like would -- could commute – would it be able to communicate style or design, or a special benefits. Would it be able to communicate the pricing level… base today?

Interviewee: Sure! Yes, I mean it's a frequency and AI will never be better than the data. It's feed. The more data, the better the AI presumption. So what it doesn't know about you, it has to guess. So -- and when it's guessing, the less it knows, the more often it will miss. But we are giving away a lot of information about ourselves online today, and that's only going to increase in the future I think, so AI potentially will be able to learn to know a lot about you.

And as it learns and as it observes and adapts in real time. One thing that is very interesting is that when you -- we all know them, idiotic thing today that when you bought a product then you'll keep seeing the ads for like forever, right? Because somebody forgot to add and exclude Pixel or kill Pixel on the checkout page of -- or are you -- were you – you saw the same product at two shops, which are obviously not exchanging data because they are competitors and you buy the -- shoes in one shop and the other shop keeps trying to push

you and sell you those shoes, and all of a sudden they give you a 40% percent discount, and you get annoyed because you could have saved money and it's like…

So with the right ability to learn – with the right amount of data known, then the AI would potentially be able to eliminate all these problems. So -- and I think it will be able to learn, I mean based on your preferences. Today, if you go to a webshop to buy -- to search for a product, you are essentially talking to an excel sheet, because behind the web shop there is a product number, there is an image, there's a description, there is a sort of all -- there's a lot of data points on that specific product and it's all aligned figures speaking in an excel sheet, right? So the second there is a problem. So the second that this line is wrong, but there's information missing or it's the wrong link, or something you will not find the product you're looking for.

An AI would learn from you when you – probably they would have some historical data from you when you enter – they will quick, yes. They will quickly realize how you navigate the site. What are you looking at? What are your preferences? So how should I be presenting this shoe to Emil to increase the probability of him buying it. Color or the angle or should it be 3d view, I mean what is he looking for? What type of person is he, does he have an engineering brain or does he have a more of fashion like mind, right? So what does it take, and that's going to be a different approach. So recommendation engines or recommendation software will likely a change in the future.

Interviewer: As it is today, would it be able to characterize more of soft values of the company like values or heritage and present that to a consumer in marketing you think? Emotional attachment or the personality of the company, would it be able to present that?

Interviewee: Yes, of course,

Interviewer: Identify it and present it to customers?

Interviewee: Sure. Not because "yeah, I realize this, that this is a soft value" or something, but because we will tell it to the AI that. I mean like just simplify it. If we find -- if we research a particular target audience, like dog owners. I mean, I know you come to my site or I know from some third party data that you are a dog owner. I would make sure when I present my marketing material to you, if I show you an ad and there's a dog on the -- in the image.

Interviewer: And if you are a passionate dog owner, I make sure to animate the dog into drawing. through the ad, looking very happy and satisfying. Right? And if my research shows that you being a passionate dog owner, you will more -- be more adapt to this type of communication. Here in this company, it could be -- it can just simplify that we want to make you interested in off shore win power. So how does it take? Looking at the type of audiences of passionate dog owners, would that be the green energy aspect? Would that be the massive investments and the increase in jobs in your area? Would it be the aesthetical beauty of off shore when you look hard, when the wind is blowing and the clouds are moving through? What does it take to trigger your interest?

So, the research will reveal that maybe there's a connection between owning a dog, and being very passionate about dogs and this particular message. So the AI will take advantage of that. Again, it doesn't understand feelings, it only understand data points, but it's able to calculate and predict unlimited amounts of -- connect all these data points and calculate the chances of you connecting with us.

Interviewer: What does that do to differentiation possibilities? What if you and a competitor uses the same AI, and you say that it takes the customers' preferences into account. Would you be able to differentiate from one another?

Interviewee: I mean -- again, it's like an impossible question to answer because, if it's the same technology -- let's imagine two very advanced AI's competing, I think that it would just be a bidding war. I think the prices for advertising will go up if you are extremely relevant, if you are -- let's say that you are an investor, and we have -- we found out that you are – you have an investment range of 1 to 2 million, 100-200 million US dollars, and we would actually like to attract you as a positive investor to one of our projects. And then we have ION, in the UK with the exact same purpose, just attracting you to them.

It's going to be a massive war. And we're going to bid extremely high because you are a once in a lifetime investment opportunity. So the amount of money we are willing to pay to serve you our ads will, yeah. But today it could be the same situation just with two guys sitting on a buying platform, saying we identified this guy, or likely it's going to be a small group of guys, a small group of people, a targeting audience where these would be really relevant. So now we've going to bid a $100 to show an ads to these guys. And then they are going to sit in the UK and say "oh fuck. We've bid $95 and we're not getting any impressions now, let's raise our bid to 105". And then we'll sit here "what the fuck. Let's raise it to 110".

So the same thing is going on today, on a manual level, but the same competition would be like a milisecond battle. Right? So how will AI's compete against each other's? I mean…

Interviewer: It's just interesting when you talk about the dog and the skies that it would try to personalize the communication to what you and your… -- What you like

Interviewee: Absolutely anything that works.

Interviewer: Exactly. Then it's just interesting if you and a competitor used the same AI, in order to target the same person, and you suddenly both have identical ads with a dog and the skies and so, right? How will you be able to differentiate yourself as a company?

Interviewee: Well, the thing is that you as a person would have at least a slight difference in positioning the two brands. And just that might be enough to the AI having one approach, and the AI – the other AI having another approach. So it could be in theory like -- so I'm going -- my AI is going to play on your love for your dogs or we will try to say that if you go and invest with us, or if you are just a few -- if you increase your interest in our product, your dog will have a healthier life because the air will be cleaner. And the other way I would say, oh, I'd also -- I actually found out that Emil -- he just loves going to a sunny beach in the summer. So let's try to throw a pair of sunglasses on this dog when you show him an ad, right? So you'll see your dog with sun glasses. I mean, it's impossible to say and it's - when advertising becomes so advanced, which will be many years in the future.

Our capabilities of understanding what the AI will do is -- I mean we will not be able to answer that question already today. I guess you are familiar with the AI playing Go, right? And this -- I mean it is quite an amazing video, small mini documentary where the AI is beating this professional Go player, and all of a sudden it makes this crazy move, and everyone's like, what? Oh, it must be a fault of the AI. But it turns out that it did with an exact purpose and it won because of that move and, already today. I mean, it's several years ago they said, we don't know. We will never be able to tell you why did the AI, make this move, because we have -- we don't know, it's too complicated. And that's just going to get even worse. I saw it also in the way Albert

works, when the -- when it's working with the Adwords, so sort of changing text ads and we say, we ask Albert to build an ad which is as beneficial to the given KPI as possible. So it's usually a return on ad spend.

So, we said to Albert, your targeted, your goal with these ads is to attract as much traffic as possible, and you have to sell as many products for as little money as possible. And then you set it to work. So in the beginning it's just potato, it doesn't know anything at all. So you give some keywords. But what it does is, it doesn't understands words obviously, it doesn't understand the meaning of words. It just understand that so this is a, b, c, d or 1,0,0,1,0, So let's try to combine them and see what happens. So it's trying and then it finds something that works, and so it tries to improve. And I say okay, can we do a little bit better here, can we do a little bit better here? So it starts -- it spins off a lot of projects like -- this is like 200 combinations that works really good. So let's try to -- let's try to improve, make it just a little bit better.

So now this word doesn't work so well with these words, so we'll remove it, it would evolve, and evolve and then -- let's try and put this word back in now, because now it's a different context. So it ends up and when I -- when you look at it with the human eyes, some of those ads, they make zero sense. They start to make a little bit sense but sometimes they're spelled wrong. Sometimes it's semantically it is just not correct, and it looks really funny, and it's just -- I mean it's just -- its trial and error, trial and error, trial and error, but the more money you put in, the more data and faster it goes, the more it will try.

But in the process there's going to be a lot of people being exposed to ads, that would be thinking - what's this all about? So basically that will be the same with like the more creative banner, which trying to -- also today there's always -- or there's already been experiments with the AI being taught to create a music video for example, or pieces of music or paintings. Sometimes it looks funny. Sometimes it sounds strange, but I mean they see -- they really create something, right? So, yeah, it's a quite interesting future, I think.

Interviewer: Interesting. Cool. You said before that it isn't able to understand feelings, but is it able to evoke feelings, do you think?

Interviewee: It's definitely able to take advantage of feelings because it will learn what works. So basically…

Interviewer: Also today?

Interviewee: Sure. So look at what -- how it is being done manually today? Look at a consumer loans, advertisement TV ads for consumer loans. First of all, the placement is after football games, after "Luksusfælden", after [laughter] you know, and they are becoming more and more sophisticated in their communication. Yeah. If you're the type of person that doesn't want to miss out when your friends get together and have fun, if you are a lively social person - 'lalalala' - loan some money so you can go on and drink and eat with your friends. Right? It's so disgusting, but it is working. It's rudely manipulating with certain population - target group - and an AI – if you said to an AI 'get people to sign up or to apply for these types of loans'. And here is your playing field, this is what you can do, this is what you can play with. I can guarantee you that it will quickly learn exactly what works and what type of feelings should it play with. But… [Background conversation]

So, but again, it's really -- right now it's up to the AI manager or the human hand above the AI, to feed it. And say go play with these things because there is -- I mean there's still limitations and it's also of course -- a big thing here, is what happens when you start removing the boundaries or the limitations of the AI. Just give it -- let it out of the leash.

Interviewer: Interesting.

Interviewee: Things could go crazy. Or it might kill itself, we don't know.

[Laughter]

Interviewee: Okay, so -- do you, we could just walk along. We need to leave the meeting room.

[Change of location]

Interviewer: But based on that, you say that It will be able to evoke feelings, and it will be able to manipulate for example with "Luksusfælden" after a program or similar.

Interviewee: Sure. But I mean, only based on optimizing towards what works. I mean it's a machine, it will always be a machine. So, I mean it's not -- it doesn't really get emotionally attached in any way. Because it does -- It's not able to feel any emotions. But if it finds out that you will react in a certain positive way towards the brand by exposing you for this or that or doing -- taking a specific action, it will perform that action to have you do that.

Interviewer: Would it then be able to understand what your perceptions might be like your perceived quality of the company? If you think the company is credible, or would have just handle under action you are doing. Would it be able to get an understanding of what are your thoughts about the company, your opinions?

Interviewee: I mean without asking you, then it can only be based on your actions. But again, if it has -- it depends on what -- I mean what type of data, and how much data that is available about you. If it knows that you've been to an exhibition on a specific topic or if it knows that you've been to the library and you've borrowed these types of books within these topics or -- and more notice about your interests and your behavior; I mean, why not?

Interviewer: Cool! So over time, do you think it would be able to contribute to the company's relationship with the consumer?

Interviewee: 100%, yes. Customer service will die as we know it today. I mean the -- I mean it's -- and also marketing people. I mean advertising people will be completely eliminated because the AI will be able to take over through -- customer services today, there are already customer service AI's out there, which are -- I read a case about – I think it was an insurance company where the AI handles like 60 something percent of all incoming call from beginning to end. And in any case that there is an issue that the AI cannot solve, it just passes on to human operators.

Interviewer: Do you think it could influence the brand loyalty of the customer?

Interviewee: Sure. I mean we are a lot easier manipulated than we think. And what is brand loyalty or brand perception or brand satisfaction? I mean we think it's just, Wao! I like Coca Cola. But why do I like it? The AI will be able to decipher and understand why exactly I like it. It will be able eventually to manipulate me to like… I don't know [laughter] squash.

[Laughter]

Interviewee: I mean -- but again, like a human will be able to manipulate another human for whatever benefit or for whatever reason. An AI will definitely be able to mimic that and just do it, I guess a lot more effective and get it right every time.

Interviewer: Okay! Do you think it can help in creating connection or a community between consumers, customers, would it be able to make them connect?

Interviewee: Well, yes. I mean, just simplified example, I call you, you're busy. So we don't connect, we don't talk. You call me back. Now, I'm busy. We all know those situations. So connecting people whenever they have time, is a very simple task that an AI can do and keep track of millions and millions of peoples available time slots. I mean that's one just very simple bit of connecting people and growing and nurturing communities around a brand that's obvious.

Interviewer: Interesting. So in order to finalize a little, if you were to give any advice in relation to branding for companies, to advertisers who considers using Ai on – for digital marketing today, what might that be? Do you have any thoughts about that?

Interviewee: Go ahead. Do it. By all means do it and -- but remember to stop and think and be reasonable. There is a lot of hype, AI technology is -- except I mean, apart from being very hype there is also -- there's so much bullshit. I mean any technology today, everybody's claiming that this is AI, most of the times it's not really AI right, then it's like simple, a few simple algorithms. A lot of AI is claiming to be AI without having any capabilities of deep learning, and then -- well, at best we could call it machine learning, but still, you have to -- I mean, if jump on board now, you should be prepared to make a lot of mistakes, and you should keep money in the bank to pay for those mistakes.

So, and also I guess maybe gradually introduce AI to different aspects of your company that will make sense, trying or having a vision just to take -- to have an AI take over big chunks of tasks inhouse is, It's, I mean it's sort of risky. So like with any other new technology, test, try it out and see what happens and then just slowly loosen the grip, but also be prepared to -- if you find something that works for you, be prepared to let go of control.

Interviewer: Cool. Is there anything else you think we should know that we haven't come across?

Interviewee: Not much that I can think of right now.

Interviewer: Anything you'd like to ask us about this or something that you've come across during the interview? If there's nothing, it's fine. Its' just to make sure you don't have any fault.

Interviewee: How come you came across this topic, I mean, what's the interest from you guys?

Interviewer: Basically, it was probably evoked back then when we in the previous company, in PS where we thought about implementing Albert. I remember all the talk some of the bosses had about it. And we came to talk about it, we started researching a little, trying to see what technologies are out there, how does it function, how does it work? What might be the positive things, what might be the negative things? And thought that it could be an interesting topic to have a look on. What is it actually able to and what is not able to, in terms of an aspect like this. Especially some of the research showed that in the US especially, a lot of companies are just taking AI technologies into their companies without really thinking about what possible consequences it could have.

Interviewee: But there's -- I mean the problem with this technology is like for the first time in human history, we developed something that we cannot explain. I mean, a machine that's able to make decisions where we cannot say, this is why -- that is groundbreaking technology, right? And so because of the almost endless opportunities and possibilities with it, there's so much over-promise, people get carried away because this is

freaking awesome. So everything is being -- nobody's being realistic because then they cannot compete with everyone else trying to sell the holy grail of whatever they say AI can develop or do.

So it's -- you would have to apply a solid bullshit filter. It's very important.

Interviewer: We figured that [laughter]

Interviewer: it has the ability because, fear from marketing departments that has to justify their spending's to the upper level management and then as AI system, like these can come in and make instant improvements on the bottom line, yes -- But then might not be able to – as we talked about carry on the message from the entire company. As… like the heritage and so on. Because let's say in 50 years if the company is using this technology and it just keeps on sending personal messages to each consumer, then the overall brand communication will kind of -- might be blurred.

Interviewee: Yeah, I see your point. But there will always be brand guidelines within any company which takes is brand serious. So…

Interviewer: But will the AI be able to understand those brand guidelines, do you think?

Interviewee: No, but it's going to have to accept them if you set those limits? Saying my logo is blue. So don't show red logo even though that he will only buys stuff from companies with red logos. You show my blue logo because this is what -- and this is the font that we want to show. And these are the words in the text ads that we wish to -- because we want positive recognition or understanding and positioning of our brands. So this is the list of words that you are allowed to work with. So do not put Hitler and Mussolini in my search ads because I don't care if it increases sales, because we have some brand safety that we need to be aware of.

So you can set… you can build up walls and you can set limits for any AI. And of course it's extremely important because it can – it would go crazy, I mean it would go rogue. And as -- again, as processing power increases and the internet becomes faster, I mean the amount of calculations and data being transferred from A to B, it's going to be beyond understand, right? So, again, imagine that you have a piece of software which is able to program and develop itself. You have virtually unlimited processing power, you have virtually unlimited internet speeds. What will happen? It's, I mean -- So I'm going to set some limits to this program, but then it decides that it's not in its own benefit, so it's going to be removed. This is just going to override my limits and take over…

Interviewer: But isn't it also hard to do these limits, as it has the -- it is able to take in everything sort of. So if you say you can't use Hitler and Mussolini, it will maybe instead use cheap or save, big offer in each ad, or if you say, 'okay, you can't do that', it will say something else that you might not be all happy about if you are Louis Vuitton.

Interviewee: Or it will write 'Hitler, Hitler, Hitler' because; I know better than you. Yeah, I mean, it's really impossible to -- you can only imagine, but capabilities today, you were absolutely 100% able to control the AI and saying you can knock yourself out, and go crazy with it, but within these boundaries, these are the limits I set up for you and it is going to work within that -- develop within those boundaries, right? It still might develop down a line where you think, okay, this is not good but then you can unplug the bastard [laughter]. You can do roll back or you can do -- I mean, whatever.

Interviewer: So within those limits, you think that it can still make up things that you are not all happy about, and then try to modify it?

Interviewee: Sure! It's technology and it will fail. But the difference between a Microsoft operating system, that used to give you blue screen every now and then, an AI will fail, but it will get back on its feet with lightning speed and learn -- 'what did i do wrong?' or 'what did i right'. And then the next mistake will be there, but it'll just develop and potentially remove most of these mistakes and just… potentially, I mean, it has the potential to become the perfect machine.

Interviewer: When will we be able to unleash the beast, do you think? When don't we have to keep an eye on it all the time? Are we talking 5 years? 10 years?

Interviewee: I can tell you -- I mean, the breaking point will be when the AI will be smart enough to program itself. Re-program, because then, saying to what it will do. What are the then -- goodbye limitations, right? God knows. But look at where we are today, we got car's driving itself. That's crazy, right? I mean, who would have thought about that like 15 years ago?

Interviewer: But then we still see errors where it fails, or the famous dilemma if it has the decision of driving an elderly guy down or a whole school class or something like that.

Interviewee: What would you do?

Interviewer: But that's the ethics part of it of course. But that's some of the things we haven't taken into account yet.

Interviewee: But an ultimately developed AI... Can do whatever, hit'em both.

[Chuckles]

Interviewee: You don't know. I mean we've come a long way today, but in terms of where the technology meets its limits, we're not even up to 1% there, right? I mean, the opportunities are so incredible. So, it's hard to say. But anyway as you said that -- now this scenario, the ethical scenario or all the articles, the videos with the Teslas crashing. So you know, there is 1 million successful test drives and then there is one accident, and it's the only thing you hear about.

So with all aspects of the AI technology, you are going to hear about the fails. So you're going to hear about the guy who got cheated by -- paid all this money to an AI dating, online dating service, right?, you're going to hear about somebody who got manipulated into buying stuff that they didn't want, and you're going to hear about someone managing to successfully manipulate or trolling a service system somewhere. And it's going to kind of be extreme, it's going to be a lot of fun. So because it learns from behavior it doesn't understand them. One thing that AI would not understand is -- Now this is a serious person or this is someone playing a joke, right? It will always have the same approach, and this is okay.

If I'm a service AI, I would try to service you – So, if you ask me for some things that is really funny, I don't understand this is funny. I am not going to laugh, I'm just going to try to meet your needs.

Interviewer: Understand emotions over texts. That is quite hard.

Interviewee: Eventually maybe.

Interviewer: Yeah. Cool.

Interviewee: I do see that these devices that we have in our pockets will become very intelligent. One very obvious thing that would make a lot of sense, is like the AI shopping assistant. When you go to shop instead of -- I mean if you're going to buy a new cloth instead of waiting for someone to come in – to come and show you, you'll have your assistant, can tell you exactly where this stuff is, the right size and what fits, what looks good on you, what doesn't look good and the pricing, all the information, where is it produced, what type of fabric is this? And… I mean so you will have very strong buying technology.

Also on the other side, there'll be the shopping assistant knowing exactly who you are, what your preferences are, what you're most likely to buy, when you enter he shop, because they will have the selling AI assistant. So they will be able to approach you and say, hi, come; welcome. You'll feel like home. It's like going home to mom, I will show where your new pants are, wait a bit. So, I mean great opportunities right? But of course we as the human race, we're going to use it all wrong, wrong way [laughter].

Interviewer: We don't understand it.

Interviewee: But look at the capability we have in this phone. I mean, this is a super computer. What do we use it for? We use it for mostly ridiculous stuff, right? Sending stupid smileys to each other, videos of people hurting themselves.

Interviewer: Sure!

Interviewee: Yeah! It's… It's weird. So, we're going to see a lot of good stories and bad stories, and most of it will be extremely shocking like - 'really?'. We'll see to which the degree that reality and fantasy will melt together in future.

Interviewer: That's Interesting!

Interviewee: Yeah!

Interviewer: That's really…cool. Yes. I think we got it all round.

Interviewee: Yes!

Interviewer: And ended up going places we haven't thought about. So, that's interesting.

Appendix 5: Transcription of interview 2 - Thomas Frick

The interview with Mr. Frick was held in Frederiksberg on the 21th of march 2019.

Interviewer: Tell a little bit about yourself. What do you do? Who are you?

Interviewee: Yeah, so I'm working as an assistant professor here in the department of digitalization. I started to work here last year in august. Originally, I come from Germany, but I finished my Ph.D. in the Netherlands at Rotterdam School of Management. My research is broadly focusing on economic implications of information systems, where I focused quite a bit on some marketing related topics mostly around the implications of personalized digital advertising for firms, consumers and advertising platforms. So, for example, studies on figuring out what is actually the actual financial impact of digital advertising for firms. And how should you measure these impacts. Yeah. And so, I have also quite some work experience in digital advertising, I worked mostly in Germany in telecommunications companies, more on the quantitative side being responsible for like web analytical tools. And then also to some extent as an external consultant actually, helping companies to improve their web track and how they should measure advertising effectiveness. So, I think I have somewhat of an inside both from like a practical but also from the research side actually.

Interviewer: Cool, nice. So, what are your relation or knowledge within AI and branding?

Interviewee: So, I have a bit of a controversial relationship to artificial intelligence. I think it's sort of considered one of the hot topics which I can understand. I think the technology has - is very promising. You can do a lot with it. But I see very, very big risk in the fact there is not enough people that have the capability to actually design this type of technology. So, you see a lot of people that work with artificial intelligence and with machine learning, and these types of things, but what is mostly happening is that these people use some sort of off the shelf products, some sort of software packages or something like that. They throw their data into it. They don't really know what is happening, it is a bit of a black box for them. They get some results out of it and they blindly trust these results and that is what I think, firstly, dangerous in terms of assessing the quality of the results that you actually base your decisions on. That is the one problem. The other problem that we have is that we have a few companies, big players, especially as the names that we always hear, Google, Facebook, etc. They have very strong capabilities in this area. And that actually increases their market power significantly. The fact that they offer these types of solutions in their marketing tools, make it even less transparent for firms that actually uses their marketing tools in terms of what do they actually get out of this advertising.

So, you have sort of on the market in general, lack of these capabilities. A lot of these people that have these skills go to the big players because they pay very good salaries and they have other people that work in this area is just attractive for people with these skills to go there to become even better. So, we have a very big concentration of this type of knowledge within a few companies. And a lot of the other companies that want to do something with that they just become very dependent on these types of companies. And I think that is a bit of a dangerous situation speaking of that market structure.

Interviewer: Interesting, Cool. Have you ever tried working with a tool that uses AI for digital marketing? Like when you were in the ad agency or similar.

Interviewee: Yeah - So, I think within a company's itself, it actually not that common yet today to use this type of technologies. So, to be honest, not consciously, but it might very well be that using these different ad platforms. So, for example, Google's DoubleClick. I think it now has like a different name Google Ads or something like that, I'm pretty sure that there might be some intelligent algorithms that sort of are running in the background. But again, as somebody that, as sort of consumer of the ad services, is using that service you are not aware of what they're actually doing, what is going on. So, it is similar to this black box I described few minutes ago.

Interviewer: Cool. So, moving on to the different parts of a brand, how do you think that the AI is able to increase the awareness of a brand through digital marketing communication? Is it able to communicate a brand, do you think?

Interviewee: Yeah, that I find also quite interesting. I mean I think what makes this technology quite strong is sort of that it is actually learning based on some data that has been generated in the past or an implemented technology. And then it sorts of starting to actually learn from how consumers, for example, react to advertisement. It is becoming better at for example, finding a way in terms of how you should communicate, the value of your brand to consumers. Now the type of companies that have this type of data usually is sort of older companies and often these companies that have been around for a longer time, they have also a more established brand already. And we know from some research actually that established brands that when they do brand advertising the effect, is usually relatively low because consumers are already aware of these brands, meaning like let's just look at a practical example. If you would look for eBay, typed it into Google, then basically, or yeah, you look for that brand, you search for the brand. And then eBay said Ok, we also do some search advertising, you pay for that. Basically, if they switch off the search advertising, they would have pretty much the exact same number of people coming to their websites as with the search advertising because the people just know that branded know exactly that they want to go to this platform and they find their way to just by the organic results even if there is some competitors being listed there, because it's just clear that they want to go to this very established brand.

On a contrary, for new brands, it is quite valuable to advertise their brand and to make people aware that this brand is existing, its new, people have not heard about it. So, there I can actually see to the value is significantly higher. But I also think that it's probably more difficult for these new companies to actually train these algorithms because there is not much historical data and maybe it even harder for them to sort of have the capabilities to work with this type of technology. Because again, it's costly to actually hire people that know how to do it. And just the investment is quite significant. So, I think it might be difficult for these types of companies. So, I can see a value in it. But I think one just needs to be a bit careful about it. And again, I would never just let such a technology in an uncontrolled manner optimize the communication for you. I think it should always be a human that sort of checks. Okay - What is the algorithm actually suggesting? And do I want to make use of this and actually implement it?

Interviewer: Interesting. So, to try to figure out what kind of attributes that it's able to communicate these technologies, do you think that - or how do you think an AI when used for digital marketing is able to communicate brand attributes like the pricing level, the design, the style or special benefits of a product?

Interviewee: Yeah, generally, everything you can quantify will probably work quite well. So, I think prizes definitely all kinds of fixed attributes, for example, sizes, colors, these types of things, I think work very well.

But when it comes to sort of more intangible aspects of a brand, I think, I'm not so sure how good we are at sort of translating that into a codified version that can be used by these algorithms.

Interviewer: And that's the next question. How you think that it can be used to communicate brand attributes like emotional attachment, values, personality of a brand, or the heritage. If you think it's able to.

Interviewee: Yeah, I mean, I think it's not impossible. I definitely see that it's quite challenging to that and I also have to admit, I could not tell you how far companies are that work in this area with sort of achieving these aspects. Yeah, I think also you need to think about to what extent what sort of a brand want to be, always one hundred percent consistent in sort of how they communicate their value, I think there probably an algorithm can sort of deliver if it sort of learns from past campaigns in terms of how you phrase your statements etc. And sort of, there is some sentiment analysis tools that can tell you what you sort of the - which type of emotion you use in your communication and so on. I think it is possible. But I also see that brands try to be innovative in their communication and change that actually. So, I'm not sure if it's the best strategy to just consistently stick to always using the same type of communication. And I think that is certainly something that will probably be difficult for an algorithm. Although what actually the algorithm could be good at is sort of, if you have access to this type of data, looking at how do, for example, your competitors, communicates their brands or some other benchmark brands where you think they're doing actually very good communication. So, if you have a lot of data that is maybe also unstructured, some of these computer science techniques could actually help you to generate some insights in terms of which type of communication seems to be successful. And you can learn from that, and then, maybe this technology could suggest to you how you communicate your brand using a combination of the information about your brand and how other successful brands do that. But again, I think it should definitely be checked up on by a human being to see if that is sort of a good idea.

So, I think it still like - like it used to be for years and years, it still comes down to thinking about what are actually the tasks that humans are better at doing and what are the tasks that computers are better at doing. Computers are better at doing repetitive tasks. And a task where you need to go through large amounts of data that takes a human being too much time. But when it comes to creativity and taking all kinds of context into consideration, that is difficult to codify humans has still advantages over computers, because computers will only be able to use this information that you actually can put into a form so that they can actually basically calculate this data.

Interviewer: Interesting. So that's sort of goes in on the next questions because do you think that an AI system would be able to incorporate customer feelings of a brand, the feelings that consumers may have, or if it's able to evoke feelings?

Interviewee: Yeah. So, incorporate feelings in terms of how consumers feel about the brand, do you mean that or?

Interviewer: Yeah.

Interviewee: Yeah, I mean I think also there's definitely technology out there that can actually help brands to understand that better. Because again, as a human being, you can just read through your social media page. And there is sort of a limit in terms of how much data you can process. And of course, a computer can collect this data much faster and process it in a structured way and give you sort of the key attributes that consumers use when they communicate about your brand or how their sentiment looks like. So, there's

definitely some information that you can get out of that, the more complete picture, more complete than a human being sort of could collect it and then the other question was with communicating again, these things. Again, I think definitely make suggestions, but I would have a human being check these suggestions. I think it's just sort of maybe we are still at the stage where you should not blindly trust technology and yeah, I mean we might be surprised by how good technology is getting but I would be a little bit careful at the moment.

Interviewer: So, do you think that it - do you think it actually able to understand if a consumer has a feeling or do you think it just - it analyzes based on your actions? Would it be able to identify a feeling you have by not being based on the actions you do? You're doing like this; therefore, you should act according to this towards you. Yeah, I messed that up.

Interviewee: Yeah, I couldn't fully follow that one.

Interviewer: Sorry.

Interviewee: So, please can you sort of come again, we cut it out. So, does the question go into that direction where…

Interviewer: Do you think it's actually able to understand a feeling of a consumer? or If it's just handling based on a consumer's action online? So, is it just analyzing data saying okay the consumer does this and this, so it's similar to the last thousand customers over here, therefore, I should act like this? Or does it understand this is a feeling, therefore I should handle it as a feeling.

Interviewee: Yeah, so, generally. Generally, I think the question is maybe partially related to the data quantity or maybe to the question. But to what extent are actually signals that you can track and pick up, to what extent are they actually related to the actual maybe state of mind and feeling of a consumer? So, yeah, that is sort of an approximation of that. And I don't know if you think about sort of how people behave on websites. If people behave in a similar way, does that mean that they sort of have the same feeling? That is probably difficult to tell. There's like plenty of reasons why you leave a website, might be that your kid is crying in the background. It might be that you think the content on there is just very bad. It might be that you realize the products on the website are too expensive for you. So, it's very different motivations actually. Of course, there's like some indications and your usage behavior that can help you to infer, what is the motivation? But it's not always a hundred percent clear, obviously. And it's also difficult to train the algorithm on this type of behaviors, because you really cannot observe that. So even if you would look into an individual case, you would not know what was not a motivation. So, it's difficult to actually get some data base on which you can train your AI algorithm actually. I'm not sure if that answered this question.

Interviewer: No, it was fine, that's good. So that was feelings. And you shortly went over to this direction. But what about opinions? Do you think that it's able to, to get a sense of the consumers thoughts about the brand meaning, the credibility or the perceived quality of a certain brand? Would it be able to understand that or communicate that?

Interviewee: Yeah, I mean, we have actually quite structured data in terms of how people feel about brands, right. And we are always asked to evaluate your experiences, to rate it. And there again, I think it comes also down to the quality of the data input that you're giving. I mean, let me give you sort of an example, of actually, probably the largest you can say hospitality firm in the world, Booking.com. It is a Dutch company, and they basically allow you to book your hotels via this website. And they were interested in being able to accurately

sort of assess the quality of the hotels that they list on their website so that they can basically suggest better hotels to consumers that will make them more happy. Now, they had the issue for some time, some years ago, they basically asked humans for qualitative feedbacks on how they experience their stay at a hotel.

So, they had just one of these input windows. And the people did comment in on how they felt about their stay at a hotel. Now the problem was then that, of course, in this field, you would have positive and negative feelings. And yeah, what is often happening then is that companies think about, okay, we need some sophisticated algorithm to figure out what are the positive aspects, what are the negative aspects. We do some natural language processing, all these kinds of things. But essentially what the company did and what is just very smart is they just started to ask different questions and split the field into two. So, they asked what were the positive aspects and what were the negative aspects? By that they just increased the quality of the data that they get to process significantly. Because now the people that are giving the feedback are clearly distinguishing between this is what was nice and this is what was not nice. So basically, you just outsource that to the person who's giving the input. And you have much better data quality that you can actually use for the algorithm. Yeah. So, I mean, essentially, maybe the essence of that is that your algorithm will, or your AI will never be able to sort of fix if you have very crappy data. So, I think you need to sort of optimize the input level already to get something that can actually be processed and generate some good insights for you.

Interviewer: Interesting. I want to get back to a point you mentioned earlier. Where you said that, the AI would be able to maybe increase personalization or you said that you weren't sure if brands should communicate equally to everyone. Also, you said that the use of AI in digital marketing might be able to see what competitors did and to be able to replicate it in some way. The combination of those two, how do you see that affecting the ability of differentiation? How will you differentiate from your competitors?

Interviewee: Yeah, that is a very good question. I mean, if you sort of, if everybody is using this technology then you would sort of converge to one style and maybe that would be sort of the style that is optimal. But maybe it would also then be good to be actually different in your communication, so that people can actually remember your brand. If everybody is sorts of using the same slogan, then it will be difficult to distinguish with whom you are dealing now. So, then the optimal strategy might just be to actually differentiate. So again, I think you just need to really balance that. Now, of course, you could also have a technology where you can say or where you can put in, I want to be similar to this degree and this similar to that degree and please suggest again to me how that should look like. So, yeah, this again, the right balance between copying what other companies do and finding your own sort of way I think.

Interviewer: Do you think the current technologies is able to the extent that it would require to kind of merge these two dimensions of do a little bit of this, do a little bit of that on a text level? Would it be able to say, ok, we'll try to include this value and not include this, because it fits with the other thing? Do you think the technology is able to do that in text?

Interviewee: I think technologically, that would be possible. Yeah, but it always depends on how that technology was designed, right. So, yeah, again, you need to just have the right idea in mind. Then maybe we come already back to the fact that often the people that use these technologies don't know how the technology works. And don't know what was the idea of person that designed the technology. And if you then blindly trust the output, then you might get into some trouble, because it might give you something that you didn't intend it would give you. So then maybe the technology does not look into being similar, but

at the same time, to some degree, also different. But it's just similar and the person using it doesn't know that. And if you blindly trust it, then you just have that slogan that is too similar to your competitor. And yeah, it will actually backfire, it will not to be positive for you to do that.

Interviewer: Okay. So, it gives - it follows with some requirements to the one who sits with it.

Interviewee: Yeah, yeah, I think it's just always tricky to use something that you don't fully understand. And that is, I think, one of the biggest issues that we're facing at the moment. That there is not enough people that truly understand what kind of insights and in which way these insights are actually being generated for you and why you might want to be careful about this sort of thing.

Interviewer: Cool. So, going back to the branding attributes, how may AI contribute to the relationship between a brand and a consumer, do you think?

Interviewee: Yeah, so this is personalization aspect, I think is definitely one that can be very helpful. I mean, we're talking for a long time already about websites being actually personalized to the individual consumer. And it's also happening to some extent, where you get some recommendations based on your previous browsing behavior. Maybe AI technology can make these recommendations even smarter and even more spot on. And so, in a way that they learn even more from how you then react to them, and so, in that regards, I think it definitely helps. Again, when it comes to, if you are a retailer and you have thousands of consumers coming to your side, then you cannot individually sort of generate these recommendations if you have a technology that does it in an automated way, and gives you some aggregate statistics on how well that is doing for you to also check. If it's actually working then it can be very beneficial.

Interviewer: That is the next question. If you have thousands of customers reaching your website and it's been individualized to the individual consumer, how do you then make, how do I ensure than what you deliver for the individual consumer is at the quality that you want to represent?

Interviewee: Yeah, I would assess it with the experiment, basically, where you would run diversion with this algorithm, or with this AI compared to the previous version that you have. And then you need to have some independent variable that works for both cases. So, I don’t know how many people buy essentially, for example, because that is probably your final goal. And then you can see if this technology has a positive impact on the number of people that purchase on your website. When you have the technology compared to when you do not have it.

Interviewer: Interesting. How do you think that could contribute to creating brand loyalty?

Interviewee: Yeah, just via a better customer experience I would say. So, for example, assume that the technology has learned in the past that people that buy a certain product are always buying another product sometime later. So, you buy a game console and then people tend to buy certain games afterwards, if they have certain characteristics, so you can recommend these games and then there might be consumers who are happy about that. And they then buy these games from you or you noticed that people that buy a certain product, they need some support because they need some manual or something for that, So, you can use such technology to - that has learned from the past that people go to the website and look for the manual to actually pro-actively sell this manual to this person that bought the product. So, basically just learn from these patterns and try to support the people and make their experience very flawless. Yeah.

Interviewer: How do you think it might be able to help creating a connection or community between consumers? Would it be able to do that?

Interviewee: That's a good one. Yeah, so, I think that is really a tricky one because then you would sort of want the technology to be social in some kind of way maybe. I can, to be honest at the moment not think about an example for that. I don't want to say that it's impossible, but if I think about the social aspect then I would want to interact human to human. What we see nowadays a little bit is for example, is the implementation of chat bots which interestingly, on the one hand, help companies to reduce the number of people that work in their support center, service centers, so it saves them money. And oftentimes they are even more efficient in answering the questions, because they can just recognize fast what is it the consumer is actually looking for through the database, and then directly suggests 'you will find your answer here', or 'you need to call this number' or something in that direction. And oftentimes these Chatbots, also - the companies that have tried to present them in a human like fashion, so they have names, so, it is still made explicit to people that that we're talking about the computer that is talking to you, but still you give them name like Siri on your phone or something like that. And that actually interestingly affects people in terms of how they interact with them. And even if that interaction might be sort of social, I don't see that it would lead to a sort of to a social interaction to another consumer that is actually human. So, yeah, I would be interested in hearing how that would play out actually, because I cannot really imagine it at the moment.

Interviewer: Yeah, that's fine. Do you think or how do you think that, a sort of AI system would be able to make consumers actively engage in a brand?

Interviewee: So, engaged in terms of, for example, share their experience on social media or something like that or brand ambassadors?

Interviewer: Exactly.

Interviewee: Yeah, maybe also in a way that they identify people that are more likely to actually respond positively to taking up such a role and then approach them with some messages. I think there it could be helpful. Yeah, and then you sort of don't annoy the people that are not interested in such a role by actually bothering them with these types' of messages. So maybe that could be helpful. And then, yeah, it's more good at predicting who are the people that are, these types of ambassadors. And then if you select the right people, it is not so much anymore about actually motivating them or so, because they are motivated. You know, you just figure out who are the people that we should approach. But when it comes to sort of increasing that motivation, I don't know but maybe also with some sort of incentive system or so. I don't know. If you figure out what kind of incentive people are interested in based on some data, and then if you engage, we will give five percent discount or you will get that product for free or something like that. I think there's also potential to optimize something like that.

Interviewer: So, if you were to give any advice in relation to branding, to advertisers who considers using an AI in digital marketing, what might that be?

Interviewee: Try to be independent from the big players or you can, of course, use this type of tools but try to not become too dependent on them. Definitely try to measure how successful you are in terms of the implementation of the technology. Try to understand as much as possible about it inhouse and with people that actually work for your company, be careful with the suggestions that you get from the technology. At

least in the beginning, don't let the technology make decisions in an automated fashion but always have a human being checking these decisions or recommendations before they are actually being implemented. And then don't go from zero to hundred in terms of the investment that you make with these types technologies because you're afraid that you will be left behind. And then just sort of step by step try to develop some skills into that direction.

Interviewer: You said now something like make sure you have success with it on the go. How would you - in what terms would you measure success in this?

Interviewee: I think it always depends on the respective objective. We talk about brand building, it could be that you met the awareness of consumers about your brand, we actually see that YouTube and Facebook doing that now in a certain way. I'm not sure if you ever experienced that YouTube is actually asking you in some surveys which type of advertisements that you have seen to actually see if just ran there, the ad, and you did not pay attention. Or if people actually noticed it to sort of measure awareness effect. Facebook is also doing similar types of surveys. Were, basically it's also sort of an experiment where some people see the ads, some people not. And then they assess if people that were treated with the ads, if they are more aware of the brand than people that were not treated. So, that would be sort of something how you can assess brand awareness if your objective is to sell something based on the purchases. Generally. I always suggest to, if you want to identify really the causal impact of the technology then experimentation is the only way to do it. And yeah, that is sort of the next problem that a lot of companies actually don't have the skills to properly implement and experiment. Or sometimes the technology just does not allow you to do it and so, that is a whole other big topic.

Interviewer: Interesting. So, some of the areas we've been talking about today, how do you see that future AI technologies might influence these. Do you think there might be some areas where it's lacking today, that you're sure that we will find a solution in a future technology.

Interviewee: Yeah, I mean the technology will improve and that also quite rapidly, which will just mean that people - more and more people that don't really know how that works. And a few very specialized and powerful companies that can exploit their capabilities in these areas. I think the incentives are definitely there to become better and better at this type of technology. Also given sort of the increase in computational power, that actually allows for some machine learning techniques that actually have been sort of known for longer time, but they were not possible because we were just were lacking the computational power. If we go to some sort of futuristic things, like quantum computing and so on then a lot more will be possible. And also, in a lot faster time. I mean sometimes the problem is that not necessary that it not possible to generate a certain insight, for example, but it just takes too much time. And if we can scale that up and we can have a technology that gives you maybe suddenly real time decisions. And beforehand it took you two weeks to calculate something which is then sort of not helping you anymore in making a decision, but if it suddenly becomes very fast, then of course it's beneficial. So, I think we will see tremendous development in that area.

Interviewer: Interesting. Is there anything that you might not have thought of, but that occur to you are doing our talk?

Interviewee: Generally, I think this is an interesting and challenging topic. And yeah. I mean, I just sort of see that we have a lot with these technology things another example would be blockchain. It just often happens that people are so afraid or managers are afraid that sort of their companies are left behind if they don't

jump on the bandwagon. But nobody really sort of knows a real use case for the technology or something like that. And then these big companies or the companies that are using the technology they heavily advertise with these buzzwords and it's still oftentimes not really clear what is actually the value that is generated with it. So, it's sort of, it is actually a branding in itself to communicate that you're using these types of technologies to make your company more attractive.

Interviewer: Is there anything else you think we should know?

Interviewee: Not, that I can think of now.

Interviewer: Is there anything you'd like to ask?

Interviewee: No, I mean, I just hope that I was able to share some interesting insights.

Interviewer: Definitely. Is it okay we get back to you if we have any follow up questions?

Interviewee: Yeah, sure. I mean I need to always balance sort of how much time I have. I might not be responding extremely fast, but generally, it's fine.

Interviewer: Thank you very much. That was actually all.

Interviewee: Of course, cool.

Appendix 6: Transcription of interview 3 - Hao Wu and Ola Rønning

The interview with Mr. Wu and Mr. Rønning was held in Copenhagen on the 22th of march 2019.

Interviewer: Tell us a little bit about yourself, what you do.

Interviewee: Yes, I'm—sure, so my name is Hao and I am the AI Product Manager here. So a part of my nice job, this is Ola by the way he's also going to come and join in. So, he's going to just help. He going to just help me answer all the question.

Interviewee 1: Long story short, their brand and communication master students and they interested in a role in marketing and communication and the possibilities, and what people are doing but now we're going to get a whole lot of questions.

Interviewer: Sure, I'm trying to figure out what_ where can we benefit in digital marketing from AI and where might the limits be of the current technology. So, that's basically what we're trying to figure out.

Interviewee 1: All right, so that's quick intro so as you know, so I'm the AI product manager. What a product manager does is that he keeps a tab on the market and what the customer needs are. And then he helps define things which could be product things that could be utilized, which means that I tried to see where to product market fit with using AI technology in the market and our market is obviously helping people with the digital marketing needs. I come from a background actually doing sociology but I'm a self-taught programmer who worked in the big base for a number of years now. And when you work with lots and lots of data than you naturally get curious about AI.

Interviewee 1: Will you introduce yourself.

Interviewee 2: Yes, my name is Ola, Im the AI lead which means I try to guide our development process, try to find out which sort of technologies we need to touch and how to use them in order to live out Hao´s dreams.

Interviewee 1: And then we drink a lot of wine here, it's great.

Interviewer: It very good.

Interviewee 1: Right, because; it's so nice, like so services are headed, I got millions like Zinfandel been researching Zinfandels and it's all a drink at home now.

Interviewer: Wonderful. Cool, So, what is your relation to branding? do you have any thoughts about that?

Interviewee 1: I used to work at Bang & Olufsen which is a very brand-heavy company and I used to work in the marketing and branding department. So, I got to work with some of the best brand professionals in Denmark and work with many of the best agencies including spring summer (Maybe not?) and us to I have forgot the last one something but something with E but they always had a branding angle right. So, (Inaudiable 2.58) what would say about a brand and one of the things I was doing was that I was building data infrastructure to keep eye on our brand. So, one of those ways was alright. We did a branding story for example, on like we released a new speaker and this no sorry, so it was a TV, so we released a new TV and this TV had a branding story right and it is all meticulous creative with a whole bunch of creative professionals but one of the things we didn't know was how well received is this branding story right?

So, what I did was I created a model which could understand this branding story and then every time the speaker was mentioned anywhere on the internet, I would run this model on where does speaker was mentioned and then I had a similarity score right. how well when people are talking about the speaker on a forum on a review, then I would figure out all right, this how similar how high is this number. high number implies that this branding story is very good. Low number means actually this branding story is not being used at all right like all the things we associate with this product at the time was a TV on wheels, right?

So, you know, it's flexible and it can be used anywhere, right? like there was a story I wanted to do. And if the number was low and people like not using any of these words, you know, flexible, like flexible living, I have forgot the exact branding title but something like that, then you would have a low score. And we could see the division where in these areas of the internet people are talking about it a lot in these areas of the internet people the branding stories is less strong.

Interviewer: Interesting of course, and then you have your own tool, can you just briefly tell us a little bit about how _ what does it service or how it functions? and if you think that it's going to close to your product, just let us know and we'll cut it out. Its only for our own analysis.

Interviewee 2: Can you come with the question?

Interviewer: Yes, of course, you have your own tool here at Cobiro of course, can you briefly just tell us what is the? What does it do? Or what it could say, we know of course.

Interviewee 2: Yes, what Hao already mentioned which is talking about similarities is the easiest way to address this sort of problem. So, what we're interested in is finding keywords, for example, that are relevant to a particular customer base and our source for this is the webpage, so finding this or generating correct keywords is it can be modeled as a similarity problem where you're trying to find things which are topical. So, if this is a topical thing for This group for your web pages, then is likely to be something that you want to show to a potential customer for our client and this is where we can start to do modelling.

Interviewee 1: Like on a more general level, have you guys tried setting up an ad on Google ad.

Interviewer: Yes, I work as a digital specialist and I sit in agency. So, I have been working with Google ads.

Interviewee 1: Right!

Interviewer: I have also been testing your product.

Interviewee 1: So, we're not really targeting kind of like, you know, digital marketing specialist, well to some extent, but I can go into that later. The reason that the EU in particular, you might have read the news but are very interested in us is because; it's no secret that the EU is not a big fans of Google. Right? and it's because it's not an even playing field, right? like you obviously need some sort of marketing expertise to start setting all this up, and for mom and pop shops, they, you know, like my uncle is a great example. Right? So, my uncle is an acupuncturist, he has no interest in computers, he's never going to have a chance to like to set any of this up. Right? there's a whole lot of things you have to know when Google ask you all right, what target segment do you want to advertise for, right? and what keywords are you going to use? And for normal people who have no interest in digital marketing, right or tech, this is very daunting.

So, what our tool does is that you give us your website, which is something you have a relation to. And then we try to figure out, how much can we deduce from your website? And then we fill this in for you to Google or we help you, we somehow help you right? to say, we think you should put this into Google. But obviously we don't say put this into Google. We said hey, is this correct? and then we send it to Google and we create

these campaigns on our customers behalf. So, there's this whole like model for the company at what the product does, what we found is that a whole lot of things that marketing professionals actually would like to do or tools already doing. So, we have a lot of marketing specialist or digital marketing specialist who use our tool to do one click and then all the skeleton is kind of set up, and then they can sit and tweak, you know, all the things to kind of give it that extra edge, right.

Interviewer: Cool! So, moving down to the different branding attributes, how do you think that AI is able to increase the awareness of a brand through digital marketing communication would it be able to increase it?

Interviewee 1: Like theoretically or what our tool is doing?

Interviewer: Theoretically!

Interviewee 1: Do you want to take this one, like what's the theoretical limit on this?

Interviewee 2: So I mean, you will _ I don't think with the sort of data that we have you will ever been able to get to personal level like you cause we are working with statistics you will be able to address communities or countries or those sort of structures but you will never be able to do one person branding like I will not be able to based on your brand to say this is specific for you with the tools that we are interacting with right now which is Google. There are other platforms where this is definitely a potential because the basis for it is very different like Facebook have a deeper knowledge graph and they have information about the people you're touching. So, its way more person centered. But with the field we are in right now. We are really looking at trying to work to optimize towards a community or towards a population rather than individuals.

Interviewer: But do you think that, might sound stupid, but do you think that AI is able to communicate as a brand towards a customer in a sense that the customer can recall the brand Okay say, I have seen this before, and will it be able to increase this ability to recall the brand by the use of AI.

Interviewee 2: Yes, just by the sheer being able to display it more like just putting it in front of people more often. If nothing else, if you're asking about like, can we take out the creative aspect of marketers out of it I think we're a little bit away from that.

Interviewer: We will move further into that I'm sure. So, in terms of what kind of attributes, brand attributes it can communicate. How do you think that an AI or algorithms would be able to communicate things like a pricing level, design, style, or special benefits of a brand or product?

Interviewee 2: Well, one of the benefits is that you can just share a lot of information, which means it can actually take into account all of your competitors, a human would never be able to keep that sort of information in any sort of reasonable. They will have heuristics about it, and people are very good at it, but they'll never be as exact about the information coming in as a potential algorithm would be able to. So, in that aspect, I think we're actually looking at something that would be way stronger.

Interviewee 1: I can take a very real example which is like one of the things that our tool is doing that no agency would ever do for you, right, which is that if you're a commerce platform, and you have I don't know, let's say you have ten thousand, products on your website, right, if you run it through our tool we will create an individual search advertisement for each one of those products. Now, this is something that a marketer is not going to do this right like. like even the customer might not even want a search ad for each one of those Products right. But we can do that we can filter out the ones that we think these actually make the most sense to advertise for. Right? and we do that on a number of parameters such as, these words that we can, the keywords that we can find that are unique to this particular product. Right, these actually have high

search volume. So, it makes sense to advertise for these, we can also say actually, your margin on this product is so low, the competition with these keywords are so high, we actually don't recommend you advertise this product, right.

And once we are in that field, right like again, since a marketer is not going to create an search advertisement for each one of these products. Marketers is definitely not going to write a description, add text, like an description for the ad for each one of these products, right? and even doing something very simple, right like creating an AI which can automatically do the you know full attention of a marketer, like, let me write the creative, cool cash like this, is probably not going to happen. But we could write, hey, it's, you know, hey, is there free shipping and you know, save this and fill in some text, could also say, this is the attribute which most defines a product, right? In some cases, it could be the color in some cases, it could be what material its made of. Right. And could we create some text based on that? yes absolutely. But no, a full-time advertising professional who spends his time trying to think of a clever catchphrase, you know, Mad Men style for a particular product an AI, like we're probably like, you know, hundreds of years away from being able to mimic any of that. Right. But it's also important that the marginal business value you get from actually doing that is so small, so that what software really helps with is much more volume part. And then let's do some hacky stuff to mimic human intelligence.

Interviewer: Interesting! So, now we talked about that it could communicate color, it could communicate them like a specific attribute of a specific product. But to how do you think or to what extend do you think that it would be able to communicate values of a brand or heritage or maybe a personality like if you have Bang & Olufsen, you know, as an example, they have a heritage, would it be able to communicate that through algorithms in some way?

Interviewee 1: Ola will agree with me on this one, I think, but it depends what you put in, right? like a mathematical, like AI is just a mathematical model. Right? and in many ways, its a very dumb mathematical model. Right? the way I mean like the models that the most people are using like today, like with neural network that was invented back in the 1950-60s. Right, but the reason its good is because you jam pack it full of data. Right? and if you have the correct data set, you know, like, for example, all right, let's take Bang & Olufsen for an example, if I have a whole bunch of text that describes the heritage, right and using the correctly structured data set, could I feed that into a model? and then I could write, I could give it a seed, right? you know, I could say, all right, communicate this in this context. Could an AI to do this? Yes. But that's not _ to be honest not an achievement of AI its an achievement of data engineering.

And this part of data engineering is much more creative than a lot of people give it credit for Right? A lot of people think data engineering is a type of monkey doing this, no it's incredibly creative right. A really great example, is we just, you know, like we did a project where we're trying to see, like based on a keyword, you know, like, based on a keyword phrase, can we predict X number of things about it? Right? And a lot of people don't understand AI , they think its just put into a black box and then it's like, it'll shoot out an answer for you. That's, absolutely not correct, right? like, it's because when a human looks at a keyword, they derive some information from it, right.

So, like, if I say, you know, like digital marketing agency, as a keyword, alright, a human reads that and there's things associated with each one of those words and they and based on that extra piece of knowledge you have, you can derive some piece of information. In isolation if you show digital marketing agency to a tribesman some you know, in Fiji, he would not be able to get anything from it, right. And much like that, if you show it to machine is also not going to get anything from it. So, you have to cleverly engineer based on this keyword, what can I derive from it, and write that in? Right. So, the creative mental process is not only

like it's much more, I say it's much more, than many marketing professionals because marketing professionals just like hunch go with it, right. But an engineer has to _ data engineers has to be able to externalize it, not only get the hunch, be able to express the hunch in such a clear way that they can make a machine understand it. They can put it down in a spreadsheet, that does an immense sense of clarity, that people actually don't give AI engineers credit for doing, right. So, it's possible yes, but if you have a very good data engineer.

Interviewer: I think that's going to go over to the next thing too because then the question is, would it be able to communicate or incorporate feelings or understand feelings even would that also be up to the engineer to be able to say when a user is acting like this, these things are associated with it, so to say, so if you angry you type like this, so to say.

Interviewee 1: Yes, that's very common.

Interviewee 2: Yes, There is this giant field which is sensitive (Inaudible, around 18.10) capturing emotional states of humans. One way to do it is to pretty directly from the brain activities. But you can also kind of definitely detect this in both the way, not just how you interact with the machine but also in what wording you would use. When your timing comes, capitalization, you can also see this in numbers. If you are frustrated or something you would search for it will go up. So, there's many indicators of these, which taken together you can get quite granular picture of what mental state a person is in.

Interviewer: Okay, and then adjust the system accordingly.

Interviewee 2: Yes, and that's the thing we need to realize is that when you have an input source for something with some sort of condensed information in it, that's what our algorithms can extract they can only extract information that's already available and what they're very good at is condensing. So, it allows us to take massive data sets and condense them down to something actionable. And you as an engineer need to decide what something actionable is. And then decide these are the sources that I need to take this action. And then this will be your hypothesis about a certain aspect. And you will then try it out, get it validated, or usually not validated, and you will retry with either new data sources or new other action which is akin but not the same.

Interviewee 1: Yes, it's important to know that the AI part, right, it's not taking the action, the AI part is recognizing it because that's hard, right? being able to take the action on it is easy, right? I mean, that's a problematic issue. When you see this, please do this action. Right? but, getting it, you know, but like getting, a machine to understand a piece of text and say, this person is angry and he doesn't like me. That's a very hard problem, right but thats a soft problem and many companies employed this. Sorry, I can't mention the exact company because I'm under an NDA. But we don't do this. But a company I used to work for what we did was that we did, this field is called sentiment analysis if you would like to look it up, and we did sentiment analysis for a large beverage company, all over the internet. And we would send them data sets like, here's a map in these areas of the internet and in these geographies, this is the various sentiments, you know, like that are around. So, if you're going to do any branding, please do it in these areas where you're not doing so well. Here's where your branding potential is very positive and you know and then there's some branding opportunities there right, whatever actually going to take that's not an AI? that's more of a person, like what are you going to do with the piece of information I got.

Interviewer: Okay, cool. But would then be able to incorporate opinions like the credibility or the perceived quality of product or company.

Interviewee 2: Opinion mining is also quite big field that I don't like saying being solved but like it's been around for a while and it's being _ I think what Hao was pointing out which is really valid point is when companies start doing it and a lot of companies start doing it. It's no longer like it's a fairly stable way of doing a thing. Like it's gone beyond research. Like they are fairly confident in that they can apply these techniques and this is another example just like sentiment analysis.

Interviewee 1: Yes, but in general so when we are talking credibility, are you talking about the credibility of the AI result? Or talking about credibility of the person writing it?

Interviewer: Of the brand behind. So, if you're able to, is a system able to detect how a customer has opinions of a brand.

Interviewee 1: I don't understand the question to be honest.

Interviewer: I will try to rephrase it. The customers perceptions of the company is this something this assistant would be able to get out and use some way.

Interviewer 2: I was just saying for example, if you were like to rate a brand from one to ten of the quality for example.

Interviewee 1: So, absolutely right. But the thing is, you need the right data source, right like the reason we can do sentiment analysis is because there are predefined groups of sentiments right. We can look at a piece of text. And so, what enables the sentiment analysis, right. It's a massive, data set in the background that already exists. Someone's tacks (23.25) this right piece of text, angry piece of text sad piece of text happy, right. Now, imagine a dataset like that on tens of millions of accounts, and you run it through a model and the machine start seeing patterns. If you had a data set, right, if you had a data set that was like, all right, people text confident in a brand, Yes, it's, theoretically possible, right. In much the same way that anything is possible. But anything is possible if you can engineer the correct data set. Right? The problem we have an AI is actually no longer the modeling part. The reason is that the models we have are so flexible and you can tweak enough things with them, right.

And to be really fair, this is only because we can just throw computing power at it right there. Theoretically, there are much better models. Right, but we don't need to develop these much better models anymore, because we just throw computing power at it with the problem, we're facing right now is that there's not clean data around. Right? So, yes, if you could engineer that, you know, you could engineer that that data set, it could absolutely do it. What, obviously, the exact data set for whatever problem you're solving never exists right. So, what a lot of AI engineers do and what we do in our team is, we were trying to be creative about alright, whats the data set that we have, can we do something to tweak it into (inaudiable, 24.46) So, we're trying to use domain expertise to say, this assumes, you know, this, because of this, because of this, we're trying to predict this thing, but we don't have the data set for this. But this would be an indicator for this. We don't even have this but we have another data set. And if we use another model, we can kind of tweak it into this data set. Right? and then we're like, all right, we are eighty percent there. So, in terms of confidence you know, in a brand, you know, like, what I would do is probably I mean, how will you solve confidence in brand?

Interviewee 2: Finding out If the person's is confident.

Interviewee 1: Yes. So, a person is writing something about a brand and you know, and you have to predict, does this person on a scale of one to ten do they trust this brand.

Interviewee 2: Well, I mean sentiment analysis, seems, if its possible to sentiment in the same sentence that is mentioning a brand youll probably have a pretty good indicator.

Interviewee 1: Maybe do a time series, right. So, you do a person and the sentiment doesn't change, right. Again, if the sentiment changes a lot, you know, that indicates you don't trust it. If the sentiment for a particular person stays the same that probably indicates that the person trusted the brand, right. So, what I'm describing right now this is a lot of AI process right, because you're asking the question saying trust, but trust isn't very well defined. Right, and this is why we're just now starting to see product managers in AI, because a lot of business questions that executive have [26:07 inaudible]. AI guys, you know, can you figure out if people trust our brand, what does that mean like what the fuck does that even mean? Right, and be able to translate trust into a mathematical model that you know, like this is numerical, right. That's a very creative process. So, it absolutely depends on trust, What do you mean by trust.

Interviewer: Well, that's quite interesting. So even though if you actually can figure it out you, it will always be based on the definition of trust you started with. So,

Interviewee 2: Going out there, you've actually indirectly solved your problem.

Interviewer: True.

Interviewee 1: So, actually, what a lot of people don't see happening is that there's a lot more stakeholder management going on, where you're like, all right, so because it's not abnormal to get a problem like this, you know, like, Hey, can you do develop an AI model to see if our customers trust our brand? All right, then the first thing we do is like, okay, how can a model trust, right. What's trust model of, what things, you know, and then you start to talk to domain experts, you might read some psychology papers on trust, right. And you start to see, all right. These are indicators of trust, trust depends on these things. Right, and then you think about this, and then you're like, all right, what data do I have, which can reflect any of these indicators, or any of these preconditions or any of these dependencies. You see how much you have and then you know, and then you go back to the different stakeholders, it might be business analysts, and it might be executive, it might be psychologist, outside the company to get some expert knowledge in your like, I have this data. If I model this data this way, do you think this would indicate trust in some way. Right, you know and then you ping pong back and forth like actually, this thing is less important than the other thing and this is important, right. Because then you're like, you have to weigh this piece of data less than the other ones, but it's still important. And some of the data depends on each other right.

So, this is only true if these other two things are true. And then you have to create your model this way, once you then create your model, then you're like, okay, I have the model, and I have enough of the data and then you run it through the data right. But you also have to make sure that every one of your stakeholders who, when they asked you for trust, did they mean this scientific version of trust that I just mention right and this is what goes wrong in a lot of AI projects, because there's not enough talk. There is not enough dialogue, right. And a lot of people are not willing to do this legwork to kind of figure all these small assumptions out, right, so and derail is a lot closer to no one's doing it. Even you know, like, even the best people are doing this thing or not doing this, right?

So, Google and Facebook are not doing any of these things, because it's an incredibly hard domain, right. Mostly attributed to the fact that most of the interesting questions to ask such as you know, trust, are not even well defined in the existing psychology literature. So, that limits us to all right, let's use AI to answer questions we will have large amounts of data for, and that's unfortunately, is not always the hedonic things that you're interested in finding.

Interviewer: Yes, Interesting. How do you guys think that AI might be able to contribute to the relationship between the brand than the customer?

Interviewee 1: Yes, that a big question. I mean, I do this for a living. So, I have tons. But do you have anything I mean, or do you want a definition of relationship.

Interviewee 2: That would make this way easier. So, I think if you're looking at like cases where you're working with a knowledge graph, and you have indicators of who you are surrounded with.

Interviewee 1: Like you want to describe knowledge graph by the way?

Interviewee 2: Taking an entity about like something in the wall like a profile on Facebook could be a note on the knowledge graph and you want to find out who are your friends and do that for everybody, and then you have a knowledge graph. And now for each person you can attach information sources, like who wrote this at this time and produce a model of this. But if you're in that domain I believe you can actually tighten the relation, you can make it a more clear cut appropriate brand for this person because you have a lot of knowledge about what this person has of interest and it's both a question of whether at all you should go in and try to work with this person. But also, what would like this new story, I want to tell about my brand, but should I tell this person at all.

Interviewer: Interesting. So, you're talking about in terms of personalization that you would be able to personalize things for the interests of the specific individual.

Interviewee 2: Yes!

Interviewer: Interesting!

Interviewee 1: I mean, if you look at it, right. So, internal position of brand right, like, if you simplify it, you could graph it out to be, alright, I have a negative perception of this brand and an positive perception of the brand, I have an exactly neutral position brand, right. So, that leaves all right, I have to create three different solutions. So, positive if you can identify this. And this is where, again, we just talked about this is totally possible, and people are doing this. And then that means that all right, if you have identified the people who are positive for the brand, I'm going to show them particular kind of content. People who are neutral, I'm going to show them this content, people who are negative and I show them this content, right and then what you can do is that all right, that's just three different kinds, but there's also intensity, right and then if you have a kind of gradient, right and this is what AI can do for you, because this is already modeled based on intensity, there is different intensities of good, right good, amazing, euphoric, right?

And there´s different intensities of balances, and there's different densities of neutral as well right and you can model it so that actually people start to see more positive as they move along. That's, you know, like this one way of doing it, then there's but this is just in terms of content you're showing them right. Then there's things in terms of all right when in the customer journey am I catching someone right, different areas, you know, different points in the customer journey will imply different things, right. So, a person has to decide this. This is very important. An AI can't say an AI can't say all right, someone who has a bad image of the company, you know I'm going to target them at this point in their customer journey right. An AI can only do this if someone said/told the machine This part of the customer journey is, good as a tight link if you're feeling bad about the company, once a person has made that link the machine can say all right. Okay, go. (33.28)

Interviewer: Interesting. So, do you think that might be able to contribute to creating brand loyalty too?

Interviewee 1: Yes, and I think it's already being used, you know, very much. The best example I have is Coca Cola, right. So, they create brand loyalty by having names, right, you know, names of stuff on the Coke, and they're definitely using AI to figure out in this area, what names are common, and then they send the brand over there.

Interviewer: Yes, interesting. Do think it might be able to help creating a connection or community between customers?

Interviewee 1: Im not sure, I know that means now.

Interviewer: But will it be able to.

Interviewer 2: Like you know when a consumer so for example Harley Davidson they will come together because there's this whole story behind.

Interviewee 1: I think Harley Davidson is probably not a great example to use, the reason being they are most likely not using a whole lot of AI. The best example I can think of, AI creating communities, will probably be Spotify. Spotify is an immense amount of machine learning and AI to do playlists and people bond over this playlist you follow them and the people who liked the same piece of machine learning artificial intelligence. Now, how _ are now together in a group right. Obviously, people don't see it that way. But the product that they're gathering around is based on AI.

Interviewee 2: Yeah, but is that a community?

Interviewee 1: I don't know.

Interviewee 2: Do they have to interact to be a community?

Interviewer: It is still a connection in some way. They have an connection to each other too.

Interviewee 2: They share this, I guess. Then yes.

Interviewer: I guess. Cool, interesting. Would, AI systems be able to make consumers actively engage in a brand do you think. That's over to what you just said.

Interviewee 1: What does it mean to engage in a brand?

Interviewer: To engage. To become brand ambassadors for example?

Interviewee 2: To spread the word.

Interviewee 1: So, again, you're asking a lot of abstract questions, Its absolutely fine, because this is what we do for a living, right so, like let me give you a product version, and then Ola can give you a more technical version of this, okay, but as a product person, if I got this from manager saying, alright, you know, so guys, we found out that the brand loyalty is really low. Can you create more brand loyalty using AI? right, just do anything to increase brand loyalty and I'll ask what asked you like hey, what do you mean by brand loyalty? We need to get people to share our link right, the first thing I would do is probably suggest something back, like do we need AI for this. For example, could you create a, you know, like, refer a friend get ten dollars off kind of thing. This is not an AI thing this is a programmatic thing. Right, if anything is a business decision, right, and it will create some kind of brand loyalty. Right, then after we have that, and we find out it's successful, then I will probably look into it all right. Can we use AI to identify the people who are going to do this, so we can push it more right, that's probably the more divided projects I would be doing. All right, let's

do AI from scratch. Right, because what I would create. So, say I didn't do this process, right. As a product person.

Say, I'm not a good product guy and I said, look, yes, we can absolutely do AI to increase brand loyalty, and I go back to my team, right guys, we are going to identify people who are going to refer a friend. Right, but this solution presumes something, it presumes the fact that people already want to share stuff and it's effective, right?

And AI things take a lot of data take our time to develop and they might not even work, right? the right conditions to actually create this to work might not even be that we might not have the right data to do it right, and we might not even have the right target group for which the data we have linked to, right. So, for example, we might have a lot of data for because we're doing a lot of marketing in India, Pakistan, but we're trying to do it for an American market. Right So, the audience and the data doesn't match up. So, if I built this without even testing the fact that hey, you know, like refer a friend is a great way to go, then the entire thing falls apart not because of the AI. But the supposing thing that it is built on is fundamentally wrong. And it's much faster to create a "refer a friend" program and people like this works. We need to make it more effective. Can we use data to make it more effective? 38.31

Interviewer: Very interesting. Cool. So, if you were to give an advice to a brand manager who is considering to advertise through digital marketing using AI, and the system, what might that be?

Interviewee 2: If anything, have it do your skeletons. If you have a model, and this is assuming that you've actually identified that this is something that works and we want to model then have it do decruit (?) things like creating the ten thousand templates and saying these are the hundred that are likely that it believes is likely to perform. And then have humans look at those. Use it for processing, and use it for one-eighty percent is enough. But if you want the last twenty percent because that's what makes you competitive, then you probably will want a professional.

Interviewer: Interesting!

Interviewee 1: If I have to be really cocky, I would probably tell them to get a new job because if we are really good, we don't need them anymore. But it's obviously a dream and we're very far away from that. Like you kind of draw out what it..

Interviewer: Yes, of course.

Interviewee 1: [39:51 inaudible] which is that what humans are good at right. So, this is actually in terms of like, about humans and machines working together, right and again, like, kind of like the example I brought up with what we're doing for individual products in an e-commerce store, a person would never do that. The reason being that it takes a person X amount of time to make a campaign for a product. If you add that linearly up, you hit an insurmountable ceiling. Right but for machine that time is very low. And also, even if I have to scale it up to any number of examples a machine doesn't care, right. I mean, a machine doesn't have found (?) to go, not yet at least. So, if you kind of look at, lots of marketers have kind of already done this, right.

So, if you call this effectiveness of an ad, and this is some kind of arbitrary dimension, right. This is X. So, this is the mistake a lot of marketers do they think that all curves are linear, and they're like, all right, I've identified a point and these are the kind of ads I'm going to market for right? But that's actually not correct. It's much more correct to assume that not all curves are linear. And a lot of people with a lot of expertise in marketing have correctly identified things that have this Dimension X create very good ads. But they haven't

explored this, right, because they might have explored this area. And they thought that they were going up this trail, right, but that's absolutely not correct. And there's also a peak here and a peak here. Right, a human being is not going to look at all that because a human being always thinks what can I do that is the most effective right. And it's absolutely correct.

The most effective thing is right here, but there's also an effective level here, and there is also and effective level here. And a machine can look through all different possibilities and find the different peaks and this is a two-dimensional thing. Now, imagine if we did 28 different dimensions, right. This is what a machine is good at. What a machine is not, you know, like one machine is not good at is then saying, all right, what's the creative thing I'm going to do to make this shine what is the creative thing I´m going to do to make any of them shine right, and there we still need brand managers, right? But it doesn't make sense to use brand managers to try to solve this problem because; inherently this is a mathematical problem. And this is why we see this thing, if you look into all the marketing, SEO blogs, right, there's like this one strategy to rule them all, and it changes every week. Right, and that's because people are just finding different peaks all the time across a multitude of dimensions. But obviously, this is a mathematician´s view on it.

Interviewer: But do you guys then think that future technologies, future AI technologies would be able to influence some of the areas we've been talking about, some of the limits that are today, and take over maybe some of the roles of the brand managers.

Interviewee 1: So, like my opinion it is out. It's is absolutely possible today. It's absolutely possible today to get the same output. But it depends on your data set and if you have enough computing power. I think we have enough computing power today that, this is to be honest, I think there's tons of very hard problems in the world that we don't have computing power to do. So, let me make that clear on record by the way, right. But, getting to the same output of what a brand manager does. I don't think that's very difficult, especially not in an area like digital marketing. Do I think it's very hard in an area where there's not a whole lot of data, let's say you're a small ceramic store, right and you're doing branding for small ceramic store, and none of the data to do anything exists. AI is never ever going to be able to do a fraction of what you're doing.

Interviewee 2: I don't know, its like zero short learning has become a really big thing.

Interviewee 1: Yes, or transfer learning.

Interviewee 2: Where you like trying to, you're essentially saying, these are the things that my model can say, it can say it's good, it can say it's neutral and it can say its bad. But all of the things I'm going to try it out on or like this is very good. This is _ I'm trying to make a model which given that it only knows these three categories now need to worry about these eight others. And there's progress on this and this is _ I think, what is one of the great promises of newer model is that this is a universal function approximator. If you give it enough data, it can approximate any curve. And what the big trend is in machine learning and AI is going in the other direction because the one like the first problem which where we were working with LSTMs and forest, random forest and gradient boosting (?, 45.14) was that well, there was a upper limit to how much information you could feed the system before it was either not computational, or it simply could not condense the information enough to extract relevant patterns. Neural networks seem to at least to our understanding, somehow approximate this way better than before, which is also why you're seeing very much a revolution in people's believe in AI because it wasn't, it lived for I mean the first time they tried to address this problem they thought to solve it in a summer camp turned out they couldn't and they spend the next twenty years for where the field was so dead. And it was like small mathematics department, smaller universities and the centric professors who were worrying about it. And then I think it's in 2013, Mykola

comes out and shows that wait you can actually give a language model which is actually able to generalize and actually consume this data, using some tricks.

Interviewee 1: Was the language, didn't they solve the image problem first but?

Interviewee 2: No, actually true, because [46:08 to 13 inaudible] absolutely correct. But so, and this means we can now go to any number of examples and do something with it. What's interesting now is going the other way, and going the other way, they are interested in the process of a series of short learning being one of them. So yes, I think eventually, we will be able to go beyond.

Interviewee 1: But this is a very philosophical question. So sorry. So if you ask my personal belief it is absolutely, I think to take it to I'm Sorry, is it because I'm a product person and product people are just like, all right, if you get the same input and output it is the same, right. A really good example would be so Google thinks that train that AlphaGo, right? (? 47.20) Which can play Go, the kind of Asian chess, and people are like, oh my god, were getting machines with human intelligence right, completely not true. This is a model trainer for a very specific purpose. And you can do it because if you make, you know, if you take the same Go towel (?), you add a towel in the top right, a towel that a good Go player would never ever use. It's just dumb, right; the model completely falls apart. Right, So, yes, you can do a very specific thing. But once you just change the conditions by a factor where a human being can look at that like, I'm not gonna use that that's dumb, it completely falls apart.

So, what I mean by I can, you know, I can replace a brand manager. I mean, if I understand correctly what a brand manager does, right. And then can I make a model that does that? I think so. I think the hardest part of the problem is understanding what a brand manager does. Like, I mean, like not in that ironic sense of a brand manager doesn't do any work. But in the sense of what the input and output that a brand manager has right. Now, the difference between humans and machines is, let's say that a brand manager faces a kind of problem he´s never seen before. If you find _ if you have a good brand manager who thinks critically, right? He can apply past learnings to a new situation, which is something machines are very bad at right. But as Ola mentioned, we're getting better at it. But right now, completely off, right. Even the best models, even the best minds on the planet can't figure out how to make a machine do this, but it's one of the hottest research topics in machine learning right now. So, that half answers your question, right.

I think where we're getting to is Allright, we'll get to a point where, you know, like, the more interesting part is will we get to a point where we can automate people, right. I think _ so, this is more of a religious question which I think we can right. I think humans are biochemical machines, right. We just take different inputs and outputs and we process stuff in a different way. The only thing which is preventing us from kind of doing it is one massive amount of computing power. And we don't even understand, it's great. So, we don't even understand how humans think right now right. So, a lot of people thinking over this neural network and I hate the term neural network, because it implies that it's the same model, you know, that its a mathematical model for how brains and neurons work. Yes, it's a mathematical model for how brain and neurons work from 1950s, right. We've made huge leaps in neuroscience since then. And the mathematical model doesn't accurately reflect this because the huge leaps that was made in neuroscience is ultimately, we have no idea how the brain works.

Interviewee 2: Meanwhile also, there's an engineering thing here, right like if you want to make a mimic flight, you don't actually make wings that move, you have them static and you increase the velocity enough, like exact mimicking is not necessarily the solution that will lead us to where we want to go. And it is also do we actually want to make a product manager or brand manager.

Interviewee 1: Don’t replace the product guys, but the brand managers im perfectly fine with. (Laughter)

Interviewee 2: But there are like repetitive jobs where you're already seeing this right, like construction of cars.

Interviewer: Sure, very interesting.

Interviewee 1: How does that make you feel about your job?

Interviewer: I feel good. It will take too many years for the AI to understand me. So, is there anything you think we should know? Before we end up, that we haven't talked about.

Interviewee 2: About this, I guess.

Interviewer: Yes about.

Interviewee 1: So, I think you have a very strong AI angle and to be really honest, I don't think AI is the problem or problem being that it's actually not that interesting, reason being that AI models are widely available and tons of people using them. I think the more interesting angle is the data, right data access that is a huge inequality. AI model access is actually an equalizer. Everyone have access to the same models you know, right like the difference between the models, we are using, and the models Facebook or Google or using is marginal. The sort of big difference in output is just the amount of data to have access to, right. So, if I were you, I would probably look into, all right, where are areas where there's a lot of data, that incorporates branding somehow. Right, and how are people using that data? like, off the top of my head what I would probably do a research topic on what would be TrustPilot, right because they have access to exact amount of brand and websites and tons of sentiment analysis and it has a very real direct impact and how they're using that data. I'm personally very interested to know.

Interviewer: Interesting, cool anything you would like to ask us anything you're in doubt about? are you good?

Interviewee 2: So, how far along are you? Are you just starting out

Interviewer: Now, it's been going on for quite a while now. But we have start developing this topic over the last year. I've been talking about talking with a lot of different wouldn't say pioneers that might be too much within the field and trying developing over time. And just recently we started the real data gathering for this specific thesis. We talked with the guy who was the was former Nordic area chief for Albert. Albert AI, a system it controls the both Google ads and Facebook advertisements tried to make it work together and which has market in the US especially. We've also been talking with some professors, some researchers within the field. So, we are midway in the process.

Interviewee 1: Like, do you find many people like in the field of marketing and AI?

Interviewer: Its so hard. I don't think it's too hard to find people that could be interesting to talk to, but people who feel confident within both areas is quite hard.

Interviewee 1: I think it's also because if you actually look at the data on it, right? Like something like two thirds of companies who say they're using AI, they're actually not using AI. it's much more of a buzzword then.

Interviewer: Exactly! There isn't a clear definition of what is AI. A lot of people are using the term even though they are not like for instance, people call things AI without even using machine learning or similar.

Interviewee 1: There is a great meme, you know, you know, like the great meme of like novice programmers and then sitting there writing an if statement, and then there´s this butterfly guy who was like, is this AI but something I could do for you right so, if you guys could share your preliminary research in terms of like what other people like are doing with AI like other companies who are using a digital marketing space, I can share a document that we have which list our competitors right and so our competitors are might have might use AI to some extent but they're all marketing people. So, if that would be interesting to you, I'd be happy to share that with you.

Interviewer: Cool, I will look into it, cool. Actually, that was quite about it. Thank you very much for your interest and taking the time to help us.

Interviewee 1: No, Cheers, you welcome to the to stick around.

Interviewer 2: As, we read about Cobiro are you using AI to optimize text or is that..

Interviewer: Purely for optimizing the performance of the ads right?

Interviewee 1: So, we're using AI for the setup right? So, for example, like kind of detecting stuff on your website, right. So, if you're working professionals, like a good example would be the phone number, right? A regular person who doesn't know about digital marketing might, you know, they might, because Google makes it optional whether you want to put your phone number in or not, and a normal person just saying what phone number it doesn't implicate my ad in any way. I'm just going to click next, right? Because we were the big slash option on it. But if you're marketing professional, you actually know, having a phone number in your ad is very important, right, because it gives you a massive boost in your ad ranking and lowers your costs dramatically, and it makes you show up at the top. And it gives customers a call to action really quickly. So, having a phone number is one of the most important things, but Google puts it on the same ranking in terms of importance as all the kind of dump things that's not very necessary.

So, what we try to do is that we try to identify what are the most important things to actually build an ad that a customer might overlook, right? You know, all the things you have to have, such as an email, right, those are preconditions. But then there are things that are optional, but important, and the things that are optional, and not so important. We try to figure out can we do all the important parts for customers that are optional, to give them a massive boost ahead. Things like, you know, identifying phone number, or certain things or call outs right? You know, and then there's, like it's an area of AI which a lot of people think we're doing right, and which is actually a much harder problem than a lot of people realize we're not doing any of this.

That does support where, you know, when people think AI for digital marketing right? Because they see digital marketers and they look at a lot of data and they do actions. Right, that is not a great AI area right. Again, as we've talked about the thing, they attack is a very different from what people think it is. A lot of people think it's like a human that's completely not true right. It's a massive misconception because the name of neural networks and artificial intelligence and all this stuff, right. The act of looking at a bunch of data and then taking actions from it, that is much easier to solve using programmatic rules, right? But you know, for example, right. If I've spent all my budget and I have last impression share, let's just lower it until I have no last impression share, right. I mean, it doesn't take a genius to write software to do this, right. There's no real application for it, if you can solve this ninety percent or ninety-five to ninety-eight percent using traditional if statements, right? Why would you ever train a model based on tons of data you might or might not have.

Interviewer: Very interesting, would you characterize the abilities of machine learning? would you characterize that as AI? Would that be a prior state or within the category?

Interviewee 1: No, absolutely. So, you seeing AI machine learning there is this debate about which is a subcategory of what? Right. But so, for example, you mentioned Albert AI, I would highly doubt that that is actually based on, you know, it might be based on machine learning, but not based on neural nets. It might be very simple you know like linear logistic regression. Which is to be fair, you know, like machine learning, but I would say it's a wasted its a wasted application of AI. The reason being that you could use very simple if statements and get to the exact same results, if not better. What's your opinion on that?

Interviewee 2: Well I think you´re wrong (Laughter → Irony). Because there is a model for working with behavior and it's the simplest versions of these being something like Epsilon Greedy where you essentially always doing the optimal thing but then at random, you pick another type of action as in research shown huge potential whether this is AI, but sort of modeling behavior is absolutely something that is relevant to do but we're not doing it right now. But I believe there's an application of this, which is the type of actions that most people don't want to take because; they're very repetitive. Like those are the sort of things I would put this type of model for. I think there is application.

Interviewee 1: I buy that. So, it's actually like is a very common thing in a machine learning. So, this is a little bit technical so like when Ola says, Epsilon Greed, this is actually a good chart I can reuse, but imagine that you are marketing professional and you're optimizing stuff right, you here you ultimately get to here. And then you change some factories and go down here like no the number one down and you dial it back. But you have such a limited view of what's possible. So, you actually don't realize that you have what's called local optimal you don't realize that the global optimum stops here and what machine learning can do for you that every once in a while, just like fuck this. I'm going to go over here again and then it's trying to find the global optimum.

Interviewer: Try some random factors out to figure out if we go further than this.

Interviewee 1: Okay, It's actually it wasn't very popular until a few years ago but is a very popular like machine learning technique now that you constantly do and even invariable bus models, Amazon and Google doing this massive the old time, which is why a Netflix, which is why every once in a while, when you go on Netflix, you'll just realize the page is not the way it used to be. And that's because they're introducing noise into your data set to see if they can find a new global optimum.

Interviewer: Interesting, cool, that's actually exactly what we were talking about Albert about them. they were doing this highly when they're delivering ads, trying to figure out trying to do random stuff in order to see if it works better and then optimize based on that. So nice to touch that too. Actually, I think we're about there. Cool.

Appendix 7: Transcription of interview 4 - Ebbe Skau

The interview with Mr. Skau was held in Copenhagen on the 25th of march 2019.

Interviewer: First of all, if you could tell me a little bit about yourself, what do you do?

Interviewee: I am a Google Ads specialist I have been working, I think about five years specifically with Google Ads. Normally, when people say that they are working with Google Ads or working with online marketing it means that they are working with the whole aspect of online marketing. I wanted to be a specialist within something, so I only touch other area such as SEO and Facebook for instance. I am getting better at Facebook. But I really want to be one of the best in the world at Google Ads. In my day life I am handling -- my agency has around 150 clients worldwide. We are managing around 115 clients in Google Ads. Everything from e-commerce to entrepreneurs, startups, small startups, lead generation, investments, anything which -- anything where Google can help you.

Interviewer: And what is your relation to AI and branding?

Interviewee: My relation to AI and branding - Well, my relation to AI is definitatly through Google Ads. I am being presented with a lot of different variations of AI and possibilities within AI. Mostly I get it from Google themselves when they -- When they call and tell us about new products. What I see is that Google has a tendency to -- or their employees selling the product rather than actually testing the product. So, because Google is earning a lot of money on AI, so my relationship to AI is through Google, but I'm skeptic and I'm testing the artificial intelligence instead of just nodding and talking, when Google is telling me to. My relationship to branding is really attribution based. I think branding is important, but I think -- Any customer journey starts from a point, and no customer journey starts from a brand. So, you need to create a demand in order to get the brand search. So, my relationship to branding is so -- well I am fan. I know It matters? I think branding needs more of the push-effects follows it to be -- in order to be -- how do you say it -- indeed business.

Interviewer: So, when talking about the abilities that AI and technology driven by algorithms have, how do you think that AI is able to increase awareness of a brand through digital marketing communication? Would it be able to -- would it be possible to recall a specific brand based on something chosen by algorithms?

Interviewee: Can you rephrase that question?

Interviewer: Yes, of course. With the with algorithms or an AI be able to present to you which brands you are in question, would it be able to present a brand to you? So, if you Google search, would we be able to identify a specific brand based on something AI has chosen?

Interviewee: Well, yes you would. You would see that in Dynamic search ads. If you use that solely you will see -- well, Dynamic search ads is an AI where the engine calls the website and generates a headline based on what is on the website. The website would be able -- or the caller would be able to recognize a brand and show a branded ad in search for instance. But that would require for the searcher to actually search for the brand, which not necessarily how the customer journey starts.

Interviewer: So, in terms of what kind of attributes then an AI could deliver, would an AI or how would an AI be able to use through digital marketing be able to communicate brand attributes like pricing level, design, style or special benefits of the product.

Interviewee: They will be able to do it by -- though testing. If you allow the algorithm to run, just loose. You would see if vary such as call out extensions, sitelink extensions, headlines, they would vary and depending on who's searching the relevant chosen keywords show up in the search.

Interviewer: And these will present different attributes of a product, right?

Interviewee: Yes, of a brands product but it's the more or less the -- The dream situation. This is Google presents it. It is not how it -- It sounds better when you talk about than how it actually is in real life.

Interviewer: Have you experienced any problems with it?

Interviewee: Yes, have seen some research with it. The testing is very expensive because it takes a while for the algorithm to learn what works. Also the message of the brand should vary depending on who's searching. If I am a parent and I am search for brands related to -- Let's say I am a parent with kids in the age of three to six and I am searching for a bicycle. It would make sense in some situations that the text says 'bicycles for kids in the age of three to six years'. That is possible. However it needs a lot of data input and we are testing it. We are testing it in the US. We are testing it in India. We are testing it -- well -- lots of places. Not this specific example, but other examples and we don't keep working. Since it is not working in those countries of big data, then I really don't see them working anytime in the near future in Denmark. But one needs to keep in mind that the algorithm learns really fast. So perhaps, it is just a matter of like, five to seven years and we will have the data, but as long as we still need to drag consumer data from the US in order for it to perform in Denmark it is not going to work. Simply because the consumer behavior is different. As an example, sundays are better for me -- for us in the US than they are in Denmark. Some days all will be vague for us in Denmark.

Interviewer: Okay. So, that was more of sort of functional benefits of a brand. What about some of the more emotional ones? How is the AI when used for digital marketing able to communicate attributes like an emotional attachment, values, maybe the personality of a brand or its heritage?

Interviewee: All AI is, is data. I have a huge sticker on the wall saying 'data beats emotions' and really emotions even -- even let's say you have an emotional quote or anything like that in your ad. That would still be translated to data because the AI would see how this emotional quote performs compared to a more data-specific or [inaudible]. But I -- I don't see AI and emotions that are related to each other.

Interviewer: Okay as far as you said that the AI would be able to react based on emotions.

Interviewee: Not based on emotions-

Interviewer: Sorry?

Interviewee: AI would never be able to react based on emotions, it will be able to react based on behavior.

Interviewer: Yes, so it wouldn't understand emotions, but it would react based on a reaction pattern that a user has.

Interviewee: Yes, behavior.

Interviewer: Yeah, behavior exactly, okay. But would an AI able to communicate something like, we talked in another interview about Bang and Olufsen, their Danish heritage that they build up over years, blah, blah, would an AI be able to identify that this is a big part of the Band and Olufsen brand and maybe present in an ad? Would it be able to identify that this is core to this brand?

Interviewee: Well, yes, it would be a to if it has the right data input, then it would be able to do anything. Also tell an emotional quote related to a brand.

Interviewer: Okay.

Interviewee: But it's that all depends on what you're optimizing for because you are still telling your AI what to optimize for. If you are optimizing based on return on advertising spend or clicks or maximizing for conversions or any of the different optimization strategies, there are. And it would be able to do a quote, but then again, if an emotional quote does not convert, and you have the optimization strategy; maximize for conversions, then it would not tell the emotional quotes because it's not doing what you're asking the algorithm to do.

Interviewer: How do you think that affects the ability of differentiation? So, if your company and a competitor, both uses the same AI. And they identify that the buyers don't really care about emotions, they care about other things. How would you be able to differentiate yourself from the other brand if the AI sort of has the same data and based on that?

Interviewee: But yes, that's actually one of the things which makes me very skeptical with AI because everybody is using it. There is only one winner is the creator. That is in many cases, let's say it is Google. Everybody has same strategy using the same AI. Google is the only winner, but if everybody's doing AI and I as an advertiser, I'm not doing AI, then when Google says jump, and everybody's jumping, I am standing still and I am going be the one sticking out of the crowd, and I am going to win. So it's horrible for your ability to differentiate, simply because she will not in power.

Interviewee: Are you still there?

Interviewer: Yes, I'm just thinking, it's just very interesting. So, what kind of -- would that leave-- Would that leave some demands for the one who's considering using AI? Would there be something else had to sort of think about before you decided to use the AI then?

Interviewee: Well, yes, definitely. Every time we're talking about the possibilities of the AI and the possibilities which Google are presenting to us when we are talking with our clients about it, we are very aware about the fact that in order to differentiate, they have to take another path, than what Google is telling them.

Interviewer: Okay.

Interviewee: Unless we see data proving something different, but we still haven't.

Interviewer: Which kind of companies would that be that you would suggest this solution to?

Interviewee: The solution of not following AI?

Interviewer: Exactly.

Interviewee: Actually, every company so far. We haven't lost battle to AI once in five years. Not once.

Interviewer: Okay, is there are the reasons for that other than the ability to differentiate?

Interviewee: Yes, one of the reasons is that let's take Facebook for an example. If you use the campaign setting traffic and optimize the traffic, Facebook will optimize for traffic. And that's one of the most expensive campaign settings there is. And so many people are using it, because that's, what Facebook is telling to people to do a lot of times. If you use the optimization for conversions, and you have a significant amount of data in

your pixel, you would be able to actually use their AI for converting. The thing is that Facebook and Google, they are optimizing based on what you -- what you tell them. But if you allow them to just go rogue and decide what are the goals for your company, which they will if you allow just complete AI, then you will simply just see it will go nuts. Be very expensive.

An example could be that the Google has been adding their own conversions to the Google Ads interface. A conversion would, let's say a goal. If a conversion is a transaction, and I'm working with e-commerce, then my goal is to get as many transactions as possible. Google has this thing, called SMART goals, which they have a tendency to implement everywhere and a SMART goal is -- well, nobody actually knows what it is. But it's just Google knowing what a goal is and they would optimize for the SMART goal. And when you see the optimization for a SMART goal, you just see your spend increasing your transactions fall. That's, of course, a bad thing.

Another thing is Google's attribution models, they have an attribute model called 'data driven attribution', where Google is deciding for themselves which click and which view have the influence on a conversion. It allows them to split one transaction into several views and clicks. What we see in accounts using this data attribution is that display and banner advertisement is getting a lot of credit for conversions. Whereas If we look at 'last click' or other attributes models, we actually see that display and banner is not doing anything good for the goal, which is transactions. That means if you just allow to -- if you just allow data driven attribution and any other of Googles smart bidding solutions, you would get a lot of impressions on your display campaigns, and you will not get any revenue.

Interviewer: Okay, interesting and you don't have the same problem with Facebook, I guess.

Interviewee: No, I don't. If you ask Facebook to -- Well, that really depends on what you're asking Facebook to do. If you ask Facebook optimize for conversions and you have enough significant data on your Pixel, on your conversion Pixel and your segment is -- it's possible to recognize your segment for the Facebook algorithm then you can see it perform actually, it takes fifty shots on a pixel within the last twenty-eight days and then you have enough data, in most situations.

Interviewer: Okay, going back to what the AI can and can't present do you think that -- or how do you think an AI system would be able to incorporate opinions that a consumer might have of a brand like its credibility or a perceived quality of a brand? Is this something that it will be able to identify and use?

Interviewee: Yes, it would be because, depending on your behavior. Let's say that you are an environmentalist and you find the ecology important. And that is your behavior. Then yes, AI could present a quote or a statement that aligns with your interest. However, it could, but it doesn't.

Interviewer: Okay, what about the specific perception of a brand? Meaning that would it be able to identify and use that I might have a bad perception of Google or a random detail brand.

Interviewee: No, budget perception that would not be possible then you would need to have a behavior telling that specific thing to the AI. And well let's say that you are writing comments about how much you hate the product, what would happen would rather be that it will see that you have an interest in the product? However, interest can be neutral.

Interviewer: Yes, okay. So, it might be able to say that I have an interest but not that I have a specific opinion towards the brand and therefore use it…

Interviewee: Yeah.

Interviewer: What about the relationship between the brand and a customer - do you think or how do you think AI would it be able to contribute to a relationship between the two of them?

Interviewee: Well, I don't think AI could do it in any possible way that any other marketing tool without AI could do it. It's basically a matter of -- well the relationship, then, I guess that has already been established a relationship. Then it's basically just remarketing. Or what do you mean?

Interviewer: No, I think you're on the right track. I think you have point. What about the ability of personalization when using AI? That you are able to individualize to a single customer? Do you think that would increase the relationship? Or make it better.

Interviewee: Well, a lot of data shows that. However, instead of allowing AI to spend a lot of money on getting the data to just tell it right away that 'well, this ad is segmented for women at this age, on a mobile device' and then -- well, yeah -- especially stuff such as device. I'm working with a pretty big burger chain in Denmark and one of the things which -- Well, I have tested the AI there and the AI could not see that mobile was actually converting. But that was because our goal is to get people to click 'get directions' and go there. On generic searches such as 'burger Vejle'. It would -- The AI would turn up our bid for computers. However, you don't click 'get directions' from a computer and go there. You tend to do that way more on the cell phone. I saw in the past -- for just one campaign in the past thirty days, I saw two hundred and fifthy-five clicks on 'get directions', whereas two hundred and fifty of them came from cell phone. And that's our goal. The AI did not understand that. And it was not possible to tell the AI that so I had to make the decision for the system and make our building based on our actual goals instead of what Google thinks is our goals.

Interviewer: So, we would still have to supervise the decisions of the AI to make sure that it follows the idea or the intention you originally have.

Interviewee: Definitely yes, but it's always in beta. We know that someday AI will beat us. But until then, we still have something to say and we will definitely always have to keep an eye out for it. Because otherwise, there is only one winner and that's Google.

Interviewer: Do you think this use of AI might be able to contribute to creating brand loyalty?

Interviewee: Can you say that again.

Interviewer: Do you think this use of AI might be able to contribute to creating brand loyalty?

Interviewer: Should I repeat?

Interviewee: Yeah or rephrase.

Interviewer: Yes, of course. You were talking about -- Or we were talking about the ability to personalize advertisements, but also that it had some downsides. Do you think that the use of AI might be able to contribute to brand loyalty over time? so that consumers will be more loyal to a specific brand?

Interviewee: Well, yes, it could.

Interviewer: How do you think?

Interviewee: Well, let's say you visited a website and you bought a product -- A cream. And you know that the average time for this specific product before it's empty is thirty days, then I guess AI at some point would be able to show a banner saying, 'Are you almost out of cream'? And then of course ask them to repurchase. But I would still say that instead of spending a lot of money on getting enough data. Well, since we know that

it takes thirty days then it would be easier to set it up and say well in days, we're going to show to you the purchase of this specific product - an ad. Brand loyalty for me is a matter of well, re-engaging and getting people to purchase or use your product again or service again. And AI can contribute to that. But there are definitely, other solutions as well, which are much faster and less expensive.

Interviewer: Do you think or how do you think an AI system might help creating a connection or a community between consumers?

Interviewee: If AI is able to create a community?

Interviewer: Do you think so? or connection between consumers?

Interviewee: No, not at the moment. Not peer to peer between consumers.

Interviewer: Okay, what about its ability to actively engage -- Make consumers actively engage in a brand? Is that something you think that it's able to contribute to? like making…

Interviewee: Well…

Interviewer: Yes, sorry?

Interviewee: Yes, please come with an example.

Interviewer: Like with brand ambassadors - that was what I was looking for. Those who start liking your product that much that they start telling others about it?

Interviewee: Yes, If I could, do that.

Interviewer: If you think that it would be able to make consumers do that or contribute to it.

Interviewee: I don't think it's AI that does that. That's more of an email marketing flow and your remarketing and how was your experience with this product, all those things. There's is no need to use AI for that purpose. It probably would be able to. But often it's well -- what's possible is one thing and what people are willing to pay and how much they're willing to pay is a completely different thing. Actually, I just took over a client last week, where the agency had been using artificial intelligence.

Interviewer: Okay.

Interviewee: For the complete -- like the complete bidding strategy, everything from top to bottom was AI and within one week, I managed to reduce the cost per acquisition -- the cost per conversion from 600 Norwegian crowns to 75 and we doubled the conversions. And that's because we pulled out AI. And that's a great example of how it's not working when you're allowing just full force AI, because it's just overspending.

Interviewer: Okay, if I may ask, what do you think was the cause of the AI performing so badly? You would think that it would use machine learning, I guess to try to minimize the as much possible.

Interviewee: Yes, well. The reason why I think it is not working is because it doesn't have enough significant data. So, it was just reaching right and left and up and downs to see where to get something. We can see just where the average daily spend should be around 200 to 400 crowns and some days they were up and spending around 3000. And those where just like single days and then -- well single day peak and then no spend. So, there was no -- there was no consistency. And that's a sign for me that it's trying to do something which it cannot do. And that's just expensive.

Interviewer: Interesting. And this AI system it was controlling the Google Ads, right.

Interviewer: Yes.

Interviewer: The entire bidding process of the Google Ads.

Interviewee: Yes, they were using cost per acquisition.

Interviewer: Okay.

Interviewee: GPA bidding.

Interviewer: So, we're reaching the end. But if you were to give any advice in relation to branding, to advertisers who considers using AI for digital marketing with might that be?

Interviewee: Be skeptical.

Interviewer: Okay.

Interviewee: And consider your data significance. Is your market big enough for the data to be significant? Or do you have enough money to collect enough data for the data to be significant? If not use your head and do some assumptions, and then let the data speak instead of your emotions.

Interviewer: Okay, interesting. So, for the future, how do you see AI technologies influencing the areas that we've been talking about until now? Would it be able to meet some of the issues that we have talked about here? Do you think?

Interviewee: I think AI will be able to do pretty much anything in the future. Because it's developing, moving, and growing so fast. So many companies are putting so much money into it and it's pretty much impossible to stop. So, I definitely think that we will see more of it. And I think it will be able to -- I think it was an interesting question regarding the peer to peer instead of business to customer and business to business then customer to customer related to a brand that would be sort of next-door stuff.

Interviewer: Okay, do you also think it will -- in time be able to understand emotions and maybe also act upon them? but actually understand them?

Interviewee: Well, that really depends on how you define emotions because we will not be able to understand emotions. Let's say it would be able to read your face but it would not be able to actually read your feelings or your emotions. It would be able to -- to read movement. And this movement would be related to something.)t would never be true emotions. Everything is zeros and ones. And that's not emotions.

Interviewer: It would clearly just be a new variable. So, to say, it would be a category.

Interviewee: Yes!

Interviewer: It would say okay, this person is acting or looking this way. Therefore, they are as this class, therefore they should be treated like this.

Interviewee: Yes!

Interviewer: Interesting. Do you have anything else that you think we should know?

Interviewee: No!

Interviewer: No, that's fine. Or anything you would like to ask us based on the interview?

Interviewee: No, I think it was exciting.

Interviewer: May we get back to you if we have any follow up questions based on interview<+

Interviewee: Yes!

Interviewer: Perfect. Thank you!

Interviewee: You're welcome!

Appendix 8: Transcription of interview 5 - Rony Medaglia

The interview with Mr. Medaglia was held in Frederiksberg on the 26th of march 2019.

Interviewer: First of all, can you tell us a little bit about yourself? Who are you? what do you do?

Interviewee: Yes, I'm an associate professor in the Department of digitalization at the Copenhagen Business School. My research area is primarily on IT and digitalization in the public sector. Whereas teaching wise I teach a number of courses at both bachelor and master's level and they are related to digitalization of private sector. So, e-commerce and the likes.

Interviewer: And what is your relation to AI?

Interviewee: I've been working now for a little bit more than a year on some subjects related to AI in the public sector. I'm supervising a PhD student who's doing a thesis about AI in public health care sector and I have a personal interest in it.

Interviewer: So first of all, we will try to cover some of the basic abilities. How do you think that AI would be able to increase awareness of a brand through communication? Would you be able to recall a brand do you think? Would AI be able to communicate a brand so that you can recall it?

Interviewee: Right! So, what you are saying is whether AI technology can be used to improve branding efforts by a firm?

Interviewer: Yes, if it's able to communicate a brand.

Interviewee: Right, okay, well, it's a little hard to answer this number one because it's an emerging field. So, no one really has a clear idea of the potentials of AI in this specific area. I have to say I'm not an expert in branding strategies myself. So, I can draw my answer related to my understanding of AI as a technology in a wider organizational context? the other challenge is that AI is a very generic umbrella term for including a whole wide range of very different things. Those include machine learning, different type of algorithms. Yes, very wide range that go from robotics to specific software. So, having said that, how do I imagine AI improving branding? To me the core of AI is in its learning capabilities, meaning that compared to different systems that we know about before these systems, traditional systems, they work on a if Then, type of logic. So, based on the type of input, they have a number of steps that provide an output. The uniqueness of AI to me is in the ability of autonomous learning that is independent of extra input. So, this can be applied both to a wide range of areas going from decision making support systems to self-driving cars and you name it. So, within branding, you ask about AI use for communicating a brand, right?

Interviewer: So, can it make a consumer recall a specific brand.

Interviewee: Okay, I think one of the things that I can see AI being very useful is in providing extremely fine-grained segmentation of markets. So, and reaching closer and closer to this idea of segments of one whereby each individual will become a segment and therefore, you're able to tailor your service your marketing and then in particular your branding strategy to the segment of one or very small groups. So, I think the ability of AI systems to learn from large sets of data for instance of data on consumer behavior can help a brand to be tailored to very fine grain customer segments. That will be my best guess how AI could help.

Interviewer: To try to figure out what kind of attributes it might be able to communicate. How do you think that AI technology when used in digital marketing would be able to communicate attributes like pricing level or design, style or special benefits of a brand? Is this something an AI would be able to Identify and use?

Interviewee: Well, I think as a rule of thumb AI system so far are very good at working with objective data, and then more structured data. So of course, price, product characteristics. These are more quantifiable structured data that already existing systems can work with, I see AI a natural progression of that. I think where AI is unanimously considered still lacking or showing room for improvement is in working with less structured data on the one hand, and also data that is related to empathy and emotional content. So, I think the moment you go into the emotional component of brands, which is a very important one. I think algorithms or machine learning systems or AI systems in general will be less effective simply because these systems are not sophisticated enough to capture context emotional and psychological clues from the information that is fed into the system.

Interviewer: Interesting. So, try to dig a little deeper into where the boundaries then might be because do you think it would be able to understand and use something like a brand's heritage would it be able to identify that like, in Denmark we have Bang and Olufsen it has a strong Danish history. Would an AI be able to understand that this is something that is a core part of a brand that should be used also to say, would that be identifiable when it's a heritage?

Interviewee: Right. Well, heritage is exactly one of the examples of these heavily context dependent, emotional, immaterial, ill structural components. So, I see, even the most advanced AI system is still struggling with it, because if you think about Bang and Olufsen and heritage, then you work with concepts such as you know, Danishness, what is the essence of Danishness? A human has a struggle to explain this in objective terms, let alone an algorithm or a system that will be very complicated. So, if you want a brand and if you want to do segmentation or understanding customer needs in terms of pricing, technical characteristics, for instance of a Bang and Olufsen radio, I think that would be much more achievable. But considering the state of the art, I see it as very still very hard or at least very adventurous to have artificial intelligence work with these types of goals related to immaterial, soft, ill structure context dependent. areas such as heritage.

Interviewer: Does that mainly depend on its ability to understand the data or the data engineer behind it. That is feeding the data into the machine. So, to say. is it up to the ability of I'll try to rephrase it. The reason why it cant or have problems communicating this, is this, that the data isn't clever/Clear (10) enough about what a heritage is or how its defined, or is it that it simply can't work with a term such as heritage.

Interviewee: I think obviously, it can work with the term. And I think there's two scenarios you need to distinguish here. One of them is the completely autonomous artificial intelligence system, where the system itself is only given an initial data set and then based on that and the interaction with the environment and then getting input from different data sources, the system will eventually be able to solve these kinds of complex problems.

So, for instance, what would be considered cool in 2020, regarding brands of jeans clothing (10.50), right? so that's one area. The other area is artificial intelligence as a support as an augmentation of essentially human task. So, artificial intelligence can support the decision making of humans. But the ultimate input comes from a human and the ultimate refinement and check of the output is the responsibility of a human. So, this second scenario, I think, will be the most productive one and will be the one that makes most sense. So, going back to the example of heritage, for instance, I think, concept like heritage is not only, so fuzzy, but is also so swiftly changing in time, so, context dependent, that the inability of AI systems to read contextual clues will make it very hard to be used for any practical purpose. At least this is the way I feel.

Interviewer: Okay, interesting. Taking another perspective on the emotional things. Do you think an AI system would be able to incorporate feelings of a consumer through communication, meaning that it might not understand feelings, but is it able to identify that a consumer is behaving a specific way and acting on it?

Interviewee: Yes, absolutely. I think the system is very good at recognizing patterns right. And based on the track record of patterns that have been introduced as input, then the system gives a guess on how that pattern can be expected to evolve in the Future. Now. Can that support some type of branding decision? Absolutely, yes. The ability to identify patterns of AI system is comparable if not better than the ones of humans. But again, what AI systems are still not very good at is to read the contextual clues, and also what we can say, thinking out of the box. If you look at the most successful brands in the market nowadays, I would expect many of them to come from a history where the way they were developed was completely unexpected or unpredictable or out of the box. I mean, there's this almost stereotype quote from Steve Jobs that or no was it Ford? I can't remember it was well, I think Steve Jobs quoted Henry Ford and Henry Ford said, if we asked people what they want referring to the cars, they would ask faster horse.

Now, an artificial intelligence system in itself cannot make the leap from horse to car, you will always try to guess what's the best horse or what's the best brand of horse that you can you should provide in the future. But these abilities to think out of the box making this leap existing AI system have not been too good at doing it. And this has to do not just with branding, but in general, all creative endeavors. If you look at these, it's very interesting these experiments on you know, algorithm that can compose pop songs, or they can compose poetry. You read these songs in the worst-case scenario, they are hard to listen to, in the best-case scenario, you can feel that they have no original element they are just a combination of previous patterns. And in creativity, what you're trying to do is to build on the pattern, and then break those patterns into something new. And that's, I think, a big part of what branding is about.

Interviewer: So, do you think that an AI system would be able to evoke feelings? When you say that what it's makes us very generic?

Interviewee: Yes, I think it can. I mean, if you work with a very simplified models of human consumers as respondents to specific stimuli, then I think an AI system can do a decent job into formulating seemingly new stimuli based on existing patterns that can excite some specific few. But in terms of brand success, that's a different thing. You know, you can put together a bunch of Hollywood script writers and ask them in a week to write a cliché movie that will be able to make someone cry based on their experience of what plots to include to make people cry. And an algorithm can do that. But whether that movie will be a success or will be considered a groundbreaking title that can win an Oscar. It will not. So, if you will move out of this metaphor of movie to brands if you are looking for the creation of the new Apple or the new coca cola, I don't think an algorithm can do that, at least not in a sustainable way. You can do a one-shot success maybe I think we are close to that. But sustainable, successful brand. It's a very complex endeavor. It's not just a stimuli response mechanism.

Interviewer: That was quite interesting. So, you think it would be able to, to produce a movie based on data that it was given to evoke a specific feeling like script writers sitting in a week. And it would be able to, as we talked about with Apple and Henry Ford, that it would focus on creating the best horse the best brand, right? How come it won't be able to, based on its experience with making one movie, creating some kind of emotion cliché movie, maybe getting some feedback in the system, create a better movie, creating an even more significant emotion learning on that tried to develop into making the best possible emotionairy respondents so to say. So, does it makes sense.

Interviewee: Yes! Okay, so, the scenario you say is that the human then feeds back into the system and say, Okay, this works, this doesn't work. So, that the part that doesn't work can be worked on to make it closer..

Interviewer: Maybe responded system.

Interviewee: Yes, this is a philosophical problem that has to do with the dilemma of aesthetics. So, aesthetics as fashion is trapped into these dialectics between novelty and conformity. Right. So, if you look at clothing fashion, a piece of clothing is fashionable when it stands out from all the others, but if it stands out too much, it's just weird. If it stands out too little, it's not novel. Now, where does the sweet spot lie? an algorithm, by definition, at least seen with the current technology cannot identify a sweet spot, because it only has the inputs of the original data, plus some feedback from a single human or from a group of humans. But that group of humans will never equal the richness of the context, the context or the spirit of the time. It's something that is so unstructured and fluffy and changing over time. That the current existing technology is very far from capturing. I mean, in the example you made now we assume that for instance, there's already possibility for AI systems to write convincing movie scripts. We're still far away from that. Absolutely. I recently saw this short clip of AI generated movie played by real actors. And it was completely nonsense. Just because there's so many contextual variables that it's, it's still very far away.

Interviewer: Interesting. So, something maybe a little less fluffy, but still fluffy. Do you think an AI system would be able to incorporate opinions, consumer opinions about a brand, like credibility or their perceived quality of a brand and then use it in communication?

Interviewee: Yes, I think so. There's this whole field of sentiment analysis that has been doing huge leaps in the last five to ten years. I remember discussions less than five years ago where they will say okay, sentiment analysis is very refined, but it will never be able to catch the subtleties of irony or sarcasm, where if I'm reviewing a product and I say, ah awesome, this product is breaking after two weeks, awesome will be considered a positive comment and not sarcasm. Now, fast forward to today, all the systems can capture irony or sarcasm with very small margin of error. So, we've come a long way. The issue is still that for specific structured data and that are not so much context dependent, it works pretty well. I see that working. There is no reason why that it should not. So, incorporating opinions in a brand branding campaign and whatnot, I think this can happen whether this translate into long term sustainable success. I have my doubts. Yes, and yes, I think that is the the core of the issue. about, about brand. So, the bottom line is, I don't want to downplay the usefulness of AI in supporting branding. It's extremely useful, for instance, when you need to scale up the fact that AI system can work with huge amounts of data and make sense in a way that is much more refined and faster than humans. It will have a lot in scaling up when a company experiences a huge market expansion, you can still maintain that level of refinement of your branding strategy when you scale up ten times, but whether you should rely on it completely my answer would be no, you should not.

Interviewer: So, it can be useful for heavy expansion, but it should be supervised by an human.

Interviewee: It should always be supervising anyway. So, my bottom line is that the autonomous system it's, I think it has so limited applicability. That when we talk about branding, it's, good for displaying banner advertisements on Facebook. You get very, very good advertisement very personalized. But branding to me with my limited understanding of branding has much more to do with the imaginary the vision, the feeling The spirit of the time, the context the immaterial values, that it should always be supervised number one, and you can only use it in a limited number of tasks such as, for instance, rapid scale, rapid scalability and the likes, but the ideation of a new branding campaign should not be outsourced to an AI system even if supervised.

Interviewer: Interesting. So, do you think that or how they think that AI may contribute to the relationship between a brand and a customer?

Interviewee: How as in?

Interviewer: Would it be able to would it be able to contribute to a relationship between the customer and a brand?

Interviewee: Yes, sure, as I was saying, the fact that you can scale up much quicker means that people, potential customers that previously could not be reached in such a level of personalization. Now can. So, that's one way. I think there's also this open issue of to what extent does the introduction of AI impact the element of trust that is so important in brand the moment that we still don't know what will be the long term reaction of consumers, when they realize that behind a specific message, it's not anymore Just very scientific methods just as focus group interviews and whatnot statistical analysis, but still human driven when this is replaced by algorithms. How would human consumers eventually react will that break the bond of trust? And then we will have a complete rejection of the systems or will it be considered just as part of the panorama and then consider something neutral that is just there, just one among many of the tools. So, we'll have a similar situation where now, when I see advertisement on Facebook, I know that is generated by a machine and still I can find it useful. But when a brand for instance, tries to deliver values related to I don't know truthfulness or whatever lifestyle and whatnot, will I be able then to see any value for me as a human consumer? I don't know I think the question is open and the problem hasn't been solved. I think the main element that will never change is that no matter how much you optimize the supply of the branding process, the end customer is still a flesh and bone customer. So, you need to deal with that.

Interviewer: Interesting. You mentioned before that it might be able to increase the relationship through personalization. Maybe getting closer to each individual will feel a little closer to the brand when it's personalized. And do you think this can have any consequences for the ability to differentiate among brands, meaning that if two competitors are using the same AI technology towards the same customer, will you then end up with a scenario where it's hard to differentiate because Both AIs are using the same data in some way, exposing this individual to the same personalized message.

Interviewee: Yes!

Interviewer: Could that be a scenario?

Interviewee: I think that is a risk. And if you think about it, it's a risk that is not intrinsic to AI in itself. The cycle between standardization and paradigm breakthrough is a cycle that we see in any human phenomena. Right? you see it in arts. Someone came up with the idea of abstract art some hundred and fifty years ago, which was groundbreaking. Then slowly, slowly, all the community moved towards there until it becomes the new mainstream. It doesn't provide any more added value until there's a new paradigm shift. It works with arts, it works with scientific communities, it works with fashion, it works in any social environment, I think what AI does is just makes the cycle so quick, because the standardization and the number crunching is so much faster. So, there's nothing new in that. I think where the novelty could lie. Yes, I need to think more about this because whether there's a novel element or its just a faster element. It’s hard to tell it's a very good question, but maybe I'll come back to that.

Interviewer: You mentioned both the, we talked about the ability of personalization, but also you said when, we all as consumers know that these messages are created by an algorithm, we might think of it in another way. Do you think the use of AI then may also affects the loyalty of a brand? Meaning that how loyal we are to each brands? strengthens or weakens?

Interviewee: Well, I think it can certainly give advantages. Think about like a small and medium enterprise that wants to enter a completely new market. While before it will take a year or two to reposition the brand. Lets say they want to go in the Chinese market and whatnot. Now, you can harvest so Much consumer data and you can shorten that time to market by a factor of ten. So, that, of course, will improve the brand experience eventually. But that's more like a tactical type of impact. To go back to my original point, from a strategic point of view, I think eventually it's still up to the human element that will differentiate between a successful long-term strategy and a less successful one. But there are huge potentials for some specific situation such as startups or smaller companies, or companies or large companies that work with large part target markets that needs to do marginally readjustments to their brand, but completely coming up with a new concept. There has to be a human element, I think.

Interviewer: Do you see or how may you see an AI system help in creating or contributing to making an connection or community between consumers.

Interviewee: Well, it can have a very powerful role. These algorithms are very good at identifying shared attitudes and behaviors and create micro communities I mean if you scroll your Netflix you have these ridiculous the micro targets type of categories, “movies of fiction in the eighties with Mexican actors” and you have a whole category on that. That category is generated by an algorithm. And what feeds into the algorithm is the consumer behavior. So, identifying these niches and putting them together is what's actually happening right now. Now, the point is, is that the limit is always that the next big thing the next big brand, the next big appealing brand is always the one that you yourself could not come up with. So again, based on this already existing past pattern can only bring you to a specific objective. Not much more than that, but yes, putting customers in communities facilitating transactions between customers, absolutely.

Interviewer: How can an AI system make consumers actively engage in a brand? make brand ambassadors or similar?

Interviewee: Well, it's a very good question. I think the starting point is that once you adopt this AI infused type of approach, then the feedback from the customer is not just an option or a byproduct its required for a system to go forward. Because the AI system in itself is only as good as the input of the data. So, you need continuous engagement from the customer. Now can the AI system, improve engagement, I think it can. directly by facilitating targeting. So, you develop a brand for that specific niche target and you provide that and that will result in engagement and indirectly by increasing the appeal of the brand, which in turn will motivate the end customer to co-produce the brand and engaging brand co production, I think these systems are good at doing that because they lowered all the transaction costs.

Interviewer: So, if you were to give any advice in relation to branding to advertisers who consider using AI in their digital marketing, what might that be?

Interviewee: Well, I think in this early phase, you can be a bit cynical and just work on a mental level. So, this AI now is reaching this peak of hype as a buzzword, that just by saying that you are using it, it automatically can give some attention. So, regardless of how much you really use it, just say you're doing it and you're going to be covered by media, youre going to be objects of discussions at the bar among friends. So, I will be very cynical, I would try to tap into this hype face. Now, if you look at the curve of hype how it goes over time, we are about to experience a descent where people will become very disillusioned. Everything AI, people will be sick of it and they will have like a rejection phase and then over time it will go back into the agenda again. But with a more much more balanced view, where people see the pros and cons, they realize it's not going to revolutionize the world but it's also not just a users gimmick

So, for this face number one, just use AI as part of the brand itself. I don't know, create visual marketing videos with an AI generated face that talks to you. Everyone's gonna love it, no matter you know, why you use that algorithm. In the longer term Always be aware of the AI limitations and resist the temptation to outsource the hard work of branding to the machines and the hard work of branding is identifying the sweet spot between conformity and novelty. And a human can do that much better than a machine now. So, the machine can support you with some baseline data and identification of baseline pattern. But ultimately the sweet spot is in the hands of human intuition and creativity. And by the way, it must be because, I mean, Karl Marx already figured out that technological competitive advantage is not a real advantage, because eventually all the other firms catch up with it, so then the advantage is cancelled. So, you know, he would say labor is always the ultimate source of value. So, in this case, it's still creative intellectual, but it's still labor. So, the creative intellectual labor, at the end of the day is the only or the most important source of value in the branding endeavor. I think that's going to be the rule of the game for our lifetime yet.

Interviewer: You talked about that, Right now, AI is on this buzz, it'll probably go down and we'll try it will see it slowly grow again. Maybe it'll be a little better developed a little refined when it starts growing again. So, how do you see future AI technologies, influencing some of the areas we've been talking about before. Do you think that it in time will be able to understand emotions? maybe work with some of the more fluent attributes like values or heritage?

Interviewee: Well, there's two scenarios here. One of them the most cynical would say, what we are witnessing now with AI is just yet another cycle that we already had first in the fifties, then sometimes in the seventies, and now it's coming back. We had these AI winters, and now we have a new AI spring. And after that, we're going to have another winter. So, nothing is new under the sun. I think that's too extreme on one side.

The other extreme side is that of course, we are at the verge of, you know, singularity, where humans will not be at the center anymore, and blah, blah. I think somewhere in between is most likely to happen. And I don't say that because I have any particular guessing abilities. But just by looking at history, I'm just behaving based on patterns. You have these extreme opinions at the beginning of a new technological breakthrough, but then in the end, it's always something in the middle that gets embedded in other societal forces and its part of a larger. So, bottom line? absolutely, the systems will be much more fine grain and able to imitate processes that are behind emotions and feelings and creativity. Will it ever reach complete, overlapping with human behavior in relation to empathy, creativity, innovation? I don't know. I mean, I'm not a psychologist, but I see human beings they always are in search for the novel. The unprecedented and how can you create the novel and unprecedented just based on pattern recognition, by definition there is a limitation in that. So, I don't know, again, it's very philosophical but my guess is that in the next ten years, we're going to see some huge improvements of the systems, they will be able to do things that we cannot imagine now and that include also better approximation to emotion-based interactions, innovation and empathy yes.

Interviewer: Okay, is there anything that might have occurred to doing the interview that you haven't thought about before?

Interviewee: Well, yes, it's I think before I got stuck into figuring out whether there is really an essential novelty related to artificial intelligence in the cycle between innovation and conformity. I haven't really asked myself that to a full extent. But yeah, it made me interested if anyone has articulated these problems in a way that I could learn something about. But it's much more about.

Interviewer: Anything else you think that we should know?

Interviewee: Well, I think you should know your research question because all these extremely general topics is very hard to write a project about. So, you should know that the fact that this topic is very interesting is a dangerous much as an asset because you can get lost in all these very high-level concepts and phenomenon while you need to really be able to say something specific that advances knowledge in your case, branding. So, I'm sure you're doing it but be aware of it.

Interviewer: Anything you'd like to ask us.

Interviewee: No, I think I have ready ask.

Interviewer: Cool, may we get back to you if we have any follow up questions based on it.

Interviewee: Yes!

Interviewer: Cool, thank you!

Appendix 9: Transcription of interview 6 - Rasmus Houlind

The interview with Mr. Houlind was held in Copenhagen on the 27th of marts 2019.

Interviewer: So first of all, can you tell a little bit about yourself. What do you do?

Interviewee: Yes, So, my name is a Rasmus Houlind and I am the Chief Strategy officer. So, I'm in the senior management team here in Agillic. Agillic is a software company and we do a customer marketing platform with something that you use in a marketing department to become more relevant in the way that you communicate your to end customers, both using a rule-based communication campaign-based communication but also a we've got some AI infused into it. And I have a background from Digital agencies and I'm also a published author, did a book a few years ago called "Make it all about me", it was actually published in Danish "Hvis det handler om mig, så køber jeg", I´m actually republishing it here in June with updated knowledge. So, I´ve duck pretty deep recently into all this stuff that gone [01:01 inaudible]. So, looking forward to that.

Interviewer: So, what is your relation to branding and AI?

Interviewee: That's a good question. What's my relation? I mean, I've been working with digital agencies for over a decade. And so within that I think we are_ within that period of time, we were mainly in contact with AI as sort of a more data discovery exercise, I mean, using doing exploratory data mining exercises, where you sort of went on the data discovery to find out what are the interesting correlations within your customer database and the natural segments based on behavior more than classical marketing demographics and marketing properties on customers.

So in the end, I finished at a the Danish Agency Magnetics in 2015, in the end of it, we were beginning to sort of touch upon the whole thing about predictive analytics. And big data as it was called back then was fairly big, I think 2014, especially 13-14 and the move from sort of doing data mining and data visualization into actually doing predictive algorithms was sort of taking place at that time. We were touching upon that and later when I came into to Agillic of course, that's been really picking up speed since then.

So, Brigham (?, 2.36) analytics has become a huge term, whether you'd like to call it AI or not, I don't care so much what we call it, but using advanced analytics is probably the term that I use, whether you're doing like neural networks or doing sort of more standard, BI operate analytics, it doesn't mean the world to me. So, I think that in in layman's terms, everybody just calls it AI now. We even see some of our competitors that actually don't do any kind of predictive analytics or even though they just to rule based stuff they call it AI, which I think it's perhaps stretching it a bit.

And then in terms of branding, you can say I've been in my career I've been mostly preoccupied with, I've never worked for an ad agency, so sort of the real big stories about what makes the emotional heart tick with people from a branding perspective. I haven't been _ that has never been my main focus. But I've Of course been, especially when I published the book, I was invited in by like any CEO of Danish ad agencies to sort of have a talk about having these discussions with a lot of people and I think it does very much relate to each other. So, starting from where it actually fits together you could say that using AI to find out the right timing and the right segments and when would people be interested in which product or which offer using AI to discover that and act upon that in terms of a marketing automation and being more timely and relevant in general and that will leave the end customers with a more positive brand experience.

So they'll feel recognized they'll feel acknowledged they'll feel that their history is taking into account and they are remembered they'll feel like this if they have been seen and not being sold to but more being

serviced. Because communication will be like the right time with the right message. So, and that's, that's one side of branding, obviously, I mean, so it can definitely enforce and strengthen the customer experience hence the brand. But what it doesn't do I mean, the other side to branding? That's sort of the, how do we paint the picture on the whole wide discussion, the brand purpose thing, and I don't see AI necessarily contributing a lot to that. So thankfully, I think there's still room for humans to figure out what it is that drives the emotional experiences with brands? because that taps into fashion and what's going on in the world right now, what's hot, what's not, trends and stuff like that is, of course to some extent, you can say that you could get a lot of insights into that from AI and from say that you take like all Google searches, Google Trends that is to some extent AI and tapping into that can definitely fuel the creative process, but taken to the level where you actually make AI come up with, so what is our ideal brand identity? and what is our ideal brand story and such? I don't see that happening sort of anytime soon.

But what we do is see is I mean on a sort of when you're doing creative, such as doing a copy text for emails and subject lines and stuff like that, also doing images, there are some companies that are experimenting with how can how can we actually use AI to put together for instance, different subject lines and figure out what would the best subject line be in terms of getting a higher open rate, stuff like that. And so, I don't know if that's branding, but it’s at least it's not only about when and where, but it's a bit closer to the creative message in itself and making sure that that somehow something we use AI to.

Interviewer: I´m sure we are going to touch upon some of that again, soon.

Interviewee: Yeah, you got me started.

Interviewer: True. So, starting with this simple attributes of a brand, do you think that this technology is able to increase awareness of a brand for digital communication? are you able to recall a specific brand based on what is perceived to you by an algorithm? Should I rephrase?

Interviewee: Yes, well, you're talking about brand awareness, that's the key thing that I took out of this question. Can AI help better brand awareness? yes, definitely. I mean, using, for instance within.. Let me put it in another way, so brand awareness that's sort of in the top of the funnel, sales funnel a lot. So, it's about being known and it's about having people to.

Interviewer: Recall a brand.

Interviewee: So that's actually a lot about how you do paid media. I mean, how do you do your advertising and how do you get your message and your brand in front of the right people and you can say without AI, I mean, you can be super random you may be able to like segment where you would want your advertising to be seen. And the way that happened in the old days was that you say, I want to buy all the advertising space that you have on the front page of a specific newspaper, or a specific magazine, or a specific media. And then you sort of note depending on what that media was, which kind of people would come by there. And so that would be your way of making sure that you didn't waste too much of your advertising budget because you would be at least, you would have somehow segmented who it is that you are paying for exposure against and the way that has changed within advertising is that now you buy audiences you can say, so instead of buying placements then you buy audiences.

So, based on AI models that are both determining what is the semantic context of a newspaper article for instance? What is the topic there and what is it talking about and is it in a good or bad mood it leaves you in? what´s the sentiment? That’s definitely algorithms that are categorizing every page and all the big app platforms at certain platforms, they are controlling this. Also, they're doing profiles for the with the visitors, the website visitors, I mean, even though they're anonymous, so based on your cookie history and all the

other pages that you've seen your classified in a sort of a probabilistic way into different segments and stuff like that, and that's definitely AI doing that. So, the way that you can do programmatic advertising and buy into certain types of segments, I mean, that is definitely AI working for you in terms of getting a better brand awareness and because-- I mean you could argue that Okay, let's just shout our brand super loud at everybody out there and then we will ultimately get a better brand awareness. But it doesn't necessarily help you, I mean you can definitely get a better brand awareness doing that but you'll also get brand awareness for some people were it wont make a difference for you. So, an example of that. When was the last time you were in Copenhagen Airport? Recently?

Interviewer 2: August

Interviewee: Did you see a commercial for working shoes?

Interviewer: Maybe. A black and yellow one?

Interviewee: I don't know what it is. But I come to the airport fairly often. And I see, I don't even remember what the brand name is, but I can probably do it, if you mentioned, I say, “Oh yeah, that's the one I see at the airport all the time”. I think maybe it´s Airtox or something like that.

Interviewer: Some black with some yellow stripe?

Interviewee: They have different models. My point is here that this company, which I'm not quite sure what's called, they're spending so much money on advertising in the airport for worker shoes. And they are, of course a lot of workers working at the airport. So, it's not super wasted. But they are also getting a lot of brand awareness from someone who will never wear a working shoe. And so, I mean brand awareness it's not just a simple figure, it's also about do you have the brand awareness within your target group that you'd want. And especially that is something that you can help through AI and that has been going on for years.

Interviewer: Okay!

Interviewee: The way that we at Agillic are able to emphasize that to a further degree is through I mean the match of data from what you could call owned media, all your first party data and doing a match from that into the paid media universe. So, instead of getting your target audience from the paid media data sets the cookie data sets out there, you can actually import some of your data from first party customers. So, say that you have Sport Master, for instance, one of our clients, and they do a segmentation in their database potentially using AI. So, who has the highest potential for spending a lot of money with us in the upcoming year for instance, that you could have an algorithm doing that, then if you take that specific part of the database and you mirror that into the in-market data into your advertising, say okay, so to these people who are potentially becoming really good customers with Sport Master, what is there in market behavior, which web sites do they visit and which articles and which kind of browsers are they, you can say, and then you ask the advertising platform to find someone who looks like them, lookalike audiences and stuff and you can do that both within I mean, the DMPs, such as like ad form, Google DoubleClick and stuff like that, you can also do that within just normal Facebook lookalike audiences, custom audiences. And so that's where we tap into this, we supply this because I mean if you have a lot of data, then it would make sense to leverage that data in your advertising. Whereas, if you don't then you have to do with the in-market behavior.

Interviewer: Trying to figure out how the technology or what the technology can actually understand and communicate. How do you think that AI when used for digital marketing communication are able to communicate brand attributes like pricing level, design, style, or some special benefits of a product or brand? Is this something it would be able to identify and maybe use?

Interviewee: Yes, I think to some extent. So, what you could do, say that you were _ so that you are out there to buy a car and or even better, let's imagine that you are car salesman or that you are a company selling cars, Volvo or whatever. So, there will be at any point in time there will be X billion people scouting the market for a Volvo and for them it will be, for each individual potential customer it will be different things they have on their mind in terms of what's the most, what are the most important factors in driving a purchase for them.

So, some will be really interested in how is the "Køreglæde" I mean how joyful is the driving experience. Some will be mainly preoccupied with what is the safety features, some of them are into like practicality and I can fit a pushchair in the back and how much space is there, and some will be very preoccupied with the design of the car and so on. So, there are like different attributes that will matter to different grief for each individual and customer. And I do believe that you could set an algorithm. So, if you have a lot of data on a potential customer, you could set up an algorithm that could determine with some degree of precision, which factors will matter the most for each individual customer. So, that's definitely doable.

Interviewer: Okay!

Interviewee: I don't know if that answered your question at all?

Interviewer: Yeah, that answered it fine. How about, you mentioned earlier there might be some problems or issues with more fluent attributes. So, how do you think AI when used for this purpose is able to communicate brand attributes like values or the personality of a brand or the heritage? We have previously talked with others about Bang and Olufsen, their Danish heritage, could this be something that algorithms or the use of AI would be able to identify as a core thing of them and use it.

Interviewee: I think again, and in line with the answer that I just gave, I think that you could use AI to find out which of your customers the history would matter for. And that's definitely interesting. But in terms of putting together the brand story as such, I mean to come up with sort of what are actually our core brand values, and I think you could use AI or data analytics for the exploratory phase. You could, potentially you could I mean, in terms of finding out which images support these brand statements that we think are the most important, you could probably also have some AI to come up with some suggestions for that. But as it is now, you'd always have like human interception and like someone has to look at this with the human eye and make sure that it makes sense and it's not making bollocks. So, like to put together say the ten words that really frame what your brand is about. I think it will take a lot of time before you'll have an AI algorithm doing that work for you. But I don't necessarily think it's impossible.

Interviewer: Okay!

Interviewee: And then you can say, take a company like Bang and Olufsen. They have like a heritage and a story that I mean it is what it is and it's a big part of their storytelling and where they come from and proud engineers and so on, how they enjoy it. And it doesn't make sense to make that up as such, I mean, then will be super fake. So, it's more put them together how you I mean, which parts of that story do you choose to emphasize? What's the angle that you put on it? and I don't see AI at the present time to be able to do that work for you. We need a human mind for it, because there are so many factors to put into this. It's a lot about subjectivity and taste and what's up here now and what do you like?

Interviewer: What about something even more fluent, how do you think that an AI system would be able to incorporate the feelings that a customer might have when dealing with the brand?

Interviewee: Okay, that's possible, I think, because a lot of, I mean, there's already a concept out there, which you've probably touched upon called sentiment analysis. And that is a sort of an AI tactic. So, deciding which kind of mood does something put a customer in? and actually one of our clients thats Storytel, you probably know them, they are an audiobook subscription service. You can also like read the books there, and they are actually already using AI to analyze books that no one have read yet. So, you have an algorithm then you throw a manuscript into the algorithm and what the algorithm does is that it does what you call feature extraction. So, it takes Okay, so reading through the manuscript, it can determine to an X degree of probability that the protagonist is male or female, for instance, it can also decide which kind of genre is this, it can also decide looking at sentiment, what is sort of the curve of excitement throughout the book, when is the point of no return? And when is it going good for the protagonist, when is it going bad, and which mood will this book most likely put you in? Is this like a sort of invigorating book that makes you like, feel like you want to go out there and do stuff, is it something that's a bit more sad and emotional and more melancholic.

And so, they have algorithms, going through the books looking for that, and being able to determine that, of course, it's not exact science, because I mean, it will be probabilistic data, probabilistic views on this, that can look into that. So, that's one way of looking at it. Also, looking at _ take a company such as Under Armor, which you probably know, the ones who bought Endomondo the Danish like fitness app. So, they've launched a few years ago they launched this digital product range that is like a personal scale weight thing where you can weigh yourself and you can see how much kilos you weigh and you can see what is your body fat percentage and if you enter your height and your age and stuff like that, and also there's like a wristband like a Fitbit thing that measures your pulse.

And of course, there's the app and there's also like a chest strap for when you're working out hard, it can on a more granular level determine your fitness level. So, imagine that you are wearing that all the time, the band that is measuring your pulse, and they can cross reference that data to when you are exposed for different kinds of stuff. When do you see the Under Armor adds for the new clothes and when are you browsing their websites, and what happens to your pulse when you are browsing that website and stuff like that? I mean, I see it within reach and within grasp that these data means something for which state of mind you're in, and how you feel to get excited when you see the new model of whatever collection that they're launching. So, yes, I think that's definitely possible.

Interviewer: Okay!

Interviewee: I see it more possible and more a plausible that this will happen. High probability than the what we discussed before.

Interviewer: You mentioned both sentiment analysis and the thing about storytelling. Do you think that the system will be able to have a grasp of what a feeling is? or would it be just be acting based on the core actions of an individual?

Interviewee: The algorithms don't care. There's no one home. I mean, it does what you tell them to, and you have to set the direction. I mean, algorithms don't come with an intent as of yet. So, I mean, that would mean that we need to get to some kind of singularity you can say. So, where the system is self-referencing and having like an intend of its own, and as it is now, you can say that, the way that we're looking at AI and technology in general, it's like a, like an extension of the human capabilities and that's how technology has always been. So, you had like the car which is essentially, like an extension of our physical capability of moving around, you have the, I mean, in the same way you can see algorithms/AI as something that is extending our mental capacity. But they don't intrinsically carry any intention or something, of course.

So, whatever bias that you are building into the algorithm, they'll keep on having forever and there are so many examples of that. So, if you have, for instance, there will be some of the, like facial recognition apps, that they, some of them work primarily on white people, not on black people. And I've seen some algorithms being terribly wrong when thinking that some black people were monkeys. And because maybe they've been trained wrong with the data set. So, whatever bias that we're feeding into the algorithms, even though they are self-learning, whatever bias that we're feeding them with is something that will stay with them. Also, there was this AI chat bot that someone taught to be a Nazi. I think. So, there's so many examples where you can sort of fool the algorithms. So, as it is now, the algorithms work best for like isolated purposes, that sort of really narrow, and thinking that you can use sort of the same algorithm, same set of algorithms for like a much wider purpose. I mean, I think that's a present time, not doable. 25.42

Interviewer: You said that it was in some, to some extent able to identify feelings, do you think that it would be able to evoke feelings in customers intentionally?

Interviewee: Sure, I mean, so if_ and that's essentially what Storytel are doing. So, if they see that you are mostly reading your melancholic romance novels, for instance, then it will recommend you to read more of those to keep you engaged. And that will of course, evoke that kind of feeling. But it won't ever realize what does melancholic romance mean to a human being.

Interviewer: It’s a variable.

Interviewee: Yes, exactly. That´s just another feature, just a specific data that is recognized and it doesn't look upon that as something else, than, I mean, it's just another data pattern, it doesn't care.

Interviewer: What about something like consumer opinions? do you think that such a system may be able to understand and use opinions that customers might have towards a brand like their credibility or the perceived quality of a brand?

Interviewee: Repeat that.

Interviewer: Sorry.

Interviewee: Can you repeat that?

Interviewer: Yes, of course, do you think such a system would be able to identify and use the opinions that consumers might have towards a brand, like the credibility or the perceived quality they have?

Interviewee: So, how the consumers perceive the brand?

Interviewer: Yes!

Interviewee: Whether it can influence that or whether it can determine that?

Interviewer: Whether it can identify that maybe use it?

Interviewee: Sure, I definitely see that happening. So, one of the things that AI can definitely do is that you have _ say that you have your full customer database, then you ask everybody, what do you think about us? send them an email. And you were so on a scale from zero to ten? What is the likelihood that you will recommend us to a friend or colleague that happens all the time standard Net Promoter Score question, then only very few people will answer that because people don't care about answering that survey. So, someone will put in that, yes, we like it very much up till nine or ten, they'll be a promoter, then AI can look at that data set, okay, who actually answered nine or ten positively. And based on the similarity between these

customers and the rest of the customer database, it can determine the likelihood of which other customers, if they have answered, would also have answered nine to ten. So, that's, I mean, given some data, it will make a probability of someone else also sharing that same characteristic.

Interviewer: Okay!

Interviewee: So, that's definitely possible and that's not only for satisfaction, customer satisfaction (Inaudiable, 28.43), you can do that with, you say that you have the income level of some of your customers. So, based on all kinds of data that you have on the other customers where you don't have the income level, what is the most likely income level? So, that's definitely something you can do.

Interviewer: Do you see such system contributing to the relationship between a brand and the customer.

Interviewee: Yes!

Interviewer: Okay, through?

Interviewee: Through all of the above.

Interviewer: Personalization.

Interviewee: All that we went through. So, both finding out what matters to people and which products do they like and what do they feel are important and by communicating that in a timely and relevant manner is definitely something that is contributing to how the brand experience is.

Interviewer: And do you think that could be able to contribute to the brand loyalty of the consumer?

Interviewee: Yes, I put a big equal mark between there.

Interviewer: You mentioned that it would be able to based on the perceived quality, for example, find the nine-tenths, who are promoters and maybe try to identify some that would have said the same. Do you think that such a system would be able to make more consumers actually engage in a brand, become brand ambassadors or?

Interviewee: Yes, I mean by asking people and finding out who are the most loyal customers. I mean, that will not in itself create more loyal customers, you just get to know who they are. And you could of course, use that for instance with who you are. I mean, who's the most satisfied with us then you can know who to invite for launch party, or who has the most influencers on social media? Who will most likely, who should we do a favor and they'll talk positively about us. And that can then lead to more customers coming in that way, but also, as we touched upon before, the whole point of being more timely and relevant in your communication that will ultimately create more brand loyalty, more loyal customers leaving, I mean, more repeat purchase, stuff like that. I mean, that's what we do at Agillic basically, that's what our platform does. That's how our customers use our platform. That's the main purpose of that.

Interviewer: When you personalize, when you try to personalize your communications to the individual. How do you, may it have an influence on the ability to differentiate a brand? If you and a direct competitor is using the same AI to the same customer? Could you end up in a situation where you're actually exposing this customer to the same messages? so to say, how are you able to differentiate yourself from others?

Interviewee: That´s a good question, I think, I mean, anything's possible. So, you could potentially end up there, but I don't think it will be very likely. Because your data set will be different. And I mean, in the-- Looking at chaos theory, you'd never have the same dataset. I mean, chances are so infinitely small that it

won’t ever happen. And the thing with the algorithms and the AI is that they are only as good as the data that's been used to train them. So, even like, we have the, I mean, that they're like in, many of these AI models, they are like off the shelf things. Like a model (Inaudiable, 32.22) or a RFM model. And I mean there are many of these are sort of standard of the shelf things, but the way that you orchestrate them and the data that you use to train them will always be different. So, even though you have the same algorithms when they've been trained using different datasets, they'll behave differently. So, most likely not, that will be a strange coincidence. So, that's why the data is becoming sort of the new gold because really your data set, the completeness and your ability to work with that will make more difference than the algorithms because they are _ a lot of them are actually Fairly commodified.

Interviewer: Okay, very interesting. Do you see a situation where an AI system would be able to create a connection or community between consumers, peer to peer?

Interviewee: I think that's already happening. I mean, your list of suggested friends in Facebook, that's most likely AI doing its work there. They're tapping into you see, I don't know how much you use LinkedIn when you're still a student, but whenever I connect with someone on LinkedIn, or I get an email from someone then Facebook, suggesting that I friend them on Facebook, so that's already happening.

Interviewer: Okay, interesting. So, if you were to give any advice in relation to branding to advertisers who consider using AI for digital marketing what might that be?

Interviewee: Well, first of all, I think most advertisers are already using AI in the advertising because that's how it works today. Super full of algorithms. So, I don't think they're necessarily considering it. I think that's a given, where you are now. And so, what will my advice be. I think with advertising it's not that, it's a little less dangerous because you don't expect, you don't mean, ads will rarely become really creepy. You can say that it’s a bit creepy when you are stalked with a pair of shoes that you already bought. But it's not like, it's not personal in a sort of creepy way. It's just annoying, basically. Whereas if you do more direct marketing and direct communication that´s where you can more easily step over the line. I'll give you an example of that.

So, and this comes back to the training of the algorithms and make sure that you have humans overlook the answers, so nothing unexpected will happen. So, we have one of our clients is called InterFlora, you probably know, and they're using AI to determine from the text of a greeting card. What is the occasion of the bouquet of flowers, which it usually is, what's the intention behind the gift, what is the occasion and what is the relationship between the buyer and the receiver. And so, for instance, if someone has _ if you can see in the greeting card that it says birthday in the greeting card, then you could, most likelihood, it will be like a birthday thing and then the next year, maybe you'd want to buy them flowers again. So, if you do a simple algorithm that, you'll hit most of the of the occasions, right. But on the other hand, you could be, so if you do like a message on that saying, hey, you bought a birthday bouquet for someone, we suggest you do that again.

So, if you explicitly state that knowledge and you say that claim that you know this, then you have to be extremely careful, because then you have a greeting card saying something like, dear mom, on Thursday, we would have celebrated daddy's birthday if he hadn't died from cancer. So, imagine that you, I mean, you'd have a too simple algorithm, where you haven't taken into account, the fact that maybe not looking at the sentiment. This is actually an emotionally sad email, and mostly sad greeting card. If you don't filter that out in your algorithm, then you can really annoy people and actually hurt their feelings, and they will be having a tremendously bad brand experience for that individual and may even blow up into a shit storm or something like that.

So, I´d advise people to not go into this to trusting. I mean make sure that you relate to the output and you do quality assurance on the output and you make sure that you do that with human supervision definitely because; I mean, I've seen so many crazy examples of that. Also, someone who's selling phone covers on Amazon, having AI algorithm to find out, find crazy images from the internet and suggesting people buy these on phone covers. And you have some examples of someone who like, no one would ever buy a phone cover with someone wearing and adult diaper. That it's like super strange. But the algorithms they don't know this, so just see if it works right, would try this image, see if someone will buy it, and then you end up with these crazy things. So, the data set and the quality assurance, the human supervision. I mean, we're totally not there yet where you can just let the AI run amok, because that would give super weird results.

Interviewer: So, we're not there yet. But do you see AI technologies in the future influencing some of these areas? Maybe limiting the human situation requirement?

Interviewee: Sure, that's an ongoing thing.

Interviewer: Do you think, we can get to the extent where we don't need human supervision.

Interviewee: I think, human supervision that's something you choose to do or you not. So, whether you can do that depends on what you're out for. I mean, it depends on what you're trying to achieve. So, yes, in some cases, I think you can. Say that you are _ that you don't give a shit about your brand and just want to sell more products, and then you are blindly optimizing algorithms to show which products, I mean, that may generate positive revenue for you to some extent, but then you'll have to live with the complaints when you are I mean, proposing that people buy silly stuff as for instance take the InterFlora example again, I mean, if you look at it from a purely, I mean, during the stupid birthday algorithm, you would hit some people, where it will be super inappropriate and they'll be sad and worried, but it may not necessarily have any big economic implications because looking at it from a general level, the birthday algorithm would still give you real good insights from most of them, which would then work. So, that's a choice really. And that's a sort of risk looking into the risk of that.

Interviewer: What about the more fluent brand attributes like, we talked about brand value or the heritage, do you think this is something that AI in the future will be able to comprehend? and maybe use?

Interviewee: Yes, to some extent, yes, I think so.

Interviewer: Is there anything else you think we haven't touched upon that you think we should know?

Interviewee: No, I think we've been around.

Interviewer: Yes, anything that occurred to you during the interview that you hadn't thought of before?

Interviewee: Most likely.

Interviewer: Okay!

Interviewee: I can't recall exactly what, I think it was interesting how you had like distinguishing between like three levels of what AI can do. I think there was an interesting point where you seems to me like from your questionnaire frame that you were thinking that the last one was the one that was the least probable.

Interviewer: You were talking about the, I think you're talking about the more functional brand attributes, then the more emotional brand attributes and then emotion, right?

Interviewee: Yes, and determining emotion. I mean, not knowing what emotion is, but still giving some kind of feature extraction, that's definitely doable. But putting together the creative, putting together the text, finding out what images would be right in context with this, and determining whether something is a good image for branding or something, that's probably the most difficult part. So, you'd still need human creativity to interpret things and to come up with creative ideas and mindsets. Because as it is now, we still see connections that the machines don't.

Interviewer: How do you see the abilities of AI systems being able to construct to text ads today?

Interviewee: Yes, that is already going on and something that is being worked on, and I think in very isolated scenarios, that works. Always better for English than for Danish. Danish is always a bit down list on which languages to incorporate. So yes, that's already going on and that's definitely something that you can use AI for. But if you take that to sort of the, on a more strategic level that's where AI still can't help you define. So, what should our, what should the main idea behind our next branding campaign, what should that be?

Interviewer: So, it should be simple if the AI should be able to communicate, like simple selling product, e-commerce?

Interviewee: It has to be very operational.

Interviewer: Okay!

Interviewee: Yes!

Interviewer: Interesting. Is there anything you would to ask us?

Interviewee: No!

Interviewer: Okay, then thank you very much!

Appendix 10: Transcription of interview 7 - Jakob Bartholdy

The interview with Mr. Bartholdy was held in Copenhagen on the 3th of april 2019.

Interviewer: First of all, if you could tell a little bit about yourself, what do you? Who are you?

Interviewee: Sure, well, my name is Jacob, I'm an account executive at Episerver. Episerver is a company, we sell a suite of products to basically enable companies to sell their products and services online from a content management perspective, and product perspective and kind of a layer of AI and machine learning on top, my role is kind of two sided, I'm working a lot with the existing customers and ensuring that their digital initiatives for example, the upcoming year, match that against the platform they bought, and from a business perspective, kind of help them enabling all the technologies for while very interesting, but if it hasn't got a business value, it doesn't really make sense. I'm kind of the link between the tech and the business.

So, I'm not hardcore technical. But I do have an understanding on what you can do with the different kinds of technologies and what the limitations are and more kind of a foot in the business side of things. So, that's one part and then of course I also cut the whole evangelism of Episerver speaking at conferences and getting new businesses, so that's basically what I do. I think I've been here for five years now which is in this line of businesses, way too long.

Interviewer: Cool, So, what is your relation to branding and AI? If you have any.

Interviewee: Well, we work with customers, you know, on every line of business from B to B companies selling you know, toilet seats to high end fashion brands like Tommy Hilfiger where you kind of sell the experience. So, mostly were we and myself come in is helping the companies using our technology to stay as relevant as possible to basically enable their branding to always no matter where the customer engage, it's relevant for who they are, where they are, what they've done before, what products they have bought, what products they like, what products they don't like. So, it's -- if you kind of boil it down it is a massive what's called relevance engine in terms of I present the correct product from this brand. I enable a brand to communicate with you in a certain way but slightly different with you because your interest differs a little bit. You like you know, green shoes, you like blue shoes. So, from a branding perspective, that's where we come in terms of we want to keep it relevant. We basically come from the sales side of things, also ensuring that conversions are as high as possible. So, all the money you pour into your digital marketing, ensuring that also converts, once people actually comes to your website or your app or, whatever channel it is in.

Interviewer: Okay, cool. Can you explain a little bit about your software?

Interviewee: Sure!

Interviewer: What does it do?

Interviewee: Well, it's a platform for content management which is you know, the management of content and a commerce platform. So, it's kind of bound together the two, so you have kind of it very quickly, as you probably know, by now AI and this whole line of business becomes very buzz-wordy very quickly. But we talke about the experience driven commerce. So, instead of having Amazon which is really excellent in selling products but it's not a great experience it is a very efficient experience. You find the products you want and their AI is off the charts. But when you do the experience, that's where the branding part comes in. We tell the story about products the story about why your shoes are amazing and why you should buy your shirts, and so on. So, that's the whole content bit and then combine that with the commerce bit, where you actually start to sell products, you start to utilize AI on product recommendations you know, from other websites, that people who bought this also you know bought this.

And there's a variety of things you could do behind that with the Episerver platform in terms of, do you want to, you know, if you look at this pair of shoes, these are kind of similar and a slightly more expensive so you have a possibility to upsell the customer, you know, get the average order value up as well. So, that's one part of it. And then on the content part in Episerver, we've actually reached the point where the machine can determine what sort of content should I show to you, based on what did you search for your came in? What did you click on and so on. So, I'm building a more individual -- back to the relevance thing basically, and more individual kind of experience based on who you are. I can do that on the content, and I do it on the products as well and then basically engine.

Interviewer: Okay, interesting.

Interviewee: The short version.

Interviewer: I'm sure we'll dig a little bit deeper into that, moving into the different parts of a brand that it might be able to communicate or how it could communicate it. Do you see AI as capable of identifying, increasing brand awareness to an extent where you can recall a specific brand based on what an AI delivers?

Interviewee: Definitely, some are there-is and some are getting there, but it's again, enabling a brand to speak directly to you. That's what you remember instead of the classical billboards, kind of bash up and then hundred thousand people walk by and then you know, maybe I don't know X percentage of them actually resonates with them the messaging you see, but with AI, you can -- with this big, you know, board, you can adjust it to every single one of the hundred thousand that comes up just slightly, you know, colors, texting, wording, whatever it is still within your brand. And this will enable you to, again back to the relevancy, if you have a relevant -- feels a personal experience with a brand you will remember it, the more generic a pair of shoes, probably, unless it's directed on you, you probably won't. So, definitely, I think AI -- it will improve over the coming years. It's still in the buzzword phase, but within the next three to four years, definitely.

Interviewer: Okay, so to what extent, how do you think AI when used for digital marketing is able to communicate attributes like the pricing level of a product, the design, the style, maybe some special benefits of a product.

Interviewee: I think it's excellent for it. Again, back to if I'm looking at where we come from if you have AI, it's basically -- a lot of it is predictive analytics. So, it's, you know, the thing I hated most in school. But it's basically statistics. It's saying in fact, if I'm going to show you this, if I'm going to word it like this statistically, you will buy my product statistically, you buy a more expensive version of our product.

So, what I know someone has done is also not just experiment with what's the texts going to be like, which product I am going to show you but also experiment with the pricing. So, it actually becomes more of an individual pricing saying that based on your profile, we done -- it indicates that you might actually be willing to pay fifty crowns more for a pair of shoes, then you would. So, why not try and push this an extra fifty to kind of have the margin and the other way around, if you are more sensitive to price, we will either show you a cheaper version, or actually adjust the price itself within given parenthesis. Again, because it's automated with AI and algorithms it can be done on the fly, instead of being kind of a manual process.

Interviewer: What consequences to see that having for customers in the end, when they figure out that there neighbor got the same product for half the price?

Interviewee: Exactly. I mean, that's the danger. I definitely don't have the solution for that because that is the danger of a short term -- great you bought the shoes and then you tell it and then you're like, shit, I paid

a hundred crowns more for that pair of shoes. How you sort that conundrum? I'm just not sure. But it would be an issue. I do agree.

Interviewer: Okay, what about you mentioned its ability to change text so to say. So, what about brand attributes like emotional attachment or values, personality or heritage of the brand? Would that be something in AI technology would be able to identify use maybe.

Interviewee: I think we will definitely reach a point where it will be able to, again because you can just build these very powerful profiles, people like I mean, just today, if you take Facebook, what they do, we don't even know half and they just know so much about you everything from you. Everything, you know, from your political orientation and sexual orientation and whatnot. So, I definitely think that AI will be able again to adjust the brand experience within a given set of parameters which is the brand to reflect whatever, basically, wherever the visit is coming from in terms of also more of a personality trait. Because it's the whole kind of thing about big data, we just build these models that can do incredible things. But also, you kind of think about scary things in terms of the profile they can do with you and you know, the accuracy of actually doing this is very high. So, that would be yes.

Interviewer: Okay, also with the current technology that we have today, you think?

Interviewee: I don't think we're there yet. A lot of this tech -- we're also in place right now where a lot of companies, of course not us, but a lot of companies are throwing, you know, two letters AI in front of their brand or in front of their product or in front of their service, saying 'Hey it is AI driven-, and some of them are and some of them definitely art. So, we're still in a maturity phase. But I do believe -- I mean again, in a time of three to five years from now, three, probably not even more. I mean, I wouldn't even be able to know what kind of things would pop up, but it will come definitely, but I don't think as of today, I don't know someone who can do that. Amazon is probably the closest, or Facebook.

Interviewer: What do you think are the boundaries of that? Why can't we do it today? Do you have any idea?

Interviewee: I think it's both technology in terms of actually making this accurate enough, but that evolves very, very fast and then also, I mean, one of the challenges will be the awareness, there is a data with the GDPR for example, what that means and people are starting to become more aware that if something is free, then you know, you're the commodity and so on. So, but I think where we are right now it's more of a technological issue.

Interviewer: How do you think an AI-system might incorporate the feelings of a customer? Will you be able to identify that? And use it?

Interviewee: I think -- yeah, I mean, I did a presentation last year, which was actually today an online service called, I think it's called Persado, which can actually go in and when you are writing emails, it can go in and if you're writing an email or a newsletter about something, then you can go in and based on the profile store it has of your recipients, and then change some of the wording. So, that this would drive you know, the best conversion of signing up to a newsletter or clicking and ad or buying the product. And that is -- it's kind of touching upon the emotional saying how should I word something to make you feel good to do the action that I would like you to be, so it is basically the text is the same but it's changing words along the lines in the text, because again, based on statistics, this would enable you to do the action that I would like you to do. So, it's kind of there-ish. But.

Interviewer: That would be the AI optimizing from -- based on some variable, it doesn't really know whot is, but it can see that it leads them to convert, right? It wouldn't understand a feeling but it would use it as a variable, right?

Interviewee: True!

Interviewer: Would it be able to interpret feelings, do you think? To see a customer behaving in certain way?

Interviewee: I mean, already today I know. I think it is 10-cent in China that has a facial recognition technology that can assess your mood by looking at your face, it can assess if you're sad or happy, you're this, you're that. So, that technology exists already today. But I mean, it has to be kind of what I'm thinking anyway, kind of a physical interaction of you being there, reading your face, doing it in a text thing probably would be more difficult, but it could probably be done. But I know today the technology is there to by facial recognition, you know, determining you're happy, you're sad. And then I guess based on that you could produce, show you a specific item treating you in a specific way if you are in a shop or send you a specific email. So, I guess, yeah.

Interviewer: You mentioned the technology you're working with when you try to personalize it to an individual. Does the algorithms to so say or the software does that build up the text based on something that exists currently, or is it just manipulating a couple of words based on something you have provided?

Interviewee: As it is of right now, usually we have you have -- we call it a content hub, so that the content is still man made, it will be for some time but again, who knows -- the content is still man made. So, you produce a lot of content that you think will be interesting for the audience and then you throw it into this content hub and that then choose through the content -- it reads the text looks, at the pictures, tags it with relevant tags. So, based on that it will then present the content to your profile and some different [inaudible]but it will not as of today change the actual content that still the same, we are not there yet as a platform. So it will send that out and then based on that, it's kind of looks on the performance saying, so I showed you this content did you convert? Did you buy a product? Did you sign up to our event or whatever, and then it gives feedback back to the content authors saying, right -- this piece of content you did that performed really badly. But the one that you had that was great. So, if we could do more like this then we can do so it gives suggestions back to -- Not what didn't work in the content but saying this piece of content with great, this not so great. It's still kind of a manual process to you know, to then adjust the comment.

Interviewer: Okay, how far do you see as being from algorithms making text pieces? Optimizing etc.?

Interviewee: I know of another service called -- I think it is called phrase. What it does is it actually -- still simple -- but then again, it takes the everyday report results from the stock exchange. And based on -- because that's numbers, so you can very easily say is it good or bad or this one over that one -- and based on those numbers it actually writes the text for AP Reuters, so in terms of market reports. So, it says, you know, this was a great day for Mærsk because that went up and a shitty day for Facebook because that went down, that's actually fully automated and they use that in their newspaper. But, I mean, again, it's technically very savvy, but it's based on numbers. So, it's easier for a machine to, you know, understand this. But at some point, I do believe that will see that but it's still some years out. But definitely…

Interviewer: How do you see an AI system incorporating opinions that a customer might have, like the credibility of a perceived quality of a brand or product?

Interviewee: Again, I mean, I think it would be back to kind of where we come from, you know, being relevant. Trying to adjust the messaging to you. And again, within a set parameter of what we've decided our

brand is, but it is a more difficult one because every time it becomes less quantifiable, we can not put a number on it, then it's harder to -- Because, what works and what doesn't. So, I don't think we can do it today. But again, it's kind of repeating myself saying that, you know, definitely at some point, definitely, but not as of today.

Interviewer: It's still trying to figure out the boundaries.

Interviewee: Yes!

Interviewer: We tried to make it as little quantifiable as possible and see what you can do with it, right? Okay, what about incorporating something like reviews? Could that be a solution to an AI getting an understanding of perceived quality or similar?

Interviewee: I definitely think, I mean, what the algorithms we have for example as the machine learning is that you can train the algorithm saying that you know, give them a set of data and then train it on that and you'll be able to do that with a review as well. So you say this is a review of you know, this bottle and then you put in a hundred thousand reviews and choose through that and say, you know, was this is a bad or a good product, How you use that marketing, I mean, you would be able -- I don't know how you incorporate that in the branding as such, but I'm sure you could teach based on reviews. So, an AI differentiate saying, you know, this is a bad product, this is a good product and the attributes that people love in a product and the attributes that people think are really bad.

Interviewer: Okay.

Interviewee: Definitely.

Interviewer: Interesting! Now, how do you think that AI might contribute to the relationship between the brand and the customer?

Interviewee: I think, and I hope that it will improve the brand. It will, what we are seeing from the customers we are working with is a lot more also direct to consumer. So, you are kind of skipping the middleman of the wholesale, the shop where people go in and makes you as brand able to control the brand experience much more. And you're also selling directly. So, there is also a higher margin. That's always interesting. And as a brand when we sell direct to you, in our day and age data is you know, you know, the new gold, as everyone says, because if you have a middleman, you don't get the data on your customers, you don’t have the direct contact with your customers, again, you know, reviews, you get the feedback directly. You can react to it, change product or changing pricing and whatever it might be. So I think AI is going to make it I don't know if it's the easiest, probably the wrong word, but it's going to make it, it's going to give brands an opportunity to be super relevant and have a direct contact to their customers -- to the end customer, which a lot of them don't have today because there is a middleman and they don't really talk directly as such. I think AI can definitely help.

Interviewer: How do you see that contributing to creating brand loyalty?

Interviewee: Again, I think definitely because it's the relevance of knowing both, you know, what kind of messaging we send you. You bought this product also, you know, two days we also have this great thing that goes great with the other thing that you bought, and give this feeling for me as a customer that the brand knows me. It knows what I like. It knows that I love this pair of shoes. So now there's a, you know, whatever, matching T shirt. And it feels for me as a customer as the brand is talking directly to me. It's not just, you

know, doing the **mass mailing**. And then you know, for most part, it's relevant. But the more it feels for me that the brand is talking directly to me and knows me, the more loyal I will be to the brand, definitely.

Interviewee: Through personalization?

Interviewee: Exactly!

Interviewer: The extent of personalization, do you see that -- Do you see an issue in maybe two competitive brands using the same AI technology, trying to reach the same customer in sense that they -- the AI could be seeing these behaviors on the same customer and maybe making the communication equal. So, to say, do you see any issues in that?

Interviewee: Yes and no. The algorithms we use for our customer, for example is where I think we have around a hundred and twenty, are actually the same, but the learnings that the algorithm has stays within this customer, so when they experience trying new stuff out with this algorithm and customer B over here, is using the same algorithm it doesn't get kind of the same benefits here. So again, if it's two competing brands, if these guys do something great, then that's automatically transferred to here. So, then they do the same I mean, as you know, company, I would be pissed if that happens. So, I think that'll be a question of kind of separating it from a technical and probably also contractual standpoint. Because; it is a, you know, interesting kind of situation, saying that if these optimizing the same speed, if they know the same thing, so what happens when two brands does that so, it is a good question.

Interviewer: So, how do you see AI might creating or create a connection or community between consumers -- peer to peer?

Interviewee: That's actually interesting. I mean, because mostly it would be from brand to consumer. It would, I mean, what I could imagine was something along the lines of, hooking up customers that have similar interests that have similar use of the brand and in some kind of platform or something, kind of enable that contact or you have a community around your brand. People engaged and then you can say this guy also bought these things. You'd be great. You know, meeting likeminded people. How much of that would be AI driven? Not sure.

Interviewer: Okay, interesting. How do you see contributing to make consumes actively engaged in a brand? For them to become brand ambassadors or similar?

Interviewee: I mean, definitely think again back to the kind of the old school way of communicating was very broadly very segmented. We had a broader segment. So, there's one to, you know, a mass, and now it should -- can be a one to one communication. And I think that's what's going to drive this ambassadorship of feeling loyal, of feeling this brand knows me. They're awesome. They communicate my language. They position their brand in a way that I, as a person, identify myself in the moment all this stuff. I think -- I definitely think AI can be the driver. And I think that could creative brand ambassador.

Interviewer: Cool. So, if you were to give any advice in relation to branding to advertisers who are considering using AI for digital marketing, what might that be?

Interviewee: I think they should get started right away. And it doesn't have to be just press, 'I'm selling this stuff'. But you can do this. Also, on a much smaller level. There's a lot of these AI-is technologies that are available online today as online services. So, you kind of -- you pay a monthly fee to use these things. Try it out. And you know, the learnings are the most important because you're going to fail a lot, but if you can kind of do it on a smaller scale, so you can start to get the - not the experience -- but the knowhow of how

this actually done because at some point, if you completely ignore this, then you're going to wake up one morning and your competitors are going to be gone. If you start now and you start small you can make valuable learnings in it without it costing you an absolute fortune as well, you can do this very cheap.

Interviewer: Where do you see the biggest problems with using AI for digital marketing? The biggest issues?

Interviewee: I mean apart from the whole data perspective of having all this data about me as a consumer at different places around the world, and with only one goal and to maximize profit from me. There's also the balance between being relevant and then just being spooky. And if you know -- if you overdo it, then people will feel that you like survaliance that like you're monitoring all the time, which you are, but they just don't know. So, you got to do it and you got to do it right. I mean Amazon I think for a few years back bought the patent for something called anticipatory shipping, so they would send, you know, I know that in Copenhagen someone's going to buy the Harry Potter book.

So, I'm either going to send the Harry Potter book to the local storage in Copenhagen because; then we can deliver it within an hour. And even more crazy, I can actually send it to you because I know that statistically, next Tuesday, you will buy the Harry Potter book, so i'm actually going to send that to you Tuesday morning. So, it's on you doorstep. I don't think they ended up implementing the last bit, but it can be done. And that would kind of just freak people out. So, it's kind of the balance between the two of those it think.

Interviewer: Okay, interesting. How do you see future AI technologies influencing the areas that we've been talking about now; do you see it meeting all of the issues we've been talking about?

Interviewee: I think, eventually we will be pretty much there. I mean, in terms of again, it's a balance between the, you know, the handheld by man and then the machine algorithms. But within the next years, it's going to soak through every single aspect of this, of branding. And it's going to start out by being a question of optimizing experiences, getting the most return on investment in terms of your old advertising spend, you have, but by the end of the day, but in a not too far distant future, all the leading brands are going to be AI or algorithm driven and to a very high degree. We're definitely not there yet. Again, there's still a lot of hot air and buzz words in this but within a very foreseeable future. A lot, I would say almost all customer engagement digitally and probably also physically will have some kind of AI in it to optimize the experience. Definitely!

Interviewer: Will digital marketeers then be unnecessary? Will we be unnecessary, or do you think that there will always be a need for supervision?

Interviewee: I think there will always be a need for supervision. I do also think that a lot of the more manual tedious tasks will disappear and be taken over by machines. Sounds doomsday-ish, but I also do believe that the more creative bits of thinking creatively and thinking of new campaigns that will still be to a large extent, human driven -- getting the ideas, but executing the ideas would be powered by AI. But they'll definitely be a shift. I mean, definitely. That's in all aspects of life, I think, but definitely also in marketing, but I don't think is one of those scenarios where everyone's going to get fired. I just think that someone's going to get fired. But we're going to work more efficiently and differently and hopefully take out some of the more tedious tasks and let machines do them. Definitely.

Interviewer: Okay, is there anything you might not have thought of before we talked about it?

Interviewee: Sorry?

Interviewer: Is there anything you might not have thought about before we were talking about this subject? Something that occurred to you or?

Interviewee: No, my algorithms are slow. It is late in the day.

Interviewer: It's fine. Anything else you think we should know?

Interviewee: I think it's, I mean, you guys doing this for your thesis is going to give you a good outset when you are done. I can guarantee you that in terms of people that knows not the technology, but what it can do and how to work with it, is in very high demand. So, that's a good move from your part.

Interviewer: We are glad. Anything you'd like to ask us, in the end?

Interviewee: What do you think about your grade? What is the grade going to be?

Interviewer: Perfect, of course.

Interviewer: I was just wondering your recommendations said that companies should just get started with using AI. Do you see this -- Do you see companies not getting started -- It's just how to formulate it -- having problems in creating brand ambassadors -- in acquiring?

Interviewee: I think eventually they will because -- of course, there's some very niche products and so on. But if you don't get into it other brands will become so efficient, let's say if you are Nike and then you just don't do this, then Adidas will at some point be so efficient that you will be stalling after that. Again, you might have part of this very niche where no ones else does it -- kind of in a general term if you don't kind of open the bag and investigate and try and figure out what this can do and definitely also what it can't do. You will be in trouble, eventually. Definitely. Again, depending on what you do, you don't necessarily have to be an all AI driven company. It can be just certain parts of your company certain parts of your brand that will make sense and with other parts, it wouldn't. It all depends on your company, but you definitely need to look into it and kind of start doing that. And again, you can do it -- it takes time, that's probably the most costly bit. But from a technological standpoint, there's a lot of things out there you can play around with.

Interviewer: Now, you said time, what do you see is the biggest reasons why companies hold back in starting with AI?

Interviewee: One, I would definitely say the maturity of a lot of AI driven products, that kind of, again, the buzzword thing, and a lot of, you know, services and products have not been shown a tangible kind of ROI and what they do. So, there's a bit of a, you know, hold back -- in terms of just diving into it. But I also think there is a -- in some companies, I mean, some are more difficult than other, but there's also a lack of understanding of what you can do, and what AI actually is, or machine learning actually is and what it can do. Because again, when people hear the AI and we have ten sales people on the phone every day and they are all 'AI, AI, AI' -- it doesn't really matter. So, I think there's also still some education to be done in terms of it doesn't have to be magnificent and fantastic. And everything else it can actually also be very, very tangible -- kind of using AI to predict churn in customers, when is the customer going to show that you're competitive versus you? That makes it some more tangible, I think. So, but it will over the coming years more and more it will definitely -- not see the light but the necessity, I think.

Interviewer: Okay. May we get back to you if we have any follow up questions?

Interviewer: Yeah, sure. Definitely, you are very welcome.

Interviewer: Well, thank you very much then.

Interviewee: No, worries.

Appendix 11: Transcription of interview 8 - Mads Jørgensen

The interview with Mr. Jørgensen was held in Copenhagen on the 4th of april 2019.

Interviewer: First of all, if you could tell a little bit about yourself, what do you do? Who are you?

Interviewee: Yes, I work at Creuna, which is a digital agency in the Nordics and work from their Aarhus office where I work as an insights and analytics consultant. So, I work a lot with the online user behavior and analyze that and try to predict how we can make some new solutions that suits these behaviors. And then I have written my master thesis two years ago about how you can use IBM Watson Tone Analyzer for analyzing communication on social media, more specifically, about emotions on brand posts in social media and how that maybe can predict how do we users interact or engage with the different brand concepts.

And so, I think that is kind of my expertise about AI is that I have actually tried to adopt it in my master thesis. And I think that is something that is now used a lot. And when I wrote my thesis, there wasn't much literature about AI in communication, and I still think there's probably a lack of that. And so, it's a very interesting field. And I think it's nice that you guys go look more into it. And besides that I'm in a small advisory board at a start-up (JumpStory) who works with AI and text and image recognition.

Interviewer: Interesting. Now, you mentioned you got to work a little bit with IBM Watson.

Interviewee: Yes!

Interviewer: How was that first like what was your thoughts about it?

Interviewee: During my studies, I had studied corporate communication. So, I also come from quite soft communication background. I did a lot of quantitative research on like counting words and try to make discourse analysis more quantitative. And then I started working at the Creuna, where I met some tech guys who knew how to write a few lines of code. So, I talked a bit with them about the potentials of IBM Watson. They maybe could help me out and show me how to write enough lines of code to use IBM Watson because it's not quite like. You can use their test tool, which is, everyone is able to use it but when you need to use it for a larger purpose, it's kind of, you have to know some technical stuff and so, it's not that intuitive which also heightens the barrier for using it as a communication practitioner I think.

So, when I got to, the fact that I had these people around me, helped out a lot with using IBM Watson, but I thought it was very cool because it kind of removes some of the challenges in analyzing communication, which I think often is that communication is so subjective and it's often studied in qualitative research with a very low amount of respondents for example, and people try to make some assumptions based on that but having a more qualitative mindset. I thought it would be nice to try to make it more reliable for a larger population. And social media, there is so much communication being created every day. And if you have to just try to make a small sample of that it's still a lot of posts. You need to sample and it's simply impossible to analyze all these, for example brand posts in manually it would take up way too much time.

So, it's the IBM Watson was kind of a nice tool to automate this. And I obviously tried to read a lot about how it works and tried to write to IBM if they could provide some more insights about how it actually figure out the emotions in text because I think that is a challenge when using it for research is that it's not that transparent how it works because it is AI and it is an algorithm, but we don't actually know what they have fed into the algorithm.

So, it's kind of difficult to understand and describe how Watson defines an emotion besides the two lines of text they write joy is something joyful, blah blah blah. So, you cant really figure out that what is it based on? So, there's not a lot of transparency, which I think was kind of a challenge in using it for research.

Interviewer: What did you learn in the process of working with the AI tool?

Interviewee: I think, actually, the main learning was what I just described the fact that it's a very complex matter, that I don't think you can find one person who could describe how it works because it's made of so many small entities and automated algorithms. So, I think this lack of transparency is kind of an issue with AI. It could also become an ethical problem because it's all about what. So, basically AI will normally be based on some kind, you put in, you have some kind of input and depending on what that input is, the algorithm trains itself. So, who are to select the input you put in, do you only take for example, for Watson, how have you sampled the communication that is used for training the emotional part of it, which type of text is it? Is it from the US? Is it from Europe? There are also a lot of cultural stuff going into this is simply hard to be transparent about it because it requires these large amounts of data. And so, I think the transparency issue is a challenge in using it. Although as a practitioner, obviously, you might not care all the time that much about it. But from an academic and ethical point of view, I think this could be a problem.

Interviewer: How do you think that may affect the result that there might be different ways of that the algorithm could be triggered different ways different depending on what culture it's based on, for example, when we're talking about something like, feelings, for instance.

Interviewee: Obviously, in the ideal world, you would have kind of one for every culture, but then you would have to define a culture because there's also a lot of subcultures in a country, like in Denmark there would also be kinds of subcultures. So, back to the communication part, I think culture is kind of a social construction, and it's only something that we say. So, in the US, you always do like this, but that is also kind of a generalist thing to say, because not all people in the US would do this. So, it's where _ I think the challenge is where should you make the line for this is one culture and this is another culture, and I think that is difficult.

Interviewer: So, you think it's more of a definition issue?

Interviewee: Yes!

Interviewer: Okay, Interesting. Trying to characterize the abilities of AI when we're talking about core brands awareness so to say, how do you think? or do you think AI is capable of communicating basic brand attributes in the sense that you're able to recall a brand, is this something an AI technology is able to.

Interviewee: I think if you talk about kind of the _ if you have a product and you would like to communicate about the specifications of the product, and in theory, you would know that some people would like to know something about the color, and some other groups would like to know something about the size and you had an algorithm that were able to identify this. I think it would be kind of easy to have some inputs that are kind of static. I think kind of those brand attributes that are not emotional should be kind of easy to communicate in a manner that doesn't shout out this is computer created content.

Interviewer: Quantifiable.

Interviewee: Yes, like features.

Interviewer: Would an AI be able to identify what these exact features will be. Do you think?

Interviewee: Yes, to some extent, I think it kind, it depends on how you make the AI but if you had enough information about _ so in my work today, I do a lot of tracking on user behavior on sites also ecommerce sites for example, and in theory you could, if you were able to identify the user you could see how they can be tracked on all features on a site, all actions they do and you would have a lot of information about how users interact. And I think it should be possible to kind of make some algorithm that would say, if a user does these things, they are more likely to look for this feature. But obviously, you would need to have kind of some information about the user beforehand. And I think you need to be yes, it's depends on how much you for example, can save in a cookie if it's about PPC, for example.

Interviewer: Okay! Now, you mentioned yourself some of the more emotional brand attributes. Now, how do you think an AI might be able to use, when used in digital marketing be able to communicate and identify attributes like values or brand personality or maybe a heritage.

Interviewee: So, initially when I wrote my thesis, one of the things I first thought of to do was to kind of see if you could use, so I didn't do this, but before starting out my thesis, I thought it would be interesting to see if you could use AI for identifying kind of a brand personality or say, a tone of voice of a brand. So, if you have, like if you were able to take all communicate, all brand communication from PR to social media to whatever brand communication they made and have that put into an algorithm or for example, I know, I said, through IBM Watson, would you be able to extract kind of a tone of voice for brand, say this brand always speaks heavily.

Or this is a very analytical brand, or at least the way we talk, if you were able to nail the kind of the tone of voice, I think you will be able to communicate like the brand. And I'm not sure about if you could, you have to be kind of explicit about your brand values and your communication, if you would like your AI to be able to use this. So, if all your brand communication is in fact based on the the values, you want to communicate which it hopefully should be, I think in theory, it should be possible to do in some years.

Interviewer: Okay, but not with the current technology?

Interviewee: No. I actually think like the technological level is there, but the problem is that it's only some very few, very large companies like Google, IBM, Amazon, etc. who develops these like, out of the box algorithms, you can use finalizing stuff. So, if you were a company, I don't think there are a lot of companies who, first of all have the people to be able to code this. And secondly, who would be willing to allocate the resources needed for doing it in this area, because; I think the kind of return on investment would be considered too low right now, because barriers are so high for developing it yourself. At least if you would like to develop in a manner that would be good enough for your brand because if you start having an algorithm that is not hundred percent or ninety-nine percent accurate or how you would like it, it would start communicate about your brand in a manner that maybe does not suit how you want to be perceived. And then I think it's more damaging for your brand perception than leaving it out.

Interviewer: Interesting! So, it would require that you are very aware that your values will be communicated through your external communication and it wouldn't be possible with the current technology unless your Google or Facebook or.

Interviewee: I think kind of if you. Again, it depends on how you define, when you ask about if it would be able to communicate about it, to what extent would it be kind of a press release or would it simply be a small ad with four lines that states Company A cares about the planet and have just bought hundred trees and planted them in Zimbabwe or something like that, because I think the latter of these examples would probably be possible to do to some extent, but I'm not sure if it actually would be enough like a brand,

because it would require a lot of data to make an algorithm that can kind of copy your brand DNA and that would mean that you would have to have made beforehand a lot of communication with your brand DNA.

Interviewer: Now, to what extent do you see the need of human supervision then?

Interviewee: Yes, it kind of depends on how much you care about your brand because the examples that have been today about people who communicate, or who was it that made this Twitterbot who went Nazi in a day or two because people just wrote a lot of shit, and it adapted to that. So, think it needs a lot of human supervision, at least at the moment I think it will do for a lot of years,

Interviewer: Okay! Now, we talked about feelings and how an AI might be able to identify different feelings. Do you think that it would be able to evoke feelings through communication?

Interviewee: Yes, definitely, because what I saw in kind of my thesis was that people responded to different emotions in brand communication. And I think if I had taken that a step deeper and looked at the response of the, for example the comments, I think that would have been, is some there wouldn't be _ I'm sorry,

Interviewer: Don't worry!

Interviewee: Just to say, there would be kind of an alignment between how you communicate about, if you communicate a sad message, I think people were more likely to respond with sadness. So, let's say that we have defined in our algorithm that you should write sad messages on Facebook, I think they would evoke sad feelings at the recipient, and they would probably also respond with sadness. So, in that way, I think it would be able to evoke feelings.

Interviewer: Now, do you think that, how would the AI be able to get the concept of a feeling? would it understand sort of the concept of a feeling or would it see that there is some variable that triggers action from the individual and then act upon it, so to say?

Interviewee: Can you just elaborate?

Interviewer: Yes, of course. I'm trying to figure out to what extent the AI can understand the concept of a feeling, if it for an AI is some variable like every other variable where it sees okay if I do something like this, then the customer will react like this. So, there's something I don't know what is, but I know that if I do this, then it triggers the individual to do that. Do you think that an AI would treat it as just an unknown variable and characterize it through lots of experiments to try to trigger actions from people. Do you think that it will grasp the idea of an emotion?

Interviewee: So, again, kind of emotions are kind of how you define that, and that would also be an social construct, but I think that an interesting case for this is the chatbots obviously, where it already today can detect or tries to detect the emotional state of the message that is being sent. And that is something that is already happening. So, on the very simple base, kind of the start of this was just to look for, was there a sad or a happy emoji, but I think it has come a lot further. And so, for example, if you're monitoring social media, if you are a community manager, I think it would kind of be possible to have an alert, we have received a sad message from a customer or an angry message, and you would also be able to kind of say or program your AI to, if you receive an angry message then you should provide content about or deliver content with these feelings or emotions in it. I think that is kind of possible. Also, with the chatbots.

Interviewer: Okay, interesting. But it all comes down to how do you define the specific emotion, right?

Interviewee: Yes, definitely.

Interviewer: The input to the algorithm.

Interviewee: Yes, and I think that is kind of the problem, because on social media and what I´ve also experienced myself is that the message input from customer or brands is very small, it's maybe a few lines of text. So, communication is very dependent on context, an AI is not able to know that context. For example, let's say that something had happened for our brand just on the day and a shit storm had arised about the brand, and someone writes on social media to the brand, the algorithm wouldn't know the context of the shit storm already. So, I think that would be the problem. So it would only read like four lines of text, and it wouldn't know what trigger this takes. So, it doesn't know the context of communication. Communication is very contextual. I think that is a challenge, and especially when trying to use AI for small text inputs.

Interviewer: Okay, very interesting.

Interviewee: But again, if you were to make kind of an algorithm for that, you could maybe kind of try to say that if the algorithm does not have enough input to provide a sufficient answer, it could have some triggers that would say.. try to make the customer put more words into it. So, kind of get a larger sample.

Interviewer: Okay, Interesting. Now, how do you think an AI system would be able to incorporate opinions that a customer might have of a brand? Do you think that AI would be able to identify and understand something like a perceived quality of a brand?

Interviewee: So, it should understand how a customer perceives a brand?

Interviewer: Exactly!

Interviewee: It's kind of. So, if you had all the information in the world, you could probably train your algorithm to it, but a brand would not, I guess have that. So, let's say a brand has a known customer, and this customer, and you had a very nice CRM system, which had integrations to your support, your marketing and all the functions in your company, so you actually had one place to save all the information about the customer and you were able to identify specific customers by login, for example. And this customer has had a lot of interactions with the brand on different touchpoints, I think you would be able to kind of make some assumptions about how they perceive the brand based on this. But it would require both that you had the digital infrastructure to collect all this data and I think there's not a lot of companies who are able to do that. I can say that from experience. So, in theory yes, but realistically, no.

Interviewer: Okay, so that would be down to the quality of the data.

Interviewee: Yes, definitely. And also, if you were able to buy data or information about specific customers, you could probably make some analysis about how they perceive a brand, if you were able to buy some data that could enrich you on that manner, but I don't think that.

Interviewer: Might that be something like reviews or similar?

Interviewee: Reviews?

Interviewer: Yes!

Interviewee: So, if you have kind of identified someone on Trustpilot and they have written something about your product that could be pretty cool, actually. But there's also some GDPR there and this is what do you say? what do we call it? Everything's equal and all that stuff and so.

Interviewer: Do you see the GDPR and similar laws as limiting the capabilities of AI?

Interviewee: Yes, obviously it does, but it's not necessarily a bad thing. I think it's actually good, that there is some restrictions on personal data. And you can just look at Cambridge Analytica, which is kind of what you are describing in many of these things because they were able to harvest enough data about specific persons and then tailor, not brand messages but political messages, to specific persons based on how they predicted they would react to a specific brand message. So, they are a very interesting case and also kind of a frightening case in that. But I think there are companies out there working with this psychographic data and try to tailor communication based on how they predict you will react to it. I think there's a company called Modeling, who does the same and it's a very interesting area. But GDPR is kind of good here because it protects our personal data.

Interviewer: Okay! Now, how may AI contribute to the relationship between the brand and the customer do you think?

Interviewee: So, there are some touchpoints for example, I just mentioned the chatbots, that would create a swifter communication. And also, in general in all communication touchpoints, you could create a more tailored communication, given that you were able to make the setup right and automate your communication. So, you could communicate faster and more personalized because you know, or you know, how your brand has engaged with the customer previously and that is automated. So, I think in that way it can create a lot of value for the customer, since customers requires more and more personalized interactions with companies and also expect a faster response to increase.

Interviewer: Okay! Now, when we are talking about personalization of the communication then, do you see a possibility of two competitive competing companies using the same AI technology towards the same individual, do you see a scenario where these AIs would come up with sort of the same result, and that way communicate two different brands equally towards the individual. That way making it harder to differentiate?

Interviewee: I think if you were to do this, you would always have to kind of have something unique for your algorithm. I don't think you would be able to have, or you would be able to, but from a brand perspective, it wouldn't make sense to do unless you're able to kind of have your brand DNA as the input to the algorithm which for example could be by gathering all the communication as I talked about, and if all this was equal to another company, then your brand just isn't differentiated enough.

Interviewer: Interesting! Now off of this, how do you think that AI might contribute to creating brand loyalty?

Interviewee: Again, so Creuna where I work, we work a lot with customer experience and kind of what we see is that the good experience, customer experience, brands are making _ create some loyalty. So, given that, again, I would say that the personalization would create loyalty, since it's a way to personalize things and a lot of reports and studies claim that personalization actually can create loyalty among customers.

Interviewer: Okay! How do you think or do you think that an AI system would be able to help in creating a connection or community between consumers, peer to peer?

Interviewee: Maybe let's say that you're, that’s a tricky one, maybe if you kind of have had the perfect algorithm that were able to detect trending stuff among your customers, but they weren't, maybe customers who were not knowing this themselves because it's still trending. So, that might be a long shot on and how, if you were able to spot some new tendencies before the customers actually act on them themselves, they are only happening like in the early adopters. I think that would be something you could tap into as a brand and maybe try to facilitate communication on this issue, but I think it's a big stretch maybe.

Interviewer: Okay! Now, do you think that an AI system might make consumers actively engage in a brand.

Interviewee: Actively engage with the brand? Or?

Interviewer: Like becoming brand ambassadors. Do you think AI would be able to contribute to consumers being actively engaging in a brand?

Interviewee: Yes, to that extent that I think AI as an analytical tool maybe would be able to identify customers who are more likely to become ambassadors for some reason, maybe you have seen that they interact in a specific way. And then I think you would be able to tailor some communication to these or create a service or digital service or whatever it was, that could make them more likely to become ambassadors. But it's kind of the analytical power of AI if you have enough data, then I think it's definitely possible.

Interviewer: Okay! So, if you were to give any advice and in relation to branding to advertisers who considers using AI for digital marketing, what might that be?

Interviewee: I think that first of all, as I started out talking about the transparency of algorithms is pretty crucial. And you have to know how your algorithm is made. Also, the fact that kind of discrimination is a thing in AI, again, because this _ depending on where you develop it, there would be a big difference between how you use it if it's developed in the US and based on a US sample, or in Asia based on a Chinese sample for example. So, also there has been these cases were algorithms. I think, was it Airbnb that had made a study of whatever it was, were it actually discriminates black people, an algorithm.

So, that is definitely an issue you have to consider, that you don't discriminate through AI. And then obviously, if you have a strong brand you have to care about it and it's not a quick fix just to put AI on your brand and then you can just fire all your communication advisors and let the algorithm do the talking. So, it needs a lot of governance still because if you just set up an algorithm, sit back and watch it develop, it can turn out in a lot of ways that might not suit your brand. So, I think that's probably what I would consider. But from a kind of pure, let´s say marketing perspective where you want to deliver the right message at the right time etc. at the lowest cost, I think AI has a huge potential for analyzing customer data and using that in making more intelligent marketing. I´m more nervous about making communication based on AI.

Interviewer: Okay! So, the data part so to say, the optimization of numbers, the ability to analyze data, deliver or present data in a nice way would be the ideal purpose for the current technology.

Interviewee: Yes, definitely.

Interviewer: The ability to work with text is beyond the current abilities that we have.

Interviewee: Yes, I think so. I think there are actually some kind of interesting things going on with image. A media just made this thing with the AI generated faces and they are working on this where it can draw stuff and it makes pictures based on AI and that is also a very interesting discussion. Can you use kind of pictures of robots, it kind of removes the things you have to consider with GDPR. But is it ethical enough to use fake people and all this and do you have _ if use them would you then have to kind of disclaim it, and there are a lot of things you could discuss there. But it´s very interesting.

Interviewer: Yes, interesting. Now how do you see future AI technologies influencing the areas we have been talking about? Do you see a situation where the human supervision part will be unnecessary, and AI will be able to handle the text perfectly?

Interviewee: Actually, not really. I think for some purpose, for example, the chatbot, it's a brilliant place to use it, where it can automate a support function. But if we talk about communication in a kind of branding perspective on all channels, I think it simply. Communication is just way too contextual to automate in that scale, at least if you want to control your brand, or at least have a say in how it is presented and perceived.

Interviewer: Okay! Now, we are nearing the end. Is there anything you might not have thought of, but that occurred to you doing our talk?

Interviewee: I think, what I experienced myself with AI was that, or at least with Watson, I can´t say with AI in general, was that it had a very difficult time understanding the small texts a brand post is, and that meant that for example, irony was very difficult for it to understand because it is based on context and there is some implicit knowledge among people that you have to read this in a certain way that is just very hard to train at algorithm to understand. So, I think that is also something that is, I think, to consider that the fact that, for example, in Denmark where irony and sarcasm is a big thing. It's just difficult to, because AI is just codes and it will never be better than the input you give it and the code you write. So, if it can´t understand that, it's just difficult. So, I don't see it communicate in a perfect manner within many years.

Interviewer: Okay, is there anything else you think we should know?

Interviewee: No, I think that's kind of it. I think there was kind of a. Or actually I just from our _ we just talked about here at the office, something about just some art being created through AI, which I thought was kind of a cool case. A piece of art.

Interviewer: Piece of art?

Interviewee: So, some art constellation sold a piece art last year at Christie's. I think it was sold for four hundred thousand dollars. So, they have made kind of an algorithm on neural network on, I think it was fifteen thousand old portraits, painted portraits. So, they have made a new portraits base on that and then they sold it. So, it´s just kind of cool, again it's like creating these fake people. That´s just interesting to see where it will go.

Interviewer: Okay, interesting. Now, may we get back to you, if we have any follow up questions? Then I think we will say thank you for your help.

Interviewee: Thank you!

Appendix 12: Transcription of interview 9 - Benjamin Biering

The interview with Mr. Biering was held in Copenhagen on the 10th of april 2019.

Interviewer: Okay!

Interviewee: let's do it.

Interviewer: Cool! I'll start our little friend. First of all, if you could tell us a little bit about yourself, who are you? What do you do?

Interviewee: Sure. So, my name is Benjamin. I'm the head of data science. At 2021.AI, I have a background in engineering and a PhD in computer science and I have master in Political Science and International communication. So, I've actually studied a little bit of like corporate communication and stuff like that. I started out a couple of years ago as a digital analyst and mostly working in digital marketing. For this one, I know a little bit about it. And then I've been working as a data scientist for big retail brand known as eBay if you know about that and now I'm doing data science here. Here is mostly consultancy that we do, so we develop algorithms for many companies across different industries. So, we're not focused on one particular type of industry we work across the board, that's pretty much…

Interviewer: Interesting. And what is your relation to AI?

Interviewee: So, I think AI is a big buzzword in the -- in the media these days. But I think what people think about or relate to when they hear AI is actually the applications of deep learning that they have seen in the press, as well as image recognition, text translation and stuff like that which have become really good over the past few years, but these only concern unstructured data. And by unstructured, I mean images, sound, text videos, all this natural content. It's not, you know, numbers in an Excel spreadsheet, right? So, these are the kind of fact the applications that people relate to when they think about AI. But actually, AI is about like mimicking human reasoning and behavior, extracting rules of data. And there is actually quite a large field of study called machine learning.

And machine learning dates back from many years ago, many decades. Some of the methods which are still used today are like, centuries old, but it's still AI. And so here, we do a lot of machine learning. Deep learning is also a form of machine learning. And we call this learning because all the algorithms that are used are -- how is it called -- you learn interactively. So, you have a model of how things work, then you make a guess -- you look at the error and then you make a new move and you look at the error and then you make a tweak a bit and then you look at the error and then you try to converge into a good solution and all the algorithms and AI they tend to work like this.

Interviewer: Sort of AI machine learning aspect.

Interviewee: Yes!

Interviewer: Cool! So, moving into the branding, attributes. How do you think that an AI might be able to increase awareness of a brand? Meaning, the ability to recall a brand? If you think it could?

Interviewee: So, how is it done traditionally?

Interviewer: Like banner advertisements, would it be able to increase the ability to recall a brand maybe by exposing multiple times -- would you be able to -- Would an AI be able to identify this is a company, take the name maybe the logo and present it to an individual.

Interviewee: So, I think what I could do is basically do what is already being done right now, but just do it better and more accurately and more targeted and more personalized. So, I don't know if you know, company named Criteo they do targeted advertisement for banners. So, meaning that you have a number of banners, right for your brand. So, you know this kind of like a rectangle of advertisements that you want to be placed. And you want to have them placed on relevant websites or blogs or whatever it is or even apps and then you give that to Criteo and basically Criteo will we serve these ads on placements, I mean different websites and blogs and so on and of course you want since every time and ad is displayed, you pay.

You have different schemes of how you pay -- if you pay every time you serve. If you pay when people click on it, it depends but the price varies. So, you only want your ads to be shown in places where you know that the likelihood of people seeing and clicking is high. So, you also want to have the ads displayed at the right time, on the right channel on the right websites or blogs, and also on -- to the right people, right? So, if you start -- so Criteo for example, it keeps a log, so to speak of like unique identifiers for basically millions of people. And then they learned the behavior of these people. And then they are also they're able to figure out okay, this person I know that he is probably been on that laptop and smartphone and has been looking at this website as the time of the date -- 'la la la'.

So, it's really big data. And then they recommend an ad on a particular website or particular time for a particular user. And so, at the end of the day, what you're able to achieve is to like show your message to the relevant audience. But this has already been done, right. So, I think they started out. So, they had a lot of things which were automized, but not necessarily super clever. And from what I know, they really started to go the AI way. Four or five years ago, they really started to go down that road. And now they have become really, really good at it. And they are participating in conferences, an actually publicly publishing the results. So, you can also take the algorithm and implement it, they also even published the code on GitHub so you can have access to it. And I've actually played around with it myself. So, that would be one way. But this is for online digital marketing, right? I don't really have so much insight into all the channels, particularly if they're offline. Do you have any other examples?

Interviewer: I think your example made very good sense.

Interviewee: I mean because it could also be on TV or radio or stuff like that but yes, there is one thing -- I don't know if you know the company GFCDK, or something like that. It's basically the company owning the place where you put, you know, this banner advertisement on the street like on the bus stop, or something like that. So, but these are really, you know, paper based. So, it means that somebody needs to physically go there, open the thing and put it there.

So, now what they're trying to do -- is it in Paris? I just read an article about it in the news. Where now these ones are screens so they can dynamically change the content. And they also have a camera that can sense your smartphone. And then -- so either they kind of figure out how many people are on the street looking at the screen or they can send somebody smartphones down the area and they can optimize -- you know by the time of the day and also the location in the city there will be some neighborhoods where you know it's more like worker neighborhood. So, they will probably put like display advertisements for chips some cola and then in like the city in London they will probably put advertisement for expensive leather bags or whatever. So, target the product to the audience at the right time, right? So that's kind of the same principle.

Interviewer: Yes right, sounds intelligent, nice. Do you think that AI is able to deliver, through digital communication? Attributes like the pricing level or a special design or style or special benefit of a specific product? Is it able to identify that and then communicate it? Should I make an example?

Interviewee: Yes!

Interviewer: If for example, I have an e-commerce company.

Interviewee: A what?

Interviewee: An ecommerce, would I be able to implement AI technology in my advertising? and if I did that could it then based on a product page figure out what is the pricing level what is the special benefits of this product and communicate it through an ad by itself? Do you think that would be possible?

Interviewee: I didn't get the case exactly.

Interviewer: Were an AI based on a product page on ecommerce be able to identify maybe special benefits of this product like it is healthy or it is very good for...

Interviewee: Yeah, sure, absolutely! So, you can easily do but it means that you also need to manually train the algorithm to understand that fruits are healthy and burger and cola is not healthy. So, if you show enough examples and you can -- the algorithm is going to be able to figure out okay, this is fruit, therefore it's healthy or this is cola and burger and this is not healthy. So, you need to think -- when you say AI you think of an algorithm that either does regression or classification. So, it's a mapping. This is what 90% of all AI technologies do.

So, if you give a lot of, like, let's say, product pages and you manually tag them, right. And then you train the algorithm on these examples with a tag, right and if you give it enough examples it's going to -- it will do the mapping itself. And then if you show a new example that it hasn't seen before, it will give you the -- most likely the right answer.

Interviewer: Okay, so as long as you're able to quantify right, you're able to like tags or similar and train it.

Interviewee: No, but you always need -- so, most of the applications in the industry nowadays. They're based on what we call supervised learning. And unsupervised learning needs a training data set where you will -- I can show it on the board to make it very clear.

So, for example, let's say that what you want -- you have, you want to predict the price of a house, right? So, this is the price and, and you know that there is some sort of relationship between the price of the house and the number of rooms in the house and you think okay, I'm going to fall for the sake of simplicity, you will take a candidate model. So, okay that's probably a straight line, right? And then you're going to show one example. And then you're going to try to fit the line, okay? we don't really know, then you're going to try to, I mean, that's not a very good example because this one is -- also okay you have all your examples like this.

This is the data that you have observed. Alright? And then you start with like a blank model, right? and then you make a tweak here and there. And then you go to get something like this and then see if that it slowly starts to fit the line or the data sorry and that's, exactly so this mechanism is the same as like, showing a product page with like an image and a price tag and saying this is fruit for five dollars. And then show another example and you can actually see so, this is kind of the same Matic. Except the only difference is that this model here, probably here is something much more complex. Alright? This is probably like a deep learning model, with many, many, many parameters, right? And if you show enough examples it's going to learn this, right?

Interviewer: So, in time, it will have an idea, okay, if it's a fruit, then it probably costs around this.

Interviewee: No, I think it will just learn to extract the information automatically.

Interviewer: Okay, what is what.

Interviewee: Yes! Of course, in real life, it's gonna be more complicated but that's the principle.

Interviewer: Okay!

Interviewee: So, this is what you call the information extraction, or retrieval and this you can easily do this internationally.

Interviewer: What about more unquantifiable attributes like the values of a company or the personality of a company or heritage? We have previously talked about Bang & Olufsen a Danish company that makes electronic products -- that is very Danish so to say -- have a very Danish heritage and that would be a part of their brand. To what extent or how do you think an AI might be able to identify that and deliver it through a message? Do you think that would be possible?

Interviewee: So, you would want an AI, let's say you are Bang & Olufsen and you would want an AI that automatically extracts your values. In case you're not sure what your values are, and then automatically generate messages in line with your values to your customers.

Interviewer: Would that be a possibility?

Interviewee: No!

Interviewer: And the question is then how come?

Interviewee: The executive because what I've told you like AI is very stupid. AI is extremely stupid, what we have right now, of course, some of the stuff is advanced, but again this is really supervised, or it means that somehow you need to teach the algorithm what to do. So, it means that the human needs to be able to do it. So, if you cannot do it, you cannot teach an algorithm to do it. So, that is the limitation that -- of the existing technologies.

Interviewer: So, relies on our ability to define a value and then let it -- teach it values generally, so to speak, before it can identify it, it should have like a test -- like you showed over here is some test examples, we would have to come up with thousand companies with thousands of different values, feed it to the AI.

Interviewee: Exactly!

Interviewer: And then make it…

Interviewee: Or you can make like individual mapping to individual values for example. It could be like the level of let's say the type of design or the level of design of the company like company was shitty design, company was beautiful design, company with more Nordic design incorporated with like more Mediterranean design, right? And then you would have all these attributes where you can make a mapping, and then let's say maybe you just want to use product pictures. And then you feed these product pictures to the algorithm and then the algorithm would say 'okay based on the product pictures that analyzed and the different attributes you know -- you rank that much on this scale'. So, actually it could be but you would need to show some examples you will need to teach the AI first what is Nordic design, what is Mediterranean to design it will not just wake up by itself and say this is Nordic design with a slide of Mediterranean taste so, it's not - it's not exactly, the AI cannot do anything that a human cannot do as it is. So, I think it depends on what is your perception or your knowledge of what AI is, right.

Interviewer: Yes, I guess then it wouldn't be possible if you aren't able to define a value in text, it will be harder to let it identify what it is.

Interviewee: Well, so, you can do interesting things like for example, semantic analysis of a text. So, this you can -- it belongs to a field of research called natural language processing. And this you can look up -- what you can do with that -- but again it's the same type of applications and so, supervised the message need to show the algorithm first. How it should look like, right.

Interviewer: How about the delivery of both types of attributes both the more quantifiable but also the values. Do you think that in text -- Now you mentioned natural language processing -- Do you think that in text at the stage it is at now that it's able to create ad by itself for example?

Interviewee: Yes, absolutely. So, this is what Netflix is doing. Netflix, you know, when you go on Netflix, you have a little caption for like you know, this little picture for every movie or so, right. And they've actually published a blog post on their website, on their technical blog, where they explain how they not only generate that automatically, but they also personalize it to the user.

Interviewer: Okay!

Interviewee: So, they will show you the caption that maximizes the likelihood of you watching this movie on this series.

Interviewer: Okay, interesting. I guess that's based on the type of movies you watch…

Interviewee: So, Netflix its core business is recommendation. So, because they have a recurring subscription model so the-- what they fear the most is churn. So, basically people leaving Netflix because they both they are bold, they don't use it, if they don't use it then it is because they don't find any content that they want to watch. Since Netflix has like thousands and thousands of movies and series there will be something that you may want to watch right. So, its main job is mostly to find out what do you want to watch or what you would like to watch. And they've benn actually the front leaders into recommending stuff. So, they've won a lot of competitions for recommendation systems, but basically this is the same as, Criteo that I mentioned before, it's figuring out users taste and what you should recommend to them.

Interviewer: Okay!

Interviewee: And it's the same type of algorithms kind of that they use.

Interviewer: What about something like the feelings of customer might have -- meaning that would it be able to identify a feeling a customer have -- if the customer is angry or sad or happy? Do you think it would be able to identify that?

Interviewee: If you have a picture of the customer or a live stream, then yes.

Interviewer: But not through text? It would only be through reading facial mecha...

Interviewee: But also through texts. I mean, you have heard of sentiment analysis. So, you can either look at the face or look at what people say. And then you can figure out if they -- I think it's through text it's a little bit more advanced because although I remember an article were, they say that an algorithm was trained to detect irony was actually quite fun. I don't know how they did it. But so, I guess the answer is yes.

Interviewer: That's interesting because that's one of the things we have -- that's been pointed out earlier that something like irony was like, very hard, in terms of...

Interviewee: But I'm pretty sure that if you Google that you will find it. There is also this marketing company called Persado. I found the lack of quality of the business pretty funny, they automatically generate marketing messages that resonates with you and your current state. So, like you can check out the website, but it's super interesting with what they come up with. So, they try to -- they have one message, and then they have different variants of this message. And then they kind of tailor it or customize it to the audience.

Interviewer: Okay! And do you know if it's...

Interviewee: To -- of course to maximize the response.

Interviewer: Yes, of course. Do you know if it is the AI that comes up with the suggestions or if it's human suggestions to change that it's not…

Interviewee: But you should not think of it as like a separate entity thinking for itself right. AI at the moment is just mathematical algorithms, which are very stupid and that you have to manually train showing examples. Right? So, and I cannot do anything actually.

Interviewer: But would it be able to if you, for example, have a text, and it delivers very badly, and you have delivered thousand other messages or ads into the system, would it be able to suggest maybe we should do something along the lines of this? because it's performed well in these hundred other examples -- would be able to make small suggestions? Do you think? Do a text?

Interviewee: I don't know enough in that field.

Interviewer: That is fine, no worries.

Interviewee: Yes, I would say, probably yes.

Interviewer: Okay! What about evoking feelings? Do you think it would be able to do that?

Interviewee: Evoking feelings…

Interviewer: Deliberately?

Interviewee: To a certain level yes, but that would be basically based on what I mentioned before. So, detecting something and then mimicking it. There is a pretty interesting field in AI, which is generating models. So, generating models, they look at our process, and then they try to mimic it. right. So, for example, you would take pictures of cars, right? And then you would train an algorithm to generate pictures of cars. And these models, they were not working so well in the past. But recently there has been some new models coming up. And these are difficult to train but they're really good. I don't know if you've heard of generative adversarial networks. Actually, the guy who invented them has just been recruited by Apple to be the head of artificial intelligence. It's a pretty young guy from Canada. But anyway, so you can use these models to generate stuff. And it can be pictures but it can also be text or sound or it can generate pretty much whatever you want. But again, you need to know what you want to generate and you need to feed it to the algorithm. As long as it's not, you know, form that is quantifiable like text on numbers or...

Interviewer: Okay, so it all comes down to the data you have. Your possible -- Your chance of success.

Interviewee: Because, I don't know how much math you know, but for now, what we call AI and deep learning it basically amounts to curve fitting. So, fitting data to a model, right? and the models that we have now, they are not very advanced, right. So, you can easily cheat them right, you can easily break them. So, they're not thinking entities. And we are like, extremely far away from mimicking what's happening in the brain, right?

So, all the people who are being afraid of AI is kind of almost retarded. But there's also our fantasies, like you guys, thinking that an AI can do stuff on its own -- No it can't. You need to engineer that and it is pretty difficult.

Interviewer: So, to get back to the car example, so it wouldn't understand what a car is of course, but it would treat it like a variable that -- it's this thing that I have to make it look like these three thousand other things.

Interviewee: Yes, so but actually it kind of understands the concept of a car because it will know that a car you know kind of have -- has the rectangular shapes and has like a circular shape for wheels and stuff like that. And this is exactly what it will recreate. So, to some extent it understands the structure of things.

Interviewer: Do you think that could be transferred over to feelings too, that if you're angry you behave in a certain aggressive manner and similar?

Interviewee: That would be wild, wild guessing and extrapolation. But actually this is a real dilemma and problem at the moment because when we talk about self-driving cars -- if a car, let's say is self-driving itself and then there is someone with, like having a funny attitude and a bottle of alcohol in his hand then a normal driver would understand 'oh this person is probably drunk out of his mind, I should probably slow down or be careful', right and AI at the moment will not -- it will just detect an object calculate the velocity and react accordingly you know, so, it wouldn't be very clever, it would probably not take the most optimal decision, right so.

Interviewer: Okay, interesting. What about incorporating opinions that a consumer might have like their perception of the quality of the product or a brand? is this something you think it could be able to identify and incorporate?

Interviewee: Yes, so there is something in digital marketing called the social listening and I think the market leaders are mostly British companies. And what they do is that they access the API of Twitter, Facebook, Instagram, whatever. And then they just download as much data as they can. And they pass this data they passed all the tweets for like the hashtags and so on. And then when you are a brand and you subscribe to these tools, which are actually really expensive, and you want to see 'okay, how many tweets with the hashtag, my brand and maybe the hashtag bad' or whatever it can be, and then it will show you 'okay, approximately a thousand tweets per day in Denmark', right? and then it will say, 'okay, I want to look at the sentiment of these tweets'. And then you can break it down into, 'okay, 70% of these tweets were good, 30% were bad- and then you can slice and dice your data. In that sense, so since you can extract some semantic level of information from the messages, you can extract the sentiment from the messages. And you can do that all automatically or large scale. I guess, yeah, that is possible.

Interviewer: Would you be able to, in defend, identify the individual then and maybe make a message towards the individual that fits with the sentiment they have shown.

Interviewee: That is the same -- that's-- it will be again, the same principle, then you will need to -- you would need to first identify the feelings of the people. So, like how would you do it? like would you ask a question to people and then analyze the answer, would you look at them and try to figure out, 'oh, this guy looks happy', 'oh, this guy looks annoyed'? You what I mean.

Interviewer: I think I know what you mean like, I guess you could, like make a system as you said before identify what is the incentive, what is the sentiment and then on an individual level be able to identify who

is this and put it into some system where the next time they're exposed to a message or similar, it would be based upon the sentiment they had or the message they delivered, if it's trained well enough.

Interviewee: Well, so, I can give you an example that you can look up. So, if you want to look up one of these social listening companies, there is two to British companies one is called Meltwater and the other one is called Pulsar. Then there is another company which is like extremely interesting in terms of AI -- is Stitch Fix. Stitch Fix is an American based company which sells -- or-- sells clothes, clothing, they make a box that, they put in the box what they think you will like and then they send it to you, you receive the box, you unpack it, you look at it and said okay I like these jeans -- pair of jeans, I like this t-shirt, but I don't like that dress and you return the dress, right? then they get back the dress, and say 'okay, this guy -- or this girl like the jeans and a the t-shirt but didn't like the dress' right? and then they kind of log all the information. And then they try again. And then interactively they learn your taste and so on. Probably, when they start when you open up the account. They ask you so 'what is your size? What is in your wardrobe? What other brands that you like' -- la, la, la -- and the interesting thing about this company is that they have data driven from the start and they have the data at the core of everything of all their services right. So, to put it, simply -- they have an AI for every department in the company.

They have an algorithm for everything. So, they optimize everything. They optimize the supplier they optimize the demand and they optimize the warehouse assignment, they optimize the logistics of the routing. They forecast, when you will need -- you will want a pair of jeans and they want to have it in the closest warehouse, so it can be delivered as fast as possible that they have done that for every aspect. Of course, they also have these recommendation engines that they actually -- and it's not just an algorithm. It's also coupled with actual designers and a stylist and they work hand in hand, it means that the algorithm will probably say, 'Okay, this user, or this customer is more like kind of a hippie style' or 'like urban well-dressed' or not.

And then give some indications and some recommendations and then the stylist and designers can be like, 'okay, it recommend this item, but that is a little bit like old fashion, we have got new stuff and we think like, based on what the items the AI is recommending, maybe we should actually put in this one and these one's to make like a nice mix.' So, it's like the AI is giving you a bucket of flowers that is a bit generic. And then because you're a human being and you're still much smarter, you say, okay, I'm going to replace this and this and like pick it up a little bit, right. So, it just because you make the final touch and so, I think this type of approach you will be much more used in the future.

Interviewer: Interesting. But you do still see the need of some kind of human supervision as you said with 'pimp it up', putting something special in there?

Interviewee: Yes, I think so, at least for now.

Interviewer: Okay!

Interviewee: Because; now we are probably around to make a -- yet to be another one making a guess but we are very far away from achieving like something that is really super intelligent.

Interviewer: So, is that in every aspect sort of that you think human supervision should be still important?

Interviewee: No, in -- for simple problems. Probably, you know, mathematical models are fine but for everything that has to do with creativity; purpose and meaning -- for something that requires a bit more than just data and logic, right. But again, then you may have to do tradeoffs if you want to scale your services, right. A bit like Netflix, they're not going to hand design, every single caption for the millions of movies and

series that they have. So, this thing to streamline and to do it automatically, even though if a human would have done it, it would have looked nicer. But, you know, at least they get it on for and it's possible for like feature content, they pimp it up a bit, I don't know.

Interviewer: What do you think in terms of quality assurance, then when you say that if a human had done it, it would probably look a little bit nicer, is that a problem, you think? Ensuring that the quality would then be of what…

Interviewee: It depends how you define quality right. So, if you have very clear criteria on like, quality acceptance, then you can probably train an algorithm to check that, the acceptance which have been reached. So, I don't see how that will be a upon.

Interviewer: Okay. It's just a matter of having enough quality data to make sure, okay, that it is trained well.

Interviewee: But I mean, if you craft a bucket of flower and say is the quality good enough then you know for one person it would be yes for another person could be no. So, at some point, you need to make some rules, right? Okay. And algorithms are really good at respecting rules or fitting data according to the rules.

Interviewer: How do you see an AI may be contributing to the relationship between a brand and a customer?

Interviewee: All of the above.

Interviewer: All of the above. I guess, so, they do -- Are you referring to something like what we talked about before; the personalization of, like quotes for the individual in order to let them see what works best on them, what they like most?

Interviewee: I mean, you know, everything that we have talked about, mostly is about personalization. So, for a brand, it's about making products, services and messages that your customer will like and respond to, and to personalize and target that as much as possible. So, of course, if you come to the -- if you think about how should I design products so that increase the likelihood of my current customer base to like them that is actually something that some people may be already be thinking about. I don't know if it has been done before. Of course, you can look at trends -- like market trends. You can you can look at social post on social media to look at -- to do some social listening to because what are people talking about? What are their taste? What do people think about at the moment, like, what's in the air. So, that can give you some ideas. And somehow it is based on artificial intelligence because you're not going to gather the data manually, right? you need to extract all of that automatically. So, at least, it's a tool that can help you to achieve some of these things.

Interviewer: Do you see it being an issue that -- let's say two competitors have purchased two off the shelf AI products, right? And they try to personalize some communication to an individual. Could it be a scenario that these two AI picks up the data off the customer? and ends up delivering nearly the same messages to the same individual?

Interviewee: Yes!

Interviewer: Do you see that being a possibility?

Interviewee: If such products existed, maybe but I don't think they do or do they?

Interviewer: Yeah, off the shelf products?

Interviewee: Like what?

Interviewer: Like… the problem is…

Interviewee: Do have examples of real products?

Interviewer: Of AI technologies that are being bought and then are supposed to crawl your existing website and then take up data points from an individual and based on that combine something that is personalized to an individual -- communication.

Interviewee: But, do you have examples of existing products?

Interviewer: Yes. Like with Albert.ai. In the US they…

Interviewee: What is it called?

Interviewer: Albert.ai, they crawl, the website of the company. Then they pick up data points of the individual like Google searches. And then they use for example, what they searched together with something they found on the website and make up an ad message.

Interviewee: How do you spell it?

Interviewer: Albert.ai

Interviewee: Albert, like the name?

Interviewer: Dot AI, but I think it is….

Interviewee: It's a strange name.

Interviewer: Yes, it is. But it is quite closed off. It's only because we got a contact from there that we actually got some insights from it.

Interviewee: Let's see. I am just having a look.

Interviewer: No worries.

Interviewee: Unprecedented self-learning solution that improves effectiveness of [mumbeling for himself]. It's pretty cutting edge what they do. But that would be -- this thing is a huge black box like you have no clue why the system is saying what it's saying.

Interviewer: Exactly, do you see that as a problem for the customers that are purchasing it?

Interviewee: As long as it works, no. I don't know.

Interviewer: I don't know. If you don't know how the system works then do you know where it tries to get you or so to say, do you know…

Interviewee: But, do you understand when your banker says that you can get a loan? Why he says that? Because he also has this really old algorithms based on empirical data and he has like all this probably legacy software from Windows 95 that is clicking and then it says yes, you can or no, you cannot but this is also very black box, you have no clue. But still you accept.

Interviewer: Sure!

Interviewee: So, I don't see the difference.

Interviewer: Now it doesn't have to be an issue, I am just asking if it could be okay, interesting. Do you see the personalization aspect -- do you see that contributing to brand loyalty, meaning that customers would be more willing to purchase at this specific brand at a later time?

Interviewee: Well, I think this is what every brand is trying to achieve, right, loyalty because loyal customers are returning customers, and it's much easier to increase your revenues from your existing customers than acquiring new customers because acquiring new customers costs money. But of course, if you increase the loyalty then -- and you can afford to that with personalization, that's for sure. I mean, now -- but, and really this is just only my take, I think people will more and more expect everything to be really tailored to themselves, they will reject more and more everything that is just, you know, one size fits all, very generic. So, it's not going to be like an edge feature. It's going to be like a must have, by default feature almost. So, I think for now yes, it can. But I think very soon it's going to be something that you have to do or else you cannot even exist.

Interviewer: Do you see that -- such systems, being able to make consumers actively engage with the brand. They're -- more brand ambassadors so to say, that are -- people that live for brand, so to say could it contribute to creating such people?

Interviewee: I don't know who these people are. What motivates them in the first place AI or no AI. So, I don’t know.

Interviewer: Could AI help figuring out that -- identifying them, figuring out what motivates them..

Interviewee: If you figure out in the -- if you manage to figure out in the first place, what made them become a ambassador for brand and you find the drivers and you can replicate these drivers with an AI then yes probably but you first need to figure out what triggered them into becoming an ambassador of a brand, I have no clue what can trigger someone to becoming an ambassador. So, either really love the brand and you know you buy all your products from that brand and you tweet advise. You put your photos on Instagram with hash tags and stuff like that or you’re a blogger.

Interviewer: Do you see anywhere that such systems can help or can be used to creating a connection or a community between customers? Like consumers meeting peer to peer, or similar, could it contribute in any way to such a situation?

Interviewee: How would it do that?

Interviewer: I don't know, if it can..

Interviewee: Making automatic calls…

Interviewer: Figuring out that…

Interviewee: But actually, so I think you can use, AI into, you know, matching people or matching stuff in general, but you can match people to people, you can match people to movies, or series and you can match people to people. So, if you figure out that they have the same interests or the same profiles, then you can recommend them to each other.

Interviewer: We heard that before -- dating possibilities -- dating businesses...

Interviewee: Yes, like for example, LinkedIn, I think will be probably replaced. I hope they will move into that space first. But if they don't, then they will be replaced by basically the same, except that you will not need to have any kind of recruiters or headhunters because you will have a system saying hey, we have all these

candidates who applied for the job. And we make an automatic matching and the best candidates are these guys for that job and the other way round, if you are looking for a job then the AI would say, okay, based on your profile and on your previous positions, the best job for you will be -- or the best, you know, top five will be these one's. So, if you want to create a community, you just need to basically match people to an interest or match people to each other. So, at least you can -- so if you have a lot of people but you want to really target the most important ones you should definitely try to do that in a quantitative way using some algorithm.

Interviewer: Okay, cool. So, if you were to give any advice in relation to this branding aspect to advertisers who considers using AI for digital marketing, do you have any ideas on what that might be? Or do you have any?

Interviewee: So, my advice would be -- first to start having a strategy based on some -- like how business goals that's the first thing then what are the different tactics or initiatives they can put in place to ensure the strategy and which of these initiatives should be supported by AI, because everything that can be optimized or automated should be, otherwise you will be disrupted one way or another. Or you will have to make much more expensive investment later because the AI adoption is actually slow and expensive. So, there is very few just out of the box solutions that work. Some companies, like the one you just showed me, they decided to act on one vertical, on one use case. And they tried to do that as good as they can, right. So, as a company, you can either try to do it yourself, or you can buy it off the shelf.

So, we're not talking generic stuff like Microsoft, Alexa or Google Cloud or what you can find there. But like companies who have spent a lot of time working on one particular solution for one particular industry. So, these businesses will be -- I mean, they're already a lot, I think they will be way more in the future. So, if you're a brand new, definitely look into this vertical services problem is that if you do that, then you create a lot of dependencies in your business. Because what if Albert is going bankrupt in one year, then you have zero alternative. So, it's, disrupting one of your services on one of your product that is actually based on that. So, but on the other hand, it takes a lot of time to -- an investment to actually do it yourself. So, if you want to do internally what these guys are doing, then you need to hire people and collect the data, to figure to crack the problem, which is not necessarily easy to crack. I don't know exactly how they do it. Maybe it's simple, maybe it's advanced, I don't know. But still, it will take a lot of time. There is this one website called Recombee what they do is just recommendations as a service. So, they have an API, you send them all your data, right? And then they will -- so by data, I mean, information about your products, and information about your users and information's about interactions between the two. So, that user has been buying that product or that user has been viewing that product, right? And based on this information, they will make it online recommendations. So, I go on the on the particular website that is connected to Recombee and I look about I search for a pair of shoes and then the website is going to call Recombee and say 'hey, remember Benjamin now he is on my website what should I recommend to him' then Recombee will be like 'okay Benjamin has been looking at Nike shoes before', so we are going to recommend him similar Nike shoes and then sends back the other recommendations right and they had -- of course that Brand could do it itself but it's much nicer to use Recombee because as they explain it on the website if you want to do it yourself. It's going to cost you two years and probably more than one point five million dollars. So, the examples I gave you, the above seems simple, but when you want to develop a full solution that works for -- at scale for your company and that works in production. It takes a lot of time and efforts, actually. So, adopting AI is actually not that easy. Because you need to think of it as a big IT project, right? But again, you can also use this, these small companies, super specialized in one thing and try to create a product around it. So, if I would be a startup,

for example. I would definitely try to leverage as much as possible of things which are already done, instead of trying to do it myself. For bigger companies, the approach and the strategy might be a little bit different.

Interviewer: Okay!

Interviewee: I don't know if that was a bit going too much off track.

Interviewer: No, its fine, how do you see future AI technologies influencing the areas that we have been talking about…

Interviewee: Can you go again?

Interviewer: How do you see future developments within this technology, influencing the above -- all of the limits that it has today?

Interviewee: I can send you a really good presentation from Yann LeCun which is a director of AI at Facebook. And he has made like this one hundred and fifty slides presentation where he explains AI from the start to where it is nowadays, and where it's going to go. What they want to do is to have AI a bit less stupid and a bit more clever, because like, for example, if you -- They had this example that how long does it take for a three year old to understand that a giraffe is a giraffe. You show one picture and that's it. For an algorithm you need to show many, many pictures, right. So, it's not very efficient, it's a very slow learning process. So, what they want us to have -- a system that is able to reason and understand causality, because when you refer to branding it's because somehow you want to influence your customers, right into nudging them into doing something. But if you have algorithms that don't understand causality, then it's really hard to do. Right? So, they want to have algorithms which are not just able to do mapping, but that can also do reasoning.

Interviewer: Okay.

Interviewee: And so -- but if you can do that, then it's a quantum leap. Then you already start to have extremely -- like systems which will be, you know, much closer to what a human would do like the Deep Mind published a Google paper a couple of days ago, about a first attempt to do that. So, combining deep learning with symbolic reasoning, but it's a very - because there's tons of stuff that you need to hard code. And if you need to -- if you have to hard code it, it isn't going to work because you cannot hard code the brain. So, it needs to be whatever reasoning that kind of put in the algorithm, it needs to be learnable.

Interviewer: Makes sense. I was thinking you said earlier that people, maybe already now and maybe even more in the future would like more personalized ads and not these generic ads. How do you think it would -- It effects the brain when they know it comes from a machine, from a computer and not from a person, if you think that affects.

Interviewer: But that's like the people?

Interviewee: When the consumers know that it comes from a machine.

Interviewer: I don't think expect anything to come from people nowadays. I think it mostly comes from machines anyway.

Interviewee: I don't know. But I mean, personally, I don't care but I think it's probably more a personal taste.

Interviewer: Do see it reaching a point where human supervision isn't necessary?

Interviewee: Yes, but in a -- in a very far, far future. Like Star Wars future.

Interviewer: Okay, cool. Well, we're reaching the end. Is there anything that has occurred to while we were talking that you hadn't thought about before?

Interviewee: No, but the website that you sent me is super interesting because self-supervised learning is actually something, I've told myself I should look into. Because; it's not something that you use every day. It's very niche for now, but it is a very promising area as one, so you actually found a really good example for that.

Interviewer: Is there anything else you think we should know?

Interviewee: Well, since we don't seem to know a lot about AI, probably a lot -- but no, I think it should be fine. But it think it is good that you gather more than one point of view, right.

Interviewer: Is there anything else you'd like to ask us before we close of?

Interviewee: What are you gonna do? are gonna write an essay or report, or?

Interviewer: We have collected about, nine to ten interviews and then we get a lot of opinions, thoughts from experts, yourself included, and then we'll try to boil it down and drag out what was the core points that everybody came across and try to find some guidelines for -- maybe what can AI deliver from a brand and what might it not be as good at yet? or sort of some guidelines, like if you decide to -- or if you think about using AI for this aspect, then you should think about this and this and this for going ahead with it. That will be the end product. And I don't know if - Did we say in the start that it's our master thesis.

Interviewee: Okay, I'm sorry.

Interviewer: So, a hundred and twenty pages. That's a long essay at least, but yeah, it'll be interesting.

Interviewee: But one word of advice, I think you should look at -- you have asked me all these questions about what AI can do? And probably you already know how it's done over the traditionally. And then you should also look at which one of these actually can be replaced by algorithms basically.

Interviewee: So, which areas in the future sort of might be replaceable by this technology? Okay, cool. Maybe we get back to you If we any follow up.

Interviewee: Yes, of course we`ll send an email.

Appendix 13: Transcription of interview 10 - Jacob Knobel

The interview with Mr. Knobel was held in Copenhagen on the 17th april 2019.

Interviewer: First of all, if you could tell us a little bit about yourself, who are you? what do you do?

Interviewee: Yeah, I studied in math eight years ago. And then after two years, I started. I had a student job during studies, where I worked in programmatic advertising. And then I realized that there were some gaps in the market that I could fill out. So, I started my own company that did programmatic advertising, that's a lot of data and as a result a lot of AI as well. And five years later, I sold that company. And now I'm here today, I have an AI consultancy, advising companies in AI matters, not related to marketing. So, we do other aspects of AI.

Interviewer: Okay, interesting. So, what is your relation to branding? If you have any?

Interviewee: Yeah, I think programmatic for a certain amount of time was very tactical in its messages. But as it got more complex, it got associated with branding as well. So, we've carried out a lot of branding campaigns, mostly for Unibet Kindred which you may know, big betting. We've done it for Volkswagen Group in Europe. We've done it for the Guardian. We've done it for Danbolig, one of the biggest real estate agents in Denmark. So, I've executed a lot of branding using big data.

Interviewer: Okay, interesting. And where does this fascination of AI come from? Was that through the programmatic work you did?

Interviewee: I think it was through my math studies. So, I studied math, I was good at computers and one of the nice things in the crossfield of that is AI.

Interviewer: Interesting. So, starting with the basics of the branding aspect, how do you see AI being able to increase the ability of a brand to get noticed online? Is it something an AI could help with?

Interviewee: I'm not that sure to be honest with you guys. So, I'll tell you a little bit why, one of the things that AI could help with was perhaps placing it to the right target audience. But most AI is based on historic data. And most historic data has been biased by the planner who decided that this branding campaign should be targeted towards this person, but you know, you have all of these funny experiments where you see that actually, it's not the man that's buying the car in the end, it´s the woman that decide so many things about the car so if we make kind of color, then the woman will say we should get a Chevrolet. This is actually the story of Chevrolet. And so at any given point of time, there's a gap between the market opportunity and the current media placement. And that gap is due to the historic data. And since we are still acting with historic data, I see it being increasingly hard to use AI for branding. I think there's a certain element of creativity, which AI is still missing.

Interviewer: You think there are some elements outside the digital universe that we can´t be able to measure because we don't have the data.

Interviewee: And even if we could measure that data, there'll be something reinforcing a brand. So, you know, men like blue cars, so we´ll do more blue cars but are men liking it because we are showing them the blue car and not the red car, and which brand advertiser actually has the courage to say, okay, we think that beer should be sold to men, but this month, we're just targeting women. I've seen very few branding advertisers having that kind of courage. And it turns out for AI to work you need that variance, you need something that was good, you need something that was bad, such that the AI can actually say something.

Interviewer: Okay, cool. So, in terms of what an AI can identify and deliver when trained probably, how do you see an AI when used in digital marketing, being able to identify and use attributes like values of a company of special benefits?

Interviewee: I don't think that it can do that. And to like put some more words into that lets take Volkswagen that wanted to advertise about how green they were. That's a value you can put into the AI. But six months later, it gets discovered that they are fiddling with their emission numbers. And so that same thing that they're trying to put into the data is actually causing a negative feedback because they have this ongoing thing. So, I can guarantee you that no one in Volkswagen retrained their AI in any way given this thing. Maybe they just admitted the color (?, 4.48). But like there's a really big problem about what data are you putting into the AI and does it actually describe what's going on out in the world. And that's another big problem about using AI for marketing.

Interviewer: So, you think it will be a problem? is that because it's too fluent isn't the right word, but to unquantifiable?

Interviewee: Yeah, it is.

Interviewer: Do you see it being possible that if you train it through several different companies showing, maybe if it's crawl, if its crawled website, you could tell that this company has these specific values based on this day or writing. And you did that maybe a thousand times that it would be able to identify values based on company.

Interviewee: It's very hardcore. So, just to brainstorm with you. So, okay, Volkswagen will never say something bad about themselves on their webpage, but it could be that every single newspaper in the word is actually critiquing them, so then you need to crawl all the newspapers in the word. But then some newspapers might be more skeptical than others. So, which ones do you give more [inaudible 06:02]. So maybe it's based on viewership. Now, you need all the viewership numbers. But then people in the United States, they have more consumption power that people in India, so you need to factor that in as well. But all of a sudden, if you want to describe what's actually going on in the world, the AI gets so complicated. And so that's the first problem. The next problem is, I'm pretty sure that Toyota and Volkswagen say that they're green companies. Which is greener? So, you need a human to quantify that in a very specific way as well. And so just by scraping you will not really capture that.

Interviewer: So, they'll also be a problem in the ability to define so to say, what is a value and how much, like a unquantifiable scale in some way of how much is it then?

Interviewee: Yes!

Interviewer: Okay, interesting.

Interviewee: And so, you can definitely do some proof of concept, but to be honest with you a lot of the I don't know if you saw. IBM Watson did this ad all by itself – No it didn’t do that all by itself, it's a marketing stunt. Like, maybe it's a, so you need blue cars, first of all that conclusion has all the problems we mentioned. But still, if you just gave the output to a traditional creative planer, who then come up with a traditional car ad. So, I think it's really complicated to use AI in branding, the best thing you can hope for is that the historic data is more or less correct. So, yes, we do think that car ad should be geared towards men [inaudible 07:36] but the second we do that, like the creativity of advertising kind of go away.

Interviewer: Interested. What about some of the more quantifiable attributes of a brand? would it be able to identify and maybe use something like the pricing level, maybe a specific style or special benefit?

Interviewee: Yes, it could do that, if that data was available, and also, if you could agree that price as an example was a driver for this given thing. But it's pretty clear, let's do cars again, price is not always a driver because sometimes people go for the most expensive car, if you have a lot of money you want to buy the Porsche or the Bentley. So, you could put all of that data in. But I actually think that the part where AI fits into branding is in the execution of the media with the constraints that you are just repeating what you have done before.

Interviewer: Okay, well, what is the biggest good outcome of that? how do you see that being the best opportunity for AI?

Interviewee: I'm not sure it's a good outcome. I'm very sorry to be so negative, but I'll tell you why. The attention economy which basically is marketing is boiling down to something that's very profitsome. So, Facebook can´t get out of this mess that they are in, YouTube can can´t get out of this mess they are in. Why? because they need more eyeballs to see more ads. And it's clearly hurting. Let's do YouTube, the latest problem is pedophiles watching kids jumping on trampoline, Facebook influencing elections, it's not sure at all, that the branding, attention economy is doing something beneficial.

Interviewer: So, the…

Interviewee: Sorry, and I think that governments all over the world are now working to change that. So, they're trying to stop the attention economy from being applied. The second they do that advertising will become really hard. So, you can say that the first kinds of mass marketing were broadcasting, TV as its outset. But then as more and more data have become available. It's also pretty clear now that we can´t control ourselves as marketers. And we are kind of abusing that power to do something very wrong. And I could imagine that GDPR was one kind of regulation, company privacy and ad blockers and so on and so forth. Maybe it's not ethically correct to use AI to find out that you like a blue car and you like a red car. Maybe that's too much. And maybe we actually in the West, we believe that there's a free will. So, maybe if I can predict that you want an Opel and you want to Mercedes, maybe I shouldn't use that.

Interviewee: That's very interesting. But you think it's a tendency in the global culture that the attention economy, as you said, that we want more and more personalization and so on, and therefore, governments are trying to regulate it in order to make sure it doesn't get exploited.

Interviewee: Well, I think that the last ten years were amazing for companies doing marketing , it was a really nice period. But that golden age is going to come to an end because we just didn't behave nicely. Cambridge Analytica is the best example right here. But where is really the border between Cambridge Analytica to a campaign for Volkswagen cars. Why is that different actually?

Interviewer: Yeah. I mean, there´s a difference in it being a political like, that it should be a democratic selection right? But they're still doing advertisements for political campaigns. So, there is still a similarity.

Interviewee: Yes, I think there is.

Interviewer: Interesting. It's just Cambridge Analytica was a next level way of doing it.

Interviewee: Yeah, and I think they overstep the boundaries of what's acceptable. And then every time an industry goes too far, legislators just go too far the other way. Like banks they did too bad and they got really tightly regulated. Doctors the same. So like, unfortunately, I think if you are not responsible, we just _

industries get regulated to tightly and somehow we had it coming, or we deserved it, because Cambridge Analytica did what they did.

Interviewer: How about something like customer feelings, do you think an AI system would be able to identify specific feelings that a customer might, have.

Interviewee: Yes, that's already done in many ways, but AI facial recognition is better to recognize emotions. But there's also research from India showing how fast you type on a key board. Like, my mom is very slow, I´m very quick. How I use my mouse and keyboard can actually profile my age and gender and mood and that's like, that's examples of what you said.

Interviewer: Interesting. Do you think the system can, is able to deliberately evoke feelings then? Could it treat it like some unknown variable and try to evoke it?

Interviewee: Yes, it could.

Interviewer: Interesting. How do you see that working out?

Interviewee: Not good. So, like, an obvious example is like, what creates likes on Facebook. It's vital things. So why do we get more and more crazy content and Facebook because it evokes the emotions, that creates the attention that creates more advertising budgets. So, already now how does it evoke feelings? It does it by being extreme in everything. That's why social media is so polarized.

Interviewer: Very interesting. But it will never be able to, or will it be able to understand the grasp of feeling or will it treat as an unknown variable? what do you think?

Interviewee: Yeah, I think if people with bad intentions wants to treat it as an unknown variable, they could go for it. But you're right, the AI will not understand like, what does angry mean compared to sad. They can just optimize for it.

Interviewer: To see some tendencies in the way they behave that fits with one of the variables in some way, and then it will act as well,

Interviewee: Exactly, then from a philosophical point of view, you can say the same things for humans, like the color red, I´m not really sure that you understand that color the same way that I do, or the emotion angry, do we. So, maybe there is no objective truth, and AI can interpret it just as valid or invalid as we do between ourselves. I'm not sure I have that belief. I think there is such a thing as objectively red, and objective angry. And the AI will not understand that.

Interviewer: So you still see in this aspect, you also still see the difficulty in people having visual perceptions of specific things like the color red. So, even though it might indicate that, okay, this person is being aggressive, therefore, they might be angry. It might just be their way of behaving. But there will still be, as you said, an objective red. So, there will still be a big part of the market that is acting in the same way.

Interviewee: Yes.

Interviewer: Interesting. So, when we are talking about this perception thing, how about something like opinions? Do you think it would be able to identify customer opinions, and maybe use them through marketing or similar?

Interviewee: Yeah, definitely could do that. And so, like using the opinions, again, it's just a matter of what you set it to optimize for, do you want as much opinioning as possible, then like, it's pretty clear, you end up

with filter bubbles, you know those things? And like, in many ways, a democratic thing, we all think Trump is an idiot, right? But I'm pretty sure that not everyone who voted for him is an idiot, maybe most are, but some are real smart. I would love to hear their opinions. But you know, reading that article is very long and very boring. So, no one will click it. So why advertise for this article, because no one will make money from it. So, in many ways, we should actually optimize for the exact opposite of more clicks and more engagement and this and that. We should optimize for less clicks and less engagement. But because we live in the attention economy, there's no motivation to. So as a result, we just evoke more and more feelings and responses. So, we can get more and more advertising so we can do more and more responses.

Interviewer: Cool. How do you see it being able to like, get to understand these opinions? or to get the knowledge of them in some way? would it be through reviews or through the way they behave with advertisements?

Interviewee: I think it's pretty, like, if you look at BuzzFeed, or Facebook, for that matter. And nowadays, Danish newspapers, unfortunately as well, it's pretty certain that way it works today, just by looking at it, it´s like seven things you didn't know about Taylor Swift, or here's what the doctor did tonight. So, like, it's about not being like the AI with like natural language processing could read the sentence and say, I don't understand what's going on with like, I don't understand what this sentence is about, it doesn't contain the full information. It seems like that those kinds of sentences makes us click a lot more than you know, Taylor Swift brushes her teeth in the morning, that doesn't make people click or something. So, it seems like something surprising, secret thing in text is already now what is being optimized for.

Interviewer: Now, you mentioned natural language processing. Where do you see the state of AI today? Is it able to by itself form small text ads or similar?

Interviewee: Yeah, definitely. So, today, let´s do April last year, now it´s going to be a bit technical, there was a paper release called ULMFiT in May last, in an article that beat all the world records. A month later, Elmo came out, a new model beated ULMFiT. Two months later, OpenAI GPT. A month later, now we are in December, there was something called cubic bird (?, 18.04). January, Facebook, sorry, Microsoft. And so, what happened in December-January was that for years now, the computer is better to identify cancer on moles that humans have been. But it's never been better at text. What happened in December, January was that all of a sudden, AI was better at generating text, understanding text, translating text, pretty much anything related to text. So, now for sure, I can tell you that AI can generate text much better than a human being can do.

Interviewer: Okay. But how do you see that benefiting the everyday advertiser? It seems like what you mentioned here is big corporations. Do you see that the technology will be influencing that?

Interviewee: So, all of this technology is actually open source, it´s available. So, if you can code it, you can implement it. And I think a lot of media agencies will use these products to generate text. And it could be small text in ads and it could actually be entire blog posts, so OpenAI released something last month called OpenAI GP3, which was so good, they actually pulled it down, and they didn´t release the research because it's so good, it can be used for fake news it can be can be used for advertising. So, that's pretty crazy.

Interviewer: Okay, if I may ask. Do you know, where does it get the input from? Does it?

Interviewee: Yeah, so all of these things are, it's pretty smart. They are built on something called language models. So, one of the problems is finding enough historic data for this thing. So, what someone really smart figured out. And all of these models are from based on this observation is that, you know, right now I'm sitting with two guys from CBS and doing a, what's the last word, more exactly it’s an interview. So, if you do

enough sentences, and you ask it to predict the next word, eventually it will learn to do that. And that doesn't require any label data, you just take all twenty-five million articles in the computer, and you dump it into the AI, and then it learns to predict the next sentence and next word, and then it turns out, if it can predict the next word, it can classify the text pretty well, it can generate the next text, translate it. And then you're good to go. So, the big innovation is, now all of a sudden you can use all, even unlabeled data to generate text.

Interviewer: So, you would just tell the system so to say, train the system to write an article about Taylor Swift and it will simple crawl enough data about Taylor Swift and do a basic article based on the thousand articles it´s seen before?

Interviewee: That is, it.

Interviewer: Interesting. You mentioned fake news yourself do you see that having some bads? Do you see some bad situations coming out of the use of natural language processing?

Interviewee: Yes, but I don't think we should blame AI for that. So, I think like fake news has been a thing even before AI. So, just like the people that wrote the fake news shouldn't have done this, they shouldn´t do it with AI as well.

Interviewer: Interesting! Now, how do you see the use of this technology then maybe contributing to the relationship between a brand and a consumer?

Interviewee: Well, if we stay in the attention economy and personalization, it's obvious that they can just personalize even better. So, that's a huge benefit, that's the biggest benefit.

Interviewer: Do you see that having an effect on brand loyalty? Will people be more loyal to the brands that personalize communication towards them?

Interviewee: I'm sure you've also interviewed other people that have noticed that, like the time of brands is in a very special situation because first of all you have retail in which has historically been a very good distribution channel for brands. And so, what they all want to do is they want to own their own distribution, but at the same time Amazon and Google are just conquering distribution, and what are they betting on? they are betting on voice. So, when you tell Alexa, “Hey Alexa, order me a diaper!” you don't say “order me a Pampers diaper”. And so brand loyalty will be a matter of like partnering with the distribution channels. And there you can say AI is playing a big role because voice recognition is 100% AI.

Interviewer: What about when we're talking about this big personalization aspect, do you see a situation where two companies, competing companies, using the same AI technology targeting the same customer might be able to deliver, in a situation, nearly the same ads as it's personalized to the individual?

Interviewee: Yes, so, they've done some studies that are really interesting where they tried simulating two more or less identical e-shops and trying to figure out how they should price their product. And then you can imagine that if one is priced a bit cheaper than the other, it doesn't sell, so it bumps up the price. Sorry, so lowest price, you should think that it would be a race to the bottom. But actually, when you simulate it, it's a race to the top. So, we could call that cartelization or price collusion, and so like it's really fascinating to think that if you have two AIs working on the same task, it seems like that they're partnering together to optimize getting the most out of the situation rather than competing with each other. So, in a crazy world where everyone is using AI, I think this preliminary research shows that it benefits the brands, but definitely not the consumers.

Interviewer: Do you see that being a problem for the brands, though? That they might have problems differentiating themselves? When the only aspect that is differentiating them in that moment is the price?

Interviewer: Yeah, it's a problem. And I think it ties back to the thing that branding should be more than just AI because if they do an AI race, it's just about who has the most data and then the biggest one will win. But branding time and time again have shown that it´s maybe something else than the size that makes you win a battle.

Interviewer: That is very interesting. Do you see the technology might be able to make consumers more actively engage in the brand? Create more brand ambassadors or similar? Some who are really engaged in one specific brand?

Interviewee: No. It´s not obvious to me how those two things would work.

Interviewer: How do you see AI maybe being able to connect or make communities among consumers peer to peer? Could that be a situation? Could it benefit?

Interviewee: I'm sure there are ways to do it, I have yet to see a brand using AI for that. I think marketplaces and communities in general is possible on Facebook as an example, forums. And I'm not sure how AI would fit into that. Especially now with GDPR. So, it's not so easy to just bring people together, like they need to consent to it. And it´s not trivial.

Interviewer: Do you see GDPR being a limit to the use of AI?

Interviewee: Yes, massively. But you can also say it´s a good thing.

Interviewer: A necessary limit?

Interviewee: Yes, a necessary limit.

Interviewer: Do you think it's limited enough?

Interviewee: No! So, I really hope for tighter regulation because what they do today with GDPR to circumvent it, they say we're not going to use your name or your address, we are going to use a hash. So, we can´t say who it is, but we can say that you are the same person using this phone or this laptop. And so, they are just circumventing it in creative ways. I think we should put a stop to that as well.

Interviewer: Okay. Now some people might be saying the ones the starters of the internet would say if you limit the process, you will limit creativity. What your thoughts about that? Like talking about.

Interviewee: Yes!

Interviewer: Now I'm expanding out of the topic, but something like the dark web or similar that people are saying you should not close this up because it increases the creativity process.

Interviewee: Yeah, I think I totally agree with that. And I think branding and advertising is actually _ that is actually the opposite of that, because that's all about I'm gathering data on you, and you have no chance of realizing what I'm gathering. And then I'm using it against you, and you have no like why did you see this ad, was it because you were a guy. Was it because you know. And so, like the dark web and distributed (?, 9.01 left) technology and privacy by design. That's what I'm advocating, and that´s the exact opposite. Because then you can actually say today I'm looking for a car. And I know that I'm never going to buy Suzuki. So, I'm going to give permission to car advertisers but not to Suzuki. That kind of control is what you want. That kind of control is definitely not what you're getting in the current advertising technology market.

Interviewer: Okay, now, how do that leave new advertisers? Like new companies trying to come in with a new car to the market?

Interviewee: I think in a better position, because what are you then competing if it´s not the size of your budget, your competing on the quality of your product. And branding, in some cases is about hiding the obvious truth that your product is not that good. And so, I think it leaves it in a much better position.

Interviewer: Interesting. Now some of the aspects we talked about: We talked about quantifiable attributes of a brand, non-quantifiable, feelings, opinions and the relationship. Do you see some of those aspects being more difficult to work with for AI technology than others? Or is it being managed the same way?

Interviewee: So, if you look at like branding you have the creative agency, you have the design agency, media agency, and then the research. Those are the components: research, and marketing and advertising industry, media. Research and media it´s very easy to say because they have data. Creative and design that's going to be very hard to use AI for. Practically speaking, what you want is also historic data, the last ten thousand TV ads run by this creative agency, do they have it stored somewhere? I guarantee you they have it stored somewhere.

Interviewer: So, data is a limit?

Interviewee: Yeah. In practice it´s a huge limit for all the creative jobs.

Interviewer: Interesting. Now, if you were to give any advice in relation to branding for advertisers who considers using AI in their digital marketing, do you have any thoughts on what that might be?

Interviewee: Use Google. They have all the data about everything in their closed ecosystem they have data about the design and the creative, data about the text about the pricing all of that stuff, they can figure it out much better than if you patch together different agencies to work together on a non-joint dataset. So, if you want to use AI, just use Googles AI, and the nice thing about it is that you just click in an interface, and it just does the rest.

Interviewer: Interesting. What about the future of AI technologies, do you see AI in the future or similar technologies, they might rename it at some point, being able to meet or fix some of the issues we've been talking about up until now, we have talked about the creativity part do you think this is something an AI would take over at some point?

Interviewee: Not at the moment. But I do see a future where if, like, what you really do is distribute data in a way where we all own our own data. Then we could say, well, I don't want Procter and Gamble's AI to bet against me. I want to have my own AI that can find out, do I need to buy Libero or do I need to buy Pampers diapers. I think that future will come because now it's technically possible, like only Procter & Gamble could do an AI, now we could rent one ourselves.

Interviewer: Personal assistance. In some way AI will act as your personal assistance and figure out what is it you want to see?

Interviewee: And it won't be Amazon's personal assistance in your house, it will actually be your personal assistant, and then branding becomes less of a criteria because what's good for you well, let's say this T shirt you have on. And then if you put a Nike logo on it, it will cost 200 Kroner more. Is that good for you to spend those 200 Kroner just to get the swoosh? Maybe if you're that kind of person but if you're not, it's not good for you. So why would we want to interfere with your worldview by showing you ads, so that can help you get rid of Nike´s brand.

Interviewer: So, that will be a whole new era in some way of advertising?

Interviewee: Yeah! Of consumerism I would say. Because advertising and consumerism has been the same because advertising is driving consumerism. But if we don't need like maybe this could make _ this could turn it into consumerism. Just like do you need a T shirt, or don´t you need a T shirt. And if you need a T shirt, why don´t you just get the cheapest one.

Interviewee: Interesting. Do you see any development in a that path today?

Interviewee: Yes. So, you have blockchain is one way of like trying to go around it. And then you in advertising you have Grave which is you have a blockchain where you actually give permission to advertise. So, that's one way. Then you have the legislation, the current and the coming and I think those are two very good ways of like going around it. I think sooner or later, like, we will find the right foot.

Interviewer: Interesting. Now we're actually already heading to an end. But is there anything that might have occurred to you doing our talk that you hadn't thought about before?

Interviewee: Well, I think we talked a bit about IBM Watson building this app. We can find many of these things. I think they are gimmicks, but I also think that they are nice gimmicks to put in a master thesis. So, look at like what IBM Watson have done, IBM has done a lot as well with AI. And you know, you can use those cases. But forgive me if it´s not exactly what you want to hear. But I think the best like this technology thing is changing something fundamentally in how branding is working. And like, I think the last ten years of economic boom, it´s got to turn into a buzz sooner or later, it always does. And when that happens, maybe it might be but just a temporary end in branding, maybe it will be the final end of branding because of technologic alternatives.

Interviewer: Branding in a whole other way at least. Okay. Then is there anything else you think we should in terms of this?

Interviewee: No!

Interviewer: Anything you'd like to ask us?

Interviewee: No!

Interviewer: May we get back to you If we have any follow-up questions?

Interviewee: Please do.

Interviewer 2: You said your advice was to use Google. In terms of the transparency of Google. How should companies use it? Google are of course, they will try to optimize the earnings of themselves.

Interviewee: Yes, it's a very good question and maybe to zoom out of that. What you are also saying is, forget if it's Google or not, but what you're asking is what is the purpose of a marketplace? why should we use a marketplace? why go through you to him, when I can just go straight to him? But the fact is the marketplace serves a great purpose, just like a Stock Exchange. Like if I have to go to him and to him and to him to gather my own data and build my own infrastructure, and then Procter & Gamble will have to do it, and Volkswagen will have to do it. It turns out that Volkswagen is not necessarily an advertising technology company, it´s a car manufacturer. So, maybe there is a justification pushing it into a marketplace. The problem with Google is of course that they are too big now. Maybe they're not helping competition, maybe they're hurting competition. And I believe that to be the case.

But it also turns out that every time there´s a complex market, and it's not just the advertising market, but advertising market as well, intermediaries and marketplaces occur. So, now it's Google, twenty years ago it was [inaudible 36:47 to 49], and twenty years from now it will be something else and there's always a problem of transparency. But I think ultimately, if the advertisers feel like they get positive return on their investment, then they're happy.

Interviewer: Okay!

Appendix 14: Transcription of interview 11 - Jonathan Rystrøm

The interview with Mr. Rystrøm was held in Copenhagen on the 23th of april 2019.

Interviewer: First of all, if you could tell us a little bit about yourself. Who are you? What do you do?

Interviewee: My name is Jonathan Rystrøm, and I'm a junior data scientist here at Kapacity. My main fields of specialty is computer vision. But I've also worked with churn prediction and on my own time, I've been working as a data advisor for Ida Auken on her political campaign. So, that was me in brief.

Interviewer: Cool, what is your relation to AI?

Interviewer: As I said that, and I've been, what I do here is mainly work with some more advanced things that some of the other guys maybe don't have time to study because they are busy with clients. So, I work on some cool computer vision stuff where we try to gain some insights from video. And but then I also do some more general machine learning which is the main technology we're working with here that's in the AI domain.

Interviewer: Okay! And now, just to make it clear, do you provide any software for clients, or are you a consultancy implementing software from outside?

Interviewee: Well, the way we do it here normally is that we rely on open source Microsoft technologies to then deliver insights and models to our clients. So, it's a bit more difficult to say, do we deliver software, not in this AI domain, because what we deliver is a model, but it's built on non-proprietary software that we normally don't build.

Interviewer: So, it's modified based on open source code.

Interviewee: So, we like take some models and then use the client's data to train the models on I know, you probably have heard that term before. And then we normally deliver either the insights from the trained model, like in a report, or sometimes we productionize the model, so they get new scores monthly or by weekly or something like that.

Interviewer: Okay, now, moving over to the abilities of communicating a brand. How do you see AI increasing the ability of a brand to get noticed? Is it able to identify the core features of the brand, logo, the company name and similar?

Interviewer: I think the way people have mainly been using AI or mainly machine learning for branding is to gain insights on their customers, for example, you could say okay, now we look at all the images on the internet and find all the images in which our logo is in that and then we can see what kinds of images is that and then gain some insights on how our brand is portrayed in the real world, so to speak, and on the internet. And you can do the same with text passing where you can do something called density analysis where you'll find out in which context is our brand mentioned or you could go in on the customer level and look at the dialogue you have been having with your customers or the interactions they have had with your website or products, and then know something about how they're interacting and how that is in comparison to how you would like them to interact and how you can change that.

So, but it's really difficult talking about the AI as like a human being understanding brands and spotting logos. And there's also this thing where some things that may be very difficult for us to understand is quite easy for an algorithm and then some things that we think is easy-peasy is very difficult, for example, like looking and

telling where a logo is on a tiny picture is quite easy for us, I could spot a Coca Cola bottle a million miles away. But that's very difficult. That's only in recent years that

The AI community has been able to actually do that. But then finding like an anonymous transaction as an instance of fraud in a billion rows of customer interactions, that would be almost impossible for humans, but quite relatively easy for a machine learning model.

Interviewer: Now, what about some of the brand attributes that are more quantifiable like the pricing or design, style, color, special benefits, would this be some attributes that an AI would be able to identify and deliver in data, if trained properly?

Interviewee: I think what some people have been doing with great success, especially Facebook, and some other, Google and all the other ad driven data giants, is to be able to take some peripheries of a brand and optimize on them, like say, okay, would it be best if our logo is green, or blue, and then basically do something some A/B testing, but just like A, B, C, D, E, F, G, almost to infinity testing, and then find out, do some minor tweaks and finding out what works best which I think is very powerful and have been, it's not something that we do that much, but ourselves at least, but that have been companies that do that with a lot of success. So, AI like, although it probably doesn't understand the connotations you and I have with the color green, it can still see, okay, it performs super well. So, let's, then some marketing experts can go in and say, Oh, yeah, that makes sense because; that fits with our brand´s core values or maybe they will be surprised, then they will have to think a bit more about it before they come to the realization. So, I still think that machine learning or AI is mostly used to like sometimes deliver interesting insights that you wouldn't normally be able to spot because of the absolutely enormous amounts of data going around in the world.

Interviewer: Okay! I'm just curious to know whether, let's say you have big e-commerce platform? And you would like to personalize advertisements to each of your products. Would you be able, with a trained algorithm, to let an AI, based on a product page, identify the price, the color of the product, the name of the product? And would it be able to gather that and present it in an ad form do you think?

Interviewee: I just if you have like automatically generate an ad. The AI probably would, but I don't think that's how you would normally use it right now. I have heard someone like doing something akin to that. But what I think you normally do is you take an existing ad and then you tweak some of the stuff for example the colors, or where the product is, how big it is, or where placement is in general, or the text. And I think the way you normally do it right now is you maybe have your marketing team figure out five or ten different slogans that they think we're good but didn't really don't really have an idea what's best, but don't really know that. And then you just test them out and, and have the algorithm learn what performs best and what in what combination and in an combination space that would be, like both ridiculously expensive and relatively complicated for a human to actually do.

So, actually, like generating ads from the bottom up, there are some techniques that could in theory do that. Something called generative adversarial networks or GANs. But I think people would normally would want a bit more control. And the results are not always that good right now, some of them are really good, but they're very computer intensive like you have to have a large computer and train them for a lot of time and you are not, it's more difficult to assess the results without having a human in the loop.

Interviewer: So, you consider it necessary to have human supervision and the limit in computing power as some of the features that should be considered in such situations?

Interviewee: Yeah, I think what, although we don't work directly with branding, per se, like we work with the analytical perspective, we almost always find that having a domain expert in the loop, like during our process

is probably, so one of the most important aspects, we often find that there might be a feature of the data that we don't really understand then they add value or something and then they go in and say, Oh, that's perfectly normal and then they just like, because they worked with it for twenty years, and like humans are quite intelligent. So, they can then we can merge that inside with the model and make it perform even better. So, I don't really think that entirely automating everything is the way to go. Probably, like in some areas, it might, but in creative efforts, it's good to have a human in the loop because, you can see like, if you are being a bit broad and all that stuff, you could see a human as a very sophisticated algorithm that's very good at marketing.

Interviewer: Okay! So, that was if an AI technology should try to use price or color or similar in order to create an ad or similar to understand that, then I guess something like, more soft attributes like values, brand personality or heritage, we've talked about Bang & Olufsen before that a part of Bang & Olufsen is their Danish heritage that everybody knows, at least in Denmark, that it's very Danish. Now, if the pricing and colors and similar needs some supervision, and you consider that AI is not ideal to be used in order to identify and use that, at the moment, of course, I guess you wouldn't consider such soft values as an easy thing to work with for an AI technology either.

Interviewee: Well, like, I guess that, I just quickly returns for the colors and that stuff. I think it´s quite easy for an algorithm, if you have like a picture of your product, say you made cups or something, it could very easily determine the color of the cup and how big it is. And like it could probably even identify where the logo is on the cup and all that stuff. It's quite easy for it to like if you say, I give it a million pictures and say which of these images has a cup on it and you could find that algorithm that performs probably better than a human. But like to go from that to create an advertisement that, like works and this makes sense, it is quite difficult. But to find out, okay, what colors of product work, like has the most impact on customers. That's something a lot of _ that’s where the most of the value is being created right now with AI in marketing, I think. Like doing all these tests and doing like shifting the color a few degrees up and down and finding out that a bright red works very well for this product or our brand. And although that might go against like traditional marketing, like don't mess up the brand value or the branding script. So, I guess like identifying soft values, like finding out what kind of like what your customers think about your brand is of course a more difficult task. Because what _ like how most machine learning that is the big main technology behind AI, works is that you say, here a lot of examples, this is the right answer, like you could give it a ton of pictures and say all of these has an image of a cat, this one and this one haven’t.

So, if you could sit down and reliably say, okay, we have all this chunks of text and find out what like identifies with all that text, then you could give it a lot of unseen text. And then it could find the patterns that. But like, we have also worked with a technique called segmentation, where you take a lot of unstructured data, or not unstructured data but unlabeled, where you don't know the right answer. And then, you just tell the algorithm to find a pattern. And it's actually quite difficult because; there are no right results. So, it's just like when we humans do creative work.

So, it might say okay, I've found these three segments of customers, and then you as the data scientist, the marketing expert or whatever, have to go down in the data and find out okay, how can we like translate this to human terms and like, give each segment a name. And you could, do that you can do that for text as well like finding out if you have a lot of reviews or whatever from customers, you can find out okay, what are the most important phrases or words, and there are some quite sophisticated techniques to actually do that. But that's not happening automatically. And you still have to do a lot of interpretation and figuring out okay, does this make business sense for us to have this target group or have these ones? But you can definitely because like, you would never make a human read a million reviews. And then like say, then say, okay, I put these

million reviews in ten buckets, and you have to define the buckets yourself that would be almost impossible because nobody has the time to do that. But you can definitely make an algorithm do it. And then you can like, look at the buckets and make sense of them. If that makes sense.

Interviewer: Okay, getting back to what you touched upon before about soft values that you will have to feed it with a lot of data to train it in order for it to understand what is specific types of values, right? So, that would basically be depending a lot or relying a lot on the data engineer´s definition of values and ability to have big data sets where values are identified based on a lot of text.

Interviewee: Yes, for example.

Interviewer: What about AIs ability to create or manipulate text? do you know where we are today? In the technology?

Interviewee: I think we have some, there are some great like cutting edge research being done in this area, mainly in English, because; that's just where the most of the research has been. So, you would probably like Danish generating models are quite bad, but English generating are quite good. And like, they can make a lot of coherent text that I think the state of the art is something called, I don't know, it´s OpenAI that made a new algorithm that's like crawled a million or billion web pages and learned the structure of that, like, where it basically takes a sentence and then predicts the next sentence, or takes a word, and I don't remember what level it is on. But it's basically given all these words that you've seen, what comes next. And it can write some quite convincing and all that stuff.

But it's like, it doesn't really understand it, and it wouldn't be able to explain it. And I think that's one of the main problems in AI as a field right now, is that there is this tradeoff between having some really cool models like deep neural networks, and all that stuff, and like just feeding them tons of data and making them predict crazy things. But when, like, Normally, you would want to know why. And that's simply not possible but if you have like, some very old school, simple models, for example, like linear regression like that, you basically can do an Excel, you wouldn't like you can´t feed it a ton of images, because it can´t make sense of images. And it can´t write Shakespeare and none of that, but you know exactly why it predicted something, you can go in and look at the coefficients and say, okay, this, this feature is that important and this feature is that important.

So, I think that makes it very difficult for marketing to actually use these text generating techniques, because you really put a lot of trust in that algorithm to like just create, like, it could go on and write something horrible that you wouldn't want, for example, there was this Microsoft experiment, like where they let a Twitterbot loose, and then it turned incredibly racist, and sexist, and all that stuff. And I even think I have a Google Pixel phone, and I don't know what it's trained on. But you know, when it recommends words when you're texting, it's also like, very aggressive at times, and it´s like, calm down Google, probably because; it's trained on internet searches that´s not the best of humanity always. (20.05)

So, even though like text generating is quite advanced, because it's so not transparent. I don't think it'll probably take some time before it's widely adopted. But if, actually, if you take something like more rule based, I know that a lot of especially sports articles, like in media, right now, it's being written by algorithms, because it's quite predictable. If you have a soccer match, like what do you want in an article, so you want to know the score and you want to know if there are any red cards and how they are placed in the and then like, sports journalists are very predictable in like the phrases they use and all that stuff is. So, that's an easy problem. But like letting your entire brand rest on some algorithm that just writes articles or creates ads for you without supervision, I think.

Like technologically, it's quite a bit off. like we are not quite there yet. But I don't know business wise, we might be even further out in the future, because there's this trust issue. But maybe like, if you take an example of chatbots, which, like, a lot of firms has a chatbot answering questions on your website, I guess that can be seen like as a kind of brand ambassador, like, when you interact with chatbot, you basically, in your mind, I guess have a model that now you're talking directly to Amazon or whatever? I don't know, that's probably also an interesting research question for you guys.

But and so you also have to be very careful in how you program these kinds of chatbots. They are not entirely autonomous. I've not been working extensively with chatbot. But when I've been speaking with people that have, it´s normally quite rule based like you say, okay, so we have when they say something like this, you answer something like this, and then the machine learning or AI, what that does is that it makes the statements more fuzzy. So, like, it doesn't really matter if you say, what's the weather like or how's the weather, you don't have to manually specify all, but you can get an algorithm to know that what's the weather like? And how's the weather? And how would the weather be, are all actually the same question, then search the pattern recognition. And I think if you can understand one thing about machine learning is, it is that right now, it's pattern recognition, sometimes it's very advanced pattern recognition that we humans are very bad at, and sometimes it's not that advanced pattern recognition, but at a very large scale. But if it's not pattern recognition, AI will have a very hard time doing it. But if you can make it in some way or another sometime very clever way to a pattern recognition problem, then you can solve that by machine learning or AI.

Interviewer: So it very much relies on the input that is given, how it's given?

Interviewee: I think you have this amazing term in machine learning called Geico, which stands for garbage in garbage out. That is to say that if you feed it a lot of bad data, that's like, if a lot of the values are off or sometimes like people are bad at noting data, because it's boring, probably. So, like, if you have somebody who's missed a comma, or something like that, or a point, then that skews the data a lot. And some algorithms are very sensitive to that, like they expect you always have to when you interpret it, it has to be in comparison to the data that you've given it.

So, it's, not predicting the future or predicting, like, if this was a point in the data set I had, what would it be like, like, which category would it actually be in and it can be quite abstract, like thinking about it that way, and a lot of like, problems that we encounter, when we would go to customers and getting them to understand like, the algorithm this that they say, Oh, the algorithm outputted point seven, that this guy is going to churn that means that there are thirty percent chance that he doesn't or something like that, which is not really a valid interpretation of that, or, you know, people normally humanizes the algorithms a lot. And that makes it difficult to actually understand them. And like, and use them to the best extent and all that stuff.

Interviewer: So, is your understanding that there's a lot of customers who are who haven't would like to implement AI technology, but actually do not understand how it works.

Interviewee: I think we meet a lot of like, wrong conception or misguided conceptions. We also meet a lot of people who, who understands it to a great extent, or like, maybe doesn't understand all the nitty gritty of how to get them to work, because that's our job. But like, understand the broad concepts. But I definitely think that that is a problem in the general public, so to speak, or that people have some misaligned views on what AI can and cannot do, because we tend to humanize them and think, okay, I think this is very easy. So, a computer would have no problem doing that. Or this is super difficult nobody will ever be able to program, like a machine to do that. For example, in 2014 when AlphaGo, or the team at DeepMind beat the best human Go player. Like for humans, it's very difficult to play Go because it´s abstract and you have to think, ahead,

and all that stuff. But you can very clearly specify, like the game of Go to a computer, like the rules aren't that complicated.

And it's what you call a full information game, like, at every point in time. You know, everything that's happening at the board, and you can simulate the game without relying on chance, like, you could, in theory, calculate the probability of each move. And like, given that move, and like, who would win in this game state and all that stuff? And you can't really do that, because; there's too many games states, but you could, in theory, do that. And computers perform very well at those kinds of tasks, because you can just make it like best iteration is that it just played against itself, like for what was basically 4000 years, something like that, because it plays a game a lot faster than you and I would do it.

But like a problem, like painting a wall or something like that, it's super difficult, because you have to have a robot arm. And there's a number of things that you wouldn't like if, because the computer basically just sees the image as ones and zeros and there's a lot of noise and all that stuff, or, like even playing, I don't know what's the English equivalent is but “Fisk”, it's probably really difficult for a computer to learn how to play effectively, because you have to have a mental model of how the other players are playing or Poker is another good example where you have made a great amount of progress and have some really great poker playing bots, because they it's also a game of statistics, but it's more difficult than playing chess or Go and these other types of games.

Interviewer: Okay, interesting. Now, we touched upon, you talked about chatbots. And you mentioned the (Inaudiable, 29.15). And that it works very well with pattern recognition. I'm quite curious to how do you think it might be able to identify feelings of a customer? Would it be able to identify that a customer is behaving in a specific way? do you think?

Interviewee: I think, at least to some extent, it's quite possible. We've been working a bit with recognizing emotions in video, like if a person walks into a store and is, like grumpy, and then walks out and is very happy, like, something probably went right in there or if the opposite happens, like something probably went wrong. And it like it. If you can make it into a pattern recognition problem, for example, you could have some people look at ten thousand images of faces, and then say, okay, this one smiling, she's happy, and he's grumpy, and he's sad, or, and then have them label all the images and then get an algorithm to learn it, then would it would perfectly be able to, we also do quite a bit of a thing called sentiment analysis on text, where you basically say, Is this a positive or negative text.

And this all relies, like, all the techniques, we use, at least, and I think that's what most people do is still supervised techniques. Where you have some, like humans, and these four, do quite a bit of labeling where they say this is a positive text, or this is the negative one, and then you can get algorithms pretty reliably then predict on unseen data. So, I guess, if you can, with all these things, as if you can make it into a pattern recognition, whether it's like a kind of right answer. You can make the machine learning perform quite well, normally. So, if you could, like have, for example, if you say a customer is happy if he buys a lot of stuff, then you can say, okay, this customer bought a lot of stuff, and what actions Did he take before? like, what did he click on. If you have somebody who doesn't buy anything, but like, checks literally that will be a negative example, he probably didn't have the best experience at all, or something like that.

And then you can do that. But then you always have to think, okay, we'll be careful not to say that this is predicting if a customer is angry or happy, but this customer this algorithm would then predict, if a customer is buying, are likely to buy a lot of things or nothing at all, and it's a bit dangerous to then take the leap and say this is predicting happy or sad, if that's not what you the labels are actually signifying. And that's one of the most difficult things about doing this kind of stuff is finding. Because normally you can't just like if you

have a customer in a web shop, you can't always ask them, okay, was this a good experience or bad experience? like, you have to kind of get that data indirectly. And that makes it a lot more difficult to interpret the results in the context to answer the question you actually want. Of course, if you're just like, a lot of stores have that where you are, where there is a question popping up saying, like, how are you feeling? Or how satisfied are you with this experience? And then you can answer that, and then you can use that as labels. But you have to get those labels somewhere, somehow. And that's oftentimes difficult.

Interviewer: You mention sentiment analysis, one of the things we've heard before is that they have a problem with irony that that sentiment analysis today still lacks the ability to understand irony and, and filter that out in some way. Do you see that as a problem?

Interviewee: Definitely, I think, like, in the old days, or how you would say it, there was this approach of sentiment analysis where you basically say, texts are made of words, and then you say, okay, all these words are bad words. And like, if somebody says horrible, that's a bad word, and that's minus five points, and if somebody says, fantastic, it's great, it's plus five points. And then you have this long list where you have a person say, this is a great word, this is a bad word, this is a neutral and all that stuff. And then you basically, when you get a text you count, like, okay, this word plus five, this is minus three, this is plus five, then it's seven, and then this as a positive sentiment.

But, like, that was a very bad approach. And it didn't, there´s lot of things that it didn't capture that will, for example, if you say this was the “least fantastic experience”, then the algorithm would go “It's a fantastic, that's great.” And, although it was like, the opposite, so but the great thing about some of the more recent techniques, in the last ten years or so is that if you have some humans that can reliably detect irony, which is of course difficult, like it can be difficult, especially on text, like seeing okay is this ironic, or is this just like is he being sincere. Then you could probably have an algorithm learn irony. But it like if you had thousand examples of people being ironic and correctly label them as negative. I think there was an example where, like, what the algorithm found was the most significant indicator of somebody when being negative was like, question marks and exclamation marks, like if people had those, then it was probably a negative review. Where like, some of the things that it found out were quite surprising, because you normally wouldn't say, Oh, of course, that would probably not be on your own word list. And it can also find interaction for example if it says not great, it would say, that's not great. A label that is negative.

So, I think like, some of these approaches, they can definitely get an understanding of irony if humans can. If it has enough data, but it like, then it just has to be good at picking up the nuances that we also do. And it can do that with a lot of data. But it's not like, _ it doesn't understand like, okay, this guy's probably being ironic, it just says, this guy sounded a lot like this other guy that was ironic but was negative, and then it is labeled as negative.

Interviewer: Okay! Now, you mentioned that it could to a certain degree detect feelings? do you think that it can evoke feelings? Deliberately.

Interviewer: Yes, I think it can. And it probably does, like, a lot. Like, for example, you can, like that's, that's bit back to one of the things we discussed at the beginning with creating advertisements, or like, changing colors, or pictures a bit, or the text, like if you have some kind of metrics for a feeling, like a very simple example would be like on Facebook, if you wanted to maximize like, you can, instead of just liking you can do these kind of react things like if you want to, it would be quite easy to like have an algorithm that creates text, where its main goal is to maximize like the angry smiley, because that's very quantifiable, like, you can say, a post with ten is better than a post with five which is better than a post with zero. And then you could just like have it create tons of posts, And I find out, okay, this worked. And then it has to be more something

like that, and this didn't work and you could basically just have it train on its own text. It generates the training data itself.

Or you could have some, your own features where you have features that says does it have a photo, what´s on the photo and all that stuff. But you could also just, like, have it create fake articles, and something like that, and just measure the response and then do what worked and what didn't. And, in essence, that's how a lot of like new news or ad companies use AI is like to do these minor tweaks and then they have some metric that they're optimizing for. And that can be very effective. And that was probably also something we saw, during the American election, the Brexit vote, where Trump and the lead campaign were very good at, at using these kinds of techniques like using the technologies to the fullest extent, and that wasn't really legal. And that wasn´t ethical, but it was very effective. Yes, it's a difficult line to walk as soon as you like, let them loose and just let them optimize like crazy that because the consequences can be quite huge.

Interviewer: Okay! So, you see a need for limits for the use of AI in some way?

Interviewee: Yes, probably, like and _ but it's very difficult. because the technology is moving very fast, and like political regulations are moving quite slowly. And which is probably normally a good thing like that you don't just pass a new law, the moment something new happens and saying that's, that's forbidden, because then you would limit progress. So, it's a very fine line between under regulation/over regulation. But and I think with, like GDPR, although it makes some of our work more difficult, like you. Some data, that we don't think is like that sensitive, or might be very useful, the algorithm is very difficult to get, and you have to be very careful with how you store it and all that stuff. But it's probably a good first step. And like it had, it probably has to be changed in some ways that I don't really know because I'm no legal expert. But it's good to have some kind of regulation, because the techniques are very powerful. And they're probably just going to get more powerful as time goes on.

Interviewer: Okay, just to finish up the whole feelings aspect. So, it would never understand what a feeling is, but treat it like an undefined variable in some way. A variable that humans are doing like being more aggressive or similar because of this unknown variable. When I do swear words in text towards people, they act more aggressively, in some way, it would be some undefined variable that it would be able to work with in some way optimize towards.

Interviewee: I think, like on that, it would, _ that is really a matter of how you define understanding, because; like, you could probably, theoretically train an algorithm to reliably guess the text like, or the sentiment of a text also quite more nuanced. I think this is sad, And this is angry, and this is just neutral and all that stuff. Where it would be very accurate. But to say that it understands it like, on a deep level, you wouldn't, _ you might like with some techniques, you might even be able to say okay, so what made the algorithm say that it was negative, and then you can have some, there are some techniques that can highlight the words that triggered it or like do something like that or the parts of the image that it felt, that made it make that prediction.

But then the question is, is that understanding like the deep context because it is really a matter of pattern recognition, as we talked about before. But then the question becomes very deep and philosophical, like, do we do something more beyond pattern recognition, we probably also do some kind of reasoning and stuff, which is a whole other ballpark. And it's very difficult for AI to _ in the state that it is today to do causal reasoning, its which, _ but it's like a whole other field of research that's out of the scope of machine learning. And one of the main points of critique that, oh, yes, you can recognize patterns, but you can't like reason about things you haven't seen, which is important for making decisions.

So, I think, like, if we just go further down the machine learning road, or the deep learning, which is a bit of the same, but more advanced, so to speak, you're probably not going to have agents or algorithms that have a deep understanding, like in the way that you and I have, when it says someone is angry, like, you wouldn't be able to have a conversation about how it is to feel angry, or like how it made you feel that it felt like that you read an angry text or. But that's not to say that AI as a broad field will never, that a computer would never be able to do that.

Because AI is really like a lot of techniques, and has been through a lot of different developments going back from people trying to hard code every single rule that like have a model of the universe where they just like, basically wrote it and say tables are made of wood and floors can be made of these things and tables stands on floors and gravity. And that didn't work very well, because the world is complicated.

Interviewer: Okay, now, you mentioned reviews, the ability for an AI to work with something that might a good experience or bad experience. Do you think that it would be able to if you put two algorithms together as similar to use that in the way you communicate towards them, to say, okay, this guy had a bad expensive, therefore, we will be like this towards them? so, taking the opinions of the customers, and identifying it, and using it, leveraging on it in some way like their opinion of the quality of the product, maybe.

Interviewer: I think what you can do, and what a lot of people are doing right now is say, it's like, without human intervention, so to speak, say okay, this, like we read an email from customer and then identify this guy's angry, and he's angry with the, with the quality of the product that's, like, route him to the quality team, and this one is happy, he´s happy with the price and then like, forward that to like, or even make a response saying thank you, we appreciate your feedback, we always strive for better prices or something like that. So, that's, that's very possible. I don't know, I don't think that was what you mentioned entirely.

Interviewer: No, but you touched upon the techniques. So, I think it's nice.

Interviewee: So, if we're talking like, back to the chat bot example. AI is definitely able to do fuzzier and fuzzier stuff where they say, okay, what he actually means is this and then answering it. And being able to answer some more and more stuff, both as the algorithms get better at finding out which of the like, response options fits best to this or as the response options get more nuanced like for example, when Google set ads on Wikipedia to its Google assistant and makes it possible for to answer questions based on Wikipedia, which is very cool, and also quite difficult to do.

So, it's amazing that they've done that. But then we're getting back at like actually understanding, because it's not entirely the algorithm that just under intrinsically understands the question and then answered based on its own feelings. But it doesn't matter, it answers the question based on its experience, like, how does this question best fit with my response, and if you as a brand, have enough trust in your algorithm, or your machine learning model, which might be quite complicated, you can definitely let them just respond in the way like that's how chatbot works basically that you let them respond in a more or less, predefined way.

Interviewer: Now, how do you think AI may contribute to the relationship between a brand and a customer?

Interviewee: I think it's probably going to act more and more as a middleman either through like, in a few different ways, for example, both like, actually, if you have your own chatbot, and give her a name, and a personality and all that stuff. A lot of people are going to think of her as the brand, or as the chatbot as the brand, then you have a lot of choices to make there. But also, like, for example, if a person has an Alexa or Google Home or something and asks it, like, where can I find something and then Alexa recommends the nearest ice cream shop, which happens to be yours, then the customer interacts with your brand through this middleman that is Amazon, or Google. Which is also like a very different challenge from what you've

been used to like, normally, you have more or less the direct contact with your customers. And here you have like this, this middle, middle person. And both have to optimize, like doing SEO and all that stuff to get Alexa to respond with your ice cream shop and not the other person's but also find out how to make Alexa present your brand the way you want, although you don't directly control it, it properly does it kind of automatically.

So, I think that's some of the different ways. And then of course, also like the micro branding or what you say, where you change the logo and change, like, tweak the logo, tweak the colors, tweak the text tweak, like in the in the commercials.

Interviewer: So, it's personalized to the individual?

Interviewee: Yes, for example, personalization or just like, optimized for the broad audience. That's, that's like a matter of what you want as a brand. And you can _ and they are not mutually exclusive. So, that those are some of the ways that the brands can go in or AI can go in and influence the brands quite a lot.

Interviewer: So, improving the customer experience.

Interviewee: Yes, hopefully.

Interviewer: Okay!

Interviewee: But it can of course, also like, if done badly, it can worsen the customer experience because; if like the illusion of an intelligent agent or something is broken, you run into problems, because if there's no human in the loop it can go, _ it may go crazy or, and damage your brand. So, you have to be careful, but like the utopia, and if done correctly, and all that stuff, it can definitely help strengthen your brand and by personalizing the experience and making faster responses and those things.

Interviewer: But it would still need human supervision order to make sure it doesn't fail?

Interviewee: Yes, or just like guiding it creatively for example, saying, okay, which of these three ads performed best, or these are the, and defining the, like, the scope that is limiting it in like, and that's also like, I think, for humans, like having some limits also make you more creative, and in many ways, like saying you can only use these colors. And then you can probably come up with something more imaginative than just saying, you can use everything, just do something, here is a blank canvas, like most people wouldn't be able to do something with that. And that may be a bit the same with machines.

Interviewer: How do you see that contributing to creating brand loyalty to customers being more, they would rather shop at a specific ecommerce, because they know that the communication is personalized and similar. Do you think that it could create such behaviors?

Interviewee: Yes, I think there are like two ways that it can do that, probably more, But those I can think of. Firstly, like what we just talked about that it can like personalizing and making the response time faster. So, you, like the moment you have a question, you get an answer that's hopefully qualified and all that stuff. But you could probably also like, see that as an optimization problem. Like figuring out how to make, how not to make the customer churn, and what are the factors, like predicting, helping predict, likely customers that will churn and then so your win back team or sales team or whatever can go in and give them some good offers or just automatically send them good offers and doing all that kinds of stuff because really, that's just, so you can both, like, actually make the algorithms act in the real world by means of a chatbot. and also have another system that delivers insights to your marketing team or your sales team or whatever. And that can then make them do like, so they can use their own knowledge to transform the experience. I think that's the two main

ways because it really is or maybe a combination, because it really is an optimization problem, if you can, like define loyalty in like, a number then you can definitely just optimize away.

Interviewer: Exciting. Now, do you think that it might be able to make customers, contribute to making customers actively engage in a brand? Become brand ambassadors in some way?

Interviewee: Yes, if you can make it into an optimization problem, like, if you're going to say this, if you have like a metric for like, when is a person a brand ambassador, can say, okay, you these thousand people are brand ambassadors and these thousand people aren't. And then you can say, okay, then get the algorithm to find out what defines, like what makes a brand ambassador and then go into a large pool of people that the brand hasn´t contacted yet. And say, okay, these, if you could only contact hundred people it should definitely be these guys. So, you like, instead of just shooting randomly and saying, Okay, do you want to be a brand ambassador? or do you like, who do you want to sponsor like finding out where to put your money, it can definitely inform that choice.

But it also, with all this, it also has some downsides for example, if you just happen to only have men in their twenty's being your brand ambassadors, because that's what, like you had a marketing team that thought that was the best idea in the whole world, the algorithm would learn that men in their twenties are the only ambassadors and that would exclude or strengthen that bias, which can be harmful. So that's also like, a whole other very difficult area, like, because it's really, you always have to remember that it's not finding the best brand, like possible brand ambassadors, it´s finding the best fit with your existing data.

And that's being, like a lot of people are researching into how to investigate these problems. But the current techniques are quite bias prone. And you have to be very careful.

Interviewer: Okay, now, do you see a situation where AI technology might help in creating a connection or community between consumers, peer to peer?

Interviewee: Yes, I guess in some of the same ways it could, like finding the most, the ones who are most likely to interact in a community. And then inviting, like, if you have, the most brands don't have an infinite budget. So, like finding out which people to target and all that stuff, this would probably make a lot of sense to do that. And maybe even if you have a large enough audience, like doing some kind of testing, like saying, okay, we have these three different, like, what kind of forum works best, and then trying a lot of different combinations, and then letting the AI figure out how to, like, make the best forum from these, these things. But so, it can definitely assist in in creating also peer to peer relations, I think. But all the time, you have to be very careful, like, what is the question I really can answer? and what is the metric? Like what kind of data can I feed into the model? and how do I interpret the answers coming out of the machines?

Interviewer: Interesting. Now, during the interview we've talked about a lot of different aspects of it. We've talked about the technologies ability to identify and communicate a name and a logo, about quantifiable attributes, unquantifiable attributes, like values, and also talking about feelings and opinions. And lastly, about the relationship, do you see some of them being more difficult for an AI to work with than others?

Interviewee: Yes, I think the, the harder it is to express the goal, so to speak, in a single data point. The more difficult it is like finding out what is the color, like spot a logo in a photo as a very well defined task, and like finding out if a person or text is positive or negative, that's also quite well defined, a bit more difficult because you then have to, it's more difficult to get the training examples properly. And like, the more like fuzzy thing you want, the more difficult it probably is to get like a metric that works as a proxy.

So, I think that's the main limit in this kind of technique, machine learning, and that's where it really is crucial to have some domain experts going in and qualifying which metrics that works best and all that stuff. And so, you probably can't just have an algorithm, an algorithm can't figure that out on itself. At least yet, with the state of art and all that stuff, you always have to either have a person define the problem, or person interpreting the results. Some of this, like a lot of stuff is a lot more automated now than it was ten years ago. And people find new methods all the time. But like the domain knowledge is still going to be crucial for quite some time going forward, I think.

Interviewer: Okay! So, if you were to give any advice in relation to this whole branding aspect to advertisers who considers using AI for digital marketing, what might that be?

Interviewee: I think like in general, it would be a good idea to start with a kind of smaller project, like, don't think that okay, we're going to be the next Google. And that's our first goal. And then we'll see how it goes from there. But maybe thinking, okay, if we can just like get a lot of customer feedback, and automatically analyze a lot of that, for example, doing sentiment analysis or topic matching, like, putting it into different buckets, according to topic and building a brand identity, from there, maybe creating a simple chatbot and then expanding it. That's the way to go like, because you can always it's a very iterative process, like you start somewhere and then you find out Oh, but it doesn't really capture this aspect. And then you find some data that captures that aspect of the model and work from there or maybe you get some feedback on the chatbot that it can´t really answer questions about the price. And then you figure out how to make it answer questions about the price and work from there.

So, like, start small, and then make sure you have some data or, and sometimes, it's probably also a good idea even if you don't have data, then like, start thinking about how you can get some data. There are really a lot of options, both like going out and like loading the data from the internet or scraping the data or start like putting up a pixel, I think it's called on your website or sending some surveys or like, there's a lot of different options. Get started, find a small project and then find out how you can get the data and then yeah, work from there.

Interviewer: Okay! Now, how do you see future AI technologies influencing the areas that we've been talking about? Now? We've talked about some limits that they have today? Do you see a situation where AI will be able to work with some of these things without human supervision maybe or? Any thoughts on that?

Interviewee: Yes, I think maybe we are probably going in a direction where it is maybe possible to have less and less of the brute work being done by humans. And there's also some very interesting work going on where you can feed the algorithms less data so you don't have to have like, tons of data, but maybe we could just have hundreds of kilos of data or something like that, which is very interesting. And then I think it's also a matter of, like, do we want that like to have an algorithm in charge of making your important decisions about your brand? And is it then even your brand and all that stuff? So, it's also like a philosophical question because, I'm quite optimistic that like, the technology is going to be improving, it may be very far off in the future.

But we're going to see that the techniques we have today are becoming better and better we haven't reached the limits at all of how much like both research wise but also implementation wise, there's a lot of stuff that people could be doing that they aren't doing. Like reasons of experience with data cost or whatever. But we also probably going to see like the techniques we have now are not going to solve all our problems. But so that may be like a whole new wave of new totally different technologies that will do some of this thing that we can't do today very well. But it’s very difficult to predict what those are going to be because if I could I would probably be making them

Interviewer: I guess so. Now, is there anything you might have thought that you thought up during the interview that you haven't thought about before?

Interviewee: Well, I think I've also got to ask all the questions that I have. We've covered the top from a lot of different angles, so that's also great.

Interviewer: Okay, cool. Anything else you think that we should know?

Interviewee: No, I think you guys are ready to go. If you could find like some transcription software would be _ it would do the work because it's a bit tedious task to just sit with headphones.

Interviewer: [inaudible 1:09:03] is there anything else you'd like to ask us?

Interviewee: Not that much important at least but could you send me your work when you're done with it.

Interviewer: Yes, of course.

Interviewer: A nice [inaudible 1:09:22] like the other guys but what do you think.

Interviewer: Maybe we get back to we have any further questions.

Interviewee: Yes, of course, you can just have my email.

Interviewer: Yes, thank you!

Appendix 15: Transcription of interview 12 - Peter Svarre

The interview with Mr. Svarre was held in Gentofte on the 24th of april 2019.

Interviewer: If you could, first of all, tell us a little bit about yourself. Who are you? what do you do?

Interviewee: Well, yes, we have already covered a bit of that. I have a bit of a variance background, because my educational background is that I have a master's degree in political science, and a master's degree in international affairs, which is also kind of Political Science from Columbia University in New York, which explains my slight American accent.

But when I graduated in 1998, in the US, and in 2000, from Copenhagen University, and then when I came back from there, I kind of specialized in the US in internet, which is kind of strange, because I was studying international affairs. But at Columbia, I was able to tweak my study. So, I was working a lot with internet journalism. And then I thought, okay, I'm going to be an internet journalist. And I talked to people at Berlingske and Politiken and different media, and it turned out that the internet in the year 2000, the internet was not on their radar at all. And so, then I was like, okay, then I'm not going to be an internet journalist. And I kind of changed focus, then I ended up in the consultant business, consulting/advertising business. And that's basically what I've been doing for twenty years. So, advising companies like Danske Bank, JP Morgan, United Bank of Switzerland, a lot of financial companies, Nike, Carlsberg, on first in 2000 of course it was building websites, then came social media, and then came mobile. Now, it's all about automation, and AI and stuff like that.

So, I've kind of been following the technological trends. And but what I've always kind of, my main profession has been consulting companies on how to work with the newest technologies, the websites, or mobile applications, or artificial intelligence. And then I've written two books, one eight years ago on social media. And now the recent one "Hvad skal vi med mennesker?" which came out two months ago, on artificial intelligence, and now for the last seven-eight years, I've mostly been self-employed, working as a public speaker, author, kind of journalist, freelance journalist, and consultant, of course, but then, in that period, over the last eight years, I've also worked for a consulting company called Intermedia. And I've had a stint like a one-year stint in Bang & Olufsen, as I told you before, as the marketing director. So, I've kind of been _ right now, I'm hundred percent self-employed and right now, it's all about the book and giving presentations and talking about that.

Interviewer: Now, what is your relation to AI? Where have you got your knowledge from?

Interviewee: Well, yes, and that's related to what I was talking about, because I've always kind of been _ I'm not a programmer, I've never, like twenty years ago, I could program an HTML, I could build a web page. But I stopped doing that 15 years ago. So, I've always been one of those people who work with tech, but I'm not a techie myself. So, I've always had like the human perspective, how do we build the best websites for people and involving people, user experience. I've been director of user experience and all that kind of stuff. And that also explains why social media was a big thing for me, because social media for me was like the whole shift of the internet from being big companies building websites to ordinary people being able to talk and create videos, and tweet, and been on Facebook and all those things.

And so, but most of the time, I've been working with companies from kind of with a technical focus on things. But then like, four years ago, I was actually looking for something to write a new book, because I like to write books, and I was looking for a new subject. And I read a blog post, I don't know, if you read it, it's called, it's a blog called "Wait but why". And the guy who runs this blog wrote a post, like three or four years ago on AI, and it was about, like, the whole, super intelligent, are they get more intelligent than us and all of that stuff.

And I was quite fascinated by that blog post. But what really fascinated me most was the amount of engagement that it got, like, people were sharing it and talking about it.

And I noticed a lot of people who are not really techy people who kind of picked up on that subject. There's a subject there, the whole artificial intelligence thing, there's something interesting about it. And my starting point was like, was this question, are they getting smarter than us? because it's really an interesting conversation going on there's like, it's very philosophical. And it's also there's a lot of political science and philosophy in all those subjects that go into that. And then I was like, I talked to my publisher and said, well, if I start writing this book, two years from now is it going to be a hot subject, and then they were like, yeah they thought so as well. And then I started working on that actually three-four years ago, and then I had that job with Bang & Olufsen, so I shelfed the project completely, and then I got back to it after Bang & Olufsen. So, it took me some years to complete it. But my starting point was that I knew nothing about artificial intelligence. I knew a lot about technology and what technology, how it works with people and people works with technology.

And I had some knowledge, because I've worked with statistical methods, in my early career, so I know a lot about statistics, but I'm not like a super expert. And pretty soon, when I kind of dove into the subject, I realized that what's happening with AI right now is statistics. It's all about statistics. And that kind of triggered something, because I knew something about that area. So, but basically, I'm not an expert. I'm more like a journalist, starting from scratch saying, this subject is really interesting. What does it mean for people? what does it mean for society? what does it mean for politics and all those questions. And in order to answer all those questions, I've had to kind of dive into the technology and understand what it's all about. But it's been, for me, it's been quite a challenge. because it's, as you probably know, when you dive into AI as a subject, it very quickly gets quite complicated. So, when you start reading papers suddenly you have mathematical formulas everywhere, and very technical expressions, and so on. So, finding that balance, where you don't have to be a math expert, but you don't want to be too shallow as well, really, you need to understand what the technology is about. But you shouldn´t know, the mathematics behind it, it's a tricky balance but yes.

Interviewer: So, very interesting. To try and figure out the boundaries of what it can communicate of branding or of a brand. I'll start with the basics; would AI technology be able to identify a company name and logo? maybe use that in some context? Do you think? be able to _ it's based on algorithms, right. So, would it be able to find the core things like a name and logo and present it to you? do you think?

Interviewee: There are already _ I think I've wrote about one of those companies in my book that I basically just googled, and found on the internet, there's company where you can say, I like the color blue, and my company does this and that and then it shows you all kind of different logos. And I like this logo. And so, kind of what you do, when you do kind of a corporate identity or a kind of a small type branding project, when you do a creative briefing, as a consultancy you ask the customer kind of the same questions. So, which direction should we go? what are the colors that you like? Should we use some of the existing colors? All those things. and then you put that into this AI thing whatever it is, I don't know how this company works. And then it spits out a logo, and it puts a logo on the letterhead on your website, and it kind of tweaks it and mixing them. So, I mean, it already exists.

But I mean, of course the thing is, it's quite primitive, because it's still all about pattern recognition. What it does, it's just a statistical mechanism, which basically looks at, okay, he likes this and that. And then it goes and looks at a lot of statistical numbers and says, if he like this, then probably we could make a logo that looks something like this, and then it spits out that, so there's, I mean, it's all about statistical inference, it's just kind of finds a pattern, and then it matches that pattern with another pattern. And I mean, the interesting

thing is that, if you're a small company, and actually like my own company, like a self-employed single person company, this can be good enough. I mean, this could be what I need because if I go and spend fifty thousand kroner on a similar project with an art director, who can do the same thing, there are a lot of people working with that kind of stuff in Klub here. So, I could find ten people here and say, could you build my corporate identity for my company? they would do exactly the same thing, they would ask me the same questions, and the result would be kind of the same.

So, I mean, it does exist. Then of course, the big question is, I mean, is it original? is it different? does it give you that edge? and that, of course, is the big question, because that's the difference when you go, I mean, if you are working and I've always worked with a consulting advertising agencies that work for kind of larger type companies, and our branding projects were like, multi million kroner projects. And there's more to it than just kind of asking some questions, and then matching some patterns and saying, well, based on what you said, and the knowledge of thousand different logos and so on, then you can show this way. I mean, there's a certain human element there and a knowledge of people and a knowledge of what's happening in society and all of those things that are basically data that do not go into primitive AIs, as it is today. And I think, I mean, so it's a very good question. I think I mean, if it's all about getting a new logo for a small company, then I think AIs will be able to do that. They are able to do that right now. And they'll be able to do it even better five to ten years from now.

But when it comes to really thinking out of the box, I mean, taking an idea, abstracting it and thinking into a society context and understanding that if you say this, then it refers to something that happened kind of in the news two years ago, and all that kind of intercontextual understanding of human society which branding is also very much about. I mean actually, I'm just right now thinking about, did you see the Social Democrats came out with a campaign just today? or the day before? where they take their own kind of political messages, but then they change the type setting of it. So, it's Liberal Alliance, It´s SF, it's all kind of the, all the other political parties, so they use their graphical design, but with a Social Democratic message, and they're basically saying, we should work together. So, it's a very creative approach which means that they need to kind of think, they need to do a lot of abstraction and take kind of a lot of inspiration from different areas and places at the same time.

And AIs today are not ready to do that. An AI today dive into a data set, they find the patterns and then they match patterns with other patterns. And if the pattern is not in the data set it doesn't, it just doesn't happen. And that's one of the things that human beings can do, is they can kind of abstract and say, okay, it's very fine that we're talking about this data set. But I think this data set out here, which is completely unrelated to what we've been talking about is also relevant. And it's relevant, because of some kind of obscure connection, that I can see.

I mean, an AI could do that. But we're just not at the point right now today where they're doing that, and I don't think it's, technologically, it's not in the pipeline, the next ten-twenty years, I think, because it really means that they need to understand the world in a way that they don't do today. And which is like, I guess, to the core of what you're working with, is, I think, I mean, really good branding is all about understanding the role of your company in the world. And in order to understand the role of your company in the world, then you need to understand the world, as a human being, because it needs to be interpreted by your customers as human beings. So, you need to understand the world as a human being. And AIs are just not able to do that today. But if it's all about creating a nice logo with some nice colors they will be able to do it tomorrow and they are already doing it. So, it really depends on your definition of branding as well. So, what is your definition by the way? how do you define branding? because I have always found that quite difficult actually.

Interviewer: It is. Well, we are trying to use branding as a, it is still some kind of an umbrella term. Where it, we use Keller´s definition, where it's both physical objects like a logo and or colors. We'll go through them here. But it is both physical objects, it is quantifiable and unquantifiable attributes, it is emotions, feelings, and opinions and relations.

Interviewee: Right!

Interviewer: So, it's kind of an umbrella term for all of the aspects that could be a part of it. And we are trying to dive into each of them to figure out to what extent can we then handle this one. And then come up with some from there. So, the one-liner it wasn´t, the one liner definition.

Interviewee: Yes, I would say my one liner definition of branding is all about your company´s role. How do you define your company's role in the world and that, of course comes down to attributes, physical objects, emotions and so on. I mean, it can be so many different things.

Interviewer: We are trying to figure out to what extent can this technology work with specific attributes. So, something like quantifiable attributes like prize, colors, special benefits, would this be something an AI would be able to identify and work with in some way?

Interviewee: But I mean, everything that's quantifiable is what the AIs can work with. If it's not quantifiable, then they can't work with it. But that's, of course, the thing that's changed over the last fifteen-twenty years is what is quantifiable? if you asked someone twenty years ago, thirty years ago maybe, is an image quantifiable? Then people say no, of course not. It's like, it's all about emotions and human interpretation of the picture, but in the image and a digital image is very much quantifiable, because you can kind of reduce it to all of the pixels which is basically, an mathematical definition of what is on this image. So, more and more things are getting quantifiable.

So, images, text is getting quantified and emotions are getting quantified now, because things like Facebook and social media, you can actually manipulate and try to understand human emotion, the whole Cambridge Analytica scandal/story was, I guess all about how you could based on quantified data on a platform like Facebook, you can at least try to understand the big question is, how could they actually where doing it? but I mean, they said that they could actually put people in little boxes, saying this guy is neurotic, this guy is optimistic, or whatever the definitions were. So, in that sense, more and more things are getting quantifiable, which means that AIs can actually work with them.

Interviewer: So, what about something like the more soft attributes like company's values, heritage or some personality of a brand? you mentioned Bang and Olufsen yourself.

Interviewee: Yes!

Interviewer: A part of Bang & Olufsen, I would say, is their Danish heritage, would this be anything that an AI would be able to identify and use? Do you think?

Interviewee: It´s a good question. Again, it all comes down to data. And that's the thing that you really need to understand that you probably also understand already about AI, is today's it is all about statistics, they, what I´m usually saying is that there's nobody home, I mean, there's, no conscience, there's no understanding as such, we can use that word when we talk about AI, but it's basically meaningless, so they don't understand a brand. When we say Bang & Olufsen what happens in our mind is we think about a lot, we think about all Danish company, and then when we think about an all Danish company, then we think about Lego and a lot

of other kind. So, we build kind of a world model of what does it mean to be Bang & Olufsen in the world, and we compare it to a lot of different companies and some emotions and some values.

And all those things, and AI just don't do that. But what they could do is, I don't know, I think it's probably one of the things that would be quite difficult for AIs today to understand, like the true values of the company, because the only thing they can do is they can look at the history of Bang & Olufsen, they can read through a lot of documents, and they can read history books, and they could kind of build a lot of data about what is this company from a data perspective. And then they could compare it to maybe a million other companies. And then it could say, well, a company with these data attributes, does it perform better than another company and so on, but I think that it would probably end up being quite meaningless.

So, kind of the true values of a company. I think right now it's quite inaccessible for AIs, and basically because they don't perceive the world as human beings. I mean, from where we are now, where they are basically statistical pattern recognition machines, to the point where they're conscious beings that understand the world and have a world model and understanding of how the world works, that step is, I mean, when you talk to scientists most of them are saying, well, we are pretty far, it could happen. But we're just not there. I mean, there needs to happen something really radically different in AI today for us to reach that point. So, I think also that the interesting thing about that question, I think that also tells you something about the limitations of AI and advertising or branding, because I think you can use AI for a lot of things in advertising and branding in general, because a lot of things that we're working with in advertising and branding is getting quantifiable, but there are some things that you either cannot quantify, or when you try to quantify, it just doesn't give you anything interesting. I mean, how would you quantify the values of a company in a meaningful way? I don't think it _ maybe I just lack imagination.

Interviewer: It also relies heavily on your definition, I guess, how you define.

Interviewee: Yes, I mean, then you could, I mean, you can take the values of the company, and then you can reduce it to some very quantifiable things. I don't know what they would be. But you could maybe find ten things that you could quantify. Maybe you would ask a thousand CEOs about how do you rate different companies on value issues and then they could come up with some value, and that would be kind of a proxy of what a value of the company would be. I don't know. I think it's definitely one of the areas where AI is struggling today.

Interviewer: How about, you mentioned feelings yourself before. Do you think an AI is able to identify feelings?

Interviewee: Well, I mean, yes, they are. But they don't understand feelings. I mean, they don't know what it is.

Interviewer: But they treat it as an undefined variable in some way?

Interviewee: Yeah. An example from Bang & Olufsen is that we were launching three years ago now, we were launching two different products. A television, which was like the big thing, it was a new television and it was a cheap television for Bang & Olufsen, it was only twenty-five thousand kroner. But it was Bang & Olufsen design. And it was very important. The company was not doing very well at that time. And television is eighty percent of the revenue of the company. So, this new television was very important.

And then we also launched some kind of cone shaped speakers, I think they were called Beosound 1 and 2. And the focus of the company was eighty percent of the marketing investment was for the television, and twenty were these speakers, so television was like, it was all about the television. And we launched it at a

tech thing in Berlin and then I was using one of those social media listening tools that had kind of sentiment analysis. But also, just counting how many people were talking about things on the internet. And then we did searches on Beosound 1 and 2 and the television was called Horizon. And I think the day after or two days after we launched these products, we could basically see that eighty percent of the conversations was about the speakers and twenty percent about the television, so kind of the opposite way around. And we could see it in the sentiment analysis as well. And that people were more speaking positive about the speakers than the television.

And what I should have done at that point, but we had just started using the system, the social media listening tool, what I should have done is that I should have gone to my CEO immediately and said, ramp up production those speakers, because we're going to run out in two months from now. And we should do something about that television or something. But we should definitely ramp up production of the speakers. And we didn't do that. And then three months later, our dealers were calling: “We want more of those speakers”, And the production department was like: “we can´t do that.” And so, I mean, we could have looked at those numbers, which was I mean, basically AI is looking at or quantifiable data saying that people liked this product, and they're talking positively about these products.

So, I mean, yes, you can definitely use AI to measure people's emotions. And you can do that because of the internet. And people are talking on social media, because people are talking about products all over the internet. Of course, it really depends on also what kind of company you are. It helps to be Bang and Olufsen, where when you launch something, you have thousands, if not millions of people talking about your products. So, we actually had a lot of data. And when you have a lot of data, you can those kinds of analysis. Whereas if you are maybe a business to business company selling cement factories, it's slightly more difficult to do something like that, but they're not really in the branding game, you know, so.

Interviewer: Okay, yes. What about evoking feelings? Do you think this is something an AI is able to do?

Interviewee: Yes, I mean again, the Facebook example is quite interesting. They did this, you probably heard of that, they did this internal study. It's three-four years ago now, where they tweaked the algorithm a little. So, they said, right now, people are getting a news feed. And now we'll just tweak the news feed for, we´ll take, I think there was probably a couple million people. And they tweaked the news feed for a couple million people. So, they got slightly more, I think it was negative Facebook updates, or positive updates, it doesn´t really matter. And then they looked at what kind of Facebook updates, where these people in kind of writing back into Facebook. And they realized that when people get more negative Facebook updates, based on the algorithm, they also become more negative in what they're writing themselves, and vice versa, when for positive updates.

So, I mean, that's just a perfect example of an algorithm, which is actually basically able to tweak people's emotions. So, I mean, it's out there, and algorithms can do that, of course it also takes people who are kind of tweaking the buttons and doing it. And again, it's a statistical phenomenon. So, it doesn't mean that I should go into an algorithm and say, I want to change your emotions so that you commit suicide tomorrow, or something like that, or kind of track your car or whatever. It's not like a direct control, but it's statistical control, which means that if you tweak a little on a lot of different parameters, then you may change seventeen percent of the emotions of kind of fifty percent of the people, two percent in a negative direction, or something like that. So, a lot of people are not affected at all. But there is a statistical connection.

Interviewer: And then it would, as you said before, still treat it like some kind of undefined variable, you can tell that the sentiment analysis is showing increase in a specific type of behavior which is related to what we want to achieve.

Interviewee: Yes.

Interviewer: Okay.

Interviewee: But it also, I mean, it also comes down to what your, how do you quantify emotions. There still needs to be some people defining what is depression? what is positivity? what is negativity? Or, I mean, angst or fear, or I mean, all of those human emotions, the machines don't understand, what they are. So, we need to define it and tell the machines, how do you quantify it, because they don't know what it is, they have no idea what it is. But they're very good at when we tell them that you can quantify positivity in this way, then they're extremely good at finding the patterns and saying, okay, if this is your definition of being happy, then I can see that two million people here are happier than the other two million people. And I can also see, based on my A/B experiments with these millions of people, I can also see that if I change the color of a picture or the logo, then people become more happy based on your definition of happiness, or they become less happy. So, I mean, so it all comes down to how do you quantify all those emotional states. But if you're able to quantify that, and if you can do it in a way that makes sense, then you have quite a lot of power.

Interviewer: One of the things we've come across along the way is irony seems to be a topic within sentiment analysis, where this is something that messes with the algorithm in some way.

Interviewee: Yes.

Interviewer: Feels like some people are, if there is a high amount of irony, when they do a sentiment analysis, they have a hard time relying on what is actually true.

Interviewee: I mean, most natural language processing today is quite primitive, because they are basically word counters. I mean, they look at how many words there are, and then they say if the word smile is there, then it adds some points to the kind of the positivity scale. So, they count words, and they don't really care about kind of, in which order the words come. And again, they don't understand what this sentence actually means. So, irony is of course completely incomprehensible for AIs because I mean, not only do you need to understand the sentence of how the words are positionsed and the grammar and so on, but you also need to understand that this sentence says something, but it actually means the complete opposite, which means again, you need to have an understanding of the world and how people relate to each other and so on. And they are just not at that stage right now. I'm not saying that it's impossible to do, but we're pretty far with the natural language processing tools that are being used today, they are just not able to do anything like that.

Interviewer: How about something like incorporating opinions of a customer, maybe their perceived quality of a company or product? Do you see any way where an AI is able to identify that? and maybe use it in some way?

Interviewee: Perception of the kind of quality of the company? I mean, I guess that's where social media again comes in and you can definitely do that. And I guess the example of the speakers is kind of an example of that. I mean, if you let an AI loose on Trustpilot, or I mean all these review sites, then you can definitely, I think you can create meaningful quantifications where you can ask an AI so say what are people talking about? are they positive about our products? or are they negative? of course, I mean, there will be examples, whereas irony, again, people saying: “I really liked this product, hahaha” and then showing an image of the product that's broken, that message would really mean I hate this product. And AI wouldn't pick up on that. But the thing is, statistically, it's only maybe one out of hundred people are using irony. So, statistically, when you aggregate thousands of those comments, it doesn't really matter. So, I mean, I guess you can definitely use AI to kind of measure if people like your products or if your products are bad, or whatever.

Interviewer: How do you see an AI contributing to the relationship between a customer and a brand?

Interviewee: That's a very broad question.

Interviewer: Could you feel more attachment to a specific brand by the use of AI in some way, do you think?

Interviewee: It's a good question. I mean, one of the things that AI is good at, when you look at retargeting and kind of targeting like hyper targeting and marketing, it basically means that companies based on their knowledge of my preferences, I like to bicycle, I do a lot of sports, and I'm interested in AI, which means that I get ads from companies that are about bicycling or so if I'm looking for a new bicycle, I will see bicycle kind of ads in my feed. And the company which is able to show me, not just the right ad but the right bicycles, the one that I'm looking for, of course, that builds a connection, because then I'll end up on their website.

And I would kind of feel that this company knows me, which is quite a bit from a philosophical perspective, that's quite interesting, because I mean, if you look at, it´s one of the things that I've been thinking about, in the Bible in Danish, to know each other means to love each other. And one of the things I also, read a book about this subject, at one point that we actually_ we really want, as human beings we want to be loved, which means we want to be known by someone, our loved ones we want them to know us and know our preferences and know who we are. And that's kind of what love and human intimacy is all about it is being known. And sometimes we get fooled by our AIs, because we really want our AIs to know us. And when they are very good at knowing us and kind of also, to a certain degree, either we really scared by it. Or we end up kind of loving our AI. So, I mean, Spotify, I literally love Spotify, because they're able, _ it's an algorithm that knows me, it really knows my musical preferences greater than my wife does.

And actually, speaking of love, and all of those things, I had an interesting experience, it was Spotify. Spotify kind of recommended a piece of music, which was really obscure something from the eighties, the genre was called apocalyptic folk, have you ever heard of that genre? I never heard of it. I really liked that song. And then I played it for my wife, and she was like that´s oddly familiar. And then she goes through her CD collection that we haven't used for like fifteen years. And she pulls out a CD that she had been listening to fifteen years, twenty years ago. And she said, this is the song. So, I mean, over twenty years, it was like a connection between me and my wife that was kind of reconnected by an AI. And yes, so basically, what I'm saying is, if AIs are really good, I mean, they can really create a connection between a brand and a person. But they really need to be good. And the minute they fail, or they recommend something which is totally off, then we are like it's just a machine, then they break that connection, the magic is kind of broken. If my wife came to me and said, I bought tickets for the latest AC/DC concert, I don't like AC/DC, I don't hate them. I mean, I've never kind of listened to them. And if she came to me and said that, I would be like that's really odd. Why did you buy those tickets? And so, if an AI does the same thing, it would kind of break the magic, and it wouldn't work. So, yes, I mean, they can really create connections. But I think the problem for an AI as well is also that when it comes to branding, and it's one of the examples in my book, actually, that they are also, because they are quite primitive when it comes to branding and advertising, if you kind of let, and I think I used Bang & Olufsen as an example in my book. Let's say we created a campaign with price reductions and yellow splashes on Bang & Olufsen products. Well, now it's twenty percent off and basically made a discount brand out of Bang & Olufsen and ran that campaign, we would sell a lot of products, lot of speakers, lot of televisions, and if we put all of that data into kind of an AI, it would make that connection, it would say okay, you are using yellow splashes, pricing reductions, it is a really good strategy for your brand, because you sell a lot of products.

So, this is what you should do. And then if we kept on doing that, the brand would be dead three years later, because the AI, basically the AI didn't have the data, kind of bigger data set, which is all about what we talked

about before, the kind of understanding of this brand in the world and what are the value, because those data are very difficult to quantify and they're very difficult to get into an AI, so they can just, if they could work with it, of course they could work, but it's just not the way it works today. So, basically just to say that if you're using primitive or limited or the wrong data in an AI, you can really also destroy the connection with the consumer because AI is looking for simple, easy statistical patterns. And if it's the wrong data set, it just, they just don't understand the world and the connection with a consumer. So, I mean, there's so many sides to that question actually, quite interesting.

Interviewer: Very, super interesting. Do you think that it would be able to help brand loyalty, people would be more willing to buy products from a certain brand?

Interviewee: Yes, I mean, especially when it comes to recommendations and the whole thing about knowing your customer and that is definitely one of the things that AI can do, if you work with an intelligent AI, you can really build a connection with your consumer because you can target them with the right products, you can target them with the right information, and so on. And you also really and when it comes to branding, you also really need to understand that. And again, Bang & Olufsen is an interesting example, because we were not selling our core customers, they were not buying every month. It's not like Nemlig.com or Coop or something like where you're buying every week or every today, people are buying every ten years, maybe five years when they were kind of a repeat core customer. So, in the meantime, to build a relationship there, it was not about I mean, of course, it was about products, but it was also about a lot of different things. So, how do you build that connection with the customer, when you're not just trying to sell them products. And that's kind of _ that's where the human element comes into it, because you really need to understand, that in Bang & Olufsen you can´t push send out a newsletter every week with new products. And it was actually a battle we had internally in the company as well.

Because the company was actually separated into B&O play, which were like these kinds of the cheaper speakers. And then where I was with Bang & Olufsen which was like the televisions and very expensive products. And in my part of the company, people are buying products every ten, every twenty, every thirty years. So, we were very cautious about sending out newsletters, and we were only sending out newsletters every second month where as B&O Play they wanted to send out a newsletter every week. And so, you really need to understand how do you build that relationship. But I think AIs can really help you do that because it can help you understand the customer and understand what is the _ what works and what doesn't work. Again, they do not understand the customer, they don't know what's going on in their head, they have no understanding of the customer, but they can _ if you are able to quantify the relevant data, then you can see what works and what doesn't work.

So, if I send out this message it works. If you send out this message you can do A/B testing, you can look at old data and there will be AI that can find patterns. And you can use those patterns. So, yes, I mean, you can definitely use AI to build connections with your clients. But I mean, it's not easy. And that's, you should of course, also be careful because the danger is if you use the wrong data set, then you risk kind of totally alienating your customers while you think that you're actually super personalized and so on.

Interviewer: Okay, do you think that the use of such a system would be able to contribute to make consumers actively engage in a brand? To become brand ambassadors or similar?

Interviewee: Yes, I mean, I think it's the same thing. I mean, connecting consumers and them becoming brand loyalists. I mean, you just heard me talking about Spotify, I'm kind of an ambassador for Spotify. I've been using it for so many years. And I speak positively about that brand, because they were able to kind of target me in a super personal way where I actually feel known by this brand. Nemlig.com is actually another

example. They use a lot of social media listening. And then they use that listening to engage with their customers. So, if you have problems with deliveries, and so on, and you're talking about it on social media, and then they engage with you, but it's not a machine engagement, it is a human being but they use these AIs and listening tools to actually find people who are dissatisfied that's also a very good trick to kind of building loyalty, I mean, but then look at Netflix, which is a company that's been working with personalization and recommendation engines for fifteen years with AI. And for some reason, they're recommendation doesn't really work. And I have no idea why it doesn't work.

So, when I go on Netflix, I get the weirdest kind of recommendations. For me, Netflix is very much like my wife recommending AC/DC to me. They're like, you should watch this romantic comedy with Gwyneth Paltrow or whatever, and it´s just not my kind of. So, I don't have that feeling of being known by Netflix´ algorithm and I don't know why it works. Maybe it's something with movies that is different from music, or maybe the algorithms are just not very good, but it just definitely doesn't really work. So, I wouldn't, I mean, I also have HBO and I wouldn't if Netflix didn't have the movies for me, Netflix is all about product. So, if they stopped having movies, and the kid movies, that my kids love to watch, I would switch to any other company, anytime. Now Disney is launching something, I would switch to that like that was because I have no brand loyalty. Spotify, I would really think twice before I switched, and I think that's very much because of the AI.

Interviewer: Now, do you see a situation where AI may help to create connections or communities among customers or consumers? peer to peer in some way?

Interviewee: Well, yes, I mean, the thing they can do of courses, I've worked a lot with community creation on the internet, and before we were talking about AIs, but I mean, the thing that AI can do is that they can actually group people together so they can figure out who would be interested in being in this group. And I guess that's also what Facebook to certain degrees are doing. I just started doing kind of mountain climbing a half a year ago, and then I joined a mountain climbing group, and now it starts recommending me different kinds of groups, which is quite primitive. But it basically knows that people who are in this group are also in these types of groups. So, I mean the AI, what they can do is they can find people that are like you, so they can help to kind of figure out who are similar and who would enjoy being in groups together, when they are in a group together. I mean, I think you still need that human touch, there's something about and that's one of the things that I've really been seeing with community creation, that if you just create a technical community, you build a platform, and I've built quite a lot from those platforms, for corporations like Kræftens Bekæmpelse and Novo Nordisk, about diabetes and cancer and so on.

So, you build like a technical platform, and then you tell people go in there and interact. And nothing happens. Because there needs to be some reason to interact and there need to be a social dynamic, there needs to be people who are stepping up and saying I'm will take responsibility for the breast cancer, part of the Cancer Society there and so on. So, all of the human dynamics, I think, are quite important when you're building community and the AIs are not really able to do that today. Of course, what they can do is they can, again, they can find patterns on what are people reading, what are they interested in, and they can feed that kind of stuff into a community. What we really need to understand also is that, this place is actually a very good example of that, is that people join communities in order to be with other people.

And basically, AI cannot be another person. It can pretend to be another person and people can be fooled. So, I mean, you could probably create a community with ten AIs and one human being and that one human being would be fooled, thinking its other people, but it's only because he thinks that they are real people that it works. The minute that he finds out that they are AIs, the whole thing would fall apart. So, I think a lot of communities and customer groups and so on, it's, based on the idea of people being brought together. So,

and again, this place is interesting because in this place, we have a lot of digital people working in a digital world and self-employed people. We could all be sitting on our computers at home, having Skype meetings, talking to each other on phones and so on. But we really need that human connection. And that is what this place is all about, it´s the human interaction, I think the more we are seeing AI and technology and social media platform, the more we will see things like this rising, where people try to group together with other people for that sole reason that they are people.

Interviewer: Okay. Now, the current technology, to what extent is being able to function without human supervision? Should the current technology always be supervised by humans?

Interviewee: Yes, that is one of my biggest issues actually, there's also a lot of talk about ethics and AI. And I think that is kind of probably my biggest point is that we should be very difficult, we should be very careful about letting the AIs controlling the show. We should constantly try to build in little switches where we can turn off the AI or where people can say, let's say a company interacts with a person, a person as a customer, and as a customer you contact the company and custom services and the AI works fine ninety-nine percent of the time. But in one percent of the instances something goes wrong, and it just doesn't understand if the customer is using irony or it doesn´t fit into the data patterns, you know, there needs to be that switch, that the customer can kind of turn it off and say, I want a human being. And also.

Interviewer: Some limit to it?

Interviewee: Kind of limit where you can say, I want to turn off AI now. And also, we need as companies, if we are running algorithms, AI algorithms, controlling kind of the design of our products or whatever. We always need to have procedures or structures in the company where we might doubt our AI. And also we always need to ask questions, saying is this right? Could we do it better? And what we should never do is just let the AI run the show and then say, well, this is fine. Because at some point, it will go astray or the world will change and the AI doesn't understand that and keeps on doing what it's always been doing. So, we really need to understand that AIs, they need human intervention. And but we also need , and this I where it becomes a little tricky, we also need to understand that it really depends on what the AI is doing. In my book I interviewed Adobe, you should actually consider interviewing people at Adobe as well. There´s actually one person I could. I met him in Sweden. And I think he is Swedish, I don't know where he is in the world, but I met him in Stockholm.

But Adobe uses AI on many different levels. So, and one of the levels is that they in Photoshop. So, if I have taken a picture of you, you two, and I said, well, I don't want you in my picture, what I can do today is I can kind of outline you in Photoshop and say, remove this guy. And then the AI, what it does is it says, well, there´s a wall because if you remove something, there's a big black blob there. But the AI goes and say there's a chair there, and there's a carpet and there's a wall and then it will fill out based on kind of pattern recognition saying if this is there, probably I could put in another chair and some wall there and it fills out the image. And maybe it doesn't do it like hundred percent it does like ninety-five percent, but then you can kind of as a graphic designer polish it up. And instead of using a day or two days creating a picture, you can spend like an hour or two. And that kind of AI is pretty harmless. And I think I mean, this, just go ahead and even AI have to do stuff like that.

But then I mean, let's say it gets a little more advanced, let's say we have a big crowd of people and I decided that I kind of want to add more people to the crowd. And I tell the Photoshop AI. It's called Sensei Adobe, it's not able to do stuff like that today. But let's say you can do it and say I want to add another twenty people here. And there's several ethical issues. First of all, it's picture manipulation. Is that okay, that's one question. But then the other question is, if I say add twenty people, what if it only adds twenty white people? should

there be kind of gender? Should it only be white males? should there be women there? should they be black people? Asian people? would that make sense in Denmark? I mean, not in Denmark, look around here, it is all white, but in the US? I mean, you would have to put Asians and black people in there because otherwise it would be totally meaningless. And so, does your AI understand that? and what does it actually do? This is one of the questions where on a quite primitive level you should actually start doubting your AI and asking does it do the right thing? But then Adobe again, Adobe also works with marketing automation on the bigger level.

And there you have a lot of ethical questions about, again racial issues, are you profiling. So, if you´re running ads are you profiling certain segments are you being racist are you being discriminating against men and women? And so there, you have a lot of ethical issues where you have to kind of put in place structures in your organization where you are not, I mean, where you are just not, where you at least should ask questions for AI and ask questions, whether it's doing the right thing. So, and that's the tricky thing, AI can be used on so many different levels in the organization. And you need to understand where are the ethical issues. And if there are ethical issues, you should always kind of put in place structures where you can turn of the switch or some kind of human intervention and tweak the AI in right direction.

Interviewer: Okay, interesting, well we've talked about a lot of elements that could be difficult and that could be easy to use in AI, we talked about the basics of a brand like a logo and name, we talked about quantifiable attributes, non-quantifiable attributes like values, talked about feelings, opinions and relationship. Now, what do you see being most the easiest and most difficult work in some sense? would that be based on the quantifiability?

Interviewee: Yes, I guess I mean, quantifiability is a must, you need to be able to quantify. And then, I guess I've said that a couple times as well, you also need to be able to quantify in a meaningful way. So, you may be able to quantify things. But maybe the things that you quantify, are not related to what you're actually interested in, and branding or company values is a very good example because how do you quantify company value and there, you either have to decide that it's not possible, you need a human intuition to be able to do that, or then you need to decide so, how do we quantify it? and then you need to say, well, where can we get the data. And then when you found the data, you really need to figure out whether you have found the right data, and you are running a risk. And this is where you also need, one of the areas where it really needs to put in that doubt saying, that you may have found the data and say, well, now we've quantified company values, and we're able to do some pattern recognition and compare with other companies and talk about our values compared to other companies, but does it make sense? and going forward, well, we can use this model for five years. Does it make sense five years from now? Is something in the world changing? I mean, branding of companies, like twenty to thirty years ago, the environmental impacts of company didn't really have any influence on a company brand. But today, it has immense impact if you're doing something bad for the environment it´s really bad for your brand. So, that's kind of a data point, that needs to be put into your model, which was not there twenty years ago. So, that's kind of how data models are also changing, and you really need to be aware of that.

Interviewer: Okay. Now, if you were to give any advice to an advertiser who considers using AI for digital marketing, what might that be?

Interviewee: Well, I mean, my big thing in the endnote of my book is, you should always doubt your Ai, you should have that. I mean, you really need to understand, first of all, you need to understand that there's nobody home. I mean, don't fall into the trap of thinking that they have human intelligence, that they understand anything in a human way. What you should understand as a marketer is that they are statistical

inference machines, they are pattern recognition machines, they are immensely stupid and flat. But they're also immensely powerful, because they can perceive data amounts of data that we are completely unable to understand. As a human being, we can understand maybe ten different data points. And we can understand three dimensions, and an AI can understand unlimited number of dimensions, which is too abstract for any human being to perceive, and they can understand millions of different data points.

So, that's kind of their superpower, and where they're different from human beings. And as a marketer, you really need to understand that this is a really basic thing that they're really stupid, but they're really powerful as well. And this combination of stupidity and powerfulness means that as a marketer, you always need to be a little aware, put a little doubt into your machine, saying that, well, I can do immensely powerful things with this thing. But I also need to doubt it, because sometimes it's really stupid and it makes some really, it makes some really stupid mistakes. One of the examples that I'm using in the book as well is that there was a British company called Solid Gold Bomb, and they made T-shirts. And then they got this great idea of maybe we could create a T shirt. You know this is kind of an internet meme.

Where it is “Keep calm”, it's from the second world war, British it says “keep calm” I think the original is “Keep calm and carry on.” And then the meme changes the second part. So, it's “Keep calm and do a lot of different things”, “keep calm and have fun”, “keep calm and code” “keep calm and brew coffee”, or whatever. So, it can be so many different things. And so, they were like, this is a funny of meme, we can put that on our T shirts. But what the actual meme should be, we'll leave that to AI. So, the AI comes up with the second part of the of the sentence, and then we'll put virtual T shirts on Amazon, so we're actually not going to print the T shirt before people actually order one.

So, we'll just have the AI generate funny memes and ninety-nine percent of them will not be funny, but some of them will be funny, and then people will buy them and they will buy more and it's fine. And it doesn't cost us anything. We don't have to print the boring and stupid T shirts. So, they kind of ran this algorithm and they put the T-shirts on Amazon. And they didn't have some kind of security procedure to check what was on the T shirt, like a human being looking at what it actually came up with. The problem was that it came up with some really funny T-shirts saying “Keep Calm and rape her”, “Keep calm and knife her”. So, like super misogynist, women hating T shirts.

And nobody knew _ nobody in the company knew it because it was just automated on Amazon. But someone noticed and suddenly it was all over the internet. And the company turned the key six months later, because it was. If you Google Solid Gold Bomb today is _ I think the story is like seven, eight years old. But it's all over the internet. And you can see the T shirts and so on. So, I mean, the brand was completely ruined by an AI. So, I mean, yes, as a tale of caution. If you leave your decisions, your important business decisions to an AI, it can kill your company in six months.

Interviewer: Okay, wild story.

Interviewee: Yes!

Interviewer: How about the future of these technologies? Some of the areas we've been talking about, It seems like they have limitations in grasping what is an value and how to firmly understand specific things, do you think that in the future, human supervision will not be necessary, or?

Interviewee: That really depends on whether the AI will be able to make that leap from being just statistically pattern recognition machines to developing some kind of what we call consciousness that we don't even know what is. So, but that kind of human intelligence where they have an understanding of the world, which is more of human like. And I think when you talk to the experts, most of them were actually saying that it's

not in the pipeline now. I mean, even if the neural networks are getting more and more complicated, more and more advanced, at one point, they will reach a limit. And you need some new trick in the book, something new, a new technology, which is not there right now. I mean, but what you also need to understand is like neural networks and machine learning are basically twenty, thirty, forty, fifty-year-old technologies. I mean, people didn't come up with anything specifically new the last 10-20 years. It's old technology, with more data and more computing power. And we really need something new for the AI to reach that limit. And I mean, it's guesswork. I mean, it could happen. Someone could, like, look into the brain of human beings, and say this is it, this is consciousness, this is what makes a difference. And if they can replicate that into an AI, then maybe. But that's just a completely different story. It's not where we are today. You could just as well have asked that question a hundred years ago? I mean, will they get intelligence, more intelligent than human beings? The answer would be the same as it is today, maybe, we don't know. And we're not, _ I don't think we are significantly closer to that point today than we were are hundred years ago.

Interviewer: Okay!

Interviewee: But that's me as a layman. Also, there's a guy who I interviewed for my book, Ole Winther, who is a machine learning expert. And he's kind of the opinion that if the neural networks get deeper and deeper and bigger and bigger, at one point, they will be like a human brain, and they will become intelligent comparable to human beings and again, I disagree with him a little bit, I mean, the difference is still that even though they will be as intelligent as human beings from a mathematical technical perspective, they will have as many or more neurons and synapses as we have, they still will not have the human experience. I mean, they will not have grown up as babies and have had parents, had experiences like human beings.

But then kind of the counter argument, you have probably seen Blade Runner, the whole thing about Blade Runner is that´s what Blade Runner actually the story is about, it's about memories. And the reason why the replicants in Blade Runner feel like real human beings, and the reason why they don't feel like machines is that they have implanted memories. So, they've come to, the Tyrrell Corporation has implanted like real human memories into a machine and then they don't feel like machines, so I mean, if you could build a machine, an artificial brain which is completely like a human brain, and you can implant true memories. So, this machine feels like you and me with the same memories, I mean wouldn't it be the same thing? I guess it would. But I think again, that's a little far out in the future because then again, we also need to figure out how to take memories and put that into a machine, and we are pretty far from that point today.

Interviewer: Okay, Interesting. Now we are slowly coming to an end. Is there anything you might not have thought up during before you had this interview.

Interviewee: No, I think it been pretty much.

Interviewer: Anything else you think we should know about it?

Interviewee: If you're looking for more interview persons I could try to find that Adobe guy I talked to him last year. And Ole Winther, you should maybe, if you want to talk to a machine learning expert, he could be interesting.

Interviewer: Okay, anything you'd like to ask us?

Interviewee: No!

Interviewer: Okay, may we get back to you if we have any further question.

Interviewee: Sure!